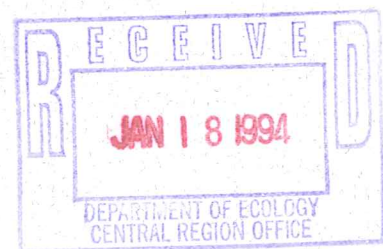


**UNDERGROUND STORAGE TANK SITE ASSESSMENT
BOISE CASCADE CORPORATION,
YAKIMA, WASHINGTON**



UNDERGROUND STORAGE TANK SITE ASSESSMENT
Boise Cascade Corporation, Yakima, Washington

Principal Authors:

Timothy P. Ruby, Senior Scientist
Les Tipton, P.E., Environmental Engineer

Prepared For:

Boise Cascade Corporation
Timber and Wood Products Division
P.O. Box 51
Yakima, Washington 98707
(503) 453-3131

Prepared By:

Cascade Earth Sciences, Ltd.
P.O. Box 2737
La Grande, Oregon 97850
(503) 963-7758

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EXECUTIVE SUMMARY

On November 29, 1993, Boise Cascade Corporation (BCC) decommissioned a 2,000 gallon underground lubricating oil storage tank located at their Yakima, Washington complex (Figures 1, 2, and 3).

Decommissioning of the underground storage tank was completed by Ken Leingang Excavating, Inc. (Service Provider License #S000174). Decommissioning activities were supervised by Les Tipton of Cascade Earth Sciences, Ltd. (Decommissioning License #W001512).

The tank was decommissioned and a site assessment was conducted pursuant to Washington State Underground Storage Tank Regulations WAC 173-360, and guidance provided in Washington State Department of Ecology "Guidance for Site Checks and Site Assessments for Underground Storage Tanks".

Petroleum contaminated soils were not encountered at the Site. This was confirmed by laboratory soil testing and visual observations at the Site. Inspection of the decommissioned storage tank did not reveal any obvious holes. The tank was rusty in spots, but appeared sound throughout.

Data collected at the Site indicates Site soil quality (with respect to petroleum related hydrocarbons) meet state soil cleanup levels.

1.0 INTRODUCTION

On November 29, 1993, Boise Cascade Corporation (BCC) decommissioned a 2,000 gallon underground lubricating oil storage tank located at their Yakima, Washington complex (hereinafter referred to as the "Site"; see Figures 1, 2 and 3).

Notice of intent to close/decommission the above tank was provided to the Washington Department of Ecology (WDOE) on November 9, 1993 (Appendix A). Jim Chulos, Underground Storage Tank Unit Supervisor, WDOE, waived the typical 30 day waiting period so decommissioning activities could be completed on November 29, 1993. This waiver was provided by verbal confirmation on November 22, 1993.

Decommissioning of the underground storage tank was completed by Ken Leingang Excavating, Inc. (Service Provider License # S002579). Activities were supervised by Les Tipton of Cascade Earth Sciences, Ltd. (State of Washington UST Decommissioning License # W001512). Cascade Earth Sciences, Ltd. is also a licensed service provider (Service Provider License # S002579).

This report documents decommissioning and sampling activities carried out at the Site, and is written to comply with Washington State Underground Storage Tank Regulations WAC 173-360. As required by regulation, checklists (UST Permanent Closure/Change-In-Service Checklist and UST Site Check/Site Assessment Checklist) for the Site are provided in Appendix B.

All activities described in this report were completed in compliance with Washington State Underground Storage Tank Regulations WAC 173-360. Soil sampling and other Site assessment work was done to comply with guidance provided in WDOE "Guidance for Site Checks and Site Assessments for Underground Storage Tanks".

Petroleum contaminated soils were not encountered at the Site. This was confirmed by laboratory soil testing and visual observations at the Site. Inspection of the decommissioned storage tank did not reveal any obvious holes from which leakage could have been occurring. Full details are provided in subsequent sections.

2.0 SITE LOCATION AND LAYOUT

The Site is located at North Seventh and H Streets in Yakima, Washington. The Site is found in Township 13 North, Range 19 East, Section 18, Yakima County, Washington (Figures 1, 2 and 3).

Figure 3 documents the specific location of the former lubricating oil underground storage tank. The tank was located adjacent to a small building that houses a heat exchanger for the small log mill. Pavement had to be cut away to remove the tank. In the area of the heat exchanger building and the small log mill, the Site is mostly paved.

A log pond occurs east and sawmill buildings occur north, south and west of the location where the tank was decommissioned.

The tank was located near the center of the Site. Residential properties are primarily located west of the Site, commercial and residential properties are located south of the Site, and a greenway is located north and east of the Site. The Site itself is located in an industrial zone of the City of Yakima.

The Yakima River is the nearest major natural surface water body. It is located about one-half mile east of the former tank location.

Additional details on Site characteristics are provided in subsequent sections.

3.0 SITE CHARACTERISTICS

3.1 Topographic Setting and Climate

The Site is located on a nearly level flood plain of the Yakima River, and is approximately 1060 feet above mean sea level. It is above the U.S. Army Corps of Engineers designated 100 year floodplain.

Area climate is classified as continental, semi-arid. The area typically experiences relatively hot, dry summers and cool, comparatively wet, winters. The average annual temperature at the U.S. Weather Station at the Yakima airport for the period 1910-1956 was 50.2°F, with a high of 111°F and a low of -25°F (NOAA, 1987). The mean annual precipitation at this station is 7.21 inches. The weather records indicate that more than half the precipitation in the Yakima region typically occurs during the four months from November through February. December is the wettest month of the year and July is the driest.

3.2 Soils

Pursuant to the Soil Survey of Yakima County Area, Washington, Weirman fine sandy loam, wet (0 to 2 percent slopes) soils may occur on the Site (USDA, SCS, 1985). This soil unit occurs on low terraces and flood plains. It was formed in mixed alluvium.

Typically, these soils are very deep and somewhat poorly drained. In general, the surface layer is grayish brown fine sandy loam about 8 inches thick. The upper part of the underlying material is stratified, grayish brown and light brownish gray loamy fine sand about

13 inches thick, and the lower part to a depth of 60 inches or more is grayish brown gravelly sand. In some areas, the surface layer is silt loam, gravelly or cobbly.

Groundwater can be encountered in these soils from April to November at depths as shallow as 12 to 24 inches.

At the tank location, groundwater was encountered at a depth of 8 feet below ground surface, and gravelly loamy sand soils were encountered to a depth of 8 feet. According to BCC personnel familiar with the Site, the tank area was at some time part of the log pond located east of the tank area. The area was filled some years ago to make way for the buildings and paved areas that are now located on this portion of the Site.

3.3 Regional Geology

Site geology and hydrogeology is based upon review of the well logs in Appendix C and review of Foxworthy, 1962.

3.3.1 Stratigraphy

The Yakima region is underlain by the Columbia River Group Basalts (CRGB), which consists of a sequence of Miocene basalt flows interbedded with a few minor sedimentary strata. Individual flows may vary in thickness from 20 to 200 feet. The flows are typically composed of a hard, dense, black, olivine basalt with a vesicular layer at the flow top and a basal layer of dense, black volcanic glass.

