APPENDIX B
Previous Environmental Investigations

PHASE 2 ENVIRONMENTAL ASSESSMENT
WYMAN'S MARINA SITE

PORT OF ANACORTES

ANACORTES, WASHINGTON

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1.0 OBJECTIVE AND SCOPE OF WORK

Objective of the Phase 2 Environmental Assessment

Based on the history of boat construction and repair work and type of facilities on the Wyman's Marina site, there is potential for contamination of (a) surface and subsurface soils, (b) in building material and (c) marine sediments. Our experience with boat construction and repair yards is that soil and sediment contamination tends to occur most often around areas of repair work, especially areas where work was done on the outside of the boat hulls.

The objective of this Phase 2 Environmental Assessment is to sample the soil and sediment with the highest potential for contamination to document the conditions on the property. The sampling was done in areas that are the most likely to be contaminated, based on past site operations. The scope is based on discussions with the Port of Anacortes (Port) staff, review of ENSR's environmental audit report for the property, and our experience with similar sites. The amount of sampling was not intended to be sufficient to quantify the extent of contamination on the site.

Based on our experience, the highest levels of contamination in marine sediments are usually found in the top few inches of sediment. Therefore, it is not necessary to obtain deeper sediment cores for a site assessment. In areas of high sedimentation rates, it is possible that cleaner sediments have built up over more contaminated sediments. We did not sample with deeper sediment cores at this time.

Scope of Work

For the upland assessment, we obtained surface samples where there are visible stains or piles of waste material or in areas of past boat construction operations. Borings were necessary to sample deeper soil under the former marine railway and in the former City of Anacortes Wastewater Treatment Plant.

Since petroleum hydrocarbons (TPH) and metals are the most common contaminants at boatyards, we analyzed almost all the samples for TPH and metals. Since organic compounds are less common at boatyards and organic analyses are expensive, we selected samples for analysis of organic contaminants (volatiles, semi-volatiles, PCBs). Organic analyses were done on samples from areas that showed signs of organic contamination. For example, samples from areas with visible dark oil staining or where a chemical odor was noticed were analyzed for organics. For a Phase 2 assessment, it is sufficient to analyze a relatively few number of samples for a wide variety of priority.

Building materials such as floor tile and insulation were sampled and tested for potential asbestos. Building paint was sampled and tested for lead.

For the marine sediments, we obtained samples from a boat with a small clamshell type sampler designed to sample the top 10 centimeters of sediment. This approach is consistent with the Washington Department of Ecology Sediment Quality Standards (SQS) which state that the biologically active zone is the most concern . These samples were taken near the former marine railways, along the existing piers, and below the sanitary and storm drain outfalls.

As with the upland samples, we analyzed almost all the samples for TPH and metals. We selected samples for analysis of organic contaminants (volatiles, semi-volatiles, PCBs).

Otten Engineering performed its services in accordance with generally accepted professional practices, in the same or similar localities, related to the nature of the work accomplished, at the time the services are performed. The services were performed for Port of Anacortes' sole benefit and exclusive use. The Port of Anacortes recognizes that special risks occur and "guarantees" cannot be expected whenever professional consulting services are applied to determine the composition of a site's subsurface or the existence or non-existence of hazardous substances.

2.0 SAMPLING AND ANALYSIS PROGRAM

This section describes the sampling and sample handling procedures and gives the laboratory analyses methods.

2.1 UPLAND SAMPLING

This section of the report documents the procedures used while performing the field investigation described in this report. The discussion includes information on the following subjects:

- Site Safety and Operations Plan;
- Surface and Shallow Soil Sampling Procedures;
- Soil Borings;
- Field Screening for Organic Vapors (including monitoring of breathing zone air quality);
- Sample Jars, Sample Handling, and Chain-of-Custody Protocols;
- Field Equipment Decontamination Procedures

Site Safety and Operations Plan

As part of the field investigation, we followed the site-specific Site Safety and Operations Plan (SSOP) prepared in accordance with Chapter 296-62 of the Washington Administrative Code (WAC) and 20 Code of Federal Regulations (CFR) 1910.120. The SSOP identified potential physical and chemical hazards associated with the investigation, and specified personal protection and safety monitoring requirements. A copy of the SSOP was provided to on-site personnel for review and discussion prior to field activities. On-site personnel associated with the field activities were required to be familiar with and comply with provisions as stated in the SSOP. Site safety meetings were conducted at the beginning of each work day to review aspects of the SSOP, and provided an opportunity for workers to discuss health and safety issues, as appropriate.

Surface and Shallow Soil Sampling Procedures

Soil samples collected during the field investigation were obtained from shallow hand excavations using a clean stainless steel spoon. Soil was excavated using hand tools including a shovel, breaker bar, and a post hole digger. Each discrete sampling location was given a unique location number. All samples collected on the Dakota Creek property were given the prefix "DC-UPLD-", for Dakota Creek Upland. Wyman's Marina samples were designated "WY-UPLD". Then each sample was further designated at "SS-1, SS-2", etc., for each discrete location. Obvious, separate layers of material at a given location, as shown by grain size differences or colors, where generally sampled separately. Each layer was given a letter designation (e.g., A or B).

Each soil sample was split into two approximately equal portions. The first portion was transferred to a laboratory-prepared glass containers. The second portion was transferred to a clean ziplock plastic bag and set aside for field screening. Sample handling and field screening methods are discussed in subsequent sections.

Soil Borings

Soil borings were completed by Boretec Drilling, Inc. using a modified Mobile B-24 drill rig. The borings were advanced using 3 3/8-inch inside diameter hollow-stem auger. All soil boring activities were observed by a qualified geologist. Soil samples were obtained at approximately 2 1/2- to 5-foot-depth intervals using a either a 2-inch outside diameter, or 3-inch outer-diameter split-spoon sampling device and a 140-pound hammer free-falling 30 inches. The number of blows required to drive the sampler the last 12 inches is shown on the boring logs at the respective sampling depth. However, the blows shown on the boring logs in Appendix A DO NOT represent "standard penetration resistance" (SPT) values.

Samples were recovered from the split spoon sampler and described in general accordance with the Unified Soil Classification (USC) system. Boring logs with soil descriptions are presented in Appendix A. Recovered soil samples were transferred to laboratory prepared glass jars and placed in a chilled cooler for transport to the testing laboratory. Field screening methods and sample jars and sample handling are discussed in the following sections.

Field Screening for Organic Vapors

Field tests consisted of PID measurements for the presence of volatile organic vapors in the ziplock bag headspace for each recovered soil sample. The soil samples for field screening were placed in a clean ziplock bag. The bag was then allowed to stand for approximately 10 minutes. The PID probe was then inserted into the bag, and the maximum reading of the headspace recorded. The purpose of the field tests was to determine the relative magnitude of volatile organic vapors, if any, in the explorations and/or samples. An Environmental Instruments Thermo 580B, calibrated daily to a 100 ppm isobutylene standard, was used to obtain these measurements. Field screening with a PID is a subjective analysis affected by, among other influences, climate (e.g., temperature and humidity), soil type and conditions, instrument calibration, and operation. The intent of this analysis is to qualitatively compare samples and assist in sample selection for chemical analysis.

This screening equipment was also used for health and safety air quality monitoring in the breathing zone during drilling and sampling operations. Measurements were obtained periodically and compared to "action levels" specified in the SSOP.

Sample Jars, Sample Handling, and Chain-of-Custody

Each discrete sample was submitted in separate laboratory-prepared glass containers. Sample jars were obtained specifically for use on this project, and consisted of glass jars with Teflon lid inserts. Samples were collected, labeled, and placed immediately into a chilled cooler for transport to the analytical laboratory. Chain-of-custody records were maintained recording sample number, location, depth, type of preservative (if any), and handling procedures.

Field Equipment Decontamination Procedures and Waste Disposal

All hand sampling equipment (e.g., spoons, shovels, etc.), were decontaminated after each use. Decontamination procedures consisted of cleaning with a non-phosphatic soap in a tap water solution and a stiff-bristle brush, followed by a thorough deionized water rinse. All drill tooling and split spoon samplers were cleaned between each boring using a high pressure hot water washer. Rinsate water was collected and stored in a 55-gallon drum on site pending laboratory analysis and disposal arrangements. Drill cuttings were placed on plastic sheeting and covered with plastic until laboratory analysis is completed and appropriate disposal arrangements can be made. Soil removed from all shallow hand excavations was returned to the excavations after samples had been collected.

2.2 MARINE SEDIMENTS

Navigation and Positioning

The sampling vessel was positioned with a Differential Global Position System (DGPS) at the sampling stations as shown in Figure 1. As the sampling grab was lowered, the coordinates of each station were taken. Table 2-1 shows the sample coordinates and mudline elevations.

During sampling, the van Veen grab was positioned at one of the predetermined sampling stations. Elevations were referenced to local mean low water (MLLW) (National Oceanic and Atmospheric Administration). Tide height was predicted by the use of published tide charts. Because tide heights were predicted rather than measured from known upland elevation control points, vertical accuracy may vary. The amount of variation is not a concern for this assessment, but could be significant during design and construction. The sediment depth at each station was measured with a lead-line. Horizontal coordinates were converted and identified as latitude and longitude (NAD 83) to the nearest 0.1 of a second.

Sample Collection

The 0.1m^2 van Veen sampler was attached to a hydro-wire using a ball-bearing swivel. The swivel minimizes the twisting forces of the sampler during deployment and ensures that proper contact will be made with the bottom.

The sampler was deployed and retrieved with minimum swinging when out of the water. Swinging was minimized by heading the survey vessel into the waves when the sampler was out of the water and by attaching handling lines operated by the sampling team, to the cable. To minimize bow waves, which can be caused when lowering the sampler into the water column too quickly, the lowering speed at sediment entry was kept to less than or equal to 1 foot per second.

After the sampler contacted the bottom, it was retrieved slowly to permit the device to close properly. Once the jaws closed, a constant retrieval speed was maintained to avoid jerking the sampler. This reduced the possibility of disturbing the samples. The sampler was raised slowly when it reached the surface of the water and handled gently to minimize swinging. The sampler was secured as rapidly as possible after being brought on board.

Sample Acceptability Criteria

After the sampler was secured, the sediment was carefully inspected before being accepted. The following acceptability criteria were used:

- To ensure that the sediment surface was not pressed against the top of the sampler, the sampler was not overfilled;
- Water was overlying the sediment, indicating minimal leakage;
- The overlying water was not excessively turbid, indicating minimal disturbance or winnowing; and
- The penetration depth was at least 5 centimeters (cm).

If the sample did not meet the above criteria, it was rejected.

Sample Documentation

The chain of custody (COC) procedures developed by Pentec Environmental, Inc. were employed for all samples collected and were maintained throughout sampling and analysis. Each sample was identified by a unique number. Sample numbers were assigned by Pentec's database manager and provided on preprinted labels. COC and Qualitative Sample Characteristics (QSC) forms were used to document sample collection and sample transfer through the final sample disposition.

After the samples were accepted a field identification number was assigned to each sample by using the next available number from the preprinted sample labels and placing the label on the COC form. Additional fields to be completed on the COC forms included:

- The initials of the person completing the form;
- The sample collection date and time;
- The number of containers collected for each type of analysis; and
- The total number of containers in which the sample was placed.

After the COC form was completed, the QSC form was filled out. The sample was photographed and the film roll number and frame number were recorded on the QSC form. After the QSC form had been completed, water overlying the sediment was removed. The water was slowly siphoned off near one side of the sample, with a minimum of sample disturbance. Once the overlying water was removed, the surficial sediment was removed.

Sample Containers for Analysis

All sample containers received by the North Creek Analytical (NCA) of Bothell, Washington were pre-cleaned. A total of 6 containers were required for each chemical analysis: two 8-oz. glass jars for dioxin/furans, one 4-oz. glass jar for volatile organic compounds, two 1-liter glass jars for aqueous phase tributyl tin, and one 1-liter glass jar for metals, semivolatile compounds, total organic carbons, and total solids.

General Sample Handling Practices

All equipment and instruments used to remove sediment from the sampler were made of glass, stainless steel, or PTFE (Teflon) and were cleaned prior to each day's use and between sampling. Prior to collecting a sample, the sampling grab and all parts of sampler that came in contact with the sample were decontaminated following Puget Sound Estuary Program (PSEP) protocols. The

decontamination procedures deviated from PSEP by not using acid solvent rinses; the rinse was distilled water. The decontamination procedure was as follows:

- Pre-wash rinse with tap water;
- First wash with solution of tap water and Alconox soap (brush);
- Second rinse with tap water;
- Second wash with solution of tap water and Alconox soap (brush);
- First rinse with distilled water;
- Second rinse with distilled water; and
- Decontaminated items immediately contained or covered with aluminum foil.

Disposable gloves were discarded after each sampling event and replaced with a new gloves prior to handling decontaminated instruments or touching work surfaces. Sample containers were kept in packages as received from the analytical NCA.

Sample Procedures

The date and time of sample collections were written on the label of each sample container. This information was taken from the QSC form and transferred to the sample container label prior to filling the container with sediment.

Unused sediment from the grab was returned to the same area from which it was collected.

The procedure for processing samples was as follows:

1. Inspect the grab sampler for acceptability and complete COC form and the first portion of the QSC form.
2. Carefully siphon off water from the top of the sediment.
3. Photograph the sample and record the film roll number and frame number.
4. Using a stainless steel spoon, collect near surface sediment and transfer the sediment to one 4-oz. glass jar for volatile organic analysis.
5. Fill the jars completely and place screw cap on the sample container and tighten.
6. Transfer the remaining sediment to a stainless steel bowl and homogenize the sediment with a stainless steel spoon.
7. Using a stainless steel spoon, collect sediment from the bowl and transfer the sediment to two 1-liter glass jars for aqueous phase tributyl tin, and a one 1-liter glass jar for metals, semivolatile compounds, total organic carbons, and total solids analyses.
8. Fill the jars completely and place screw cap on the sample container and tighten.

Sediment samples were stored at 4 degrees C in an iced-chest while on board and during transfer to the NCA.

Sample Analysis

All sediment samples were analyzed for metals, total organic carbon (TOC), and total solids. In addition, select sediment samples were analyzed for polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), dioxins, volatile organics, semivolatile organic compounds (SVOAs), and aqueous phase tributyl tin (TBT). Table 2-2 shows the analyses performed for each sample. Sediment samples were assayed for the contaminants of concern using the following metrologies:

- Metals - arsenic, antimony, cadmium, copper, chromium, lead, mercury (inorganic) nickel, silver, and zinc - EPA Test Method 6010A, 7421A, and 7421 - PSEP Recommended Guidelines;
- PAHs - EPA Test Method 8270A - PSEP Recommend Guidelines;
- PCBs - EPA Test Method 8081- PSEP Recommend Guidelines;
- Dioxin - EPA Test Method 8290;
- Tributyl Tin - Selected Ion Monitoring GC/MS;
- Volatile Organics - EPA Test Method 8260A - PSEP Recommended Guidelines;
- TOC - EPA Test Method 9060 - PSEP Recommended Guidelines; and
- Total Solids - EPA Test Method 160 mod. - PSEP Recommended Guidelines.

2.3 ASBESTOS AND LEAD-BASED PAINT

It is believed that the building was originally constructed prior to the 1960's. Sampling was done on building materials that have the potential to be asbestos-containing materials (ACMs) and on paint that has the potential to contain lead paint. During the initial walk-through of the building on July 16, 1997, several suspect materials were noted. Linoleum sheeting, vinyl tile, roofing materials, and acoustical ceiling materials were called out as suspect ACMs. On the morning of July 17, 1997, SE&S mobilized to the site to assess the conditions and complete the ACM and paint sampling. Mr. Don Wyman provided access to the building. SE&S was accompanied during the building survey and sampling activities by Mr. Howard Small. The building survey was completed in general accordance with NESHAP and ASHARA guidance documents for the assessment of asbestos in commercial buildings. Certificates of Training in accordance with 40 CFR Part 763, Subpart E, Appendix C for the survey personnel are included in Appendix B.

Material sampling

Sampling of building materials was limited to those areas where access was available. The sampling was completed on July 17, 1997. Sampling activities were focused on suspect ACMs and painted surfaces of the building. It is understood that Wyman's Marina is moving to a new facility and the building may be reoccupied by a new tenant. The building has a rectangular-shaped foot print of roughly 50 feet from east to west and 125 feet from north to south. Selected photographs of the building exterior and interior are included in Appendix A.

Suspect Asbestos-Containing Materials

The two-story wood framed building has primarily been used for sales, service, and repair of boats and marine related equipment. The 1st floor of the building has four discrete areas including the retail area, parts and inventory area, two motor repair shops, and a wood shop. Heat in the building is very limited and provided by electric base board heaters. No central heating system has been used at the site. The visual condition of suspect and other building materials is generally good to very good.

Samples of suspect ACMs were collected from numerous locations within the building. A description of each sample type, the collection location, and a rough estimate of the quantity (square feet) is

presented in Table I. Samples of suspect materials were collected using hand tools. Representative specimens were placed in small plastic zip lock bags. After completing the sampling activities, sample identification data were recorded on chain-of-custody forms.

Paint Chips

Collection of paint chip samples was completed simultaneously with the collection of suspect ACMs. The paint chip sampling was limited to largely representative paint colors. Representative paint chips were scraped from the interior and exterior walls, floors, and trim and placed in plastic zip lock bags. The sample bags were individually identified and the information recorded on a chain-of-custody form.

3.0 UPLAND SOIL RESULTS

Otten Engineering collected surface samples from 15 locations on July 2, 3, and 17, 1997 (designated WY-UPLD-SS 1 to -15). One sample was collected from sump water inside the building (designated WY-UPLD-SUMP).

The concentration of chemicals detected are listed on Table 3-1, along with the MTCA residential and industrial cleanup levels for soil. The cleanup levels for residential are the lowest of Method A or B and the industrial are the lowest of Method B or C for industrial sites.

On the Wyman site, petroleum hydrocarbons were the most frequent compound that exceeded the cleanup levels. The cleanup level of 200 mg/Kg for diesel-range and heavy oil range is the same for residential and industrial site. The residential and industrial cleanup levels are the same because they are based on levels needed to protect groundwater. Soil samples from locations SS-2, -3, -6, -8A, -8B, -12, -14 and -15 contain diesel-range hydrocarbons from 642 to 8,820 mg/Kg and contained heavy oil range hydrocarbons from 304 to 27,300 mg/Kg.

The concentration of copper is 3,300 and 3,660 mg/Kg in samples SS-8A and -9, compared to the residential cleanup level of 2,960 mg/Kg. The copper concentrations are below the industrial cleanup level of 130,000 mg/Kg.

The concentration of lead is 378, 894, and 1,390 in samples SS-13, -15, and -14, respectively. These three samples exceed the residential cleanup level of 250 mg/Kg and one sample exceeds the industrial cleanup level of 1,000 mg/Kg.

The concentration of 4-4 DDD is 90 mg/Kg in sample SS-13. This is above the residential cleanup level of 4.2 mg/Kg, but below the industrial cleanup level of 547 mg/Kg.

Overall, the concentrations of priority pollutants are lower than we have seen on other boat repair and construction sites. During this Phase 2 assessment, we sampled soil in areas most likely to contain contamination, or where there was visible staining.

4.0 ASBESTOS AND PAINT RESULTS

Laboratory Testing

After completing the sampling activities the samples were transported to North Creek Analytical in Bothell, Washington. North Creek Analytical completed the lead testing. Asbestos testing was completed by Med-Tox Northwest (NVLAP accreditation # 102021) in Kent, Washington. Sample handling was in accordance with established chain-of-custody protocols. Analytical testing was completed to confirm the presence (percentage) or absence of asbestos and or concentration lead in the submitted samples.

Asbestos

A total of 17 material samples were submitted for analytical testing. Each of the bulk material samples were discretely analyzed using polarized light microscopy (PLM) techniques. PLM is the EPA-approved method for analyzing bulk materials for asbestos. Analytical results are presented in Table 4-1. Three of the 17 samples tested were positive for the presence of asbestos. Vinyl tiles plus mastic present in the main retail portion of the 1st floor contains up to 5% chrysotile asbestos. Roofing material above the wood shop portion of the building contain up to 5% chrysotile asbestos. Asbestos fibers were not detected in acoustical ceiling materials or insulation materials. Wall plaster was also nondetected for the presence of asbestos.

Paint

Five paint chip samples of exterior and interior wall/ceiling/trim paint were collected from the building. Each of the five samples were discretely analyzed for lead using EPA Method 7420. Each of the five paint chip samples did contain detectable concentrations of lead. Analytical results are presented in Table 4.2. The highest concentration detected (46,500 milligrams per kilograms (mg/Kg) (parts per million (ppm))) was in chip sample #19, Exterior Wall White. Sample #22, Exterior trim gray contained 27,100 mg/Kg lead. Low concentrations of lead were detected in the three interior paint chip samples.

Conclusions

Three of the 17 building material samples that had the potential to contain asbestos were positive for the presence of asbestos. Asbestos appears to be confined to the vinyl tiles in the 1st floor retail and inventory storage area and a small portion of the roofing material over the wood shop. The ACM mateirals are intact and are not decomposing. It is estimated that up to 1,400 square feet of asbestos-containing floor covering is present in the building. Roughly 1,150 square feet of asbestos-containing roofing material is present over the wood shop. If properly managed, the risk of exposure to asbestos-containing materials is believed to be low. When demolition or renovation of the building is scheduled, proper asbestos abatement techniques and site controls will be required. A qualified asbestos abatement contractor should be retained to abate the ACMs prior to demolition.

The presence of lead in paint was confirmed on exterior and interior surfaces of the building. Concentrations of potential concern were limited to the exterior paint samples. If demolition or renovation of the exterior areas containing lead paint are scheduled, then appropriate worker health and safety issues should be addressed. Disposal characterization may require additional analytical testing.

The asbestos and paint survey was performed for use the Port of Anacortes and their authorized agents in their limited evaluation of environmental conditions at Wyman's Marina, Anacortes, Washington. This survey report may be made available to lenders, and regulatory agencies. This survey report is not intended for use by other and the information contained herein is not applicable to other sites.

5.0 SEDIMENT RESULTS

Marine Sediment

Otten Engineering, and Pentec Environmental, Inc. (PEI), collected sediment samples at 6 stations on the Wyman's Marina (Wyman) site on August 6, 1997 (WY-SED-01 to -06). Station locations are presented in Figure 2 and station coordinates and sediment elevations are presented in Table 2-1. Sediment Qualitative Sample Characteristic forms for each sampling station are presented in Appendix A.

All sediment samples were analyzed for metals, total organic carbon (TOC), and total solids. In addition, select sediment samples were analyzed for polynuclear aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCBs), dioxins, volatile organics compounds (VOCs), and aqueous phase tributyl tin (TBT). Analytical methods for the contaminants of concern are presented in Section 2.2 of this report.

5.1 Site and Sediment Conditions

In general sediment adjacent to docks and near shore at Wyman's Marina were composed of soft, dark-gray, fine sandy silt with less than 10 percent shell fragments and anthropogenic material. The grab sampler occasionally intercepted eel grass and kelp beds at the Wyman site. A thin veneer of diatoms was commonly seen on the surface of the sediment and the sediment often emitted a mild hydrogen sulfide (H_2S) odor. An oil sheen was commonly seen on the surface of the water.

5.2 Sediment Quality

Contaminants of concern (COC) were detected at all sediment sample stations. A summary of positive sample results is presented in Table 5-1 along with applicable Washington State Department of Ecology Marine Sediment Quality Standards (SQSs; WAC 173-204-320). Laboratory data certificates are transmitted to the Port separately. The locations of each sampling station are presented in Figures 2.

The concentrations of priority pollutants in the surface sediment samples are below the State of Washington Sediment Quality Standards (SQS). The results of this assessment indicates that there is not widespread sediment contamination. It is possible that there are isolated areas where the concentrations could exceed the SQS levels. There is a low potential that there could be buried sediment with higher concentrations than those measured in this study.

Tributyl Tin (TBT) was detected in 3 of the 4 sediment porewater samples analyzed. The TBT concentrations did not exceeded the Puget Sound Disposal Authority sediment TBT screen level of 0.15 ug/L. There is no published SQS for TBT.

6.0 SUMMARY

Asbestos and Paint

Three samples had approximately 5 percent chrysotile type asbestos fibers. Two of the samples were from floor tile in the first floor and one sample was from roofing over the wood shop. We estimate that the area of ACM is about 1,400 square feet on the first floor and about 1,200 square feet on the roof.

The ACM materials appear to be intact and do not show signs of breaking apart or decomposing. Asbestos that is encapsulated in intact materials does not pose a risk to human health and no remedial action is required.

Upland Soils

In the upland soils, petroleum hydrocarbons exceeded MTCA cleanup levels in 8 samples taken at 7 locations. The samples with the highest concentrations generally correspond to the areas of visible soil staining.

Copper was above the residential level, but below the industrial level in two samples. Both the samples were located along the marine railway.

Lead was above the industrial cleanup level on one samples (SS-14), which is located on the southwest side of the main building. Lead was above the residential cleanup levels in two samples. One of these samples is near SS-14 and one in northwest of the main building.

A pesticide, 4,4-DDD was above the residential level in one sample, northwest of the main building.

The sampling in this Phase 2 Environmental Assessment has confirmed the presence of petroleum hydrocarbons, metals, and one pesticide in the surface soils, but there is not sufficient data to determine the extend of contamination. The concentrations of lead was 1,390 and 894 mg/Kg in samples on the southwest side of the main building (compared to the industrial cleanup level of 1,000 mg/Kg and the residential cleanup level of 250 mg/Kg).

Marine Sediment

The concentrations of priority pollutants in the surface sediment samples are below the State of Washington Sediment Quality Standards (SQS). The results of this assessment indicates that there is not widespread sediment contamination. It is possible that there are isolated areas where the concentrations could exceed the SQS levels. There is a low potential that there could be buried sediment with higher concentrations than those measured in this study.

The need for remediation of sediment is generally based on the concentrations in the surface sediment, since they are in direct contact with aquatic resources. Based on the data in this assessment, there is no need for remediation.

If redevelopment plans require dredging, sediment cores extending the full depth of dredging would be needed. Chemical analysis would be needed to determine the appropriate beneficial use or disposal of dredged material.

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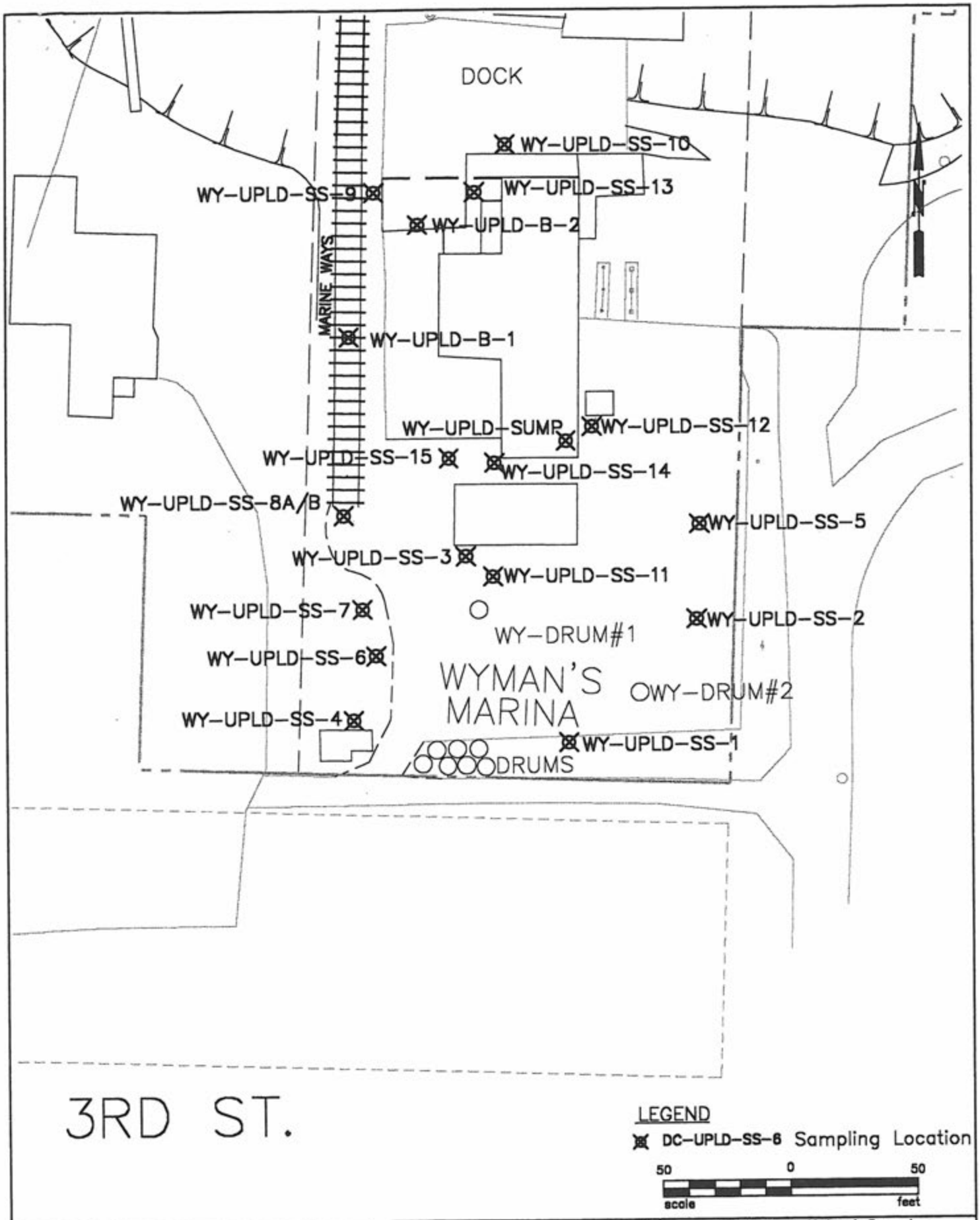
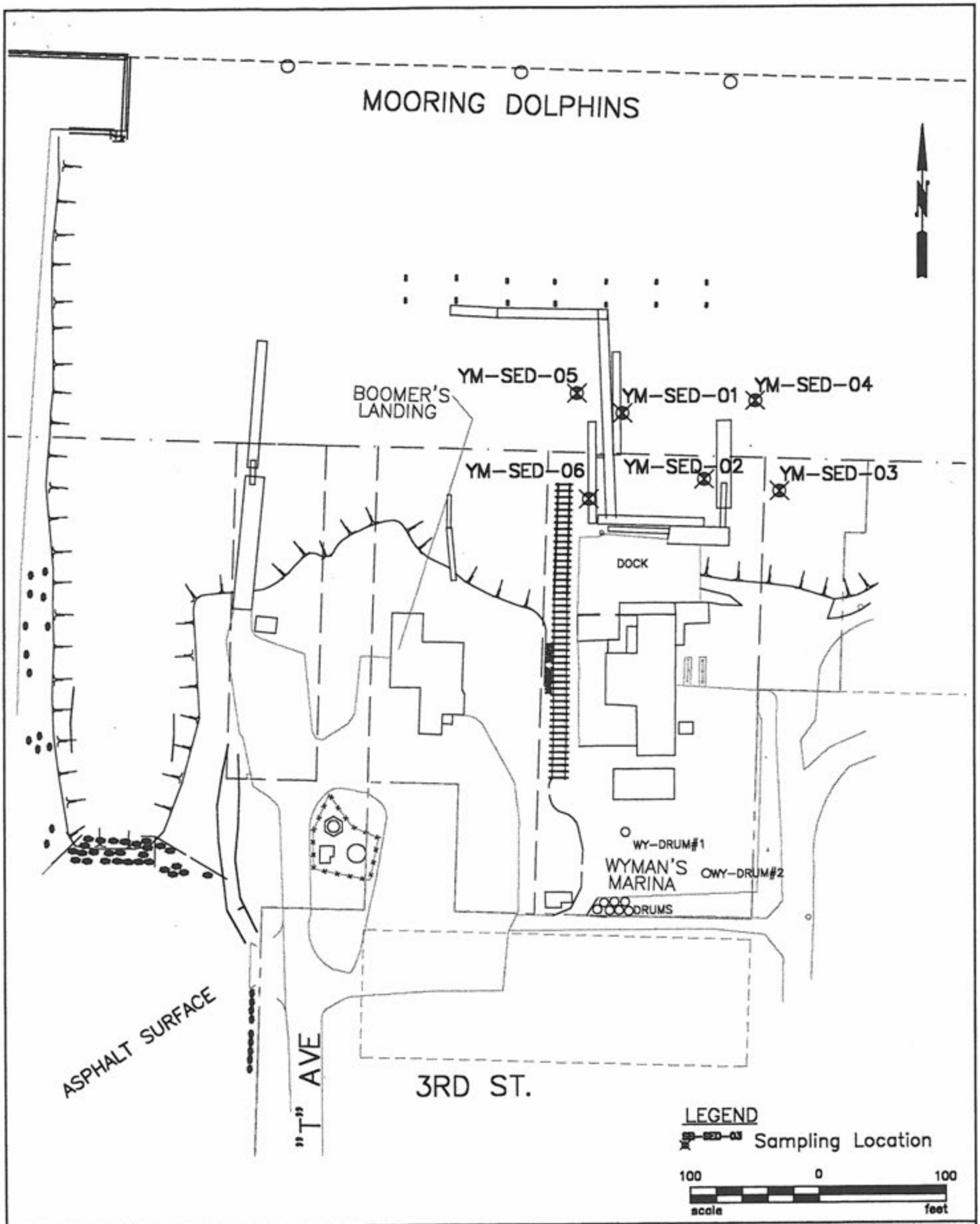


	OTTEN ENGINEERING 3029 NE 182nd Street Seattle, WA. 98155	Figure 1 – Upland Samples Wyman Marina Port of Anacortes Anacortes, WA



Pentec Environmental Edmonds, WA 98020 (206) 775-4682	OTTEN ENGINEERING 3029 NE 182nd Street Seattle, WA. 98155	Figure 2 – Sediment Samples Wyman Marina Port of Anacortes Anacortes, WA

Table 2-1 Marine Sediment Locations and Elevations.

Sample Station	Sample Number	Coordinates: State Plane NAD 83 Northing	Coordinates: State Plane NAD 83 Easting	Geographic Coordinates NAD 83 Latitude	Geographic Coordinates NAD 83 Longitude	Water Depth	Tide	Elevation	Sample date	Sample Time
YM-SED-01	78004001	559903	1211035	48°31'16.903" N	122°36'18.876" E	11.7	1.8	-9.9	8/6/97	10:54
YM-SED-02	78004002	559851	1211098	48°31'16.404" N	122°36'17.919" E	9.2	1.2	-8.0	8/6/97	11:30
YM-SED-03	78004003	559841	1211157	48°31'16.322" N	122°36'17.049" E	7.2	0.8	-6.4	8/6/97	12:00
YM-SED-04	78004004	559912	1211138	48°31'17.017" N	122°36'17.353" E	9.1	0.5	-8.6	8/6/97	12:25
YM-SED-05	78004005	559919	1211000	48°31'17.052" N	122°36'19.407" E	7.1	0.4	-6.7	8/6/97	12:52
YM-SED-06	78004006	559836	1211009	48°31'16.235" N	122°36'19.243" E	4.0	0.8	-3.2	8/6/97	13:53

Note: Tide elevations from predicted tide charts and are approximate.

Table 2-2 Samples Analyzed

Sediment Samples

Sample ID	Field Sample ID	Date	TOC	SOLIDS	METALS	PAH	VOA	PCBs	TBT	DIOXIN
WY-SED-01	78004001	8/6/97	X	X	X	X			X	
WY-SED-02	78004002	8/6/97	X	X	X	X			X	
WY-SED-03	78004003	8/6/97	X	X	X	X				
WY-SED-04	78004004	8/6/97	X	X	X					
WY-SED-05	78004005	8/6/97	X	X	X				X	
WY-SED-06	78004006	8/6/97	X	X	X	X			X	

Upland Samples

Sample ID	Date	HCID	TPH-G	TPH-Dx	418.1	Metals	SVOA	VOA	PCBs
WY-UPLD-SS-2	7/2/97	X		X	X	X	X	X	X
WY-UPLD-SS-3	7/2/97	X			X	X			
WY-UPLD-SS-4	7/2/97	X			X				
WY-UPLD-SS-5	7/2/97	X			X	X	X	X	X
WY-UPLD-SS-6	7/2/97	X	X	X	X	X		X	X
WY-UPLD-SS-8A	7/2/97	X			X	X			
WY-UPLD-SS-8B	7/2/97	X	X	X	X	X	X	X	X
WY-UPLD-SS-9	7/3/97					X			
WY-UPLD-SS-11	7/3/97					X			
WY-UPLD-SS-12	7/17/97	X	X	X		X			
WY-UPLD-SS-13	7/17/97	X		X		X	X		X
WY-UPLD-SS-14	7/17/97	X	X	X		X	X		X
WY-UPLD-SS-15	7/17/97	X	X	X		X			
WY-UPLD-SUMP	7/17/97		X	X					

HCID = Hydrocarbon Identification.
TPH-G = Total Petroleum Hydrocarbons in Gasoline Range.
TPH-Dx = Total Petroleum Hydrocarbons in Diesel and Oil Ranges.
SVOA = Semi-Volatile Organic compounds Analyses.
VOA = Volatile Organic compounds Analyses.
PCBs = Poly-chlorinated Biphenyl's.
TOC = Total Organic Carbon.
PAH = Polynuclear Aromatic Hydrocarbons.
TBT = Tri-butyl Tin.

Table 3-1 Wyman's Marina Upland Summary of Chemicals Detected

Sample Name	Matrix	Analyte	Sample Results (mg/Kg)	MTCA (mg/Kg) Residential	MTCA (mg/Kg) Industrial
WY-UPLD-SS-11	Soil	Silver	0.120	400	17,500
WY-UPLD-SS-11	Soil	Arsenic	7.33	20	200
WY-UPLD-SS-11	Soil	Chromium	17.5	100	500
WY-UPLD-SS-11	Soil	Copper	242	2,960	130,000
WY-UPLD-SS-11	Soil	Nickel	21.9	1,600	70,000
WY-UPLD-SS-11	Soil	Lead	22.5	250	1,000
WY-UPLD-SS-11	Soil	Zinc	78.8	24,000	1,000,000
WY-UPLD-SS-2	Soil	Aroclor 1260	0.178	1.0	10
WY-UPLD-SS-2	Soil	Silver	0.109	400	17,500
WY-UPLD-SS-2	Soil	Arsenic	11.9 J	20	200
WY-UPLD-SS-2	Soil	Cadmium	0.664 J	2	10
WY-UPLD-SS-2	Soil	Chromium	31.2 J	100	500
WY-UPLD-SS-2	Soil	Copper	1120 J	2,960	130,000
WY-UPLD-SS-2	Soil	Mercury	0.846	1.0	1.0
WY-UPLD-SS-2	Soil	Nickel	39.0 J	1,600	70,000
WY-UPLD-SS-2	Soil	Lead	141 J	250	1,000
WY-UPLD-SS-2	Soil	Petroleum Oil Hydrocarbons	**27300**	200	200
WY-UPLD-SS-2	Soil	Diesel Range Hydrocarbons	**3530**	200	200
WY-UPLD-SS-2	Soil	Heavy Oil Range Hydrocarbons	**14200**	200	200
WY-UPLD-SS-2	Soil	Diesel Range Hydrocarbons	DET		
WY-UPLD-SS-2	Soil	Heavy Oil Range Hydrocarbons	DET		
WY-UPLD-SS-2	Soil	Zinc	353 J	24,000	1,000,000
WY-UPLD-SS-3	Soil	Silver	0.593	400	17,500
WY-UPLD-SS-3	Soil	Arsenic	6.84 J	20	200
WY-UPLD-SS-3	Soil	Chromium	26.3 J	100	500
WY-UPLD-SS-3	Soil	Copper	2690 J	2,960	130,000
WY-UPLD-SS-3	Soil	Mercury	0.899	1.0	1.0
WY-UPLD-SS-3	Soil	Nickel	30.2 J	1,600	70,000
WY-UPLD-SS-3	Soil	Lead	109 J	250	1,000
WY-UPLD-SS-3	Soil	Petroleum Oil Hydrocarbons	**304**	200	200
WY-UPLD-SS-3	Soil	Heavy Oil Range Hydrocarbons	DET	200	200
WY-UPLD-SS-3	Soil	Zinc	308 J	24,000	1,000,000
WY-UPLD-SS-4	Soil	Heavy Oil Range Hydrocarbons	DET		

Table 3-1 Wyman Upland Continued

Sample Name	Matrix	Analyte	Sample Results (mg/Kg)	MTCA (mg/Kg) Residential	MTCA (mg/Kg) Industrial
WY-UPLD-SS-5	Soil	Dimethyl phthalate	0.735	80,000	1,000,000
WY-UPLD-SS-5	Soil	Silver	0.0968	400	17,500
WY-UPLD-SS-5	Soil	Arsenic	10.1 J	20	200
WY-UPLD-SS-5	Soil	Chromium	18.2 J	100	500
WY-UPLD-SS-5	Soil	Copper	576 J	2,960	130,000
WY-UPLD-SS-5	Soil	Mercury	0.114	1.0	1.0
WY-UPLD-SS-5	Soil	Nickel	31.3 J	1,600	70,000
WY-UPLD-SS-5	Soil	Lead	63.7 J	250	1,000
WY-UPLD-SS-5	Soil	Heavy Oil Range Hydrocarbons	DET		
WY-UPLD-SS-5	Soil	Zinc	109 J	24,000	1,000,000
WY-UPLD-SS-6	Soil	1,3,5-Trimethylbenzene	0.493		
WY-UPLD-SS-6	Soil	n-Butylbenzene	0.504		
WY-UPLD-SS-6	Soil	Naphthalene	0.256	3,200	14,000
WY-UPLD-SS-6	Soil	p-Isopropyltoluene	1.31		
WY-UPLD-SS-6	Soil	sec-Butylbenzene	0.229		
WY-UPLD-SS-6	Soil	Fluorene	1.19	3,200	14,000
WY-UPLD-SS-6	Soil	Pyrene	1.75	2,400	105,000
WY-UPLD-SS-6	Soil	Silver	0.0580	400	17,500
WY-UPLD-SS-6	Soil	Arsenic	6.09 J	20	200
WY-UPLD-SS-6	Soil	Chromium	14.9 J	100	500
WY-UPLD-SS-6	Soil	Copper	358 J	2,960	130,000
WY-UPLD-SS-6	Soil	Nickel	61.5 J	1,600	70,000
WY-UPLD-SS-6	Soil	Lead	91.6 J	250	1,000
WY-UPLD-SS-6	Soil	Petroleum Oil Hydrocarbons	**7930**	200	200
WY-UPLD-SS-6	Soil	Diesel Range Hydrocarbons	**8820**	200	200
WY-UPLD-SS-6	Soil	Gasoline Range Hydrocarbons	**551**	100	100
WY-UPLD-SS-6	Soil	Diesel Range Hydrocarbons	DET		
WY-UPLD-SS-6	Soil	Gasoline Range Hydrocarbons	DET		
WY-UPLD-SS-6	Soil	Heavy Oil Range Hydrocarbons	DET		
WY-UPLD-SS-6	Soil	Zinc	440 J	24,000	1,000,000
WY-UPLD-SS-8A	Soil	Silver	0.0732	400	17,500
WY-UPLD-SS-8A	Soil	Arsenic	4.59 J	20	200
WY-UPLD-SS-8A	Soil	Cadmium	0.446 J	2	10

Table 3-1 Wyman Upland Continued

Sample Name	Matrix	Analyte	Sample Results (mg/Kg)	MTCA (mg/Kg) Residential	MTCA (mg/Kg) Industrial
WY-UPLD-SS-8A	Soil	Chromium	8.27 J	100	500
WY-UPLD-SS-8A	Soil	Copper	**3300 J**	2,960	130,000
WY-UPLD-SS-8A	Soil	Mercury	0.788	1.0	1.0
WY-UPLD-SS-8A	Soil	Nickel	3.81 J	1,600	70,000
WY-UPLD-SS-8A	Soil	Petroleum Oil Hydrocarbons	**1350**	200	200
WY-UPLD-SS-8A	Soil	Diesel Range Hydrocarbons	DET		
WY-UPLD-SS-8A	Soil	Heavy Oil Range Hydrocarbons	DET		
WY-UPLD-SS-8A	Soil	Zinc	584 J	24,000	1,000,000
WY-UPLD-SS-8A	Soil	Lead	81.9 J	250	1,000
WY-UPLD-SS-8B	Soil	Phenanthrene	0.211		
WY-UPLD-SS-8B	Soil	Pyrene	0.135	2,400	105,000
WY-UPLD-SS-8B	Soil	Silver	0.0548	400	17,500
WY-UPLD-SS-8B	Soil	Arsenic	5.10 J	20	200
WY-UPLD-SS-8B	Soil	Chromium	42.4 J	100	500
WY-UPLD-SS-8B	Soil	Copper	176 J	2,960	130,000
WY-UPLD-SS-8B	Soil	Mercury	1.10	1.0	1.0
WY-UPLD-SS-8B	Soil	Nickel	36.8 J	1,600	70,000
WY-UPLD-SS-8B	Soil	Lead	220 J	250	1,000
WY-UPLD-SS-8B	Soil	Antimony	7.56		
WY-UPLD-SS-8B	Soil	Petroleum Oil Hydrocarbons	**1250**	200	200
WY-UPLD-SS-8B	Soil	Diesel Range Hydrocarbons	**642**	200	200
WY-UPLD-SS-8B	Soil	Heavy Oil Range Hydrocarbons	**1250**	200	200
WY-UPLD-SS-8B	Soil	Gasoline Range Hydrocarbons	32.9	100	100
WY-UPLD-SS-8B	Soil	Diesel Range Hydrocarbons	DET		
WY-UPLD-SS-8B	Soil	Gasoline Range Hydrocarbons	DET		
WY-UPLD-SS-8B	Soil	Heavy Oil Range Hydrocarbons	DET		
WY-UPLD-SS-8B	Soil	Zinc	220	24,000	1,000,000
WY-UPLD-SS-9	Soil	Arsenic	24.4	20	200
WY-UPLD-SS-9	Soil	Cadmium	0.892	2	10
WY-UPLD-SS-9	Soil	Chromium	42.6	100	500
WY-UPLD-SS-9	Soil	Copper	**3660**	2,960	130,000
WY-UPLD-SS-9	Soil	Mercury	0.363	1.0	1.0
WY-UPLD-SS-9	Soil	Nickel	39.7	1,600	70,000
WY-UPLD-SS-9	Soil	Zinc	1110	24,000	1,000,000

Table 3-1 Wyman Upland Continued

Sample Name	Matrix	Analyte	Sample Results (mg/Kg)	MTCA (mg/Kg) Residential	MTCA (mg/Kg) Industrial
WY-UPLD-SS-9	Soil	Lead	92.1	250	1,000
WY-UPLD-SS-12	Soil	Silver	0.106	400	17,500
WY-UPLD-SS-12	Soil	Arsenic	13.8	20	200
WY-UPLD-SS-12	Soil	Cadmium	0.386 J	2	10
WY-UPLD-SS-12	Soil	Chromium	29.2	100	500
WY-UPLD-SS-12	Soil	Copper	140	2,960	130,000
WY-UPLD-SS-12	Soil	Mercury	0.279	1.0	1.0
WY-UPLD-SS-12	Soil	Nickel	36.6	1,600	70,000
WY-UPLD-SS-12	Soil	Lead	67.5 J	250	1,000
WY-UPLD-SS-12	Soil	Diesel Range Hydrocarbons	**25100**	200	200
WY-UPLD-SS-12	Soil	Diesel Range Hydrocarbons	DET		
WY-UPLD-SS-12	Soil	Gasoline Range Hydrocarbons	DET		
WY-UPLD-SS-12	Soil	Heavy Oil Range Hydrocarbons	DET		
WY-UPLD-SS-12	Soil	Zinc	699	24,000	1,000,000
WY-UPLD-SS-13	Soil	4,4'-DDD	**90.0**	4.17	547
WY-UPLD-SS-13	Soil	Silver	0.149	400	17,500
WY-UPLD-SS-13	Soil	Arsenic	9.14	20	200
WY-UPLD-SS-13	Soil	Cadmium	7.78 J	2	10
WY-UPLD-SS-13	Soil	Chromium	41.4	100	500
WY-UPLD-SS-13	Soil	Copper	1630	2,960	130,000
WY-UPLD-SS-13	Soil	Mercury	2.11	1.0	1.0
WY-UPLD-SS-13	Soil	Nickel	50.2 J	1,600	70,000
WY-UPLD-SS-13	Soil	Lead	**378 J**	250	1,000
WY-UPLD-SS-13	Soil	Diesel Range Hydrocarbons	194	200	200
WY-UPLD-SS-13	Soil	Diesel Range Hydrocarbons	DET		
WY-UPLD-SS-13	Soil	Heavy Oil Range Hydrocarbons	DET		
WY-UPLD-SS-13	Soil	Zinc	2750	24,000	1,000,000
WY-UPLD-SS-14	Soil	4,4'-DDE	0.028	2.94	386
WY-UPLD-SS-14	Soil	Aroclor 1260	0.105 J	1.0	10
WY-UPLD-SS-14	Soil	Silver	0.193	400	17,500
WY-UPLD-SS-14	Soil	Arsenic	16.9	20	200
WY-UPLD-SS-14	Soil	Cadmium	0.790 J	2	10

Table 3-1 Wyman Upland Continued

Sample Name	Matrix	Analyte	Sample Results (mg/Kg)	MTCA (mg/Kg) Residential	MTCA (mg/Kg) Industrial
WY-UPLD-SS-14	Soil	Chromium	41.5	100	500
WY-UPLD-SS-14	Soil	Copper	1650	2,960	130,000
WY-UPLD-SS-14	Soil	Mercury	0.558	1.0	1.0
WY-UPLD-SS-14	Soil	Nickel	35.2 J	1,600	70,000
WY-UPLD-SS-14	Soil	Lead	**1390 J**	250	1,000
WY-UPLD-SS-14	Soil	Antimony	7.01		
WY-UPLD-SS-14	Soil	Diesel Range Hydrocarbons	**6300**	200	200
WY-UPLD-SS-14	Soil	Gasoline Range Hydrocarbons	14.5 J	100	100
WY-UPLD-SS-14	Soil	Diesel Range Hydrocarbons	DET		
WY-UPLD-SS-14	Soil	Gasoline Range Hydrocarbons	DET		
WY-UPLD-SS-14	Soil	Heavy Oil Range Hydrocarbons	DET		
WY-UPLD-SS-14	Soil	Zinc	1010	24,000	1,000,000
WY-UPLD-SS-15	Soil	Silver	0.225	400	17,500
WY-UPLD-SS-15	Soil	Arsenic	17.1	20	200
WY-UPLD-SS-15	Soil	Cadmium	9.50 J	2	10
WY-UPLD-SS-15	Soil	Chromium	39.4	100	500
WY-UPLD-SS-15	Soil	Copper	642	2,960	130,000
WY-UPLD-SS-15	Soil	Mercury	0.499	1.0	1.0
WY-UPLD-SS-15	Soil	Nickel	35.8 J	1,600	70,000
WY-UPLD-SS-15	Soil	Lead	**894 J**	250	1,000
WY-UPLD-SS-15	Soil	Diesel Range Hydrocarbons	**6920**	200	200
WY-UPLD-SS-15	Soil	Diesel Range Hydrocarbons	DET		
WY-UPLD-SS-15	Soil	Gasoline Range Hydrocarbons	DET		
WY-UPLD-SS-15	Soil	Heavy Oil Range Hydrocarbons	DET		
WY-UPLD-SS-15	Soil	Zinc	1020	24,000	1,000,000
WY-UPLD-SUMP	Aqueous	Diesel Range Hydrocarbons	1.67 mg/L J		
WY-UPLD-SUMP	Aqueous	Heavy Oil Range Hydrocarbons	12.4 mg/L J		

TABLE 4.1

BUILDING MATERIAL SAMPLE COLLECTION DATA AND RESULTS OF PLM TESTING WYMAN'S MARINA, 202 U AVENUE, ANACORTES, WASHINGTON

SAMPLE I.D.	LOCATION, TYPE & APPROXIMATE QUANTITY*	ASBESTOS % (by PLM)
#1, 12x12 vinyl tile (plus mastic)	Floor covering in 1st floor areas. Light beige vinyl floor tile plus black mastic. Quantity = roughly 1,400 sq. ft. Sample 1 of 3.	5 %, Chrysotile, (mastic 5 % Chrysotile)
#2, 12x12 vinyl tile(plus mastic)	Floor covering in 1st floor areas. Light beige vinyl floor tiles plus black mastic. Quantity = roughly 1,400 sq. ft. Sample 2 of 3.	5 %, Chrysotile, (mastic 5 % Chrysotile)
#3, 12x12 vinyl tile(plus mastic)	Floor covering in 1st floor areas. Light beige vinyl floor tiles plus black mastic. Quantity = roughly 1,400 sq. ft. Sample 3 of 3.	ND
#4, 12x12 acoustic tile w/dots	Typical acoustical ceiling tiles in 1st floor areas. Quantity = roughly 650 sq. ft. Sample 1 of 3.	ND
#5, 12x12 acoustic tile w/dots	Typical acoustical ceiling tiles in 1st floor areas. Quantity = roughly 650 sq. ft. Sample 2 of 3.	ND
#6, 12x12 acoustic tile w/dots	Typical acoustical ceiling tiles in 1st floor areas. Quantity = roughly 650 sq. ft. Sample 3 of 3.	ND
#7, 12x12 acoustic tile w/smooth surface	Typical acoustical ceiling tiles in 1st floor areas. Quantity = roughly 80 sq. ft. Sample 1 of 1.	ND
#8, Popcorn, 1st Floor	1st floor storage/parts area. Typical blown on acoustical ceiling material. Quantity = roughly 1,000 sq. ft. Sample 1 of 3.	ND
#9, Popcorn, 2nd Floor	1st floor storage/parts area. Typical blown on acoustical ceiling material. Quantity = roughly 1,000 sq. ft. Sample 2 of 3.	ND
#10, Popcorn, 1st Floor, store	1st floor storage/parts area. Typical blown on acoustical ceiling material. Quantity = roughly 1,000 sq. ft. Sample 3 of 3.	ND
#11, Sheet vinyl, bath, store	2nd floor bathroom and storage areas. Sheet vinyl plus mastic. Quantity = roughly 200 sq. ft. Sample 1 of 1.	ND
#12, Joint mud, 2nd floor	2nd floor walls. Joint compound. Sample 1 of 1.	ND
#13, Glass insulation	Fiber glass insulation above 2nd floor offices. Sample 1 of 1.	ND
#14, Joint mud, Shop	Walls in middle machine shop. Joint compound. Sample 1 of 1.	ND
#15, Glass insulation, motor shop	Fiber glass insulation in walls of back machine shop. Sample 1 of 1.	ND
#21, Glass insulation, store wall	Fiber glass insulation in walls of front store area. Sample 1 of 1.	ND
#22, Wood Shop roofing	Roofing material on top of wood shop. Typical multiple layers of tar roofing material. Sample collected at northeast corner of roof. Quantity = roughly 1,150 sq. ft. Sample 1 of 1	5 %, Chrysotile, (base tar layer)

Notes:

* = Quantity (square feet) based on rough visual estimates as available. PLM = Polarized Light Microscopy.

