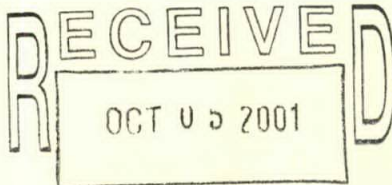


# UST DECOMMISSIONING, OVEREXCAVATION CLEANUP, & ASSOCIATED SITE ASSESSMENT

**ALCOA INTALCO WORKS**  
**4050 Mt. View Road**  
**Ferndale WA 98248**



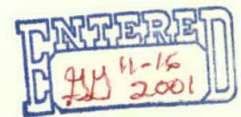
**August 15, 2001**

**PREPARED FOR:**

**Monty Ecalbarger, Project Manager**  
**Alcoa Intalco Works**  
**4050 Mt. View Road**  
**Ferndale WA 98248**

**BY:**

**Accord™ Environmental**  
**4139 N. Jade Place**  
**Bellingham WA 98226**



**RECEIVED**  
**OCT 10 2001**  
**DEPT OF ECOLOGY**

DEPARTMENT OF ECOLOGY NWRO/TCP TANK UNIT	
INTERIM CLEANUP REPORT	<input checked="" type="checkbox"/>
SITE CHARACTERIZATION	<input type="checkbox"/>
FINAL CLEANUP REPORT	<input type="checkbox"/>
OTHER _____	<input type="checkbox"/>
AFFECTED MEDIA: SOIL	<input checked="" type="checkbox"/>
OTHER _____ GW	<input type="checkbox"/>
INSPECTOR (INIT.) <i>AE</i>	DATE <i>10/15/01</i>

Copyrighted August 2001  
By Accord™ Environmental  
All rights reserved

## **TABLE of CONTENTS**

<b>1. INTRODUCTION</b>	<b>4</b>
<b>2. PROJECT BACKGROUND / SITE DESCRIPTION</b>	<b>5</b>
<b>3. UNDERGROUND STORAGE TANK CLOSURE</b>	<b>9</b>
<b>4. UST DECOMMISSIONING &amp; SITE ASSESSMENT</b>	<b>13</b>
<b>5. CONCLUSIONS</b>	<b>17</b>

<b>LIMITATIONS</b>	<b>19</b>
--------------------	-----------

### **TABLE, FIGURES, PHOTOS**

**TABLE I    Petroleum Related Hydrocarbons in Soil,  
Automotive Repair Shop UST Location**

**TABLE II    Petroleum Related Hydrocarbons in Soil,  
Cast House UST Location**

**Figure 1    Vicinity Map; Ferndale WA 98248**

**Figure 2    U.S. Geological Survey Map (from DeLorme 3-D TopoQuads)**

**Figure 3    Plot Plan Showing Both Locations**

**Figure 4    Automotive Repair Shop UST Excavation  
with Soil Sampling Locations,**

**12,000 gallon Diesel UST, 12,000 gallon Gasoline UST**

**Figure 5    Cast House UST Excavation with Soil Sampling Locations,  
6,000 gallon Diesel UST**



- Photo 1: Alcoa Intalco Works Main Entrance**
- Photo 2: Removing Concrete and Dispenser Island**
- Photo 3: Dispenser Island Pipes at Automotive Repair Shop**
- Photo 4: Excavating 12,000 gallon Diesel UST**
- Photo 5: Removing 12,000 gallon Diesel UST**
- Photo 6: Loading 12,000 gallon Diesel UST**
- Photo 7: Removing 12,000 gallon Gasoline UST**
- Photo 8: 12,000 gallon Gasoline UST Removed**
- Photo 9: Both Automotive Repair Shop USTs Loaded**
- Photo 10: Paved Over Automotive Repair Shop Excavation Site**
- Photo 11: Cast House Excavation Site**
- Photo 12: Cast House 6,000 gallon Diesel UST Removed**
- Photo 13: Dewater Rig and Pump at Cast House Location**
- Photo 14: Cast House Excavation with Diesel UST Removed**
- Photo 15: Paved Over Cast House Excavation Site**
- Photo 16: Petroleum Contaminated Soil Stockpile**

## **APPENDIX:**

### **A. ANALYTICAL REPORTS**

- Chain-of-Custody forms
- BTEX Analytical Reports
- Gas Chromatograms

### **B. OTHER DOCUMENTS:**

- State of Washington (Master License Service) Registrations and Licenses
- Underground Storage Tank 30 Day Notice
- Whatcom County Planning & Development Services Ground Tank Permit
- Underground Storage Tank Permanent Closure and Site Assessment Notice
- Underground Storage Tank Site Check / Site Assessment Checklist
- Independent Remedial Action Report Summary
- Sample Quality Assurance / Quality Control
- Site Specific Health & Safety Plan

## **1. INTRODUCTION:**

Accord™ Environmental arrived at the Alcoa Intalco Works project site on the two different days of decommissioning after the three Underground Storage Tank's (UST) soil overburden had been excavated. Soil surrounding the three USTs was further removed from each of them in sequence. Removed soil was segregated largely into the petroleum contaminated soil stockpile. W. L. Repair of Ferndale, Washington, supervised the project. Impero Contracting, LLC provided construction services. The 12,000 gallon Diesel UST and the 12,000 gallon Gasoline UST at the Automotive Repair Shop, and the 6,000 gallon Diesel UST near the Cast House were decommissioned by removal from the ground. There was groundwater in both excavation pits. The three USTs were inspected after removal from the ground, and their shells found intact. They were covered on the outside by fiberglass and were in excellent condition. They were moved to a storage location offsite for cleaning and eventual disposal.

A soil sample taken from the PCS stockpile to characterize contamination showed gasoline and diesel range hydrocarbons above cleanup levels. Benzene was at the cleanup level. Ethylbenzene and xylenes were below cleanup levels, and toluene was not found.

Groundwater samples were taken from water pooled at the bottom of the two excavations. About 7,500 gallons of water was pumped from the Automotive Repair Shop excavation to be treated onsite. The groundwater sample from this location showed no contamination. About 6,000 gallons of groundwater were pumped from the Cast House location to be treated onsite. The Cast House groundwater sample showed diesel range hydrocarbon contamination but no oil range hydrocarbons. Additional groundwater was pumped from this excavation before and after sampling--about 7,500 gallons more.

Soil samples were taken at the limits of excavation. Soil samples taken from excavation sidewalls and from the bottom of the excavations were tested and found to be free of gasoline, diesel, and oil range hydrocarbon contamination. Both excavations were filled with clean soil from onsite and a concrete slab was installed in continuity with the surrounding concrete slab in both areas.



## **2. PROJECT BACKGROUND / SITE DESCRIPTION:**

### **LOCATION, CONTACT & LEGAL DESCRIPTION**

**Site Name:** Alcoa Intalco Works

**Site Address:** 4050 Mt. View Road  
Ferndale WA 98248

**Contact:** Monty Ecalbarger, Project Manager, Alcoa Intalco Works  
Jerry Pruiett, Project Manager for Impero Construction Co.  
Ralph Weiland, UST Decommissioner Project Manager,  
W. L. Repair

**Mailing Address:** Monty Ecalbarger, Project Manager  
Alcoa Intalco Works  
4050 Mt. View Road  
Ferndale WA 98248

**Phone Number:** (360) 384-7061 Fax: (360) XXX-XXXX

**Other Names for the Site (Aliases):** Intalco, Intalco Aluminum Corporation

**Quarter / Quarter Section, Township, Range:** The site (Alcoa Intalco Works) is situated mainly in the east half Section 29 and the northwest quarter of section 28, Township 39N, Range 01E in Whatcom County, Washington, United States of America.

**Latitude and Longitude:** Estimated from U.S. Geological Survey Map:

Automotive Repair Shop Location:      Approximate Latitude      N48° 50.6'  
Approximate Longitude      W122° 42.3'

**Cast House Location:**

Approximate Latitude	N48° 50.9'
Approximate Longitude	W122° 42.1'

**Legal Description:** "ALL OF SECTION 29--EXC R/W RR SPUR TRACK R/W RUNNING N-S THRU SEC SESC AF 1031595 TOG WI VAC RD VAC CP 44--189-LESS RD-SUBJ TO ESMT TO CASCADE NATURAL GAS CORP DESC AF 996718-19-EXC PTN TO USA FOR BPA SITE...", Whatcom County Assessor's Parcel #390129-408325.

**Apparent Ownership:** The parcel described in the Legal Description above is owned by ALUMET CORP 61 % & MITNEWCO INC II 32% & ATNEWCO INC 7%.

**Zoning:** The zoning code is HII for Heavy Impact Industrial. The Land Use is 3334 PRI/NONFERRO for PRIMARY SMELTING/REFINING NONFERROUS METAL-NEC.

**Standard Industrial Classification:** The Standard Industrial Classification (SIC) designation for the use of the property is **3334** for Aluminum ingots and primary production shapes, from bauxite or alumina--*manufacturing*.



## SITE AND VICINITY CHARACTERISTICS

**Map of Site Location:** See Figures 1 through 3.

**Detailed Site Map:** See Figures 4 & 5.

**Direction of groundwater flow and depth to groundwater:** The apparent direction of groundwater flow based on the area topography is southwest toward the Georgia Strait of Puget Sound (Figure 2). The depth to groundwater is not known.

**Potable Water Source:** Alcoa Intalco Works buys water from Whatcom County Public Utility District #1, then treats this water themselves at their own water treatment plant for their potable water supply.

**Annual precipitation:** 30 inches per year mean annual precipitation.

**Site soil types:** The general soil type in the area is Chuckanut-Urban Land Complex, 5 to 25 percent slopes. "This unit is 50 percent Chuckanut loam and 35 percent Urban land. The components of this unit occur as areas so intricately intermingled that mapping them separately was not practical at the selected scale of mapping.... The Chuckanut soil is very deep and well drained. It formed in a mixture of volcanic ash and colluvium derived from glacial drift and sandstone.... The depth to sandstone ranges from 40 to 60 inches. The content of weathered rock fragments ranges from 35 to 60 percent throughout this profile. In some areas the surface layer is gravelly loam or sandy loam. In other areas the soil is more than 60 inches deep to sandstone. (*Soil Survey of Whatcom County Area, Washington*, United States Department of Agriculture's (USDA) Soil Conservation Service, May 1982, p. 43.)

## SITE DESCRIPTION

The project site is located in Whatcom County (Figures 1 and 2) four and one-half miles directly west of the City of Ferndale, Washington (Figure 1) at the west end of Mt. View Road. Mt. View Road passes through southern Ferndale at its east end, and into Alcoa Intalco Works at its west end. The site is virtually flat due to soil fill for the industrial development

(Fig. 2 and Photos 1 & 2). The natural slope of the area is about 1.5%, sloping gently downward to the southwest. The larger site consists of 172.83 improved acres and 60.00 unimproved acres, totaling 232.83 acres. The developed site contains numerous structures (Figure 3). Chief among them are the centrally located potrooms, the focus of plant activity when the manufacture of aluminum in progress. (Our project was performed during a rare shutdown of the potlines, due to the great demand elsewhere in the country for electricity which would normally have been consumed here producing aluminum.) The site contains wells, both water wells and monitoring wells, the location and function of which are not here detailed. Generally development to the east of the site is farmland and farm residential with Lake Terrell State Wildlife Area one-half mile to the northeast. To the south is a petroleum refinery. To the west is the Straight of Georgia of Puget Sound. To the north is a Puget Sound Energy substation serving the aluminum plant. Further north the land is undeveloped. Surrounding uses and development could be detailed further, but is beyond the scope of this project.

The 12,000 gallon Diesel UST and the 12,000 gallon Gasoline UST, which were decommissioned during the project, were located immediately south of the Automotive Repair Shop building. This building is located south of the north-south oriented, centrally located, Potroom B-2 (Figures 3 & 4). The 6,000 gallon Diesel UST rested 75 feet northeast of the northeast corner of the Cast House (Figure 3). The Cast House resides east of Potroom A-1. This UST was located 17 feet north of its Dispenser Shed, which may be found in this area still, now functioning solely as a propane dispensing facility.

The three subject USTs were installed in 1986. They replaced other USTs which were removed from the ground nearby the present locations. A propane tank near the Cast House 6,000 gallon diesel UST was removed to allow working space, but it will be returned to its original location after completion of this decommissioning project.

W. L. Repair supervised removal of residual fuel from the USTs. Impero broke out the concrete pads, performed the excavation, and used the crane to remove USTs from the ground. Decommissioning was supervised by W. L. Repair.

Prevailing wind at the site is from the southwest.



### **3. UNDERGROUND STORAGE TANK CLOSURE:**

#### **REGULATORY RECORDS / PERMITS**

Alcoa Intalco Works (listed as Intalco Aluminum Corporation) Master Business Licenses ("Registration and Licenses" in Appendix B: Other Documents) contains registration for the three USTs which were decommissioned. The Site Number is the Location 001 for the business with the Unified Business ID # 373 001 034. This registration expired July 31, 2001.

The 30 Day Notice of Intent to Close the 12,000 gallon Diesel UST, 12,000 gallon Gasoline UST and the 6,000 gallon Diesel UST was received by Ecology September 10, 2001 (Appendix B: Other Documents). The Whatcom County Planning & Development Services Ground Tank Permit was issued May 07, 2001, Permit No. GTK2001-00011 (Appendix B: Other Documents).

The Washington State Department of Ecology Compliance Tag, which was displayed at the 6,000 gallon (diesel) UST #1 located by the Cast House, contained the alphanumeric A8001. The Washington State Department of Ecology Compliance Tag displayed at the two 12,000 gallon (diesel and gasoline) USTs #2 and #3 located by the Automotive Repair Shop contained the alphanumeric A4768.

Two forms, (1)*Underground Storage Tank Temporary / Permanent Closure and Site Assessment Notice* and (2)*Underground Storage Tank Site Check / site Assessment Checklist*, have been completed and originals will be sent to the UST Section of Ecology in Olympia, Washington.

The Independent Remedial Action Report Summary has been completed and will be provided to the Northwest Regional Office of Ecology in Bellevue, Washington, Toxics Cleanup Section. The Incident Number obtained when reporting the release of petroleum is N521047.

Soil samples were collected according to the protocol contained in *Sample Quality Assurance / Quality Control* (Appendix B: Other Documents).

The Site Specific Health & Safety Plan was devised and in effect during execution of the project.

### **DECOMMISSIONING THREE USTs AND OVEREXCAVATING**

Accord™ Environmental met with representatives of W. L. Repair, Impero Construction Company, and Alcoa Intalco Works at the aluminum plant during June 2001 to go over work plans and devise a Site Specific Health & Safety Plan (Appendix B). Actual onsite work decommissioning the three USTs commenced during July 2001.

#### **12,000 Gallon Diesel UST & 12,000 Gallon Gasoline UST**

Upon our arrival at the Automotive Repair Shop at Alcoa Intalco Works, the soil overburden for the 12,000 gallon Diesel UST (Photo 4) and the 12,000 gallon Gasoline UST had been removed and hauled as clean soil. The fuel dispenser island which straddled one end of both USTs (Photo 3) had already been removed. Soil staining was apparent where the fuel dispenser island containing the fill pipes had stood. The monitoring well inside the fuel dispensing island remained. It had shown the water table at about 3 feet depth. The day before commencing UST removal, a hole was excavated at the south side of the Diesel UST and the excavation was dewatered using this hole and the monitoring well casing. About 4,500 gallons of water were pumped out, loaded into a tank trailer, and delivered to the onsite 1,000,000 gallon holding tank for eventual onsite treatment once enough water has accumulated. Initially, on the day of UST removal, the UST excavation was dry. But as excavation proceeded, the excavation gradually filled with one foot of groundwater by the time the Diesel UST was removed (Photo 7).



Four times 50 pounds of dry ice were placed into each UST to inert them. Twelve feet tall steel vent pipes had been placed on each UST to vent the petroleum vapors. Excavation proceeded along the sides of both USTs. This sandy fill material appeared stained. Stained soil was stockpiled at the southwest corner of the UST excavation and then loaded into a dump truck and removed to the Alcoa Intalco Works Waste Disposal Site on the north side of the property for remediation there (Photo 16). Stained sandy fill was also stockpiled along the entire north side of the excavation for removal later to the same location.

Profile of the native soil at the excavation edges showed brown cobely, gravelly, sandy loam from 0 to 3 feet, then patchy grey and green tight to very tight fine silt and weathered sandstone from 3 feet to the excavated depth of 11 feet. Inside the UST excavation surrounding the USTs themselves was grey medium sand. Groundwater was observed in the excavation (Photo 7) at 10 feet depth.

The 12,000 gallon Diesel UST was first removed and inspected (Photos 5 & 6). It measured 8 feet in diameter by 32 feet long. It was a steel tank covered on the outside with fiberglass. This tank was in excellent condition. The shell of the UST showed no blemishes, no electrolytic pitting and no rust. There were no apparent holes in the UST. The UST had rested at a depth of 11 feet below the ground surface. This UST was loaded onto a semi-trailer to await removal from the site (Photo 6).