The Columbia River plateau basalts are overlain by the Pliocene Ellensburg formation, which consists of up to 1000 feet of interbedded, semi-consolidated clay, silt, sand, and gravel. The silt and sand are composed chiefly of pumice, volcanic ash, quartz, and scattered feldspar and hornblende particles. Clay sized particles consist mostly of pumice and ash. The gravel sized fraction of the Ellensburg formation consists largely of volcanic tuff and a distinctive purple or gray andesite. Most of the material making up the Ellensburg formation was deposited by streams or in lakes and ponds.

The Ellensburg formation is overlain in the area by a sequence of up to 400 feet of Pleistocene age cemented basalt gravel. This gravel unit consists of 75 percent or more cemented basalt clasts and 25 percent or less sand, silt, and clay in lenses and discontinuous layers. The cemented gravel differs greatly in lithology from gravels typical of the Ellensburg Formation which contain very little basalt. Most of the larger clasts of the cemented gravel consist of basalt which is identical in texture and composition to the CRGB.

The surficial unit in the area is relatively thin alluvial deposit of unconsolidated and semi-consolidated silt, sand, gravel, and boulders of Recent age. This alluvial deposit ranges in thickness from a few feet to about 30 feet.

Based on the water well reports in Appendix C for area wells and surface materials encountered at the time of tank removal, gravelly soils occur at the Site to a depth of 8 feet. Alluvium (interbedded and cemented) may occur from 8 to 44 feet. Cemented gravel and Ellensburg combined may occur from 44 to 1847 feet below ground surface. Basalt may occur at 1847 feet.

3.3.2 Structure

The Tertiary rocks of the Yakima region, the CRGB and the Ellensburg, have been deformed into a series of prominent, approximately east-west trending folds, which closely control the area's main topographic features. The upfolds or anticlines form the ridges while the downfolds or synclines form elongate, trough-like basins. This folding episode was brittle deformation and left the deformed units involved in a highly fractured state. Where interconnected, these fractures form a conduit system for the flow of groundwater.

3.3.3 Hydrogeology

Groundwater in the region is present in significant amounts in two major aquifer systems: a very productive confined (artisan) aquifer in the CRGB, and a shallow unconfined (water table) aquifer in the alluvium. In this region, only a few water wells have been developed in the cemented basalt gravel and Ellensburg units. These units may be considered aquitards, but in localized areas provide sufficient groundwater yield.

The confined aquifers within the basalt sequence occur within the sedimentary interbeds or within the fractured vesicular zone at the tops of the flows. The aquifers are confined by overlying relatively impermeable horizons such as the volcanic glass zones at the base of flows or the Ellensburg and cemented basalt gravel aquitards. Even though these confining horizons have very low permeability, it is believed a significant amount of water leaks upward, under pressure, to the overlying units. Ultimately, most of this water would leak upward into the surficial unconfined aquifer, from which the water then discharges into the Yakima River. Thus, in detail the CRGB contains a leaky confined aquifer system that is interconnected with the Yakima River via flow through the overlying aquitards and unconfined alluvial aquifer. This basalt aquifer is recharged via infiltration of precipitation into exposed basalt flows or stream influent seepage on the slopes of the ridges on the north and west sides of the sub-basin.

The unconsolidated alluvium is the second most productive aquifer in the region, behind the CRGB aquifer. This aquifer is recharged by infiltration from streams, irrigation canals, and irrigated fields; by infiltration of precipitation and by upward leakage from underlying artisan aquifers in the basalt sequence. The overall direction of movement for the groundwater in the unconfined aquifer is towards its discharge point at the center of the structural trough, the Yakima River. The Yakima River is located east of the former tank location. Alluvial groundwater probably flows in an eastern pattern at the Site.

3.3.4 Groundwater Use

Water well reports for wells drilled in T13N, Range 19 East, and adjoining sections were reviewed. Figure 4 documents area well locations.

Review of area well reports indicates 53 water wells occur within about a mile of the Site. Of the 53, 26 (or 49 percent) are listed as domestic wells, 13 (or 25 percent) have no listing, 6 (or 11 percent) are listed as irrigation wells, 4 (or 8 percent) are listed as test wells, 3 (or 6 percent) are listed as industrial wells, and 1 (or 2 percent) are listed as municipal.

4.0 TANK SYSTEM INFORMATION

Information presented in this section is based on discussions with BCC personnel and records kept by BCC. All available information was reviewed and is documented here.

4.1 Date of Installation and of Last Use

The tank was installed in 1976. The name of the installer is unknown. It was last used in 1986.

4.2 Size, Construction and Piping

Tank capacity equalled 2000 gallons. The tank had a length of 12 feet and a width of 5.5 feet. The tank was constructed of steel and had a single fill pipe. Pea-gravel was used as backfill material.

4.3 Types of Substances Stored in the Tank

Records indicate that only steam cylinder lubricating oil was stored in the tank.

4.4 History of Compliance and Performance

BCC personnel familiar with the Site know of no releases from the tank. Inventory records and other such information, however, do not exist.

5.0 TANK DECOMMISSIONING

One (1) 2000 gallon steel underground storage tank was decommissioned at the Site (Figures 1, 2 and 3; and Photo 1) on November 29, 1993. Photographs in Appendix D document tank decommissioning activities.

Photo 2 shows the tank being inerted. This was completed by Sound Testing, Inc., Seattle, Washington. Photo 3 shows residual sludge (about 4 to 6 inches) and tank materials being pumped from the tank for disposal. This was completed by Northwest EnviroService, Seattle, Washington. Photo 4 shows the tank being lifted from the tank pit. Excavation work was completed by Ken Leingang Excavating, Inc., Yakima, Washington. Photo 5 shows the empty tank pit. Groundwater was encountered in the bottom of the test pit at about 8 feet below ground surface. Groundwater did not display a sheen indicating possible contamination and free product was not observed on its surface. Photo 6 shows the removed tank.

All of the above activities were supervised by Les Tipton of CES (UST Decommissioning License Number W001512).

Inspection of the excavated tank did not reveal obvious holes. The tank was rusty in spots, but appeared sound throughout.

The tank will be rendered unusable by BCC, and recycled at Yakima Steel Fabricators, Yakima, Washington.

6.0 SOIL SAMPLING METHODS AND TESTING RESULTS

Les Tipton of CES collected soil samples at the Site. Tank pit soils did not appear contaminated. Groundwater was present in the tank pit. However, as for soils, it did not appear contaminated. Free product was not observed on its surface.

Pursuant to WDOE sampling guidelines for Site assessments (WDOE, 1991), three soil samples were collected from the bottom of the pit (Figure 3). One was collected from beneath the tank and the other two were collected from the ends of the tank. These samples were collected at the groundwater/soil interface where contamination was most likely to be found. Soil samples were collected from the bottom of the pit by backhoe bucket. Actual sampling depths are shown in Table 1. Samples were collected from the soil in the middle of the bucket, away from the bucket sides. Each sample was placed in a laboratory cleaned glass jar with a teflon lined lid. Sample jars were filled to minimize headspace. Following sample collection, each sample was labeled, placed in a cooler with blue ice, and shipped to Pacific Environmental Laboratory in Beaverton, Oregon for analyses. Samples were shipped under a positive chain-of-custody (Appendix E).