ND = Analyte not detected in excess of analytical method limit of detection. Complete laboratory data sheets attached in Appendix C.

TABLE 4.2

PAINT SAMPLE COLLECTION DATA AND RESULTS OF LEAD TESTING WYMAN'S MARINA, 202 U AVENUE, ANACORTES, WASHINGTON

SAMPLE I.D.	LOCATION & TYPE	LEAD (mg/Kg)
#16, Motor Shop Floor	Gray floor paint in the motor (back) shop.	46.4
#17, Store Wall Paint	White wall paint in the main store area.	107
#18, 2nd floor Wall Paint	White wall paint from the 2nd floor.	53.3
#17, Exterior wall wht.	White wall paint on the exterior of the building.	46,500
#17, Exterior trim gray	Gray trim paint on the exterior of the building.	27,100

Notes:
Lead using EPA Method 7420.
Complete laboratory data sheets attached in Appendix C.
EPA HUD defines lead-based paint as paint containing ≥ 5,000 ppm lead.

Table 5-1 Wyman's Marina Sediment Summary of Chemicals Detected

Sample Name	Station Number	Matrix	Analyte	Sample [1] Results (mg/Kg)	Sample Results (mg/Kg TOC)	SQS (mg/Kg)
78004001	WY-SED-01	Sediment	Cadmium	0.294		5.1
78004001	WY-SED-01	Sediment	Chromium	26.1		260
78004001	WY-SED-01	Sediment	Copper	258		390
78004001	WY-SED-01	Sediment	Nickel	25.8		
78004001	WY-SED-01	Sediment	Lead	10.7 J		450
78004001	WY-SED-01	Sediment	Zinc	193		410
78004001	WY-SED-01	Sediment	Arsenic	6.89 J		57
78004001	WY-SED-01	Sediment	Silver	0.123		6.1
78004001	WY-SED-01	Sediment	LPAHs	0.495	23.3	370
78004001	WY-SED-01	Sediment	HPAHs	1.751	82.6	960
78004001	WY-SED-01	Sediment	Acenaphthene	0.0293	1.4	16
78004001	WY-SED-01	Sediment	Anthracene	0.0523	2.5	220
78004001	WY-SED-01	Sediment	Benzo (a) anthracene	0.155	7.3	110
78004001	WY-SED-01	Sediment	Benzo (a) pyrene	0.117	5.5	99
78004001	WY-SED-01	Sediment	Total Benzofluoranthenes	0.243	11.5	230
78004001	WY-SED-01	Sediment	Benzo (ghi) perylene	0.0794	3.7	31
78004001	WY-SED-01	Sediment	Chrysene	0.184	8.7	110
78004001	WY-SED-01	Sediment	Dibenzo (a,h) anthracene	0.0230	1.1	12
78004001	WY-SED-01	Sediment	Fluoranthene	0.434	20.5	160
78004001	WY-SED-01	Sediment	Fluorene	0.0355	1.7	23
78004001	WY-SED-01	Sediment	Indeno (1,2,3-cd) pyrene	0.0679	3.2	34
78004001	WY-SED-01	Sediment	Naphthalene	0.0136	0.642	99
78004001	WY-SED-01	Sediment	Phenanthrene	0.365	17.2	100
78004001	WY-SED-01	Sediment	Pyrene	0.388	18.3	1000
78004001	WY-SED-01	Sediment	Pentachlorophenol	0.0157		0.36
78004001	WY-SED-01	Sediment	Dimethyl phthalate	0.0711	3.4	53
78004001	WY-SED-01	Sediment	Tributyl Tin	0.07 µg/L		0.15 µg/L [2]
78004001	WY-SED-01	Sediment	Total Organic Carbon	2.12 %		
78004002	WY-SED-02	Sediment	Cadmium	0.452		5.1
78004002	WY-SED-02	Sediment	Chromium	31.6		260

(1) = All results in mg/Kg unless otherwise noted (e.g., Tributyl Tin)

(2) = TBT SQS from PSDDA Issue Paper "Testing, Reporting, and Evaluation of TBT in PSDDA and SMS Programs

(3) = SQS for 3 & 4-Methylphenol based on SQS for 4-Methylphenol

Table 5-1 Wyman Sediment - Continued

Sample Name	Station Number	Matrix	Analyte	Sample [1] Results (mg/Kg)	Sample Results (mg/Kg TOC)	SQS (mg/Kg)
78004002	WY-SED-02	Sediment	Copper	136		390
78004002	WY-SED-02	Sediment	Nickel	30.7		
78004002	WY-SED-02	Sediment	Lead	13.2 J		450
78004002	WY-SED-02	Sediment	Zinc	98.5		410
78004002	WY-SED-02	Sediment	Arsenic	6.50 J		57
78004002	WY-SED-02	Sediment	Silver	0.111		6.1
78004002	WY-SED-02	Sediment	LPAHs	0.271	11.4	370
78004002	WY-SED-02	Sediment	HPAHs	0.850	35.7	960
78004002	WY-SED-02	Sediment	Acenaphthene	0.0687	2.9	0.16
78004002	WY-SED-02	Sediment	Anthracene	0.0759	3.2	220
78004002	WY-SED-02	Sediment	Benzo (a) anthracene	0.0626	2.6	110
78004002	WY-SED-02	Sediment	Benzo (a) pyrene	0.0313	1.3	99
78004002	WY-SED-02	Sediment	Total Benzofluoranthenes	0.0819	3.4	230
78004002	WY-SED-02	Sediment	Benzo (ghi) perylene	0.0193	0.811	31
78004002	WY-SED-02	Sediment	Chrysene	0.0952	4.0	110
78004002	WY-SED-02	Sediment	Fluoranthene	0.312	13.1	160
78004002	WY-SED-02	Sediment	Fluorene	0.0470	2.0	23
78004002	WY-SED-02	Sediment	Indeno (1,2,3-cd) pyrene	0.0181	0.761	34
78004002	WY-SED-02	Sediment	2-Methylnaphthalene	0.0193	0.811	38
78004002	WY-SED-02	Sediment	Naphthalene	0.0397	1.7	99
78004002	WY-SED-02	Sediment	Phenanthrene	0.210	8.8	100
78004002	WY-SED-02	Sediment	Pyrene	0.230	9.7	1000
78004002	WY-SED-02	Sediment	Dimethyl phthalate	0.152	6.4	53
78004002	WY-SED-02	Sediment	Tributyl Tin	0.14 µg/L		0.15 µg/L [2]
78004002	WY-SED-02	Sediment	Total Organic Carbon	2.38%		
78004003	WY-SED-03	Sediment	Cadmium	0.501		5.1
78004003	WY-SED-03	Sediment	Chromium	31.3		260
78004003	WY-SED-03	Sediment	Copper	80.9		390
78004003	WY-SED-03	Sediment	Nickel	31.2		
78004003	WY-SED-03	Sediment	Lead	16.8 J		450

(1) = All results in mg/Kg unless otherwise noted (e.g., Tributyl Tin)

(2) = TBT SQS from PSDDA Issue Paper "Testing, Reporting, and Evaluation of TBT in PSDDA and SMS Programs

(3) = SQS for 3 & 4-Methylphenol based on SQS for 4-Methylphenol

Table 5.1 Wyman Sediment - Continued

Sample Name	Station Number	Matrix	Analyte	Sample [1] Results (mg/Kg)	Sample Results (mg/Kg TOC)	SQS (mg/Kg)
78004003	WY-SED-03	Sediment	Zinc	87.1		410
78004003	WY-SED-03	Sediment	Arsenic	6.21 J		57
78004003	WY-SED-03	Sediment	Silver	0.111		6.1
78004003	WY-SED-03	Sediment	LPAHs	0.211	5.4	370
78004003	WY-SED-03	Sediment	HPAHs	0.882	22.4	960
78004003	WY-SED-03	Sediment	Acenaphthene	0.0114	0.3	16
78004003	WY-SED-03	Sediment	Anthracene	0.0406	1.0	220
78004003	WY-SED-03	Sediment	Benzo (a) anthracene	0.0635	1.6	110
78004003	WY-SED-03	Sediment	Benzo (a) pyrene	0.0317	0.805	99
78004003	WY-SED-03	Sediment	Total Benzofluoranthenes	0.099	2.5	230
78004003	WY-SED-03	Sediment	Benzo (ghi) perylene	0.0190	0.482	31
78004003	WY-SED-03	Sediment	Chrysene	0.102	2.6	110
78004003	WY-SED-03	Sediment	Fluoranthene	0.310	7.9	160
78004003	WY-SED-03	Sediment	Fluorene	0.0152	0.386	23
78004003	WY-SED-03	Sediment	Indeno (1,2,3-cd) pyrene	0.0165	0.419	34
78004003	WY-SED-03	Sediment	2-Methylnaphthalene	0.0102	0.259	38
78004003	WY-SED-03	Sediment	Naphthalene	0.0178	0.452	99
78004003	WY-SED-03	Sediment	Phenanthrene	0.116	2.9	100
78004003	WY-SED-03	Sediment	Pyrene	0.240	6.1	1000
78004003	WY-SED-03	Sediment	Dimethyl phthalate	0.236	6.0	53
78004003	WY-SED-03	Sediment	Total Organic Carbon	3.94%		
78004004	WY-SED-04	Sediment	Cadmium	0.330		5.1
78004004	WY-SED-04	Sediment	Chromium	28.9		260
78004004	WY-SED-04	Sediment	Copper	40.3		390
78004004	WY-SED-04	Sediment	Nickel	32.0		
78004004	WY-SED-04	Sediment	Lead	11.6 J		450
78004004	WY-SED-04	Sediment	Zinc	75.9		410
78004004	WY-SED-04	Sediment	Arsenic	5.85 J		57
78004004	WY-SED-04	Sediment	Silver	0.0922		6.1
78004004	WY-SED-04	Sediment	Total Organic Carbon	2.23 %		

(1) = All results in mg/Kg unless otherwise noted (e.g., Tributyl Tin)

(2) = TBT SQS from PSDDA Issue Paper "Testing, Reporting, and Evaluation of TBT in PSDDA and SMS Programs

(3) = SQS for 3 & 4-Methylphenol based on SQS for 4-Methylphenol

Table 5.1 Wyman Sediment - Continued

Sample Name	Station Number	Matrix	Analyte	Sample [1] Results (mg/Kg)	Sample Results (mg/Kg TOC)	SQS (mg/Kg)
78004005	WY-SED-05	Sediment	Cadmium	0.380		5.1
78004005	WY-SED-05	Sediment	Chromium	27.8		260
78004005	WY-SED-05	Sediment	Copper	29.0		390
78004005	WY-SED-05	Sediment	Nickel	27.5		
78004005	WY-SED-05	Sediment	Lead	11.0 J		450
78004005	WY-SED-05	Sediment	Zinc	62.0		410
78004005	WY-SED-05	Sediment	Arsenic	6.46 J		57
78004005	WY-SED-05	Sediment	Silver	0.0932		6.1
78004005	WY-SED-05	Sediment	Total Organic Carbon	2.25 %		
78004006	WY-SED-06	Sediment	Cadmium	0.251		5.1
78004006	WY-SED-06	Sediment	Chromium	19.8		260
78004006	WY-SED-06	Sediment	Copper	131		390
78004006	WY-SED-06	Sediment	Nickel	20.0		
78004006	WY-SED-06	Sediment	Lead	17.7 J		450
78004006	WY-SED-06	Sediment	Zinc	74.1		410
78004006	WY-SED-06	Sediment	Arsenic	6.84 J		57
78004006	WY-SED-06	Sediment	Silver	0.100		6.1
78004006	WY-SED-06	Sediment	LPAH	0.165	5.8	370
78004006	WY-SED-06	Sediment	HPAH	0.643	22.5	960
78004006	WY-SED-06	Sediment	Acenaphthene	0.0146	0.510	16
78004006	WY-SED-06	Sediment	Anthracene	0.0268	0.937	220
78004006	WY-SED-06	Sediment	Benzo (a) anthracene	0.0620	2.2	110
78004006	WY-SED-06	Sediment	Benzo (a) pyrene	0.0413	1.4	99
78004006	WY-SED-06	Sediment	Total Benzofluoranthenes	0.0937	3.3	230
78004006	WY-SED-06	Sediment	Benzo (ghi) perylene	0.0268	0.937	31
78004006	WY-SED-06	Sediment	Chrysene	0.0876	3.1	110
78004006	WY-SED-06	Sediment	Fluoranthene	0.174	6.1	160
78004006	WY-SED-06	Sediment	Fluorene	0.0122	0.427	23
78004006	WY-SED-06	Sediment	Indeno (1,2,3-cd) pyrene	0.0207	0.724	34
78004006	WY-SED-06	Sediment	2-Methylnaphthalene	0.0109	0.381	38

(1) = All results in mg/Kg unless otherwise noted (e.g., Tributyl Tin)

(2) = TBT SQS from PSDDA Issue Paper "Testing, Reporting, and Evaluation of TBT in PSDDA and SMS Programs

(3) = SQS for 3 & 4-Methylphenol based on SQS for 4-Methylphenol

Table 5.1 Wyman Sediment - Continued

Sample Name	Station Number	Matrix	Analyte	Sample [1] Results (mg/Kg)	Sample Results (mg/Kg TOC)	SQS (mg/Kg)
78004006	WY-SED-06	Sediment	Naphthalene	0.0219	0.766	99
78004006	WY-SED-06	Sediment	Phenanthrene	0.0790	2.8	100
78004006	WY-SED-06	Sediment	Pyrene	0.137	4.8	1000
78004006	WY-SED-06	Sediment	Dimethyl phthalate	0.218	7.6	53
78004006	WY-SED-06	Porewater	Tributyl Tin	0.15 µg/L		0.15 µg/L [2]
78004006	WY-SED-06	Sediment	Total Organic Carbon	2.86 %		

(1) = All results in mg/Kg unless otherwise noted (e.g., Tributyl Tin)

(2) = TBT SQS from PSDDA Issue Paper "Testing, Reporting, and Evaluation of TBT in PSDDA and SMS Programs

(3) = SQS for 3 & 4-Methylphenol based on SQS for 4-Methylphenol

APPENDIX A
FIELD EXPLORATIONS

Table A-1
Surface and Shallow Soil Sample Descriptions
Wyman's Marina Property

Sample Designation	Sample Location	Matrix	Date Sampled	Interval Sampled	Depth (feet)	Sample Description
WY-UPLD-SS-1	Parking area with white sand at surface.	Soil	7/2/97	0.0 - 0.2	0.0 - 0.2	Damp, loose, whitish gray SAND
					0.2 - 0.5	damp, gray-brown sandy gravel (crushed rock)
					0.5 - 0.7	damp, black, slightly gravely, very silty fine SAND to very fine sandy SILT, with roots (topsoil)
					0.7 - 1.0	damp, orange-brown, slightly gravely, silty fine SAND
WY-UPLD-SS-2	Parking area with dark surface stain.	Soil	7/2/97	0.0 - 0.3	0.0 - 0.3	Damp, dark brown and orange-brown, slightly silty, gravely SAND, with dark oil-like odor and surface staining
					0.3 - 0.6	damp, dark gray, gravely SAND
					0.6 - 1.2	damp, black and dark brown, slightly gravely, very silty SAND, with fragments of red brick, metal and burned wood (?)
WY-UPLD-SS-3	Near building corner; wood scraps, metal.				0.0 - 0.2	Damp, gray silty gravel (crushed rock)
			7/2/97	0.2 - 0.6	0.2 - 1.0	moist to wet, gray-brown, gravely to very gravely, silty SAND
WY-UPLD-SS-4	Below piping for generator fuel tank.	Soil	7/2/97	0.0 - 0.6	0.0 - 1.0	Damp, brown, slightly gravely, very silty SAND, with roots, vegetation
WY-UPLD-SS-5	Small burned area near burn drum.	Soil	7/2/97	0.0 - 0.9	0 - 0.6	Damp, brown, black and gray, silty, gravely SAND
					0.6 - 0.9	damp, black, slightly gravely, silty SAND (TOPSOIL)
WY-UPLD-SS-6	Next to wood pallet with two unlabelled. 55-gal. drums, one empty, one full, no labels.	Soil	7/2/97	0.0 - 0.6	0.0 - 0.6	Damp, brown, slightly silty, gravely, SAND, with grass and diesel-like odor
WY-UPLD-SS-7	Near boat haul-out tracks.	Soil	7/2/97	0.0 - 0.6	0.0 - 0.2	Mixed damp, black SAND (blast grit) and gray-brown, silty, gravely SAND
					0.2 - 0.6	Damp, dark gray and brown, slightly gravely, silty SAND
WY-UPLD-SS-8A	Near boat haul-out tracks.	Soil	7/2/97	0.0 - 0.4	0.0 - 0.4	Wet, dark brown SAND (blast grit) and wood debris
WY-UPLD-SS-8B		Soil	7/2/97	0.4 - 1.0	0.4 - 1.0	Wet, black, gray and orange-brown, slightly gravely, sandy, silty CLAY, with "chemical-like" odor)
WY-UPLD-SS-9	Boat haul-out tracks near tide line.	Soil	7/2/97	0.0 - 0.3	0.0 - 0.3	Damp, white and brown SAND (blast grit), with small colored flakes (paint?)
WY-UPLD-SS-10	Beneath sewer line under wooden dock.	Soil	7/2/97	0.0 - 0.6	0.0 - 0.6	Damp to moist, gray-brown, medium to fine SAND
WY-UPLD-SS-11	Near southwest corner of warehouse bldg.	Soil	7/2/97	0.0 - 0.3	0.0 - 0.3	Damp, black SAND (blast grit)
WY-UPLD-SUM	Inside building, southeast corner of shop floor.	Water	7/17/97	N/A	N/A	Water appears clear, but with wood chips, floating debris and oil-like material
WY-UPLD-SS-12	Near southwest corner of air compressor shack	Soil	7/17/97	0.0 - 0.3	0.0 - 0.3	Damp, dark brown and gray, gravely, silty to very silty, SAND, with organic matter, grass, roots, oil-like odor and dark surface staining
WY-UPLD-SS-13	Below northwest corner of store.	Soil	7/17/97	0.0 - 0.3	0.0 - 0.3	Moist to wet, dark brown and black, silty fine SAND, with miscellaneous debris, including scraps of wood, metal, styrofoam, multicolored paint? flakes, rope fibers
WY-UPLD-SS-14	Near shop, oil-like stains/paint (?) residue.	Soil	7/17/97	0.0 - 0.3	0.0 - 0.3	Moist, black, brown, gray, blue, tan, and red, slightly gravely, silty to very silty, medium to fine SAND, substantial organic matter, metal scraps, roots brick fragments, oil-like staining and odor
WY-UPLD-SS-15	Near small AST outside shop building.	Soil	7/17/97	0.0 - 0.3	0.0 - 0.3	Moist, black, brown, gray, blue, tan, and red, slightly gravely, silty to very silty, medium to fine SAND, substantial organic matter, metal scraps, roots brick fragments, oil-like staining and odor
WY-DRUM-#1	55-gallon drum of apparent sand blast grit.	Soil	7/2/97	0.0 - 0.4	0.0 - 0.4	Damp, white SAND (blast grit)
WY-DRUM-#2	55-gallon drum of apparent sand blast grit.	Soil	7/2/97	0.0 - 0.4	0.0 - 0.4	Damp, black SAND (blast grit)

GeoScience Management, Inc. 18608 89th Avenue NE Bothell, WA 98011	Project Name: *Wyman's Marina Upland Assessment* Location: *Port of Anacortes - Wyman's Marina* Geologist/Engineer: *Howard W. Small* Drilling Contractor: *Boretec* Drilling Method: *Modified B-24, 4 1/4-inch ID HSA*	Boring No: *WY - B - 1* Date Began: *7/14/97* Date Completed: *7/14/97* Total Depth: *7.0 feet bgs.* Sheet: *1 of 1*

Construction Details		Sampling Data						Lithologic Description
PID Meter		Sampling Method	Sample Number	Blows per 6 inches	Depth Sampled	Depth In Feet	Graphic Log and Soil Group Symbol (USCS)	(USCS Designation, density, moisture, color, soil type and comments)
	Ground Surface							
						0.5		Approximately 4 inches concrete, over 3 inches crushed rock, over:
<1		SB	S-1	12				0 to 5.0 feet: **SANDY SILT (ML)** - (Very stiff), damp, mottled brown and gray, fine sandy SILT (**FILL**).
				7				
				8		2.0		
						2.5		
<1		SB	S-2	50				@ 2.6 to 2.9 feet: Dark brown to black sandy material.
	Hydrated			12				
	Bentonite			10				
	Chips			11		4.5		
								5.0 to 7.0 feet: **SANDY SILT (ML)** - (Very stiff), wet, dark gray, slightly gravely, fine sandy SILT.
						6.0		
<1		SB	S-3	10				
				12		7.0		Bedrock at 7.0 feet?
				50/0"				

Refusal at 7.0 feet. Boring grouted with hydrated bentonite from hole bottom to ground surface.

REMARKS:

Descriptive Modifiers: Trace - < 5%; Slightly - 5 to 12 %; Silty, Gravely, etc. - 12 to 30 %; Very - 30 to 50 %.

SB means 3-inch O.D. split barrel sampler driven with 140 lb. hammer. Blow counts DO NOT represent SPT values.

ATD means estimated depth to water At Time of Drilling.

GeoScience Management, Inc. 18608 89th Avenue NE Bothell, WA 98011	Project Name: *Wyman's Marina Upland Assessment* Location: *Port of Anacortes - Wyman's Marina* Geologist/Engineer: *Howard W. Small* Drilling Contractor: *Boretec* Drilling Method: *Modified B-24, 4 1/4-inch ID HSA*	Boring No: *WY - B - 2* Date Began: *7/14/97* Date Completed: *7/14/97* Total Depth: *2.5 feet bgs.* Sheet: *1 of 1*

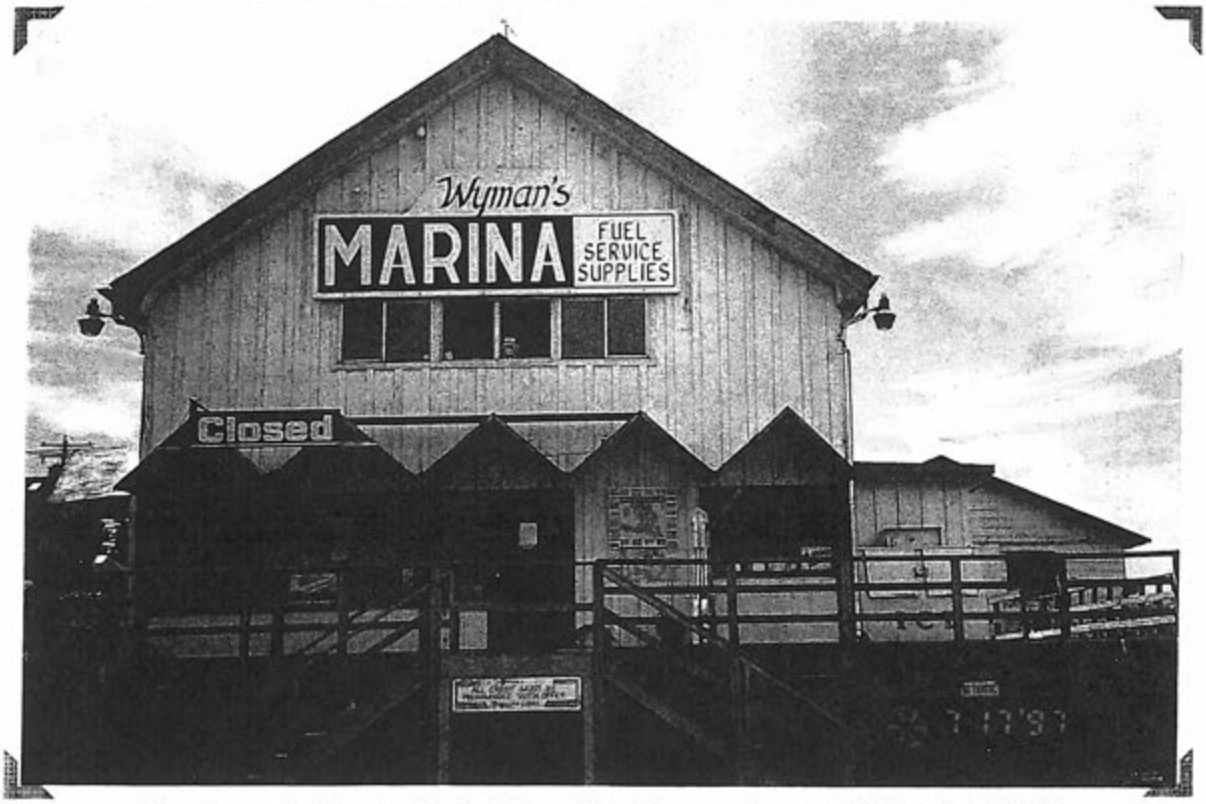
Construction Details		Sampling Data						Lithologic Description
PID Meter		Sampling Method	Sample Number	Blows per 6 inches	Depth Sampled	Depth In Feet	Graphic Log and Soil Group Symbol (USCS)	
	Ground Surface							(USCS Designation, density, moisture, color, soil type and comments
								Approximately 4 inches concrete, over 3 inches crushed rock, over:
<1		SB	S1A	10				0.7 to 2.0 feet: **SAND WITH GRAVEL (SM)** - (Medium dense), damp,
				8				wet, dark gray, trace to silty, gravely, medium to fine SAND.
			S1B	11				

REMARKS:

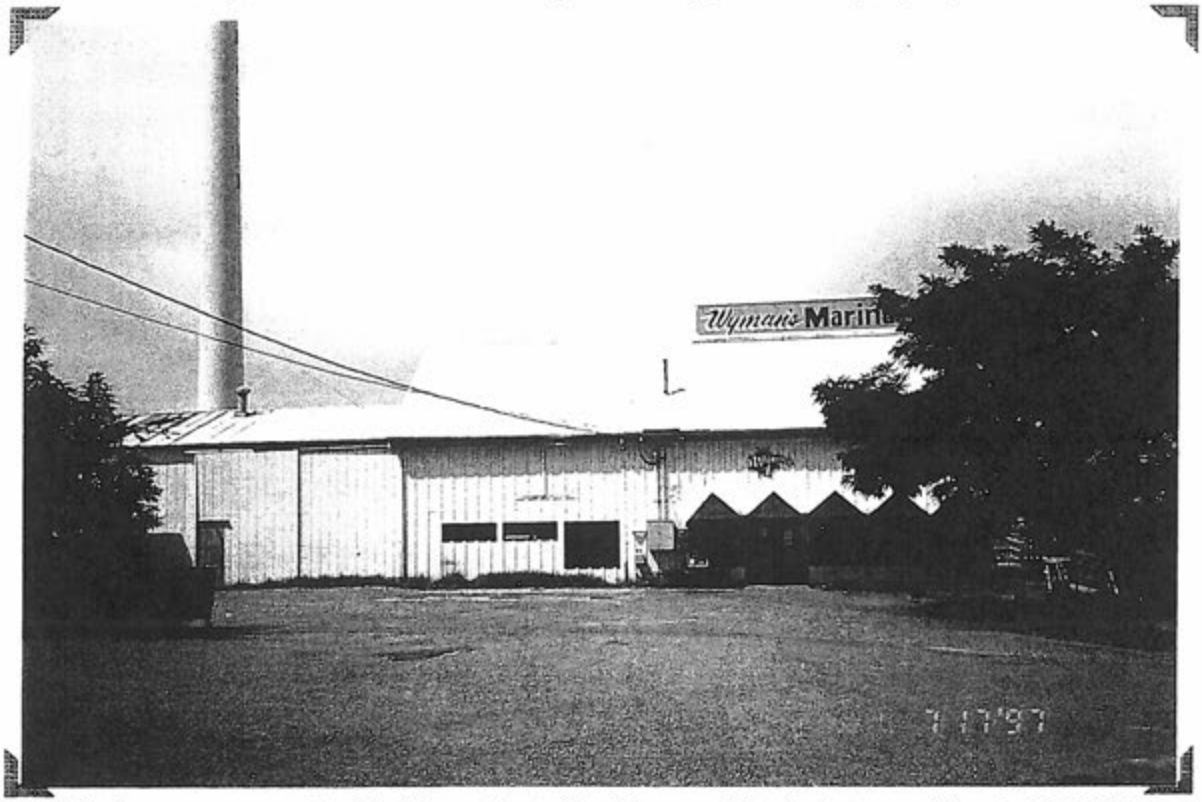
Descriptive Modifiers: Trace - < 5%; Slightly - 5 to 12 %; Silty, Gravely, etc. - 12 to 30 %; Very - 30 to 50 %.

SB means 3-inch O.D. split barrel sampler driven with 140 lb. hammer. Blow counts DO NOT represent SPT values.

ATD means estimated depth to water At Time of Drilling.



Viewing south at front of the building. Wood shop portion on right (west). 7-17-97



Viewing west at east side of building. Front of building on right. 2nd story roof is metal. 7-17-97

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1827-210th Court NE, Redmond, WA 98053-4211
425-868-6292

PHOTOGRAPHIC PLATE 1
Wyman's Marina
202 U Avenue, Anacortes, WA
Prepared for Mr. Mark Otten, P.E. and the Port of Anacortes, 9-10-97

Viewing acoustical ceiling tiles (w/ smooth surface) in retail (front) portion of building. 7-17-97

Viewing acoustical ceiling tiles (w/ dots) in front office portion (NW corner) of building. 7-17-97

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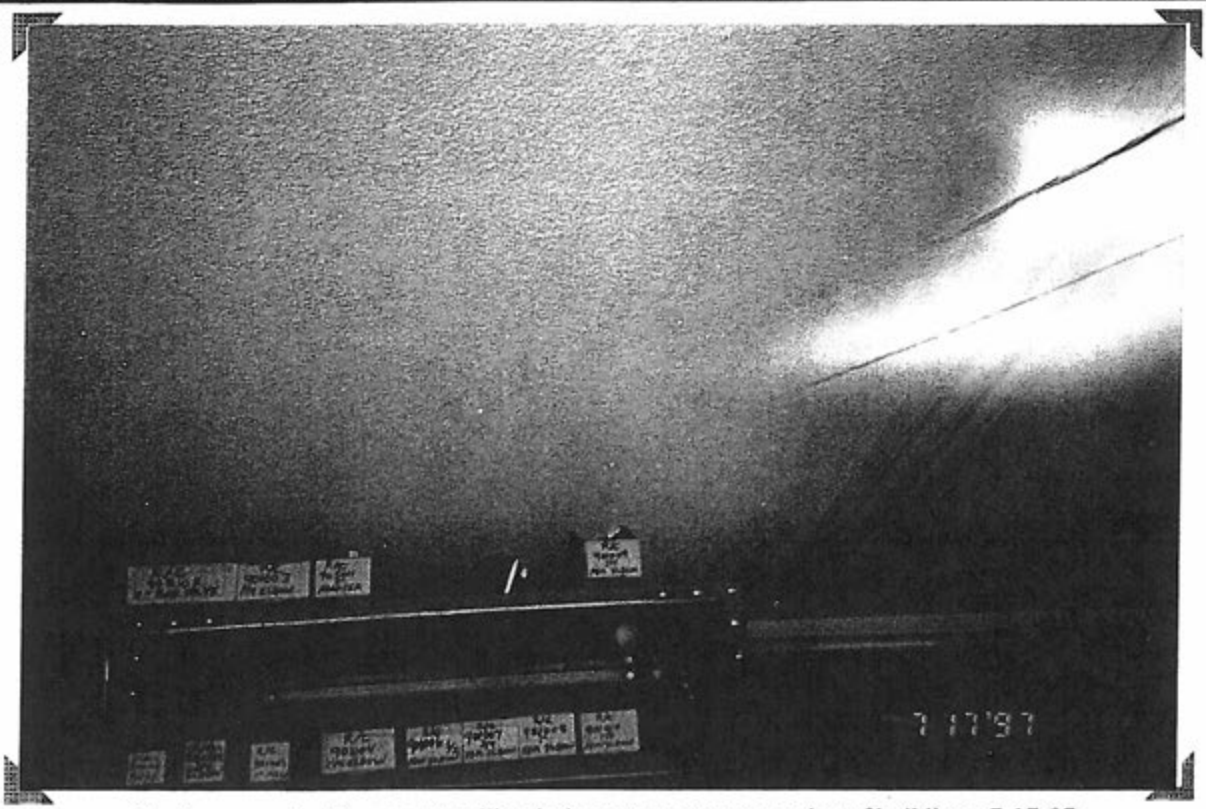
PHOTOGRAPHIC PLATE 2
Wyman's Marina
202 U Avenue, Anacortes, WA
Prepared for Mr. Mark Otten, P.E. and the Port of Anacortes, 9-10-97



Viewing acoustical (popcorn) ceiling in inventory storage portion of building. 7-17-97

Viewing vinyl floor tiles in retail (front) portion of building. 7-17-97

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PHOTOGRAPHIC PLATE 3

Wyman's Marina
202 U Avenue, Anacortes, WA
Prepared for Mr. Mark Otten, P.E. and the Port of Anacortes, 9-10-97

Certificate of Training

J&J Associates is pleased to certify that

Paul F. Schmidt

has attended and successfully completed the

AHERA BUILDING INSPECTOR REFRESHER

in accordance with
40 CFR Part 763, Subpart E, Appendix C
on this 8th day of April, 1997
at Seattle, Washington

Valid through April 8, 1998

John H. Tester Jr.
COURSE INSTRUCTOR

John H. Tester Jr.
TRAINING DIRECTOR

J&J970408-BIR-06
ACCREDITATION NO.

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1130

Underground Storage Tank
Closure Assessment
PORT OF ANACORTES
Former Wyman's Marina Property
202 U Avenue
Anacortes, Washington

Prepared for:

Port of Anacortes

March 25, 1998

Prepared by

Otten Engineering
3029 NE 182nd Street
Seattle, Washington 98155

SIGNATURE PAGE

The material and data contained in this report were prepared by and under the supervision and direction of:

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Washington UST Site Assessment ID #32-US-3200188

Mark T. Otten, P. E.
Project Manager
Washington UST Site Assessment ID # 32-US-32003049

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of the Port of Anacortes (Port), Otten Engineering conducted an underground storage tank (UST) closure assessment during decommissioning of four USTs at the Port's former Wyman's Marina property located at 202 U Avenue, in Anacortes, Washington. The assessment was conducted to evaluate the potential presence of petroleum hydrocarbons in subsurface soil beneath and adjacent to the removed fuel storage and delivery system.

Assessment activities, which were completed between February 24 and March 2, 1998, consisted of: (1) observing subsurface soil conditions exposed during removal of the USTs; (2) collecting soil and excavation water samples from the excavation pit and stockpiled soil, (3) submitting selected soil samples for quantitative chemical analyses, (4) coordinating with the Port and the removal contractor to remove additional soil impacted with residual petroleum hydrocarbon compounds, and resampling the excavation, (5) evaluating project data for completeness, quality assurance, and for general conformance with Washington State Department of Ecology guidance for underground storage tank closures, and (6) preparing this report.

The following summary documents the conditions observed during Otten Engineering's assessment activities:

- Two gasoline USTs, (one 2,000-gallon and one 3,000-gallon), and two 3,000-gallon diesel USTs, were removed from one common excavation by Marcor Remediation, Inc. The tanks were appropriately inerted, cut open and cleaned. In addition, one pump dispenser and associated subsurface piping were removed. Product piping beneath the dock was capped near the concrete bulkhead wall beneath the Marina building.

- Approximately 300 cubic yards of petroleum hydrocarbon-impacted soil were removed and stockpiled temporarily on plastic sheeting next to the excavation. After laboratory testing was completed, the material was trucked to CSR Associated, Inc.'s thermal treatment facility in Everett, WA for disposal.

- Subsurface soils encountered in the excavation consisted of black, brown and mottled gray-brown sandy silts and silty sands with a trace of gravel, to a depth of approximately 10 feet, overlying a brown sandy silt to the maximum depth excavated of 12 feet.

- Very slow ground water seepage was observed at depths of approximate 4 to 5 feet below ground surface in the excavation, at the time the tanks were removed. A water line which was located above the USTs was damaged during excavation, and resulted in an estimated 1,500 gallons of water being released into the excavation. Approximately 2,500 gallons of water per day on February 27, March 2, and March 3, 1998, were recovered from the excavation using a vacuum truck and disposed of off-site.

- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations in all soil samples collected at the limits of the final excavation were either below laboratory analytical method reporting limits (MRLs), or were below the Model Toxics Control Act Regulation, Method A Compliance Cleanup Levels [1] (MTCA Method A CCLs).

[1] Model Toxics Control Act Regulation, Chapter 173-340 WAC, amended December 1993.

- Total Petroleum Hydrocarbon concentrations as gasoline and as diesel (TPH-G, and TPH-D, respectively) all soil samples collected from the final limits of the excavation were either below MRLs, or were below MTCA Method A CCLs.

- BTEX compounds were detected in water samples collected from the excavation prior to backfilling at concentrations of 0.0908 mg/L benzene, 0.136 mg/L toluene, 0.098 mg/L ethylbenzene, and 0.219 mg/L total xylenes. The mg/L units approximate parts per million (ppm) concentrations.

- TPH-G concentrations in the water sample from the excavation was 3.73 mg/L, and the TPH-D concentration was 1.14 mg/L.

- A total of approximately 300 cubic yards of soil containing residual petroleum hydrocarbons were disposed of at CSR Consolidated, Inc.'s Everett, Washington thermal treatment facility.

- The excavation was backfilled with imported sand and gravel. Density tests were in accordance with ASTM D-2922. The results indicated that the backfill meets the specified compaction.

This summary is presented solely for introductory purposes and is intended for use in conjunction with the full text of this report. This report contains a site and project description, discussion of field observations, soil sampling procedures, analytical chemistry methods and results.

1 INTRODUCTION

1.1 Purpose and Scope of Work

Otten Engineering was retained by the Port to conduct a environmental closure assessment during decommissioning of four USTs and associated piping at the Port's Wyman's Marina property located at 202 U Avenue, in Anacortes, Washington. Our work was performed in general accordance with guidance documents for closure of USTs prepared by the Washington State Department of Ecology (Ecology). Our services were intended to assess and document subsurface soil quality with respect to petroleum hydrocarbons.

Project tasks consisted of:

- Observing and documenting subsurface conditions exposed during the excavation and removal of four USTs from a common excavation, one pump dispenser, and associated fuel delivery lines;
- Collecting soil samples from the sidewalls and bottom of the excavation, and from the stockpiled, excavated soil;
- Collecting a water sample from the excavation;
- Submitting selected soil and excavation water samples for quantitative chemical analyses;
- Coordinating additional excavation of soil after the tanks had been removed to the presence of residual petroleum hydrocarbons at concentrations above currently regulated levels.
- Evaluating project data with respect to completeness, quality assurance, and current environmental regulations and;
- Preparing this report

Our work was authorized under Contract # 002E-98 dated December 22, 1997 between the Port and Otten Engineering.

1.2 Site Location and Description

The site is located at 202 U Avenue, approximately 1/2-mile east of downtown Anacortes, Washington (Figure 1). The property is bounded to the north by the shoreline and Guemes Channel, by private residences to the east and south, and by a restaurant to the west.

The marina building is located in the north-central portion of the property. The USTs were located near the northeast corner of the building. The property is generally unpaved, with the exception of the are around the USTs, which is paved with asphalt. The site slopes to the north, with topographic relief estimated at 10 feet from the south to the north. Figure 1 provides a generalized site plan showing the location of the USTs, pump dispenser and site buildings.

2 TANK REMOVAL ACTIVITIES

2.1 Removal of Tanks, Pump Dispenser and Lines - February 1998

Excavation and tank removal activities were completed by Marcor Remediation, Inc. of Redmond, Washington, between February 24 and March 3, 1998. Dry ice was placed into the tanks to displace remaining vapors, in accordance with industry standards. However, Marcor experienced difficulty in reducing the combustible gas readings inside one of the gasoline tanks (tank #3). As a result, the Fire Inspector from the City of Anacortes would not allow the tank to be removed. However, Marcor was able to remove the other three tanks on February 24, 1998. Tank #3 was certified for removal by a licensed marine chemist on February 25, 1998, and Marcor removed the tank from the ground. Information on the characteristics of the tanks is provided in Table 1.

Table 1
Characteristics of Removed Underground Storage Tanks
Port of Anacortes
Wyman's Marina Property
202 U Avenue
Anacortes, Washington

Estimated Tank Capacity (gallons)	Tank Dimensions (feet)	Construction Material	Tank Contents
2,000	5.35' Dia. x 12' Long	Steel	Marine Gasoline
3,000	6.25" Dia. x 13.25' Long	Steel	Marine Gasoline
3,000	6.25" Dia. x 13.25' Long	Steel	Marine Diesel
3,000	6.25" Dia. x 13.25' Long	Steel	Marine Diesel

Based on field measurements and information supplied by the Port.

Prior to tank removal, the fuel delivery lines were disconnected and the contents drained into containers for proper disposal. Absorbent materials were placed in the orifice of each supply line to collect any residual fluids. Otten Engineering personnel noted at the time of removal that each of the tanks appeared to be in sound condition, with no obvious evidence of holes or corrosion. The fuel dispenser was removed, and the fuel delivery lines exposed. Soils immediately adjacent to the UST fill pipes and surrounding the USTs were noted to have a petroleum hydrocarbon-like odor and were gray in color and had an "oily appearance".

