

**DRAFT REPORT**

**SOIL AND GROUNDWATER  
INVESTIGATION OF  
WESTERN AREA**

**International Paper, Longview**

*Prepared for*

**INTERNATIONAL  PAPER**

International Paper  
Longview, Washington

February 21, 2000

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bgs	below ground surface
cPAH	carcinogenic polyaromatic hydrocarbons
DQO	data quality objective
FID/PID	flame ionization detector/photoionization detector
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MSL	Mean Sea Level
MTCA	Model Toxics Control Act
ncPAH	noncarcinogenic polyaromatic hydrocarbons
NGVD	National Geodetic Vertical Datum
PAH	polyaromatic hydrocarbon
PCB	polychlorinated biphenyl
PCMP	Performance and Compliance Monitoring Plan
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
QAPP	quality assurance project plan
SOP	standard operating procedure
SVOC	semivolatile organic compound
TPH	total petroleum hydrocarbons
TWP	treated wood products
VOC	volatile organic compound
WAC	Washington Administrative Code

## 1.1 PROJECT BACKGROUND

An environmental site investigation was performed by URS Greiner Woodward Clyde at two areas on a site adjacent to the former treated wood products (TWP) area at the International Paper facility in Longview, Washington. Both of the investigated areas are currently owned by the Port of Longview.

This report presents the results from one of the two areas investigated, the "Western Area". The results from the investigation of the second area (the "Eastern Area") are presented in a separate report (URS Greiner Woodward Clyde 2000).

The Washington State Department of Ecology (Ecology) described three areas of concern in a letter dated November 7, 1997. These three areas were identified during subsurface barrier wall construction activities in the fall of 1997. They included:

- The area along the west side of the barrier wall (Area 1)
- The southwest corner of the barrier wall, near the location where a 24-inch-diameter fire control line was encountered (Area 2)
- The area along the south side of the barrier wall, near the location of well PW-3 (Area 3)

An investigation was performed in July 1998 to evaluate potential impacts to soils in these areas. Soil samples were collected from each area using a hollow-stem auger drill rig and submitted for laboratory analysis. Results from this investigation were presented in Investigation of Areas of Soil Impact Outside the Containment Area Report (Woodward-Clyde 1998). The results indicated that a limited area along the west side of the barrier wall may have been impacted by total petroleum hydrocarbons (TPH) and polyaromatic hydrocarbons (PAHs).

As a result of this finding, the historical aerial photographs were re-examined to identify potential sources of the TPH and PAHs and potential migration pathways. The aerial photograph review revealed a linear feature that was interpreted by Ecology to be a ditch leading from the TWP area westerly to a low lying area on the western portion of the Port of Longview property (the Western Area), about 1,000 feet northwest of the former TWP area. In later photographs of this area (beginning in about 1957), the apparent ditch location changed and connected the TWP area with a rectangular impoundment on the eastern side of the Port of Longview property (the Eastern Area), approximately 450 feet northwest of the former TWP area.

Ecology requested an investigation of both of these potential impoundment areas based on concerns that the linear features, interpreted to be ditches, may have transported chemicals of concern associated with the former TWP area to the impoundment areas. A 1948 aerial photograph indicated that the Western Area consisted of two apparent wet areas, including one larger area to the south and a smaller area to the north. Subsequent aerial photographs for 1957 through 1968 indicated that a municipal water treatment facility, which included a sludge disposal area, was operated by the City of Longview on the larger of the two wet areas (the south western area). Chain of title information indicates that the City of Longview owned this property from 1947 through 1980, when it was sold to the Port of Longview. The construction details of the sludge disposal area are unknown. However, the area was likely unlined and had the potential to have received chemicals of varying types from many different sources including solvents, petroleum hydrocarbons, metals, and PCBs, as well as wood product wastes that could include creosote and pentachlorophenol.

The aerial photograph review also identified ditches connecting the Standard Oil Company (now Chevron) parcel on the west to the Eastern and Western Areas. Based on available information from consultant reports, the Chevron parcel and other properties located to the west have soil and groundwater, in the vicinity of the Western Area, impacted by TPH and PAHs at concentrations exceeding MTCA cleanup criteria.

Ecology believed that the apparent ponded areas and lineaments may have been associated with historical operations in the former TWP area or other operations at nearby sites. Based on Ecology's concerns, and in accordance with Consent Decree 97-2-01088-9 between International Paper and Ecology, International Paper agreed to perform an environmental investigation of both the Western and Eastern Areas.

## 1.2 SITE DESCRIPTION

As discussed above, the two offsite areas that were investigated were identified based on a review of historical information. The Western Area, located on the western side of the Port of Longview property, and consists of a larger sub-area to the south and a smaller sub-area to the north. For discussion purposes, these two sub-areas are considered as one larger area referred to as the Western Area. The Eastern Area consists of a single rectangular area.

Boundaries for each of the areas were delineated on the basis of a review of aerial photographs from the period between 1948 and 1968. The work performed in the Western Area is described in this report; work performed in the Eastern Area is described in a separate report also prepared by URS Greiner Woodward Clyde. Both areas are shown in Figure 1-1.

The northwestern sub-area is roughly ellipsoidal, with the long axis about 110 feet in an east-west direction and the short axis about 40 feet in the north-south direction. The resultant area is about 0.1 acres and is flat. It is located in a heavy industrial setting where ongoing operations include log storage and heavy machinery movement.