At the laboratory, samples were analyzed for total petroleum hydrocarbon identification per Washington State Department of Ecology methodology (WTPH-HCID). Test results are summarized in Table 1. Original laboratory reports are included in Appendix E. Petroleum related hydrocarbons (diesel, gasoline, and heavy/bunker) were not detected in any of the samples. The data collected here indicates Site soil quality (with respect to petroleum related hydrocarbons) meets state soil cleanup levels.

7.0 SUMMARY AND CONCLUSIONS

On November 29, 1993, BCC decommissioned a 2,000 gallon underground lubricating oil storage tank at their Yakima, Washington complex.

Decommissioning of the underground storage tank was completed by Ken Leingang Excavating, Inc. (Service Provider License #S000174). Decommissioning activities were supervised by Les Tipton of CES (Decommissioning License #W001512).

The tank was decommissioned and a Site assessment was conducted pursuant to Washington State Underground Storage Tank Regulations WAC 173-360, and guidance provided in WDOE "Guidance for Site Checks and Site Assessments for Underground Storage Tanks."

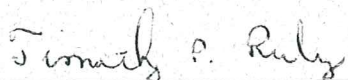
Petroleum contaminated soils were not encountered at this Site. This was confirmed by laboratory soil testing and visual observations at the Site. Inspection of the decommissioned storage tank did not reveal any obvious holes. The tank was rusty in spots, but appeared sound throughout.

Data collected at the Site indicates Site soil quality (with respect to petroleum related hydrocarbons) meets state soil cleanup levels.

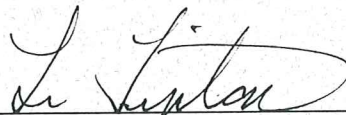
8.0 LIMITATIONS AND REPRODUCTIONS

This investigation by Cascade Earth Sciences, Ltd. (CES) was performed in accordance with generally accepted practices of the profession undertaking similar studies at the same time and in the same geographical area, and CES observed that degree of care and skill generally exercised by the profession under similar circumstances and conditions. CES's observations, findings, and opinions must not be considered as scientific certainties but rather as opinions based on our professional judgement concerning the significance of the limited data gathered during the course of the Site assessment. No other warranty, expressed or implied is made. Specifically, CES does not and cannot represent that the Site contains no hazardous or toxic materials, products, or other latent conditions beyond those observed by CES during its Site assessment.

CASCADE EARTH SCIENCES, LTD.



Timothy P. Ruby, Senior Scientist
Principal Author



Les Tipton, P.E., Environmental Engineer
UST Decommissioning License #W001512

REFERENCES

Foxworthy, Bruce L. 1962. Geology and Groundwater Resources of the Ahtanum Valley, Yakima County, Washington. Geological Survey Water Supply Paper 1598. p.100.

NOAA. 1987. Local Climatological Data. Yakima Airport, Washington.

USDA, SCS. 1985. Soil Survey of Yakima County Area, Washington.

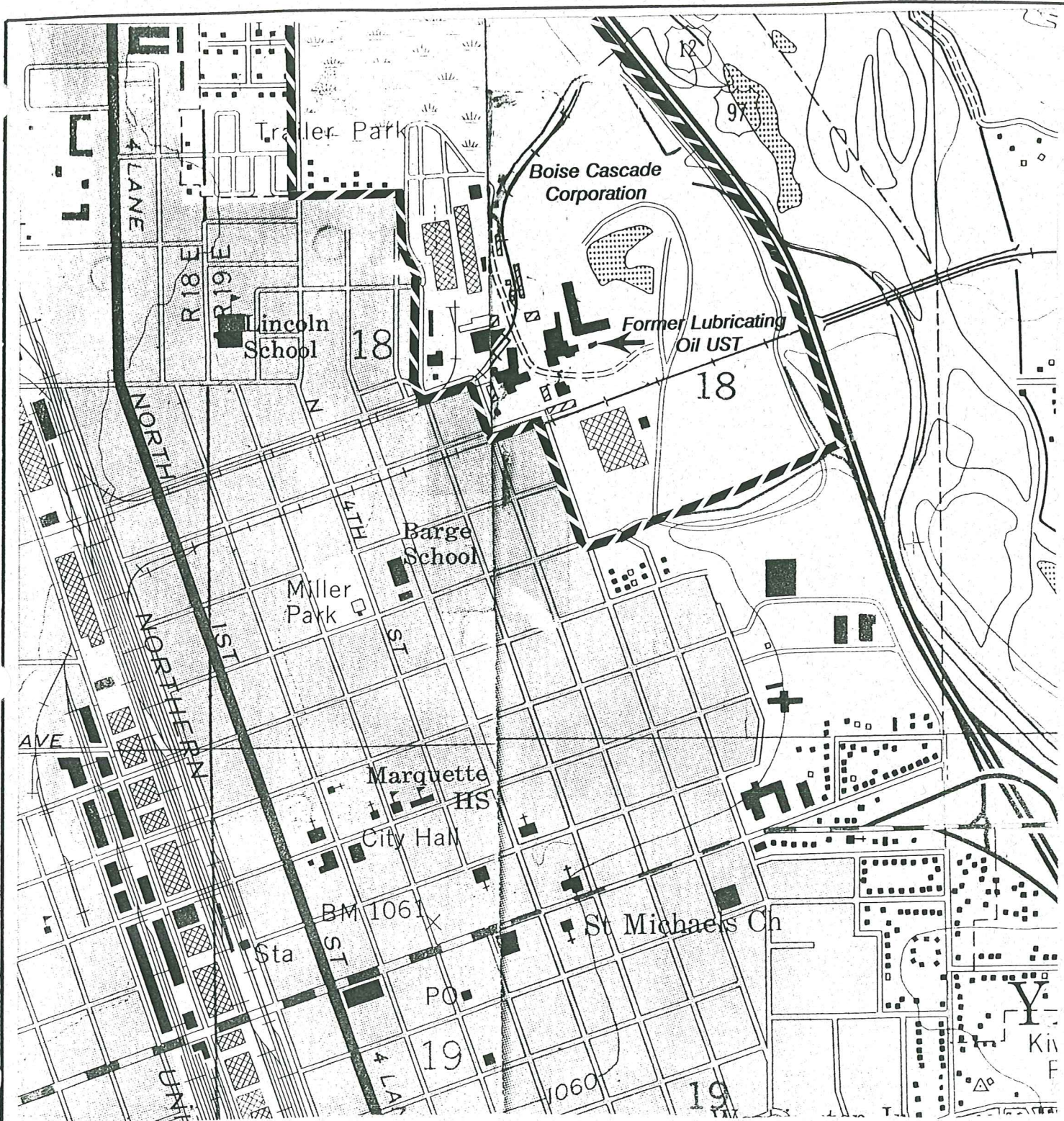
Washington State Department of Ecology (WDOE). 1991. Guidance for Site Checks and Site Assessments for Underground Storage Tanks.

TABLE 1. SUMMARY OF TANK PIT SOIL TEST RESULTS¹

Sample ID ²	Sample Date	Sample Depth ³ (inches)	WTPH-HCID ⁴ (ppm)		
			Diesel ⁵	Gasoline ⁶	Heavy/Bunker ⁷
101	11/29/93	74	ND	ND	ND
102	11/29/93	80	ND	ND	ND
103	11/29/93	80	ND	ND	ND

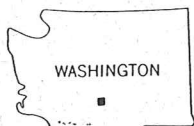
NOTES:

- 1 Actual laboratory results shown in Appendix E.
- 2 See Figure 3 for sampling locations.
- 3 Depth beneath existing grade.
- 4 Total petroleum hydrocarbon identification per Washington State Department of Ecology.
- 5 Minimum detection level 50 ppm.
- 6 Minimum detection level 20 ppm.
- 7 Minimum detection level 100 ppm.