Next the 12,000 gallon Gasoline UST was removed and inspected (Photos 7 & 8). It measured 8 feet in diameter by 32 feet long. It was a steel tank covered on the outside with fiberglass. This tank was in excellent condition. The shell of the UST showed no blemishes, no electrolytic pitting and no rust. There were no apparent holes in the UST. The UST had rested at a depth of 11 feet below the ground surface. This UST was also loaded onto a semi-trailer to await removal from the site (Photo 9).

Both the 12,000 gallon Diesel UST and the 12,000 gallon Gasoline UST were hauled to the W. L. Repair shop at 959 W. Laurel Road, Ferndale WA 98248 where they will be cleaned for eventual disposal at Z-Recyclers at 6129 Guide Meridian, Lynden WA 98264.

During the weeks following decommissioning of the USTs, additional contaminated fill material was removed from the excavation. Clean fill was brought in from onsite and the excavation was filled with this material. Finally, the Automotive Repair Shop excavation site was paved over with concrete (Photo 10).



### **6,000 Gallon Diesel UST**

Decommissioning proceeded at the Cast House location with excavation of the 6,000 gallon Diesel UST. The soil overburden had been removed (Photo 11). Dry ice was introduced into the UST to inert it. Groundwater was observed inside the excavation. 6,000 gallons of water had been pumped from the location a day earlier, loaded into a tank trailer, and hauled to the 1,000,000 holding tank for eventual treatment (Photo 13). 7,500 gallons of water was pumped the day of decommissioning and hauled likewise. The UST was further excavated to release the UST (Photo 14). Contaminated soil was loaded into a dump truck and hauled to the Alcoa Intalco Works Toxic Waste Disposal Site on the north side of the property for remediation there (Photo 16).

Black medium sand filled the UST excavation initially. Profile of the native soil at the excavation sidewalls showed greenish grey and light brown fine silt along the entire profile from the underside of the concrete at 0.5 feet to the bottom of the excavation at 11 feet. The greenish grey soil was very tight, probably weathered sandstone. An exception was the east end of the excavation containing black medium sand from 5 feet depth to the bottom of the excavation.

The 6,000 gallon Diesel UST was removed and inspected (Photo 12). It measured 8 feet in diameter by 18 feet long. It was covered with fiberglass. The shell of the UST was in excellent condition and showed no rusting. There were no apparent holes in the UST. This 6,000 gallon Diesel UST was loaded onto a trailer and hauled to the W. L. Repair Shop at 959 W. Laurel Road, Ferndale WA 98248 where it will be cleaned for eventual disposal at Z-Recyclers at 6129 Guide Meridian, Lynden WA 98264.

The same day as decommissioning, additional water and contaminated fill material was removed from the excavation. Clean fill was brought in from onsite and was used to fill the excavation. A few weeks later the Cast House excavation site was paved over with concrete (Photo 15).



#### **4. UST DECOMMISSIONING SITE ASSESSMENT PERFORMED:**

##### **SELECTION OF SITE ASSESSMENT STANDARDS**

Method A Cleanup Levels for Ground Water (Table 720-1) and Method A Soil Cleanup Levels for Industrial Properties (Table 745-1) were chosen for cleanup because of office, manufacturing plant, shop, and transport personnel on site, the surrounding agricultural and residential land usage, proximity of the Straight of Georgia portion of Puget Sound, and because these standards appeared obtainable. Diesel and gasoline range hydrocarbons, and the BTEX constituents of gasoline, were the contaminants of concern.

Because benzene was not shown to be present in groundwater at the site, the higher level of Gasoline Range Organics of 1,000 ug/liter in groundwater was determined to be the appropriate value (rather than 800 ug/liter when benzene is present in the groundwater). The MTCA Method A Cleanup Levels for Ground Water for the contaminants of concern in groundwater are shown below:

<b>MTCA Method A Ground Water Cleanup Levels</b>	
TPH (gasoline)	1,000.0 ug/L (1.0 ppm)
TPH (diesel)	500.0 ug/L (0.5 ppm)
Lead	5.0 ug/L (5.0 ppb)
Benzene	5.0 ug/L (5.0 ppb)
Toluene	1,000.0 ug/L (1.0 ppm)
Ethylbenzene	700.0 ug/L (0.7 ppm)
Xylenes	1,000.0 ug/L (1.0 ppm)

Because benzene was shown to be present in soil at the Automotive Repair Shop location indicating benzene present in the gasoline mixture found at this location, the lower limit for Gasoline Range Organics of 30 mg/kg was determined to be the appropriate value (rather than 100 mg/kg for gasoline mixtures without benzene). The MTCA Method A Soil Cleanup Levels for Industrial Properties for the contaminants of concern in soil are shown below:

<b>MTCA Method A Soil Cleanup Levels for Industrial Properties</b>	
TPH (gasoline)	30.0 mg/Kg (30.0 ppm)
TPH (diesel)	2,000.0 mg/Kg (2,000.0 ppm)
TPH (oil)	2,000.0 mg/Kg (2,000.0 ppm)
Lead	1,000.0 mg/Kg (1,000.0ppm)
Benzene	0.03 mg/Kg (0.03 ppm)
Toluene	7.0 mg/Kg (7.0 ppm)
Ethylbenzene	6.0 mg/Kg (6.0 ppm)
Xylenes	9.0 mg/Kg (9.0 ppm)

(Model Toxics Control Act Cleanup Bulletin, Chapter 173-340 WAC, Toxics Cleanup Program, amended February 2, 2001, p. 231-236.)



## SOIL & WATER SAMPLING & ANALYTICAL RESULTS

Soil samples were taken at the limits of the excavation pits as shown in Figures 4 and 5. They were dug out using the excavator bucket. This method kept personnel at a distance from the risks of going into the excavation pits. Groundwater samples were collected from the pooled water in each of the excavation pits. These samples were obtained by tying a stainless steel bailer to the teeth of the excavator bucket, then lowering the bailer into the groundwater pool. Samples were collected according to protocol exemplified in *Sample Quality Assurance / Quality Control* (Appendix B: Other documents). A composite sample was taken from the petroleum contaminated soil (PCS) stockpile at the Automotive Repair Shop by combining and mixing soil from a depth of one foot at three different positions. The PCS Stockpile was sampled to obtain a characterization of existing contamination. Contamination demonstrated by laboratory analysis was 48 ppm gasoline, 4,380 ppm diesel, and no oil. The levels for gasoline and diesel contamination are above the cleanup levels of 30 ppm for gasoline and 2,000 ppm for diesel range hydrocarbons. Analysis of the PCS-1(1') soil sample showed 30 ppb benzene which is the cleanup level for this chemical in soil (Table I). Toluene was not detected. Ethylbenzene was found at 460 ppb. Its cleanup level is 6,000 ppb. Xylenes were found at 620 ppb. Their cleanup level is 9,000 ppb. (The first chromatogram under Appendix A: Analytical Results, Gas Chromatograms shows the gasoline range hydrocarbons and the BTEX contamination for this sample. The second chromatogram shows the diesel range hydrocarbons for Sample PCS-1(1').)

### 12,000 Gallon Gasoline UST and 12,000 Gallon Diesel UST

After removal of the Diesel UST a groundwater sample was taken with the use of a bailer (Sample D-WAT (10.5)) (Fig. 4). This sample was clean, showing no contamination for gasoline, diesel, or BTEX (benzene, toluene, ethylbenzene, or xylenes) (Table I).

Soil samples were collected at the sidewalls of the excavation containing the two 12,000 gallon USTs at the Automotive Repair Shop (Fig. 4). Soil samples were first collected at 7 feet depth at the Diesel UST end of the excavation (Samples D-N(7'), D-W(7'), and D-S(7')). These samples showed a non-detect for gasoline, diesel, and oil range hydrocarbons (Table I). The



bottom sample (D-B(12.5')) was taken at 12.5 feet depth directly over the large concrete slab in the bottom of the excavation used to hold down the Diesel UST. Taking a sample below this slab at its center was not practical.

Soil samples were then collected at the Gasoline UST on the east end of the excavation. First the bottom sample G-B(14') was taken alongside the south edge of the concrete slab which had been used to hold down the Gasoline UST. Analytical results showed no gasoline, diesel, or oil range hydrocarbons (Table I). Finally, soil samples were taken at 7 feet depth along the sidewalls of the excavation where the Gasoline UST had rested (Fig. 4). Samples G-S(7'), G-E(7'), and G-N(7') were collected. All three of these samples showed no gasoline, diesel, or oil contamination upon analysis (Table I).

### **6,000 Gallon Diesel UST**

A water sample was drawn from the groundwater in the Diesel UST excavation at the Cast House location (Sample CH-D-WAT(10')) (Fig. 5). On analysis this sample contained 6.2 ppm diesel range hydrocarbons and no oil range hydrocarbons (Table II). Cleanup levels for diesel and oil range hydrocarbons in groundwater are 0.5 ppm for each. More groundwater was pumped from the excavation after the sample was drawn. (The third chromatogram shows the diesel range hydrocarbons which were detected in this sample (Appendix A: Analytical Reports, Gas Chromatograms).)

Next the bottom soil sample was taken (Sample CH-D-B(11')). It had to be taken to the side of the one foot thick concrete hold-down slab like the bottom sample for the first excavation at the Automotive Repair Shop (Fig. 5). This sample showed no gasoline, diesel, or oil range hydrocarbons when analyzed by NWTHH-HCID, the hydrocarbon identification method for the Northwest. Then four sidewall samples were dug out of the sidewall soil (Samples CH-D-W(7'), CH-D-S(7'), CH-D-E(5'-7'), and CH-D-N(7')). None of these samples showed either gasoline, diesel, or oil range hydrocarbons when analyzed (Table II).



## **EXCAVATION BACKFILLING**

Subsequently, more contaminated fill material was removed from the Automotive Repair Shop excavation and taken to the Waste Disposal Site for remediation. Both excavation pits were reportedly filled with clean soil material from the site. Finally, concrete slabs were again installed over the excavations.

## **5. CONCLUSIONS:**

Three USTs were decommissioned by excavation and removal from the ground at Alcoa Intalco Works at 4050 Mountain View Road, Ferndale WA 98248 during July and August 2001. One was a 12,000 gallon Diesel UST, one a 12,000 gallon Gasoline UST, both of which were in the same excavation at the Automotive Repair Shop onsite. The 6,000 gallon Diesel UST was located near the Cast House onsite. None of the three USTs had holes in their shells upon inspection. They were fiberglass lined on the outside and appeared in excellent condition. The three USTs were hauled to W. L. Repair's Shop at 959 W. Laurel Road, Ferndale WA 98248 where they will be cleaned awaiting disposal at Z-Recyclers at 6129 Guide Meridian, Lynden WA 98264.

The resulting two excavation pits were overexcavated to remove petroleum contaminated soil. Groundwater samples were taken from the pooled water at the bottom of both excavations. Soil samples were taken from the PCS stockpile, from the four walls of both excavations, and from alongside the one foot thick concrete hold-down slabs which had rested beneath the USTs.

The Petroleum Contaminated Soil stockpile was sampled to characterize the contamination at the Automotive Repair Site location. This sample showed gasoline range hydrocarbon contamination 60% greater than the cleanup level of 30 ppm. Diesel range hydrocarbons in this sample were 119% greater than the 2,000 ppm cleanup level. There was no oil range contamination. The analysis for BTEX in this sample showed benzene at the cleanup level of 30 ppm, no toluene, ethylbenzene at 7.66% of the cleanup level, and xylenes at 6.88% of the cleanup

level. This PCS was hauled to a double lined portion of the Disposal Area onsite and will be monitored and remediated there by the company Environmental Group.

About 4,500 gallons of groundwater were vacuum pumped from the Automotive Repair Shop excavation, stored in an onsite holding tank, and will be treated at one or more of the water treatment plants onsite. A groundwater sample was drawn from the pooled water at the bottom of this excavation. No contamination was found in this sample when analyzed for gasoline, diesel, and oil range hydrocarbons, and none was found when analyzed for BTEX.

About 6,000 gallons of groundwater were pumped out of the Cast House UST excavation the day before decommissioning began. After removal of the 6,000 gallon Diesel UST a groundwater sample was drawn from the water pooled in the bottom of the excavation. This sample showed 6.2 ppm diesel range hydrocarbon and no oil range hydrocarbon contamination. About 7,500 gallons of groundwater were pumped from the Cast House excavation on the day of decommissioning both before and after groundwater sampling. The pumped groundwater will be treated onsite.

All of the soil samples from the sidewalls and bottom of both excavations showed no gasoline, diesel, and oil range hydrocarbons when analyzed at the environmental laboratory. Subsequently, both excavations were filled with clean soil from onsite and a concrete slab was installed in continuity with the surrounding concrete slab in both areas.



## LIMITATIONS

We have prepared this report for use by Alcoa Intalco Works. This report may be made available to regulatory agencies, financial institutions and other agents of Alcoa Intalco Works. The report is not intended for use by others and the information contained herein is not applicable to other sites.

The information presented herein is based on the above-described data, site visits, and subsurface exploration described. Our study area included the areas excavated for the removal of the USTs described. Exploration was not conducted on other portions of the site. A potential always exists for areas of hazardous materials that were not identified. Further evaluation of such potential would require more extensive subsurface exploration and testing.

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

We appreciate this opportunity to be of service to you. Please call if you have any questions concerning this report. Also call if we can provide additional services.

*Orion Landden*

Orion Landden

Washington Certified Site Assessor



# **TABLE, FIGURES, PHOTOS**



**TABLE I**  
**PETROLEUM RELATED HYDROCARBONS IN SOIL**  
**SUMMARY OF CHEMICAL ANALYSES**

**AUTOMOTIVE REPAIR SHOP**

Alcoa Intalco Works

Sample Date	Sample ID	Depth (Feet)	Soil or Water	NWTPH-HCID (mg/Kg)			NWTPH-G x (ppm)	NWTPH-DX (ppm)		EPA Method 8020 ppb			
				Gas.	Diesel	Oil		Diesel	Oil	B	T	E	X
July 24, 01	PCS-1 (1')	1	Soil	---	---	---	<b>48</b>	<b>4,380</b>	ND	30	ND	460	620
July 24, 01	D-WAT (10.5')	10.5'	Water	---	---	---	ND	ND	ND	ND	ND	ND	ND
July 24, 01	D-N (7')	7	Soil	ND	ND	ND	---	---	---	---	---	---	---
July 24, 01	D-W (7')	7	Soil	ND	ND	ND							
July 24, 01	D-S (7')	7	Soil	ND	ND	ND	---	---	---	---	---	---	---
July 24, 01	D-B (12.5')	12.5	Soil	ND	ND	ND	---	---	---	---	---	---	---
July 24, 01	G-B (14')	14	Soil	ND	ND	ND	---	---	---	---	---	---	---
July 24, 01	G-S (7')	7	Soil	ND	ND	ND							
July 24, 01	G-E (7')	7	Soil	ND	ND	ND	---	---	---	---	---	---	---
July 24, 01	G-N (7')	7	Soil	ND	ND	ND	10	---	---	---	---	---	---
<b>MTCA Method A Cleanup Level for Soils and Groundwater:</b>			Soil Water				30 1.000	2,000 0.500	2,000 0.500	30 5	7,000 1,000	6,000 700	9,000 1,000

Results of analyses performed are as indicated. Dashes (---) in a cell indicate that this analysis was not performed.

"ND" indicates that analyte was not found by NWTPH-HCID.

**Bolded numbers** indicate values greater than the Model Toxics Control Act (MTCA) Method A Cleanup Level.

B = benzene, T = toluene, E = ethylbenzene, X = xylenes.

**TABLE II**  
**PETROLEUM RELATED HYDROCARBONS IN SOIL**  
**SUMMARY OF CHEMICAL ANALYSES**

**CAST HOUSE**  
**Alcoa Intalco Works**

Sample Date	Sample ID	Depth (Feet)	Soil or Water	NWTPH-HCID (mg/Kg)			NWTPH-DX (ppm)		EPA Method 8020 ppb			
				Gas	Diesel	Oil	Diesel	Oil	B	T	E	X
Aug. 1, 01	CH-D-WAT (10')	10	Water	---	---	---	<b>6.2</b>	ND	---	---	---	---
Aug. 1, 01	CH-D-B (11')	11	Soil	ND	ND	ND	---	---	---	---	---	---
Aug. 1, 01	CH-D-W (7')	7	Soil	ND	ND	ND	---	---	---	---	---	---
Aug. 1, 01	CH-D-S (7')	7	Soil	ND	ND	ND	---	---	---	---	---	---
Aug. 1, 01	CH-D--E (5'-7')	5-7	Soil	ND	ND	ND	---	---	---	---	---	---
Aug. 1, 01	CH-D-N (7')	7	Soil	ND	ND	ND	---	---	---	---	---	---
<b>MTCA Method A Cleanup Level for Soils and Groundwater:</b>			Soil				2,000	2,000	30	7,000	6,000	9,000
			Water				0.500	0.500	5	1,000	700	1,000

Results of analyses performed are as indicated. Dashes (---) in a cell indicate that this analysis was not performed.

“ND” indicates that analyte was not found by NWTPH-HCID.

**Bolded numbers** indicate values greater than the Model Toxics Control Act (MTCA) Method A Cleanup Level.

B = benzene, T = toluene, E = ethylbenzene, X = xylenes.