The northwestern sub-area is bordered immediately on the west by a petroleum tank farm operated by Wilcox and Flegel Fuel Oil Company. This property was originally developed by the Standard Oil Company (now Chevron) in 1925. It was owned and operated by Standard Oil Company as a bulk storage terminal until 1984 when it was sold to Wilcox and Flegel Fuel Oil Company. The site originally contained 14 aboveground petroleum storage tanks of various sizes. Products stored onsite included fuel oils, naphtha, lubricating oils, gasoline, and diesel. Six of the tanks were removed in 1983 and eight have remained in operation. Several environmental investigations have been performed at the site. Various petroleum derivatives have been identified in soil and groundwater, including gasoline, diesel, oil, benzene, toluene, ethylbenzene, xylenes, and lead. Groundwater monitoring has been performed quarterly since 1993. In August 1992, the site was added to the Hazardous Sites List, with a ranking of one (one being the greatest risk; five being the lowest).

The southwestern sub-area is located about 250 feet southwest of the northwestern sub-area. This sub-area is about 250 feet by 150 feet, or about 0.8 acres. Terminal Way bisects the sub-area into a northern and southern portion. The southern portion of this sub-area is occupied by the Terminal Receiving Building and a surrounding paved parking lot. The northern portion consists primarily of a maintenance area and storage area for treated lumber, pipes, and

equipment. The maintenance and storage area is unpaved. The entire southwestern sub-area is largely flat.

### **1.3 PROJECT OBJECTIVES**

The objective for the project was to collect data to evaluate whether soil and groundwater in the Western Area have been impacted by chemicals of concern associated with either operations in the former TWP area or the apparent ditch and impoundment features that were observed in the historical aerial photographs.

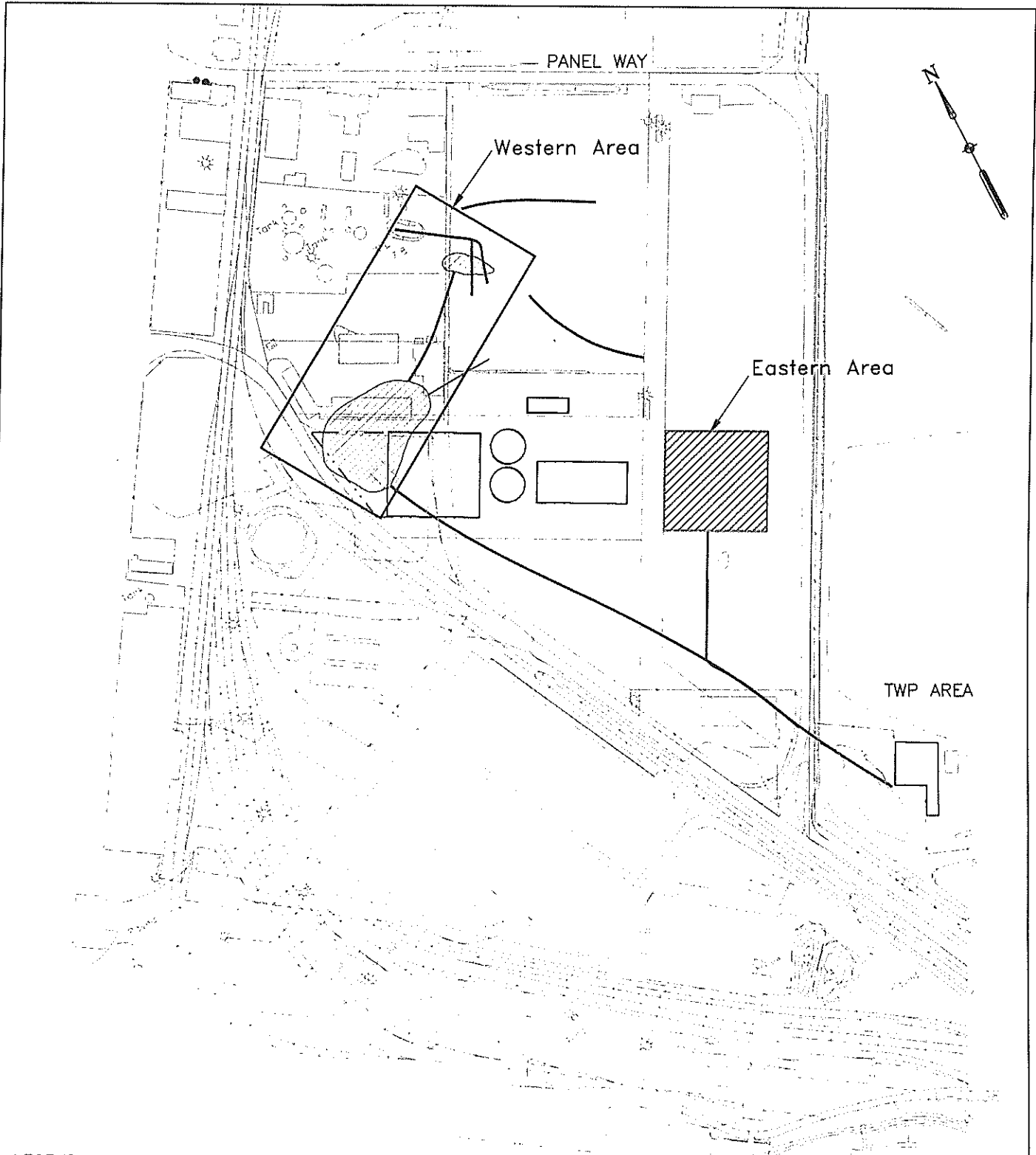
### **1.4 PROJECT APPROACH**

The approach for evaluating potential impacts to the Western Area included drilling exploratory soil borings, and collecting and analyzing soil and groundwater samples. The area of investigation was delineated in the field after a review of historical documents and aerial photographs. Personnel from the Port of Longview were also interviewed on January 5, 1999 regarding previous site use.