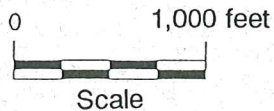


 Site Boundary

Figure 1. - Site Location Map



QUADRANGLE LOCATION



Map adapted from USGS 7.5 Minute Quad Map, Yakima West, Washington, 1958, Photo revised 1985; and Yakima East, Washington, 1953, Photo revised 1985.

PROJECT NUMBER:	353029
DATE:	12/93
DWG. NO.:	PRW
PROJECT MANAGER:	TPR
REVISED:	

Boise Cascade Corporation

Yakima, Washington



CASCADE EARTH SCIENCES, LTD
Oregon - Washington - Idaho

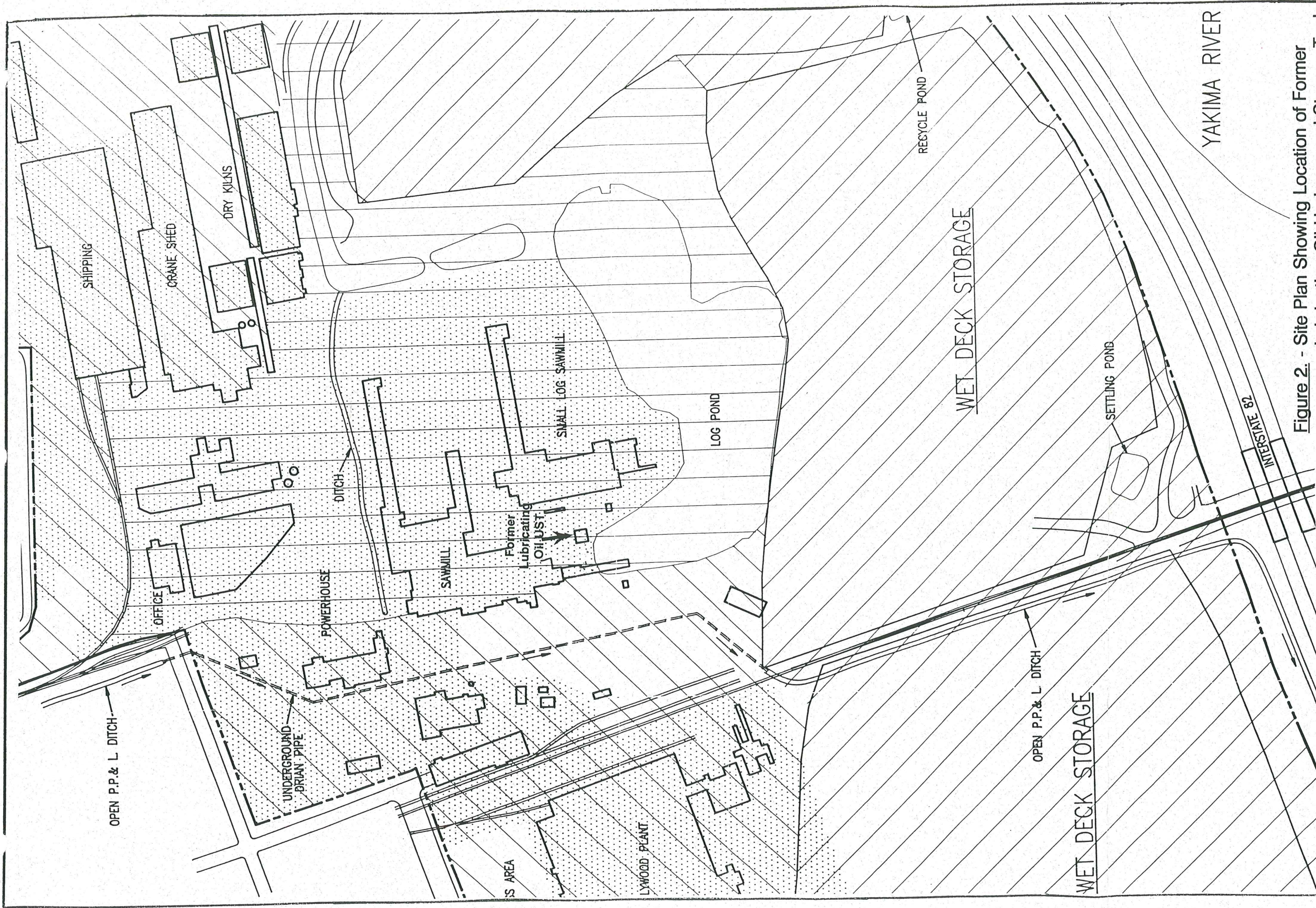
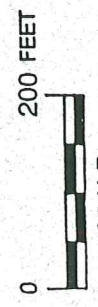


Figure 2. - Site Plan Showing Location of Former Lubricating Oil Underground Storage Tank

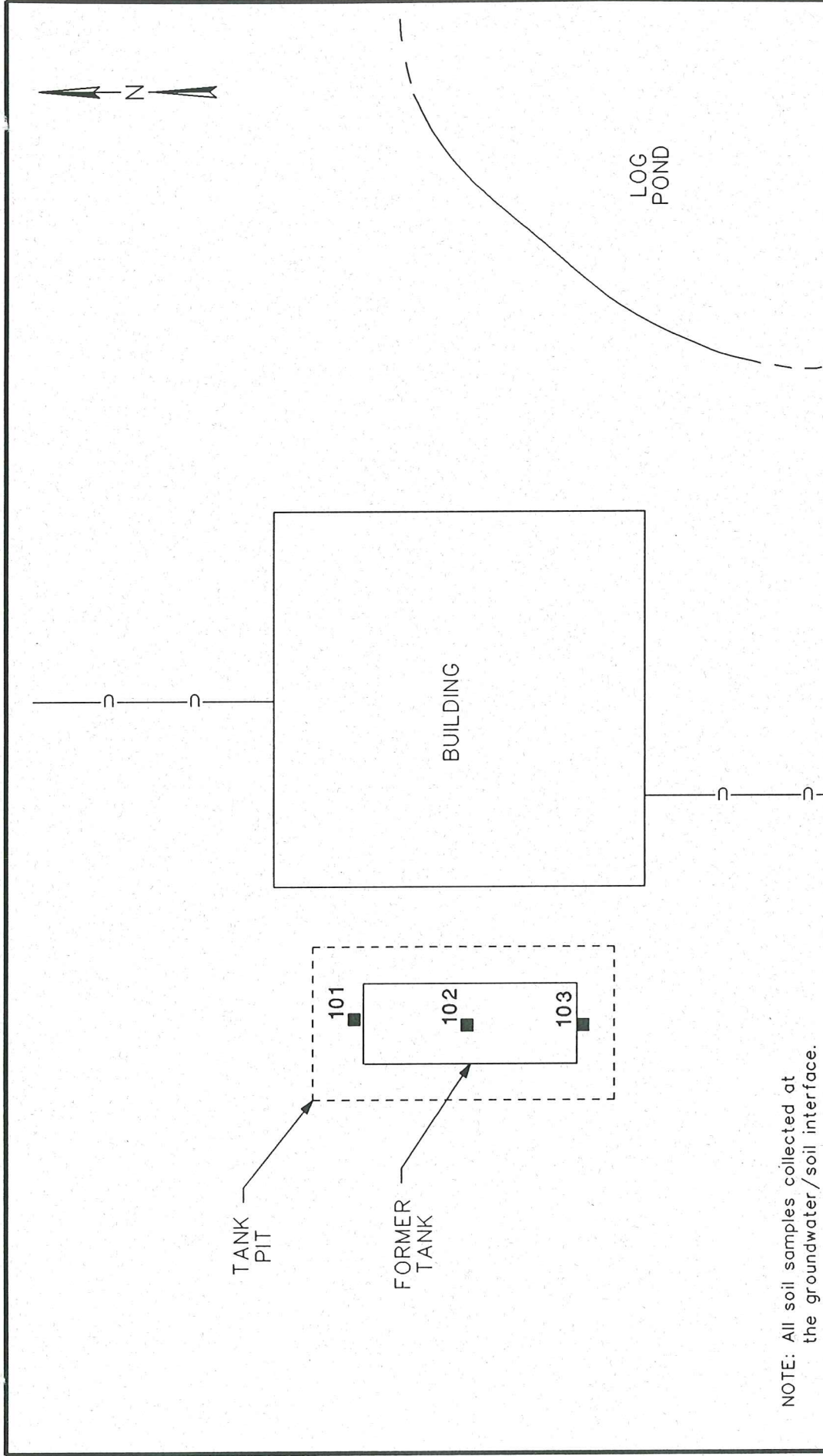
PROJECT NUMBER:	353029
DATE:	12/93
DWG. PRW:	DWG NO:
PROJECT MANAGER:	TPR
REVISED:	