*Soil & Groundwater Analytical Tables--Alcoa Intalco Works*

mg/Kg = milligram per Kilogram which is equivalent to ppm = parts per million

ppm = parts per million

ug/L = microgram per Liter which is approximately equivalent to ppb = parts per billion

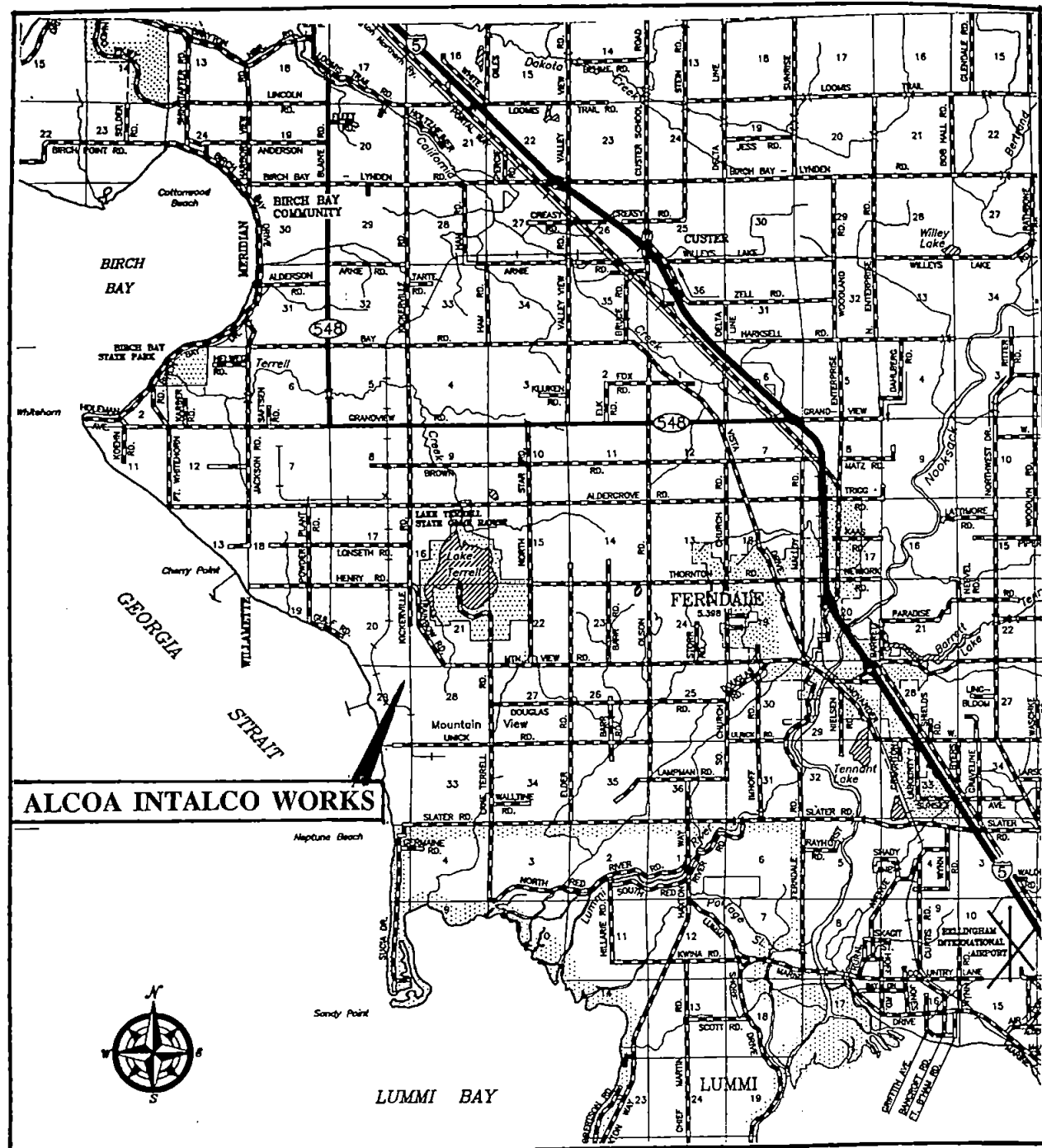
ppb = parts per billion

NWTPH = Northwest Total Petroleum Hydrocarbons [Department of Ecology (DOE) Adopted Methods]

NWTPH-HCID = Northwest TPH-Hydrocarbon Identification

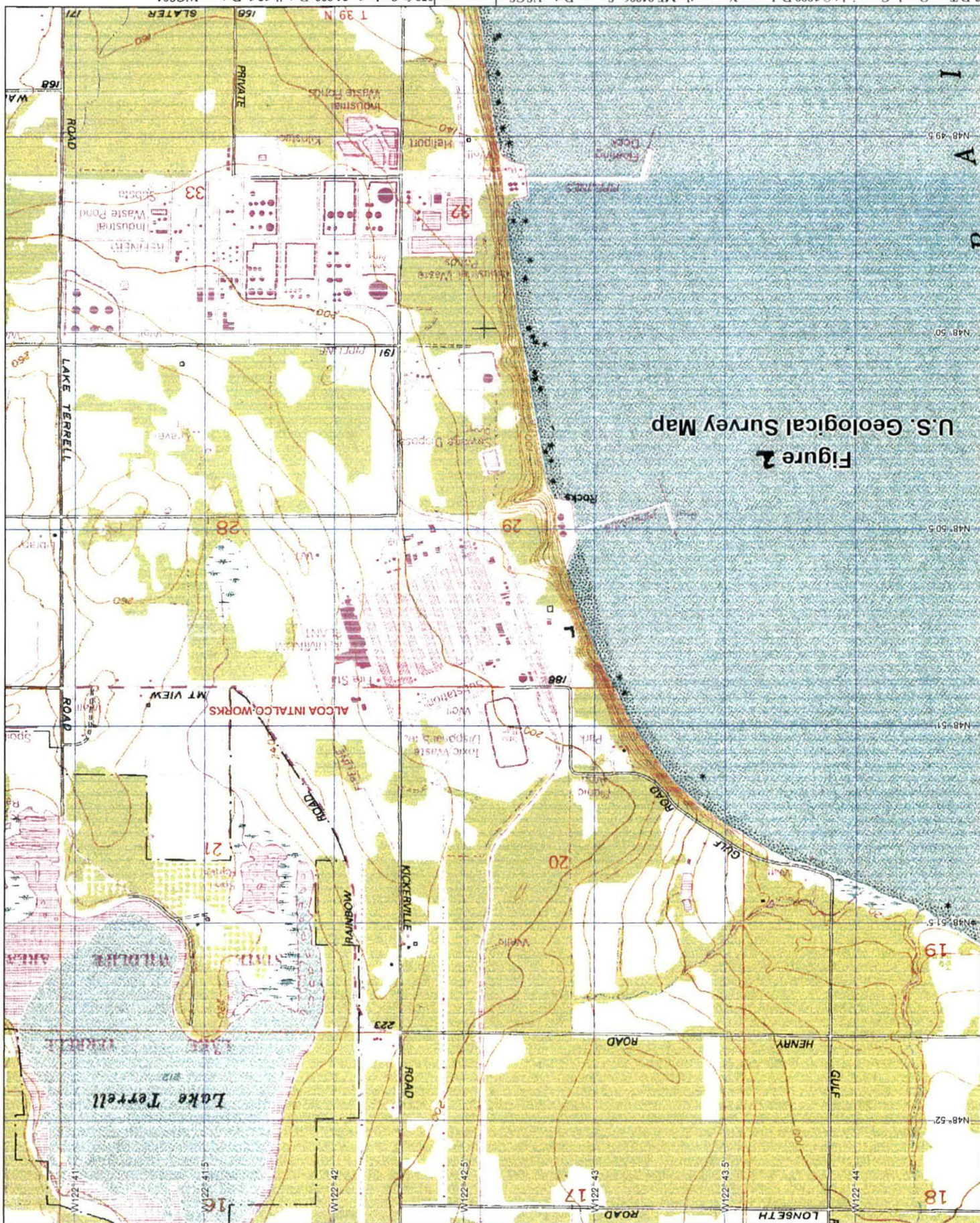
NWTPH-Gx = Northwest TPH Method for quantification of Gasoline Region hydrocarbons

NWTPH-DX = Northwest TPH Method for quantification of Diesel range and Heavy Oil range hydrocarbons



**Figure 1**  
**Vicinity Map**  
**Alcoa Intalco Works**  
**Ferndale WA 98248**

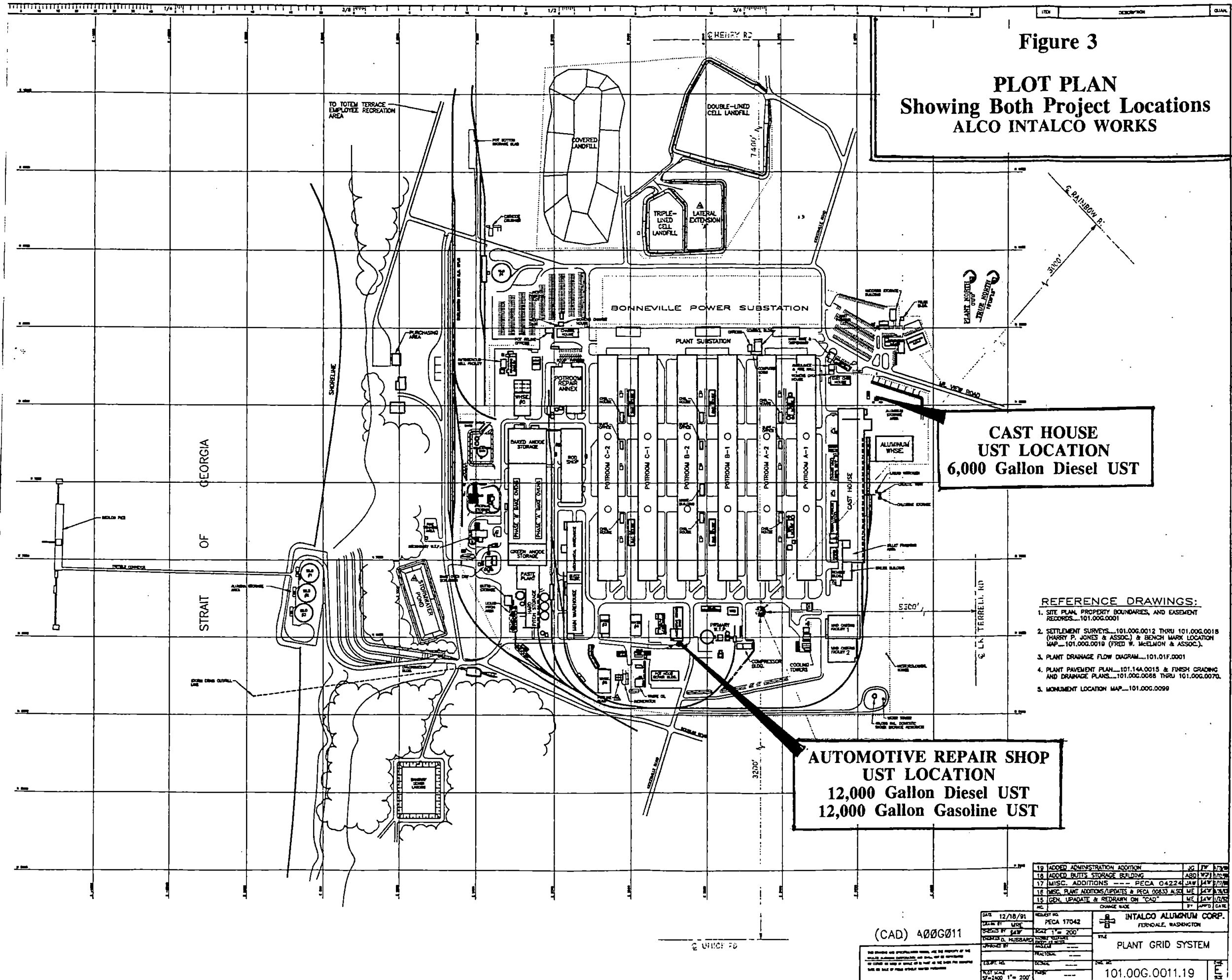




**Figure 2**  
U.S. Geological Survey Map



**Figure 3**  
**PLOT PLAN**  
**Showing Both Project Locations**  
**ALCO INTALCO WORKS**

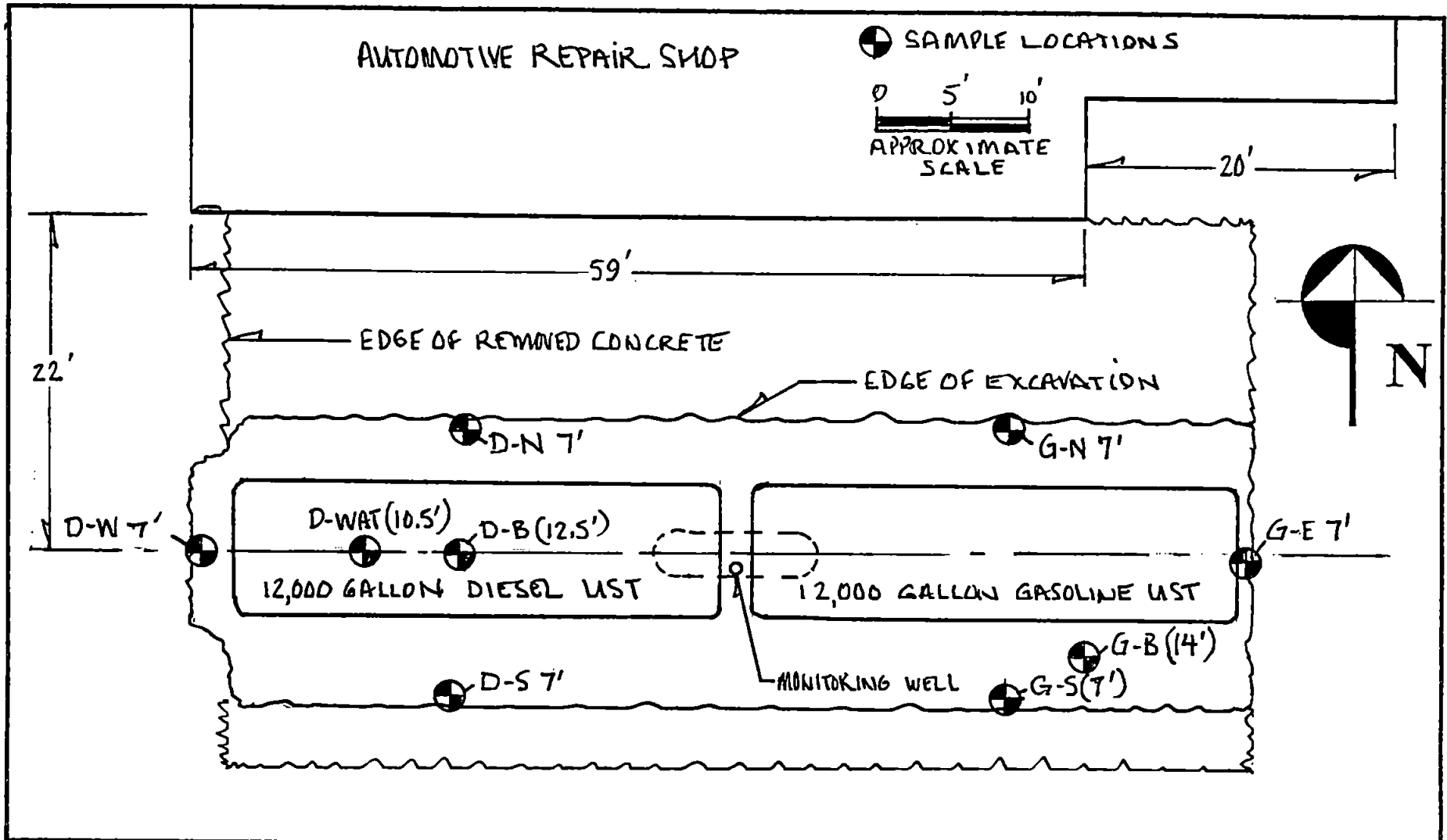


- REFERENCE DRAWINGS:**
1. SITE PLAN, PROPERTY BOUNDARIES, AND EASEMENT RECORDS...101.00G.0001
  2. SETTLEMENT SURVEYS...101.00G.0012 THRU 101.00G.0018 (HARRY P. JONES & ASSOC.) & BENCH MARK LOCATION MAP...101.00G.0019 (FRED W. McELMON & ASSOC.)
  3. PLANT DRAINAGE FLOW DIAGRAM...101.01F.0001
  4. PLANT PAVEMENT PLAN...101.14A.0015 & FINISH GRADING AND DRAINAGE PLANS...101.00G.0088 THRU 101.00G.0070
  5. MONUMENT LOCATION MAP...101.00G.0099