Four soil borings were drilled within the delineated impoundment of the southwestern sub-area and three soil borings were drilled within the delineated impoundment of the northwestern sub-area. Soil samples were collected for analysis from depth intervals judged most likely to contain chemicals potentially present in the former impoundments. These soil intervals included the interface between the vadose zone and groundwater, and the top of the Upper Silt. Additional samples were evaluated by field screening measurements and observation, with "worst-case" samples (highest field screening measurements or visual evidence of contamination) chosen for analysis.

The purpose of the impoundments observed in the aerial photographs is unknown. The water that appeared to be contained in the impoundments could have been stormwater or wastewater. Therefore, the soil and groundwater samples collected from the Western Area were analyzed for a comprehensive suite of chemicals, including both organic and inorganic chemicals. Analytical results from these samples were intended to indicate whether soil and groundwater contained chemicals that may have originated in the former impoundment.

The quality assurance project plan (QAPP) prepared for the Performance and Compliance Monitoring Plan (PCMP) (Woodward-Clyde 1997b) provides a detailed description of the project data quality objectives (DQOs). The work was performed according to the Standard Operating Procedures (SOP) included in the project SOP binder (PTI 1996).

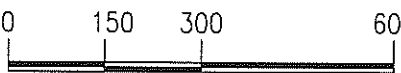


**LEGEND**

— LINEAMENT ON HISTORICAL AERIAL PHOTOGRAPH INTERPRETED TO BE DITCH

 HISTORICAL AREAS OF CONCERN

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SCALE  FEET  
 APPROX 1"=300'

International Paper Longview, Washington	Project No. 91C0796B	Plan View of Offsite Area	Figure 1-1
<b>URS Greiner Woodward Clyde</b>			



## 2.1 SOIL AND GROUNDWATER SAMPLING

Cascade Drilling Inc. was contracted to supply a truck-mounted CME 75 drilling rig equipped with 4 ¼-inch inner-diameter hollow stem augers. The soil borings were drilled and sampled on January 6 and 7, 1999 in the Western Area. The locations of these borings, shown on Figure 2-1, are designated 99SW-SB1 through SB4 in the southwestern sub-area, and 99NW-SB1 through SB3 in the northwestern sub-area.

Each of the three borings in the northwestern sub-area was advanced to a depth of 10 feet below ground surface (bgs). The four borings in the southwestern sub-area were advanced to depths between 8.5 and 11.5 feet bgs. Soil samples were collected continuously from each probe using a 2 ½-inch-diameter sampler. The soil samples were logged in the field by a geologist to obtain detailed information on the stratigraphy. Boring logs are included in Appendix A.

Soil samples were collected from depth intervals judged most likely to contain chemicals that may have originated in the impoundments, including both the vadose zone-groundwater interface and the top of the Upper Silt. The soil samples were screened in the field. Five to seven samples from each boring were screened for volatiles using a Foxboro TVA1000 flame ionization/photoionization detector (FID/PID). These samples were also analyzed in the field for TPH using a portable Hanby TPH test kit. Two to three soil samples from each borehole were selected for laboratory analysis, including the samples from the vadose zone-groundwater interface and the top of the Upper Silt, and the worst-case soil sample based on field screening measurements and observation.

Groundwater samples were collected by advancing the Geoprobe into the saturated horizon and pumping groundwater to the surface using a peristaltic pump. A dedicated length of tubing was used at each location. Because the water-bearing zone was of relatively low permeability, over 1 hour was required to collect sufficient water to fill a partial suite of sample bottles. Therefore, groundwater samples were collected only at two locations.

All probe locations were backfilled according to the requirements of Washington Administrative Code (WAC) 173-160-560 for abandonment of resource protection wells, and the sites were restored as closely as practicable to their previous condition. The locations and elevations of the borings were subsequently surveyed by Gibbs and Olson, Inc. (Licensed Surveyors) of Longview, Washington.

## 2.2 ANALYTICAL METHODS

Soil and groundwater samples were submitted to Oregon Analytical Laboratories in Portland, Oregon for analysis of a full suite of analytes including TPH, PAHs, pentachlorophenol, metals, major ions, pesticides, herbicides, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). Table 2-1 lists the laboratory methods, sample containers, preservation methods, and holding times. Due to the limited quantities of water obtained from the borings, the groundwater samples were analyzed only for VOCs, SVOCs, PAHs, TPH, PCBs, and pesticides.

Samples were preserved in the field, as appropriate. All sample handling and storage was performed under chain-of-custody procedures. Chain-of-custody forms are included in Appendix B.