Boise Cascade Corporation
 Yakima, Washington
 CASCADE EARTH SCIENCES, LTD
 Oregon - Washington - Idaho



SCALE
 (LOCATIONS ARE APPROXIMATE)

Base map provided by Boise Cascade Corporation.



NOTE: All soil samples collected at the groundwater/soil interface.

EXPLANATION

- 101 ■ Soil sample location and designation
- U- Utility line (underground)

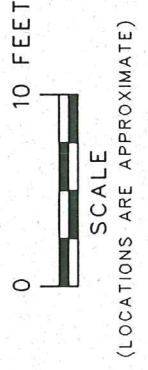

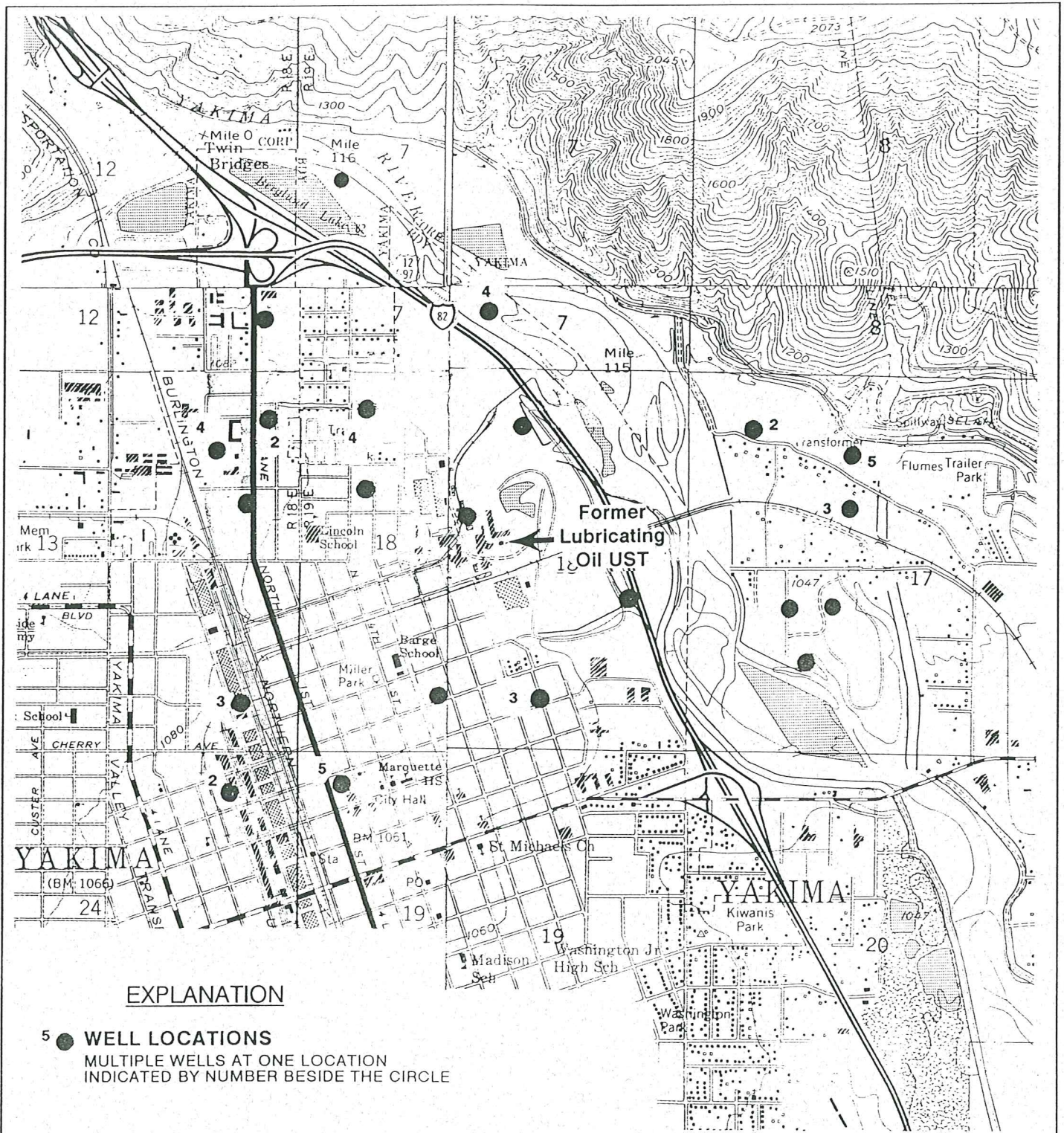


FIGURE 3 - Soil Sampling Locations and Details of Tank

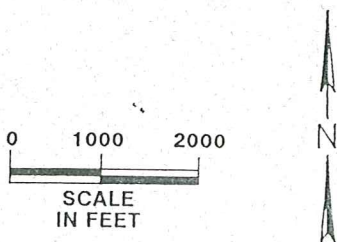
PROJECT NUMBER: 353029	BOISE CASCADE CORPORATION		
DATE: 12/20/93	YAKIMA UST		
DWG. NO: DDR 353029F3	YAKIMA, WASHINGTON		
PROJECT MANAGER: TR	 CASCADE EARTH SCIENCES, LTD Oregon - Washington - Idaho		
REVISED:			