After removal from the ground, the tanks were cut open using a cut-off saw, and the insides cleaned and rinsed using a high pressure hot water washer by Marine Vacuum Service, Inc. of Seattle, WA. Residual UST sludge and cleaning fluids were transferred to Marine Vacuum's vacuum truck for transport and disposal offsite.

2.2 Soil Excavation and Sampling

Soil samples were obtained from the UST excavation at the approximate locations described in the following sections and shown on Figure 2. Due to the relatively unstable nature of the excavation sidewalls, soil samples from within the excavations were obtained using the excavator bucket. Each soil sample was labeled and placed in a chilled ice chest for transport to the analytical laboratory under standard chain-of-custody protocols.

Soil samples were field screened for the presence of volatile organic compounds with a portable photoionization detector (PID) at the time of collection. This is a subjective analysis affected by climate (e.g., temperature and humidity), soil type and conditions, instrument calibration and operation. The intent of this field analysis was to qualitatively compare samples and assist in sample selection for chemical analysis. A description of the field screening methods is included in Appendix A.

2.2.1 UST Excavation and Sampling

Between February 24 and March 3, 1998, the excavation was extended to a final maximum depth of approximately 11 to 12 feet below existing ground surface, and a final maximum extent of approximately 37 feet north-south by 24 feet east-west (Figure 2). Backfill materials surrounding the tanks consisted of silty, sand and sandy silt fill to approximately 4 feet bgs in the excavation sidewalls, and about 10 feet below the ground surface. Native soils, present in the excavation side walls below approximately 4 feet, and below 10 feet in the excavation bottom, consisted of brown sandy silt. Very slow groundwater seepage was encountered at depths about 4 to 5 feet below ground surface in the excavation.

Discrete soil samples were obtained from the walls of the tank excavation, and from beneath the USTs. Samples collected from the west wall and north walls of the excavation indicated residual petroleum hydrocarbon compounds at concentrations above the MTCA Method A CCL's for gasoline and/or diesel. Additional soils were removed and the additional samples collected. All soil samples collected at the final limits of the excavation were below MTCA A CCLs for target analytes. Sampling locations are shown on Figure 3. Table 2 presents a summary of laboratory analytical data. Laboratory reports are included in Appendix B.

2.2.2 Pump Dispenser and Product Line Excavation and Sampling

The pump dispenser was located approximately 5 feet west of the USTs fill pipes. As a result, the dispenser was removed and the soil beneath the dispenser was excavated as part of the tank removal process. Fuel delivery lines were exposed and removed between the USTs and the concrete and rockery bulkhead wall approximately 25 feet north of the tanks. An approximately 6-foot long section of the piping had apparently been grouted into the bulkhead wall when it was installed and, therefore, could not be removed without damaging the bulkhead. These pipes were cut and removed near the bulkhead wall beneath the dock immediately north of the marina building. One discrete soil sample was collected from beneath the product lines approximately 15 feet north of the tanks (Figure 2).

2.2.3 Stockpiled Excavated Soil

Soil removed from the excavation was placed into a temporary stockpile located immediately south of the excavation. The soil stockpile was constructed using a 20-mil thick bottom liner. The liner was lapped over a bermed perimeter constructed of imported sandy fill. The stockpile was covered at the end of each day to minimize rainfall infiltration into the pile. The work area was then secured using temporary plastic fencing and caution tape off pending laboratory results and arrangements for off-site disposal of the impacted soil.

Four soil samples were collected from the stockpile on March 26, 1998 for waste characterization analysis. Results of these analyses indicated that diesel-range hydrocarbons were present in all four samples at concentrations up to 682 mg/kg, gasoline-range hydrocarbons were present at concentrations of up to 587 mg/kg, and that BTEX compounds were present at concentrations up to 1.24 mg/kg, 4.62 mg/kg, 3.98 mg/kg, and 12.9 mg/kg, respectively. One sample (S-Soft Stockpile) contained 19.3 mg/kg total lead.

2.3 Excavation Dewatering

Very slow groundwater seepage from the excavation sidewalls was encountered in the UST excavation. Additionally, a plastic water line, which was present above the USTs, was accidentally broken causing an estimated 1,500 gallons of water to be released into the excavation. Approximately 2,500 gallons of water was removed from the excavation by Marine Vacuum Service on February 27, 1998. Vintage Oil Company removed an additional 3,000 gallons on March 2, and 3,000 gallons on March 3, 1998. Recovered water was transported to their treatment plan for appropriate disposal. One water sample was collected from the water in the excavation as a worst-case sample for waste characterization analyses. Laboratory analyses indicated that the following compounds were present: Gasoline- and diesel-range hydrocarbons at concentrations of 3.73 and 1.14 mg/L respectively, BTEX at concentrations of 0.0908 mg/L, 0.136 mg/L, 0.098 mg/L, and 0.219 mg/L, respectively, and total lead at a concentration of 0.032 mg/L. After soil excavation was completed, the resulting excavation was "dry", with no observable free water remaining in the bottom.

2.4 Disposal of Excavated Soil

Between March 2 and 3, 1998, a total of 400 tons (approximately 300 cubic yards) of impacted soil removed from the tank excavation, including the underlying plastic liner, were transported to CSR Consolidated, Inc.'s Everett, Washington facility for thermal desorption treatment. Truck weigh slips documenting this work are available from the Port of Anacortes.

3 SUMMARY OF FINDINGS

Between February 24 and March 2, 1998, four USTs were removed from the site by Marcor Remediation, Inc. In addition, one pump dispenser and associated subsurface piping were also removed. Residual fuel compounds were detected in soil in the resulting tank excavation.

Excavation of petroleum hydrocarbon-impacted soil was conducted between February 26 and March 3, 1998, by Marcor. Approximately 300 cy of impacted soil was removed from the ground and stockpiled temporarily on site pending offsite disposal arrangements. The stockpiled soil was taken offsite to CSR Associated thermal treatment facility located in Everett, Washington on March 2 and 3, 1998. The tank excavation was backfilled with clean imported fill.

In general, subsurface soils encountered in the excavations consisted of sands and silts with scattered gravel to the maximum depth excavated of approximately 12 to 13 feet below ground surface. Very slow groundwater seepage was observed at depths of about 4 to 5 feet bgs in the excavation at the time the tanks were removed.

Approximately 8,000 gallons of excavation water, consisting primarily of rain water and water from a water line break adjacent to the excavation, were recovered over the course of the project using a vacuum truck and disposed of off-site by Marine Vacuum Service, Inc., of Seattle, Washington.

Results of chemical analysis performed on excavated soil indicated that diesel-range hydrocarbons were present at concentrations up to 1300 mg/kg, gasoline-range hydrocarbons were present at concentrations of up to 587 mg/kg, and that BTEX compounds were present at concentrations up to 1.24 mg/kg, 4.62 mg/kg, 3.98 mg/kg, and 12.9 mg/kg, respectively. One sample (S-Soft Stockpile) contained 19.3 mg/kg total lead. Soil samples collected from the final limits of the excavation either did not contain petroleum hydrocarbons at or above the MRL, or were below the MTCA Method A CCL's.

One water sample was collected from the water in the excavation as a worst-case sample for waste characterization analyses. Laboratory analyses indicated that the following compounds were present: Gasoline- and diesel-range hydrocarbons at concentrations of 3.73 and 1.14 mg/L respectively, BTEX at concentrations of 0.0908 mg/L, 0.136 mg/L, 0.098 mg/L, and 0.219 mg/L, respectively, and total lead at a concentration of 0.032 mg/L. However, after soil excavation was completed, the resulting excavation was "dry", with no observable free water remaining in the excavation bottom.

Based on the removal of impacted soil and water from the excavation, and the results of subsequent laboratory analyses, we concluded that the area where the USTs were removed meets the MTCA Method A CCL's, and no further environmental work is warranted.

4 LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices at the time the work was performed. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

Table 2
Summary of Analytical Data
Former Wyman's Marina Property
Port of Anacortes
Anacortes, Washington

Sample Identification	Depth (Feet)	Collection Date	TPH-G [1] (mg/kg)	TPH-D [2] (mg/kg)	Benzene [3] (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Lead [4] (mg/kg)
Excavated Soil Stockpile Samples									
S-Stockpile	NA	2/26/98	117	123	ND	0.176	0.356	1.49	–
N-Stockpile	NA	2/26/98	101	512	ND	0.105	ND	ND	–
N-Soft Stockpile	NA	2/26/98	274	682	1.09	4.03	2.11	8.7	–
S-Soft Stockpile	NA	2/26/98	587	608	1.24	4.62	3.98	12.9	19.3
Tank Excavation Soil Samples									
NE Wall @ 5.5	5.5	2/25/98	ND	ND	ND	ND	ND	ND	ND
SW Wall @ 6.0	6.0	2/25/98	ND	ND	ND	ND	ND	ND	ND
NW Wall @ 5.0	5.0	2/25/98	140	52.8	0.161	0.200	1.09	2.5	ND
SE Wall @ 5.5	5.5	2/25/98	ND	ND	ND	ND	ND	ND	ND
N Wall @ 5.0	5.0	2/25/98	96	1300	ND	ND	ND	ND	ND
N BTM @ 8.5	8.5	2/25/98	ND	ND	ND	ND	ND	ND	ND
South B9	9	2/27/98	ND	ND	ND	ND	ND	ND	–
South W1	9	2/27/98	ND	ND	ND	ND	ND	ND	–
West W11	6	2/27/98	16.9	105	ND	ND	ND	ND	–
Southwest W13	6	2/27/98	ND	ND	ND	ND	ND	ND	–
West W12	6	2/27/98	117	171	ND	ND	0.11	ND	–
Northwest W14	6	3/2/98	ND	ND	ND	ND	ND	ND	–
Fuel Piping Trench Sample									
Piping #1 @ 2.5	2.5	2/25/98	ND	10.3	ND	ND	ND	0.1	ND
[5] MTCA Method A Compliance Cleanup Levels - Soil			100	200	0.5	40	20	20	250
UST Excavation Water Samples			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Excav. Water #1	N/A	2/25/98	3.73	1.140	0.0908	0.136	0.098	0.219	0.0320

Notes:

[1] Total Petroleum Hydrocarbons as Gasoline, WDOE Method WTPH-G.

[2] Total Petroleum Hydrocarbons as Diesel, WDOE Method WTPH-D.

[3] BTEX by EPA Methods 8021B.

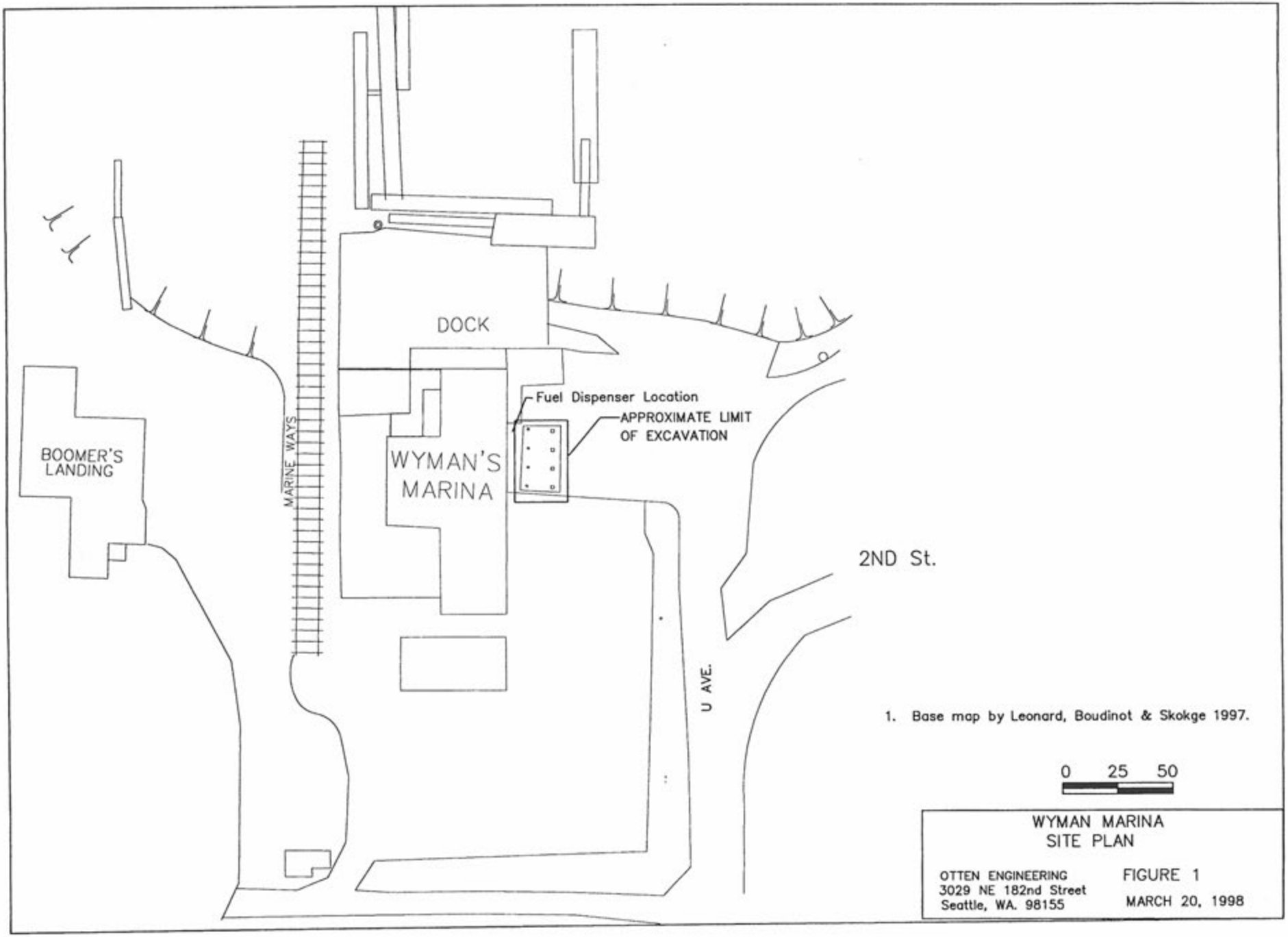
[4] Total lead by EPA Methods 7420 (Soil) and 6020 (Water).

[5] Model Toxics Control Act Regulation, Chapter 173-340 WAC, Amended December 1993.

-- Indicates analysis not performed on specified sample.

Soil analytical data reported in mg/kg which approximates parts per million (ppm) concentrations. Water data reported in mg/L

Underline denotes samples from areas which were subsequently excavated.



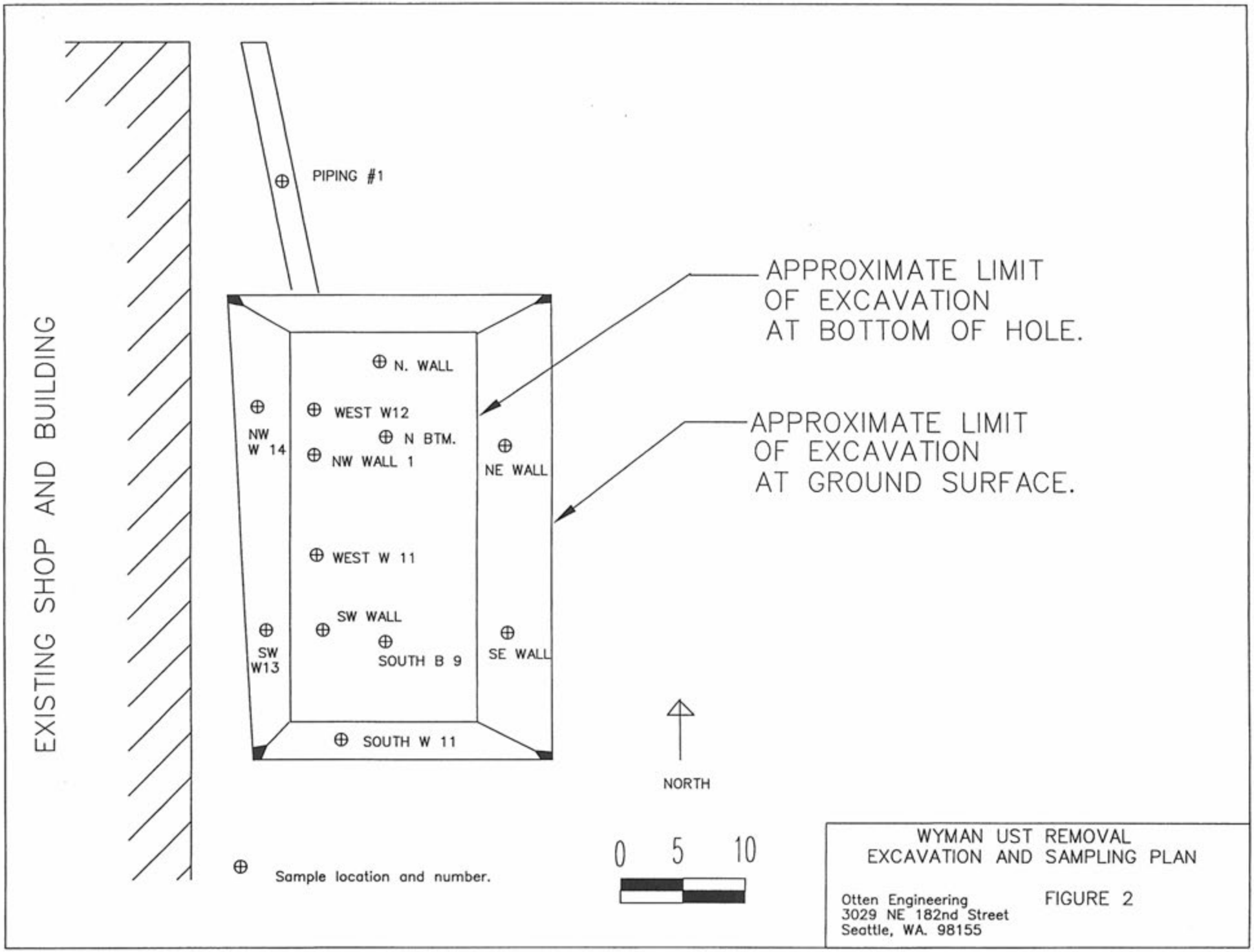
1. Base map by Leonard, Boudinot & Skokge 1997.

0 25 50

WYMAN MARINA
SITE PLAN

OTTEN ENGINEERING
3029 NE 182nd Street
Seattle, WA. 98155

FIGURE 1
MARCH 20, 1998



WYMAN UST REMOVAL
EXCAVATION AND SAMPLING PLAN

Otten Engineering
3029 NE 182nd Street
Seattle, WA. 98155

FIGURE 2

APPENDIX A

FIELD METHODS AND SAMPLING PROCEDURES

APPENDIX A
FIELD METHODS AND SAMPLING PROCEDURES

This appendix documents the procedures Otten Engineering, Inc., used in performing the field investigation described in this report. The discussion includes information on the following subjects:

- Site Safety and Operations Plan;
- Soil and Excavation Water Sampling Procedures;
- Field Screening for Organic Vapors (including monitoring of breathing zone air quality);
- Sample Jars, Sample Handling, and Chain-of-Custody Protocols;
- Field Equipment Decontamination Procedures

Site Safety and Operations Plan

As part of the field investigation, OEI employees and contractors followed the site-specific Site Safety and Operations Plan (SSOP) prepared in accordance with Chapter 296-62 of the Washington Administrative Code (WAC) and 20 Code of Federal Regulations (CFR) 1910.120. The SSOP identified potential physical and chemical hazards associated with the investigation, and specified personal protection and safety monitoring requirements. A copy of the SSOP was provided to on-site GSM and subcontractor personnel for review and discussion prior to field activities. On-site personnel associated with the field activities were required to be familiar with and comply with provisions as stated in the SSOP. Site safety meetings were conducted at the beginning of each work day to review aspects of the SSOP, and provided an opportunity for workers to discuss health and safety issues, as appropriate.

Soil and Excavation Water Sampling Procedures

Soil samples collected during the field investigation were obtained from the excavator bucket or directly from the excavation using a clean stainless steel spoon. Samples taken from the excavator bucket were collected from the least disturbed and most representative soils. Typically these soils accumulated directly behind the excavator bucket teeth.[1] Samples taken directly from an excavation or test pit were collected from undisturbed soils near the base of a side wall, base of the excavation, or approximately 1 foot above the estimated water table surface. Approximately six inches (depending on sample volume and soil type) of soil was scraped from the surface of the sample location before the sample was transferred to the sample container.

Each soil sample was split into two approximately equal portions. The first portion was transferred to a laboratory-prepared glass container(s). The second portion was transferred to a clean ziplock plastic bag and set aside for field screening. Sample handling and field screening methods are discussed in subsequent sections of this Appendix.

The excavation water sample was collected by dipping a clean sample jar attached to the end og a plastic pipe into the water, and then transferring the water slowly and carefully to individual sample jars.

Field Screening for Organic Vapors

[1] To minimize the potential of cross-contamination, every effort was made to collect a sample from soils which had not come in direct contact with the excavator bucket.

Field tests consisted of PID measurements for the presence of volatile organic vapors in the ziplock bag headspace for each recovered soil sample. The soil samples for field screening were placed in a clean ziplock bag. The bag was then allowed to stand for approximately one-quarter hour. The PID probe was then inserted into the bag, and the maximum reading of the headspace recorded. The purpose of the field tests was to determine the relative magnitude of volatile organic vapors, if any in the explorations and/or samples. A PhotoVac Microtip, calibrated daily to a 100 ppm isobutylene standard, was used to obtain these measurements. Field screening with a PID is a subjective analysis affected by, among other influences, climate (e.g., temperature and humidity), soil type and conditions, instrument calibration, and operation. The intent of this analysis is to qualitatively compare samples and assist in sample selection for chemical analysis.

This screening equipment was also used for health and safety air quality monitoring in the breathing zone during excavation operations. Measurements were obtained periodically and compared to "action levels" specified in the SSOP.

Sample Jars, Sample Handling, and Chain-of-Custody

Each discrete sample was submitted in a separate laboratory-prepared glass container. Sample jars were obtained specifically for use on this project, and consisted of glass jars with Teflon lid inserts. Samples were collected, labeled, and placed immediately into a chilled cooler for transport to the analytical laboratory. Chain-of-custody records were maintained recording sample number, location, depth, type of preservative (if any), and handling procedures.

Field Equipment Decontamination Procedures

All sampling equipment (e.g., spoons, etc.), with the exception of the excavator bucket, were routinely decontaminated after each use. Decontamination procedures consisted of cleaning with a non-phosphatic soap in a tap water solution and a stiff-bristle brush, followed by a thorough deionized water rinse. Decontamination waste water was incorporated into the soil stockpile and removed from the site for thermal treatment along with the soil stockpile.

APPENDIX B

ANALYTICAL LABORATORY REPORTS
NORTH CREEK ANALYTICAL, INC.

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (425) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled:	2/26/98
3029 NE 182nd St.	Project Number:	Not Provided	Received:	2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported:	3/2/98 10:21

Summary Report*
(Please refer to the Analytical Report for a thorough review of the complete data set.)

Method	Analyte	Units	S-Stockpile Soil 2/26/98 B802522-01	N-Stockpile Soil 2/26/98 B802522-02	N-Soft Stockpile Soil 2/26/98 B802522-03	S-Soft Stockpile Soil 2/26/98 B802522-04	
WTPH-G/8021	Gasoline Range Hydrocarbons	mg/kg dry	**117**	**101**	**274**	**587**	
"	Benzene	"	<0.0500	<0.0500	**1.09**	**1.24**	
"	Toluene	"	**0.176**	**0.105**	**4.03**	**4.62**	
"	Ethylbenzene	"	**0.356**	<0.500	**2.11**	**3.98**	
"	Xylenes (total)	"	**1.49**	<1.00	**8.70**	**12.9**	
WTPH-D	Diesel Range Hydrocarbons	mg/kg dry	**123**	**512**	**682**	**608**	
EPA 7420	Lead	mg/kg dry	-	-	-	**19.3**	

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

**The Summary Report is a subset of the final Analytical Report and does not include substantial supportive information such as quality control data; this report accurately summarizes sample results for your convenience only.*

NORTH CREEK ANALYTICAL
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\\\	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/26/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:21

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
S-Stockpile	B802522-01	Soil	2/26/98
N-Stockpile	B802522-02	Soil	2/26/98
N-Soft Stockpile	B802522-03	Soil	2/26/98
S-Soft Stockpile	B802522-04	Soil	2/26/98

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled:	2/26/98
3029 NE 182nd St.	Project Number:	Not Provided	Received:	2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported:	3/2/98 10:21

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
S-Stockpile			**B802522-01**				**Soil**	
Gasoline Range Hydrocarbons	0280693	2/28/98	2/28/98		5.00	**117**	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	**0.176**	"	
Ethylbenzene	"	"	"		0.0500	**0.356**	"	
Xylenes (total)	"	"	"		0.100	**1.49**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*112*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*110*	"	
N-Stockpile			**B802522-02**				**Soil**	
Gasoline Range Hydrocarbons	0280693	2/28/98	2/28/98		5.00	**101**	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	**0.105**	"	
Ethylbenzene	"	"	"		0.500	ND	"	1
Xylenes (total)	"	"	"		1.00	ND	"	1
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*113*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*115*	"	
N-Soft Stockpile			**B802522-03**				**Soil**	
Gasoline Range Hydrocarbons	0280693	2/28/98	2/28/98		10.0	**274**	mg/kg dry	
Benzene	"	"	"		0.100	**1.09**	"	
Toluene	"	"	"		0.100	**4.03**	"	
Ethylbenzene	"	"	"		0.100	**2.11**	"	
Xylenes (total)	"	"	"		0.200	**8.70**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*119*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*114*	"	
S-Soft Stockpile			**B802522-04**				**Soil**	
Gasoline Range Hydrocarbons	0280693	2/28/98	2/28/98		20.0	**587**	mg/kg dry	
Benzene	"	"	"		0.200	**1.24**	"	
Toluene	"	"	"		0.200	**4.62**	"	
Ethylbenzene	"	"	"		0.200	**3.98**	"	
Xylenes (total)	"	"	"		0.400	**12.9**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*155*	%	2
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*138*	"	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

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SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/26/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:21

Diesel Hydrocarbons (C12-C24) by WTPH-D
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
S-Stockpile			**B802522-01**				**Soil**	
Diesel Range Hydrocarbons	0280718	2/27/98	2/28/98		10.0	**123**	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*111*	%	
N-Stockpile			**B802522-02**				**Soil**	
Diesel Range Hydrocarbons	0280718	2/27/98	2/28/98		10.0	**512**	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*119*	%	
N-Soft Stockpile			**B802522-03**				**Soil**	
Diesel Range Hydrocarbons	0280718	2/27/98	2/28/98		10.0	**682**	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*115*	%	
S-Soft Stockpile			**B802522-04**				**Soil**	
Diesel Range Hydrocarbons	0280718	2/27/98	2/28/98		10.0	**608**	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*112*	%	

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**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/26/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:21

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
S-Soft Stockpile			**B802522-04**				**Soil**	
Lead	0280720	2/27/98	3/2/98	EPA 7420	5.00	**19.3**	mg/kg dry	

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled:	2/26/98
3029 NE 182nd St.	Project Number:	Not Provided	Received:	2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported:	3/2/98 10:21

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
S-Stockpile	B802522-01	Soil	86.5	%
N-Stockpile	B802522-02	Soil	86.8	%
N-Soft Stockpile	B802522-03	Soil	81.7	%
S-Soft Stockpile	B802522-04	Soil	80.2	%

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/26/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:21

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0280693	**Date Prepared: 2/28/98**					**Extraction Method: EPA 5030B (MeOH)**				
Blank	**0280693-BLK1**									
Gasoline Range Hydrocarbons	2/28/98			**ND**	mg/kg dry	**5.00**				
Benzene	"			**ND**	"	**0.0500**				
Toluene	"			**ND**	"	**0.0500**				
Ethylbenzene	"			**ND**	"	**0.0500**				
Xylenes (total)	"			**ND**	"	**0.100**				
Surrogate: 4-BFB (FID)	"	*4.00*		*4.32*	"	*50.0-150*	*108*			
Surrogate: 4-BFB (PID)	"	*4.00*		*4.18*	"	*50.0-150*	*104*			
LCS	**0280693-BS1**									
Gasoline Range Hydrocarbons	2/28/98	25.0		30.2	mg/kg dry	75.0-125	121			
Surrogate: 4-BFB (FID)	"	*4.00*		*4.55*	"	*50.0-150*	*114*			
Duplicate	**0280693-DUP1**		**B802522-02**							
Gasoline Range Hydrocarbons	3/1/98		101	96.1	mg/kg dry			50.0	**4.97**	
Surrogate: 4-BFB (FID)	"	*4.61*		*5.09*	"	*50.0-150*	*110*			
Duplicate	**0280693-DUP2**		**B802523-03**							
Gasoline Range Hydrocarbons	3/1/98		ND	ND	mg/kg dry			50.0		
Surrogate: 4-BFB (FID)	"	*4.79*		*4.72*	"	*50.0-150*	*98.5*			
Matrix Spike	**0280693-MS1**		**B802523-02**							
Benzene	2/28/98	0.610	ND	0.532	mg/kg dry	60.0-140	**87.2**			
Toluene	"	0.610	ND	0.558	"	60.0-140	**91.5**			
Ethylbenzene	"	0.610	ND	0.566	"	60.0-140	**92.8**			
Xylenes (total)	"	1.83	ND	1.67	"	60.0-140	**91.3**			
Surrogate: 4-BFB (PID)	"	*4.88*		*4.65*	"	*50.0-150*	*95.3*			
Matrix Spike Dup	**0280693-MSD1**		**B802523-02**							
Benzene	2/28/98	0.610	ND	0.553	mg/kg dry	60.0-140	**90.7**	20.0	**3.93**	
Toluene	"	0.610	ND	0.565	"	60.0-140	**92.6**	20.0	**1.20**	
Ethylbenzene	"	0.610	ND	0.581	"	60.0-140	**95.2**	20.0	**2.55**	
Xylenes (total)	"	1.83	ND	1.75	"	60.0-140	**95.6**	20.0	**4.60**	
Surrogate: 4-BFB (PID)	"	*4.88*		*4.70*	"	*50.0-150*	*96.3*			

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**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/26/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:21

Diesel Hydrocarbons (C12-C24) by WTPH-D/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0280718	**Date Prepared: 2/27/98**					**Extraction Method: EPA 3550B**				
Blank	**0280718-BLK1**									
Diesel Range Hydrocarbons	2/28/98			**ND**	mg/kg dry	**10.0**				
Surrogate: 2-FBP	"	*10.7*		*10.8*	"	*50.0-150*	*101*			
LCS	**0280718-BS1**									
Diesel Range Hydrocarbons	2/28/98	66.7		70.8	mg/kg dry	60.0-140	106			
Surrogate: 2-FBP	"	*10.7*		*11.2*	"	*50.0-150*	*105*			
Duplicate	**0280718-DUP2**		**B802523-03**							
Diesel Range Hydrocarbons	2/28/98		ND	ND	mg/kg dry			50.0		
Surrogate: 2-FBP	"	*12.8*		*9.35*	"	*50.0-150*	*73.0*			

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/26/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:21

Total Metals by EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0280720	**Date Prepared: 2/27/98**					**Extraction Method: EPA 3050B**				
Blank	**0280720-BLK1**									
Lead	3/2/98			**ND**	mg/kg dry	**5.00**				
LCS	**0280720-BS1**									
Lead	3/2/98	50.0		49.5	mg/kg dry	75.0-125	99.0			
LCS	**0280720-BS2**									
Lead	3/2/98	84.9		79.7	mg/kg dry	75.0-125	93.9			
Duplicate	**0280720-DUP1**		**B802522-04**							
Lead	3/2/98		19.3	17.6	mg/kg dry			20.0	**9.21**	
Matrix Spike	**0280720-MS1**		**B802522-04**							
Lead	3/2/98	30.6	19.3	45.5	mg/kg dry	75.0-125	**85.6**			
Matrix Spike Dup	**0280720-MSD1**		**B802522-04**							
Lead	3/2/98	29.5	19.3	43.7	mg/kg dry	75.0-125	**82.7**	20.0	**3.45**	

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/26/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:21

Notes and Definitions

#	Note
1	The reporting limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
2	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.
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
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
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East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B802522

REPORT TO: Otten Engineering
ATTENTION: Mark Otten
ADDRESS:
PHONE: 206 365 9266 FAX:
PROJECT NAME: Wyman's Marina USTs
PROJECT NUMBER: 1
SAMPLED BY: HWSmall

INVOICE TO: Port of Anacortes
ATTENTION: Don
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: GAS/BTX	TPH-D	Total Pb	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. S-Stockpile	2/26/98	B802522 01	X	X		S	2	
2. N-Stockpile	2/26/98	02	X	X		S	1	
3. N-Soft Stkple	2/26/98	03	X	X		S	1	
4. S-Soft Stkple	2/26/98	04	X	X	X	S	2	
5.								
6.								
7.								
8.								
9.								
10.								

RELINQUISHED BY (Signature): HWSmall — DATE: 2/27/98
PRINT NAME: HWSmall — FIRM: GSM — TIME: 7:50 PM

RECEIVED BY (Signature): Lisa Hurley — DATE: 2/27/98
PRINT NAME: Lisa Hurley — FIRM: NCA — TIME: 1450

RELINQUISHED BY (Signature): — DATE:
PRINT NAME: — FIRM: — TIME:

RECEIVED BY (Signature): — DATE:
PRINT NAME: — FIRM: — TIME:

ADDITIONAL REMARKS: Need results by mid-morning Monday 3/2/98. Please fax data to HWSmall@4254021388

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/25/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/26/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:39

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
NW Wall @ 5'	B802477-01	Soil	2/25/98
SE Wall @ 5.5'	B802477-02	Soil	2/25/98
N Wall @ 5.5'	B802477-03	Soil	2/25/98
N BTM @ 8.5'	B802477-04	Soil	2/25/98
PIPING #1 @ 2.5'	B802477-05	Soil	2/25/98
NE Wall @ 5.5'	B802477-06	Soil	2/25/98
SW Wall @ 6.0'	B802477-07	Soil	2/25/98
Excav. Water #1	B802477-08	Water	2/25/98

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/25/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/26/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:39

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
NW Wall @ 5'			**B802477-01**				**Soil**	
Gasoline Range Hydrocarbons	0280663	2/26/98	2/27/98		5.00	**140**	mg/kg dry	
Benzene	"	"	"		0.0500	**0.161**	"	
Toluene	"	"	"		0.0500	**0.200**	"	
Ethylbenzene	"	"	"		0.0500	**1.09**	"	
Xylenes (total)	"	"	"		0.100	**2.50**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*147*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*113*	"	
SE Wall @ 5.5'			**B802477-02**				**Soil**	
Gasoline Range Hydrocarbons	0280663	2/26/98	2/27/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*111*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*104*	"	
N Wall @ 5.5'			**B802477-03**				**Soil**	
Gasoline Range Hydrocarbons	0280663	2/26/98	2/27/98		25.0	**96.3**	mg/kg dry	1
Benzene	"	"	"		0.250	ND	"	
Toluene	"	"	"		0.250	ND	"	
Ethylbenzene	"	"	"		0.250	ND	"	
Xylenes (total)	"	"	"		0.500	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*115*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*110*	"	
N BTM @ 8.5'			**B802477-04**				**Soil**	
Gasoline Range Hydrocarbons	0280663	2/26/98	2/27/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*108*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*105*	"	
PIPING #1 @ 2.5'			**B802477-05**				**Soil**	
Gasoline Range Hydrocarbons	0280663	2/26/98	2/27/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/25/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/26/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:39

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
PIPING #1 @ 2.5' (continued)			**B802477-05**				**Soil**	
Toluene	0280663	2/26/98	2/27/98		0.0500	ND	mg/kg dry	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*114*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*108*	"	
NE Wall @ 5.5'			**B802477-06**				**Soil**	
Gasoline Range Hydrocarbons	0280663	2/26/98	2/26/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*101*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*101*	"	
SW Wall @ 6.0'			**B802477-07**				**Soil**	
Gasoline Range Hydrocarbons	0280663	2/26/98	2/27/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*114*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*108*	"	
Excav. Water #1			**B802477-08**				**Water**	
Gasoline Range Hydrocarbons	0280673	2/26/98	2/26/98		500	**3730**	ug/l	
Benzene	"	"	"		5.00	**90.8**	"	
Toluene	"	"	"		5.00	**136**	"	
Ethylbenzene	"	"	"		5.00	**98.0**	"	
Xylenes (total)	"	"	"		10.0	**219**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*97.5*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*99.6*	"	

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/25/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/26/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:39

Diesel Hydrocarbons (C12-C24) by WTPH-D
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
NW Wall @ 5'			**B802477-01**				**Soil**	
Diesel Range Hydrocarbons	0280678	2/26/98	2/26/98		10.0	**52.8**	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*90.5*	%	
SE Wall @ 5.5'			**B802477-02**				**Soil**	
Diesel Range Hydrocarbons	0280678	2/26/98	2/26/98		10.0	ND	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*96.9*	%	
N Wall @ 5.5'			**B802477-03**				**Soil**	
Diesel Range Hydrocarbons	0280678	2/26/98	2/26/98		10.0	**1330**	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*121*	%	
N BTM @ 8.5'			**B802477-04**				**Soil**	
Diesel Range Hydrocarbons	0280678	2/26/98	2/26/98		10.0	ND	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*97.7*	%	
PIPING #1 @ 2.5'			**B802477-05**				**Soil**	
Diesel Range Hydrocarbons	0280678	2/26/98	2/26/98		10.0	**10.3**	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*88.9*	%	
NE Wall @ 5.5'			**B802477-06**				**Soil**	
Diesel Range Hydrocarbons	0280678	2/26/98	2/26/98		10.0	ND	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*96.1*	%	
SW Wall @ 6.0'			**B802477-07**				**Soil**	
Diesel Range Hydrocarbons	0280678	2/26/98	2/26/98		10.0	ND	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*94.5*	%	
Excav. Water #1			**B802477-08**				**Water**	
Diesel Range Hydrocarbons	0280667	2/26/98	2/27/98		10.3	**1140**	mg/l	
Surrogate: Octacosane	"	"	"	*50.0-150*		*63.3*	%	*2*

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**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/25/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/26/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:39

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
NW Wall @ 5'			**B802477-01**				**Soil**	
Lead	0280687	2/26/98	2/26/98	EPA 7420	25.0	ND	mg/kg dry	
SE Wall @ 5.5'			**B802477-02**				**Soil**	
Lead	0280687	2/26/98	2/26/98	EPA 7420	25.0	ND	mg/kg dry	
N Wall @ 5.5'			**B802477-03**				**Soil**	
Lead	0280687	2/26/98	2/26/98	EPA 7420	25.0	ND	mg/kg dry	
N BTM @ 8.5'			**B802477-04**				**Soil**	
Lead	0280687	2/26/98	2/26/98	EPA 7420	25.0	ND	mg/kg dry	
PIPING #1 @ 2.5'			**B802477-05**				**Soil**	
Lead	0280687	2/26/98	2/26/98	EPA 7420	25.0	ND	mg/kg dry	
NE Wall @ 5.5'			**B802477-06**				**Soil**	
Lead	0280687	2/26/98	2/26/98	EPA 7420	25.0	ND	mg/kg dry	
SW Wall @ 6.0'			**B802477-07**				**Soil**	
Lead	0280687	2/26/98	2/26/98	EPA 7420	25.0	ND	mg/kg dry	
Excav. Water #1			**B802477-08**				**Water**	
Lead	0280668	2/26/98	2/27/98	EPA 6020	0.00100	**0.0320**	mg/l	

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**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/25/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/26/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:39

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
NW Wall @ 5'	B802477-01	Soil	84.5	%
SE Wall @ 5.5'	B802477-02	Soil	82.7	%
N Wall @ 5.5'	B802477-03	Soil	87.8	%
N BTM @ 8.5'	B802477-04	Soil	80.7	%
PIPING #1 @ 2.5'	B802477-05	Soil	85.1	%
NE Wall @ 5.5'	B802477-06	Soil	83.0	%
SW Wall @ 6.0'	B802477-07	Soil	83.5	%

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/25/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/26/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:39

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0280663	**Date Prepared: 2/26/98**					**Extraction Method: EPA 5030B (MeOH)**				
Blank	**0280663-BLK1**									
Gasoline Range Hydrocarbons	2/26/98			**ND**	mg/kg dry	**5.00**				
Benzene	"			**ND**	"	**0.0500**				
Toluene	"			**ND**	"	**0.0500**				
Ethylbenzene	"			**ND**	"	**0.0500**				
Xylenes (total)	"			**ND**	"	**0.100**				
Surrogate: 4-BFB (FID)	"	*4.00*		*4.89*	"	*50.0-150*	*122*			
Surrogate: 4-BFB (PID)	"	*4.00*		*4.63*	"	*50.0-150*	*116*			
LCS	**0280663-BS1**									
Gasoline Range Hydrocarbons	2/26/98	25.0		26.6	mg/kg dry	75.0-125	106			
Surrogate: 4-BFB (FID)	"	*4.00*		*5.17*	"	*50.0-150*	*129*			
Duplicate	**0280663-DUP1**		**B802477-01**							
Gasoline Range Hydrocarbons	2/27/98		140	40.0	mg/kg dry			50.0	**111**	3
Surrogate: 4-BFB (FID)	"	*4.73*		*6.15*	"	*50.0-150*	*130*			
Matrix Spike	**0280663-MS1**		**B802477-02**							
Benzene	2/27/98	0.605	ND	0.572	mg/kg dry	60.0-140	**94.5**			
Toluene	"	0.605	ND	0.617	"	60.0-140	**102**			
Ethylbenzene	"	0.605	ND	0.603	"	60.0-140	**99.7**			
Xylenes (total)	"	1.81	ND	1.87	"	60.0-140	**103**			
Surrogate: 4-BFB (PID)	"	*4.84*		*5.32*	"	*50.0-150*	*110*			
Matrix Spike Dup	**0280663-MSD1**		**B802477-02**							
Benzene	2/27/98	0.605	ND	0.578	mg/kg dry	60.0-140	**95.5**	20.0	**1.05**	
Toluene	"	0.605	ND	0.615	"	60.0-140	**102**	20.0	**0**	
Ethylbenzene	"	0.605	ND	0.605	"	60.0-140	**100**	20.0	**0.300**	
Xylenes (total)	"	1.81	ND	1.86	"	60.0-140	**103**	20.0	**0**	
Surrogate: 4-BFB (PID)	"	*4.84*		*5.10*	"	*50.0-150*	*105*			
Batch: 0280673	**Date Prepared: 2/26/98**					**Extraction Method: EPA 5030B (P/T)**				
Blank	**0280673-BLK1**									
Gasoline Range Hydrocarbons	2/26/98			**ND**	ug/l	**50.0**				
Benzene	"			**ND**	"	**0.500**				
Toluene	"			**ND**	"	**0.500**				
Ethylbenzene	"			**ND**	"	**0.500**				
Xylenes (total)	"			**ND**	"	**1.00**				

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**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/25/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/26/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:39

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0280673-BLK1**									
Surrogate: 4-BFB (FID)	*2/26/98*	*48.0*		*47.6*	*ug/l*	*50.0-150*	*99.2*			
Surrogate: 4-BFB (PID)	"	*48.0*		*46.9*	"	*50.0-150*	*97.7*			
LCS	**0280673-BS1**									
Gasoline Range Hydrocarbons	2/26/98	500		546	ug/l	75.0-125	109			
Surrogate: 4-BFB (FID)	"	*48.0*		*49.0*	"	*50.0-150*	*102*			
Duplicate	**0280673-DUP1**		**B802399-03**							
Gasoline Range Hydrocarbons	2/26/98		61100	63600	ug/l			25.0	**4.01**	
Surrogate: 4-BFB (FID)	"	*48.0*		*54.5*	"	*50.0-150*	*114*			
Duplicate	**0280673-DUP2**		**B802399-10**							
Gasoline Range Hydrocarbons	2/26/98		51000	47200	ug/l			25.0	**7.74**	
Surrogate: 4-BFB (FID)	"	*48.0*		*46.9*	"	*50.0-150*	*97.7*			
Matrix Spike	**0280673-MS1**		**B802399-01**							
Benzene	2/26/98	10.0	ND	10.3	ug/l	70.0-130	**103**			
Toluene	"	10.0	ND	9.90	"	70.0-130	**99.0**			
Ethylbenzene	"	10.0	ND	10.2	"	70.0-130	**102**			
Xylenes (total)	"	30.0	ND	30.1	"	70.0-130	**100**			
Surrogate: 4-BFB (PID)	"	*48.0*		*47.2*	"	*50.0-150*	*98.3*			
Matrix Spike Dup	**0280673-MSD1**		**B802399-01**							
Benzene	2/26/98	10.0	ND	10.3	ug/l	70.0-130	**103**	15.0	**0**	
Toluene	"	10.0	ND	10.1	"	70.0-130	**101**	15.0	**2.00**	
Ethylbenzene	"	10.0	ND	10.3	"	70.0-130	**103**	15.0	**0.976**	
Xylenes (total)	"	30.0	ND	30.8	"	70.0-130	**103**	15.0	**2.96**	
Surrogate: 4-BFB (PID)	"	*48.0*		*46.7*	"	*50.0-150*	*97.3*			

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**Refer to end of report for text of notes and definitions.*

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/25/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/26/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:39

Diesel Hydrocarbons (C12-C24) by WTPH-D/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0280667	**Date Prepared: 2/26/98**					**Extraction Method: EPA 3520C/600 Series**				
Blank	**0280667-BLK1**									
Diesel Range Hydrocarbons	2/27/98			**ND**	mg/l	**0.250**				
Surrogate: 2-FBP	"	*0.320*		*0.305*	"	*50.0-150*	*95.3*			
LCS	**0280667-BS1**									
Diesel Range Hydrocarbons	2/27/98	2.00		1.87	mg/l	60.0-140	93.5			
Surrogate: 2-FBP	"	*0.320*		*0.235*	"	*50.0-150*	*73.4*			
Duplicate	**0280667-DUP1**		**B802469-07**							
Diesel Range Hydrocarbons	2/27/98		1.30	1.04	mg/l			44.0	**22.2**	
Surrogate: 2-FBP	"	*0.605*		*0.572*	"	*50.0-150*	*94.5*			
Batch: 0280678	**Date Prepared: 2/26/98**					**Extraction Method: EPA 3550B**				
Blank	**0280678-BLK1**									
Diesel Range Hydrocarbons	2/26/98			**ND**	mg/kg dry	**10.0**				
Surrogate: 2-FBP	"	*10.7*		*9.86*	"	*50.0-150*	*92.1*			
LCS	**0280678-BS1**									
Diesel Range Hydrocarbons	2/26/98	66.7		62.4	mg/kg dry	60.0-140	93.6			
Surrogate: 2-FBP	"	*10.7*		*9.45*	"	*50.0-150*	*88.3*			
Duplicate	**0280678-DUP1**		**B802477-05**							
Diesel Range Hydrocarbons	2/26/98		10.3	ND	mg/kg dry			50.0		
Surrogate: 2-FBP	"	*12.6*		*12.2*	"	*50.0-150*	*96.8*			

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**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/25/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/26/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:39

Total Metals by EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0280668	**Date Prepared: 2/26/98**					**Extraction Method: EPA 200 Series**				
Blank	**0280668-BLK1**									
Lead	2/27/98			**ND**	mg/l	**0.00100**				
LCS	**0280668-BS1**									
Lead	2/27/98	0.200		0.191	mg/l	80.0-120	95.5			
Duplicate	**0280668-DUP1**		**B802311-06**							
Lead	2/27/98		0.00707	0.00652	mg/l			20.0	**8.09**	
Matrix Spike	**0280668-MS1**		**B802311-06**							
Lead	2/27/98	0.200	0.00707	0.198	mg/l	75.0-125	**95.5**			
Batch: 0280687	**Date Prepared: 2/26/98**					**Extraction Method: EPA 3050B**				
Blank	**0280687-BLK1**									
Lead	2/26/98			**ND**	mg/kg dry	**25.0**				
LCS	**0280687-BS1**									
Lead	2/26/98	50.0		48.0	mg/kg dry	75.0-125	96.0			
LCS	**0280687-BS2**									
Lead	2/26/98	84.9		82.3	mg/kg dry	75.0-125	96.9			
Duplicate	**0280687-DUP1**		**B802478-01**							
Lead	2/26/98		34.4	30.8	mg/kg dry			20.0	**11.0**	
Matrix Spike	**0280687-MS1**		**B802478-01**							
Lead	2/26/98	54.4	34.4	111	mg/kg dry	75.0-125	**141**			4
Matrix Spike Dup	**0280687-MSD1**		**B802478-01**							
Lead	2/26/98	54.4	34.4	82.7	mg/kg dry	75.0-125	**88.8**	20.0	**45.4**	3

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**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/25/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/26/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:39

Notes and Definitions

#	Note
1	This sample appears to contain extractable diesel range organics.
2	Due to interference from coeluting organic compounds with the primary surrogate, results of the secondary surrogate have been used to control the analysis.
3	Visual evaluation indicates the RPD is above the control limit due to a non-homogeneous sample matrix.
4	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
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
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

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East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B802477

REPORT TO: OTTEN ENGINEERING
ATTENTION: Mark Otten
ADDRESS:
PHONE: 206 365-9266 FAX:
PROJECT NAME: WYMAN'S MARINA USTs
PROJECT NUMBER:
SAMPLED BY: H.W.Small

INVOICE TO: PORT OF ANACORTES
ATTENTION: BOB ELSNER
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | Same Day
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: GAS/BTX	TPH-D	TOTAL Pb	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. NW Wall @ 5'	2/25/98	B802477-01	X	X	X	S	2	
2. SE Wall @ 5.5		02	X	X	X	S	2	
3. N Wall @ 5.5'		03	X	X	X	S	2	
4. N BTM @ 8.5'		04	X	X	X	S	2	
5. PIPING #1 @ 2.5'		05	X	X	X	S	2	
6. NE Wall @ 5.5'		06	X	X	X	S	2	
7. SW Wall @ 6.0'		07	X	X	X	S	2	
8. EXCAV. WATER #1		08	X	X	X	W	3	WATER only! PBC 5 ppb
9.								
10.								