(CAD) 400G011

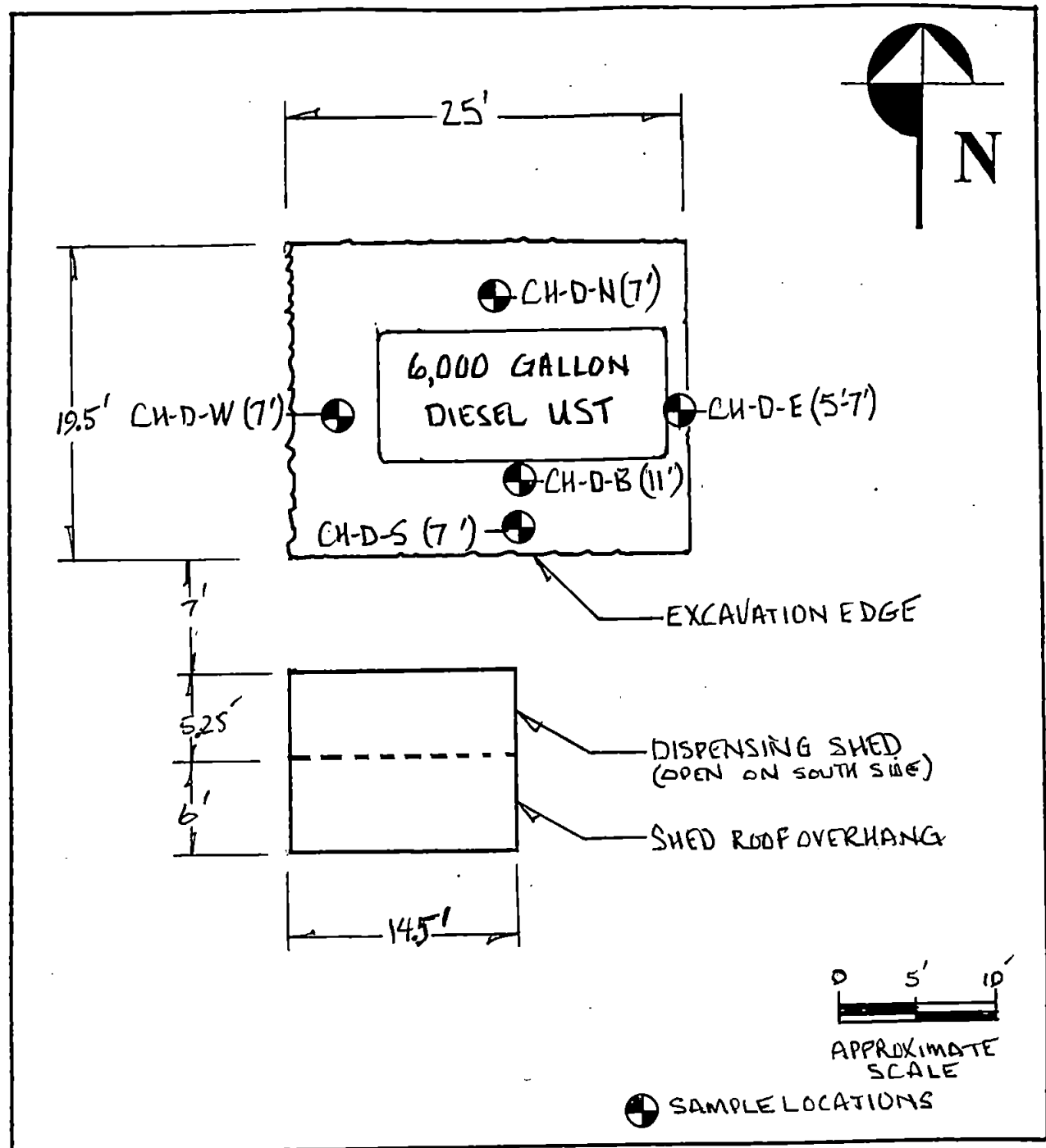
DATE	12/18/91	REVISION NO.	PECA 17042	INTALCO ALUMINUM CORP.
DRAWN BY	WHE	SCALE	1"=200'	FERRISDALE, WASHINGTON
CHECKED BY	WHE	PROJECT NO.	101.00G.0011.19	PLANT GRID SYSTEM
DESIGNED BY	WHE	PROJECT NAME		
APPROVED BY	WHE	PROJECT LOCATION		
DATE	12/18/91	PROJECT NO.	101.00G.0011.19	
PROJECT NAME		PROJECT LOCATION		
PROJECT NO.		PROJECT LOCATION		
PROJECT LOCATION		PROJECT LOCATION		





**Figure 4**  
**AUTOMOTIVE REPAIR SHOP**  
**UST EXCAVATION**

**WITH SOIL SAMPLING LOCATIONS**  
**12,000 Gallon Diesel UST**  
**12,000 Gallon Gasoline UST**  
**Alcoa Intalco Works**



**Figure 5**

**CAST HOUSE  
UST EXCAVATION  
WITH SOIL SAMPLING LOCATIONS  
6,000 Gallon Diesel UST  
Intalco Aluminum Corporation**





**Photo 1: Intalco Aluminum Corporation Main Entrance**



**Photo 2: Removing Concrete and Dispenser Island**





**Photo 3: Dispenser Island  
Pipes  
at Automotive Repair Shop**

**Photo 4: Excavating  
12,000 gallon  
Diesel UST**



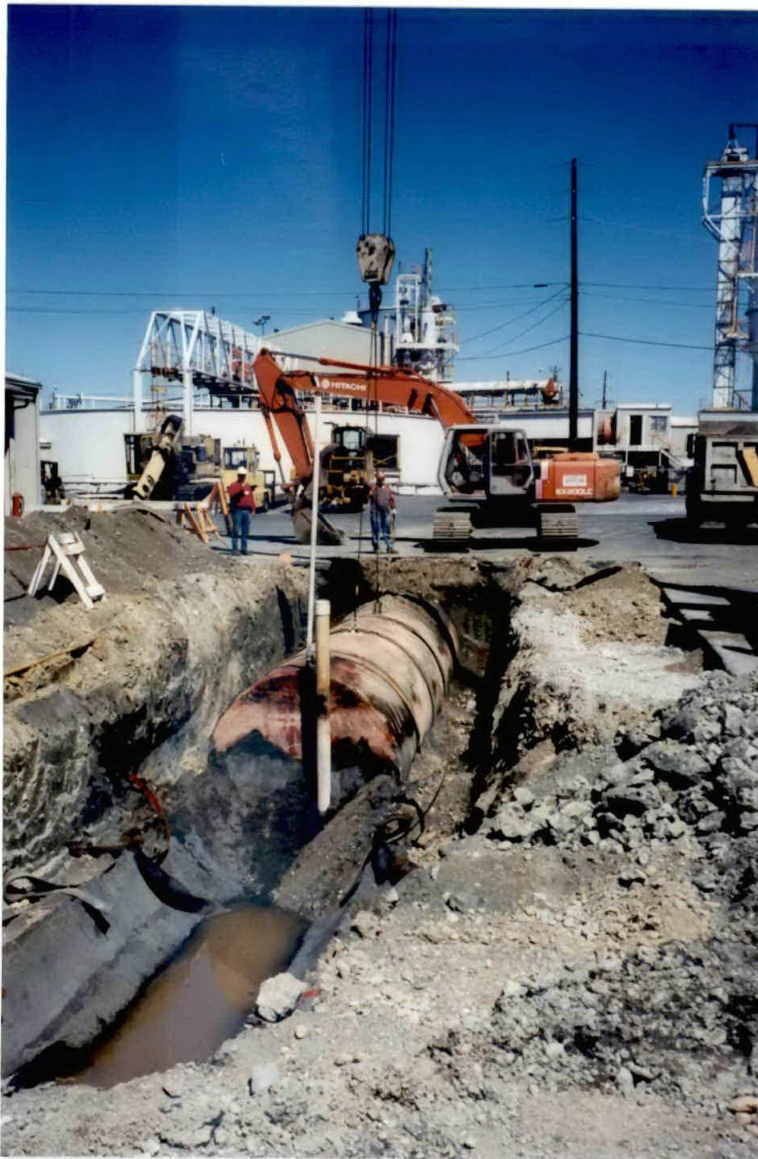




**Photo 5: Removing  
12,000 gallon  
Diesel UST**



**Photo 6: Loading  
12,000 gallon  
Diesel UST**



**Photo 7:**  
**Removing 12,000 gallon**  
**Gasoline UST**



**Photo 8: 12,000 gallon**  
**Gasoline UST Removed**





**Photo 9: Both Automotive Repair Shop USTs Loaded**



**Photo 10: Paved Over Automotive Repair Shop Excavation Site**



**Photo 11: Cast House Excavation Site**



**Photo 12: Cast House 6,000 gallon Diesel UST Removed**





**Photo 13: Dewater Rig and Pump at Cast House Location**



**Photo 14: Cast House Excavation with Diesel UST Removed**



**Photo 15: Paved Over Cast House Excavation Site**

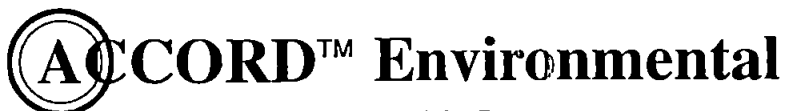


**Photo 16: Petroleum Contaminated Soil Stockpile**



## **APPENDIX**

### **A. ANALYTICAL REPORTS**



P.O. Box 144 / 107 E. Main St.  
Everson WA 98247 (360) 966-3004

Report # : 01075302

# CHAIN-OF-CUSTODY

## LABORATORY ANALYSIS REQUEST

Project Manager & Company: <b>JERRY PRIETTI: IMPERO CONSTRUCTION</b>	Phone #:
Address:	FAX #:
P. O. Number:	Project Name & Number: <b>ALCOA INTALCO WORKS</b>
Project Location:	Site Owner: <b>ALCOA INTALCO</b>
Sampler Name (Print): <b>ORION LANDLIDEN</b>	Sampler Signature: <i>Orion Landliden</i>

Lab #	Sample ID	Sampled		Matrix			WTPH - HClD	WTPH - G	WTPH - D	WTPH - 418.1 Mod.	BTEX	PAH	Other			RUSH
		Date	Time	Amt	Soil	Water										
25258	PCS-1(1')	7/24/01	08:30	805	X			X	X		X		(NOT SAMPLE)			
25259	D-WAT(10.5')		11:20	2-40ml		X		X	X		X					
25260	D-N (7')		11:30	805	X		X									
25261	D-W (7')		11:40	10			X									
25262	D-S (7')		11:45				X									
25263	D-B (12.5')		11:35				X									
25264	G-B (14')		15:25				X									
25265	G-S (7')		15:30				X									
25266	G-E (7')		15:35				X									
25267	G-N (7')		15:40				X									

Relinquished by: <i>Orion Landliden</i>	Date: 7/24/01	Time: 16:35	Received by: <i>[Signature]</i>	Remarks: Phone Results <input checked="" type="checkbox"/> Fax Results <input checked="" type="checkbox"/> FAX RESULTS TO (360) 715-3740. Page 1 of 1
Relinquished by:	Date:	Time:	Received by:	
Relinquished by:	Date: 7/25/01	Time: 3:00pm	Received by Laboratory: <i>STRA, C/char</i>	



## ANALYTICAL REPORT

July 27, 2001

Page 1 of 3

Prepared For: Accord Environmental  
Address: 4139 N Jade Pl.  
Bellingham, WA 98226  
Phone: (360)715-3740  
FAX: (360)715-3740

Project Name: Alcoa Intalco Works  
Project Location:  
Date Sampled: 7-24-01  
Date Received: 7-25-01  
Report Number 01075302

## NW-TPHGx

## Total Petroleum Hydrocarbons

Matrix : Soil in mg/Kg (ppm)	Date Analyzed: 7-25-01
<u>Sample I.D.</u>	<u>TPH-G</u> <u>Surrogate Recovery(%)</u>
25258 \ PCS-1 (1')	48 94
Lower Reporting Limit	20 -

## NW TPHDX

## Total Petroleum Hydrocarbons

Matrix : Soil in mg/Kg (ppm)	Date Analyzed: 7-25-01
<u>Sample I.D.</u>	<u>Diesel</u> <u>Heavy Oil</u> <u>Surrogate Recovery(%)</u>
25258 \ PCS-1 (1')	4,380 ND MI
Lower Reporting Limit	20 50 -

ND = Not Detected (below detection limit or reporting limit)

MI = Surrogate obscured by analyte

## BTEX(by EPA 8021B)

## Volatile Aromatic Hydrocarbons

Matrix : soil	Analyzed Date: 7-25-01				
Results in mg/Kg (ppm)					
<u>Sample I.D.</u>	<u>Benzene</u>	<u>Toluene</u>	<u>EthylBenzene</u>	<u>Xylenes</u>	<u>Surrogate Recovery (%)</u>
25258 \ PCS-1 (1')	0.03	ND	0.46	0.62	94
Reporting Limit	0.02	0.02	0.02	0.05	-

ND = Not detected ( below detection limit or reporting limits )



Cornelius Y. Chan Ph.D.

## ANALYTICAL REPORT

July 27, 2001

Page 2 of 3

Prepared For: Accord Environmental  
Address: 4139 N Jade Pl.  
Bellingham, WA 98226  
Phone: (360)715-3740  
FAX: (360)715-3740

Project Name: Alcoa Intalco Works  
Project Location:  
Date Sampled: 7-24-01  
Date Received: 7-25-01  
Report Number 01075302

**NW-TPHGx**Total Petroleum Hydrocarbons

Matrix : Water in ug/L (ppb)	Date Analyzed: 7-25-01
<u>Sample I.D.</u>	<u>TPH-G</u> <u>Surrogate Recovery(%)</u>
25259 \ D-WAT (10.5')	ND 97
Lower Reporting Limit	250 -

**NW TPHDX**Total Petroleum Hydrocarbons


Matrix : Water in ug/L (ppb)	Date Analyzed: 7-25-01
<u>Sample I.D.</u>	<u>Diesel</u> <u>Heavy Oil</u> <u>Surrogate Recovery(%)</u>
25259 \ D-WAT (10.5')	ND ND 77
Lower Reporting Limit	250 1000 -

ND = Not Detected (below detection limit or reporting limit)

**BTEX(by EPA 8021B)**Volatile Aromatic Hydrocarbons

Matrix : water	Date Analyzed: 7-25-01
Results in ug/L (ppb)	
<u>Sample I.D.</u>	<u>Benzene</u> <u>Toluene</u> <u>EthylBenzene</u> <u>Xylenes</u> <u>Surrogate Recovery(%)</u>
25259 \ D-WAT (10.5')	ND ND ND ND 97
Reporting Limit	1 1 1 3

ND = Not detected ( below detection limit or reporting limit )

  
Cornelius Y. Chan Ph.D.



## ANALYTICAL REPORT

July 27, 2001

Page 3 of 3

Prepared For: Accord Environmental  
Address: 4139 N Jade Pl.  
Bellingham, WA 98226  
Phone: (360)715-3740  
FAX: (360)715-3740

Project Name: Alcoa Intalco Works  
Project Location:  
Date Sampled: 7-24-01  
Date Received: 7-25-01  
Report Number 01075302

**NWTPH-HCID**Hydrocarbon Identification

Matrix :	Soil in mg/Kg			Date Analyzed:	7-25-01
<u>Sample I.D.</u>	<u>Gasoline</u>	<u>Diesel</u>	<u>Oil</u>	<u>Recovery Spike(%)</u>	
25260 \ D-N (7')	ND	ND	ND	112	
25261 \ D-W (7')	ND	ND	ND	113	
25262 \ D-S (7')	ND	ND	ND	111	
25263 \ D-B (12.5')	ND	ND	ND	111	
25264 \ G-B (14')	ND	ND	ND	113	
25265 \ G-S (7')	ND	ND	ND	114	
25266 \ G-E (7')	ND	ND	ND	112	
25267 \ G-N (7')	ND	ND	ND	109	
Lower Reporting Limit	20	50	100	-	


NO = Not Found by TPH-HCID

YES = Found by TPH-HCID

MI = Matrix Interference

**NW-TPHGx**Total Petroleum Hydrocarbons

Matrix :	Soil in mg/Kg (ppm)		Date Analyzed:
<u>Sample I.D.</u>	<u>TPH-G</u>	<u>Surrogate Recovery(%)</u>	
25267 \ G-N (7')	10	85	
Lower Reporting Limit	20	-	

  
\_\_\_\_\_  
Cornelius Y. Chan Ph.D.