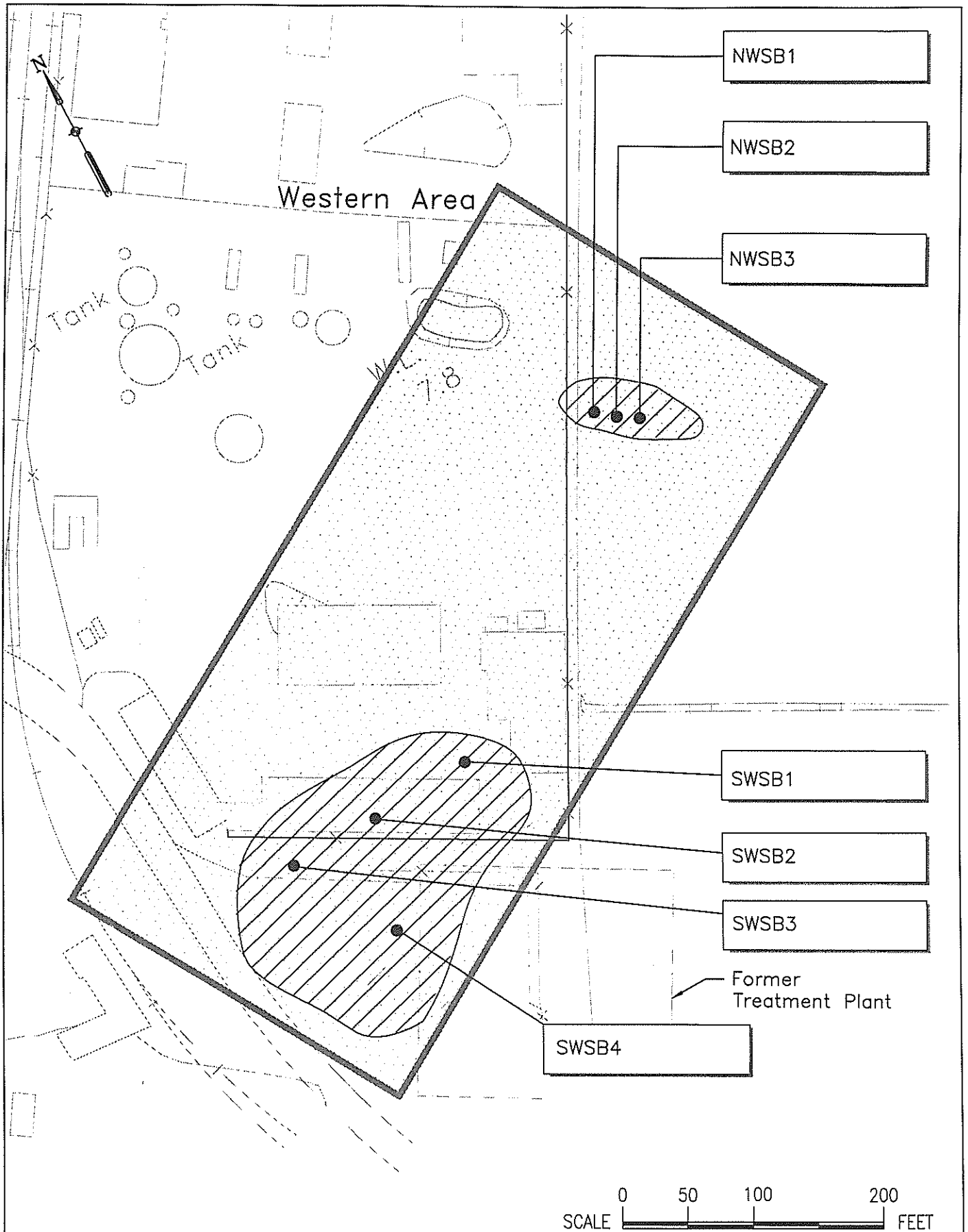
Table 2-1  
SAMPLE CONTAINERS AND ANALYTICAL METHODS

PARAMETER	METHOD NUMBER	CONTAINER	PRESERVATION	HOLDING TIME
<b>SOIL</b>				
Volatiles	EPA 8260	1-4 oz WM jar w/ septa	cool to 4o C	14 days (analysis)
Semi-volatiles	EPA 8270	1-8 oz WM jar	cool to 4o C	14 days (extraction)
PAHs (low level)	EPA 8270 SIM	use semi-volatiles jar	cool to 4o C	14 days (extraction)
Pesticides	EPA 8081	1-8 oz WM jar	cool to 4o C	14 days (extraction)
PCBs	EPA 8082	use pesticides jar	cool to 4o C	14 days (extraction)
Organophosphorous pesticides	EPA 8141A	use pesticides jar	cool to 4o C	14 days (extraction)
Herbicides	EPA 8151	use pesticides jar	cool to 4o C	14 days (extraction)
Metals	EPA 6010/200	1-8 oz WM jar	cool to 4o C	6 months
Mercury	EPA 7470	use metals jar	cool to 4o C	28 days (analysis)
Cyanide	EPA 335.1	1-8 oz WM jar	cool to 4o C	14 days (analysis)
Chloride	EPA 300 series	use cyanide jar	cool to 4o C	28 days (analysis)
Fluoride	EPA 300 series	use cyanide jar	cool to 4o C	28 days (analysis)
Nitrate	EPA 300 series	use cyanide jar	cool to 4o C	7 days (analysis)
pH	EPA 9000 series	use cyanide jar	cool to 4o C	14 days (analysis)
Sulfate	EPA 300 series	use cyanide jar	cool to 4o C	28 days (analysis)
Sulfide	EPA 376.1	1-4 oz WM jar w/septa	cool to 4o C	7 days (analysis)
Diesel range hydrocarbons	NWTPH-Dx	use semi-volatiles jar	cool to 4o C	14 days (extraction)
<b>WATER</b>				
Volatiles	EPA 8260	3 – 40 ml vials w/septa	cool to 4o C; HCl to pH < 2	14 days (analysis)
Semi-Volatiles	EPA 8270	2 – 1 L amber glass	cool to 4o C	7 days (extraction)
PAHs (low level)	EPA 8270 SIM	1 – 1 L amber glass	cool to 4o C	7 days (extraction)
Pesticides	EPA 8081	2 – 1 L amber glass	cool to 4o C	7 days (extraction)
PCBs	EPA 8082	1 – 1 L amber glass	cool to 4o C	7 days (extraction)
Organophosphorous pesticides	EPA 8141A	1 – 1 L amber glass	cool to 4o C	7 days (extraction)
Herbicides	EPA 8151	1 – 1 L amber glass	cool to 4o C	7 days (extraction)
Metals	EPA 6010/200	1 – 1 L HDPE	cool to 4o C	6 months
Mercury	EPA 7471	1 – 500 ml HDPE	cool to 4o C	28 days (analysis)
Alkalinity	NA	1 – 500 ml HDPE	cool to 4o C	14 days (analysis)
Cyanide	EPA 335.1	1 – 500 ml HDPE	cool to 4o C; NaOH	14 days (analysis)
Chloride	EPA 300 series	1 – 500 ml HDPE	cool to 4o C	28 days (analysis)
Fluoride	EPA 300 series	1 – 500 ml HDPE	cool to 4o C	28 days (analysis)
Nitrate	EPA 300 series	1 – 500 ml HDPE	cool to 4o C	48 hours (analysis)
pH	EPA 9000 series	1 – 250 ml amber glass	cool to 4o C	24 hours (analysis)
Sulfate	EPA 300 series	1 – 500 ml HDPE	cool to 4o C	28 days (analysis)
Sulfide	EPA 376.1	1 – 500 ml HDPE	cool to 4o C; ZnOAc	7 days (analysis)
Diesel range hydrocarbons	NWTPH-Dx	1 – 1 L amber glass	cool to 4o C	7 days (extraction)