EXPLANATION

- 5 ● WELL LOCATIONS
MULTIPLE WELLS AT ONE LOCATION
INDICATED BY NUMBER BESIDE THE CIRCLE

Figure 4. Well Inventory Map



PROJECT NUMBER: 353029	Boise Cascade Corporation
DATE: 12/93	
DWC. DWC NO:	Yakima, Washington
PROJECT MANAGER: T. RUBY	
REVISED:	 CASCAD EARTH SCIENCES, LTD Oregon - Washington - Idaho

**Appendix A. Notice of Underground Storage
Tank Decommissioning**



Boise Cascade

Timber and Wood Products Division

Environmental and Energy Services
P.O. Box 8328
Boise, Idaho 83707-2328

November 9, 1993

Post-It® brand fax transmittal memo 7871		# of pages	3
To	Tim Ruby	From	Holly Plunk
Co.	CEC	Co.	Boise Cascade
Dept.		Phone #	208/384-1433
Fax #	503/903-7758	Fax #	208/384-4885

Mr. Jim Chulos
UST Unit Supervisor
Department of Ecology
Central Regional Office
106 South 6th Avenue
Yakima, WA 98902-3387

VIA FACSIMILE
Confirmation Copy to Follow

**RE: NOTICE OF INTENT TO CLOSE/DECOMMISSION AN UST
YAKIMA, WA**

Dear Mr. Chulos:

On October 14, Boise Cascade notified Ecology's Central Regional Office after discovering an ethylene glycol release at its Yakima Complex. An estimated 300 to 400 gallons of antifreeze was released as a result of corrosion on an underground pipe. The antifreeze was used as the working fluid for a heating system serving the small log mill. The release was discovered during seasonal maintenance of the heating system and had probably occurred over time since the last system servicing in April of this year.

I have discussed this release and our approach to a site assessment with Tony Valero and Brian Dick in Ecology's Central office. I have also spoken with other Ecology personnel in other Regional Offices and several consultants seeking information on antifreeze releases to assist our approach to conducting the site assessment.

During his examination of the excavated pipeline leading from the small building housing the heat exchanger to the small log mill, our Region Engineer discovered a vent pipe alongside the building and a fill port. Examination of plans indicate the presence of an underground storage tank (UST).

Boise Cascade had submitted UST notification forms to Ecology in 1986 and then subsequently submitted notification of permanent closure in 1990 (Site Identification No. 007829) following removal of four USTs used for fueling equipment. We believed that all of the USTs had been removed from service.

Mr. Jim Chulos
November 9, 1993
Page 2

According to site plans, the building equipped with the heat exchanger also contained an oil/water separator used to remove steam cylinder lubricating oil. Lubricating oil removed by the separator was then stored in the UST adjacent to the building. The use of this system was discontinued about eight years ago. The tank was installed in 1977 and is believed to be 2,000 gallons in size.

The tank still contains some lubricating oil and arrangements have been made with a recycler to remove the contents. Permanent closure of this UST, pursuant to WAC 173-360-385, has been incorporated into our antifreeze release assessment as our initial task for two (2) reasons. First, the UST is located adjacent to the release point. This would have been a point of excavation had we not discovered the UST piping. Second, we had already concluded that use of a backhoe would provide the best means to assess the antifreeze release given the river cobbles found in this area. We have made arrangements with a licensed excavator and consultant to initiate the UST closure and release assessment. We have no information to indicate that a release has occurred from this UST, but we will be prepared for this scenario during closure.

Enclosed is a completed 30 Day Notice of Intent to Close/Decommission Tanks. Given our interest to pursue the tank closure and the release assessment, Boise Cascade requests, as provided for in WAC 173-360-385, that Ecology acknowledge receipt of this notice and approve the scheduled November 29 closure date. Boise Cascade recognizes that this constitutes less than 30 days notice, but requests Ecology's consideration of the circumstances involved.

I will contact your office to further discuss this matter and Boise Cascade's request once you have had time to review this material. Please contact my office at (208) 384-6458 should you require additional information and/or clarification.

Sincerely,



Victor I. Kollock
Environmental Engineer

VJK/hre

Attachment: As Stated

cc: Dick Godfrey, Boise Cascade
Steel Maloney, Cascade Earth Sciences
Sheri Dotson, WDOE, Olympia

CASCADE EARTH

P03

NOV-09-1993 17:32 FROM P272RZZ U1F15 5890344235 18

11/09/93 17:32



UNDERGROUND STORAGE TANK

30 Day Notice of Intent to Close/Decommission Tanks

The purpose of this form is to provide the Department of Ecology with notice of intent to close/decommission an UST. It must be received 30 days prior to the closure activities. It must be signed and dated by either the owner/operator of the UST to be closed or his/her authorized representative. (This could be the firm contracted to do the work.) Ecology will notify the identified person of the earliest date closure/decommissioning activities may commence.

For questions on completing this form please call (206) 439-6293.

Please type or use ink.

The completed checklist should be mailed to:

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. TANK OWNER AND LOCATION

UST Owner/Operator: BOISE CASCADE CORPORATION

Owners Mailing Address: P.O. Box 8328
BOISE IDAHO 83707-8328

Telephone: (208) 384-6958

File ID Number (on invoice or available from Ecology if tank is registered): 007829

Site/Business Name: BOISE CASCADE CORPORATION

Site Address: NORTH SEVENTH AND H Streets YAKIMA
YAKIMA WASHINGTON 98907-0051

2. TANK PERMANENT CLOSURE TO BE PERFORMED BY IF KNOWN

Firm: KEN LEINGANG EXCAVATING INC

Address: 1117 North 27th AVE
YAKIMA WASHINGTON 98902

Telephone: (509) 575-5507 Contact Name: KEN LEINGANG

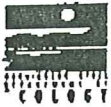
3. TANK INFORMATION

Tank Identification	Approx. Closure Date	Tank Capacity (gallons)	Tank Age (years)	Last Substance Stored
NO PREVIOUS NOTIFICATION	Nov. 29, 93	2,000 est.	16	STEAM CYLINDER LUBRICATING OIL

4. SIGNATURE OF TANK OWNER/OPERATOR OR AUTHORIZED REPRESENTATIVE

Victor J. Kallala ENVIRONMENTAL ENGINEER Nov. 9, 93

Appendix B. Site Checklists



UNDERGROUND STORAGE TANK Permanent Closure/Change-In-Service Checklist

The purpose of this form is to certify the proper closure/change-in-service of underground storage tank (UST) systems. These activities must be conducted in accordance with Chapter 173.360 WAC. Washington State UST rules require the tank owner or operator to notify Ecology in writing 30 days prior to closure or change-in-service of tanks. This must be done by completing the 30 Day Notice form (ECY 010-155).

This Permanent Closure Checklist shall be completed and signed by a Licensed Decommissioning Supervisor. The supervisor shall be on site when all tank permanent closure/change-in-service activities are being conducted. The firm which employs the licensed supervisor shall also be licensed by the Washington State Department of Ecology as a Service Provider. If any of the activities listed below have been supervised by a different licensed supervisor, a separate checklist must be filled out and signed by the licensed supervisor performing those activities.

For further information about completing this form, please contact the Department of Ecology UST Program.

A separate checklist must be completed for each UST system (tank and associated piping), except that UST systems at one site may be reported together by completing page 2 of this form separately for each system. The completed checklist should be mailed to the following address within 30 days of the completion of the closure or change-in-service.