## ANALYTICAL REPORT

Aug. 3. 2001

Page 1 of 1

Prepared For: Accord Environmental  
Address: 4139 N Jade Pl.  
Bellingham, WA 98226  
Phone: (360)715-3740  
FAX: (360)715-3740

Project Name: Alcoa Intalco Works  
Project Location: Ferndale WA  
Date Sampled: 8-1-01  
Date Received: 8-2-01  
Report Number: 01085382

**NW TPHDX**Total Petroleum Hydrocarbons

Matrix : Water in mg/L (ppm)	Date Analyzed: 8-3-01		
<u>Sample I.D.</u>	<u>Diesel</u>	<u>Heavy Oil</u>	<u>Surrogate Recovery(%)</u>
25505 \ CH-D-WAT(10')	6.2	ND	100
Lower Reporting Limit	0.3	1	-

ND = Not Detected (below detection limit or reporting limit)

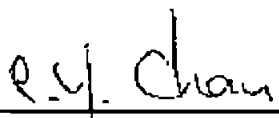
**NWTPH-HCID**Hydrocarbon Identification

Matrix : Soil in mg/Kg	Date Analyzed: 8-3-01			
<u>Sample I.D.</u>	<u>Gasoline</u>	<u>Diesel</u>	<u>Oil</u>	<u>Recovery Spike(%)</u>
25506 \ CH-D-B (11')	ND	ND	ND	100
25507 \ CH-D-W(7')	ND	ND	ND	104
25508 \ CH-D-S(7')	ND	ND	ND	98
25509 \ CH-D-E (5'-7')	ND	ND	ND	101
25510 \ CH-D-N (7')	ND	ND	ND	102
Lower Reporting Limit	20	50	100	-

NO = Not Found by TPH-HCID

YES = Found by TPH-HCID

MI = Matrix Interference

  
\_\_\_\_\_  
Cornelius Y. Chan Ph.D.

Run File : c:\saturnws\data\7-25-01\25258.run  
Method File : c:\saturnws\btexns.mth  
Sample ID : 25258

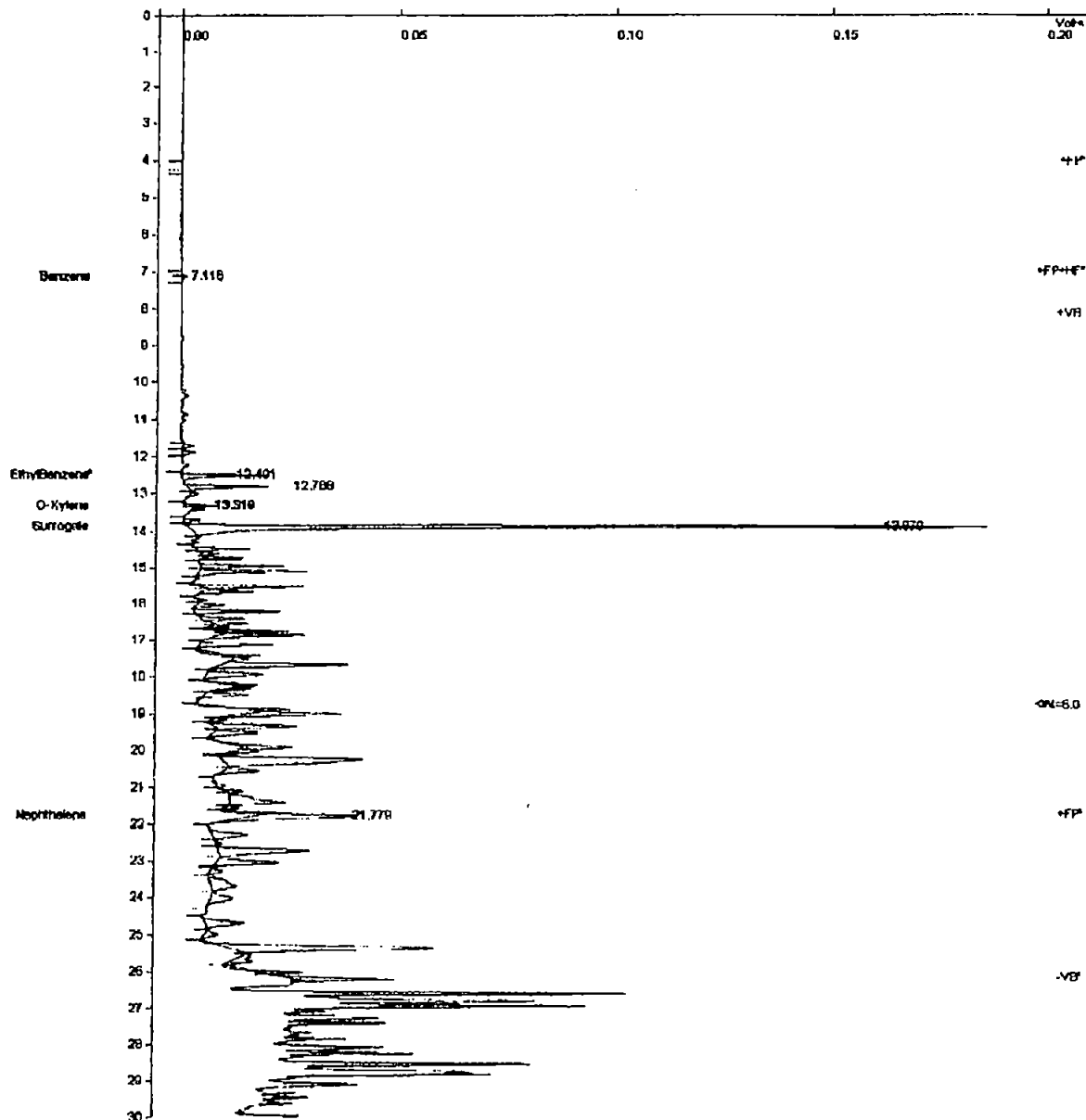
PCS-1(1')

Injection Date: 7/25/01 10:31 PM Calculation Date: 8/31/01 4:31 PM

Operator : MILA Detector Type: ADCB (1 Volt)  
Workstation: Bus Address : 16  
Instrument : Tracor Sample Rate : 10.00 Hz  
Channel : A = A Run Time : 30.002 min

\*\* Saturn GC/MS workstation Version 5.41 \*\* 00400-2161-783-41d0 \*\*

Chart Speed = 0.69 cm/min Attenuation = 879 Zero Offset = 2%  
Start Time = 0.000 min End Time = 30.002 min Min / Tick = 1.00





20  
30

Print Date: Fri Aug 31 16:31:55 2001

Page 1 of 1

Title :  
Run File : c:\saturnws\data\7 25 01\25258.run  
Method File : c:\saturnws\btexms.mth  
Sample ID : 25258

Injection Date: 7/25/01 10:31 PM Calculation Date: 8/31/01 4:31 PM

Operator : MILA Detector Type: AMKB (1 Volt)  
Workstation: Bus Address : 16  
Instrument : Tracor Sample Rate : 10.00 Hz  
Channel : A - A Run Time : 30.002 min

\*\* Saturn GC/MS Workstation Version 5.41 \*\* 00400-2161-783-41d0 \*\*

Run Mode : Analysis  
Peak Measurement: Peak Height  
Calculation Type: Percent

Peak No.	Peak Name	Result (s)	Ret. Time (min)	Time Offset (min)	Height (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Benzene	0.1267	7.116	-0.017	1058	BB	4.2	
2	EthylBenzene	2.3565	12.491	0.106	19666	BB	3.2	
3	m-p-Xylene	2.2118	12.788	0.104	18459	BB	3.4	
4	O Xylene	0.6725	13.319	0.105	5612	BB	3.2	
5	Surrogate	22.0400	13.870	-0.006	103935	BB	3.8	
6	Naphthalene	2.6496	21.779	0.060	22112	BB	5.5	
Totals:		30.0571		0.352	250842			

Total Unidentified Counts : 583707 counts

Detected Peaks: 62 Rejected Peaks: 1 Identified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 63 microVolts

Noise (used): 815 microVolts - monitored before this run

Manual injection

\*\*\*\*\*

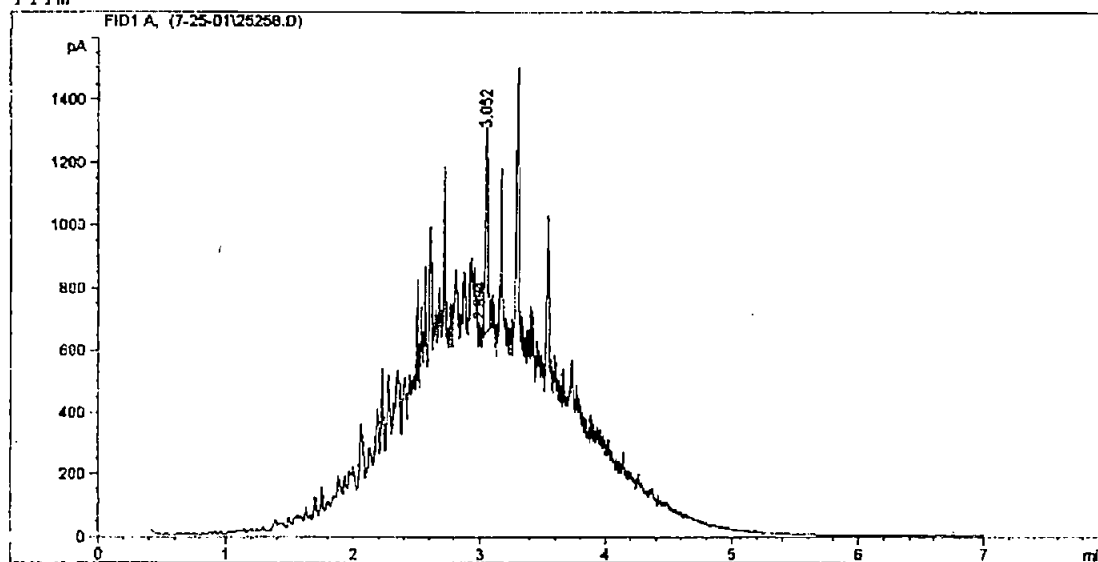
PLS-1 (1')

Sample Name: 25258

=====  
Injection Date : 7/25/01 5:55:51 PM      Seq. Line : 18  
Sample Name : 25258                      Vial : 23  
Acq. Operator : mila                      Inj : 1  
   Inj Volume : 2 µl

Acq. Method : C:\HPCHEM\1\METHODS\TPHD.M  
Last changed : 7/25/01 5:49:00 PM by mila  
   (modified after loading)  
Analysis Method : C:\HPCHEM\1\METHODS\TPHD.M  
Last changed : 8/31/01 4:41:48 PM by mila  
   (modified after loading)

8 minutes run TPHD HCID method. About 2-3 meter .2mm column with 0.33 µm film



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000

Signal 1: FID1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	2.994	HP	0.0108	38.10672	53.02863	3.65697
2	3.052	VBA	0.0240	1003.92322	637.95862	96.34303

Totals :                      1042.02993    690.98724

Results obtained with enhanced integrator!



Data File C:\HPCHEM\1\DATA\8-3-01\25505.D

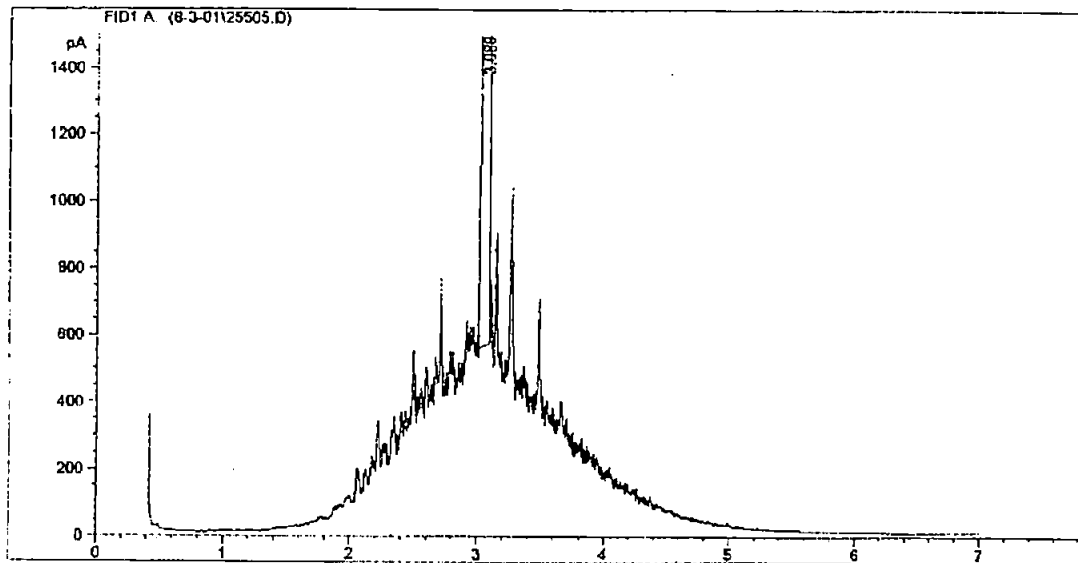
CH-D-WAT (10')

Sample Name: 2550

=====  
Injection Date : 8/4/01 9:07:16 AM Seq. Line : 10  
Sample Name : 25505 Vial : 48  
Acq. Operator : mila Inj : 1  
Inj Volume : 2 µl

Acq. Method : C:\HPCHEM\1\METHODS\TPHD.M  
Last changed : 7/9/01 11:33:43 AM by mila  
Analysis Method : C:\HPCHEM\1\METHODS\TPHD.M  
Last changed : 8/31/01 4:41:11 PM by mila  
(modified after loading)

8 minutes run TPHD HCID method. About 2-3 meter .2mm column with 0.33 µm film



=====  
Area Percent Report  
=====

Sorted By : Signal  
Multiplier : 1.0000  
Dilution : 1.0000

Signal 1: FID1 A,

Peak #	RetTime [min]	Type	Width [min]	Area [pA*s]	Height [pA]	Area %
1	3.089	PBAS	0.0331	1.76921e4	6905.95459	1.000e2

Totals : 1.76921e4 6905.95459

Results obtained with enhanced integrator!

=====  
\*\*\* End of Report \*\*\*

## **APPENDIX**

### **B. OTHER DOCUMENTS**





STATE OF  
WASHINGTON

# MASTER LICENSE SERVICE REGISTRATIONS AND LICENSES

UNIFIED BUSINESS ID #: 373 001 034  
BUSINESS ID #: 001  
LOCATION: 0001  
EXPIRES : 07-31-2001

ORGANIZATION TYPE  
FOREIGN PROFIT CORPORATION

INTALCO ALUMINUM CORPORATION  
INTALCO ALUMINUM CORP  
4050 MOUNTAIN VIEW RD  
FERNDAL WA 98248 0937

TAX REGISTRATION  
SCALE-INTERMEDIATE (7)  
UNEMPLOYMENT INSURANCE  
UNDERGROUND STORAGE TANKS (3):

INDUSTRIAL INSURANCE  
SCALE-LARGE (7)

3., 1., 2.

The above entity has been issued the business registrations or licenses listed  
DEPARTMENT OF LICENSING, BUSINESS & PROFESSIONS DIVISION,  
P.O. BOX 9034 OLYMPIA, WA 98507-9034 (360) 664-1400

*Paul Stephens*  
Director, Department of Licensing

0002409 AT

STATE OF WASHINGTON  
UBI NUMBER 373 001 034 001 0001 EXPIRATION DATE 07-31-2001

INTALCO ALUMINUM CORPORATION  
INTALCO ALUMINUM CORP  
4050 MOUNTAIN VIEW RD  
FERNDAL WA 98248 0937

TAX REGISTRATION  
SCALE-INTERMEDIATE (7)  
UNEMPLOYMENT INSURANCE  
UNDERGROUND STORAGE TANKS (3):  
INDUSTRIAL INSURANCE  
SCALE-LARGE (7)



*Paul Stephens*  
Director, Department of Licensing

DETACH THIS SECTION FOR YOUR WALLET



# UNDERGROUND STORAGE TANK

## 30 DAY NOTICE

See back of form for instructions

Please ☒ the appropriate box

☐ Intent  
to Install

☒ Intent  
to Close

For Office Use Only

Owner # \_\_\_\_\_

Site # \_\_\_\_\_

☐ Both

### SITE INFORMATION:

Site ID Number (on invoice or available from Ecology if the tank is registered): 373 001 034

Site/Business Name: Alcoa Intalco Works (Formerly: Intalco Aluminum Corporation)

Site Address: 4050 Mountain View Road

Owner/Operator

Telephone: (360) 384-7307

Ferndale WA 98248

City

State

ZIP-Code

### TANK INFORMATION:

#### TANKS TO BE CLOSED

This section to be filled out ONLY if tanks are being removed

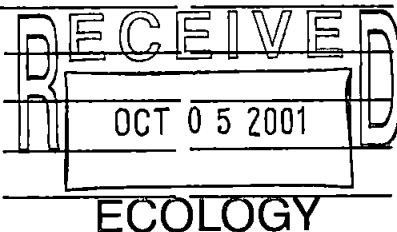
Tank ID	Projected Closure Date	Tank Capacity	Substance Stored	Date tank last used	Is there product in the tank? (yes/no)	If no, date tank was pumped
03	7/24/01	12,000g.	Diesel	7/01	NO	7/01
02	7/24/01	12,000 g.	Gasoline	7/01	NO	7/01
01	8/01/01	6,000 g.	Diesel	7/01	NO	7/01

#### TANKS TO BE INSTALLED

This section to be filled out ONLY  
if tanks are being installed

Tank ID

Approx.  
Install Date



### TANK INSTALLATION TO BE PERFORMED BY (if known):

This section to be filled out ONLY if tanks are being installed

Service Provider: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Telephone: (\_\_\_\_) \_\_\_\_\_

Address: \_\_\_\_\_

Street

P.O. Box

City

State

ZIP-Code

### TANK PERMANENT CLOSURE TO BE PERFORMED BY (if known):

This section to be filled out ONLY if tanks are being removed

Service Provider: W. L. REPAIR INC. (S000281)

Contact Name: 959 W. Laurel Road

Telephone: (\_\_\_\_) Ferndale WA 98248

Address: RALPH WITLAND

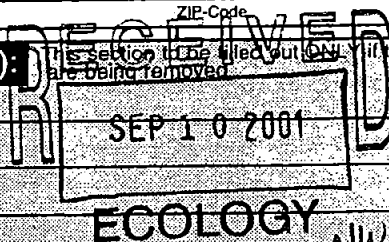
Street

P.O. Box

(360) 384-4678

State

ZIP-Code



This form will be returned to this address

UST OWNER/  
OPERATOR Alcoa Intalco C/o Monty Ecalbarger

MAILING  
ADDRESS P.O. Box 936 Project Manager

Street

Ferndale WA 98248

City

State

ZIP-Code

Once validated by Ecology, this form serves as your  
temporary permit for the tanks listed above.