**Notes:**

HDPE: high density polyethylene

WM: wide mouth



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Sampling Locations  
Western Area

Figure  
2-1

Based on results from previous soil investigations, the stratigraphy beneath the former TWP area and vicinity consists of the following units:

- Upper Sand, ranging in thickness from 3 to 7 feet
- Upper Silt, ranging in thickness from 2 to 6 feet
- Lower Sand, ranging in thickness from 35 to 65 feet
- Lower Silt, which is at least 32 feet thick.

The Lower Sand is the major water-bearing unit in the area and consists of two aquifers (Aquifer A and Aquifer B), separated by a thin silt layer (Intermediate Silt) at an approximate elevation of 20 to 30 feet below Mean Sea Level (MSL). The respective potentiometric surfaces in Aquifers A and B are largely flat. The net direction of groundwater flow is north-northwest (Woodward-Clyde 1996) but varies temporally in response to tidal influences from the Columbia River. Detailed descriptions of the geology and hydrogeology are found in the Site Characterization Report (Woodward-Clyde 1994).

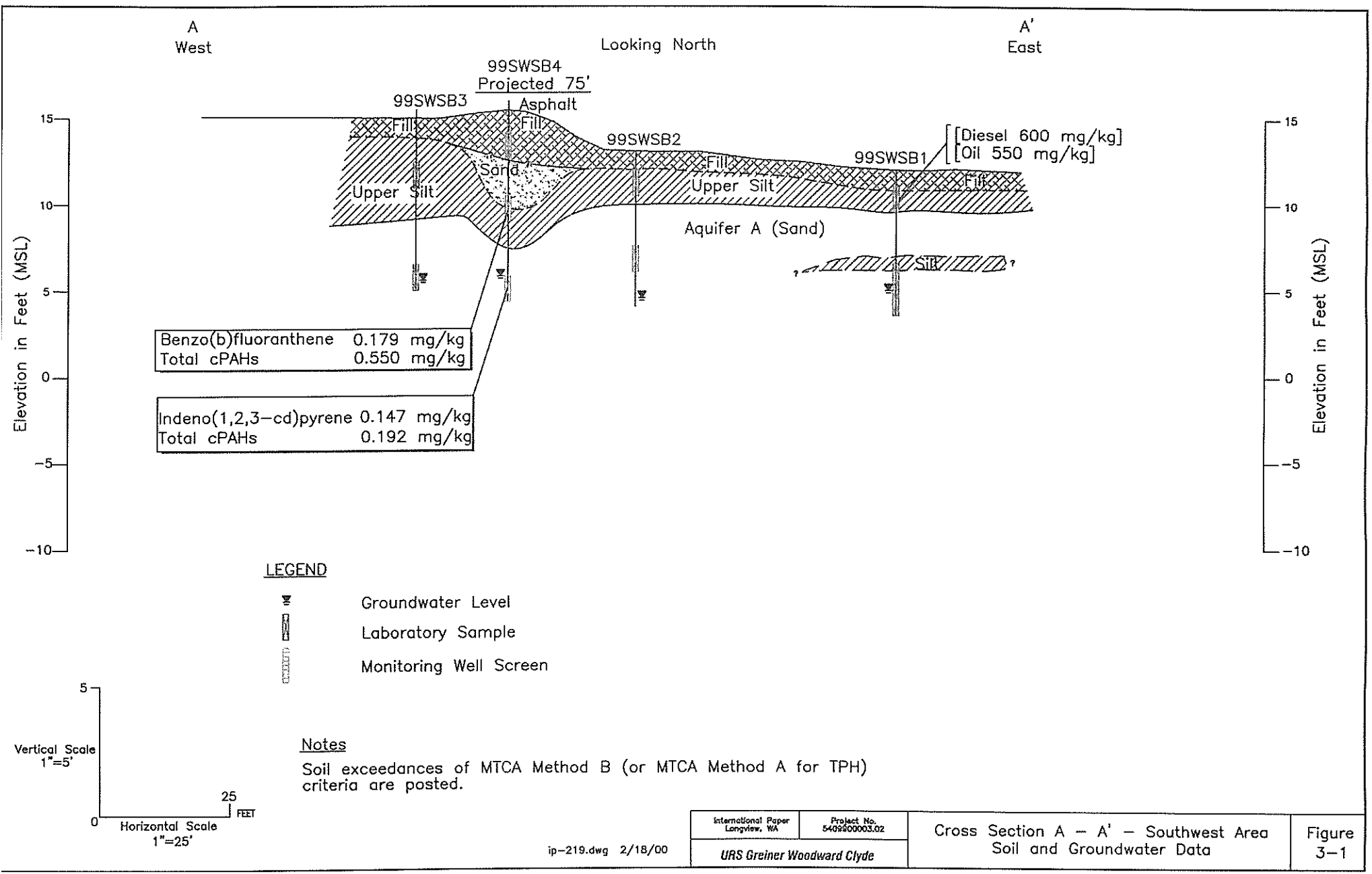
As discussed in Section 1.0, most of the Western Area is paved and currently used for log storage, movement of heavy industrial machinery, and administrative office space and parking. A storage and maintenance area is also present, but is unpaved.