RELINQUISHED BY: H.W.Small — DATE: 2/26/98 — TIME: 10:17 A
PRINT NAME: HOWARD W. SMALL — FIRM: GSM

RECEIVED BY: Emily C Carlson — DATE: 2/26/98 — TIME: 10:25
PRINT NAME: EMILY C. CARLSON — FIRM: NCA

RELINQUISHED BY: — DATE: — TIME:
PRINT NAME: — FIRM:

RECEIVED BY: — DATE: — TIME:
PRINT NAME: — FIRM:

ADDITIONAL REMARKS: Please Fax results ASAP to Howard Small @ 425 402 1388

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/27/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:17

Summary Report*
(Please refer to the Analytical Report for a thorough review of the complete data set.)

Method	Analyte	Units	SOUTH B9 Soil 2/27/98 B802523-02	SOUTH W1 Soil 2/27/98 B802523-03	WEST W-11 Soil 2/27/98 B802523-04	SOUTHWEST W-13 Soil 2/27/98 B802523-05	WEST W-12 Soil 2/27/98 B802523-06
WTPH-G/8021	Gasoline Range Hydrocarbons	mg/kg dry	<5.00	<5.00	**16.9**	<5.00	**117**
"	Benzene	"	<0.0500	<0.0500	<0.0500	<0.0500	<0.100
"	Toluene	"	<0.0500	<0.0500	<0.0500	<0.0500	**0.111**
"	Ethylbenzene	"	<0.0500	<0.0500	<0.0500	<0.0500	<0.100
"	Xylenes (total)	"	<0.100	<0.100	<0.100	<0.100	<0.200
WTPH-D	Diesel Range Hydrocarbons	mg/kg dry	<10.0	<10.0	**105**	<10.0	**171**

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

**The Summary Report is a subset of the final Analytical Report and does not include substantial supportive information such as quality control data; this report accurately summarizes sample results for your convenience only.*

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/27/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:17

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
SOUTH B9	B802523-02	Soil	2/27/98
SOUTH W1	B802523-03	Soil	2/27/98
WEST W-11	B802523-04	Soil	2/27/98
SOUTHWEST W-13	B802523-05	Soil	2/27/98
WEST W-12	B802523-06	Soil	2/27/98

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/27/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:17

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
SOUTH B9			**B802523-02**				**Soil**	
Gasoline Range Hydrocarbons	0280693	2/28/98	2/28/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*100*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*97.3*	"	
SOUTH W1			**B802523-03**				**Soil**	
Gasoline Range Hydrocarbons	0280693	2/28/98	2/28/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*99.4*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*98.5*	"	
WEST W-11			**B802523-04**				**Soil**	
Gasoline Range Hydrocarbons	0280693	2/28/98	2/28/98		5.00	**16.9**	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*86.5*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*88.7*	"	
SOUTHWEST W-13			**B802523-05**				**Soil**	
Gasoline Range Hydrocarbons	0280693	2/28/98	2/28/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*98.5*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*95.8*	"	
WEST W-12			**B802523-06**				**Soil**	
Gasoline Range Hydrocarbons	0280693	2/28/98	3/2/98		10.0	**117**	mg/kg dry	
Benzene	"	"	"		0.100	ND	"	

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**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/27/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:17

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
WEST W-12 (continued)			**B802523-06**				**Soil**	
Toluene	0280693	2/28/98	3/2/98		0.100	**0.111**	mg/kg dry	
Ethylbenzene	"	"	"		0.100	ND	"	
Xylenes (total)	"	"	"		0.200	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*123*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*111*	"	

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/27/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:17

Diesel Hydrocarbons (C12-C24) by WTPH-D
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
SOUTH B9			**B802523-02**				**Soil**	
Diesel Range Hydrocarbons	0280718	2/27/98	2/28/98		10.0	ND	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*106*	%	
SOUTH W1			**B802523-03**				**Soil**	
Diesel Range Hydrocarbons	0280718	2/27/98	2/28/98		10.0	ND	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*95.3*	%	
WEST W-11			**B802523-04**				**Soil**	
Diesel Range Hydrocarbons	0280718	2/27/98	2/28/98		10.0	**105**	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*122*	%	
SOUTHWEST W-13			**B802523-05**				**Soil**	
Diesel Range Hydrocarbons	0280718	2/27/98	2/28/98		10.0	ND	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*101*	%	
WEST W-12			**B802523-06**				**Soil**	
Diesel Range Hydrocarbons	0280718	2/27/98	2/28/98		10.0	**171**	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*109*	%	

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled:	2/27/98
3029 NE 182nd St.	Project Number:	Not Provided	Received:	2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported:	3/2/98 10:17

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
SOUTH B9	B802523-02	Soil	81.9	%
SOUTH W1	B802523-03	Soil	83.4	%
WEST W-11	B802523-04	Soil	80.8	%
SOUTHWEST W-13	B802523-05	Soil	83.3	%
WEST W-12	B802523-06	Soil	84.1	%

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/27/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:17

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0280693	**Date Prepared: 2/28/98**					**Extraction Method: EPA 5030B (MeOH)**				
Blank	**0280693-BLK1**									
Gasoline Range Hydrocarbons	2/28/98			**ND**	mg/kg dry	**5.00**				
Benzene	"			**ND**	"	**0.0500**				
Toluene	"			**ND**	"	**0.0500**				
Ethylbenzene	"			**ND**	"	**0.0500**				
Xylenes (total)	"			**ND**	"	**0.100**				
Surrogate: 4-BFB (FID)	"	*4.00*		*4.32*	"	*50.0-150*	*108*			
Surrogate: 4-BFB (PID)	"	*4.00*		*4.18*	"	*50.0-150*	*104*			
LCS	**0280693-BS1**									
Gasoline Range Hydrocarbons	2/28/98	25.0		30.2	mg/kg dry	75.0-125	121			
Surrogate: 4-BFB (FID)	"	*4.00*		*4.55*	"	*50.0-150*	*114*			
Duplicate	**0280693-DUP1**		**B802522-02**							
Gasoline Range Hydrocarbons	3/1/98		101	96.1	mg/kg dry			50.0	**4.97**	
Surrogate: 4-BFB (FID)	"	*4.61*		*5.09*	"	*50.0-150*	*110*			
Duplicate	**0280693-DUP2**		**B802523-03**							
Gasoline Range Hydrocarbons	3/1/98		ND	ND	mg/kg dry			50.0		
Surrogate: 4-BFB (FID)	"	*4.79*		*4.72*	"	*50.0-150*	*98.5*			
Matrix Spike	**0280693-MS1**		**B802523-02**							
Benzene	2/28/98	0.610	ND	0.532	mg/kg dry	60.0-140	**87.2**			
Toluene	"	0.610	ND	0.558	"	60.0-140	**91.5**			
Ethylbenzene	"	0.610	ND	0.566	"	60.0-140	**92.8**			
Xylenes (total)	"	1.83	ND	1.67	"	60.0-140	**91.3**			
Surrogate: 4-BFB (PID)	"	*4.88*		*4.65*	"	*50.0-150*	*95.3*			
Matrix Spike Dup	**0280693-MSD1**		**B802523-02**							
Benzene	2/28/98	0.610	ND	0.553	mg/kg dry	60.0-140	**90.7**	20.0	**3.93**	
Toluene	"	0.610	ND	0.565	"	60.0-140	**92.6**	20.0	**1.20**	
Ethylbenzene	"	0.610	ND	0.581	"	60.0-140	**95.2**	20.0	**2.55**	
Xylenes (total)	"	1.83	ND	1.75	"	60.0-140	**95.6**	20.0	**4.60**	
Surrogate: 4-BFB (PID)	"	*4.88*		*4.70*	"	*50.0-150*	*96.3*			

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**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/27/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:17

Diesel Hydrocarbons (C12-C24) by WTPH-D/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0280718	**Date Prepared: 2/27/98**					**Extraction Method: EPA 3550B**				
Blank	**0280718-BLK1**									
Diesel Range Hydrocarbons	2/28/98			**ND**	mg/kg dry	**10.0**				
Surrogate: 2-FBP	"	*10.7*		*10.8*	"	*50.0-150*	*101*			
LCS	**0280718-BS1**									
Diesel Range Hydrocarbons	2/28/98	66.7		70.8	mg/kg dry	60.0-140	106			
Surrogate: 2-FBP	"	*10.7*		*11.2*	"	*50.0-150*	*105*			
Duplicate	**0280718-DUP2**		**B802523-03**							
Diesel Range Hydrocarbons	2/28/98		ND	ND	mg/kg dry			50.0		
Surrogate: 2-FBP	"	*12.8*		*9.35*	"	*50.0-150*	*73.0*			

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 2/27/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 2/27/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/2/98 10:17

Notes and Definitions

#	Note
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
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

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CHAIN OF CUSTODY REPORT

Work Order # B802523

REPORT TO: OTTEN ENGR
ATTENTION: MARK OTTEN
ADDRESS: 3029 NE 182nd ST
SEATTLE, WA 98155
PHONE: 206 365 9266 FAX: 206 365 ~~99~~ 9973
PROJECT NAME: WYMAN UST
PROJECT NUMBER:
SAMPLED BY: OTTEN

INVOICE TO: PORT ANACORTES
ATTENTION: BOB ELSNER
ADDRESS: PO BOX 297
ANACORTES 98221
P.O. NUMBER:
NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 (Standard) | 3-4 | 2 | 1 | ~~Same Day~~
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

Analysis Request: TPHG/BTEX, TPH-D

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	TPHG/BTEX	TPH-D									MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. NORTH B9A	2/27/98	B802523-01	HOLD										S	1	
2. SOUTH B9	↓	02	X	X									S	1	
3. SOUTH W1	↓	03	X	X									S	1	
4. WEST W-11	↓	04	X	X									S	1	Expect contamination
5. SOUTHWEST W-13	↓	05	X	X									S	1	
6. WEST W-12	↓	06	X	X									S	1	
7.															
8.															
9.															
10.															

RELINQUISHED BY (Signature): [signature] DATE: 2/27/98
PRINT NAME: MARK OTTEN FIRM: OTTEN TIME:
RECEIVED BY (Signature): [signature] DATE: 2/27/98
PRINT NAME: Lisa Hurley FIRM: NCA TIME: 1630

RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:
RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS: ASAP - MON -
17.9° No G.

PAGE OF

COC Rev 8, 1998

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 3/2/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 3/3/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/10/98 12:45

Summary Report*
(Please refer to the Analytical Report for a thorough review of the complete data set.)

Method	Analyte	Units	Northwest W-14 Soil 3/2/98 B803069-01
WTPH-G/8021	Gasoline Range Hydrocarbons	mg/kg dry	<5.00
"	Benzene	"	<0.0500
"	Toluene	"	<0.0500
"	Ethylbenzene	"	<0.0500
"	Xylenes (total)	"	<0.100
WTPH-D	Diesel Range Hydrocarbons	mg/kg dry	<10.0

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

**The Summary Report is a subset of the final Analytical Report and does not include substantial supportive information such as quality control data; this report accurately summarizes sample results for your convenience only.*

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 3/2/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 3/3/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/10/98 12:45

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
Northwest W-14	B803069-01	Soil	3/2/98

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 3/2/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 3/3/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/10/98 12:45

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Northwest W-14			**B803069-01**				**Soil**	
Gasoline Range Hydrocarbons	0380145	3/6/98	3/9/98		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*89.3*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*95.5*	"	

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**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 3/2/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 3/3/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/10/98 12:45

Diesel Hydrocarbons (C12-C24) by WTPH-D
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
Northwest W-14			**B803069-01**				**Soil**	
Diesel Range Hydrocarbons	0380200	3/9/98	3/10/98		10.0	ND	mg/kg dry	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*103*	%	

*Refer to end of report for text of notes and definitions.

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled:	3/2/98
3029 NE 182nd St.	Project Number:	Not Provided	Received:	3/3/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported:	3/10/98 12:45

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
Northwest W-14	B803069-01	Soil	85.2	%

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

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Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 3/2/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 3/3/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/10/98 12:45

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0380145	**Date Prepared: 3/6/98**					**Extraction Method: EPA 5030B (MeOH)**				
Blank	**0380145-BLK1**									
Gasoline Range Hydrocarbons	3/6/98			**ND**	mg/kg dry	**5.00**				
Benzene	"			**ND**	"	**0.0500**				
Toluene	"			**ND**	"	**0.0500**				
Ethylbenzene	"			**ND**	"	**0.0500**				
Xylenes (total)	"			**ND**	"	**0.100**				
Surrogate: 4-BFB (FID)	"	*4.00*		*3.67*	"	*50.0-150*	*91.8*			
Surrogate: 4-BFB (PID)	"	*4.00*		*4.00*	"	*50.0-150*	*100*			
LCS	**0380145-BS1**									
Gasoline Range Hydrocarbons	3/6/98	25.0		25.5	mg/kg dry	75.0-125	102			
Surrogate: 4-BFB (FID)	"	*4.00*		*3.74*	"	*50.0-150*	*93.5*			
Duplicate	**0380145-DUP1**		**B803069-01**							
Gasoline Range Hydrocarbons	3/6/98		ND	ND	mg/kg dry			50.0		1
Surrogate: 4-BFB (FID)	"	*4.69*		*3.96*	"	*50.0-150*	*84.4*			
Matrix Spike	**0380145-MS1**		**B803065-01**							
Benzene	3/7/98	0.555	0.0855	0.614	mg/kg dry	60.0-140	**95.2**			
Toluene	"	0.555	0.0500	0.609	"	60.0-140	**101**			
Ethylbenzene	"	0.555	ND	0.565	"	60.0-140	**102**			
Xylenes (total)	"	1.67	ND	1.70	"	60.0-140	**102**			
Surrogate: 4-BFB (PID)	"	*4.44*		*4.27*	"	*50.0-150*	*96.2*			
Matrix Spike Dup	**0380145-MSD1**		**B803065-01**							
Benzene	3/7/98	0.555	0.0855	0.598	mg/kg dry	60.0-140	**92.3**	20.0	**3.09**	
Toluene	"	0.555	0.0500	0.588	"	60.0-140	**96.9**	20.0	**4.14**	
Ethylbenzene	"	0.555	ND	0.568	"	60.0-140	**102**	20.0	**0**	
Xylenes (total)	"	1.67	ND	1.69	"	60.0-140	**101**	20.0	**0.985**	
Surrogate: 4-BFB (PID)	"	*4.44*		*4.20*	"	*50.0-150*	*94.6*			

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 3/2/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 3/3/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/10/98 12:45

Diesel Hydrocarbons (C12-C24) by WTPH-D/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0380200	**Date Prepared: 3/9/98**				**Extraction Method: EPA 3550B**					
Blank	**0380200-BLK1**									
Diesel Range Hydrocarbons	3/10/98			**ND**	mg/kg dry	**10.0**				
Surrogate: 2-FBP	"	*10.7*		*8.43*	"	*50.0-150*	*78.8*			
LCS	**0380200-BS1**									
Diesel Range Hydrocarbons	3/10/98	66.7		62.5	mg/kg dry	60.0-140	93.7			
Surrogate: 2-FBP	"	*10.7*		*11.3*	"	*50.0-150*	*106*			
Duplicate	**0380200-DUP1**		**B803069-01**							
Diesel Range Hydrocarbons	3/10/98		ND	ND	mg/kg dry			50.0		1
Surrogate: 2-FBP	"	*12.5*		*9.91*	"	*50.0-150*	*79.3*			

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Otten Engineering	Project:	Port of Anacortes/ Wyman's Marina UST's	Sampled: 3/2/98
3029 NE 182nd St.	Project Number:	Not Provided	Received: 3/3/98
Seattle, WA 98155	Project Manager:	Mark Otten	Reported: 3/10/98 12:45

Notes and Definitions

#	Note
1	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit.
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
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B803069

REPORT TO:
ATTENTION: MARK OTTEN
ADDRESS: OTTEN ENGR
3629 LE 182nd ST
PHONE: 206 365 9266 FAX: 206 365 9973

INVOICE TO:
ATTENTION: BOB ELSNER
ADDRESS: POINT ANALYTES

P.O. NUMBER:
NCA QUOTE #:

PROJECT NAME: WYMAN 45T
PROJECT NUMBER:
SAMPLED BY:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analyses: ~~5~~ (Standard) | 3-4 | 2 | 1 | Same Day

OTHER Specify:

* *Turnaround Requests less than standard may incur Rush Charges.*

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: TPH-G/BTEX	TPH-D	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	NORTHWEST W-14	3/2/98	B803069-01	X	X	S	1	
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								

RELINQUISHED BY (Signature): Mark T Otten DATE: 3/3/98
PRINT NAME: MARK T OTTEN FIRM: OTTEN TIME:

RECEIVED BY (Signature): B. Dightman DATE: 3/3/98
PRINT NAME: B. Dightman FIRM: NCA TIME: 10:30

RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS: 11.1° NoCs

PAGE OF

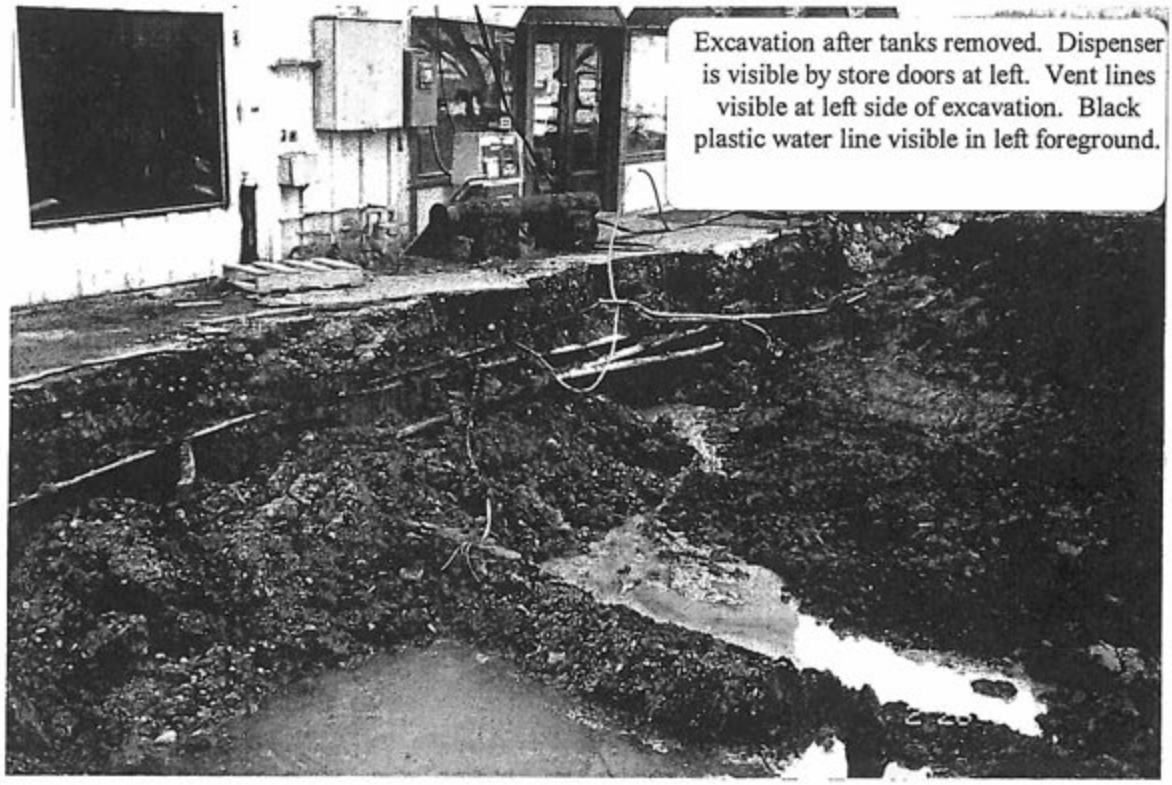
COC Rev 8, 3/96

APPENDIX C

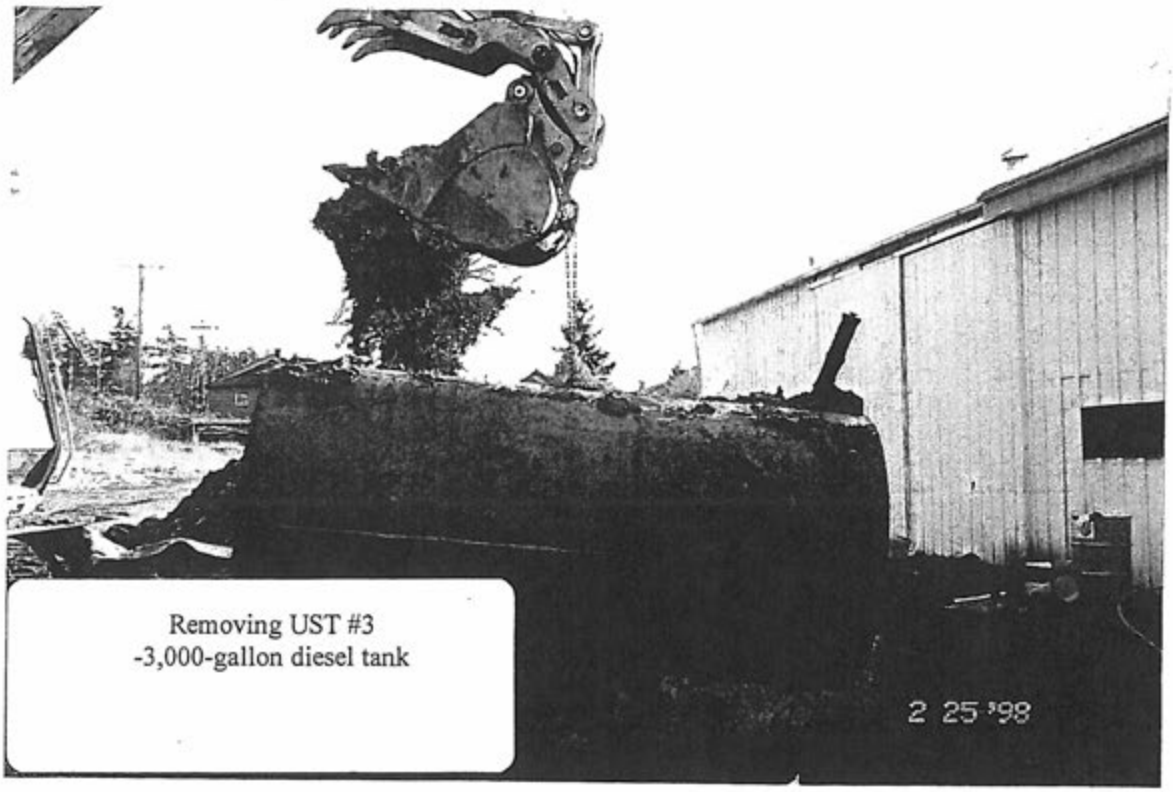
COLOR COPIES OF PHOTOGRAPHS

Tank fills before removal.

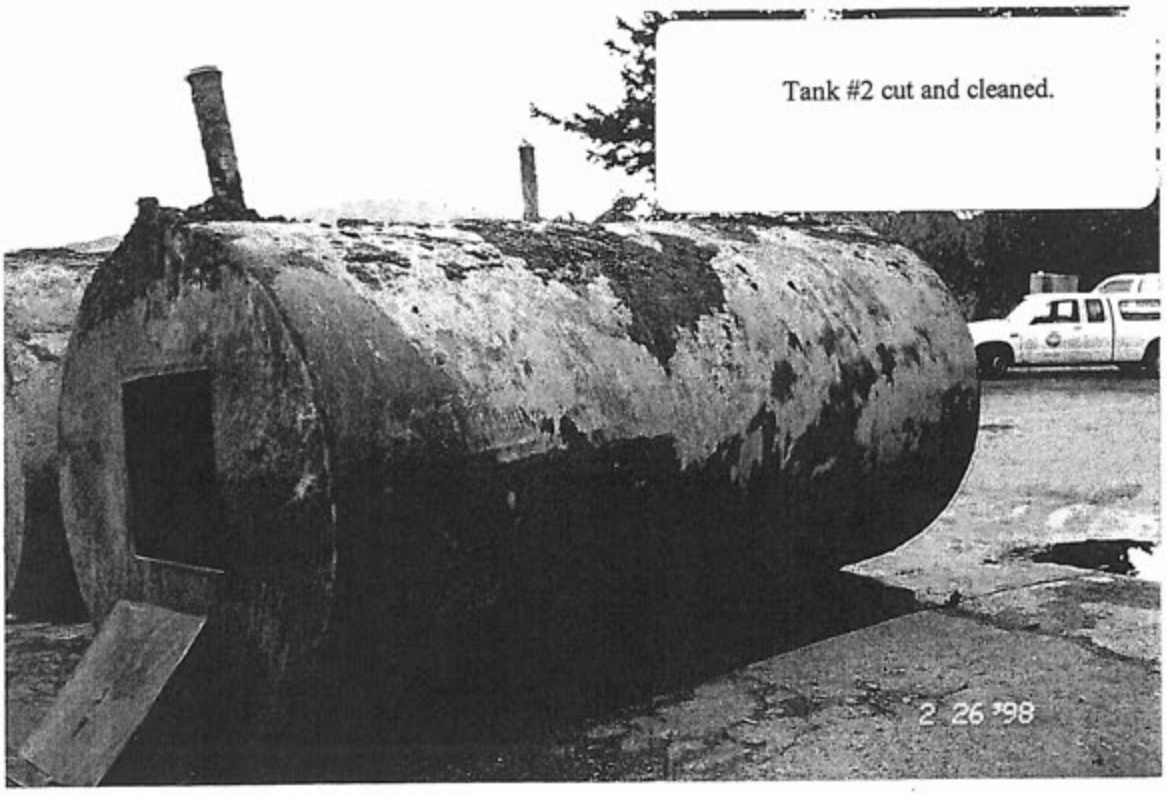
Removing UST #3
-3,000-gallon diesel tank



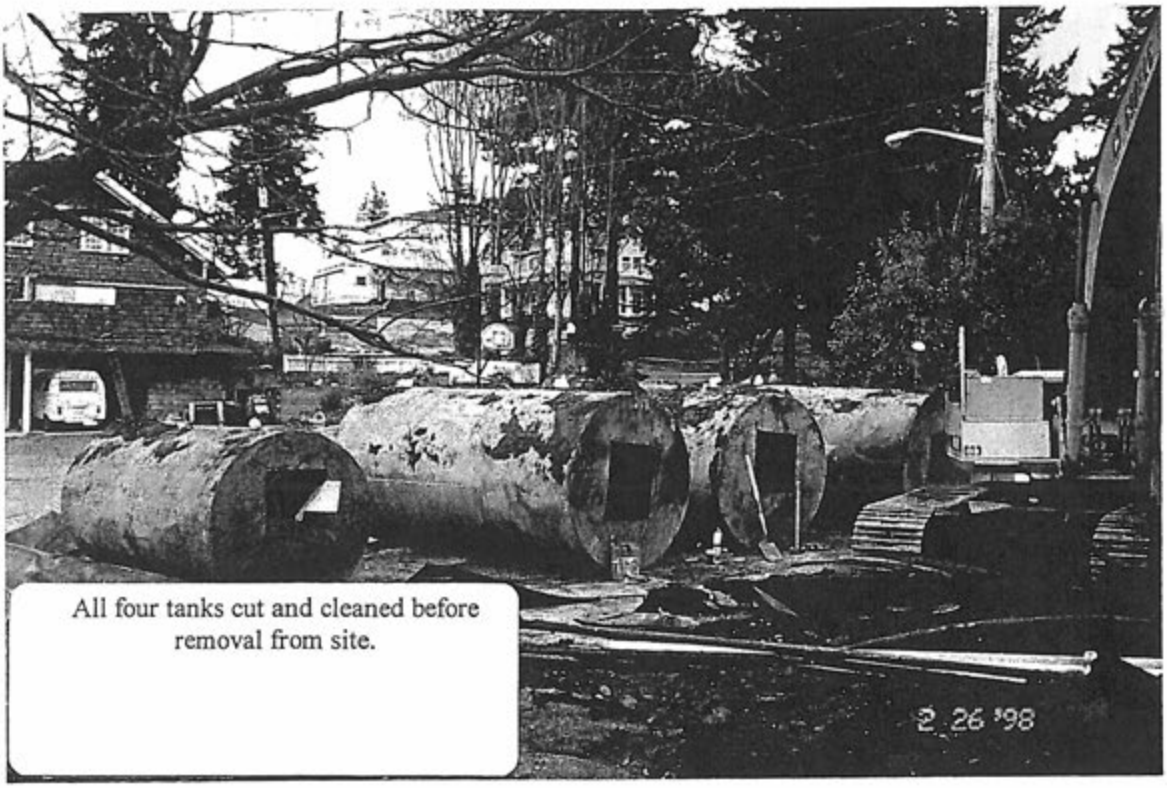
Excavation after tanks removed. Dispenser is visible by store doors at left. Vent lines visible at left side of excavation. Black plastic water line visible in left foreground.



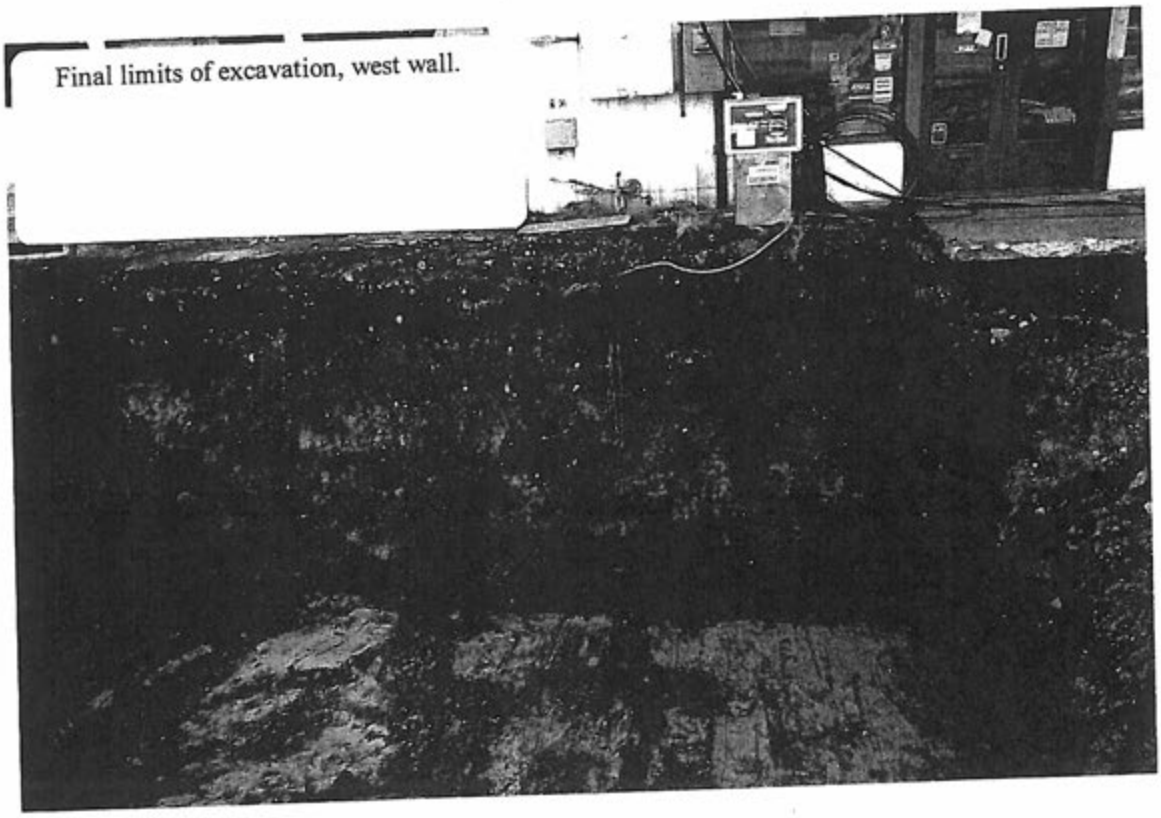
Removing UST #3
-3,000-gallon diesel tank



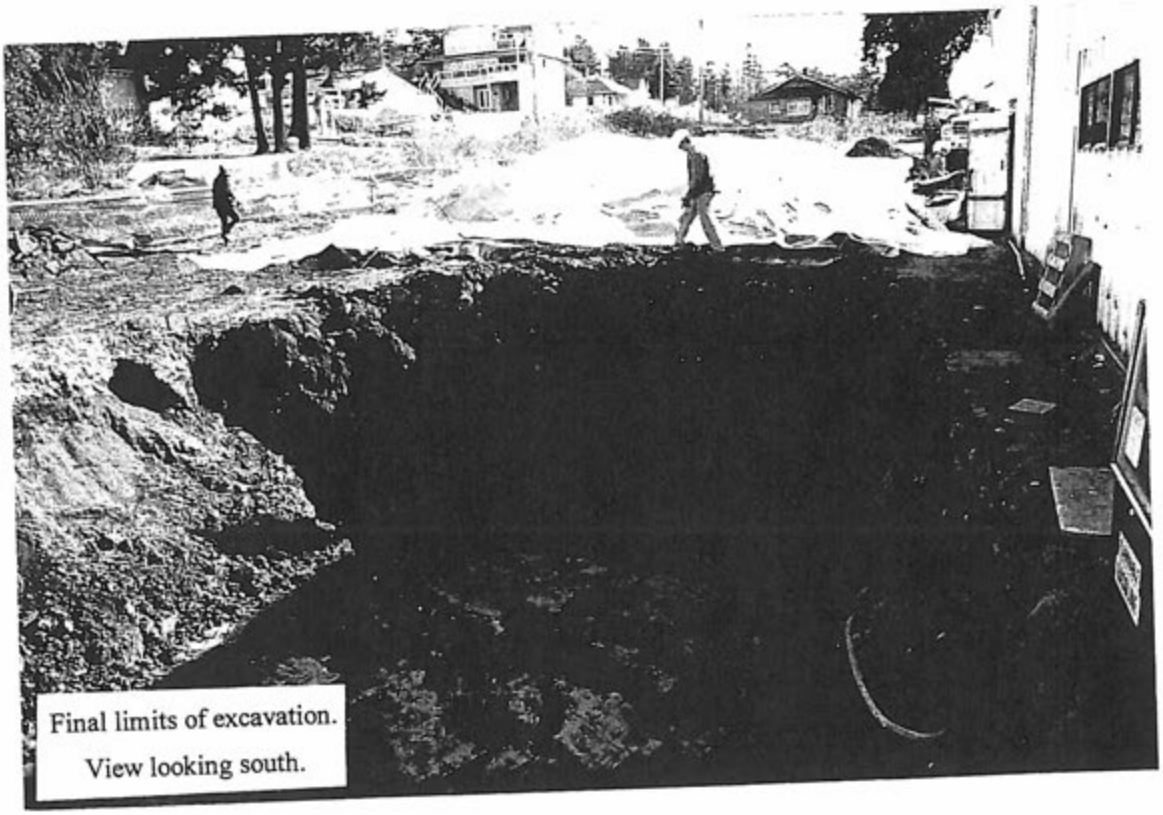
Tank #2 cut and cleaned.



All four tanks cut and cleaned before removal from site.



Final limits of excavation, west wall.



Final limits of excavation.
View looking south.

March 5, 2001

Mr. Robert Elsner
Port of Anacortes
First and Commercial Avenue
P.O. Box 297
Anacortes, Washington 98221

Re: Draft Preliminary Environmental Assessment
Wyman's Marina Property
202 U Avenue
Anacortes, Washington
J-7529

Dear Mr. Elsner:

This letter report presents the results of our preliminary environmental assessment at the referenced property located in Anacortes, Washington (Figure 1). This project was completed in accordance with our proposal (01-36-1103), dated January 22, 2001, which was authorized by the Port on January 24, 2001. The property, located at 202 U Avenue, is owned by the Port of Anacortes. Donald Wyman leased the property continuously between 1972 and 1998 as a full-service boat maintenance and repair facility. The property has been vacant since 1998. We understand that the Port is considering various redevelopment options for the property and has requested a preliminary environmental assessment to establish baseline conditions. Our preliminary environmental assessment provides information on the current conditions and the past practices at the property to evaluate whether it is likely that potentially adverse environmental conditions may be present.

This report is divided into sections that identify and discuss potential environmental issues at the subject property. The report begins with a **SUMMARY OF FINDINGS AND RECOMMENDATIONS** section, which presents an overview of the potential site environmental issues. Expanded discussion of the potential environmental issues for the property is provided in subsequent sections of this report. These sections include:

- **SCOPE OF WORK**;
- **SUBJECT PROPERTY DESCRIPTION**;
- **SITE GEOLOGY AND HYDROGEOLOGY**;

- **LIMITED HISTORICAL CHARACTERIZATION**;
- **EXISTING ENVIRONMENTAL INFORMATION**;
- **REGULATORY AGENCY DATABASE LIST AND FILE REVIEW**;
- **SITE RECONNAISSANCE**; and
- **LIMITATIONS**.

Figure 1 is a Vicinity Map showing the location of the subject property. A Site Plan showing subject property features is presented on Figure 2. Figures 3 and 4 are excerpted sample location maps from previous environmental assessment work. Appendix A contains site reconnaissance photographs, and Appendix B presents the Environmental Data Resources, Inc. (EDR) environmental database site assessment report.

SUMMARY OF PROJECT FINDINGS AND RECOMMENDATIONS

Results of the preliminary environmental assessment identified several conditions related to historical boat servicing and maintenance activities that warrant recommendations for further actions. Currently there is no evidence that these conditions represent a threat to human health or the environment.

Upland Soil and Groundwater Quality

Previous environmental sampling and analysis of surface soils by Otten Engineering in 1997 identified local areas with total petroleum hydrocarbons (TPH) and lead that exceed applicable cleanup criteria for industrial soils listed in the Adopted Amendments of the Washington State Model Toxics Control Act (MTCA – Chapter 173-340 WAC). The Adopted Amendments are expected to become effective in several months. Copper and a pesticide, 4-4 DDD, were also detected but at concentrations below applicable MTCA industrial cleanup criteria. These results are consistent with Hart Crowser's observations of localized oil staining and the presence of sandblast grit along the marine ways ramp and adjacent gravelled yard areas. Surficial oil staining is more extensive near an air compressor located beneath decking at the northwestern corner of the store building (Figure 2). No subsurface soil or groundwater quality data have been collected to date with the exception of sampling and analysis conducted during removal of four underground storage tanks (USTs) in 1998. Little is known about waste discharge practices for the facility prior to the 1990s, and the potential exists for subsurface soil and groundwater to have been impacted. Although the presence of residual sandblast grit and localized TPH is not unexpected, it is uncertain to what extent these materials may represent sources of potential contamination to groundwater.

Recommendations

Additional subsurface soil quality data should be obtained to supplement the existing information. Areas for exploration should consider the downslope portion of the marine ways ramp, fill material under the site building, yard areas next to the building and concrete work areas, and the former drum storage area near the south end of the yard. Oil-stained soils near the air compressor enclosure should be removed for appropriate off-site disposal.

Sediment Quality

Surficial sediment samples collected and analyzed by Otten Engineering in 1997 contained relatively low concentrations of chemical constituents that did not exceed applicable Sediment Quality Standards (SQS) listed in Chapter 173-204 WAC (Sediment Management Standards). No records of deeper sediment cores were identified during our assessment. Port records indicate that a U.S. Army Corps of Engineers (Corps) dredging permit was issued in 1983 to remove an estimated 2,900 cubic yards of sediment from the marina. The existing sampling data are therefore representative of the post-dredging condition and indicate that it is unlikely that sediments with higher concentrations of chemical constituents are present below the surface. In the event that marina dredging is contemplated in the future, coring and chemical analysis would be triggered by permit requirements to characterize the dredge prism material for disposal.

Building Materials

Previous laboratory analysis of building materials identified asbestos-containing materials (ACM). Floor tile identified as ACM in the lower level of the store building covers approximately 1,400 square feet and is in poor condition. Tar roofing above the wood shop (about 1,150 square feet) also contains asbestos, but is not visibly friable. In addition, lead-based paint (LBP) is present in the building exterior paint. The building also has approximately 80 fluorescent light fixtures that likely contain PCB ballasts based on their apparent age (i.e., pre-1978).

Recommendations

Prior to reoccupying, remodeling, or demolishing the former store portion of the site building, ACM floor tile should be abated in accordance with appropriate regulations (Chapter 296-62 WAC and those of the local air pollution control agency). The ACM roofing tar needs to be specially removed if the building is demolished. Contractors

performing abatement or renovation activities need to be notified about the lead content of the paint. If the building light fixtures are removed or replaced, the PCB ballasts should be handled and discarded as a Dangerous Waste in accordance with Chapter 173-303 WAC. The light fixture bulbs contain mercury vapor and should be handled and discarded as a Universal Waste.

Future Site Development

Future site development involving Shorelines Substantial Development permitting and regulatory review under the Endangered Species Act will likely trigger additional environmental assessment requirements, depending on the nature and degree of disturbance to the shoreline and aquatic areas of the site. Activities such as change in site usage, dock renovation, shoreline modifications, dredging or filling, and pile removal will require further investigation of potential environmental impacts and special construction considerations to reduce or mitigate such impacts.

SCOPE OF WORK

Our preliminary environmental assessment included:

- Conducting a review of available historical data for the subject property and surrounding area;
- Conducting a regulatory agency database list review (including available Port records) and file review for the subject property and adjacent sites;
- Conducting a site reconnaissance to observe the subject property and surrounding properties;
- Reviewing available documentation describing previous environmental assessment efforts at the subject property; and
- Preparing this letter report presenting the findings of our work.

SUBJECT PROPERTY DESCRIPTION

The subject property is located approximately 1/2 mile northeast of downtown Anacortes, Washington, on the shore of Guemes Channel (Figure 1 and Photograph 1). The marina is

bounded to the north by the shoreline, to the east and south by private residences, and to the west by a restaurant. The property consists of a site building, wooden and concrete docks, moorage area, and marine ways boat ramp for the former Wyman's Marine operations (Figure 2, Photograph 2). The marine ways includes a concrete ramp with two rails for boatlift trolley system. The dock also features a large crane structure for vessel haul out to the concrete dock area. Much of the dock area is supported by creosote-treated timber pilings. A dry dock was also used for boat servicing operations but is no longer at the site. Areas adjoining the building are exposed gravel soil with asphalt pavement along the U Avenue access on the east side of the site. A concrete pad for a former "pole" building is located immediately south of the main building. The ground surface at the site slopes gently to the north toward the shoreline area (Photograph 3).

Port lease records indicate property areas of 46,820 square feet (land) and 44,113 square feet (water). A portion of the aquatic parcel extending into Guemes Channel on the northeast corner of the property is not shown on the Figure 2 site plan. The property is zoned light manufacturing.

Surrounding Area

Residential areas are located east and south of the Wyman's Marina property. These locations lie generally uphill of site. Boomer's restaurant is located to the west, with the Port's Pier 2 log yard beyond.

SITE GEOLOGY AND HYDROGEOLOGY

Much of the shoreline is exposed bedrock with concrete bulkheading along the dock and building front (Figure 2). The exposed shoreline extends to the east and west of marine ways ramp and the dock structure. Tide was relatively high during Hart Crowser's February 6, 2001, site reconnaissance and observation of the intertidal area was limited. Sediment conditions reported by Otten Engineering during 1997 environmental sampling noted soft, sandy silt near docks and shoreline. Occasional eelgrass and kelp beds were also observed.

Site soils consist of various fill materials over native sands and silts that are likely of glacial origin. Fill and underlying native soils were observed by Otten Engineering in 1998 during removal of site USTs near the northeastern corner of the building (Figure 2). Depth to native soils was noted as about 4 feet below the ground surface in the UST excavation side walls. Extensive silty and sandy fill is visible beneath the western and northern sides of the site building. Fill thickness and composition are expected to be quite variable across the

site. The UST excavation reached a depth of about 10 feet below ground surface and did not encounter bedrock. Bedrock is exposed along the shoreline, and was noted in an Otten Engineering soil boring log from 1997 at a depth of 7 feet below the marine ways ramp. This indicates that the bedrock surface is uneven and undulates beneath the site, with overlying soil of varying thickness.

Very slow groundwater seepage was noted at depths of 4 to 5 feet below ground surface during the 1998 UST removal. This water is most likely an isolated, perched zone over fine-grained native sediments and bedrock. Groundwater discharges to the north toward the shoreline and may be affected by tidal intrusion of salt water.

LIMITED HISTORICAL CHARACTERIZATION

We researched the history of land use activities on the subject property and adjacent property to identify potential sources of contamination or activities that could impact the subject property. The historical review is based on the following:

- University of Washington Aerial photographs (1944, 1956, 1965, and 1995);
- Other photographs: Northwest Air Photos: 1982 and 1986 oblique aerial photographs; and Port site photographs circa 1989;
- USGS Topographic Map (Cypress Island Quadrangle, 1973 and Deception pass Quadrangle, 1978);
- Anacortes City Street Directories (Wells Index, 1952, 1956, and 1960; and Polk, 1963 and 1965); and
- Real estate lease information, legal description, and tax parcel number data provided by the Port.

City directories from 1903, 1905-06, and 1941 were not organized by street address and were not usable. Sanborn Fire Insurance Maps were not available for the area including the subject property. Other sources, such as City of Anacortes Records and Skagit County Tax Records, were expected to provide limited data and, therefore, were not included in this historical review.

Subject Property

Aerial photographs reveal that visible site development occurred after 1944, with a dock structure in-place by 1956. This coincides with activities by Robinson Marine Works listed at a "5xx" Second Street address between U and Q Avenues in the 1952 city street directory for Anacortes. Pac Tow Boat Company is also listed at the "5xx" Second Street address in 1952. Robinson continued operations at 502 Second Street through 1960, and is then listed at 202 U Avenue in the 1963 directory under USCG Mooring and Robinson Anacortes Marina. The 5xx, 520, and 202 U Avenue addresses are likely all at the current location of the site, and the Robinson operation is the likely precursor to Wyman's Marina. Port lease records for the Wyman's operations were available back to 1974, with the original lessor listed as the City of Anacortes.