Please type or print information

ECY 020-33





**WHATCOM COUNTY  
PLANNING & DEVELOPMENT SERVICES  
GROUND TANK PERMIT**

5280 NORTHWEST RD, SUITE B BELLINGHAM, WA 98226



**FIRE MARSHAL INSPECTION  
BY APPOINTMENT ONLY  
PHONE: 360-676-6907**

**24-HOUR NOTICE FOR INSPECTION REQUIRED**

**IMPERO CONTRACTING  
1971 MIDWAY LN SUITE N  
BELLINGHAM, WA 98226**

**PROPERTY OWNER  
ALCOA INTAL CO WORKS  
PO BOX 936  
FERNDAL, WA 98248**

**CONTRACTOR  
W.L. REPAIR LLC  
WLREPL\*022OK  
959 W LAUREL RD  
FERNDAL, WA 98248**

**PERMIT NO: GTK2001-00011**

**ISSUED: May 07, 2001**

**SITE ADDRESS: 4050 MOUNTAIN VIEW RD**

**TAX PARCEL NO: 3901294083250000**

**PROJECT DESCRIPTION: RETROFIT COMMERCIAL UNDERGROUND-REMOVAL 2 6000 GL/1  
12,000 GL TANKS**

**CONDITIONS OF APPROVAL**

The issuing of this permit shall not be construed as approval of any violation on any applicable code or ordinance. The issuance of this permit is based upon review and approval of plans submitted and shall not prevent the Building Official or appointed deputies from thereafter requiring the correction of errors.

Requests for inspections are to be filed with Whatcom County Planning and Development Building Services Division at least one working day before inspection is desired. (UBC Sec 108.3)

**PERMIT APPROVAL**

Approved to construct, subject to field inspections, special inspections, corrections and provisions of plan review.

**ISSUING STATEMENT**

Any deviation in construction from approved plans requires prior review and approval by Whatcom County Planning and Development Building Services and Land Use Departments.

The issuing of this permit shall not be construed as approval of any violation of any applicable code or ordinance. The issuance of this permit is based upon review and approval of plans submitted and shall not prevent the Building Official or appointed deputies from thereafter requiring the correction of errors.

**UNIFORM FIRE CODE**

A copy of the Site Assessment Report shall be provided to the Whatcom County Fire Marshal.

**INSPECTION REQUIREMENT**

To request for Fire Marshal Inspection call the Whatcom County Planning and Development Services Building Services Division at least one working day before such inspection is desired. (UBC Sec. 108.3)

**SIGNATURE:**

**DATE:**

5-7-01

PHONE: (360) 676-6907

COUNTY LINE: (360) 380-8100

FAX: (360) 738-2525

WEB SITE: [www.co.whatcom.wa.us](http://www.co.whatcom.wa.us)

**INSPECTIONS**

FOR OFFICIAL USE ONLY

**FIRE MARSHAL INSPECTION:**

**FINAL INSPECTION:**



**PERMIT EXPIRES IF WORK AUTHORIZED HEREIN HAS NOT COMMENCED WITHIN  
180 DAYS OR IF 180 DAYS HAS LAPSED SINCE LAST INSPECTION.  
GROUND TANK PERMITS REQUIRE A FINAL INSPECTION**

**SIGNATURE:** \_\_\_\_\_

**DATE:** \_\_\_\_\_





# UNDERGROUND STORAGE TANK TEMPORARY/PERMANENT CLOSURE and SITE ASSESSMENT NOTICE

See back of form for instructions  
Please ☒ the appropriate box(es)  
Please type or print information

For Office Use Only	
Owner #	
Site #	

☐ Temporary Tank Closure ☒ Permanent Tank Closure ☐ Change-In-Service ☒ Site Assessment/ Site Check

## SITE INFORMATION:

Site ID Number (on invoice or available from Ecology if the tanks are registered): 373 001 034  
Site/Business Name: Alcoa Intalco Works (Formerly: Intalco Aluminum Corporation)  
Site Address: 4050 Mountain View Road Telephone: (360) 384-7307  
Ferndale WA 98248-0937  
City State ZIP-Code

## TANK INFORMATION:

Tank ID	Closure Date	Tank Capacity	Substance Stored
03	7/10/01	12,000 gallons	Diesel
02	7/10/01	12,000 gallons	Gasoline
01	8/01/01	6,000 gallons	Diesel

## CONTAMINATION PRESENT AT THE TIME OF CLOSURE

☒ Yes ☐ No



Unknown

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

## UST SYSTEM OWNER/OPERATOR:

UST Owner/Operator: Alcoa Intalco Works  
Owners Signature: Eric Chan Telephone: (360) 384-7307 7442  
Address: P.O. Box 9367  
Ferndale WA 98248  
City State ZIP-Code

## TANK CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

Service Provider: W. L. Repair License Number: (S000281)WLREPL\*0220K  
Licensed Supervisor: Ralph Wieland Decommissioning License Number: FSD NO. 1039577-26  
Supervisors Signature: Ralph Wieland ASI NO. 32004506  
Address: 959 W. Laurel  
Ferndale WA 98248  
Telephone: (360) 384-4678  
City State ZIP-Code

## SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Name of Registered Site Assessor: Orion Landden  
Telephone: (360) 715-3740  
Address: 4139 N. Jade Place  
Bellingham WA 98226  
City State ZIP-Code

PLEASE READ CAREFULLY

## INSTRUCTIONS

This form is to be completed by the Tank Owner and submitted to Ecology within 30 days of tank closure.

Mark the appropriate box(es) for temporary tank closure, permanent tank closure, change-in-service, or site assessment.

**Permanent Closure and Change-in-Service require a site assessment be performed.**

## SITE INFORMATION:

Fill in the site information. Be sure to include the Ecology site ID number. This number may be found on the invoice or permit. Include a contact telephone number so any problems may be resolved quickly.

## TANK INFORMATION:

List the tanks that were closed. Please use tank ID numbers and indicate the date of permanent closure. Be sure to attach your Underground Storage Tank Permits for any tanks that are now closed.

## UST SYSTEM OWNER/OPERATOR:

Please fill in the owner's/operator's name, address, and telephone number. **Be sure to sign this form.**

## TANK CLOSURE/CHANGE-IN-SERVICE PERFORMED BY:

List the closure company. Companies that provide UST services **MUST** be licensed by Ecology. Ask to see their supervisor's license. Make sure the licensed supervisor signs this form.

## SITE CHECK/SITE ASSESSMENT CONDUCTED BY:

Fill in the site assessor information for permanent closure or change-in-service. Mark the appropriate box showing whether contamination from the underground tank(s) was or is present at the site. A site check/site assessment **MUST** be conducted by a site assessor who is registered with Ecology.

If contamination at the site is found or suspected, the appropriate Ecology Regional Office must be notified within 24 hours. If the contamination is confirmed, a site characterization report must be submitted to the regional office within 90 days. If contamination is not confirmed, a site assessment report must be submitted to the above address within 30 days.

Tanks exempt from notification requirements are:

*Farm or residential tanks, 1100 gallons or less, used to store motor fuel for personal or farm use only. The fuel must not be for resale or used for business purposes.*

*Tanks used for storing heating oil that is used on the premises where the tank is located.*

*Tanks with a capacity of 110 gallons or less.*

*Equipment or machinery tanks such as hydraulic lifts or electrical equipment tanks.*

*Emergency overflow tanks, catch basins, or sumps.*

Return this completed form to:

### Underground Storage Tank Section

Department of Ecology

P. O. Box 47655

Olympia, WA 98504-7655

**For more information call toll free in the state of Washington  
1-800-826-7716 or (206) 438-7137**



# UNDERGROUND STORAGE TANK Site Check/Site Assessment Checklist

For Office Use Only

Owner # \_\_\_\_\_

Site # \_\_\_\_\_

## INSTRUCTIONS:

When a release has **not** been confirmed and reported, this Site Check/Site Assessment Checklist must be completed and signed by a person registered with the Department of Ecology. **The results of the site check or site assessment must be included with this checklist.** This form must be submitted to Ecology at the address shown below within 30 days after completion of the site check/site assessment.

**SITE INFORMATION:** Include the Ecology site ID number if the tanks are registered with Ecology. This number may be found on the tank owner's invoice or tank permit.

**TANK INFORMATION:** Please list all the tanks for which the site check and site assessment is being conducted. Use the tank ID number if available, and indicate tank capacity and substance stored.

**REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT:** Please check the appropriate item.

**CHECKLIST:** Please initial each item in the appropriate box.

**SITE ASSESSOR INFORMATION:** This form must be signed by the registered site assessor who is responsible for conducting the site check/site assessment.

Underground Storage Tank Section  
Department of Ecology  
P. O. Box 47655  
Olympia, WA 98504-7655

## SITE INFORMATION

Site ID Number (on invoice or available from Ecology if the tanks are registered): 373 001 034

Site/Business Name: Alcoa Intalco Works

Site Address: 4050 Mountain View Rd. Telephone: (360) 384-7307  
Street  
Ferndale WA 98248

City

State

ZIP-Code

## TANK INFORMATION

Tank ID No.	Tank Capacity	Substance Stored
<u>03</u>	<u>12,000 gallons</u>	<u>Diesel</u>
<u>02</u>	<u>12,000 gallons</u>	<u>Gasoline</u>
<u>01</u>	<u>6,000 gallons</u>	<u>Diesel</u>

## 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.
- ☐ Abandoned tank containing product.
- ☐ Required by Ecology or delegated agency for UST system closed before 12/22/88.
- ☐ 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.	The location of the UST site is shown on the vicinity map.	XX	
2.	A brief summary of information obtained during the site inspection is provided. (see Section 3.2 in the Site Assessment Guidance)	XX	
3.	A summary of UST system data is provided. (see Section 3.1)	XX	
4.	The soils characteristics at the UST site are described. (see Section 5.2)	XX	
5.	Is there apparent groundwater in the tank excavation?	XX	
6.	A brief description of the surrounding land is provided. (see Section 3.1)	XX	
7.	Information has been provided indicating the number and types of samples collected, methods used to collect and analyze the samples, and the name and address of the laboratory used to perform the analyses.	XX	
8.	A sketch or sketches showing the following items is provided:		
	- location and ID number for all field samples collected	XX	
	- groundwater samples distinguished from soil samples (if applicable)	XX	
	- samples collected from stockpiled excavated soil	XX	
	- tank and piping locations and limits of excavation pit	XX	
	- adjacent structures and streets	XX	
	- approximate locations of any on-site and nearby utilities	XX	
9.	If sampling procedures different from those specified in the guidance were used, has justification for using these alternative sampling procedures been provided? (see Section 3.4)	XX	
10.	A table is provided showing laboratory results for each sample collected including: sample ID number, constituents analyzed for and corresponding concentration, analytical method and detection limit for that method.	XX	
11.	Any factors that may have compromised the quality of the data or validity of the results are described.	XX	
12.	<i>The results of this site check/site assessment indicate that a confirmed release of regulated substance has occurred.</i>	XX	

**SITE ASSESSOR INFORMATION**

<u>Orion Landden</u>		<u>Accord Environmental</u>	
PERSON REGISTERED WITH ECOLOGY		FIRM AFFILIATED WITH	
BUSINESS ADDRESS: <u>4139 N. Jade Place</u>		TELEPHONE: <u>(360) 715-3740</u>	
<u>Bellingham WA 98226</u>			
CITY	STATE	ZIP+CODE	
<i>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.</i>			
<u>September 14, 2001</u>		<u>Orion Landden</u>	
Date		Signature of Person Registered with Ecology	



# Independent Remedial Action Report Summary

This report summary is an important part of the Independent Remedial Action Report. Please complete the summary and submit it with your Independent Remedial Action Report. If this document does not accompany your cleanup report, or if it is not fully completed, your report cannot enter the review process necessary for Ecology to provide you with a "no further action" determination, or to remove your site from the hazardous sites lists.

FOR ECOLOGY USE ONLY		
ERTS No.	TCP I.D. No.	Date Received
LUST No.	U.B.I. No.	Initial Investigation (Date)
Reviewed by		<input type="checkbox"/> NFA <input type="checkbox"/> SHA Referral <input type="checkbox"/> Interim Action <input type="checkbox"/> Emergency Action

PLEASE PRINT CLEARLY OR TYPE

## GENERAL INFORMATION

Name of Site Owner	Alcoa Intalco Works	Phone	(360) 676-9920
Address	(800) 916-9920		
Street	4050 Mountain View Road	State/Province	Ferndale WA 98248
Authorized Contact	Monty Ecalbarger, Project Manager	Phone	(360) 384-7307
Name of Facility Operator	Alcoa Intalco Works	Phone	(360)
Address	P.O. Box 936 Ferndale WA 98248		
Street	State Zip		
Authorized Contact	Phone		
Name of Consultant	Orion Landden	Phone	(360) 715-3740
Name of Firm	Accord Environmental		
Address	4139 N. Jade Place Bellingham WA 98226		
Street	State Zip		
Please indicate which of the above persons completed this report. If the report was completed by someone other than listed above, please provide their name, address, and a daytime phone.			
Orion Landden (360) 715-3740			

## REPORT INFORMATION

Type of Report (check one)	Is this a Leaking Underground Storage Tank (LUST) report?
<input checked="" type="checkbox"/> Combined release and independent remedial action report	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<input type="checkbox"/> Independent remedial action report	Date release was reported to Ecology INCIDENT #
<input checked="" type="checkbox"/> Interim Action Report	September 12, 2001 NS21047
<input type="checkbox"/> Final Cleanup Action Report	Date cleanup was completed
	Soil remediation in process.

# **FACILITY INFORMATION**

<b>Site Name</b> Alcoa Intalco Works			
<b>Other Names (the site may be known as)</b> Intalco Aluminum Corporation, Intalco			
<b>Site Contact Person If Other Than Owner/Operator</b> (This must be a person who is on-site during normal working hours and is authorized and qualified to answer questions about the site, or a person who is available during normal business hours and has knowledge about the site and the remediation.) Name _____ Phone _____			
<b>Site Mailing Address (or site contact mailing address)</b> P.O. Box 936 Ferndale WA 98248			
<b>Site Location Address (including zip code)</b> 4050 Mountain View Road Ferndale WA 98248			
<b>Closest City</b> Ferndale		<b>County (where site is located)</b> Whatcom	
<b>Township</b> 39N <b>Range</b> 01E <b>Section</b> 28 & 29 <b>Quarter-Quarter</b> _____ <b>Meridian</b> _____ <b>Longitude:</b> _____ <b>Degree</b> W122 <b>Minute</b> 42.3 <b>Second</b> _____ <b>Latitude:</b> _____ <b>Degree</b> N48 <b>Minute</b> 50.6 <b>Second</b> _____			
<b>Ownership and Operator Type</b> Complete the table below by checking the appropriate box to identify the type of owner and operator for the facility. (For example, if the property owner is a port district and the operator a private individual, then check the boxes under owner identification column in the municipal, code #2 row, and under the operator identification column in the private party, code #1 row.)			
<b>Ownership/Operator Type</b>	<b>Code #</b>	<b>Owner Identification</b>	<b>Operator Identification</b>
Private Party	1	XXXX	XXXX
Municipal (Public)	2		
County	3		
Federal	4		
State	5		
Tribal	6		
Mixed	7		
Other	8		
Unknown	9		
Public Entity Acquisition through Bankruptcy	10		
Financial Institution Acquisition through Bankruptcy	11		
<b>Standard Industrial Classification (SIC) Codes.</b> List all that apply. If none apply, or if you don't know your SIC code, list activities conducted at the site, e.g., automotive repair and maintenance, construction equipment storage, etc.  SIC 3334 Aluminum ingots & primary production shapes			
<b>Hazardous Substance Management Practice(s).</b> The hazardous substance(s) cleaned up from the site was the result of which of the following sources, activities, or actions? Please circle all that apply to the facility.			
1 = Drug Lab 2 = Drum 3 = A Leaking Impoundment 4 = Improper Handling	5 = Landfill 6 = Land application 7 = Pesticide application 8 = Pesticide Disposal	9 = A Spill 10 = Storm Drain 11 = Leaking Tank: a - below ground b - above ground 12 = Unknown	