Each of the three borings in the northwestern sub-area was advanced to a depth of 10 feet bgs. The four borings in the southwestern sub-area were advanced to depths of 8.5 to 11.5 feet bgs. The subsurface conditions encountered during drilling in the northwestern area are shown on cross section A – A' (Figure 3-1) and in the southwestern area on cross section B – B' (Figure 3-2).

In the southwestern sub-area, fill material (consisting of coarse sand and gravel) was present to a depth of 4 to 5 feet bgs. The Upper Silt was present beneath the fill and was approximately 2-1/2 feet thick. Aquifer A sands were present beneath the Upper Silt. The sands became saturated at a depth of about 9 feet bgs.

The Upper Sand was absent in the northwestern sub-area, with the fill material directly overlying the Upper Silt. The top of the Upper Silt was therefore present at a depth of 1 to 2 feet bgs, and was typically 3 to 4 feet thick. Aquifer A sediments were encountered at a depth of about 5 feet bgs.

Groundwater was not encountered above the Upper Silt during drilling. Shallow groundwater in both sub-areas was first encountered several feet beneath the bottom of the Upper Silt. In the northwestern sub-area, this was at a depth of about 8 feet bgs, or 6 feet MSL. In the southwestern sub-area, groundwater was encountered at a depth of 9 to 10 feet, or about 5 feet MSL.



A  
West

Looking North

A'  
East

Elevation in Feet (MSL)  
15  
10  
5  
0  
-5  
-10

Elevation in Feet (MSL)  
15  
10  
5  
0  
-5  
-10

99SWSB4  
Projected 75'

99SWSB3

Asphalt

99SWSB2

99SWSB1

[Diesel 600 mg/kg]  
[Oil 550 mg/kg]

Upper Silt

Sand

Upper Silt

Aquifer A (Sand)

Benzo(b)fluoranthene 0.179 mg/kg  
Total cPAHs 0.550 mg/kg

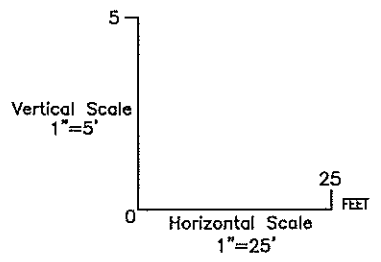
Indeno(1,2,3-cd)pyrene 0.147 mg/kg  
Total cPAHs 0.192 mg/kg

**LEGEND**

- Groundwater Level
- Laboratory Sample
- Monitoring Well Screen

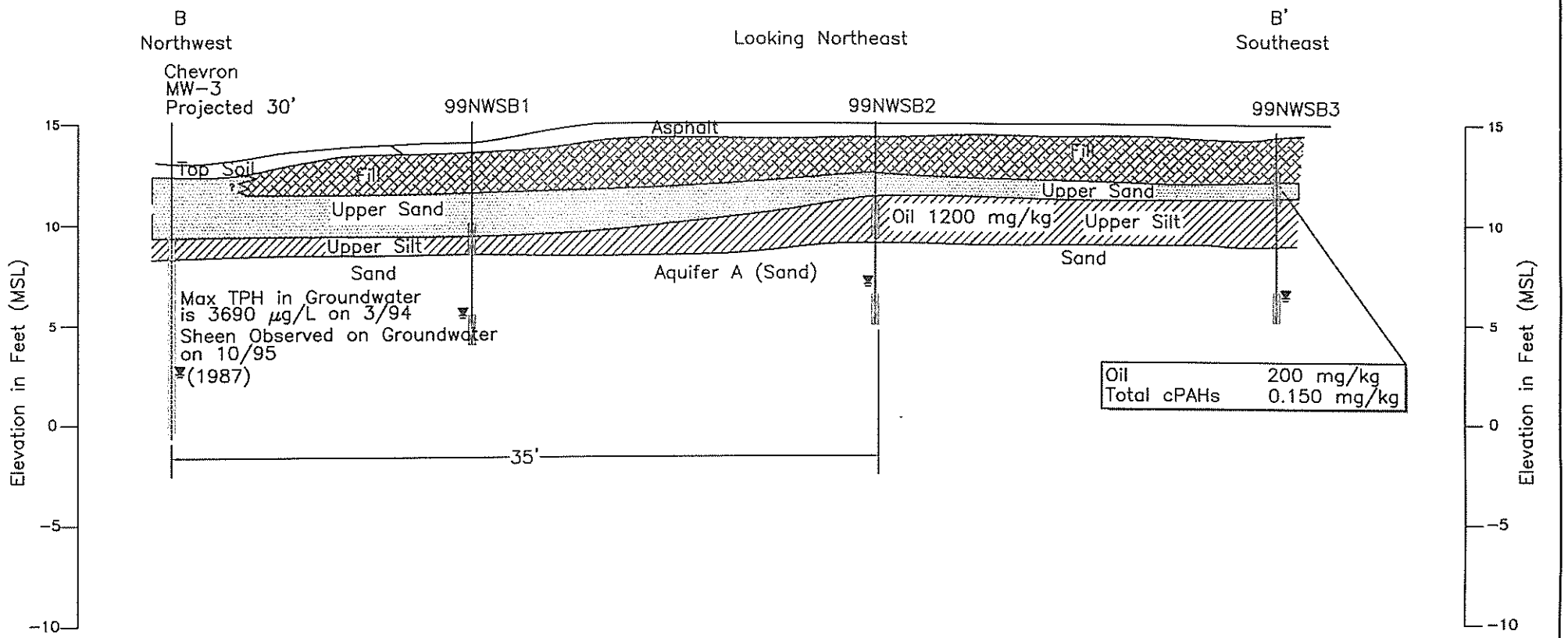
**Notes**

Soil exceedances of MTCA Method B (or MTCA Method A for TPH) criteria are posted.