Port records indicate that Donald and Rayetta Wyman operated the property for boat servicing and maintenance on a continuous basis until 1998. A number of maintenance issues and facility upgrades are also documented. In 1983, pilings in the dock and marine ways areas were replaced, and the Port contracted maintenance dredging of 2,900 cubic yards of marina sediment. The dredging was approved by the Corps, with open-water disposal in Bellingham Channel. Additional guidepilings were replaced on the dock floats circa 1990.

Significant maintenance issues related to the building and dock structure were noted in the 1990s. A structural analysis of wharf and buildings in 1993 recommended steel reinforcement of the dock structure, and repairs were completed in 1993 and 1994 along with installation of additional piling and support members. Additional maintenance improvements were made to the dock in 1996. In 1995, roof and runoff drainage was rerouted to relieve flooding beneath the southern part of the site building, and a sump pump was installed beneath wooden flooring at the southeast corner of the mechanic's shop (Photograph 3).

Other site activities of interest include installation of a new sanitary sewer line between the bathroom area and the sewer tie-in at the south edge of the property in 1993 (Figure 2). The new sewer was installed in a trench along the marine ways through fill material. During the excavation, a February 10, 1993 construction memo noted a band of gray blackish material about 1-inch thick exposed over an approximate 10-foot length near the "lower end of trench." This location is near the northwestern corner of the wood shop (Figure 2). No additional information on the fill material was available.

Adjacent Areas

Much of the historical activity near the subject property is related to shipyard, tug servicing, and ferry operation in the vicinity of Pier 1 and Pier 2 that began in the early 1900s. This location is roughly 1/4 mile west of the subject property and would be expected to have little or no impact. Also, Island Ferry Company is listed in the 1960 street directory at an "xxx" First Street location between U and V Avenues, east of the subject property. This location was probably on Guemes Channel and would have little if any effect on the subject property. Ames Auto Wrecking is listed at 520 Third Street in city street directories between 1952 and 1960. This address was likely between U and T Avenues, south of the subject property. In addition, the 1963 directory lists Harris Marine Sales and Service 720 Third Street, southwest of the subject property between T and S Avenues. Potential for migratory contamination to the subject property from Ames Auto Wrecking and Harris Marine is probably low.

Historical photographs also show a tall vent stack structure was located approximately 200 feet west of the northwest corner of the Wyman's Marina property. The stack was demolished after 1997. The function of the stack was uncertain but was present since prior to the 1950s.

EXISTING ENVIRONMENTAL INFORMATION

Otten Engineering previously completed environmental sampling and analysis at the Wyman's Marina property during a limited Phase 2 study in 1997 and closure of site USTs in 1998. Both reports were submitted to the Washington State Department of Ecology. The 1997 study included collection of upland soil and intertidal sediment samples for chemical analysis. Sample locations are identified on Figure 3 and Figure 4, excerpted from the 1997 Otten Engineering report. No groundwater data were collected. The 1997 and 1998 Otten Engineering reports should be consulted for a complete description of sampling and analytical results.

Upland Soil Samples

Otten Engineering collected upland surface samples (up to 1 foot depth) at 15 locations including the marine ways and areas next to the building shops. Many of the surface samples were collected in areas of visible oil staining, paint chip fragments, and sandblast grit. Oil-stained areas were noted beneath the northwest corner of the building near an air compressor, exposed gravel near the shop areas, and locally in the parking lot. Thirteen of

the samples were submitted for selected laboratory analyses including petroleum hydrocarbons, metals, semivolatile organic compounds, volatile organic compounds, and polychlorinated biphenyls (PCBs). In addition two shallow soil borings were drilled depths of 4 and 7 feet below ground surface northwest of the wood shop and on the marine ways, respectively. No samples from the borings were submitted for analysis.

Laboratory analyses confirmed the presence of petroleum hydrocarbons in the upland soil samples submitted. Detections were in the diesel and heavy oil ranges. Some of the detected concentrations exceeded Method A cleanup levels established in the Adopted Amendments of the MTCA. Copper was detected at elevated concentrations in samples SS-8A and SS-9 along the marine ways ramp but did not exceed the MTCA Method C cleanup level for industrial sites (Figure 3). Elevated lead concentrations were detected in samples SS-13, SS-14, and SS-15 near the site building, with a concentration of 1,390 milligrams per kilogram (mg/kg) in SS-14 exceeding the 1,000 mg/kg MTCA cleanup level for industrial soils. A pesticide constituent, 4-4 DDD, was detected in sample SS-13 at a concentration of 90 mg/kg. This concentration is below the MTCA industrial cleanup level. Constituents of other organic compounds were limited a few detections of polycyclic aromatic hydrocarbons (PAHs) and benzene derivatives. These detections did not exceed applicable MTCA cleanup criteria.

Sediment Samples

The sediment samples were collected as surface grabs from the upper 10 centimeters. No deeper cores were obtained. In addition pore water samples for tributyltin (TBT) analysis were collected at four locations. Relatively low concentrations of metals and PAHs were detected in the sediment samples and did not exceed applicable SQS values listed in the state Sediment Management Standards. TBT was detected in three of the four pore water samples at a maximum concentration of 0.15 micrograms per liter (ug/L). This concentration equals the screening level defined in the Dredged Material Evaluation and Disposal Procedures, A Users Manual for the Puget Sound Dredged Disposal Analysis (PSDDA) Program, dated February 2000.

ACM and LBP

Otten Engineering completed a preliminary site building survey for the presence of ACM and LBP as part of the 1997 work. Seventeen samples were submitted for laboratory analysis of ACM via polarizing light microscopy, and five samples were submitted for laboratory analysis of lead via EPA Method 7420. Tables 1 and Table 2 are excerpted from the 1997 report to summarize the materials sampled and analysis results for ACM and LBP,

respectively. ACM was confirmed in two floor samples from the first floor store/office area, and one sample from the roofing over the wood shop. Lead was detected in each of the paint samples analyzed at concentrations ranging from 46.4 to 46,500 mg/kg.

1998 UST Closure Assessment

Otten Engineering completed environmental sampling and reporting to document closure of two gasoline USTs (2,000 and 3,000 gallons) and two diesel USTs (3,000 gallons each) in 1998. The USTs and associated piping were located near the northeast corner of the site building (Figure 2). Product piping leading to two fuel pumps on the marina dock was capped and left in-place. No records were available indicating whether the dock piping was flushed and cleaned as part of the work. About 300 cubic yards of petroleum-affected soil were removed from the UST excavation for off-site thermal treatment and recycling at the CSR Associated facility located in Everett, Washington. Concentrations of total petroleum hydrocarbons (TPH) as gasoline and diesel in soil samples from the final excavation limits were below applicable MTCA cleanup levels at the time of the work, and the Proposed Amendments. Benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds in these soil samples were also below MTCA cleanup levels.

During the work a water line in the excavation area was damaged and released an estimated 1,500 gallons of water. An additional 7,500 gallons of water were recovered using a vacuum truck and shipped for off-site reprocessing. Samples of the residual water in the excavation contained TPH and BTEX concentrations exceeding MTCA cleanup levels, but these samples are not representative of true groundwater conditions near the UST excavation. A follow-up letter from Ecology to the Port on May 4, 1998, concluded, however, that groundwater "appeared to be contaminated with diesel and gasoline constituents." The Ecology letter noted the need for additional MTCA groundwater characterization and corrective action where applicable.

REGULATORY AGENCY DATABASE LIST AND FILE REVIEW

This section describes the regulatory agency database lists reviewed for sites of concern by Environmental Data Resources, Inc. (EDR), and the results of our regulatory agency file review. EDR is a firm that acquires data from government agencies on various media such as magnetic tape, disk, and hard copy. The purpose of the regulatory agency database list review was to screen for potential sources of contamination or activities of environmental concern for the subject property and adjacent properties. The agency-published databases were screened for sites of potential concern in general accordance with current American

Society for Testing and Materials (ASTM) standards. Because our regulatory agency database search was based on current agency records, our results are only as accurate as the records provided.

Regulatory agency database lists reviewed and approximate search distances from the subject property are detailed below:

- Environmental Protection Agency (EPA) National Priorities List (NPL) (June 2000) - List of "Superfund" sites; search radius of 1 mile;

- EPA Region 10 Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) List (April 2000) - List of sites which are either proposed to or are on the NPL and sites currently being reviewed for possible inclusion on the NPL; search radius of 1/2 mile;

- EPA Emergency Response Notification System (ERNS) List (August 2000) - List of reported CERCLA oil or hazardous substance releases or spills; search for subject property;

- EPA Region 10 Resource Conservation and Recovery Information System (RCRIS) List (June 2000):

  - Treatment/Storage/Disposal (TSD) - List of generators and transporters of hazardous waste, and TSD facilities; search radius of 1 mile;

  - Large Quantity Generator (LQG), Small Quantity Generator (SQG) - List of facilities that qualify as large or small quantity generators of hazardous wastes under RCRA; search radius of 1/4 mile;

- EPA Region 10 RCRA Corrective Action Sites (CORRACTS) List (April 2000) - List of RCRA facilities which are undergoing corrective action; search radius of 1 mile;

- EPA Region 10 Superfund (CERCLA) Consent Decrees (CONSENT) List (Variable) - List of major legal settlements establishing responsibility and standards for cleanup at NPL sites; search radius of 1 mile;

- EPA Region 10 Facility Index System (FINDS) List (July 2000) - Lists both facility information and "pointers" to other sources that contain more detail; search for subject property;

- EPA Federal Superfund Liens (NPL Liens) List (October 1991) - List of filed Superfund liens; search for subject property;

- EPA PCB Activity Database System (PADS) List (January 2000) - Lists generators, transporters, commercial stores, and/or brokers and disposers of PCBs who are required to notify the EPA of such activities; search for subject property;

- EPA Region 10 RCRA Administrative Action Tracking System (RAATS) List (April 1995) - List of sites under RCRA pertaining to major violators undergoing enforcement actions, search for subject property;

- EPA Region 10 Toxic Release Inventory System (TRIS) List (December 1997) - Inventory of toxic chemicals emissions from certain facilities; search for subject property;

- EPA Toxic Substances Control Act (TSCA) List (December 1998) - Identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list; search for subject property;

- EPA Delisted NPL Sites (Delisted NPL) (June 2000) - Sites identified for deletion from the NPL where no further response is appropriate; search for subject property;

- EPA No Further Remedial Action Planned (NFRAP) List (April 2000) - Identifies sites that have been removed from CERCLIS; search for subject property;

- Federal Records of Decision (ROD) List (January 1999) - List of Superfund Sites where ROD property has been developed; search radius of 1 mile;

- US Department of Transportation (HMIRS) List (May 2000) - List of hazardous material spill incidents reported to DOT; search for subject property;

- Nuclear Regulatory Commission (MLTS) List (April 2000) - List of sites which possess or use radioactive materials and are subject to NRC licensing requirements; search for subject property;

- Washington Confirmed and Suspected Contaminated Sites List (CSCSL) (June 2000) - List of sites currently being investigated by the Washington State Department of Ecology (Ecology) under the Model Toxics Control Act (MTCA); search radius of 1 mile;

- Ecology Hazardous Sites List (HSL) (August 2000) - List of sites assessed and ranked using the Washington Ranking Method (WARM); search radius of 1 mile;

- Ecology Leaking Underground Storage Tank (LUST) Site List (October 2000) - List of registered leaking USTs in Washington; search radius of 1/2 mile;

- Ecology Underground Storage Tank (UST) Registration List (October 2000) - List of registered USTs in Washington; search radius of 1/4 mile;

- Ecology Solid Waste Facilities/Landfill Sites (SWF/LF) (September 2000) - List of permitted solid waste landfills operating in Washington; search radius of 1/2 mile; and

- Ecology Independent Remedial Action Cleanup Reports (IRAP/ICR) (November 2000) - List of sites undergoing cleanup for which reports have been received by Ecology from either the owner or operator; search radius of 1/2 mile.

EDR conducted a review of the regulatory agency database lists indicated above. The report of the database search provided by EDR includes a list of databases searched, a statistical profile indicating the number of properties within 1 mile of the subject property, selected detailed information from federal and state lists, and an overview map illustrating the identifiable and mappable sites within 1 mile of the subject property. The EDR report is presented in Appendix B of this report. Refer to the EDR report for more detailed information and additional local database lists reviewed.

The purpose of a file review is to acquire regulatory agency file information for the subject property and adjacent sites of potential concern based on their database-type listing and to identify potential sources of contamination or activities of environmental concern. The review was limited to current files and did not include a review of archived information.

As part of this investigation, we made a Freedom of Information Act (FOIA) request on January 19, 2001, to Ecology to inquire about the availability of regulatory file information for the subject property and surrounding area sites. A review of Ecology files was conducted at Ecology's Northwest Regional office in Bellevue on January 25, 2001.

The following summarizes the results of the database search and review of available file information.

Subject Property Information

The Wyman's Marina property is identified on the state UST and LUST lists as a result of UST removal and cleanup activities. The current UST listing notes "cleanup in process" and the LUST listing notes "cleanup started" and "awaiting cleanup." Site UST cleanup activities are also reported on the Ecology Independent Cleanup list. No EPA identification number was on file for Dangerous Waste generation and handling activities.

Available file information from Ecology indicates that Wyman's Marina was granted coverage under General NPDES Permit for boatyards beginning in 1993. Application materials indicated that approximately 65 percent of the boats were hauled out for service and 40 percent had hull pressure washing. The application also noted that sandblasting had been discontinued in the yard areas, and that Wyman's Marina had a pesticide application license. This license was likely related to applications of hull coatings with metals to resist biological degradation in the marine environment. Additional items of interest from the application include the following:

- Waste oil, gasoline, used antifreeze, and thinners and solvents were reportedly segregated prior to off-site reprocessing;
- No steam cleaning or oil/water separators were reported at the site;
- Solvent from a parts washer was picked up for off-site disposal;
- Battery cores were picked up by an outside company; and
- No spill prevention, control, or containment plans were developed.

As part of NPDES permit requirements, Wyman's also submitted plans for a pressure wash treatment system that included effluent containment from the crane/concrete dock and marine ways areas. Plans called for the treated water to be recycled, with accumulated sludge disposed of at a local incinerator. Construction was noted as completed in a 1994 Ecology compliance inspection report. Visible overfilling and ground staining are apparent in inspection photographs taken near a waste oil above-ground storage tank and waste antifreeze drums located near the mechanic's shop. A follow-up inspection by Ecology in 1996 indicated that "the yard was in good shape." Also, spill control and solid waste disposal plans had also been completed by that time, and standard best management practices were being implemented. Laboratory testing data (presumably for a sample of the

pressure washing treatment system sludge) indicated leachable metals concentrations at concentrations below limits for designation as Dangerous Waste.

Surrounding Area Information

The EDR report was reviewed for surrounding properties located in the apparent upgradient or cross-gradient groundwater flow direction, within about 500 feet from the subject property that had reported releases of contaminants to soil and/or groundwater. There were no such sites listed in the vicinity of the subject property.

SITE RECONNAISSANCE

On February 6, 2001, Jennifer Zwiebel and Rick Moore of Hart Crowser conducted a site reconnaissance to observe the subject property and vicinity. Observations at the subject property included the site building and accessible areas beneath the building flooring. Mr. Robert Elsnore of the Port provided additional background information on the site history and activities. Hart Crowser recorded the following observations.

Subject Property

At the time of the site reconnaissance, the subject property was vacant with no drums or other debris stored in the yard or dock areas (Photograph 3). Exposed gravel soil areas exhibited only incidental, local soil staining with no obvious indications of widespread surficial contamination. Hart Crowser completed several hand-shoveled pits (up to about one-half foot depth) to observe shallow subsurface soils near the wood shop, mechanic's shop, and former pole building. Near-surface fill soils commonly contained rusting metal debris, nails, ash and burned material, and sandblast grit. Sandblast grit was particularly evident along the marine ways ramp. Concrete areas with staining from minor paint overspray, oil, and fiberglass resin were also apparent near the wood shop and mechanic's shop.

Fill beneath the site building is exposed along the western edge of the wood shop and below the decking near the northwest corner of the store (Photograph 4). Dark discoloration from ash and burned material is common, along with reddish brown discoloration. Although no floor openings were observed inside the wood shop, fill discoloration could indicate previous disposal of floor sweepings or other waste materials from the shops. Extensive oil-stained soil is present within the enclosure below the deck

near the northwest corner of the store, where an air compressor and two water heaters are located (Photograph 5).

Near the crane area on the dock area there is a discarded battery and oil covering some of the crane machinery. Also, a small empty oil container and paint thinner can were discarded just east of the decking near the upper bank. On the eastern part of the floating dock both fuel dispenser pumps remain in-place and appear to be intact (Photograph 6). There were no indications of staining or fuel release at this location. A large navy barge was moored at the dock at the time of the site reconnaissance.

Except for the mechanic's shop, the site building was cleared of chemical containers. Approximately a dozen empty plastic drums are currently stored in the mechanic's shop, some of which are labeled as containing "Advantage" cleaning product with sodium hydroxide (caustic soda). This cleaning product was likely used for washdown of engines and vessel parts (Photograph 7). An empty container of Zep whitewall cleaner was also present. Near the southeast corner of the mechanic's shop, there is a floor cover accessing the sump pump location (Photograph 8). The sump pump discharge line is routed outside to soil through the eastern wall of the building. Standing water was present near the sump pump and beneath much of the mechanic's shop flooring during the site reconnaissance. No obvious oil sheen was present.

Hart Crowser verified the presence of suspect ACM and LBP materials noted by Otten Engineering in 1997. The floor tiles in lower level of the store are in poor condition and are deteriorating (Photograph 9).

Site Vicinity

We did not observe obvious indications of adverse environmental conditions on the adjacent properties. Potential upgradient sources include home heating oil tanks, but these represent low potential for migratory contamination because of their distance from the site.

LIMITATIONS

Work for this project was performed, and this letter report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of Port of Anacortes, for specific application to the subject

property. This report is not meant to represent a legal opinion. No other warranty, express or implied, is made.

It should be noted that Hart Crowser relied on information provided by the individuals indicated in the report. Hart Crowser can only relay this information as it was presented, and cannot be responsible for its accuracy or completeness.

Our work did not include sampling or testing of drinking water for lead content, sampling for indoor air quality, assessment of sewer systems, sampling for radon vapor, and other items not the standard of practice for our time, unless otherwise noted herein.

Any questions regarding our work and this letter report, the presentation of the information, and the interpretation of the data are welcome and should be referred to Jennifer Zweibel or Richard Moore. We trust that this report meets your needs.

Sincerely,

HART CROWSER, INC.

DRAFT

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rfm@hartcrowser.com

DRAFT

JENNIFER ZWIEBEL
Project Geologist
jaz@hartcrowser.com

F:\docs\jobs\7529\WymansMarinaPhase1.doc

Attachments:
Table 1 - Suspect ACM Laboratory Analysis Results
Table 2 - Suspect LBP Laboratory Analysis Results
Figure 1 - Vicinity Map
Figure 2 - Site Plan
Figure 3 - 1997 Otten Engineering Upland Sampling Locations
Figure 4 - 1997 Otten Engineering Sediment Sampling Locations
Appendix A - Site Reconnaissance Photographs
Appendix B - Site Assessment Report
Environmental Data Resources, Inc.

TABLE 4.1

BUILDING MATERIAL SAMPLE COLLECTION DATA AND RESULTS OF PLM TESTING WYMAN'S MARINA, 202 U AVENUE, ANACORTES, WASHINGTON

SAMPLE I.D.	LOCATION, TYPE & APPROXIMATE QUANTITY*	ASBESTOS % (by PLM)
#1, 12x12 vinyl tile (plus mastic)	Floor covering in 1st floor areas. Light beige vinyl floor tile plus black mastic. Quantity = roughly 1,400 sq. ft. Sample 1 of 3.	5 %, Chrysotile, (mastic 5 % Chrysotile)
#2, 12x12 vinyl tile(plus mastic)	Floor covering in 1st floor areas. Light beige vinyl floor tiles plus black mastic. Quantity = roughly 1,400 sq. ft. Sample 2 of 3.	5 %, Chrysotile, (mastic 5 % Chrysotile)
#3, 12x12 vinyl tile(plus mastic)	Floor covering in 1st floor areas. Light beige vinyl floor tiles plus black mastic. Quantity = roughly 1,400 sq. ft. Sample 3 of 3.	ND
#4, 12x12 acoustic tile w/dots	Typical acoustical ceiling tiles in 1st floor areas. Quantity = roughly 650 sq. ft. Sample 1 of 3.	ND
#5, 12x12 acoustic tile w/dots	Typical acoustical ceiling tiles in 1st floor areas. Quantity = roughly 650 sq. ft. Sample 2 of 3.	ND
#6, 12x12 acoustic tile w/dots	Typical acoustical ceiling tiles in 1st floor areas. Quantity = roughly 650 sq. ft. Sample 3 of 3.	ND
#7, 12x12 acoustic tile w/smooth surface	Typical acoustical ceiling tiles in 1st floor areas. Quantity = roughly 80 sq. ft. Sample 1 of 1.	ND
#8, Popcorn, 1st Floor	1st floor storage/parts area. Typical blown on acoustical ceiling material. Quantity = roughly 1,000 sq. ft. Sample 1 of 3.	ND
#9, Popcorn, 2nd Floor	1st floor storage/parts area. Typical blown on acoustical ceiling material. Quantity = roughly 1,000 sq. ft. Sample 2 of 3.	ND
#10, Popcorn, 1st Floor, store	1st floor storage/parts area. Typical blown on acoustical ceiling material. Quantity = roughly 1,000 sq. ft. Sample 3 of 3.	ND
#11, Sheet vinyl, bath, store	2nd floor bathroom and storage areas. Sheet vinyl plus mastic. Quantity = roughly 200 sq. ft. Sample 1 of 1.	ND
#12, Joint mud, 2nd floor	2nd floor walls. Joint compound. Sample 1 of 1.	ND
#13, Glass insulation	Fiber glass insulation above 2nd floor offices. Sample 1 of 1.	ND
#14, Joint mud, Shop	Walls in middle machine shop. Joint compound. Sample 1 of 1.	ND
#15, Glass insulation, motor shop	Fiber glass insulation in walls of back machine shop. Sample 1 of 1.	ND
#21, Glass insulation, store wall	Fiber glass insulation in walls of front store area. Sample 1 of 1.	ND
#22, Wood Shop roofing	Roofing material on top of wood shop. Typical multiple layers of tar roofing material. Sample collected at northeast corner of roof. Quantity = roughly 1,150 sq. ft. Sample 1 of 1	5 %, Chrysotile, (base tar layer)

Notes:

* = Quantity (square feet) based on rough visual estimates as available. PLM = Polarized Light Microscopy.

ND = Analyte not detected in excess of analytical method limit of detection. Complete laboratory data sheets attached in Appendix C.

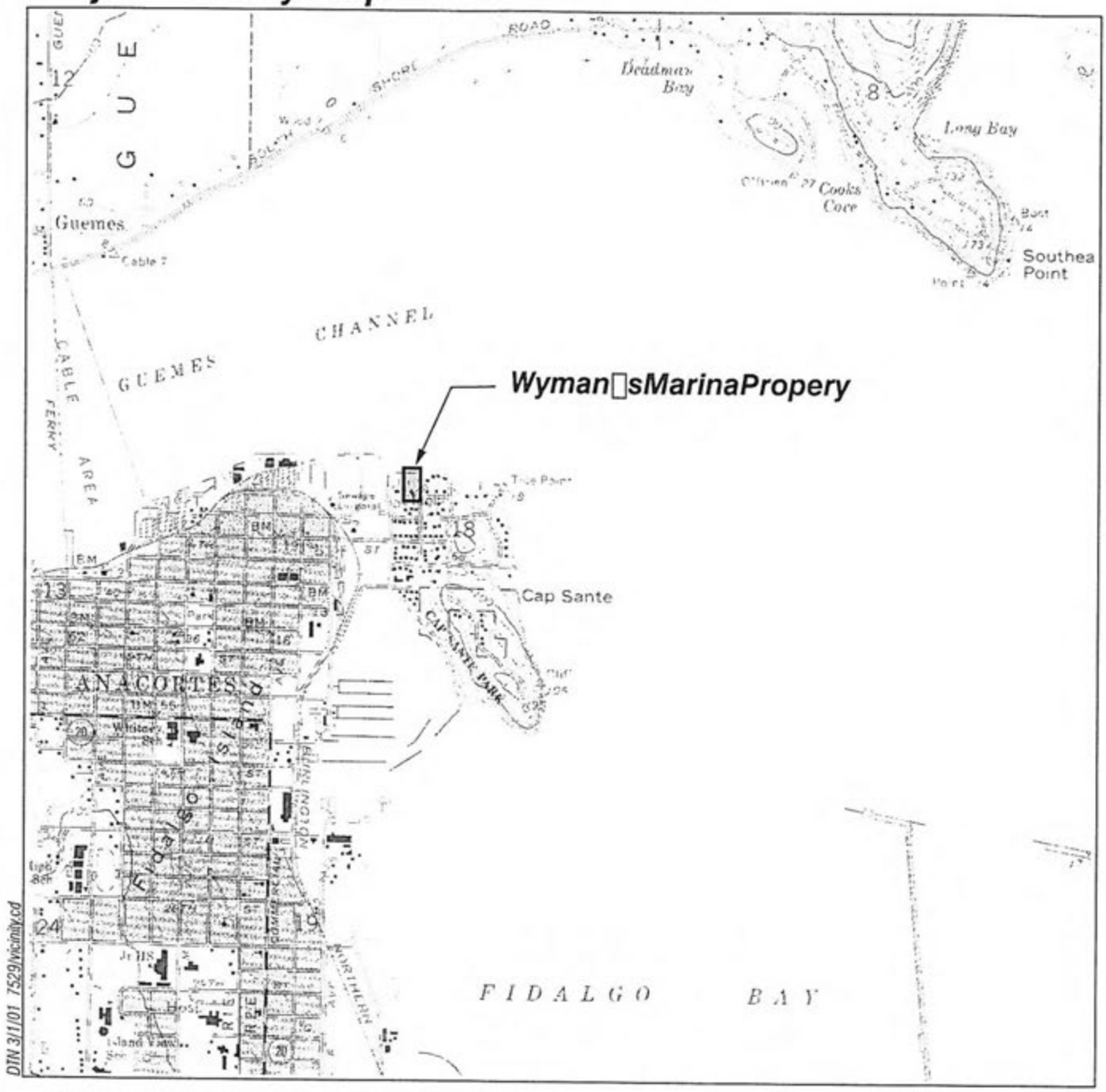
TABLE 4.2

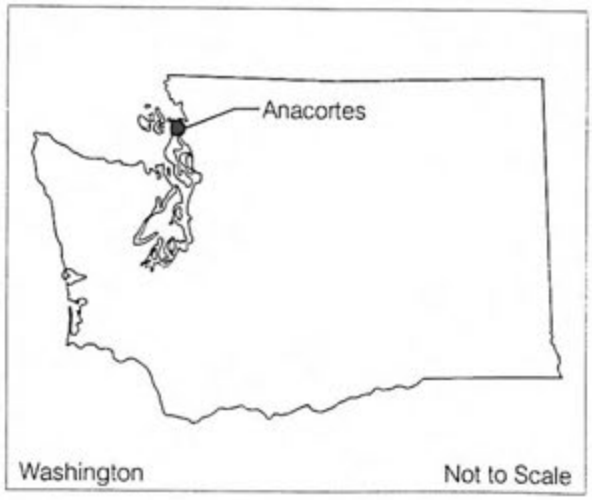
PAINT SAMPLE COLLECTION DATA AND RESULTS OF LEAD TESTING WYMAN'S MARINA, 202 U AVENUE, ANACORTES, WASHINGTON

SAMPLE I.D.	LOCATION & TYPE	LEAD (mg/Kg)
#16, Motor Shop Floor	Gray floor paint in the motor (back) shop.	46.4
#17, Store Wall Paint	White wall paint in the main store area.	107
#18, 2nd floor Wall Paint	White wall paint from the 2nd floor.	53.3
#17, Exterior wall wht.	White wall paint on the exterior of the building.	46,500
#17, Exterior trim gray	Gray trim paint on the exterior of the building.	27,100

Notes:
Lead using EPA Method 7420.
Complete laboratory data sheets attached in Appendix C.
EPA HUD defines lead-based paint as paint containing ≥ 5,000 ppm lead.

Project Vicinity Map





N

0 2000 4000

Scale in Feet

Note: Base map prepared from USGS 7.5 minute quadrangle map of Anacortes, Washington, dated 1973.

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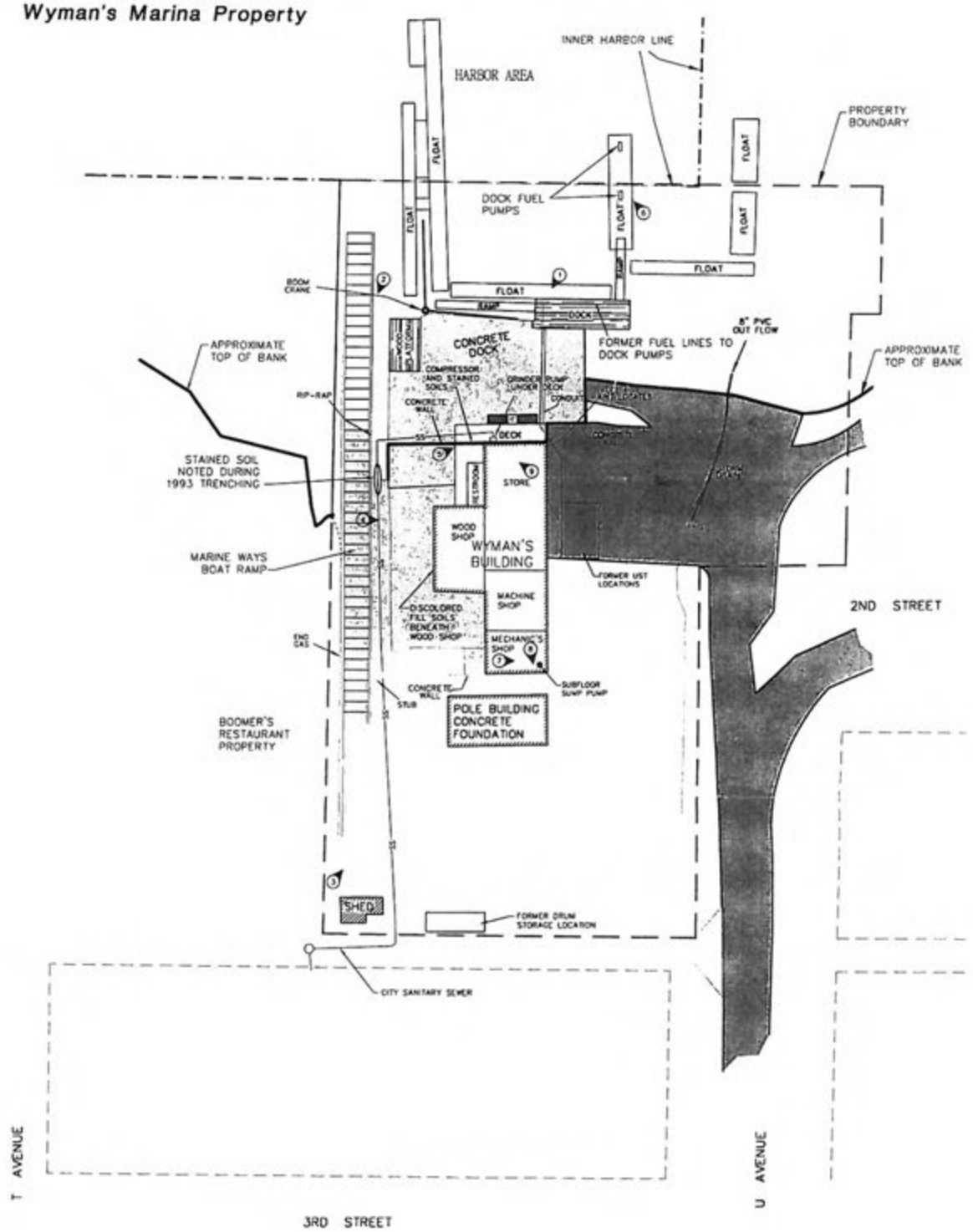
J-7529 3/01

Figure 1

Site Plan

Wyman's Marina Property



- EXISTING CATCH BASIN.
- EXISTING SANITARY SEWER LINE.
- DENOTES EXISTING ASPHALT SURFACE.
- DENOTES EXISTING CONCRETE SURFACE.
- PHOTOGRAPH LOCATION, DIRECTION, AND NUMBER.

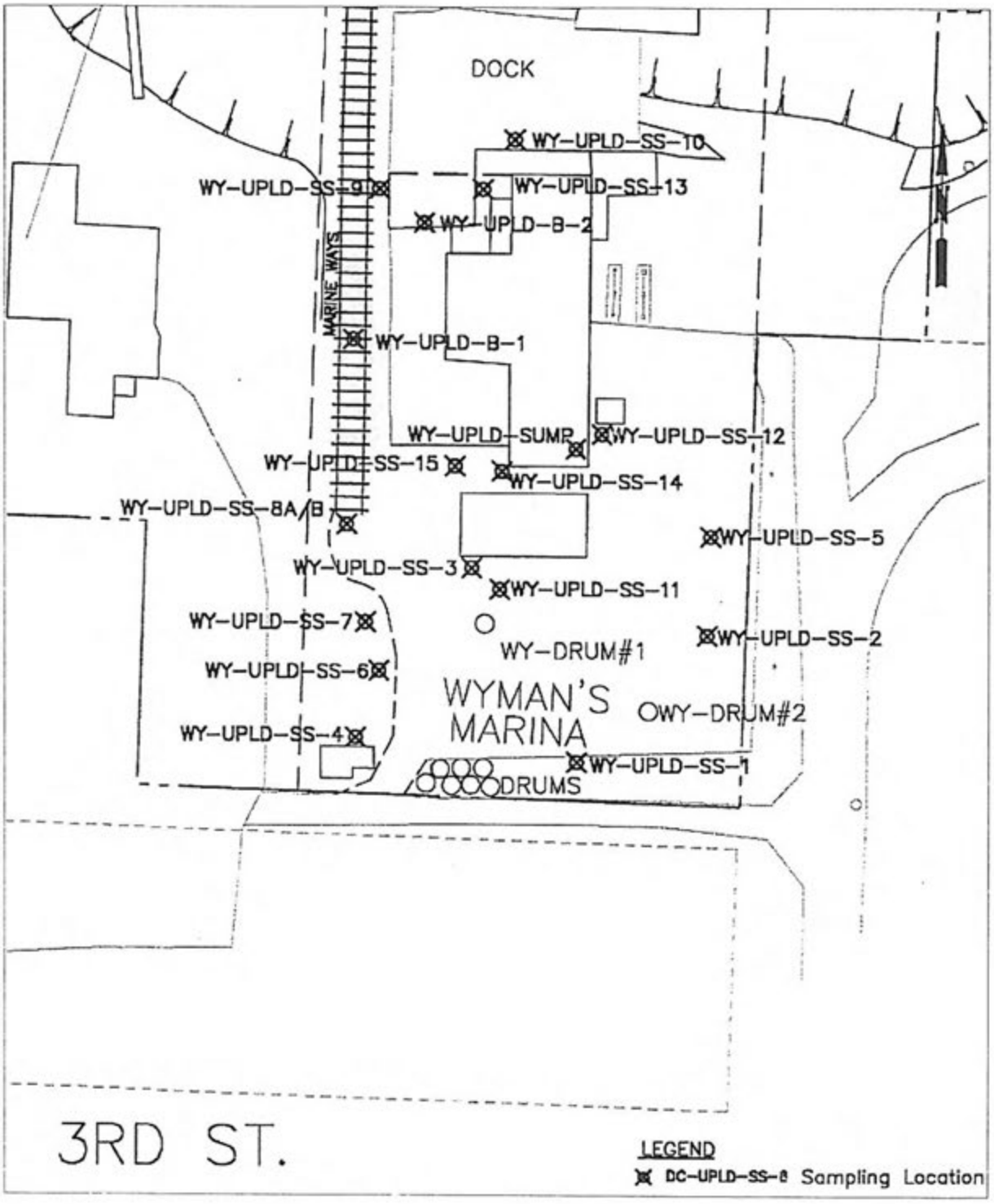
0 50 100
Scale in Feet

N

Site plan based on "Topographic Survey for Port of Anacortes, Wyman's Marina Site," Leonard, Boudinot & Skodje, Inc., January 1995

HARTCROWSER
J-7529
Figure 2
3/01

1997 Otten Engineering Upland Sampling Locations



dwf 3/5/01 7529a.cdr

Source: Figure prepared from drawing provided by Otten Engineering entitled "Upland Samples", dated 1997.

0 60 120

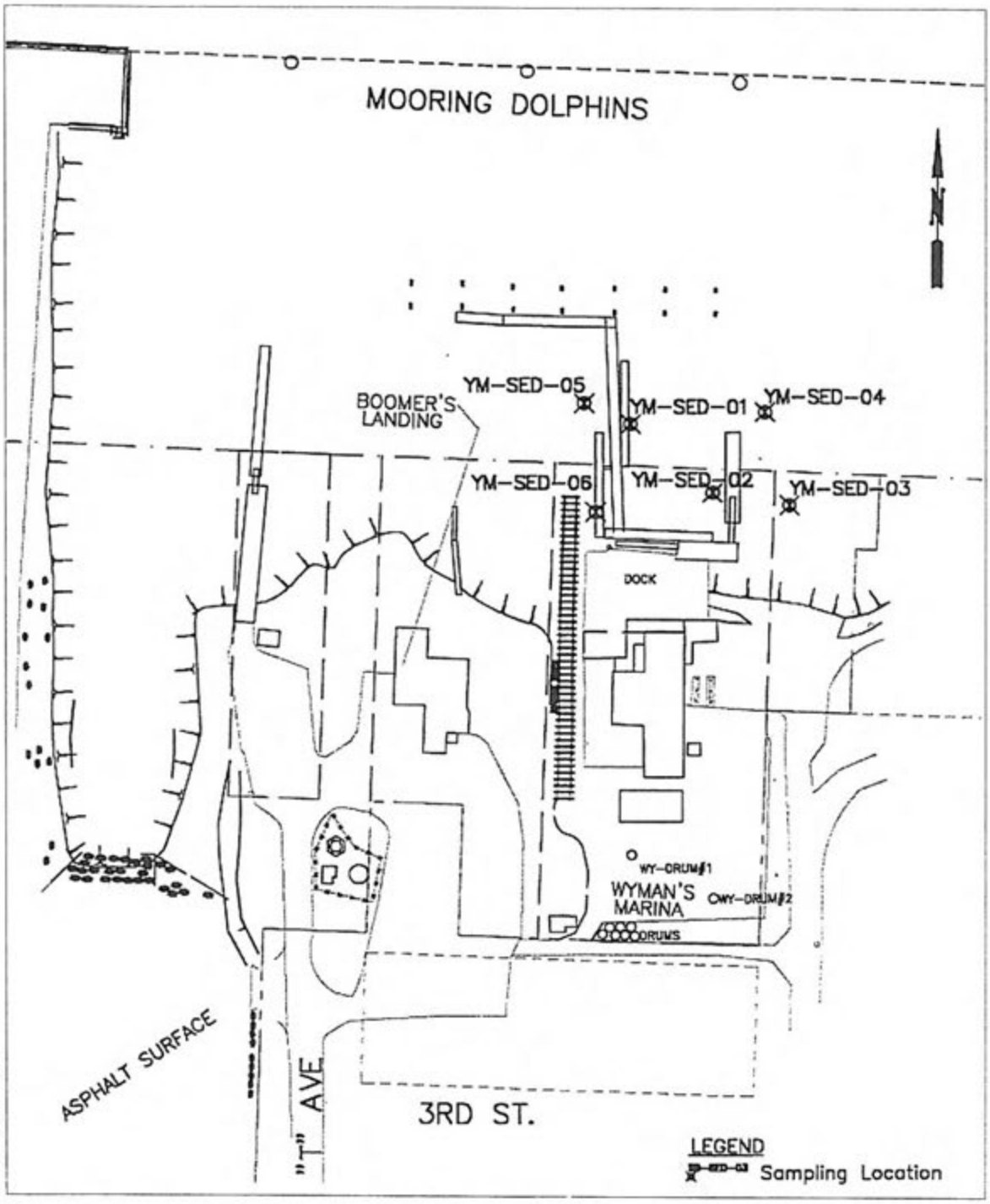
Scale in Feet

HARTCROWSER

J-7529 3/01

Figure 3

1997 Otten Engineering Sediment Sampling Locations



dwf 3/5/01 7529b.cdr

Source: Figure prepared from drawing provided by Otten Engineering entitled "Upland Samples", dated 1997.

0 80 160

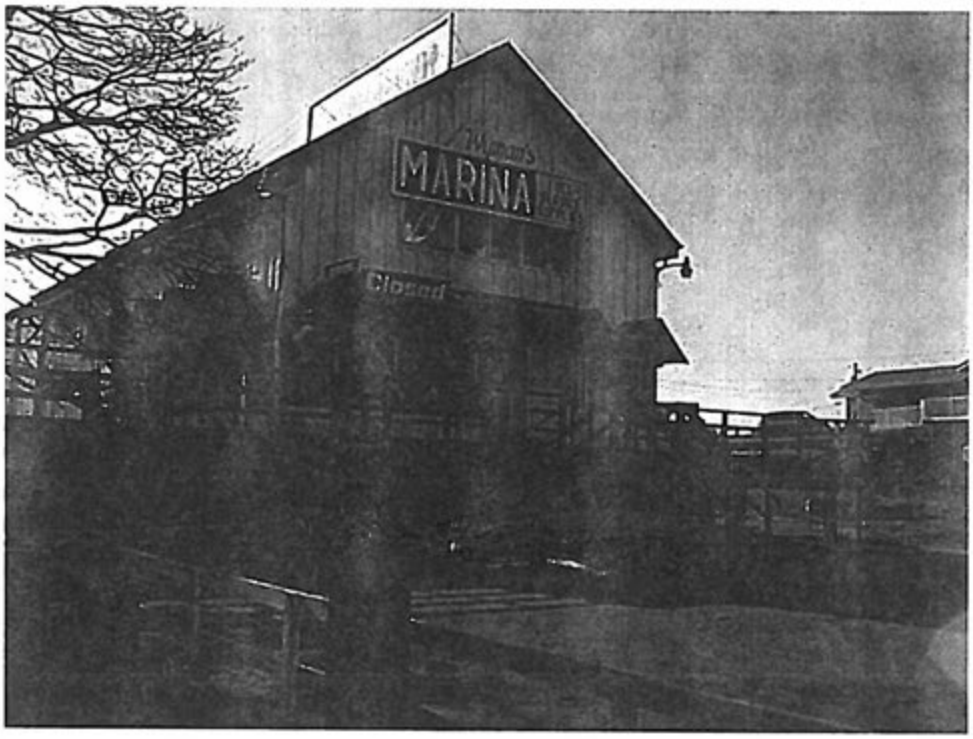
Scale in Feet

HARTCROWSER

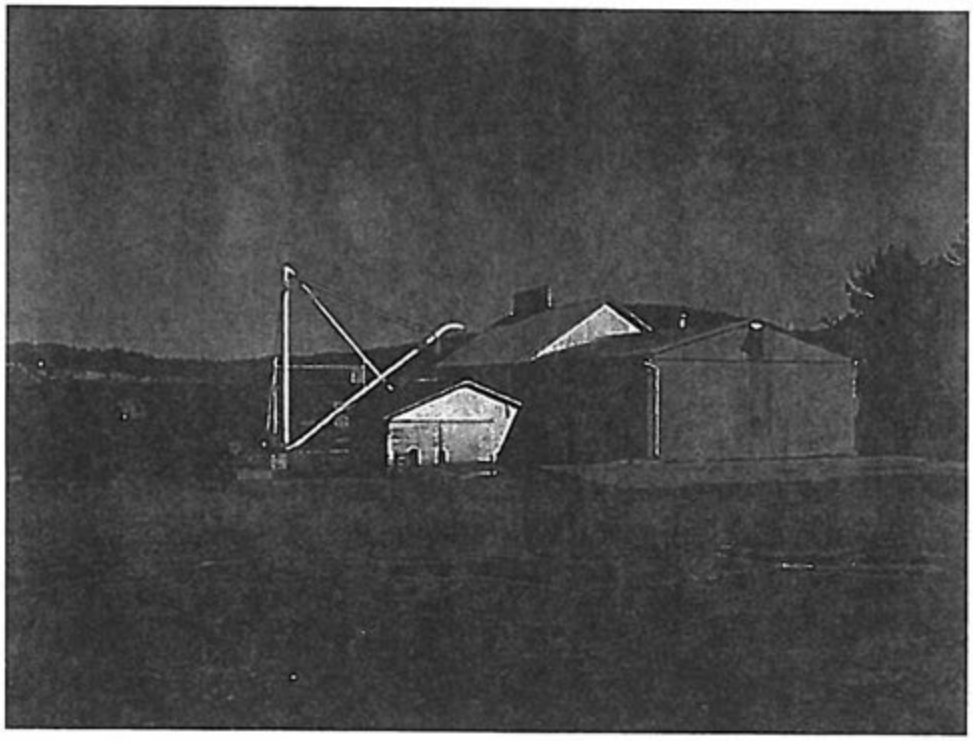
J-7529 3/01

Figure 4

APPENDIX A
SITE RECONNAISSANCE PHOTOGRAPHS

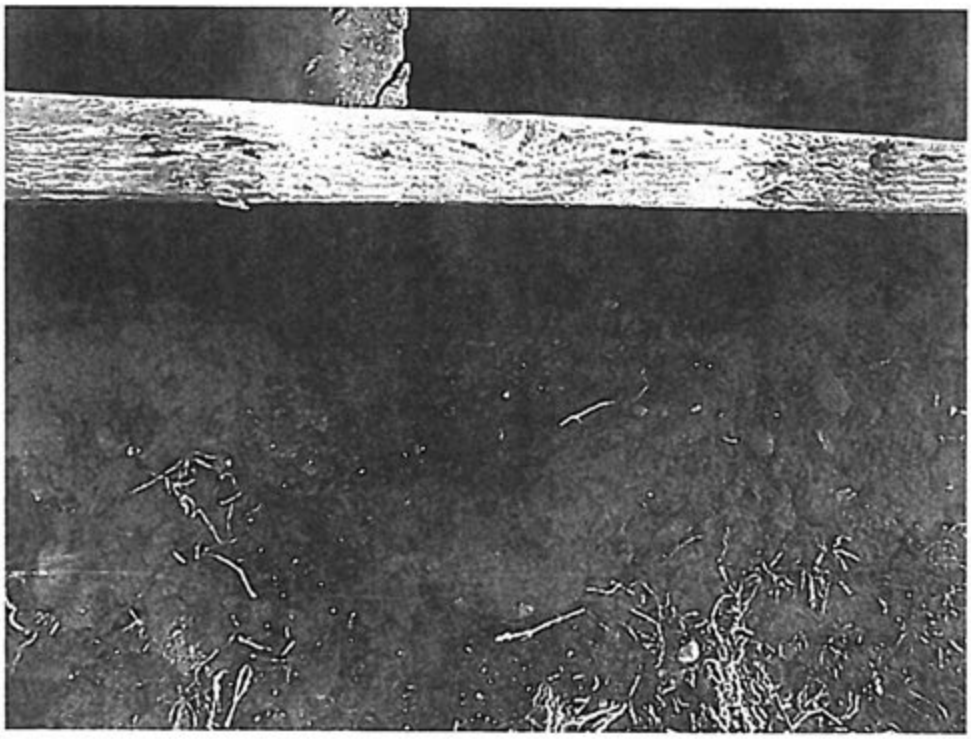


Photograph 1 - Wyman's Marina Property – Main building store and dock areas.