# RELEASE INFORMATION

Date of Release (If known) Unknown		Date of Discovery July 27, 2001		Are there any drinking water systems affected? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> XXX Unknown <input type="checkbox"/>				
If drinking water systems are affected, are the systems public, private, or both? (circle one)			If drinking water systems are affected, has alternate drinking water been provided? Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/>					
General Hazardous Substance Categories Using the contaminants listed below, complete the table. (A more detailed description of the contaminants can be found in Appendix A of the guidance.)								
Contaminants. For each of the applicable contaminants, enter the appropriate letter designating the status of the contaminants: C = Confirmed or S = Suspected (Contaminant status definitions are defined in Appendix A of the guidance.)				Affected Media				
				Ground Water	Surface Water	Drinking Water	Soil	Air
1.	Halogenated Organic Compounds							
2.	Metals - Priority Pollutants							
3.	Metals - Other							
4.	Polychlorinated Bi-Phenyls (PCBs)							
5.	Pesticides/Herbicides							
6.	Unleaded Gas						XXX	
	Leaded Gas							
	Diesel			XXX			XXX	
	Waste Oil							
	Heat Fuel							
	Other (Specify)							
7.	Phenolic Compounds							
8.	Non-Halogenated Solvents							
9.	Dioxins							
10.	Polynuclear Aromatic Hydrocarbons (PAHs)							
11.	Reactive Wastes							
12.	Corrosive Wastes							
13.	Radioactive Wastes							
14.	Conventional Contaminants Organics							
15.	Conventional Contaminants Inorganics							
16.	Base/Neutral Organic Compounds							
17.	Asbestos							

## CLEANUP INFORMATION

Indicate cleanup level methods used by completing Table 5-A below. (Check all that apply)

TABLE 5-A		Soil	Ground Water	Air	Surface Water
Method	A	XXXX	XXXX		
	B				
	C				
Have these levels been met throughout the site? (circle only one)		YES <input checked="" type="radio"/> NO	YES <input checked="" type="radio"/> NO	YES <input type="radio"/> NO	YES <input type="radio"/> NO

# CLEANUP INFORMATION (continued)

Indicate the treatment methods used by completing Tables 5-B through 5-D below. (Check all that apply)

TABLE 5-B							
	Destruction or Detoxification				Media Transfer		
	Carbon Adsorption <sup>1</sup>	Biological Treatment	Chemical Destruction	Incineration	Air Stripping/ Air Sparging	Aeration/Vapor Extraction	Thermal Desorption
Soil	-NA-	XXXX			-NA-	XXXX	
Ground Water	XXXX			-NA-	XXXX	-NA-	-NA-
Surface Water				-NA-		-NA-	-NA-
Air		-NA-				-NA-	
Wastes	-NA-				-NA-	-NA-	-NA-
<sup>1</sup> Carbon followed by regeneration; use of granular activated carbon followed by landfilling would be classified in these tables as volume reduction and off-site landfill.							

TABLE 5-C						
	Immobilization		Reuse/Recycling <sup>2</sup>	Separation/Volume Reduction		
	Vitrification	Solidification/ Stabilization	Specify	Solvent Extraction	Soil Washing	Physical Separation <sup>3</sup>
Soil						
Ground Water	-NA-	-NA-		-NA-	-NA-	
Surface Water	-NA-	-NA-		-NA-	-NA-	
Wastes						
<sup>2</sup> For example, reuse of free petroleum product recovered in a pump and treat system.						
<sup>3</sup> For example, oil/water separators.						

TABLE 5-D				
	Land Disposal/Containment		Institutional Controls	Others
	Containment or On-site Landfill	Off-site Landfill	Specify	Specify treatment method
Soil	XXXX			
Ground Water		-NA-		
Surface Water	-NA-	-NA-		Onsite treatment
Wastes				

## LUST SITE INFORMATION

Was free product encountered: on ground water? Yes ☐ No ☒ In excavation? Yes ☐ No ☒

Tank Description			Tank Status (Y or N)		
Tank ID	Product	Size	In Place?	Removed?	Closed in Place?
03	Diesel	12,000 gals.		XXXX	
02	Gasoline	12,000 gals.		XXXXX	
01	Diesel	6,000 gals.		XXXX	

## ENVIRONMENTAL INDICATORS

Answer the following questions as they are applicable to your site:

How many cubic yards of soil have been treated? <u>444</u> LCY	Where soil treatment was conducted, was it done <u>on-site</u> , off-site, or both? (circle one)	How many cubic yards of soil have been disposed of off-site? _____ (Calculate these quantities of soil while the soil is in place, prior to any excavation and/or treatment.)
Provide the name and address of the facility where soil was treated off-site. Name _____ Address _____ State/Zip _____		If ground water pump and treatment was conducted, how many gallons of ground water have been treated to date? <u>18,000</u> gals.
Provide the name and address of the facility where soil was disposed. Name _____ Address _____ State/Zip _____		How many years is the ground water extraction system expected to continue in operation? _____ yrs.

## **SAMPLE QUALITY ASSURANCE / QUALITY CONTROL**

### **DOCUMENTATION OF FIELD ACTIVITIES:**

A field log book will be used to record daily events, observations, field measurements, and other applicable information. All entries will be in ink and dated. Photographs will be taken of operational activities, equipment, and physical characteristics at the site.

### **BORING LOGS:**

A boring log will be kept on each boring. That log will contain the following information: Unique identifier for the boring; date; depth; sample depth and unique identifier; soils description; depth water encountered if it is encountered; results of field screening techniques.

### **DECONTAMINATION PROCEDURES:**

Prevention of personnel's ingestion and absorption of contaminants is the first objective. The next objective is ensuring the collection of representative samples and to prevent the spread of contamination. Personnel, sampling equipment, and shipping containers holding the empty sample containers will be decontaminated prior to and after sample collection. Latex gloves will be used during sample collection. Personnel will use a soap (Joy dish washing detergent) and water wash with a brush and a water rinse for themselves and then on equipment as this becomes necessary to prevent spread of contamination and cross contamination of samples. Organic solvents will be used as required for concentrated petroleum-contamination of sampling equipment.

New and clean paper towels will be carried during the sampling effort to assist in maintaining uncontaminated equipment and preventing spread of contamination.

Decontamination wash water and rinsate will be collected in a 50 gallon plastic barrel and disposed of properly. Contaminated disposable gloves, paper towels, and rags will be stored in heavy duty black plastic garbage sacks and then disposed of properly.

### **BORING EQUIPMENT:**

The main boring equipment used will be a Art's Manufacturing & Supply (AMS) 3-1/4 inch stainless steel regular and sand augers with 4 foot stainless steel extension bars. A 2 inch by 6 inch core sampler with a slide hammer impact tool will be used where cross contamination from upper levels of the bore hole becomes an issue. A split post hole digger and pick and shovel would help start the boring.

The drilling rig soil borings, if any, will be drilled with a small bore 2 inch hollow stem auger. Some circumstances may dictate the use of a 6 inch hollow stem auger with a 3 inch outside diameter split spoon sampler using a 300 pound hammer.

### **SAMPLING TOOLS:**

Samples will be taken with washed and rinsed stainless steel sampling spoons, stainless steel augers, and core samplers.



### **SAMPLE CONTAINERS:**

Soil samples will be taken in labeled glass jars with Teflon<sup>TM</sup> (PTFE) coated lids. They are Eagle Picher brand or similar specially cleaned containers. These sample containers will be wiped off with a clean paper towel after collection if soil adheres to their exterior surfaces.

For water samples intended for volatile organic analysis, use two 40 ml glass vials with septum which are Teflon<sup>TM</sup> lined in the caps. The bottle should contain 2 drops of 1:1 HCl for preservation.

Water samples intended for NWTPH method analyses will be collected in 1 liter glass jars with a Teflon<sup>TM</sup> lid liner. The bottle should contain 5.0 ml of 1:1 HCl. For the Hydrocarbon Identification TPH method use a 1 liter bottle with 2.0 ml hexadecane.

For water samples intended for metals analysis, use a 1 liter bottle with nitric acid as a preservative.

For free product intended for Hydrocarbon Identification, use a 40 ml glass vial with a septum which is Teflon<sup>TM</sup> lined in the cap.

### **SAMPLE CONTAINER LABELS:**

All samples will be labeled with the following information: Project name, unique identifier including the depth at which sample was collected if the sample is soil; date and time of sample collection; name of the person or firm collecting the sample; sample in-container preservation method if any.

### **SAMPLING PROTOCOL FOR SOIL SAMPLES:**

The soil sample will be taken beyond the surface of the ground or excavation to ensure that contact with air has not volatilized out the contaminants which are to be measured. The soil will be taken for a sample that has not contacted any other surface except that of the sampling device to guard its representative nature.

Samples taken will be discreet samples unless note is made that a particular sample is a composite sample taken for a special purpose.

Sample jars will be packed tightly and to the top to prevent enclosing a vapor head space when the lid is closed.

Two jars will be filled with the soil sample at most locations. An 8 ounce jar will be filled for the NWTPH-HCID method analysis and WTPH-D extended. A 4 ounce jar will be filled for the volatile NWTPH-G and BTEX analysis should this analysis become necessary.

For samples which will not be analyzed using a volatile organic hydrocarbon analysis, mixing the sample in a washed and rinsed stainless steel bowl to achieve homogeneity of the sample will be allowed. Such homogeneity will facilitate the comparison of samples split for field screening, on site field laboratory analysis, and laboratory analysis off site.

### **SAMPLING PROTOCOL FOR WATER SAMPLES:**

If groundwater is encountered, it will be sampled using appropriate methods. Care will be taken using a bailer for sampling. A stainless steel bailer will be washed and rinsed before use and a new cord will be attached to it. A plastic disposable bailer will be a new bailer and not a recycled one. A new cord will be attached to it for lowering.

### **SAMPLE IN TRANSIT STORAGE:**

Sample jars once containing sample soil, water, free product or other material, will immediately be placed into a cooler with blue ice packs. Adequate ice pack bulk will be provided to maintain cool temperatures in the cooler throughout the transport duration. As much as possible this cooler will be kept out of the sun and in the shade while working.

#### **SAMPLE PROCESSING & HANDLING:**

All samples will be placed in a blue iced cooler immediately. After the sample collection is complete and the Chain-of-Custody has been filled out on site, the samples will be efficiently transported to North Creek Analytical Laboratory in Bothell, Washington by bringing them directly to Federal Express for overnight flight to North Creek Analytical or by bringing them to Accord™ Environmental in Bellingham, Washington where they will be placed in a laboratory refrigerator until more samples are collected. They will then be repacked with other collected samples for delivery to Federal Express for overnight delivery to North Creek Analytical. Samples collected for assessment purposes will also be sent via Greyhound Bus Lines to BTEX Analytical in Beaverton, Oregon.

#### **CHAIN-OF-CUSTODY:**

A Chain-of-Custody form will be filled out with complete information for all samples submitted to the laboratory. The following information will be included on that form: Name of consulting firm; consulting firm contact; project name or site owner; name of person collecting sample and signature; name of person relinquishing samples with date and time; name of person receiving samples with date and time; matrix as soil, water or other; type of analysis requested; unique identifier including the depth at which sample was collected if the sample is soil; date and time of sample collection; sample in-container preservation method if any. When an intermediate courier service is used, this will be noted and the receipt from such service will be maintained with the Chain-of-Custody.

#### **SAMPLE STORAGE:**

All samples will be held in a refrigerator at 4 C.

#### **SAMPLE HOLDING TIMES:**

Sample holding times from the date of collection will be 14 calendar days.

#### **NAME AND QUALIFICATIONS OF LABORATORY:**

The North Creek Analytical Laboratory will be used. It is located in Bothell WA 98011-9508. It is a Department of Ecology accredited laboratory for the Washington TPH methods. BTEX Analytical Laboratory will also be used. Its location is 9525 S.W. Beaverton-Hillsdale Highway, Beaverton OR 97005. Timely and comprehensive consultations are available with the owner and analyst who has a PhD in Organic Chemistry. Their Quality Control / Quality Assurance is theoretically accurate and practical, and their results can be relied upon.

#### **LABORATORY ANALYTICAL METHODS:**

The main modus operandi for sample analysis, soil or water, will be to have performed a NWTPH-HCID first to determine which class of contaminants is present. The suspected contaminants are gasoline, diesel, and oil. There is no history of other petroleum products or hazardous substances on site. Once the class of contaminant has been determined, that contaminant will be quantified if such quantification will assist in determining whether or not the degree of contamination in an area is above or below the regulatory limit. Quantification methods will be NWTPH-G for gasoline, EPA Method 8020 for BTEX, NWTPH-D extended for diesel and oil. Once contaminant intensities are determined in a general way for an area, further quantification is unlikely to add any information important to the handling of the site and its remediation.

If contamination of soil is above 5,000 ppm for gasoline or 30,000 ppm for diesel or oil, other analyses will be performed to test for hazardous constituents. Such tests will be used to assist in determining treatment and disposal options.

**ANALYTICAL DATA REVIEW:**

The analytical results will be included in the ANALYTICAL REPORTS section of the Site Assessment Report to Ecology. The laboratory Quality Assurance / Quality Control (QA / QC) records will be included along with the analytical results. The analytical results will also be summarized in the text and Tables of the Site Assessment Report.

The laboratory maintains an internal quality assurance program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the validity of the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted any exception in the laboratory report. No additional data review was performed on the analytical results and QA / QC. All data quality exceptions documented by the laboratory are contained within the laboratory reports.



**SITE SPECIFIC HEALTH & SAFETY PLAN  
W. L. REPAIR / ACCORD ENVIRONMENTAL**

**PROJECT:** Intalco Aluminum Corporation (Intalco) / Impero Construction Company LLC (Impero) decommissioning of one 12,000 gallon gasoline Underground Storage Tank (UST) and one 6,000 gallon diesel UST at the Automotive Repair Shop onsite, and decommissioning of one 12,000 gallon diesel UST at the Cast House onsite. The Intalco site is located at 4050 Mountain View Road, Ferndale WA 98248 (360 384-7061).

**OBJECTIVE:** This Site Specific Health & Safety Plan (HASP) is implemented to realize a safe work environment for workers and supervisory personnel during the UST decommissionings onsite. We intend to prevent accident and contamination of all personnel and the environment. UST decommissionings include removal of dispensers, removal of soil overburden from above and around the USTs, removal of fill, vent, and other pipes and fittings, inerting each UST, removal of USTs from the excavations, loading the USTs for proper disposal, and refilling the excavations with clean fill material.

These objectives also apply to associated overexcavation for soil remediation, if soil contamination is found, and associated groundwater remediation, if groundwater contamination is found. Soil remediation activities include the excavation, stockpiling, and removal of petroleum contaminated soil (PCS), and the importing and placement of clean fill material. Groundwater remediation includes the pumping of contaminated water into a 55 gallon drum or a tanker truck for proper disposal.

The Material Safety Data Sheets (MSDSs) for Product #5001967 Shell Regular Gasoline, Product # 5001275 ARCO Diesel, and Dry Ice are hereby incorporated into this document by reference.

**I. SITE DESCRIPTION / MAP:** (See the site plan included in Impero site specific HASP indicating locations of subject USTs.) Alcoa Intalco Works is an aluminum manufacturing facility.

The Fuel Island at the Automotive Repair Shop stands immediately south of the building. A large concrete slab extends over the area above the USTs. This area and the surrounding area is virtually flat. Vehicular traffic passes along the south side of the Fuel Island in an east-west direction. A large, portable fire extinguisher on wheels stands within 20 feet north of the northwest corner of the Fuel Island. Another fire extinguisher hangs from the outside of the east side wall of the Automotive Repair Shop Building.

A steel pipe vault encloses pipes to and from the top of the 12,000 gallon diesel UST northeast of the Cast House. Exposed pipes extend the distance between this pipe vault and the small dispenser building to the south. This area and the surrounding area is virtually flat and covered with asphalt. A large cylindrical propane tank with electrical connections extends in a north-south direction close to the projection above ground surface of the east end of the diesel UST. One fire extinguisher hangs from a steel guard post immediately north of the propane tank. Another fire extinguisher hangs on the outside of the dispenser building.

**II. KEY PERSONNEL:** Intalco Project Manager (PM) for the overall UST decommissioning project is Monty Ecalbarger who may be reached at (360) 384-7307 extension 7307. Contractor Project Manager for the overall project is Jerry Pruiett of Impero Construction Company LLC. PM Jerry Pruiett may be reached by calling his cell phone at (360) 739-0640. Project Manager (PM) for UST decommissioning will be Ralph Wieland representing W. L. Repair. PM Ralph Wieland may be reached via his cellphone at (360) 354-9598. W. L. Repair may be reached by calling (360) 384-4678. Health & Safety Coordinator (HSC) for Impero Construction is Anne-Marie Impero who may be reached at (360) 384-2643 at the barn. Health & Safety Coordinator (HSC) for UST decommissioning is Orion Landden who can be reached onsite or at the Accord™ Environmental offices at (360) 715-3740.

Impero HSC will instruct personnel regarding Intalco company phones, washrooms, and shower facilities nearest to the work sites. A portable eye flush apparatus ("Buffered Eye-Lert Emergency Eyewash-Sterile" will be maintained at the work sites by Accord Environmental.