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

Site Owner/Operator: Boise Cascade Corporation

Owners Address: P.O. Box 8328
Street P.O. Box
Boise Idaho 83707-8328
City State ZIP-Code

Telephone: (208) 384-6458

Site ID Number (on invoice or available from Ecology if tank is registered): 007829

Site/Business Name: Boise Cascade Corporation

Site Address: North Seventh and H Streets Yakima
Street County
Yakima Washington 98907-0051
City State ZIP-Code

2. TANK PERMANENT CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Firm: Ken Leingang Excavating, Inc. License Number: S000174

Address: 1117 North 27th Avenue
Street P.O. Box
Yakima Washington 98902
City State ZIP-Code

Telephone: (509) 575-5507

Licensed Supervisor: Les Tipton Decommissioning License Number: W001512

This page must be completed separately for each tank permanently closed (decommissioned) or change-in-service at the site. For additional tanks you may photocopy this form prior to completing.

TANK CLOSURE/CHANGE-IN-SERVICE INFORMATION

1. Tank ID Number (as registered with Ecology): 007829 2. Year installed: 1976
 3. Tank capacity in gallons: 2,000 4. Date of last use: 1986
 5. Last substance stored: Lubricating Oil 6. Date of closure/change-in-service: 11/29/93
 Type of closure: Closure with Tank Removal In-place Closure Change-in-Service
 8. If in-place closure is used, the tank has been filled with the following substance: N/A
 If change-in-service, indicate new substance stored in tank: N/A
 10. Local permit(s) (if any) obtained from: N/A

Always contact local authorities regarding permit requirements.

11. Has a site assessment been completed? Yes No

Unless an external release detection system is operating at the time of closure or change in service, and a report is provided as specified in WAC 173-360-390, a site assessment must be conducted. This site assessment must be conducted by a person registered with the Department of Ecology to perform site assessments. Results of the site assessment must be included with the Site Assessment Checklist (ECY 010-158).

CHECKLIST

Each item of the following checklist shall be initialed by the licensed supervisor whose signature appears below.

	Yes	No	NA*
1. Has all liquid been removed from product lines?	X		
2. Has all product piping been capped or removed?	X		
3. Have all non-product lines been capped or removed?	X		
4. Have all liquid and accumulated sludges been removed from the tank?	X		
5. Has the tank been properly purged or inerted?	X		
6. Have the drop tube, fill pipe, gauge pipe, pumps and other tank fixtures been removed?			X
7. Have all tank openings been plugged or capped? NOTE: One plug should have 1/8 inch vent hole.	X		
8. Have all sludges removed from the tank been designated and disposed of in accordance with the state of Washington's dangerous waste regulations (Chapter 173-303 WAC)?	X		
9. If removed, was tank properly labeled and disposed of in accordance with all applicable local, state and federal regulations?	X		

I hereby certify that I have been the licensed supervisor present on site during the above listed permanent closure activities and to the best of my knowledge they have been conducted in compliance with all applicable state and federal laws, regulations and procedures pertaining to underground storage tanks.

Persons submitting false information are subject to penalties under Chapter 173,360 WAC.

Date: 12/22/93 Signature of Licensed Supervisor: [Signature]

ADDITIONAL REQUIRED SIGNATURES

Date: 1-17-94 Signature of Licensed Service Provider (firm) Owner or Authorized Representative: [Signature]
 Date: _____ Signature of Tank Owner or Authorized Representative: _____

UNDERGROUND STORAGE TANK Site Check/Site Assessment Checklist

The purpose of this form is to certify the proper investigation of an UST site for the presence of a release. These activities shall be conducted in accordance with Chapter 173.360 WAC. A description of the various situations requiring a site check or site assessment is provided in the guidance document for UST site checks and site assessments.

This Site Check/Site Assessment Checklist shall be completed and signed by a person registered with the Department of Ecology to perform site assessments.

Two copies of the results of the site check or site assessment should be included with this checklist according to the reporting requirements in the guidance document for UST site checks and site assessments.

For further information about completing this form, please contact the Department of Ecology UST Program.

The completed checklist should be mailed to the following address:

Underground Storage Tank Section
Department of Ecology
Mail Stop PV-11
Olympia, WA 98504-8711

1. UST SYSTEM OWNER AND LOCATION

Owner/Operator: Boise Cascade Corporation

Owners Address: P.O. Box 8328
Street P.O. Box

Boise Idaho 83707-8328
City State ZIP-Code

Telephone: (208) 384-6458

Site ID Number (on invoice or available from Ecology if tank is registered): 007829

Site/Business Name: Boise Cascade Corporation

Site Address: North Seventh and H Streets Yakima
Street County

Yakima Washington 98907-0051
City State ZIP-Code

2. SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Registered Person: Les Tipton

Address: P.O. Box 2737
Street P.O. Box

La Grande Oregon 97850
City State ZIP-Code

Telephone: (503) 963-7758

TANK INFORMATION

1. Tank ID Number (as registered with Ecology): 007829 2. Year installed: 1976
 3. Tank capacity in gallons: 2,000 4. Last substance stored: Lubricating Oil

REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- Investigate suspected release due to on-site environmental contamination
- Investigate suspected release due to off-site environmental contamination
- Extend temporary closure of UST system for more than 12 months
- UST system undergoing change-in-service
- UST system permanently closed-in-place
- UST system permanently closed with tank removed
- Required by Ecology or delegated agency for UST system closed before December 22, 1988
- Other (describe): _____

CHECKLIST

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

	Yes	No
1. Has the site check/site assessment been conducted according to applicable procedures specified in the UST site check/site assessment guidance issued by the Department of Ecology?	X	
2. Has a release from the UST system been confirmed? <i>NOTE: Owners/operators must report all confirmed releases to the Department of Ecology or delegated agency within 24 hours.</i>		X
3. Are the results of the site check/site assessment enclosed with this checklist? <i>NOTE: Two copies of the site check/site assessment results must be submitted to the Department of Ecology according to the reporting requirements specified in the UST site check/site assessment guidance.</i>	X	

I hereby certify that I have been in responsible charge of performing the site check/site assessment described above.
 Persons submitting false information are subject to penalties under Chapter 173.360 WAC.

12/22/93 [Signature]
 Date Signature of Person Registered with Ecology

OWNER'S SIGNATURE

1/17/93 [Signature]
 Date Signature of Tank Owner or Authorized Representative

Appendix C. Well Logs

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LOG OF ARTESIAN WELL

Cascade Lumber Company
Yakima, Wash.



October 22, 1927

In the month of November 1921 we started drilling a well on our sawmill premises to secure water to be used for domestic purposes.

We started using a 12" Black Iron Pipe for Casing. Only went down 133 feet with this heavy pipe.

Changed to 10" Black Iron pipe for Casing - went down approximately 806 feet. The water raised to about 20 ft. of the top of the casing at 665-670 ft. and at 745-750 it just came up even with the top, but no flow.

Changed to 8" Black Iron pipe for casing, struck some more water at 1077-1127 ft. in a strata of sand and blue shale, then again at 1204 to 1210 some more water.

We struck our real flow at 1313 ft. which shut off at 1332 ft. We estimated this flow at about 50 gallons per minute, temperature about 70°, but rather strong to sulphur so we decided to continue.