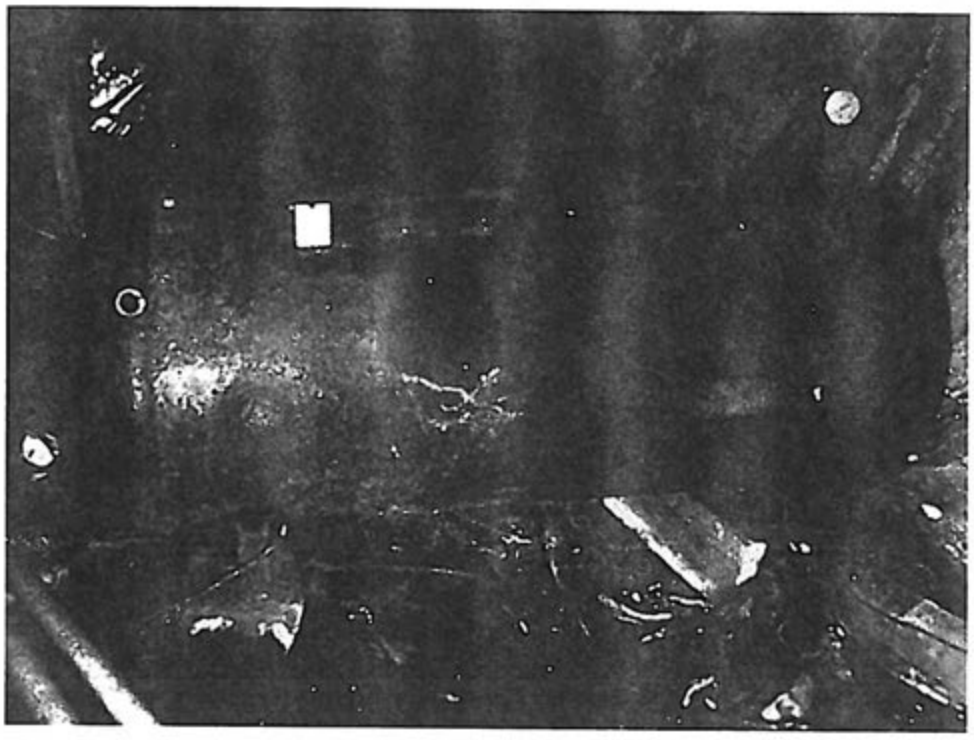


Photograph 2 - Marine Ways Boat Ramp.

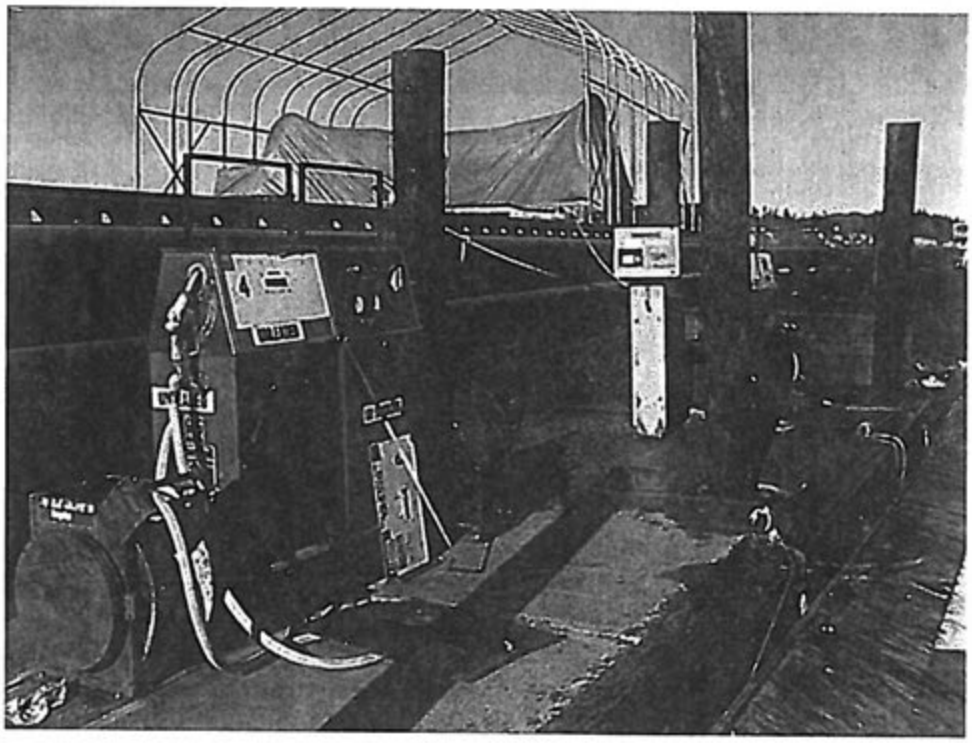
Photograph 3 - Wyman's Marina Property and Guemes Channel. Note crane (left) and concrete floor slab for former pole building (right).



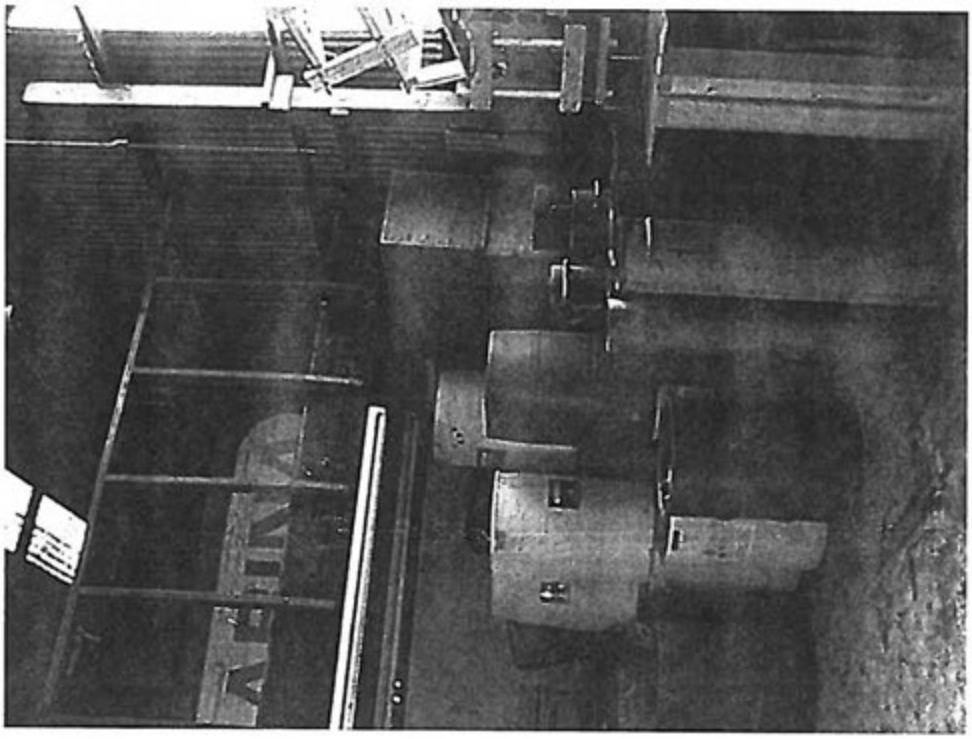
Photograph 4 - Fill soils beneath wood shop. Note dark discoloration from burned material or oil (top) and reddish-brown discoloration (right).



Photograph 5 - Air compressor in enclosure below northwest corner of store building. Note oil-stained soil beneath compressor.

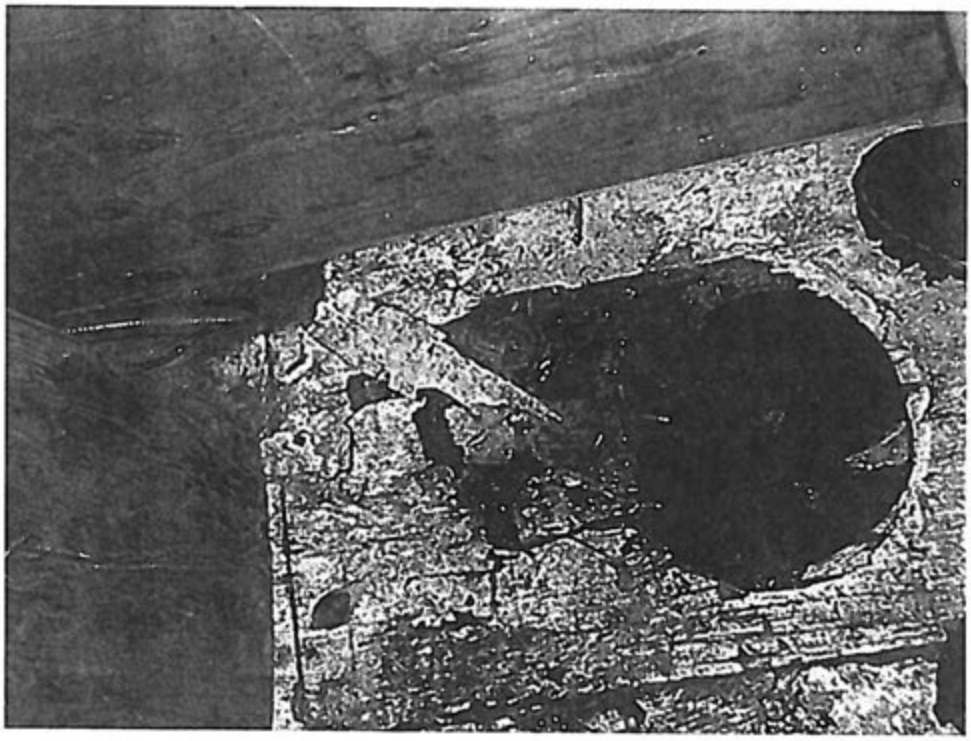


Photograph 6 - Fuel dispenser pumps on floating dock.

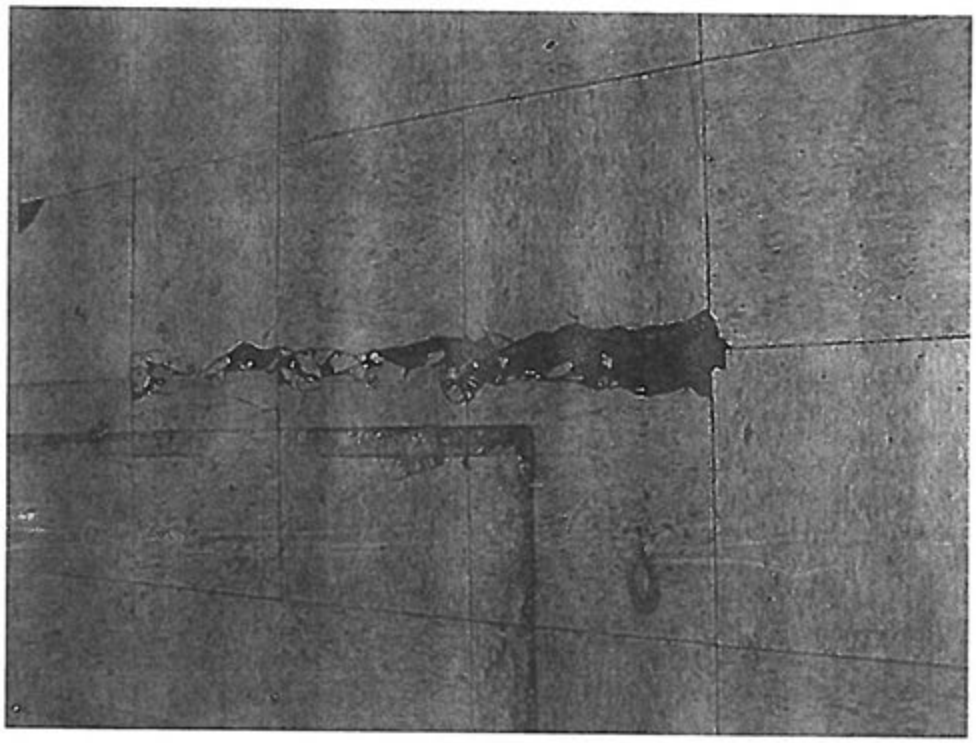


← Up

Photograph 7 - Empty plastic drums. Blue drums are labeled as containing "Advantage" cleaning product.



Photograph 8 - Floor access to sump pump at southeast corner of mechanic's shop. Note pump discharge line to outside soil.



Photograph 9 - Deteriorating floor tile in the lower level of the store building.

APPENDIX B
SITE ASSESSMENT REPORT
ENVIRONMENTAL DATA RESOURCES, INC.

The EDR-Radius Map
with GeoCheck®

Marina
202 U Avenue
Anacortes, WA 98221

Inquiry Number: 592946.1s

February 07, 2001

Environmental Data Resources, Inc.

***The* Source For Environmental Risk Management Data**

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

FORM-KID

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances are per ASTM standard or custom distances requested by the user.

TARGET PROPERTY INFORMATION

ADDRESS

202 U AVENUE
ANACORTES, WA 98221

COORDINATES

Latitude (North):	48.521100 - 48° 31' 16.0"
Longitude (West):	122.603500 - 122° 36' 12.6"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	529278.9
UTM Y (Meters):	5374078.0

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	2448122-E5 ANACORTES NORTH, WA
Source:	USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following government records. For more information on this property see page 5 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
WYMANS MARINA 202 U AVENUE ANACORTES, WA 98221	UST LUST	N/A
WYMAN'S MARINA 202 U AVE. ANACORTES, WA 98221	WA ICR	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

FEDERAL ASTM STANDARD

NPL	National Priority List
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP	Comprehensive Environmental Response, Compensation, and Liability Information System
CORRACTS	Corrective Action Report
RCRIS-TSD	Resource Conservation and Recovery Information System
RCRIS-LQG	Resource Conservation and Recovery Information System

EXECUTIVE SUMMARY

RCRIS-SQG Resource Conservation and Recovery Information System
ERNS Emergency Response Notification System

STATE ASTM STANDARD

SWF/LF State Landfill

FEDERAL ASTM SUPPLEMENTAL

CONSENT CONSENT
ROD ROD
Delisted NPL NPL Deletions
FINDS Facility Index System/Facility Identification Initiative Program Summary Report
HMIRS Hazardous Materials Information Reporting System
MLTS Material Licensing Tracking System
MINES Mines Master Index File
NPL Liens NPL Liens
PADS PCB Activity Database System
RAATS RCRA Administrative Action Tracking System
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act

STATE OR LOCAL ASTM SUPPLEMENTAL

EMI WA Emissions

EDR PROPRIETARY DATABASES

Coal Gas Former Manufactured gas (Coal Gas) Sites.

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Elevations have been determined from the USGS 1 degree Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. EDR's definition of a site with an elevation equal to the target property includes a tolerance of +/- 10 feet. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property (by more than 10 feet). Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STATE ASTM STANDARD

CSCSL: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Ecology's Confirmed & Suspected Contaminated Sites List.

A review of the CSCSL list, as provided by EDR, has revealed that there are 4 CSCSL sites within

approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
PORT OF ANACORTES DAKOTA CREEK	115 Q AV	1/4 - 1/2 W	3	6
TRIDENT SEAFOODS CORPORATION	***4TH AND L STREET***	***1/2 - 1 W***	***10***	***13***
Lower Elevation	**Address**	**Dist / Dir**	**Map ID**	**Page**
MENDUMS SERVICE	1020 COMMERCIAL AVE	1/2 - 1 SW	9	11
PORT OF ANACORTES	Q AVE / 15TH ST	1/2 - 1 SSW	11	14

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Ecology's Leaking Underground Storage Tanks Site List.

A review of the LUST list, as provided by EDR, and dated 10/06/2000 has revealed that there are 2 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
MUNICIPLE BLDG	***902 6TH STREET***	***1/4 - 1/2 SW***	***4***	***9***
US POSTAL SERVICE ANACORTES	519 COMMERCIAL AVE	1/4 - 1/2 WSW	C8	11

STATE OR LOCAL ASTM SUPPLEMENTAL

ICR: These are remedial action reports Ecology has received from either the owner or operator of the site. These actions have been conducted without department oversight or approval and are not under an order or decree.

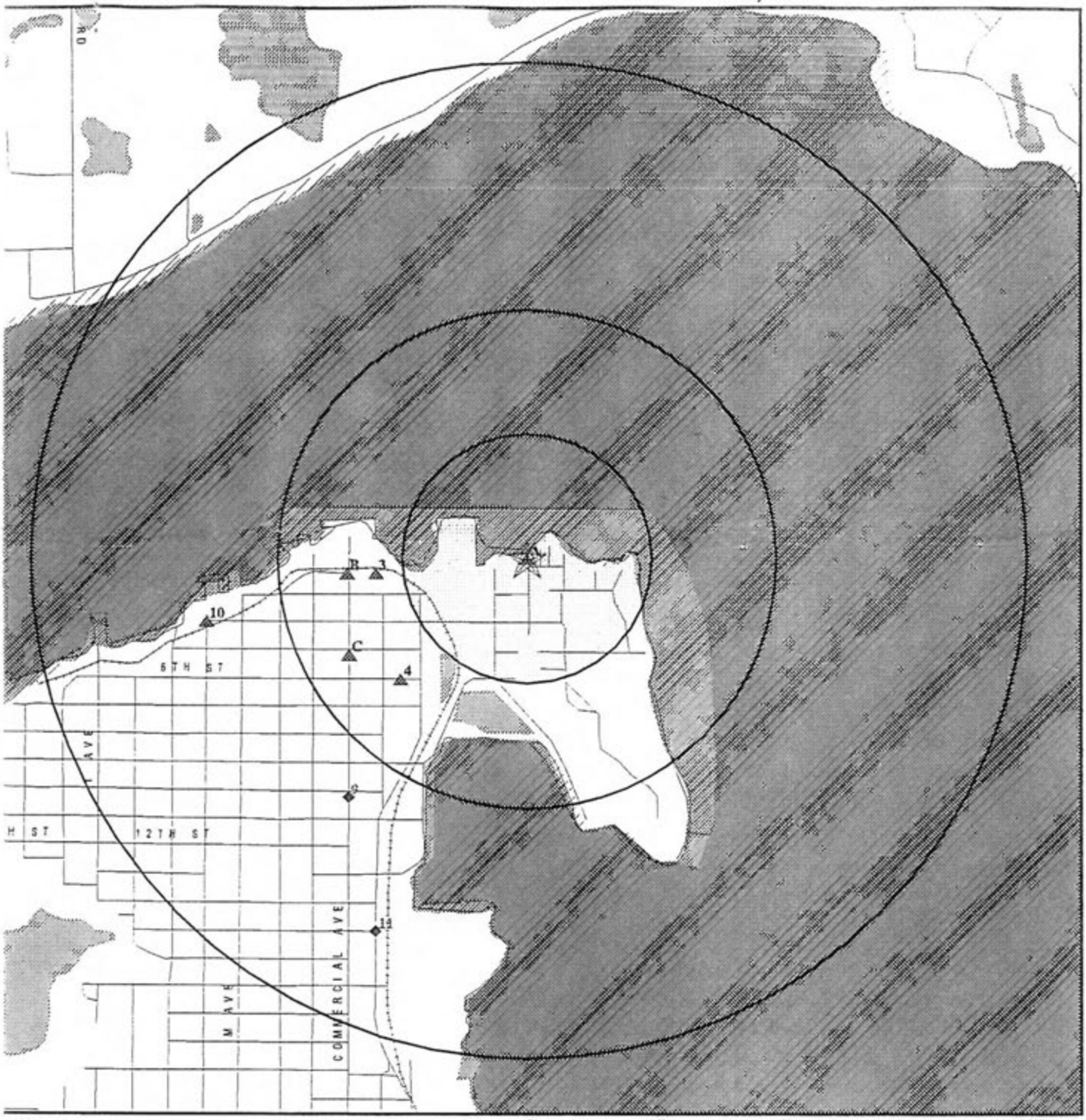
A review of the WA ICR list, as provided by EDR, has revealed that there are 3 WA ICR sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
MOORE-CLARK FISH PROCESSING PL	813 2ND ST.	1/4 - 1/2 W	B5	10
MOORE-CLARK FISH PROCESSING PL	813 2ND ST.	1/4 - 1/2 W	B6	10
US POSTAL SERVICE ANACORTES	***519 COMMERCIAL AVE***	***1/4 - 1/2 WSW***	***C7***	***11***

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
PM NORTHWEST DUMP	RCRIS-SQG, FINDS, CSCSL
PORT OF ANACORTES: DAKOTA CREEK I	CERCLIS
P M NORTHWEST DUMP	CERCLIS
DAKOTA CREEK INDUSTRIES INC.	UST, LUST
PORT OF ANACORTES	UST
NORTH HARBOR DIESEL	RCRIS-SQG, FINDS
SL RESOURCES	RCRIS-SQG, FINDS
WA DOT FERRIES ANACORTES FERRY TER	RCRIS-SQG, FINDS
DUNKIN & BUSH INC TESORO	FINDS, RCRIS-LQG
F DOCK LACONNOR MARINA	ERNS
BLENDING PLANT SPILL SITE	WA ICR
TANK 44 - AVJET SPILL (TEXACO PUGE	WA ICR
FRONTIER FORD	WA ICR
3205 V PLACE (THREE REPORTS)	WA ICR
TEXACO INTERMEDIATE IMPOUNDING BAS	WA ICR
DELAYED COKING UNIT OIL SPILL	WA ICR
EAST IMPOUNDING BASIN AREA	WA ICR
MTCA 10 SITE	WA ICR
TEXACO REFINERY - 100 FOOT PIPELIN	WA ICR
TEXACO	WA ICR

OVERVIEW MAP - 592946.1s - Hart Crowser, Inc.



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Coal Gasification Sites (if requested)

National Priority List Sites

Landfill Sites

Power transmission lines

Oil & Gas pipelines

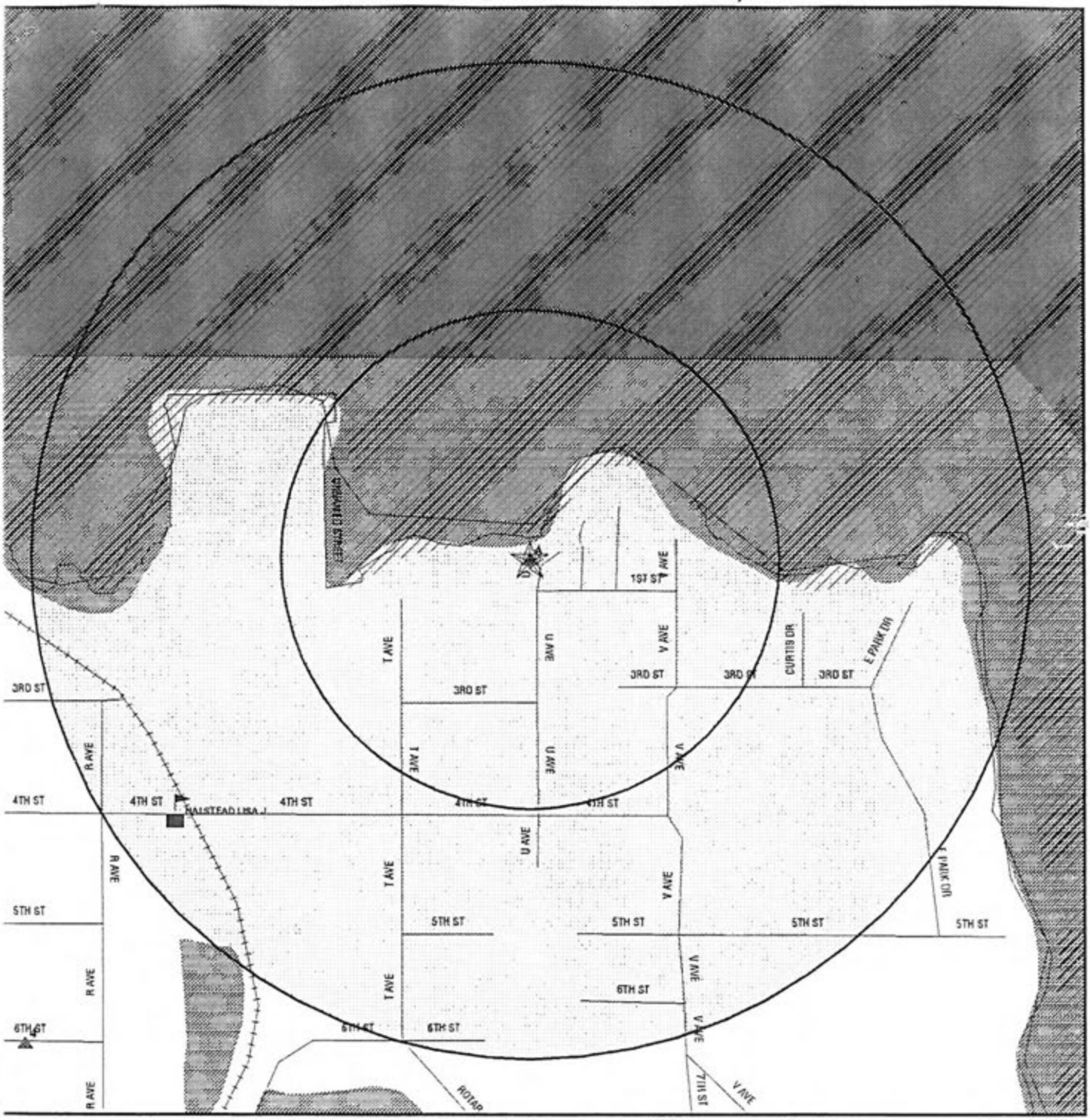
100-year flood zone

500-year flood zone

Wetlands

ARGET PROPERTY:	Marina	CUSTOMER:	Hart Crowser, Inc.
.DDRESS:	202 U Avenue	CONTACT:	Rob Roberts
:ITY/STATE/ZIP:	Anacortes WA 98221	INQUIRY #:	592946.1s
AT/LONG:	48.5211 / 122.6035	DATE:	February 07, 2001 7:37 pm

DETAIL MAP - 592946.1s - Hart Crowser, Inc.



0 1/16 1/8 1/4 Miles

Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Coal Gasification Sites (if requested)

Sensitive Receptors

National Priority List Sites

Landfill Sites

Power transmission lines

Oil & Gas pipelines

100-year flood zone

500-year flood zone

Wetlands

TARGET PROPERTY:	Marina	CUSTOMER:	Hart Crowser, Inc.
ADDRESS:	202 U Avenue	CONTACT:	Rob Roberts
CITY/STATE/ZIP:	Anacortes WA 98221	INQUIRY #:	592946.1s
LAT/LONG:	48.5211 / 122.6035	DATE:	February 07, 2001 7:37 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL ASTM STANDARD								
NPL		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.250	0	0	NR	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRIS-TSD		0.500	0	0	0	NR	NR	0
RCRIS Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
STATE ASTM STANDARD								
CSCSL		1.000	0	0	1	3	NR	4
State Landfill		0.500	0	0	0	NR	NR	0
LUST	X	0.500	0	0	2	NR	NR	2
UST	X	0.250	0	0	NR	NR	NR	0
FEDERAL ASTM SUPPLEMENTAL								
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
STATE OR LOCAL ASTM SUPPLEMENTAL								
WA ICR	X	0.500	0	0	3	NR	NR	3
WA Emissions		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY DATABASES								
Coal Gas		1.000	0	0	0	0	NR	0

AQUIFLOW - see EDR Physical Setting Source Addendum

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

A1 Target Property **WYMANS MARINA**
202 U AVENUE
ANACORTES, WA 98221

UST U001122060
LUST N/A

LUST:

Facility ID:	579	Ecology Region:	North Western
Release ID:	446624	Release Date:	04/24/1998
Release Status:	CLEANUP STARTED	Status Date:	02/27/1998
Alternate Name:	Not reported		
Affected Media:	SOIL		

Facility ID:	579	Ecology Region:	North Western
Release ID:	446624	Release Date:	04/24/1998
Release Status:	AWAITING CLEANUP	Status Date:	02/24/1998
Alternate Name:	Not reported		
Affected Media:	SOIL		

UST:

Facility ID:	579
Install Date:	1/1/68
Capacity:	2,001 TO 4,999 GALLONS
Status:	CLOSURE IN PROCESS
Tank Name:	3
Tank Material:	Not reported
Substance:	DIESEL
Compartment #:	1
Ecology Region:	North Western

Facility ID:	579
Install Date:	1/1/68
Capacity:	2,001 TO 4,999 GALLONS
Status:	CLOSURE IN PROCESS
Tank Name:	4
Tank Material:	Not reported
Substance:	DIESEL
Compartment #:	1
Ecology Region:	North Western

Facility ID:	579
Install Date:	1/1/68
Capacity:	2,001 TO 4,999 GALLONS
Status:	CLOSURE IN PROCESS
Tank Name:	1
Tank Material:	Not reported
Substance:	LEADED GASOLINE
Compartment #:	1
Ecology Region:	North Western

WYMANS MARINA (Continued) U001122060

Facility ID: 579
Install Date: 1/1/68
Capacity: 2,001 TO 4,999 GALLONS
Status: CLOSURE IN PROCESS
Tank Name: 2
Tank Material: Not reported
Substance: LEADED GASOLINE
Compartment #: 1
Ecology Region: North Western

A2 Target Property **WYMAN'S MARINA** WA ICR S103503985
202 U AVE. N/A
ANACORTES, WA 98221

WA ICR:
Date Ecology Received Report: 04/24/98
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-03
County Code: 29
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 06/23/98
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Cause of Contamination: Tank
Region: North Western
Type of Report Ecology Received: Final cleanup report
Site Register Issue: 98-04
County Code: 29
Contact: Not reported
Report Title: Not reported

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3 West 1/4-1/2 1603 Higher **PORT OF ANACORTES DAKOTA CREEK** CSCSL S100836643
115 Q AV N/A
ANACORTES, WA 98221

SHWS:
Facility ID: 2670
Facility Status: Not reported
Rank: Not reported
Flag: STATE
Responsible Unit: NW
Latitude: 48 31 16
Longitude: 122 36 40
Ecology Site Status relative to the MTCA cleanup process:
Awaiting Site Hazard Assessment (SHA)
Independent Site Status - those sites undergoing an independent cleanup:
Not reported
WARM Bin Number indicates the outcome of the Washington Ranking Model (WARM):
Not reported

PORT OF ANACORTES DAKOTA CREEK (Continued) **S100836643**

Affected Media: Not reported
Media Status: S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site

Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Suspected to be present
Horizontal Collection Method:	3
EPA Priority Pollutants - Metals and Cyanide:	Suspected to be present
Metals - Other non-priority pollutant medals:	Suspected to be present
Polychlorinated biPhenyls (PCBs):	Not reported
Pesticides:	Not reported
Petroleum Products:	Suspected to be present
Phenolic Compounds:	Suspected to be present
Non-Halogenated Solvents:	Suspected to be present
Dioxin:	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported

Facility ID: 2670
Facility Status: Not reported
Rank: Not reported
Flag: STATE
Responsible Unit: NW
Latitude: 48 31 16
Longitude: 122 36 40
Ecology Site Status relative to the MTCA cleanup process:
Awaiting Site Hazard Assessment (SHA)
Independent Site Status - those sites undergoing an independent cleanup:
Not reported
WARM Bin Number indicates the outcome of the Washington Ranking Model (WARM):
Not reported
Affected Media: Not reported
Media Status: C (Confirmed) - The presence of hazardous substances above MTCA cleanup levels has been confirmed by laboratory analysis (or field determination in the case of petroleum contamination)

Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Suspected to be present
Horizontal Collection Method:	3
EPA Priority Pollutants - Metals and Cyanide:	Suspected to be present
Metals - Other non-priority pollutant medals:	Suspected to be present
Polychlorinated biPhenyls (PCBs):	Not reported
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels
Phenolic Compounds:	Suspected to be present
Non-Halogenated Solvents:	Suspected to be present
Dioxin:	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Conventional Contaminants, Organic:	Not reported

MUNICIPLE BLDG (Continued) **U000796902**

LUST:

Facility ID:	45	Ecology Region:	North Western
Release ID:	3442	Release Date:	07/29/1991
Release Status:	CLEANUP STARTED	Status Date:	06/01/1995
Alternate Name:	ANACORTES MAINTENANCE		
Affected Media:	SOIL		

UST:

Facility ID:	45
Install Date:	12/31/64
Capacity:	Not reported
Status:	REMOVED
Tank Name:	1
Tank Material:	Steel-Unprotected
Substance:	HEATING FUEL
Compartment #:	1
Ecology Region:	North Western

Facility ID:	45
Install Date:	12/31/64
Capacity:	111 to 1,100 Gallons
Status:	Removed
Tank Name:	2
Tank Material:	Not reported
Substance:	LEADED GASOLINE
Compartment #:	1
Ecology Region:	North Western

B5
West
1/4-1/2
1911
Higher

MOORE-CLARK FISH PROCESSING PLANT WA ICR S103511708
813 2ND ST. N/A
LACONNER, WA 98257

WA ICR:

Date Ecology Received Report:	10/06/95
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Cause of Contamination:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	94-27
County Code:	29
Contact:	Not reported
Report Title:	Not reported

B6
West
1/4-1/2
1911
Higher

MOORE-CLARK FISH PROCESSING PLANT (TWO REPORTS) WA ICR S103508309
813 2ND ST. N/A
LACONNER, WA 98257

WA ICR:

Date Ecology Received Report:	09/08/95
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Cause of Contamination:	Tank
Region:	North Western

MOORE-CLARK FISH PROCESSING PLANT (TWO REPORTS) (Continued) — **S103508309**

Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	94-15
County Code:	29
Contact:	Not reported
Report Title:	Not reported

C7
WSW
1/4-1/2
2143
Higher

US POSTAL SERVICE ANACORTES
519 COMMERCIAL AVE
ANACORTES, WA 98221

Database(s): **UST, WA ICR** — **U003750004, N/A**

WA ICR:

Date Ecology Received Report:	03/07/91
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Cause of Contamination:	Tank
Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	91-25
County Code:	29
Contact:	Not reported
Report Title:	Not reported

UST:

Facility ID:	200225
Install Date:	Not reported
Capacity:	Not reported
Status:	Not reported
Tank Name:	Not reported
Tank Material:	Not reported
Substance:	Not reported
Compartment #:	Not reported
Ecology Region:	North Western

C8
WSW
1/4-1/2
2143
Higher

US POSTAL SERVICE ANACORTES
519 COMMERCIAL AVE
ANACORTES, WA 98221

Database(s): **LUST** — **S101509343, N/A**

LUST:

Facility ID:	200225	Ecology Region:	North Western
Release ID:	2020	Release Date:	10/31/1990
Release Status:	REPORTED CLEANED UP	Status Date:	05/21/1995
Alternate Name:	US POSTAL SERVICE ANACORTES		
Affected Media:	SOIL		

Facility ID:	200225	Ecology Region:	North Western
Release ID:	2020	Release Date:	10/31/1990
Release Status:	CLEANUP STARTED	Status Date:	10/31/1990
Alternate Name:	US POSTAL SERVICE ANACORTES		
Affected Media:	SOIL		

9
SW
1/2-1
3150
Lower

MENDUMS SERVICE
1020 COMMERCIAL AVE
ANACORTES, WA 98221

Database(s): **CSCSL** — **S104490911, N/A**

TRIDENT SEAFOODS CORPORATION (Continued) **U001122531**

LUST:

Facility ID:	1907	Ecology Region:	North Western
Release ID:	1540	Release Date:	07/11/1989
Release Status:	CLEANUP STARTED	Status Date:	06/01/1995
Alternate Name:	TRIDENT SEAFOODS OLD CANNERY		
Affected Media:	SOIL		

UST:

Facility ID:	1907
Install Date:	12/31/64
Capacity:	Not reported
Status:	Closed in Place
Tank Name:	4
Tank Material:	Steel-Unprotected
Substance:	Not reported
Compartment #:	1
Ecology Region:	North Western

Facility ID:	1907
Install Date:	12/31/64
Capacity:	111 to 1,100 Gallons
Status:	Closed in Place
Tank Name:	1
Tank Material:	Steel-Unprotected
Substance:	Not reported
Compartment #:	1
Ecology Region:	North Western

Facility ID:	1907
Install Date:	12/31/64
Capacity:	111 to 1,100 Gallons
Status:	Closed in Place
Tank Name:	2
Tank Material:	Steel-Unprotected
Substance:	Not reported
Compartment #:	1
Ecology Region:	North Western

Facility ID:	1907
Install Date:	12/31/64
Capacity:	111 to 1,100 Gallons
Status:	Closed in Place
Tank Name:	3
Tank Material:	Steel-Unprotected
Substance:	Not reported
Compartment #:	1
Ecology Region:	North Western

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i1 **PORT OF ANACORTES** CSCSL S102512606
SSW **Q AVE / 15TH ST** N/A
1/2-1 **ANACORTES, WA 98221**
4248
Lower

SHWS:

Facility ID:	23953
Facility Status:	Not reported
Rank:	Not reported
Flag:	STATE

PORT OF ANACORTES (Continued) **S102512606**

Responsible Unit: NW
Latitude: 48 30 36
Longitude: 122 36 25
Ecology Site Status relative to the MTCA cleanup process:
Independent Remedial Action
Independent Site Status - those sites undergoing an independent cleanup:
Not reported
WARM Bin Number indicates the outcome of the Washington Ranking Model (WARM):
Not reported
Affected Media: Not reported
Media Status: C (Confirmed) - The presence of hazardous substances above MTCA cleanup levels has been confirmed by laboratory analysis (or field determination in the case of petroleum contamination)

Base/Neutral/Acid Organics:	Suspected to be present
Halogenated Organic Compounds:	Not reported
Horizontal Collection Method:	18
EPA Priority Pollutants - Metals and Cyanide:	Suspected to be present
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels
Phenolic Compounds:	Not reported
Non-Halogenated Solvents:	Not reported
Dioxin:	Suspected to be present
Polynuclear Aromatic Hydrocarbons (PAH):	Suspected to be present
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported

Facility ID: 23953
Facility Status: Not reported
Rank: Not reported
Flag: STATE
Responsible Unit: NW
Latitude: 48 30 36
Longitude: 122 36 25
Ecology Site Status relative to the MTCA cleanup process:
Independent Remedial Action
Independent Site Status - those sites undergoing an independent cleanup:
Not reported
WARM Bin Number indicates the outcome of the Washington Ranking Model (WARM):
Not reported
Affected Media: Not reported
Media Status: C (Confirmed) - The presence of hazardous substances above MTCA cleanup levels has been confirmed by laboratory analysis (or field determination in the case of petroleum contamination)

Base/Neutral/Acid Organics:	Suspected to be present
Halogenated Organic Compounds:	Not reported
Horizontal Collection Method:	18
EPA Priority Pollutants - Metals and Cyanide:	Confirmed above MTCA cleanup levels
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels

PORT OF ANACORTES (Continued) **S102512606**

Phenolic Compounds:	Not reported
Non-Halogenated Solvents:	Not reported
Dioxin:	Suspected to be present
Polynuclear Aromatic Hydrocarbons (PAH):	Confirmed above MTCA cleanup levels
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported

Facility ID: 23953
Facility Status: Not reported
Rank: Not reported
Flag: STATE
Responsible Unit: NW
Latitude: 48 30 36
Longitude: 122 36 25
Ecology Site Status relative to the MTCA cleanup process:
Independent Remedial Action
Independent Site Status - those sites undergoing an independent cleanup:
Not reported
WARM Bin Number indicates the outcome of the Washington Ranking Model (WARM):
Not reported
Affected Media: Not reported
Media Status: C (Confirmed) - The presence of hazardous substances above MTCA cleanup levels has been confirmed by laboratory analysis (or field determination in the case of petroleum contamination)

Base/Neutral/Acid Organics:	Suspected to be present
Halogenated Organic Compounds:	Confirmed above MTCA cleanup levels
Horizontal Collection Method:	18
EPA Priority Pollutants - Metals and Cyanide:	Confirmed above MTCA cleanup levels
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels
Phenolic Compounds:	Confirmed above MTCA cleanup levels
Non-Halogenated Solvents:	Not reported
Dioxin:	Confirmed above MTCA cleanup levels
Polynuclear Aromatic Hydrocarbons (PAH):	Confirmed above MTCA cleanup levels
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Conventional Contaminants, Organic:	Suspected to be present
Conventional Contaminants, Inorganic:	Confirmed above MTCA cleanup levels

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Facility ID
ANACORTES	1000659653	NORTH HARBOR DIESEL	2900 T AVE STE I	98221	RCRIS-SQG, FINDS	
ANACORTES	U003027177	DAKOTA CREEK INDUSTRIES INC.	115 Q AVE PO BOX 218	98221	UST, LUST	4931
ANACORTES	1001970064	PORT OF ANACORTES: DAKOTA CREEK I	115 Q AVENUE	98221	CERCLIS	
ANACORTES	S104486090	BLENDING PLANT SPILL SITE	P.O. BOX 622, MARCH POINT	98221	WA ICR	
ANACORTES	S104487689	TANK 44 - AVJET SPILL (TEXACO PUGE	P.O. BOX 622, MARCH POINT	98221	WA ICR	
ANACORTES	U000586175	PORT OF ANACORTES	100 COMMERCIAL AVENUE	98221	UST	580
ANACORTES	1000659240	DUNKIN & BUSH INC TESORO	CORNER OF F & 5TH ST S MARCH P	98221	FINDS, RCRIS-LQG	
ANACORTES	S103507533	FRONTIER FORD	SW CORNER OF S. MARCH POINT RO	98221	WA ICR	
ANACORTES	1001600528	PM NORTHWEST DUMP	PADILLA HEIGHTS RD OFF HWY 20	98221	RCRIS-SQG, FINDS, CSCSL	2664
ANACORTES	S104584289	WHISPERING WINDS INC	3116 V PLACE	98221	HAZNET	
ANACORTES	S103503533	3205 V PLACE (THREE REPORTS)	3205 V PLACE, LOT 3	98221	WA ICR	
ANACORTES	S103510093	TEXACO INTERMEDIATE IMPOUNDING BAS	PUGET SOUND REFINERY	98221	WA ICR	
ANACORTES	1001230671	P M NORTHWEST DUMP	T34N R2E S10 N1/2 NE1/4 SE1/4	98221	CERCLIS	
ANACORTES	1000129869	SL RESOURCES	T ST & VACATED 26TH ST	98221	RCRIS-SQG, FINDS	
ANACORTES	S103506677	DELAYED COKING UNIT OIL SPILL	TEXACO PUGET SOUND PLANT	98221	WA ICR	
ANACORTES	S103506740	EAST IMPOUNDING BASIN AREA	TEXACO REFINERY - MARCH POINT	98221	WA ICR	
ANACORTES	S103508148	MTCA 10 SITE	TEXACO PUGET SOUND PLANT	98221	WA ICR	
ANACORTES	S103510099	TEXACO REFINERY - 100 FOOT PIPELIN	TEXACO PUGET SOUND PLANT	98221	WA ICR	
ANACORTES	S103510096	TEXACO	600 S. TEXAS ROAD	98221	WA ICR	
ANACORTES	1000394342	WA DOT FERRIES ANACORTES FERRY TER	WESTERN SPUR END OF HWY 20	98221	RCRIS-SQG, FINDS	
LACONNOS	93330272	F DOCK LACONNOR MARINA	F DOCK LACONNOR MARINA	98221	ERNS	

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM STANDARD RECORDS

NPL: National Priority List
Source: EPA
Telephone: N/A
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC).

Date of Government Version: 06/13/00
Date Made Active at EDR: 07/06/00
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 06/27/00
Elapsed ASTM days: 9
Date of Last EDR Contact: 11/06/00

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-413-0223
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/16/00
Date Made Active at EDR: 08/16/00
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 06/05/00
Elapsed ASTM days: 72
Date of Last EDR Contact: 12/29/00

CERCLIS-NFRAP: No Further Remedial Action Planned
Source: EPA
Telephone: 703-413-0223
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

Date of Government Version: 04/16/00
Date Made Active at EDR: 08/16/00
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 06/05/00
Elapsed ASTM days: 72
Date of Last EDR Contact: 12/29/00

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 04/20/00
Date Made Active at EDR: 08/01/00
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 06/12/00
Elapsed ASTM days: 50
Date of Last EDR Contact: 12/11/00

RCRIS: Resource Conservation and Recovery Information System
Source: EPA/NTIS
Telephone: 800-424-9346
Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Date of Government Version: 06/21/00
Date Made Active at EDR: 07/31/00
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 07/10/00
Elapsed ASTM days: 21
Date of Last EDR Contact: 11/09/00

ERNS: Emergency Response Notification System
Source: EPA/NTIS
Telephone: 202-260-2342
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 08/08/00
Date Made Active at EDR: 09/06/00
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 08/11/00
Elapsed ASTM days: 26
Date of Last EDR Contact: 10/31/00

FEDERAL ASTM SUPPLEMENTAL RECORDS

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/97
Database Release Frequency: Biennially

Date of Last EDR Contact: 12/19/00
Date of Next Scheduled EDR Contact: 03/19/01

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: N/A
Database Release Frequency: Varies

Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

ROD: Records Of Decision
Source: NTIS
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 01/31/99
Database Release Frequency: Annually

Date of Last EDR Contact: 10/12/00
Date of Next Scheduled EDR Contact: 01/08/01

DELISTED NPL: NPL Deletions
Source: EPA
Telephone: N/A
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 06/13/00
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 11/06/00
Date of Next Scheduled EDR Contact: 02/05/01

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report
Source: EPA
Telephone: N/A
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/07/00
Database Release Frequency: Quarterly
Date of Last EDR Contact: 10/10/00
Date of Next Scheduled EDR Contact: 01/08/01

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4526
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 05/31/00
Database Release Frequency: Annually
Date of Last EDR Contact: 10/24/00
Date of Next Scheduled EDR Contact: 01/22/01

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/23/00
Database Release Frequency: Quarterly
Date of Last EDR Contact: 10/10/00
Date of Next Scheduled EDR Contact: 01/08/01

MINES: Mines Master Index File
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

Date of Government Version: 08/01/98
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 01/02/01
Date of Next Scheduled EDR Contact: 04/02/01

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 205-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 11/20/00
Date of Next Scheduled EDR Contact: 02/19/01

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-260-3936
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 01/01/00
Database Release Frequency: Annually
Date of Last EDR Contact: 10/24/00
Date of Next Scheduled EDR Contact: 02/12/01

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 12/11/00
Date of Next Scheduled EDR Contact: 03/12/01

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-260-1531
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/97
Database Release Frequency: Annually
Date of Last EDR Contact: 12/27/00
Date of Next Scheduled EDR Contact: 03/26/01

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-1444
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/98
Database Release Frequency: Every 4 Years
Date of Last EDR Contact: 12/12/00
Date of Next Scheduled EDR Contact: 03/12/01

STATE OF WASHINGTON ASTM STANDARD RECORDS

CSCSL: Confirmed & Suspected Contaminated Sites List
Source: Department of Ecology
Telephone: 360-407-7200
State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 06/14/00
Date Made Active at EDR: 12/22/00
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 11/20/00
Elapsed ASTM days: 32
Date of Last EDR Contact: 11/20/00

HSL: Hazardous Sites List
Source: Department of Ecology
Telephone: 360-407-7200
The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

Date of Government Version: 08/29/00
Date Made Active at EDR: 10/10/00
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 09/12/00
Elapsed ASTM days: 28
Date of Last EDR Contact: 12/11/00

SWF/LF: Solid Waste Facility Database
Source: Department of Ecology
Telephone: 360-407-6132
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/01/00
Date Made Active at EDR: 12/22/00
Database Release Frequency: Annually
Date of Data Arrival at EDR: 11/30/00
Elapsed ASTM days: 22
Date of Last EDR Contact: 10/13/00

LUST: Leaking Underground Storage Tanks Site List
Source: Department of Ecology
Telephone: 360-407-7200
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 10/06/00
Date Made Active at EDR: 11/30/00
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 10/30/00
Elapsed ASTM days: 31
Date of Last EDR Contact: 10/30/00

UST: Underground Storage Tank Database
Source: Department of Ecology
Telephone: 360-407-7170
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 10/06/00
Date Made Active at EDR: 11/10/00
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 10/30/00
Elapsed ASTM days: 11
Date of Last EDR Contact: 10/30/00

STATE OF WASHINGTON ASTM SUPPLEMENTAL RECORDS

ICR: Independent Cleanup Reports
Source: Department of Ecology
Telephone: 360-407-7200
These are remedial action reports Ecology has received from either the owner or operator of the sites. These actions have been conducted without department oversight or approval and are not under an order or decree.

Date of Government Version: 11/30/00
Database Release Frequency: Quarterly

Date of Last EDR Contact: 11/20/00
Date of Next Scheduled EDR Contact: 02/19/01

EMI: Washington Emissions Data System
Source: Department of Ecology
Telephone: 360-407-6040

Date of Government Version: 12/31/97
Database Release Frequency: Annually

Date of Last EDR Contact: 10/24/00
Date of Next Scheduled EDR Contact: 01/22/01

LOCAL RECORDS

KING COUNTY:

Abandoned Landfill Study in King County
Source: Seattle-King County Department of Public Health
Telephone: 206-296-4785
The King County Abandoned Landfill Survey was conducted from October through December 1984 by the Health Department's Environmental Health Division at the request of the King County Council. The primary objective of the survey was to determine if any public health problems existed at the predetermined 24 sites.