### **III. HAZARD COMMUNICATION:**

1. The two excavations themselves present a falling hazard. Personnel, vehicles, and equipment may fall into the excavations. Releasing rigging from the top of excavated USTs after UST removal from the excavation pits presents a falling hazard.
2. Heavy equipment operation (track hoe, crane, compactor) onsite presents a hazard of trauma.
3. Underground and above ground utilities present particular hazards. Electrical supplies to the fuel pumps and to the propane tank pump present electrocution hazards. Other supply lines present hazards depending on the substance contained and whether or not they are under pressure.
4. Gasoline and diesel free product will be encountered while dismantling dispenser equipment and product lines. Gasoline used historically at or near the two work sites may contain the antiknock compounds tetramethyl and tetraethyl lead and consequently may be encountered if soil or water contamination is discovered. Gasoline used since installation of the current USTs may itself contain MTBE (methyl ter-butyl ether), or if the soil or water has been contaminated with this product, the soil or water may also contain MTBE.

The possible finding of leaded and/or unleaded gasoline, gasoline containing or not containing MTBE, and diesel contamination of the soil and water presents a contamination hazard. The finding of substantial gasoline contamination of the soil or water would also indicate possible lead contamination of the soil and water from leaded gasoline. The presence of substantial gasoline contamination would also signal possible MTBE contamination of water in particular.

5. The presence of gasoline and diesel vapors in their respective USTs and after being expelled into the air have the potential for becoming ignited and exploding. ("Vapors are heavier than air accumulating in low areas and traveling along the ground away from the handling site. Do not weld, heat or drill on or near container." MSDS Product: #5001967 Shell Regular Gasoline.)

6. The gasoline vapors from the gasoline UST and the diesel vapors from the diesel USTs, along with the carbon dioxide vapors from the dry ice used in inerting the tanks, will displace air and consequently displace oxygen needed for breathing. Inadequate oxygen in the work area, and especially in any confined spaces may result. Dry ice also presents a frostbite hazard.
7. The propane tank immediately east of the UST location by the Cast House presents the danger of damage by equipment, and thereby loss of propane to the air which may ignite, burn, or explode.
8. Hot seasonal weather presents the hazard of hyperthermia.
9. Equipment may catch fire.
10. Construction debris on site presents tripping and crushing hazard.
11. Contaminants in the water encountered in the excavation pits may be released to the environment. Contaminants in the petroleum contaminated soil (PCS) being overexcavated and stockpiled onsite, may be released to the environment.

#### **IV. HAZARD ANALYSIS:**

1. Live barricades around each of the entire sites will be installed by Impero and will remain throughout decommissioning and remediation activities. Appropriate signing will be installed on the barriers with appropriate warnings. Signs for No Smoking/No Spark Generation will extend out fifty feet from the excavation pit. Walk-in access will be maintained to the oil storage area of the Vehicle Maintenance Building. Access to the work areas themselves will be controlled by Impero using a sign-in sheet which includes a safety hazard review.

Excavation around the USTs will extend only four feet deep at first so that personnel may work by standing directly on top of the USTs. After personnel leave the top of the UST, the excavation may be extended directly alongside the UST. At no time for any reason will personnel enter the excavation pit.

Soil sampling will be accomplished using the excavator bucket. The excavator bucket will be pressure washed beforehand using water, as necessary. Similarly, groundwater sampling will be accomplished using the excavator bucket, or a bailer may be attached to the tooth or hook of the bucket for lowering into the water to obtain a groundwater sample.

A scissors lift will be available to remove rigging from the top of USTs after their removal from the excavation pits. Proper technique will be followed in its use as defined by Impero.

2. Backup warning buzzers on heavy equipment need to be operational. Any new personnel on site during heavy equipment operation need be pointed out to operators. Eye contact, at the least, need be made with operators. Workers need to be cautioned to stay out of the way of heavy equipment. Heavy equipment operators need to be constantly aware that other personnel will be present and working on the site at all times. Before the use of any impact equipment, including an excavator used to break asphalt and concrete, all personnel shall be cleared from that immediate work area. Particular caution will be taken to prevent eye injury if indicated, including the wearing of eye protection with side shields. Ear protection will be worn during breaking of concrete and asphalt. Hard hats need to be worn at all times.



Crane operation will be addressed by Impero.

3. Electrical supplies which would be encountered by excavating and other UST decommissioning activities will be disconnected by Seven Sisters electrical contractors before decommissioning start work activities. In particular, electrical supplies to the fuel pumps at both sites and the propane pump will be disconnected. Electrical wires to the fuel pumps will be pulled back to the panels. Lock Out / Tag Out procedures will be in effect.

We understand the two inch to eight inch lines underground about five feet deep north of the USTs at the Automotive Repair Shop are not currently pressurized and that they will be encountered during excavation. We understand the removed transite will be disposed in the local Intalco asbestos approved dump site.

We have not been made aware of other utilities which would be encountered in the work area.

4. General personal protection and sanitation recommendations for gasoline are to prevent skin contact, prevent eye contact, wash skin when contaminated, remove wet or contaminated clothes, and provide an eye wash in case of eye exposure. (MSDS "Emergency First Aid Procedures: Eye Contact: Flush eyes with water for 15 minutes while holding eyelids open. Get medical attention. Skin Contact: Flush with water while removing contaminated clothing and shoes. Follow by washing with soap and water. Do not reuse clothing or shoes until cleaned. If irritation persists, get medical attention.") OSHA exposure limits have not been established. (NIOSH has determined that gasoline contains carcinogens and therefore occupational exposure should be limited to the lowest feasible concentration, including the use of respiratory protection to do so.)

Gloves impervious to petroleum products will be used in the handling of petroleum contaminated equipment, parts, soils, and groundwater. Latex gloves may be used for low concentration sampling of soil and water. Nitrile gloves will be used when high concentrations of product are likely to be encountered as in removal of product fill lines.

Air monitoring with the Industrial Scientific Multi-Gas Monitor Model TMX-410 will be continuously carried out for oxygen level and Lower Explosion Limit (LEL). The oxygen low alarm is set for 19.5% oxygen. The LEL low alarm is set for 10.0% of the LEL. This is equivalent to 1,500 ppm pentane. If the combustible gas exceeds the low alarm level of 10.0% measured in the breathing zone, stop work, stabilize conditions if possible, move to a noncontaminated area upwind (not downwind) and notify the Project Manager, and the HSC. (These actions are taken for considerations of flammability and explosiveness of gasoline.)

Should substantial gasoline contamination of air in the work area be found (an LEL reading of 3%, equivalent to approximately 450 ppm pentane), stop work, stabilize conditions if possible, move to a noncontaminated area and notify the Project Manager, and the HSC. (These actions are taken for considerations of exposure to gasoline product itself.)

The main technique for controlling and stabilizing these conditions will be the use of a fan for ventilation of the work area. See the next section (5) for ventilation procedures.

If the LEL reading exceeds 3% (equivalent to approximately 450 ppm pentane), the work area may be monitored for benzene concentrations. The Sensidyne Gastec air analyzer using the analyzer tubes will be used. The Threshold Limit Value-Time Weighted Average used (OSHA Benzene standard 1910.1028) will be 10 ppm benzene over 8 hours. The acceptable ceiling is 25 ppm. The Threshold Limit for any single reading is equal to or greater than 50 ppm (over the 5 minute sampling event) benzene for a duration of 10 minutes maximum. If

benzene exceeds these limits in the breathing zone, stop work, stabilize conditions if possible, move to a noncontaminated area upwind (not downwind) and notify the Project Manager and the HSC.

All spills of product are to be prevented. Large spills are not anticipated because bulk product will be removed from the USTs prior to start work. However, small spills may occur, especially from disconnecting of product lines to dispensers and from the dispensers themselves. When possible, product lines will be drained back into the USTs prior to pumping of product and prior to start work, to prevent spills and exposures. (MSDS "Manufacturer's Recommended Spill/Cleanup Procedure: \*\*\*Small spills\*\*\* Take up with an absorbent material and place in non-leaking containers; seal tightly for proper disposal.")

Ventilation as a technical control will be used to dilute product vapors if there is not a breeze. See the next section (5) for ventilation procedures. Wear safety glasses with sideshields to minimize eye contact with product. Wear protective clothing.

"RESPIRATORY PROTECTION IS UNNECESSARY UNDER NORMAL CONDITIONS OF USE IF PEL IS NOT EXCEEDED." (MSDS for gasoline: The OSHA PEL for gasoline was 300 ppm, the ST was 500ppm. However, it is our understanding that the 1989 OSHA PEL was vacated and that there is no current OSHA Exposure Limit. MSDS for diesel: The 1989 OSHA PEL is 100 ppm over 8 hours. The 1989 OSHA STEL is 150 ppm for 15 minutes. See NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, Public Health Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, June 1994, pp. 150 and 361.) "Use a NIOSH-approved half-mask respirator with ORGANIC VAPOR CARTRIDGE, if concentration less than 10 times PEL. USE a NIOSH-approved full-mask respirator with ORGANIC VAPOR CARTRIDGE, if concentration above 10 times PEL but less than 50 times PEL. Use an air-supplied respirator for confined spaces or where airborne concentration may exceed 50 times PEL." (MSDS for gasoline. The MSDS cautions with respect to gasoline components, which we regard as generally applicable to the full range of gasoline substances themselves, "Odor detection is an insufficient warning due to olfactory fatigue."---and under substantial chronic effects, points out, "Exposure to this chemical should be minimized.")

5. The USTs will each be inerted to remove explosive vapors prior to removal from the excavation pits. (MSDS "Conditions to avoid: Avoid heat, sparks, open flames including pilot lights, and strong oxidizing agents. Prevent vapor accumulation." Power equipment must be grounded to prevent sparking.) They will be inerted by introducing dry ice into the tanks, which generates carbon dioxide which in turn replaces the explosive gasoline or diesel vapors by gradually expelling them from the UST. A reading of 20% of the Lower Explosion Limit (LEL) or less on the combustible gas monitor will be obtained before removal of the UST from the ground.

During inerting precautions will be taken to insure that the heavier than air vapors from the USTs do not collect in the excavation and work areas. If the air is unusually calm, an fan (set back fifty feet from the pit if it is not explosion proof) will be used to continue movement of the vapors out of the work area and to provide dilution of the vapors.

6. To prevent frostbite from contact with dry ice or its storage vessel, wear adequate gloves to prevent frozen tissues. Wear eye protection with side shields to prevent particles of dry ice from entering the eye when breaking the dry ice to size it smaller for introduction into the fill pipe of the USTs.

Displacement of oxygen in the air will be monitored using the oxygen meter. The oxygen lower limit is set for 19.5% oxygen on the TMX-410 gas monitor. (OSHA TWA for carbon dioxide is 5,000 ppm, and IDLH is 40,000 ppm.) If oxygen content in the breathing zone goes below 19.5% (the oxygen low alarm will sound), stop work, stabilize conditions if possible, move to a noncontaminated area upwind (not downwind) and notify the Project Manager and the HSC. Remember that air purifying respirators will not increase the oxygen content of the gases being breathed.

If the air is unusually calm, a fan (set back fifty feet from the pit if it is not explosion proof) will be used to continue movement of the vapors out of the work area and to provide dilution of the vapors.

7. The propane tank will be disconnected and temporarily removed from the work area prior to start work. It will be reconnected in its current location after the conclusion of this project including resurfacing with asphalt.

8. During hot weather personnel need to be cautioned to wear their hats (hard hats) and substantial clothing and to drink plenty fluids (containing electrolytes as well as water), preferably cool. Should personnel become hot, dizzy, weak, or get a headache they should notify the HSC. The product Gatorade will be available to replenish electrolytes. Keep in mind that these symptoms also generally apply to exposure or overexposure to substances in the contained petroleum products. If general first aid procedures do not address these symptoms, exposure to petroleum products need be considered as a possible cause. Personnel so affected should remove themselves from the work site and notify the PM of the reason for their action.

9. Two permanent fire extinguishers are located at each of the two UST locations. In addition a portable 20# ABC fire extinguisher will be available at the site being worked. Alert personnel and operators to the location of all fire extinguishers.

10. Picking up scattered debris promptly is required. Care must be taken by heavy equipment operators in removing the UST and in moving around the heavy pieces of concrete which will be generated by their activities. Ground personnel must keep clear of the heavy concrete and asphalt pieces being moved about.

11. July was chosen for project start work in order to limit the effects of inclement weather upon the project. Contaminated water and soil are much easier to control during fair weather.

Contaminated water less than 55 gallons will be pumped into a 55 gallon drum for proper disposal. More than 55 gallons of contaminated water will be pumped into a tanker truck for proper disposal.

Overexcavated petroleum contaminated soil (PCS) will be stockpiled onsite by placing it on visquene prior to disposal. Visquene will also be used to completely cover the PCS stockpiles until disposal. Adequate weights will be placed on the visquene to prevent movement in wind. These measures are taken to prevent weather from distributing PCS into the environment.

**V. PERSONNEL PROTECTIVE EQUIPMENT SELECTION:** Level D personal protective equipment (PPE) to be used: Hard hat will be used at all times, substantial clothing covering legs, arms, and torso, boots with metatarsal protection, safety glasses with side protection. A cartridge half face and cartridge full face respirator will be on hand for use if desired and if indicated.

If an LEL reading of 3% is obtained, equivalent to approximately 450 ppm pentane, stop work, stabilize conditions if possible, move to a noncontaminated area and notify the Project Manager, and the HSC. Upgrading to Level C PPE will be required for the personnel who must reenter the work area to monitor conditions and stabilize conditions. Normal work conditions and reinstatement of Level D PPE will be required before other personnel may reenter the work area to continue the project. For Level C PPE, "[u]se a NIOSH-approved half-mask respirator with ORGANIC VAPOR CARTRIDGE, if concentration less than 10 times PEL. USE a NIOSH-approved full-mask respirator with ORGANIC VAPOR CARTRIDGE, if concentration above 10 times PEL but less than 50 times PEL. Use an air-supplied respirator for confined spaces or where airborne concentration may exceed 50 times PEL." (MSDS for gasoline.)

**VII. DECONTAMINATION:** Minimal decontamination consists of washing soiled boots, gloves and respirator; removing protective clothing that has come into contact with gasoline or diesel and placing them into plastic sacks for washing or disposal; and removing used respirator cartridges before leaving the site. An eye bath for immediate emergency use will be provided in case of accidental exposure of an eye to free gasoline or diesel or dry ice. Further irrigation of the eye for 15 minutes in the nearest shower may be necessary.

**VIII. SITE EMERGENCIES:** Any emergency will immediately be reported to the site Project Manager and/or the HSC who will immediately shut down all work activities, if indicated, until the emergency situation has been fully addressed. An emergency will be reported to the Loss Prevention Supervisor at the Front Gate by dialing 7301 on the Intalco phone. If an emergency response team is indicated, call 7-911 on the Intalco phone immediately.

The emergency response team will decide whether to use the St. Joseph Hospital Emergency Room (ER). The emergency response team will decide whether to call Washington Poison Center at (800) 732-6985. (We verified this number is functional June 12, 2001.)



**IX. TRAINING / HEALTH & SAFETY MEETINGS:** Workers and Managers will participate in a Health & Safety Review and Briefing before starting work at the project site. The initial health & safety meetings will take place onsite. At the site workers and other personnel needing to enter the restricted Level D zone inside the barricaded areas to perform their duties will be briefed and oriented to the site. Topics will include:

Before entry, heavy equipment operator must be informed of entry of new person, by establishing eye contact with the operator at the least.

The steep embankment of the excavations will be pointed out as presenting falling hazards.

Those entering will be informed of possible contamination and cautioned to use appropriate methods and wear appropriate protective gear.

Site Health & Safety Procedures will be reviewed and critiqued and changed as necessary.

Additional Tool Box health & safety meetings will be called by the Project Manager and the Health & Safety Coordinator when deemed necessary.

The orientation and Tool Box safety meetings shall include a discussion of emergency response, site communications and site hazards.

Site Health & Safety Plan acknowledgment:

<u>Date</u>	<u>Topics</u>	<u>Attendee</u>	<u>Company</u>	<u>Employee Initials</u>
7/10/01	THIS HASP.	JERRY ARNOLD	IMPRO	
		ANNE-MARIE IMPRO	"	
		DON MORRIS	"	
		RAUL WIELAND	W.L. REPAIR	
		ORION LONDON	ACCORD ENVIRONMENTAL	Q

Conditional forms: Accident Report      Hyperthermia      Exposure Report

**X. SPILL CONTAINMENT PLAN:** Absorbent pads will be available to address potential small spills of petroleum substance. Such a spill will be promptly absorbed by absorbent for that purpose by personnel wearing petroleum proof gloves and will be placed in the appropriate container afterward.

**XI. FIELD LOG:** The Field Log is to contain the following information as necessary:

- Industrial Scientific TMX 410 Gas Monitor calibration
- Sendidyne air monitoring results-personnel, locations monitored
- Combustible gas indicator readings
- Meteorological conditions, e.g. temperature, wind direction, speed, humidity.