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International Paper Longview, WA	Project No. 5409200003.02	Cross Section A - A' - Southwest Area Soil and Groundwater Data	Figure 3-1
URS Greiner Woodward Clyde			



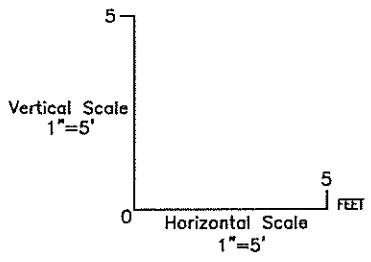
**LEGEND**

- Groundwater Level
- Laboratory Sample
- Monitoring Well Screen

**Notes**

MW-3 Petroleum sheen and odor noted at all depths during monitoring well construction.

Soil exceedances of MTCA Method B (or MTCA Method A for TPH) criteria are posted.



#### **4.1 FIELD MEASUREMENTS**

The soil samples collected during the soil boring phase of the investigation were tested in the field using a Foxboro TVA 1000 FID/PID to measure levels of volatile constituents in each sample. The samples were also tested for TPH using a portable Hanby TPH test kit. The results from these tests, summarized in Table 4-1, were used in the selection of samples for laboratory analysis.

#### **4.2 QUALITY ASSURANCE/QUALITY CONTROL**

Sixteen soil samples and two water samples were submitted to Oregon Analytical Laboratories for analysis. The analytical results for these samples were subject to a quality assurance/quality control (QA/QC) review, including the following elements:

- Chain of custody and holding times
- Blank review
- Surrogate review
- Matrix/blank spike review
- Duplicate review
- Reporting limits

Based on this review, all data were considered acceptable for project use. The laboratory data sheets and results from the QA/QC review are provided in Appendix B.

#### **4.3 LABORATORY ANALYTICAL RESULTS FOR SOIL SAMPLES**

A total of 16 soil samples were submitted for laboratory analysis. The analytical results are presented in Tables 4-2 and 4-3.

As outlined in the Cleanup Action Plan for the former TWP area (Woodward-Clyde 1997a), the Washington State Model Toxics Control Act (MTCA) Method C industrial soil cleanup levels represent the cleanup goals for soils in the deed-restricted area within the TWP area. Based on the rationale presented in the Cleanup Action Plan, MTCA Method C criteria should also be considered to be the appropriate criteria for soils outside of the TWP area, including the Western Area. As discussed in the Cleanup Action Plan, the TWP constituents present in soil do not pose a current or long-term risk to human health or the environment because of the following factors:

- The chemicals of concern are relatively insoluble and highly sorptive and, therefore, largely immobile in subsurface soils and groundwater.
- The hydraulic gradient beneath the TWP area and most likely nearby areas including the Western Area, is nearly flat, further minimizing the potential for migration of chemicals of concern in groundwater.
- Potential exposure pathways in both areas are incomplete. The impacted soils in the Western Area are usually overlain by 6 inches of asphalt pavement at least 5 feet of clean fill or Upper Silt material that has not been impacted, isolating them from potential receptors at the

surface. The area used for maintenance and storage is not paved but clean fill overlies the impacted horizon.

- Both the TWP area and the Western Area will remain industrial in the long-term future.
- Practicable removal or treatment options for the chemicals of concern present in subsurface soils in the Western Area, including soils below the water table, are unlikely to be effective in achieving MTCA Method B criteria.

Based on the considerations above, MTCA Method C criteria are also the most appropriate criteria for evaluating impacts and remedial alternatives in the Western Area. To be conservative, both MTCA Method B and C criteria are discussed in the following sections. For TPH, there are neither MTCA Method B nor Method C criteria. Therefore, to be conservative, comparisons were made with the MTCA Method A criteria for TPH in soils. Exceedances of MTCA criteria for soil are shown on Figure 4-1 and listed on Tables 4-2 and 4-3.

Based on the low levels of detections within and surrounding the Western Area, impacts to soil in this area appear to be localized in extent and minor. The detected constituents were not found in multiple borings or at multiple vertical intervals within a single boring.

In the northwestern sub-area, TPH was detected in two soil samples at concentrations exceeding the MTCA Method A criterion. The sample collected from 4 to 5.5 feet bgs in boring 99NW-SB2 had an oil concentration of 1,200 mg/kg. The deeper sample from this boring (8.5 to 10 feet bgs) had an oil concentration of 79 mg/kg, less than the MTCA Method A criterion. Diesel and PAHs were not detected in either sample.

The sample collected from 2.5 to 4 feet bgs in boring 99NW-SB3 had an oil concentration of 200 mg/kg, equal to the MTCA Method A criterion. Diesel was not detected in this sample. Several PAHs were also detected but at concentrations below MTCA Method B and C criteria. The total carcinogenic PAHs (cPAH) concentration slightly exceeded the MTCA Method B (but not MTCA Method C) criterion. Oil, diesel, PAHs, and pentachlorophenol were not detected in the deeper sample from this boring (8.5 to 10 feet bgs).

In the southwestern sub-area, TPH as oil was detected at 550 mg/kg and TPH as diesel was detected at 600 mg/kg in the sample collected from 1 to 2.5 feet bgs in boring 99SW-SB1. Both values exceed the MTCA Method A criterion. TPH was not detected at concentrations exceeding the MTCA Method A criterion in the two deeper samples from this boring (5.5 to 7 feet bgs; 7 to 8.5 feet bgs). Pentachlorophenol and PAHs were not detected in any of the samples from this boring.