Date of Government Version: 04/30/85
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 10/21/94
Date of Next Scheduled EDR Contact: N/A

SEATTLE COUNTY:

Abandoned Landfill Study in the City of Seattle
Source: Seattle - King County Department of Public Health
Telephone: 206-296-4785
The Seattle Abandoned Landfill Survey was conducted in June and July of 1984 by the Health Department's Environmental Health Division at the request of the Mayor's Office. The primary objective of the survey was to determine if any public health problems exisied at the predetermined 12 sites.

Date of Government Version: 07/30/84
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 10/21/94
Date of Next Scheduled EDR Contact: N/A

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEATTLE/KING COUNTY:

Seattle - King County Abandoned Landfill Toxicity / Hazard Assessment Project
Source: Department of Public Health
Telephone: 206-296-4785
This report presents the Seattle-King County Health Department's follow-up investigation of two city owned and four county owned abandoned landfills which was conducted from February to December 1986.

Date of Government Version: 12/31/86
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 08/14/95
Date of Next Scheduled EDR Contact: N/A

SNOHOMISH COUNTY:

Solid Waste Sites of Record at Snohomish Health District
Source: Snohomish Health District
Telephone: 206-339-5250

Date of Government Version: 06/13/00
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 10/24/00
Date of Next Scheduled EDR Contact: 01/22/01

TACOMA/PIERCE COUNTY:

Closed Landfill Survey
Source: Tacoma-Pierce County Health Department
Telephone: 206-591-6500
Following numerous requests for information about closed dumpsites and landfills in Pierce County, the Tacoma-Pierce County Health Department decided to conduct a study on the matter. The aim of the study was to evaluate public health risks associated with the closed dumpsites and landfills, and to determine the need, if any, for further investigations of a more detailed nature. The sites represent all of the known dumpsites and landfills closed after 1950.

Date of Government Version: 04/15/93
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 01/11/95
Date of Next Scheduled EDR Contact: N/A

EDR PROPRIETARY DATABASES

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

Disclaimer Provided by Real Property Scan, Inc.

The information contained in this report has predominantly been obtained from publicly available sources produced by entities other than Real Property Scan. While reasonable steps have been taken to insure the accuracy of this report, Real Property Scan does not guarantee the accuracy of this report. Any liability on the part of Real Property Scan is strictly limited to a refund of the amount paid. No claim is made for the actual existence of toxins at any site. This report does not constitute a legal opinion.

HISTORICAL AND OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines/Electrical Transmission Lines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines and electrical transmission lines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 1999 from the U.S. Fish and Wildlife Service.

GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

MARINA
202 U AVENUE
ANACORTES, WA 98221

TARGET PROPERTY COORDINATES

Latitude (North):	48.521099 - 48° 31' 16.0"
Longitude (West):	122.603500 - 122° 36' 12.6"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	529278.9
UTM Y (Meters):	5374078.0

EDR's GeoCheck Physical Setting Source Addendum has been developed to assist the environmental professional with the collection of physical setting source information in accordance with ASTM 1527-00, Section 7.2.3 Section 7.2.3 requires that a current USGS 7.5 Minute Topographic Map (or equivalent, such as the USGS Digital Elevation Model) be reviewed. It also requires that one or more additional physical setting sources be sought when (1) conditions have been identified in which hazardous substances or petroleum products are likely to migrate to or from the property, and (2) more information than is provided in the current USGS 7.5 Minute Topographic Map (or equivalent) is generally obtained, pursuant to local good commercial or customary practice, to assess the impact of migration of recognized environmental conditions in connection with the property. Such additional physical setting sources generally include information about the topographic, hydrologic, hydrogeologic, and geologic characteristics of a site, and wells in the area.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata. EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

USGS TOPOGRAPHIC MAP ASSOCIATED WITH THIS SITE

Target Property: 2448122-E5 ANACORTES NORTH, WA
Source: USGS 7.5 min quad index

GENERAL TOPOGRAPHIC GRADIENT AT TARGET PROPERTY

Target Property: General NNE

Source: General Topographic Gradient has been determined from the USGS 1 Degree Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Q3 Flood Data Electronic Coverage
SKAGIT, WA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property:	5300000000C / UNMC
Additional Panels in search area:	5301510225C / CBPP

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Coverage
ANACORTES NORTH	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Site-Specific Hydrogeological Data:*
Search Radius: 2.0 miles
Status: Not found

AQUIFLOW®

Search Radius: 2.000 Miles.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory◆ authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

GEOLOGIC AGE IDENTIFICATION

Geologic Code: uMze
Era: Mesozoic
System: Cretaceous
Series: Upper Mesozoic

ROCK STRATIGRAPHIC UNIT

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Component Name: BOW

Soil Surface Texture: gravelly - loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Somewhat poorly. Soils commonly have a layer with low hydraulic conductivity, wet state high in profile, etc. Depth to water table is 1 to 3 feet.

Hydric Status: Soil meets the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: MODERATE

Depth to Bedrock Min: > 60 inches

Depth to Bedrock Max: > 60 inches

Soil Layer Information

	Boundary			Classification		
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)
1	0 inches	7 inches	gravelly - loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COURSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 2.00 Min: 0.60
2	7 inches	17 inches	very gravelly - loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COURSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 2.00 Min: 0.60
3	17 inches	31 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0.60 Min: 0.20
4	31 inches	60 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 0.20 Min: 0.06

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silt loam
very gravelly - loamy sand

Surficial Soil Types: silt loam
very gravelly - loamy sand

Shallow Soil Types: gravelly - loam
very gravelly - sandy loam
very gravelly - loamy sand
very gravelly - sand

Deeper Soil Types: gravelly - sand
cemented
silty clay
very gravelly - loamy sand
unweathered bedrock

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

According to ASTM E 1527-00, Section 7.2.2, "one or more additional state or local sources of environmental records may be checked, in the discretion of the environmental professional, to enhance and supplement federal and state sources... Factors to consider in determining which local or additional state records, if any, should be checked include (1) whether they are reasonably ascertainable, (2) whether they are sufficiently useful, accurate, and complete in light of the objective of the records review (see 7.1.1), and (3) whether they are obtained, pursuant to local, good commercial or customary practice." One of the record sources listed in Section 7.2.2 is water well information. Water well information can be used to assist the environmental professional in assessing sources that may impact groundwater flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

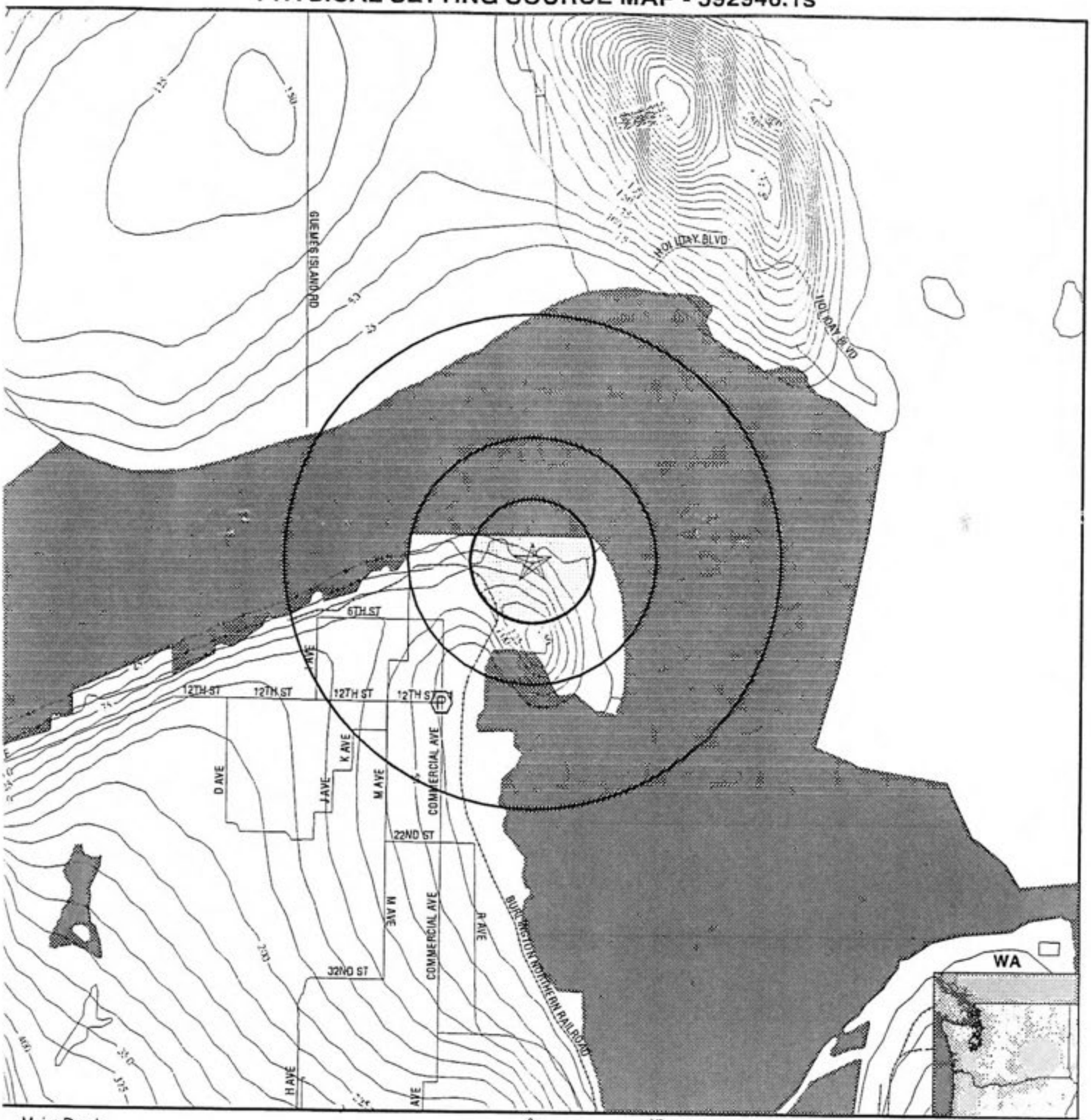
MAP ID	WELL ID	LOCATION FROM TP
1	WA5312140	1/2 - 1 Mile SSW

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 592946.1s



Major Roads
Contour Lines
Water Wells
Public Water Supply Wells
Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Cluster of Multiple Icons

Earthquake epicenter, Richter 5 or greater
Closest Hydrogeological Data

ARGET PROPERTY:	Marina	CUSTOMER:	Hart Crowser, Inc.
DDRESS:	202 U Avenue	CONTACT:	Rob Roberts
ITY/STATE/ZIP:	Anacortes WA 98221	INQUIRY #:	592946.1s
AT/LONG:	48.5211 / 122.6035	DATE:	February 07, 2001 7:37 pm

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1 **SSW** **1/2 - 1 Mile** **Lower**	**FRDS PWS**	**WA5312140**

PWS ID:	WA5312140	PWS Status:	Active
Date Initiated:	Not Reported	Date Deactivated:	Not Reported
PWS Name:	CENTER ISLAND WATER SYSTEM ANACORTES, WA 982219461		
Addressee / Facility:	Not Reported		
Facility Latitude:	Not Reported	Facility Longitude:	Not Reported
City Served:	Not Reported		
Treatment Class:	Treated	Population:	71

PWS currently has or had major violation(s) or enforcement: No

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for SKAGIT County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Zip Code: 98221

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.300 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 1999 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the national Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: In November 1971 the United States Geological Survey (USGS) implemented a national water resource information tracking system. This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on more than 900,000 wells, springs, and other sources of groundwater.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STATE RECORDS

Water Wells
Source: Department of Transportation
Telephone: 360-705-7444
Group A well location points in Washington State.

Kitsap County Water Wells in Washington
Source: Public Utility District No. 1 of Kitsap County
Telephone: 206-779-7656

RADON

Area Radon Information: The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones: Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Initial Environmental Assessment
Multiple Port of Anacortes Sites
Anacortes, Washington

Prepared for
Chmelik, Sitkin & Davis

December 1, 2003
7985-00

HARTCROWSER

unknown, and commercial warehouses may have historically conducted repair or maintenance activities.

9.0 WYMAN'S MARINA (SITE 7)

Wyman's Marina is located west of the intersection of 2nd Street and U Avenue and includes 46,820 square feet of land and 44,113 square feet of water (Figure 4).

9.1 Property Description

Site History

Historical features identified during Hart Crowser, March 2001 Preliminary Environmental Assessment of the Wyman's Marina property for the Port of Anacortes are shown on Figure 4. According to that report, aerial photographs reveal that visible property development occurred after 1944, with a dock structure in-place by 1956. This coincides with activities by Robinson Marine Works. Robinson continued operations at 502 Second Street through 1960, and is then listed at 202 U Avenue in the 1963 directory under USCG Mooring and Robinson Anacortes Marina. The Robinson operation is the likely a precursor to Wyman's Marina.

Donald and Rayetta Wyman operated the property for boat servicing and maintenance on a continuous basis until 1998. In 1983, pilings in the dock and marine areas were replaced and the Port contracted maintenance dredging of 2,900 cubic yards of marina sediment. Additional guidelines were replaced on the dock floats around 1990.

Significant maintenance issues related to the building and dock structure were noted in the 1990s including the need for replacement or repair of the dock structure and the building roof. A sump pump was installed beneath wooden flooring at the southeast corner of the mechanic's shop in 1995 to improve drainage.

Other activities on this property included installation of a new sanitary sewer line between the bathroom area and the sewer tie-in at the south edge of the property in 1993. The new sewer was installed in a trench along the marine ways through fill material. During the excavation, a 1-inch-thick band of gray blackish material was exposed over an approximate 10-foot length near the "lower end of trench." This location is near the northwestern corner of the wood shop.

Site Reconnaissance

The Wyman's Marina property consists of a site building, wooden and concrete docks, moorage area, and marine ways boat ramp for the former Wyman's Marina operations. The marine ways include a concrete ramp with two rails for boatlift trolley system. Much of the dock area is supported by creosote-treated timber pilings. Areas adjoining the building are exposed gravel with asphalt pavement along the U Avenue access on the east side of the property. A concrete pad for a former "pole" building is located immediately south of the main building. The ground surface at the property slopes generally to the north toward the shoreline area. Although surface areas have been regravelled, residual sandblast grit is visible in the yard areas located to the west and south of the site building.

Adjacent Properties

The Wyman's Marina property is bounded on the west by the Randy's Pier property (Site 8), on the south and east by residential properties, and on the north by Guemes Channel.

9.2 Property Geologic Setting

Much of the shoreline is exposed bedrock with concrete bulkheads along the dock and building front. The exposed shoreline extends to the east and west of marine ways ramp and the dock structure. The tide was relatively high during Hart Crowser's November 4, 2003, site reconnaissance, and observation of the intertidal area was limited. Sediment conditions reported by Otten Engineering during 1997 environmental sampling noted soft, sandy Silt near docks and the shoreline. Eelgrass and kelp beds were also present.

Property soils consist of various fill materials over native sand and silt that are likely of glacial origin. Otten Engineering observed fill and underlying native soils in 1998 during removal of USTs near the northeastern corner of the building. Depth to native soils was noted as about 4 feet below the ground surface in the UST excavation side wall. Extensive silty and sandy fill is visible beneath the western and northern sides of the site building. Fill thickness and composition are expected to be quite variable across the property. The UST excavation reached a depth of about 10 feet below ground surface and did not encounter bedrock. Bedrock is exposed along the shoreline, and was noted in an Otten Engineering soil boring log from 1997 at a depth of 7 feet below the marine ways ramp. This indicates that the bedrock surface is uneven and undulates beneath the property, with overlying soil of varying thickness.

Very slow groundwater seepage was noted a depths of 4 to 5 feet below ground surface during the 1998 UST removal. This water is most likely an isolated, perched zone over fine-grained native sediments and bedrock. Groundwater discharges to the north toward the shoreline and may be affected by tidal intrusion of saltwater.

9.3 Existing Environmental Information

Otten Engineering previously completed environmental sampling and analysis at the Wyman's Marina property during a limited Phase 2 study in 1997 and closure of site USTs in 1998. The 1997 study included collection of upland soil and intertidal sediment samples for chemical analysis. No groundwater data were collected. The 1997 and 1998 Otten Engineering reports should be consulted for additional description of sampling and analytical results.

Upland Soil Samples

Otten Engineering collected upland surface samples (up to 1 foot depth) at 15 locations including the marine ways and areas adjacent to the building shops. Many of the surface samples were collected in areas of visible oil staining, paint chip fragments, and sandblast grit. Oil-stained areas were noted beneath the northwest corner of the building near an air compressor, exposed gravel near the shop areas, and locally in the parking lot. Thirteen of the samples were submitted for selected laboratory analyses including petroleum hydrocarbons, metals, semivolatile organic compounds volatile organic compounds, and PCBs. In addition, two shallow soil borings were drilled to depths of 4 and 7 feet below ground surface northwest of the wood shop and on the marine ways, respectively. No soil samples from the borings were submitted for analysis.

Laboratory results confirmed the presence of petroleum hydrocarbons in the upland soil samples analyzed. Detections were in the diesel- and heavy oil-ranges. Some of the detected concentrations exceeded Method A cleanup levels. Copper was detected at elevated concentration in the sample SS-8A and SS-9 along the marine ways ramp but did not exceed the MTCA Method C cleanup level for industrial sites. Elevated lead concentrations were detected in samples SS-13, SS-14, and SS-15 near the site building, with a concentration of 1,390 mg/kg in SS-14. A pesticide constituent, 4-4 DDD, was detected in sample SS-13 at a concentration of 90 mg/kg, below the applicable cleanup level. Constituents of organic compounds were limited to a few detections of PAHs and benzene derivatives. These detections did not exceed applicable cleanup levels.

Sediment Samples

Sediment samples were collected by Otten Engineering from the marina area as surface grabs from the upper 10 centimeters. No deeper cores were obtained. In addition, pore water samples for tributyltin (TBT) analysis were collected at four locations. Relatively low concentrations of metals and PAHs were detected in the sediment samples and did not exceed applicable Sediment Quality Standards (SQS) values listed in the state SMS. TBT was detected in three of the four pore water samples at a maximum concentration of 0.15 µg/L. This concentration equals the screening level defined in the Dredge Material Evaluation and Disposal Procedures, A Users Manual for the Puget Sound Dredged Disposal Analysis (PSDDA) program, dated February 2000.

1998 UST Closure Assessment

Otten Engineering completed environmental sampling and analysis, and reporting to document closure of two gasoline USTs (2,000 and 3,000 gallons) and two diesel USTs (3,000 gallons each) in 1998. The USTs and associated piping were located near the northeast corner of the site building. Product piping leading to two fuel pumps on the marine dock was capped and left in-place. No records were available indicating whether the dock piping was flushed and cleaned as part of the work. About 300 cubic yards of petroleum-affected soil were removed from the UST excavation for off-site thermal treatment and recycling at the SCR Associated facility located in Everett, Washington. Concentrations of TPH as gasoline and diesel in soil samples from the final excavation limits were below the applicable MTCA cleanup levels at the time of the work. Concentrations of BTEX compounds in these soil samples were also below cleanup levels.

During the work a water line in the excavation was damaged and released an estimated 1,500 gallons of water. An additional 7,500 gallons of water were recovered using a vacuum truck and shipped for off-site reprocessing. Samples of the residual water from the excavation contained TPH and BETX concentrations exceeding MTCA cleanup levels, but these samples are not representative of true groundwater conditions near the UST excavation. A follow-up letter from Ecology to the Port on May 4, 1998, concluded, however, that groundwater "appeared to be contaminated with diesel and gasoline constituents." The Ecology letter noted the need for additional MTCA groundwater characterization and corrective action where applicable.

9.4 Potential for Contamination

This property (Site 7) presents a high potential for localized subsurface contamination, based on historical property use as a boat and marine equipment repair facility and documented leaking USTs and remediation activities. A low potential exists for contamination of the marina sediments based results of the Otten Engineering surface sediment sampling and analysis in 1997.

10.0 RANDY'S PIER (SITE 8)

The Randy's Pier property is located immediately west of Wyman's Marina, northeast of the intersection of 3rd Street and T Avenue (Figure 4). The Port owns the majority of the property, except the Randy's Pier 61 building.

10.1 Property Description

Site History

Anacortes Lumber and Box Company operated a lumber and box mill at this property from approximately 1900 until the facility burned down in 1940. A large smokestack, small buildings, and parked cars are visible on the property in aerial photographs from the late 1950s until early 1970s. Little is known about use of the property during this period. In a 1971 aerial photograph, Boomer's Landing Restaurant is visible, as well as the smokestack. The smokestack was demolished in 1997. Boomer's Landing became Randy's Pier 61 in the late 1990s.

Site Reconnaissance

The Randy's Pier building was not entered. The Randy's Pier building and gravel parking area appear to be in good condition.

Adjacent Properties

The Randy's Pier property is bounded on the east by the Wyman's Marina property (Site 7), on the west by Pier 2, and on the south by residences and a warehouse. The Pier 2 features include a concrete pier, a paved log storage yard, a truck wash, an enclosed electric petroleum coke loader, settling ponds for coke wash water, and a log debarker. The eastern boundary of Pier 2 includes the "log pocket," a small waterway used to stage logs before they are moved into upland area of the log yard. The north end of Pier 2 is also used for short-term moorage of barges and other vessels.

Existing and Historical Features Map
Wyman's Marina and Randy's Pier (Site 7 and 8)

HEL 12/1/03 798500010

Source: Base map prepared from electronic drawing provided by the Johnson Partnership, titled "Aerial View."

0 80 160
Scale in Feet

07-HC-01 ◔	Proposed Boring Location
07-SED-01 ⊕	Proposed Sediment Sampling Location
———	Existing Feature
- - - - - - - -	Historical Feature
— — — —	Approximate Subject Property Boundary

N

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Figure 4

Report
Multiple Site Investigation
Port of Anacortes
Anacortes, Washington

December 16, 2004

Prepared for

Port of Anacortes
First and Commercial Avenue
Anacortes, WA 98221

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1.0 INTRODUCTION

This report presents the results of a multiple site investigation conducted at the request of the Port of Anacortes (Port) for the purposes of a voluntary due diligence study for contamination based on historical information. The multiple site investigation was performed on six properties or portions of properties (sites) owned by the Port and located in Anacortes, Washington. The six sites included in the multiple site investigation are shown with respect to the surrounding vicinity on Figure 1 and are listed below:

- Site 1: Former City Sewage Treatment Plant – northeast corner of 3rd Street and R Avenue (east portion of Dakota Creek Industries leasehold at 115 Q Avenue)
- Site 2: Former Turpentine Tank – north of 4th Street and east of R Avenue (southwest portion of Port's Pier 2 property)
- Site 3: Curtis Wharf and Dock – northwest corner of 2nd Street and O Avenue
- Site 4: Wyman's Marina – 202 U Avenue
- Site 5: Randy's Pier 61 – 209 T Avenue
- Site 6: Former UST Area Outside Warehouse #10 – northeast corner of 1st Street and Commercial Avenue.

The objective of the multiple site investigation was to provide information regarding the general environmental conditions at these six sites. Soil and groundwater were the primary media of interest, and one composite sediment sample from three discrete locations was collected from the Curtis Wharf and Dock (Site 3). Data collected during this investigation is not sufficient to characterize environmental conditions at each site; instead, it is the basis for identifying whether widespread environmental concerns warranting further investigation are present at these sites. Sample locations were, however, selected to have the greatest expected likelihood of encountering contamination based on the historical and environmental information provided by the Port.

2.0 METHODOLOGY

This section describes the methodology used to obtain samples during the multiple site investigation. Fifteen proposed boring locations were identified in the work plan letter regarding *Anacortes Airport Expanded Phase I ESA Planning, Port of Anacortes, Anacortes, Washington* (Landau Associates 2004). One soil and one groundwater sample was planned for each boring location. All soil and groundwater samples were collected from temporary soil borings advanced using a direct-push drill rig operated by Cascade Drilling, Inc. (Cascade Drilling). Boring logs are included in Appendix A. Sediment samples were collected using a hand-deployed Eckman sampler from the side of over-water floats.

2.1 SOIL SAMPLING

Soil samples were obtained from the soil borings using a closed-piston sampling device with a 48-inch long, 1.5-inch inside-diameter (ID) core sampler. The sampler was advanced to the top of the sample interval with the piston in a locked position. The piston tip was then loosened and the sampler was advanced over the desired depth interval, thereby coring the soil inside the sampler's disposable, single-use liner. The sampler was then withdrawn to retrieve the liner and soil sample. The liner was cut to remove the soil sample and a new liner was placed in the core sampler. This process was repeated until all desired soil samples were obtained. Between samples, the core sampler, including the piston tip and rods, was decontaminated to prevent cross-contamination of soil samples.

After the liner was cut, the lithology of the soil sample was recorded on the Log of Exploration form in accordance with the Uniform Soil Classification System. For samples that were analyzed for volatile organic compounds (VOCs), gasoline-range petroleum hydrocarbons, and benzene, toluene, ethylbenzene and xylenes (BTEX), a portion of the soil sample was placed directly in the sample container such that no headspace existed in the containers. The remaining portions of soil samples were field screened by using a photoionization detector (PID) and visual inspection. A PID reading was measured and recorded for each 4-ft interval, or where PID detections were observed for each 1-ft interval. A visual examination for discoloration of soil, the presence of sheens or non-aqueous phase liquid (NAPL), and other indications of contamination was also made of the soil in each 4-ft interval. The presence of any odor was also documented. If no obvious signs of contamination were observed, soil samples were generally collected from the 1-ft interval immediately above the water table to be submitted to the laboratory for chemical analysis.

Soil samples were placed into separate decontaminated stainless-steel bowls and homogenized using a decontaminated stainless-steel spoon. Larger-sized material (gravel greater than about ¼- to

½-inch in diameter) was removed by hand sorting and a representative sample was then transferred to the appropriate sample containers. Samples to be analyzed for VOCs, gasoline-range petroleum hydrocarbons, and BTEX, however, were not homogenized to avoid volatilization of contaminants to be evaluated. Samples were stored in a cooler with ice and submitted to the laboratory for chemical analysis.

2.2 GROUNDWATER SAMPLING

In soil borings where the water table was encountered, a disposable temporary well screen was lowered into the boring to a depth within the saturated zone. A peristaltic pump was used to recover groundwater from the boring through disposable plastic tubing. Groundwater from the boring was purged until temperature, conductivity, and dissolved oxygen levels stabilized, and then groundwater samples were collected in the appropriate sample containers. Samples to be analyzed for VOCs, gasoline-range petroleum hydrocarbons, and BTEX were filled completely to avoid the partitioning of volatile chemicals into air bubbles within the sample container. Samples were stored in a cooler with ice and submitted to the laboratory for chemical analysis.

2.3 SEDIMENT SAMPLING

Surface sediment samples were collected from the floats at Wyman's Marina (Site 4) using a hand-deployed Ekman sampler in accordance with Puget Sound Estuary Program (PSEP) protocols. Three discrete samples representative of the upper 10 centimeters of sediment were collected, composited together, and transferred into appropriate laboratory-supplied jars. Samples were stored in a cooler with ice and submitted to the laboratory for chemical analysis.

3.0 OBSERVATIONS AND CHEMICAL RESULTS

This section describes the observations and chemical results associated with the investigation performed at each of the six sites. Soil and groundwater data were compared to Model Toxics Control Act (MTCA) Method A cleanup levels or, for those chemicals without MTCA Method A cleanup levels, MTCA Method B cleanup levels. Cleanup levels protective of unrestricted land use and groundwater use as drinking water were conservatively used for the purposes of this preliminary comparison to regulatory criteria. Data from the single sediment sample were compared to the Washington State Sediment Quality Standards (SQS) and Cleanup Screening Levels (CSL) criteria.

3.1 SITE 1 – FORMER CITY SEWAGE TREATMENT PLANT

One boring location was proposed for the Former City Sewage Treatment Plant (Site 1) within the footprint of the former treatment plant. Drilling refusal was encountered at three locations at a depth of approximately 4 ft below ground surface (BGS) before a boring was successfully completed in the location shown on Figure 1.

The soil at boring location MSI-1-1 consisted of sand and gravel fill overlying sand and silt alluvial deposits. Groundwater was encountered at a depth of approximately 7.5 ft BGS. Based on field observations, there was no evidence of soil or groundwater contamination in boring MSI-1-1. The soil sample was collected from the 6.5- to 7.5-ft BGS interval, immediately above the groundwater table.

Soil and groundwater samples were collected from boring MSI-1-1 and submitted for laboratory chemical analysis. Samples were analyzed for BTEX; gasoline-range, diesel-range, and motor oil-range total petroleum hydrocarbons (TPH-G, TPH-D, and TPH-O, respectively); metals; and semivolatile organic compounds (SVOCs).

BTEX compounds were not detected in the soil sample, and neither were TPH-G or TPH-D. TPH-O was detected at a concentration of 11 mg/kg, much less than the MTCA Method A cleanup level of 2,000 mg/kg. Metals were detected, but no metals cleanup levels were exceeded. Bis(2-ethylhexyl)phthalate was the only detected SVOC; at a concentration of 420 µg/kg, the detection was much less than the MTCA Method B cleanup level of 13,000 µg/kg protective of groundwater as drinking water. Soil data are presented in Table 1.

Toluene was the only detected BTEX compound in groundwater; the detected concentration of 1.3 µg/L was much less than the MTCA Method A cleanup level of 1,000 µg/L. Metals were detected, but no metals cleanup levels were exceeded. TPH and SVOCs were not detected in the MSI-1-1 groundwater sample. Groundwater data are presented in Table 2.

Based on the results of field observations and laboratory analytical results, Site 1 does not appear to be impacted by widespread contamination, and environmental impacts, if any, do not appear to be significant.

3.2 SITE 2 – FORMER TURPENTINE TANK

Three boring locations were proposed for the Former Turpentine Tank (Site 2): one within the footprint of the former tank and two on the expected downgradient side of the tank. Concrete coring was required to penetrate a near-surface concrete pad in most locations at the Former Turpentine Tank site. Ten borings were attempted at this site, with nine of the borings reaching refusal due to the presence of shot rock (i.e., large-diameter crushed rock) at a depth of 4 to 5 ft BGS. The one successful boring, MSI-2-2, is located north of the former turpentine pump station as shown on Figure 2.

The soil at boring MSI-2-2 consisted of sand fill material overlying sand and clay alluvial deposits. Groundwater was encountered at a depth of approximately 9 ft BGS, near the contact between alluvial sand and clay deposits. Based on field observations, there was no evidence of soil or groundwater contamination in boring MSI-2-2. The soil sample was collected from the 8- to 9-ft BGS interval, immediately above the groundwater table.

Soil and groundwater samples were collected from boring MSI-2-2 and submitted for laboratory chemical analysis. Samples were analyzed for BTEX, TPH-G, TPH-D, TPH-O, and metals.

BTEX compounds were not detected in the soil sample, and neither were TPH-G, TPH-D, or TPH-O. Metals were detected, but no metals cleanup levels were exceeded. Soil data are presented in Table 1.

Toluene was the only detected BTEX compound in groundwater; the detected concentration of 1.0 µg/L was much less than the MTCA Method A cleanup level of 1,000 µg/L. Metals were detected, but no metals cleanup levels were exceeded. TPH compounds were not detected in the MSI-2-2 groundwater sample. Groundwater data are presented in Table 2.

Based on the results of field observations and laboratory analytical results, Site 2 does not appear to be impacted by widespread contamination; environmental impacts were not observed in the sampled media.

3.3 SITE 3 – CURTIS WHARF AND DOCK

Three boring locations were proposed for the Curtis Wharf and Dock (Site 3): two on the south property boundary, adjacent to the former Standard Oil facility and pipeline, and one in the central portion of the upland area of the site. Due to limited access and the presence of a concrete pad in the shallow

subsurface, the locations of the two proposed borings near the south property boundary were moved north and east of the original proposed locations, still in areas that would be considered likely to have been impacted if historical releases had occurred at the former Standard Oil facility. Boring locations are shown on Figure 3.

The soil in borings MSI-3-1, MSI-3-2, and MSI-3-3 consisted of an apparently heterogeneous distribution of sand and gravel fill material overlying sand and gravel beach and alluvial deposits. A small layer of wood chips was also noted in boring MSI-3-1. Groundwater was encountered at depths of 8 to 9 ft BGS in the two upland borings (MSI-3-1 and MSI-3-2) and at a depth of 15 ft BGS in the shoreline boring (MSI-3-3). Based on field observations, there was no evidence of soil or groundwater contamination in any of the three borings. Soil samples were collected from depth intervals slightly above the groundwater table in each boring: 6 to 7 ft BGS in MSI-3-1, 8 to 9 ft BGS in MSI-3-2, and 13 to 14 ft BGS in MSI-3-3.

Soil and groundwater samples were collected from all three borings and submitted for laboratory chemical analysis. Samples from each boring were analyzed for constituents including BTEX, TPH-G, TPH-D, TPH-O, and metals.

BTEX compounds and TPH-G were not detected in the soil samples. Low level concentrations of TPH-D and TPH-O, up to 6.8 mg/kg and 30 mg/kg, respectively, were detected in soil samples, but did not exceed the MTCA Method A cleanup levels of 2,000 mg/kg each. Metals were detected, but no metals cleanup levels were exceeded. Soil data are presented in Table 1.

BTEX and TPH compounds were not detected in any of the groundwater samples. Metals were detected at concentrations less than MTCA cleanup levels, except for lead, which was detected at a concentration of 0.022 mg/L. The detected concentration of lead slightly exceeds the MTCA Method A cleanup level of 0.015 mg/L; this relatively low level exceedance does not appear to be representative of significant environmental impacts. Groundwater data are presented in Table 2.

Based on the results of field observations and laboratory analytical results, Site 3 does not appear to be impacted by widespread contamination, and environmental impacts, if any, do not appear to be significant.

3.4 SITE 4 – WYMAN'S MARINA

Five boring locations were proposed and completed for Wyman's Marina (Site 4) in areas where historical practices were considered most likely to impact subsurface soil or groundwater. One composite sediment sample was also collected as proposed for the Wyman's Marina site, from three discrete locations adjacent to the site's over-water floats. Sample locations are shown on Figure 4.

Soil observed in the borings consisted of sand and gravel fill material overlying silt and clay alluvial deposits and glaciomarine drift. Groundwater was encountered in three of the five borings (MSI-4-1, MSI-4-4, and MSI-4-5) at depths of 4 to 12 ft BGS. The low hydraulic conductivity of subsurface soil prevented groundwater sample collection in all but one of the borings, MSI-4-4. Based on field observations, there was no evidence of soil or groundwater contamination in any of the borings.

Soil samples from all five borings and the groundwater sample from MSI-4-4 were collected and submitted for laboratory chemical analysis. Samples from each boring were analyzed for constituents including BTEX, TPH-G, TPH-D, TPH-O, and metals.

BTEX compounds and TPH-G were not detected in the soil samples. Low level concentrations of TPH-D and TPH-O, up to 16 mg/kg and 37 mg/kg, respectively, were detected in soil samples, but did not exceed the MTCA Method A cleanup levels of 2,000 mg/kg each. Metals were detected, but no metals cleanup levels were exceeded. Soil data are presented in Table 1.

Toluene and xylenes were detected in groundwater at low concentrations (3.2 and 1.2 µg/L, respectively) that did not exceed MTCA Method A cleanup levels. TPH compounds were not detected in the groundwater sample from MSI-4-4. Metals were detected, but no metals cleanup levels were exceeded. Groundwater data are presented in Table 2.

The composite sediment sample, MSI-4-6-SD, was analyzed for metals, polychlorinated biphenyls (PCBs), polynuclear aromatic hydrocarbons (PAHs), SVOCs, butyltins, total organic carbon (TOC), and total solids. Some metals, PAHs, and butyltins were detected in the sediment sample, but all detected concentrations were less than the SQS and CSL criteria. Sediment data are presented in Table 3.

Based on the results of field observations and laboratory analytical results, Site 4 does not appear to be impacted by widespread contamination, and environmental impacts, if any, do not appear to be significant.

3.5 SITE 5 – RANDY'S PIER 61

Two boring locations were proposed for Randy's Pier 61 (Site 5): one in the south parking lot and one on the east property boundary, near the boat ramp for Wyman's Marina. Large rock, which appeared to be the same as riprap material observed near the shoreline, caused refusal in both of the proposed boring locations and at several alternate locations in the immediate vicinity of each proposed location, precluding the collection of groundwater samples from Site 5. The final boring locations are shown on Figure 4.

The soil in boring MSI-5-1, in the south parking lot of Randy's Pier 61, was a gravel fill overlying an apparent layer of boulders, which caused refusal at several attempted locations. Soil in

boring MSI-5-2 consisted of gravel overlying a silt glaciomarine drift. Groundwater was not encountered in either boring, each of which was limited in depth by drilling refusal at several attempted locations. Based on field observations, there was no evidence of soil contamination in either of the borings.

Soil samples were collected from each boring and submitted for laboratory chemical analysis. Samples were analyzed for BTEX, TPH-G, TPH-D, TPH-O, and metals.

BTEX compounds and TPH-G were not detected in the soil samples. Low level concentrations of TPH-D and TPH-O were detected at concentrations of 62 mg/kg and 690 mg/kg, respectively, in soil sample MSI-5-1, but did not exceed the MTCA Method A cleanup levels of 2,000 mg/kg each. TPH-D and TPH-O were not detected in the soil sample from boring MSI-5-2. Metals were detected, but no metals cleanup levels were exceeded. Soil data are presented in Table 1.

Based on the results of field observations and laboratory analytical results, Site 5 does not appear to be impacted by widespread contamination.

3.6 SITE 6 – FORMER UST AREA OUTSIDE WAREHOUSE #10

One boring location was proposed for the area near a former UST outside Warehouse #10 on Commercial Avenue (Site 6). The proposed location was positioned based on concerns about interference with overhead utilities; based on field conditions, the actual boring location was moved toward the central part of the investigation area, closer to the expected location of the former UST (Figure 3).

The soil in boring MSI-6-1 consisted of an asphalt and concrete cap overlying a gravel fill material and sand beach deposits. Groundwater was encountered at a depth of 17 ft BGS in boring MSI-6-1. Based on field observations, there was no evidence of soil or groundwater contamination. One soil sample was collected from the depth interval immediately above the groundwater table.

Soil and groundwater samples were collected from boring MSI-6-1 and submitted for laboratory chemical analysis. Samples were analyzed for BTEX, TPH-G, TPH-D, TPH-O, and metals.

BTEX and TPH compounds were not detected in the soil sample. Metals were detected, but no metals cleanup levels were exceeded. Soil data are presented in Table 1.

BTEX and TPH compounds were not detected in the groundwater sample. Metals were detected, but no metals cleanup levels were exceeded. Groundwater data are presented in Table 2.

Based on the results of field observations and laboratory analytical results, Site 6 does not appear to be impacted by widespread contamination; environmental impacts were not observed in the sampled media.

4.0 CONCLUSIONS

The multiple site investigation included field reconnaissance and the collection of thirteen soil samples, seven groundwater samples, and one sediment sample from six sites owned by the Port in Anacortes, Washington. Based on field observations and analytical results from the collected samples described above, it is concluded that widespread environmental impacts have not affected any of the six sites included in this investigation.

5.0 USE OF THIS REPORT

This multiple site investigation report has been prepared for the exclusive use of the Port of Anacortes. No other party is entitled to rely on this report without the express consent of the Port of Anacortes. Third-party use of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Within the limitations of scope, schedule, and budget, Landau Associates' services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the same profession currently practicing in the same locality under similar conditions as this project.

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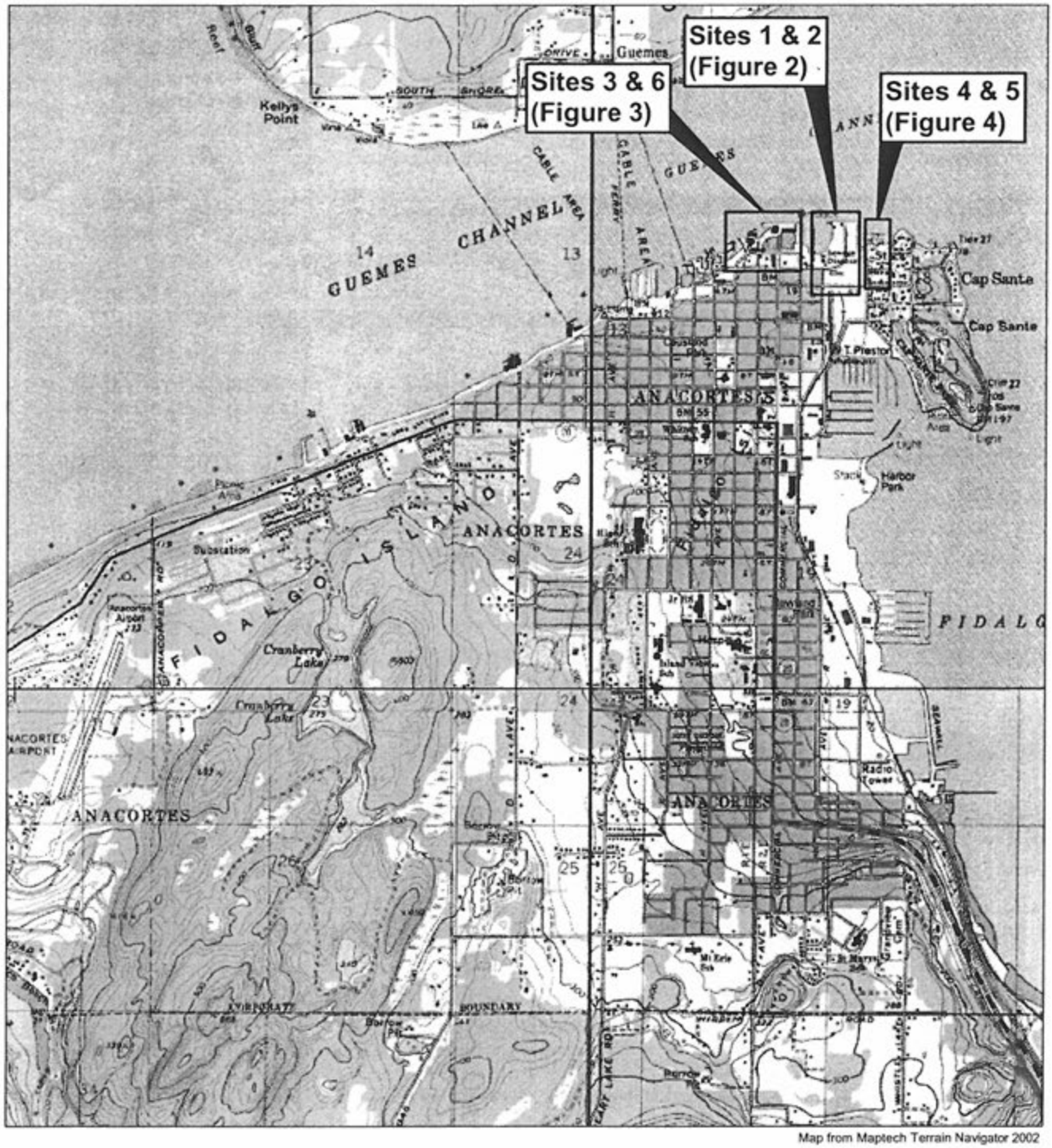
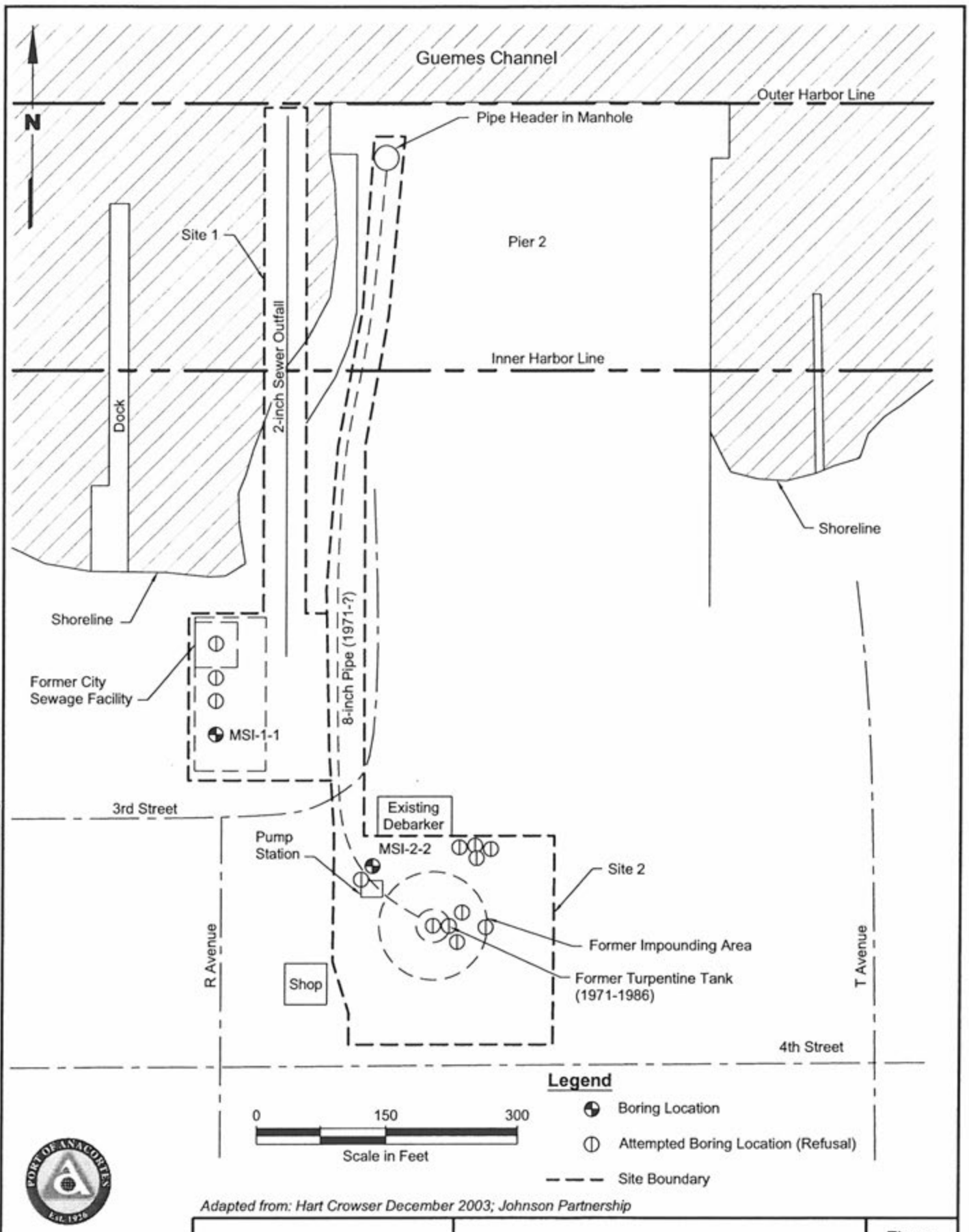


Not to Scale

Port of Anacortes/Site Investigation | X:\529\010\012\Site Investigation\Fig1.dwg (A) "Figure 1" 12/16/2004