Struck our next flow at 1617 and shut off at 1635. Flow about 150 gallons per minute. Temperature 70° and water very palatable - analysis very similar to Rose Land Co's well now known as Clemens Sanatorium on the West Side of town.

Continued on with 8" pipe until 1668 feet when we changed to 6" Black Iron pipe for casing going down to a depth of approximately 1847 feet when we struck Basalt Rock. Thinking possibly that a greater flow might be obtained inside or below the strata we drilled without Casing through 115 feet of this Basalt Rock, then struck a sort of sticky clay for perhaps 20 or 30 ft. where we stuck.

Bought 537 feet 5" Extra heavy pipe with blank ends which we machined into flush joint and slipped it down inside our 6" pipe and continued on - could only use about half of this or approximately 290 feet. This enabled us however to go through the worst part of this sticky mucky clay into a more substantial cement gravel.

We kept working on down through that formation until we reached 2500 when we instructed the driller to quit - he went down 5 ft. more for luck and pulled out in the fall of 1925, or four years from the time he started the well.

Attached is a log of the 10" and 8" pipe put down which shows the strata other than the gravel which predominated.

Appendix D. Site Photographs



Photo 1. Site underground storage tank. Small building housing heat exchanger in background.



Photo 2. The tank was inerted by Sound Testing, Inc., Seattle, Washington. Line in foreground connects to purging equipment.



Photo 3. The tank was cleaned by Northwest EnviroService, Seattle, Washington.



Photo 4. Tank being lifted from pit.



Photo 5. Empty tank pit.



Photo 6. Removed tank.

**Appendix E. Laboratory Soil Testing Results
and Chain-of-Custody**



PACIFIC
ENVIRONMENTAL
LABORATORY INC.

December 6, 1993

Cascade Earth Sciences, Ltd.
P.O. Box 2737
La Grande, OR 97850

Attention: Tim Ruby

RE: JOB # 353029
P.O.# 30727
PROJECT - BCC YAKIMA-UST DECOM.

Enclosed are test results for your samples received in this lab on Dec. 01, 1993. For your reference, these analyses have been assigned our PEL # 93-3461.

Solid samples are reported on a dry weight basis except for Oregon DEQ Fuels Methods and where otherwise noted.

Please call if you have any questions.

Respectfully,

Howard Holmes
Project Manager

Rob May
Project Manager



WTPH-HCID per Washington State DOE
Results In mg/kg (ppm)

Client: Cascade Earth Sciences, Ltd.
Project: BCC YAKIMA-UST DECOM.
Received: 12/01/1993

PEL Number: 93-3461
Matrix: soil

Sample Name	Analyte	Result	MRL
101	Diesel	ND	50
	Gasoline	ND	20
	Heavy/Bunker	ND	100
	Date Prepped	12/01/93	
	Date Analyzed	12/02/93	
102	Diesel	ND	50
	Gasoline	ND	20
	Heavy/Bunker	ND	100
	Date Prepped	12/01/93	
	Date Analyzed	12/02/93	
103	Diesel	ND	50
	Gasoline	ND	20
	Heavy/Bunker	ND	100
	Date Prepped	12/01/93	
	Date Analyzed	12/02/93	
Method Blank	Diesel	ND	50
	Gasoline	ND	20
	Heavy/Bunker	ND	100

MRL Method Reporting Level
ND None Detected at or above the method reporting level
* See Comment Section at end of report



SURROGATE RECOVERIES (%)

Client: Cascade Earth Sciences, Ltd.
Project: BCC YAKIMA-UST DECOM.

PEL Number: 93-3461
Received: 12/01/1993

Sample Name	Analyte	Result	Control Limits
WTPH-HCID per Washington State DOE			
101	4-Bromofluorobenzene	99	50-150
	1-Chlorooctadecane	100	50-150
102	4-Bromofluorobenzene	101	50-150
	1-Chlorooctadecane	94	50-150
103	4-Bromofluorobenzene	104	50-150
	1-Chlorooctadecane	100	50-150

MRL
ND
*

Method Reporting Level
None Detected at or above the method reporting level
See Comment Section at end of report



CASCADE EARTH SCIENCES, Ltd.

Shipped From:
 () Albany 3425 Spicer Dr., OR 97321
 () Corbett PO Box 137, OR 97019
 (K) LaGrande PO Box 1514, OR 97850

() Medford 1133 S Riverside #22, OR 97501
 () Pocatello PO Box 2379, ID 83201
 () Spokane PO Box 14725, WA 99214

(503) 926-7737
 (503) 695-5760
 (503) 963-7758

(503) 779-2280
 (208) 234-2123
 (509) 921-0290

Project: CCC Yakima - UST Decomm. PN: 353029
 Turn Around: Student Sampling Date: 11/29/93
 Send Report To: Tin Ruby Location: KAGNOLC
 QA/QC Requirements: Student
 Provide Preliminary Results: Verbal Fax Number: 963-2132
 Laboratory Name: Enviro-Sentinel Laboratory Inc.
 Address: 9405 SW Nimbus Ave., Bend, OR 97005
 Contact: Rob May Phone # (503) 644-0660

ORGANIC ANALYSIS				INORGANIC ANALYSIS				OTHER					
Volatile Organic GMS 624/8240	Seml-Volatile Organic GMS 625/8270	Halogenated Volatiles 601/8010	Aromatic Volatiles 602/8020 BTEX	Total Petroleum Hydrocarbons HCD G D (circle)	Total Petroleum Hydrocarbons EPA 418.1 MOD (circle)	Total Organic Carbon (TOC) 415/9060	Polyaromatic Hydrocarbons (PAH) 8310 8100 8270 (circle)	TCLP Metals As, Ba, Cd, Cr, Pb, Hg, Se, Ag	Metals (total or dissolved) List	Extractable Bases Ca, Na, Mg, K (circle)	Ph, Cond, Cl, SO ₄ , PO ₄ , F, Br NO ₂ , NO ₃ (circle)	NH ₃ , N, COD, Total-P, TRN (circle)	
													✓ WPH-HCD
													✓ WPH + 18.1M
													✓ WPH-HCD
													✓ WPH-HCD
													✓ WPH-HCD
													✓ WPH-HCD
													✓ WPH-HCD
													✓ WPH-HCD
													✓ WPH-HCD
													✓ WPH-HCD

INVOICE INFORMATION
 P.O. No.: 20727
 Bill To: CES, LaGrande
 SHIPPED INFORMATION
 Shipped via: _____ Sample Receipt: _____
 Seals Intact: _____ Condition: _____
 Temp When Recd: _____ °C Seal No.: _____
 Samples Collected By: _____

Relinquished By: <u>Tim Ruby</u>	Date/Time: <u>11/30/93 4:20P</u>	Received By: <u>[Signature]</u>	Company: <u>CES</u>
Relinquished/ By: <u>[Signature]</u>	Date/Time: <u>11-30-93 1745</u>	Received By: <u>[Signature]</u>	Company: _____
Relinquished By: _____	Date/Time: _____	Received By: _____	Company: _____

COMMENTS: UST Decomm. is project in Washington state. Tank contained lubricating oil. TR

Laboratory: _____
 Please Return Original (White) with Results
 White - CES Yellow - Laboratory Pink - Sender