LANDAU ASSOCIATES

Port of Anacortes Anacortes, Washington	**Vicinity Map**	Figure 1

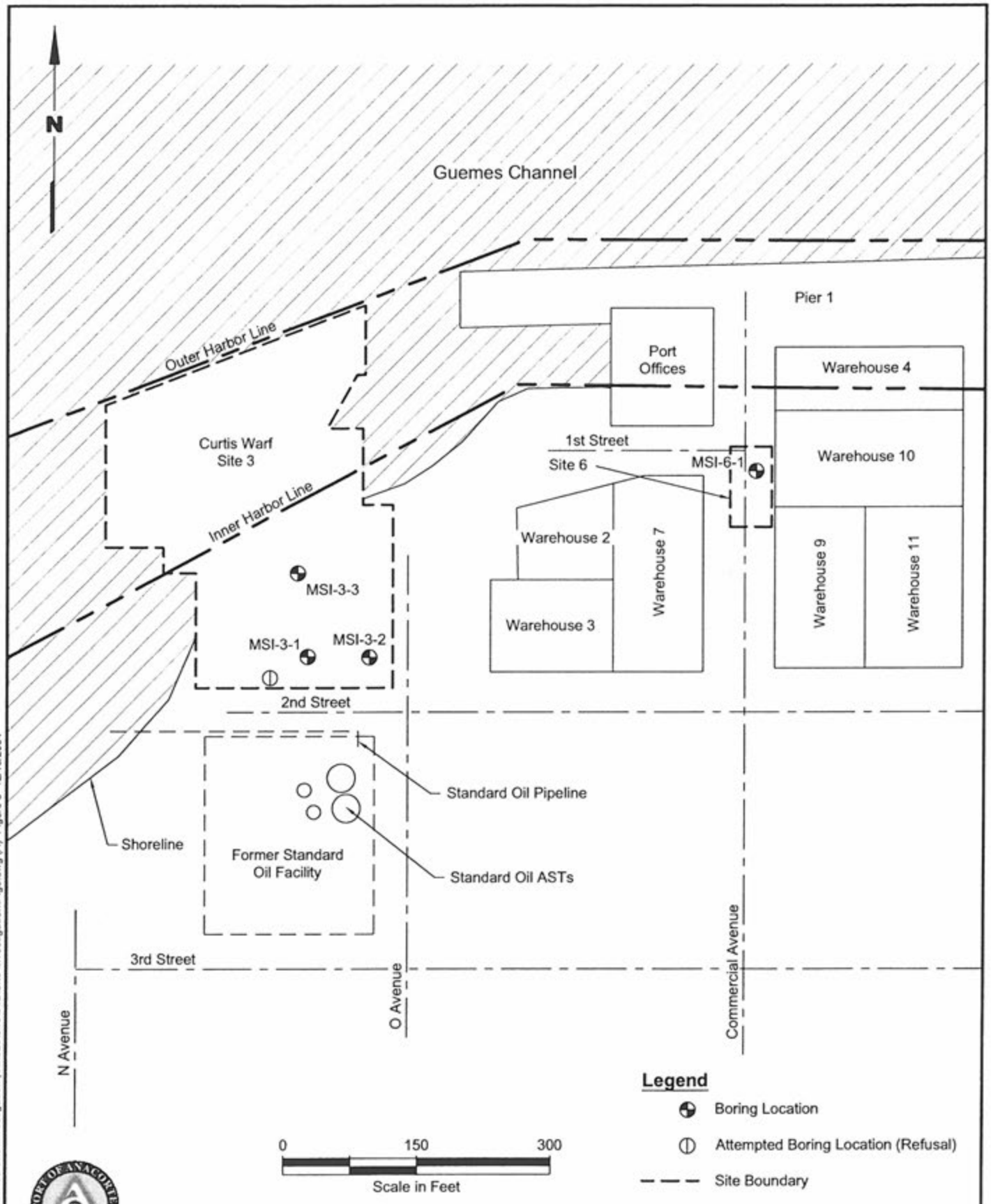


Adapted from: Hart Crowser December 2003; Johnson Partnership

Port of Anacortes/Site Investigation | X:\529\010\012\Site Investigation\Fig2.dwg (A) "Figure 2" 12/16/2004

LANDAU ASSOCIATES

Port of Anacortes Anacortes, Washington	**Multiple Site Investigation Sites 1 and 2**	Figure 2

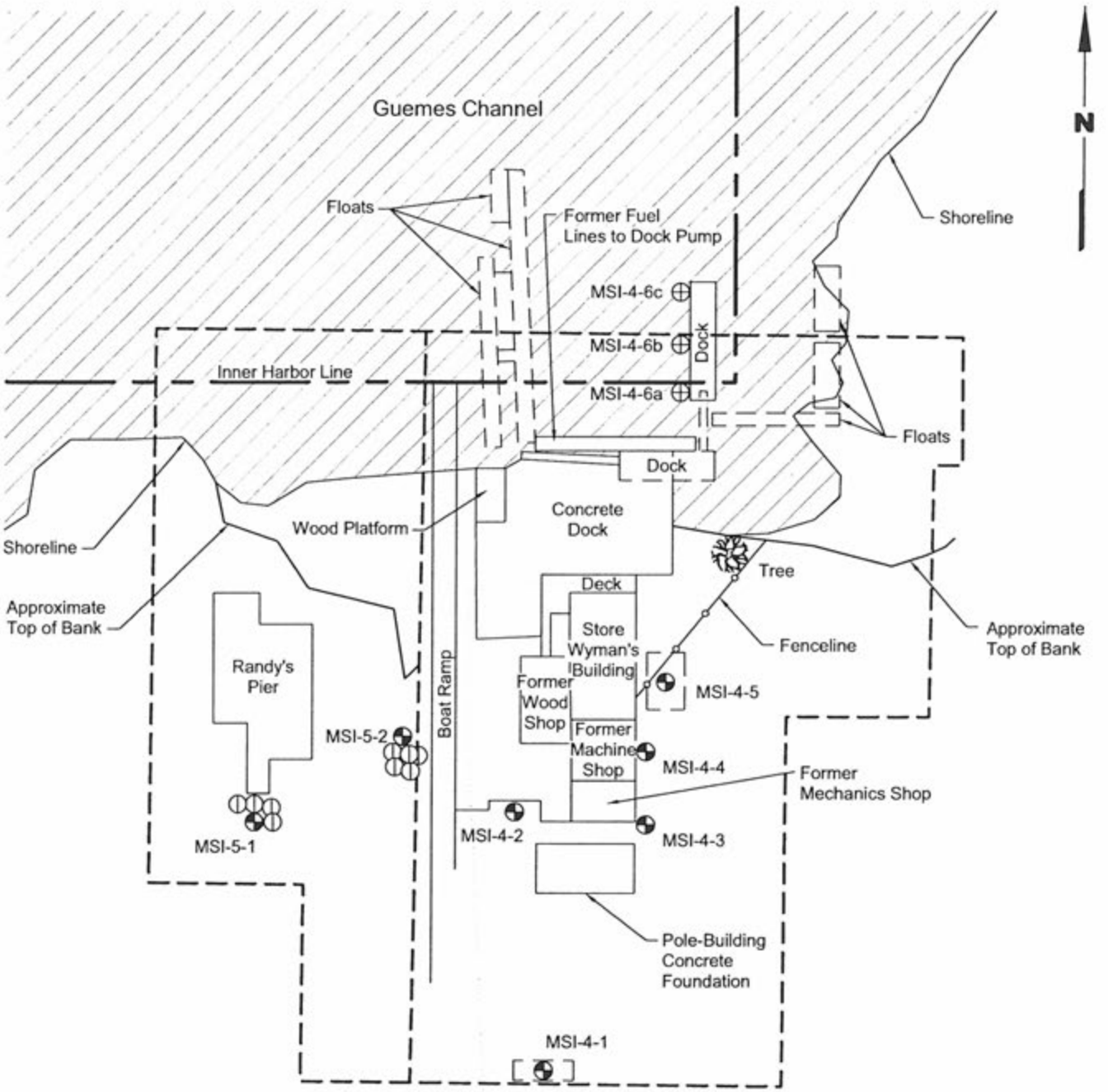


Port of Anacortes/Site Investigation | X:\529\01\0012\Site Investigation\Fig3.dwg (A) "Figure 3" 12/16/2004

Adapted from: Hart Crowser December 2003; Johnson Partnership

Port of Anacortes Anacortes, Washington	**Multiple Site Investigation Sites 3 and 6**	Figure 3

LANDAU ASSOCIATES



Adapted from: Hart Crowser December 2003; Johnson Partnership

Port of Anacortes/Site Investigation | X:\529\010\012\Site Investigation\Fig4.dwg (A) "Figure 4" 12/16/2004

LANDAU ASSOCIATES

Port of Anacortes Anacortes, Washington	**Multiple Site Investigation Sites 4 and 5**	Figure 4

TABLE 1
SOIL ANALYTICAL RESULTS
MULTI-SITE INVESTIGATION
PORT OF ANACORTES

	MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses	MTCA Method B Soil Cleanup Levels Protective of Direct Human Contact and Groundwater	MSI-1-1-SL GM57A 3/29/2004	MSI-2-2-SL GM57L 3/31/2004	MSI-3-1-SL GM57I 3/31/2004	MSI-3-2-SL GM57H 3/30/2004	MSI-3-3-SL GM57G 3/30/2004	MSI-4-1-SL GM57B 3/30/2004	MSI-4-2-SL GM57F 3/30/2004
BETX (µg/kg)									
Method SW8021									
Benzene	30		30 U	30 U	27 U	NA	NA	29 U	NA
Toluene	7000		30 U	30 U	27 U	NA	NA	29 U	NA
Ethylbenzene	6000		30 U	30 U	27 U	NA	NA	29 U	NA
m,p-Xylene	9000 (a)		60 U	59 U	54 U	NA	NA	58 U	NA
o-Xylene	9000 (a)		30 U	30 U	27 U	NA	NA	29 U	NA
NWTPH-Gx (mg/kg)									
Gasoline-Range	100		6.0 U	5.9 U	5.4 U	6.2 U	5.2 U	5.8 U	6.5 U
NWTPH-Dx (mg/kg)									
Diesel-Range	2000		5.0 U	5.0 U	5.4	5.8	6.8	5.8	5.0 U
Motor Oil-Range	2000		11	10 U	22	30	14	37	10 U
TOTAL METALS (mg/kg)									
6000-7000 series									
Arsenic	20		5.7	4.5	NA	NA	2.4	6.2	6.6
Cadmium	2		0.2 U	0.2 U	NA	NA	0.2 U	0.2 U	0.6 U
Chromium	2000 (b)		33.5	32.4	NA	NA	27.5	36.1	55
Copper		263	34.5	20.6	NA	NA	15.4	23.7	45.3
Lead	250		17	18	NA	NA	15	8	6
Mercury	2		0.08	0.05	NA	NA	0.06 U	0.07	0.07
Nickel		130	29	33	NA	NA	14	38	77
Zinc		5,970	55.5	52.3	NA	NA	43.8	67.5	75
SEMIVOLATILES (µg/kg)									
Method SW8270C									
Phenol		44000	160 U	NA	NA	NA	NA	NA	NA
Bis-(2-Chloroethyl) Ether		0.22	160 U	NA	NA	NA	NA	NA	NA
2-Chlorophenol		940	82 U	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene			82 U	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene		300	82 U	NA	NA	NA	NA	NA	NA
Benzyl Alcohol		20000	410 U	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene		7030	82 U	NA	NA	NA	NA	NA	NA
2-Methylphenol		4660	82 U	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)		7	82 U	NA	NA	NA	NA	NA	NA
4-Methylphenol		390	82 U	NA	NA	NA	NA	NA	NA

TABLE 1
SOIL ANALYTICAL RESULTS
MULTI-SITE INVESTIGATION
PORT OF ANACORTES

	MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses	MTCA Method B Soil Cleanup Levels Protective of Direct Human Contact and Groundwater	MSI-1-1-SL GM57A 3/29/2004	MSI-2-2-SL GM57L 3/31/2004	MSI-3-1-SL GM57I 3/31/2004	MSI-3-2-SL GM57H 3/30/2004	MSI-3-3-SL GM57G 3/30/2004	MSI-4-1-SL GM57B 3/30/2004	MSI-4-2-SL GM57F 3/30/2004
N-Nitroso-Di-N-Propylamine		0.056	160 U	NA	NA	NA	NA	NA	NA
Hexachloroethane		250	160 U	NA	NA	NA	NA	NA	NA
Nitrobenzene		50	82 U	NA	NA	NA	NA	NA	NA
Isophorone		450	82 U	NA	NA	NA	NA	NA	NA
2-Nitrophenol			410 U	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol		2620	250 U	NA	NA	NA	NA	NA	NA
Benzoic Acid		257000	820 U	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy) Methane			82 U	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol		330	250 U	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene		2610	82 U	NA	NA	NA	NA	NA	NA
Naphthalene		4460	82 U	NA	NA	NA	NA	NA	NA
4-Chloroaniline		340	250 U	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene		600	160 U	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol			160 U	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene			82 U	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene		200000	410 U	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol		92	410 U	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol		58000	410 U	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene		46000	82 U	NA	NA	NA	NA	NA	NA
2-Nitroaniline			410 U	NA	NA	NA	NA	NA	NA
Dimethylphthalate		74000	82 U	NA	NA	NA	NA	NA	NA
Acenaphthylene			82 U	NA	NA	NA	NA	NA	NA
3-Nitroaniline			490 U	NA	NA	NA	NA	NA	NA
Acenaphthene		97900	82 U	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol		130	820 U	NA	NA	NA	NA	NA	NA
4-Nitrophenol			410 U	NA	NA	NA	NA	NA	NA
Dibenzofuran			82 U	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene		90	410 U	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene		190	410 U	NA	NA	NA	NA	NA	NA
Diethylphthalate		72000	82 U	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether			82 U	NA	NA	NA	NA	NA	NA
Fluorene		101000	82 U	NA	NA	NA	NA	NA	NA
4-Nitroaniline			410 U	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-Methylphenol			820 U	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine		530	82 U	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether			82 U	NA	NA	NA	NA	NA	NA
Hexachlorobenzene		625	82 U	NA	NA	NA	NA	NA	NA
Pentachlorophenol		16	410 U	NA	NA	NA	NA	NA	NA

TABLE 1
SOIL ANALYTICAL RESULTS
MULTI-SITE INVESTIGATION
PORT OF ANACORTES

	MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses	MTCA Method B Soil Cleanup Levels Protective of Direct Human Contact and Groundwater	MSI-1-1-SL GM57A 3/29/2004	MSI-2-2-SL GM57L 3/31/2004	MSI-3-1-SL GM57I 3/31/2004	MSI-3-2-SL GM57H 3/30/2004	MSI-3-3-SL GM57G 3/30/2004	MSI-4-1-SL GM57B 3/30/2004	MSI-4-2-SL GM57F 3/30/2004
Phenanthrene			82 U	NA	NA	NA	NA	NA	NA
Carbazole		310	82 U	NA	NA	NA	NA	NA	NA
Anthracene		1140000	82 U	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate		57000	82 U	NA	NA	NA	NA	NA	NA
Fluoranthene		631000	82 U	NA	NA	NA	NA	NA	NA
Pyrene		655000	82 U	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate		893000	82 U	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine		3.6	410 U	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene		86	82 U	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate		13400	420	NA	NA	NA	NA	NA	NA
Chrysene		100	82 U	NA	NA	NA	NA	NA	NA
Di-n-Octyl phthalate		1600000	82 U	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene		137	82 U	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene		137	82 U	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene		137	82 U	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene		137	82 U	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		137	82 U	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene			82 U	NA	NA	NA	NA	NA	NA

TABLE 1
SOIL ANALYTICAL RESULTS
MULTI-SITE INVESTIGATION
PORT OF ANACORTES

	MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses	MTCA Method B Soil Cleanup Levels Protective of Direct Human Contact and Groundwater	MSI-4-3-SL GM57C 3/30/2004	MSI-4-4-SL GM57D 3/30/2004	MSI-4-5-SL GM57E 3/30/2004	MSI-5-1-SL GM57J 3/31/2004	MSI-5-2-SL GM57K 3/31/2004	MSI-6-1-SL GM57M 3/31/2004
BETX (µg/kg)								
Method SW8021								
Benzene	30		31 U	NA	NA	28 U	31 U	27 U
Toluene	7000		31 U	NA	NA	28 U	31 U	27 U
Ethylbenzene	6000		31 U	NA	NA	28 U	31 U	27 U
m,p-Xylene	9000 (a)		62 U	NA	NA	57 U	62 U	53 U
o-Xylene	9000 (a)		31 U	NA	NA	28 U	31 U	27 U
NWTPH-Gx (mg/kg)								
Gasoline-Range	100		6.2 U	5.1 U	5.6 U	5.7 U	6.2 U	5.3 U
NWTPH-Dx (mg/kg)								
Diesel-Range	2000		5.0 U	5.0 U	16	62	5.0 U	5.0 U
Motor Oil-Range	2000		10 U	10 U	10 U	690	10 U	10 U
TOTAL METALS (mg/kg)								
6000-7000 series								
Arsenic	20		4.1	3.6	2.7	2.6	5.3	1.0
Cadmium	2		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium	2000 (b)		46.6	41.5	50.2	41.5	37.3	34.9
Copper		263	25.7	20.7	20.6	29.4	140	3.5
Lead	250		13	3	3	14	51	2 U
Mercury	2		0.07	0.04 U	0.04	0.06	0.91	0.05 U
Nickel		130	44	77	66	51	51	12
Zinc		5,970	71.5	36.4	39.7	81.7	105	18.7
SEMIVOLATILES (µg/kg)								
Method SW8270C								
Phenol		44000	NA	NA	NA	NA	NA	NA
Bis-(2-Chloroethyl) Ether		0.22	NA	NA	NA	NA	NA	NA
2-Chlorophenol		940	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene			NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene		300	NA	NA	NA	NA	NA	NA
Benzyl Alcohol		20000	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene		7030	NA	NA	NA	NA	NA	NA
2-Methylphenol		4660	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)		7	NA	NA	NA	NA	NA	NA
4-Methylphenol		390	NA	NA	NA	NA	NA	NA

TABLE 1
SOIL ANALYTICAL RESULTS
MULTI-SITE INVESTIGATION
PORT OF ANACORTES

	MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses	MTCA Method B Soil Cleanup Levels Protective of Direct Human Contact and Groundwater	MSI-4-3-SL GM57C 3/30/2004	MSI-4-4-SL GM57D 3/30/2004	MSI-4-5-SL GM57E 3/30/2004	MSI-5-1-SL GM57J 3/31/2004	MSI-5-2-SL GM57K 3/31/2004	MSI-6-1-SL GM57M 3/31/2004
N-Nitroso-Di-N-Propylamine		0.056	NA	NA	NA	NA	NA	NA
Hexachloroethane		250	NA	NA	NA	NA	NA	NA
Nitrobenzene		50	NA	NA	NA	NA	NA	NA
Isophorone		450	NA	NA	NA	NA	NA	NA
2-Nitrophenol			NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol		2620	NA	NA	NA	NA	NA	NA
Benzoic Acid		257000	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy) Methane			NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol		330	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene		2610	NA	NA	NA	NA	NA	NA
Naphthalene		4460	NA	NA	NA	NA	NA	NA
4-Chloroaniline		340	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene		600	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol			NA	NA	NA	NA	NA	NA
2-Methylnaphthalene			NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene		200000	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol		92	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol		58000	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene		46000	NA	NA	NA	NA	NA	NA
2-Nitroaniline			NA	NA	NA	NA	NA	NA
Dimethylphthalate		74000	NA	NA	NA	NA	NA	NA
Acenaphthylene			NA	NA	NA	NA	NA	NA
3-Nitroaniline			NA	NA	NA	NA	NA	NA
Acenaphthene		97900	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol		130	NA	NA	NA	NA	NA	NA
4-Nitrophenol			NA	NA	NA	NA	NA	NA
Dibenzofuran			NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene		90	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene		190	NA	NA	NA	NA	NA	NA
Diethylphthalate		72000	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether			NA	NA	NA	NA	NA	NA
Fluorene		101000	NA	NA	NA	NA	NA	NA
4-Nitroaniline			NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-Methylphenol			NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine		530	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether			NA	NA	NA	NA	NA	NA
Hexachlorobenzene		625	NA	NA	NA	NA	NA	NA
Pentachlorophenol		16	NA	NA	NA	NA	NA	NA

TABLE 1
SOIL ANALYTICAL RESULTS
MULTI-SITE INVESTIGATION
PORT OF ANACORTES

	MTCA Method A Soil Cleanup Levels for Unrestricted Land Uses	MTCA Method B Soil Cleanup Levels Protective of Direct Human Contact and Groundwater	MSI-4-3-SL GM57C 3/30/2004	MSI-4-4-SL GM57D 3/30/2004	MSI-4-5-SL GM57E 3/30/2004	MSI-5-1-SL GM57J 3/31/2004	MSI-5-2-SL GM57K 3/31/2004	MSI-6-1-SL GM57M 3/31/2004
Phenanthrene			NA	NA	NA	NA	NA	NA
Carbazole		310	NA	NA	NA	NA	NA	NA
Anthracene		1140000	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate		57000	NA	NA	NA	NA	NA	NA
Fluoranthene		631000	NA	NA	NA	NA	NA	NA
Pyrene		655000	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate		893000	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine		3.6	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene		86	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate		13400	NA	NA	NA	NA	NA	NA
Chrysene		100	NA	NA	NA	NA	NA	NA
Di-n-Octyl phthalate		1600000	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene		137	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene		137	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene		137	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene		137	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		137	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene			NA	NA	NA	NA	NA	NA

U = Indicates the compound was undetected at the reported concentration.
NA = Not analyzed.
MTCA Method B cleanup level used when MTCA Method A value is not available.
(a) Value is for Total Xylenes.
(b) Value is for Chromium (III).

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
MULTI-SITE INVESTIGATION
PORT OF ANACORTES

	MTCA Method A Cleanup Levels for Groundwater	MTCA Method B Cleanup Levels for Groundwater as Drinking Water	MSI-1-1-GW GM48A 3/29/2004	Dup of MSI-1-1-GW MSI-D-1-GW GM48B 3/29/2004	MSI-2-2-GW GM48G 3/31/2004	MSI-3-1-GW GM48F 3/31/2004	MSI-3-2-GW GM48E 3/30/2004	MSI-3-3-GW GM48D 3/30/2004	MSI-4-4-GW GM48C 3/30/2004	MSI-6-1-GW GM48H 3/31/2004
BETX (µg/L)										
Method SW8021										
Benzene	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1000		1.2	1.3	1.0	1.0 U	1.0 U	1.0 U	3.2	1.0 U
Ethylbenzene	700		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
m,p-Xylene	1000 (a)		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U
o-Xylene	1000 (a)		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
NWTPH-Gx (mg/L)										
Gasoline-Range	1.0		0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
NWTPH-Dx (mg/L)										
Diesel-Range	0.5		0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Motor Oil-Range	0.5		0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
DISSOLVED METALS (mg/L)										
6000-7000 series										
Arsenic	0.005		0.002 U	0.004	0.002	NA	NA	0.003	0.002	0.002
Cadmium	0.005		0.002 U	0.002 U	0.002 U	NA	NA	0.002 U	0.002 U	0.002 U
Chromium	0.05		0.006	0.005	0.005 U	NA	NA	0.010	0.005 U	0.005 U
Copper		0.592	0.002	0.002 U	0.002 U	NA	NA	0.011	0.002 U	0.002 U
Lead	0.015		0.002	0.001	0.001 U	NA	NA	0.022	0.001 U	0.001
Mercury	0.002		0.0001 U	0.0001 U	0.0001 U	NA	NA	0.0001 U	0.0001 U	0.0001 U
Nickel		0.1	0.01 U	0.01 U	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U
Zinc		4.8	0.010	0.008	0.006 U	NA	NA	0.029	0.006 U	0.006 U
SEMIVOLATILES (µg/L)										
Method SW8270C										
Phenol		9600	2.0 U	NA	NA	NA	NA	NA	NA	NA
Bis-(2-Chloroethyl) Ether		0.040	2.0 U	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol		80	1.0 U	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene			1.0 U	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene		18.2	1.0 U	NA	NA	NA	NA	NA	NA	NA
Benzyl Alcohol		4800	5.0 U	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene		600	1.0 U	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol		800	1.0 U	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-Chloropropane)		1.25	1.0 U	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol		80	1.0 U	NA	NA	NA	NA	NA	NA	NA

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
MULTI-SITE INVESTIGATION
PORT OF ANACORTES

	MTCA Method A Cleanup Levels for Groundwater	MTCA Method B Cleanup Levels for Groundwater as Drinking Water	MSI-1-1-GW GM48A 3/29/2004	Dup of MSI-1-1-GW MSI-D-1-GW GM48B 3/29/2004	MSI-2-2-GW GM48G 3/31/2004	MSI-3-1-GW GM48F 3/31/2004	MSI-3-2-GW GM48E 3/30/2004	MSI-3-3-GW GM48D 3/30/2004	MSI-4-4-GW GM48C 3/30/2004	MSI-6-1-GW GM48H 3/31/2004
N-Nitroso-Di-N-Propylamine		0.013	2.0 U	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane		6.25	2.0 U	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene		8	1.0 U	NA	NA	NA	NA	NA	NA	NA
Isophorone		92	1.0 U	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol			5.0 U	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol		320	3.0 U	NA	NA	NA	NA	NA	NA	NA
Benzoic Acid		64000	10 U	NA	NA	NA	NA	NA	NA	NA
bis(2-Chloroethoxy) Methane			1.0 U	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol		48	3.0 U	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene		70	1.0 U	NA	NA	NA	NA	NA	NA	NA
Naphthalene		160	1.0 U	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline		64	3.0 U	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene		0.561	2.0 U	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol			2.0 U	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene			1.0 U	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene		50	5.0 U	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol		7.95	5.0 U	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol		1600	5.0 U	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene		1280	1.0 U	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline			5.0 U	NA	NA	NA	NA	NA	NA	NA
Dimethylphthalate		16000	1.0 U	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene			1.0 U	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline			6.0 U	NA	NA	NA	NA	NA	NA	NA
Acenaphthene		960	1.0 U	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol		32	25 U	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol			5.0 U	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran			1.0 U	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene		16	5.0 U	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene		32	5.0 U	NA	NA	NA	NA	NA	NA	NA
Diethylphthalate		12800	1.0 U	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether			1.0 U	NA	NA	NA	NA	NA	NA	NA
Fluorene		640	1.0 U	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline			5.0 U	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-Methylphenol			15 U	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine		17.9	1.0 U	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether			1.0 U	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene		0.547	1.0 U	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol		1	5.0 U	NA	NA	NA	NA	NA	NA	NA

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
MULTI-SITE INVESTIGATION
PORT OF ANACORTES

	MTCA Method A Cleanup Levels for Groundwater	MTCA Method B Cleanup Levels for Groundwater as Drinking Water	MSI-1-1-GW GM48A 3/29/2004	Dup of MSI-1-1-GW MSI-D-1-GW GM48B 3/29/2004	MSI-2-2-GW GM48G 3/31/2004	MSI-3-1-GW GM48F 3/31/2004	MSI-3-2-GW GM48E 3/30/2004	MSI-3-3-GW GM48D 3/30/2004	MSI-4-4-GW GM48C 3/30/2004	MSI-6-1-GW GM48H 3/31/2004
Phenanthrene			1.0 U	NA	NA	NA	NA	NA	NA	NA
Carbazole		4.375	1.0 U	NA	NA	NA	NA	NA	NA	NA
Anthracene		2400	1.0 U	NA	NA	NA	NA	NA	NA	NA
Di-n-Butylphthalate		1600	1.0 U	NA	NA	NA	NA	NA	NA	NA
Fluoranthene		640	1.0 U	NA	NA	NA	NA	NA	NA	NA
Pyrene		480	1.0 U	NA	NA	NA	NA	NA	NA	NA
Butylbenzylphthalate		3200	1.0 U	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine		0.194	5.0 U	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene		0.012	1.0 U	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate		6	1.0 U	NA	NA	NA	NA	NA	NA	NA
Chrysene		0.012	1.0 U	NA	NA	NA	NA	NA	NA	NA
Di-n-Octyl phthalate		320	1.0 U	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene		0.012	1.0 U	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene		0.012	1.0 U	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene		0.120	1.0 U	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene		0.012	1.0 U	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene		0.012	1.0 U	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene			1.0 U	NA	NA	NA	NA	NA	NA	NA

U = Indicates the compound was undetected at the reported concentration.
NA = Not analyzed.
MTCA Method B cleanup level used when MTCA Method A value is not available.
(a) Value is for Total Xylenes.
Box indicates exceedance of screening level.

TABLE 3
SEDIMENT ANALYTICAL RESULTS
MULTI-SITE INVESTIGATION
PORT OF ANACORTES

	SQS (a)	CSL (b)	MSI-4-6-SD GM53A 4/1/2004
TOTAL METALS (mg/kg)			
Arsenic	57	93	6.4
Cadmium	5.1	6.7	0.5
Chromium	260	270	41
Copper	390	390	65.9
Lead	450	530	18
Mercury	0.41	0.59	0.2
Silver	6.1	6.1	0.7 U
Zinc	410	960	98
PCBs (mg/kg OC)			
Method 8082			
Aroclor 1016			0.91 U
Aroclor 1242			0.91 U
Aroclor 1248			0.91 U
Aroclor 1254			0.91 U
Aroclor 1260			0.91 U
Aroclor 1221			0.91 U
Aroclor 1232			0.91 U
Total PCBs (c)	12	65	0.91 U
PAHs (mg/kg OC)			
Method 8270			
Naphthalene	99	170	0.91 U
Acenaphthylene	66	66	0.91 U
Acenaphthene	16	57	0.91 U
Fluorene	23	79	0.91 U
Phenanthrene	100	480	5.02
Anthracene	220	1200	0.91 U
2-Methylnaphthalene	38	64	0.91 U
LPAH (c)(e)	370	780	5.02
Fluoranthene	160	1200	14.61
Pyrene	1000	1400	9.59
Benzo(a)anthracene	110	270	1.96
Chrysene	110	460	5.02
Benzo(b)fluoranthene			2.60
Benzo(k)fluoranthene			2.28
Total Benzofluoranthenes (f)	230	450	4.89
Benzo(a)pyrene	99	210	1.51
Indeno(1,2,3-cd)pyrene	34	88	0.91 U
Dibenz(a,h)anthracene	12	33	0.91 U
Benzo(g,h,i)perylene	31	78	0.91 U
HPAH (c)(g)	960	5300	42.47
SVOCs (mg/kg OC)			
1,2-Dichlorobenzene	2.3	2.3	0.91 U
1,3-Dichlorobenzene			0.91 U
1,4-Dichlorobenzene	3.1	9	0.91 U
1,2,4-Trichlorobenzene	0.81	1.8	0.91 U
Hexachlorobenzene	0.38	2.3	0.91 U
Dimethylphthalate	53	53	0.91 U
Diethylphthalate	61	110	0.91 U
Di-n-Butylphthalate	220	1700	0.91 U
Butylbenzylphthalate	4.9	64	0.91 U
bis(2-Ethylhexyl)phthalate	47	78	0.91 U
Di-n-Octyl phthalate	58	4500	0.91 U
Dibenzofuran	15	58	0.91 U
Hexachlorobutadiene	3.9	6.2	0.91 U
N-Nitrosodiphenylamine	11	11	0.91 U

TABLE 3
SEDIMENT ANALYTICAL RESULTS
MULTI-SITE INVESTIGATION
PORT OF ANACORTES

	SQS (a)	CSL (b)	MSI-4-6-SD GM53A 4/1/2004
SVOCs (µg/kg)			
Phenol	420	1200	20 U
2-Methylphenol	63	63	20 U
4-Methylphenol	670	670	20 U
2,4-Dimethylphenol	29	29	20 U
Pentachlorophenol	360	690	98 U
Benzyl Alcohol	57	73	20 U
Benzoic Acid	650	650	200 U
OTHER SVOCs (µg/kg)			
Bis-(2-Chloroethyl) Ether	---	---	39 U
2-Chlorophenol	---	---	20 U
2,2'-Oxybis(1-Chloropropane)	---	---	20 U
N-Nitroso-Di-N-Propylamine	---	---	39 U
Hexachloroethane	---	---	20 U
Nitrobenzene	---	---	20 U
Isophorone	---	---	20 U
2-Nitrophenol	---	---	98 U
bis(2-Chloroethoxy) Methane	---	---	20 U
2,4-Dichlorophenol	---	---	59 U
4-Chloroaniline	---	---	59 U
4-Chloro-3-methylphenol	---	---	39 U
Hexachlorocyclopentadiene	---	---	98 U
2,4,6-Trichlorophenol	---	---	98 U
2,4,5-Trichlorophenol	---	---	98 U
2-Chloronaphthalene	---	---	20 U
2-Nitroaniline	---	---	98 U
3-Nitroaniline	---	---	120 U
2,4-Dinitrophenol	---	---	200 U
4-Nitrophenol	---	---	98 U
2,6-Dinitrotoluene	---	---	98 U
2,4-Dinitrotoluene	---	---	98 U
4-Chlorophenyl-phenylether	---	---	20 U
4-Nitroaniline	---	---	98 U
4,6-Dinitro-2-Methylphenol	---	---	200 U
4-Bromophenyl-phenylether	---	---	20 U
Carbazole	---	---	20 U
3,3'-Dichlorobenzidine	---	---	98 U
BUTYLTINS (µg/kg)			
Tetrabutyl Tin			5.9 U
Tributyl Tin Chloride			7.3
Dibutyl Tin Dichloride			5.9 U
Butyl Tin Trichloride			5.9 U
TBT as Tin ion	---	---	6.5
TOTAL ORGANIC CARBON (%)	---	---	2.19
TOTAL SOLIDS (%)	---	---	38.3

TABLE 3
SEDIMENT ANALYTICAL RESULTS
MULTI-SITE INVESTIGATION
PORT OF ANACORTES

	SQS (a)	CSL (b)	MSI-4-6-SD GM53A 4/1/2004

U = Indicates the compound was undetected at the reported concentration.

(a) SMS sediment quality standard (Chapter 173-204 WAC).

(b) SMS cleanup screening level (Chapter 173-204 WAC).

(c) Where chemical criteria in this table represent the sum of individual compounds or isomers, the following methods was applied:

(i) Where chemical analyses identify an undetected value for every individual compound/ isomer, then the single highest detection limitwas used to represent the sum of the respective compounds/isomers.

(ii) Where chemical analyses detect one or more individual compounds/isomers, only the detected concentrations were added to represent the group sum.

(d) All organic data (except phenols, benzyl alcohol, and benzoic acid) are normalized to total organic carbon; this involves dividing the dry weight concentration of the constituent by the fraction of total organic carbon present.

(e) The LPAH criterion represents the sum of the following "low molecular weight polynuclear aromatic hydrocarbon" compounds: naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, and anthracene. The LPAH criterion is not the sum of the criteria values for the individual LPAH compounds listed.

(f) The total benzofluoranthenes criterion represents the sum of the concentrations of the "B," "J," and "K" isomers.

(g) The HPAH criterion represents the sum of the following "high molecular weight polynuclear aromatic hydrocarbon" compounds: fluoranthene, pyrene, benzo(a)anthracene, chrysene, total benzofluoranthenes, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene. The HPAH criterion is not the sum of the criteria values for the individual HPAH compounds as listed.

APPENDIX

APPENDIX A

Soil Boring Logs

Soil Classification System

MAJOR DIVISIONS			GRAPHIC SYMBOL	USCS LETTER SYMBOL[1]	TYPICAL DESCRIPTIONS[2][3]
COARSE-GRAINED SOIL (More than 50% of material is larger than No. 200 sieve size)	GRAVEL AND GRAVELLY SOIL (More than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (Little or no fines)		GW	Well-graded gravel; gravel/sand mixture(s); little or no fines
				GP	Poorly graded gravel; gravel/sand mixture(s); little or no fines
		GRAVEL WITH FINES (Appreciable amount of fines)		GM	Silty gravel; gravel/sand/silt mixture(s)
				GC	Clayey gravel; gravel/sand/clay mixture(s)
	SAND AND SANDY SOIL (More than 50% of coarse fraction passed through No. 4 sieve)	CLEAN SAND (Little or no fines)		SW	Well-graded sand; gravelly sand; little or no fines
				SP	Poorly graded sand; gravelly sand; little or no fines
		SAND WITH FINES (Appreciable amount of fines)		SM	Silty sand; sand/silt mixture(s)
				SC	Clayey sand; sand/clay mixture(s)
FINE-GRAINED SOIL (More than 50% of material is smaller than No. 200 sieve size)	SILT AND CLAY (Liquid limit less than 50)			ML	Inorganic silt and very fine sand; rock flour; silty or clayey fine sand or clayey silt with slight plasticity
				CL	Inorganic clay of low to medium plasticity; gravelly clay; sandy clay; silty clay; lean clay
				OL	Organic silt; organic, silty clay of low plasticity
	SILT AND CLAY (Liquid limit greater than 50)			MH	Inorganic silt; micaceous or diatomaceous fine sand
				CH	Inorganic clay of high plasticity; fat clay
				OH	Organic clay of medium to high plasticity; organic silt
	HIGHLY ORGANIC SOIL			PT	Peat; humus; swamp soil with high organic content

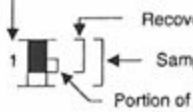
OTHER MATERIALS	GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
PAVEMENT		AC or PC	Asphalt concrete pavement or Portland cement pavement
ROCK		RK	Rock (See Rock Classification)
WOOD		WD	Wood, lumber, wood chips
DEBRIS		DB	Construction debris, garbage

Notes:
1. USCS letter symbols correspond to the symbols used by the Unified Soil Classification System and ASTM classification methods. Dual letter symbols (e.g., SP-SM) for a sand or gravel indicate a soil with an estimated 5-15% fines. Multiple letter symbols (e.g., ML/CL) indicate borderline or multiple soil classifications.
2. Soil descriptions are based on the general approach presented in the *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*, as outlined in ASTM D 2488. Where laboratory index testing has been conducted, soil classifications are based on the *Standard Test Method for Classification of Soils for Engineering Purposes*, as outlined in ASTM D 2487.
3. Soil description terminology is based on visual estimates (in the absence of laboratory test data) of the percentages of each soil type and is defined as follows:

Primary Constituent:	> 50%	"GRAVEL," "SAND," "SILT," "CLAY," etc.
Secondary Constituents:	> 30% and ≤ 50%	"very gravelly," "very sandy," "very silty," etc.
	> 15% and ≤ 30%	"gravelly," "sandy," "silty," etc.
Additional Constituents:	> 5% and ≤ 15%	"with gravel," "with sand," "with silt," etc.
	≤ 5%	"trace gravel," "trace sand," "trace silt," etc., or not noted.

Drilling and Sampling Key

SAMPLE NUMBER & INTERVAL



SAMPLER TYPE

Code	Description
a	3.25-inch O.D., 2.42-inch I.D. Split Spoon
b	2.00-inch O.D., 1.50-inch I.D. Split Spoon
c	Shelby Tube
d	Grab Sample
e	Other - See text if applicable
1	300-lb Hammer, 30-inch Drop
2	140-lb Hammer, 30-inch Drop
3	Pushed
4	Other - See text if applicable

Groundwater

▽ ATD — Approximate water elevation at time of drilling (ATD) or on date noted. Groundwater levels can fluctuate due to precipitation, seasonal conditions, and other factors.

Field and Lab Test Data

Code	Description
PP = 1.0	Pocket Penetrometer, tsf
TV = 0.5	Torvane, tsf
PID = 100	Photoionization Detector VOC screening, ppm
W = 10	Moisture Content, %
D = 120	Dry Density, pcf
-200 = 60	Material smaller than No. 200 sieve, %
GS	Grain Size - See separate figure for data
AL	Atterberg Limits - See separate figure for data
GT	Other Geotechnical Testing
CA	Chemical Analysis

5/14/04 \\EDMDATA\GINT\GINT6\PROJECTS\529010-MSI.GPJ SOIL CLASS SHEET

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Anacortes, Washington

Soil Classification System and Key

Figure A-1

MSI-1-1

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	Water Level
0						GM	Gray, silty, fine to coarse sandy GRAVEL, crushed rock (loose, dry to moist) (fill)	
		e3		0		SP	Brown, gravelly medium to coarse SAND (loose, moist) (fill)	
				0		SM	Dark to light brown, silty fine SAND (medium dense, moist) (alluvium)	
5	MSI-1-1-SL	e3						ATD - Groundwater sample MSI-1-1-GW collected. Duplicate groundwater sample MSI-D-1-GW collected.
						ML	Brown to gray, fine sandy SILT (medium stiff, wet) (alluvium)	
10		e3		0				

Boring Completed 03/29/04
Total Depth of Boring = 12.0 ft.

15
20
25

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

529010.013 5/14/04 \\EDM\DATA\GINT\GINT6\PROJECTS\529010-MSI.GPJ SOIL BORING LOG

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Log of Boring MSI-1-1

Figure A-2

MSI-2-2

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	Water Level
0						AC	Asphalt concrete pavement	
						PC	Portland concrete pavement	
		e3		0		SM	Brown to gray, gravelly silty fine SAND (loose, dry to moist) (fill)	
5		e3		0				
				0		SP	Dark brown to gray, medium SAND (medium dense, moist to wet) (alluvium)	▽ ATD - Groundwater sample MSI-2-2-GW collected.
10	MSI-2-2-SL	e3				CL	Gray CLAY (stiff, wet) (alluvium)	

Boring Completed 03/31/04
Total Depth of Boring = 12.0 ft.

15
20
25

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

529010.013 5/20/04 \\EDMDATA\GINTGINT6\PROJECTS\529010-MSI.GPJ SOIL BORING LOG

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Port of Anacortes Multiple Site Investigation
Anacortes, Washington

Log of Boring MSI-2-2

Figure A-3

MSI-3-1

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	Water Level
0						GP	Gray GRAVEL (fill)	
						SP	Light brown, medium SAND (loose, damp to moist) (fill?)	
		e3		0				
						WD	Organic layer with fibrous wood chips (loose, moist) (fill?)	
						SP	Gray to brown, medium SAND (loose, moist) (beach deposit?)	
5				0				
	MSI-3-1-SL	e3						
						SP	Dark gray, medium SAND beds with occasional shell fragments (medium dense, moist to wet) (beach deposit)	ATD - Groundwater sample MSI-3-1-GW collected.
10		e3		0				
		e3		0				
15								
20								
25								

Boring Completed 03/31/04
Total Depth of Boring = 16.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

529010.013 5/14/04 \\ED\DATA\GINT\GINT6\PROJECTS\529010-MSI.GPJ SOIL BORING LOG

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Port of Anacortes Multiple Site Investigation
Anacortes, Washington

Log of Boring MSI-3-1

Figure
A-4

MSI-3-2

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	Water Level
0		e3		0		GP	Dark gray, medium to coarse sandy GRAVEL (loose, moist) (fill)	
5		e3		0		SP	Gray, silty, medium to fine SAND with few gravel and shell fragments (loose, moist to wet) (beach deposit)	
10	MSI-3-2-SL	e3		0				ATD - Groundwater sample MSI-3-2 collected.
15		e3		0				
20								
25								

Boring Completed 03/30/04
Total Depth of Boring = 16.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

529010 013 5/14/04 \\EDMDATA\GINT\GINT6\PROJECTS\529010-MSI.GPJ SOIL BORING LOG

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Port of Anacortes Multiple Site Investigation
Anacortes, Washington

Log of Boring MSI-3-2

Figure A-5

MSI-3-3

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	Water Level
0		e3		0		SW	Gray, gravelly coarse to fine SAND (loose, dry to moist) (fill)	
5		e3		0		SP	Brown, medium to fine SAND with roots (loose, moist) (alluvium)	
10		e3		0		SP	Gray to brown to orange to rust colored, medium SAND with gravels (loose, moist) (alluvium)	
	MSI-3-3-SL	e3		0		SM	Brown to dark brown, silty gravelly SAND (medium dense, moist to wet) (alluvium)	ATD - Groundwater sample MSI-3-3-GW collected.
15		e3		0		GP	Gray to brown, sandy GRAVEL (loose, moist to wet) (alluvium)	
20								
25								

Boring Completed 03/30/04
Total Depth of Boring = 18.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring MSI-3-3

Figure A-6

MSI-4-1

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	Water Level
0				0		SP	Brown, medium to fine SAND with wood chips (loose, moist to wet) (fill)	
	MSI-4-1-SL	e3						
						ML	Brown to gray, gravelly, fine sandy SILT (very stiff, wet) (glaciomarine drift)	ATD - Boring produced insufficient groundwater for collection of groundwater sample.
5		e3		0			Refusal at 7 ft	

Boring Completed 03/30/04
Total Depth of Boring = 7.0 ft

10
15
20
25

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring MSI-4-1

Figure A-7

MSI-4-2

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	
0		e3		0		GM/GC	Dark gray to brown, silty GRAVEL (dry to moist) (fill)	Groundwater not encountered.
						CL	Gray CLAY (dry) (alluvium)	
5	MSI-4-2-SL	e3		0			Refusal at 8.0 ft	

Boring Completed 03/30/04
Total Depth of Boring = 8.0 ft.

10
15
20
25

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring MSI-4-2

Figure
A-8

MSI-4-3

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	
0				0		SM	Dark brown, gravelly silty coarse to fine SAND (loose, dry to moist) (fill)	Groundwater not encountered.
	MSI-4-3-1	e3				SP	Black to dark gray, silty gravelly fine SAND (dense, moist) (fill)	
						SP		
						ML	Brown to gray, silty fine SAND (dense, moist) (alluvium)	
						CL	Gray, gravelly fine sandy SILT (very stiff, moist to wet) (glaciomarine drift)	
5		e3		0			Brown to gray, silty CLAY with gravels (very stiff, moist to wet, thin laminar beds) (alluvium)	
10		e3		0				
		e3		0				
15		e3		0				
20								
25								

Boring Completed 03/30/04
Total Depth of Boring = 18.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring MSI-4-3

Figure
A-9

MSI-4-4

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	Water Level
0						SP/ SM	Brown to gray, medium SAND with gravels (loose, dry to moist) (fill)	
		e3		0				
						SP	Brown to gray, medium SAND (moist to wet) (fill?)	
				0				
5								
	MSI-4-4	e3						ATD - Groundwater sample MSI-4-4-GW collected
10		e3		0		CL	Brown, silty CLAY (stiff, moist to wet) (alluvium)	
		e3		0				
15						CL	Gray CLAY (stiff, moist to wet) (alluvium)	
		e3		0				
20								

Boring Completed 03/30/04
Total Depth of Boring = 20.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring MSI-4-4

Figure A-10

MSI-4-5

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	Water Level
0						GW	Brown to gray, sandy GRAVEL (loose, dry) (fill)	
		e3		0		SP	Brown to gray, medium SAND (moist to wet) (fill?)	
				0				
5	MSI-4-5-SL	e3						
10		e3		0		CL	Brown CLAY (very stiff, moist) (alluvium)	ATD - Boring produced insufficient groundwater for collection of groundwater sample.
						SP	Brown, fine SAND (loose, wet) (alluvium)	
15		e3		0		ML	Brown gravelly, sandy SILT (stiff, wet) (alluvium)	
		e3		0		CL	Gray CLAY (stiff, dry) (alluvium)	
20								
25								

Boring Completed 03/30/04
Total Depth of Boring = 20.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring MSI-4-5

Figure A-11

MSI-5-1

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	
0		e3		0		GP	Gray medium to fine sandy coarse gravel, crushed rock (loose, damp to moist)(fill) (refusal at several locations)	Groundwater not encountered.
5	MSI-5-1-SL	e3		0			Refusal at 5.5 ft	

Boring Completed 03/31/04
Total Depth of Boring = 5.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring MSI-5-1

Figure A-12

MSI-5-2

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	
0				0		GM/ MH	Gray to gray-blue, silty fine to medium sandy GRAVEL	Groundwater not encountered.
	MSI-5-2-SL	e3						
						ML	Gray, gravelly fine sandy SILT (very stiff, moist to wet) (glaciomarine drift)	
5		e3		0				
							Refusal at 8 ft	

Boring Completed 03/31/04
Total Depth of Boring = 8.0 ft.

10

15

20

25

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring MSI-5-2

Figure
A-13

MSI-6-1

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: Cascade Drilling Inc.	Water Level
0						AC	Asphalt concrete pavement	
						PC	Portland concrete pavement	
		e3		0		GC/SM	Gray, silty fine sandy GRAVEL (loose, moist) (fill)	
5		e3		0		SP	Brown, medium SAND (loose, moist to wet) (beach deposit)	
10		e3		0				
15		e3		0				▽ ATD - Groundwater sample MSI-6-1-GW collected.
	MSI-6-1-SL	33		0				
20								
25								

Boring Completed 03/31/04
Total Depth of Boring = 20.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring MSI-6-1

Figure A-14