Pentachlorophenol was not detected in any of the soil samples collected from the Western Area. None of the metals and inorganic compounds were detected in soil samples collected from the Western Area at concentrations exceeding MTCA criteria, as shown in Table 4-3.

TPH was detected in three locations (99NW-SB2 and 99NW-SB3 in the northwestern sub-area, and 99SW-SB1 in the southwestern sub-area) at concentrations greater than the MTCA Method A criterion. However, the detected concentrations did not exceed threshold criteria for protection for human health contact toxicity or for the soil-to-groundwater pathway calculated using the Interim Interpretive and Policy Statement (Ecology 1997). The calculations for both pathways are shown in the calculation spreadsheets (Table 4-4).



The spreadsheets for human health exposure and the soil-to-groundwater pathway were constructed using conservative default values published by Ecology for molecular weights, solubilities, effective solubilities, and dilution factors. In addition, all of the detected TPH concentrations were added to the detected PAH concentrations for the worst-case sample (99NW-SB2). To be conservative, the sum of all detected TPH and PAHs was treated as a single surrogate fraction. These single calculated surrogate fractions, which overestimate the concentration of each fraction, were entered in the spreadsheet as a single concentration. One-half of the detection limit was used in the calculation for non-detected compounds. The input data and calculated values are shown on Table 4-4.

The calculated hazard index for human health contact toxicity (non-carcinogenic) is less than "1" for the residential, commercial, and industrial scenarios. Calculated groundwater concentrations were less than the MTCR criterion of 1 milligram per liter (mg/L). Therefore, the concentrations of TPH and PAHs detected in soil samples at the site are protective of groundwater and human health.

Laboratory chromatograms for the TPH detections in soil samples from the Western Area were reviewed to evaluate potential sources. The chromatogram for sample 99NW-SB3 (2.5 to 4 feet bgs) from the northwestern sub-area, and 99SW-SB4 (1 to 2.5 feet bgs) from the southwestern sub-area, are provided in Appendix C. For comparison, a chromatogram is provided for a soil sample collected from boring PB04. Boring PB04 was drilled in July 1998 and is located along the western boundary of the TWP area. The chromatogram for the TPH in this sample is considered to be representative of TPH present within the former TWP area. The diesel range hydrocarbons detected in this sample are typical of other hydrocarbons detected within the former TWP area or in the PCMP wells. In addition, laboratory standard chromatograms are provided in Appendix C for diesel range hydrocarbons and heavy oil range hydrocarbons.

The chromatograms from the soil samples from borings 99NW-SB3 and 99SW-SB4 show the presence of hydrocarbons in the heavy oil range. The heavy oil fraction observed in the chromatograms has not been observed in chromatograms of TPH in soil and groundwater samples from the former TWP area. The chromatograms do not match the diesel range standard (also included in Appendix C).

Chromatograms were not available for the TPH detected in monitoring wells present on the Wilcox and Flegel Fuel Oil property. However, as shown on cross section B - B' (Figure 3-2), Chevron monitoring well MW-3 is located about 30 feet west of the northwestern area. TPH has consistently been detected in groundwater samples from this monitoring well. During the October 1998 sampling round (the latest round for which data were available), a concentration of TPH as diesel of 1,370 micrograms per liter ( $\mu\text{g/L}$ ) was detected in the sample from this well. In addition, a sheen was noted during the October 1995 monitoring round. The presence of elevated TPH in this area indicates that it represents a potential source for the relatively minor concentrations of TPH detected in borings in the northwestern area.

Several Chevron monitoring wells which have been impacted by TPH are also located in close proximity to the southwestern area. Monitoring wells AMW-1 through AMW-5 (not shown on the map) are located 150 to 250 feet north of the sampling locations in the maintenance yard. Monitoring of these wells has been performed quarterly since January 1997. TPH as diesel has been consistently detected in all but well AMW-3, at concentrations ranging from 85 to 6,713  $\mu\text{g/L}$ . Immiscible product is present further to the north, where several product extraction wells

(RW-1 through RW-3) have been operated as product extraction wells. In addition, TPH has been measured in a number of soil and groundwater samples collected from wells and borings located several hundred feet south of the Terminal Receiving Station. These include Borings TP-1, TP-2, TP-3, TP-5 and TP-7, and monitoring well MW-21. These wells and borings are located 150 to 300 feet southwest of the Terminal Receiving Station.

Based on these results, former petroleum operations by Chevron at their nearby property has adversely impacted soil and groundwater across relatively large areas adjoining the Western Area. These impacts may have extended into both the northwestern and southwestern sub-areas.

In addition, later operation of the municipal treatment plant by the City of Longview, between 1947 and 1980, may have impacted soil and groundwater in the southwestern sub-area. This facility may have received chemicals of varying types, including solvents, petroleum hydrocarbons, metals, and PCBs, as well as wood product wastes that could include creosote and pentachlorophenol. The sludge disposal area operated by the facility was most likely unlined.

Finally, treated lumber and maintenance equipment is sometimes stored in the existing maintenance yard in the southwest sub-area. Because this area is largely unpaved, these activities may have resulted in adverse impacts to soil and groundwater.

The source of the detected heavy oil fraction is unknown but does not appear to be derived from the former TWP area.

#### **4.4 LABORATORY ANALYTICAL RESULTS FOR WATER SAMPLES**

Two groundwater samples were submitted to Oregon Analytical Laboratories for analysis. Both samples were collected from the northwestern sub-area. Analytical results are presented in Table 4-5. The laboratory data sheets are included in Appendix B.

According to the Cleanup Action Plan for the TWP area (Woodward-Clyde 1997a), MTCA Method B criteria are applicable for groundwater beyond the deed-restricted area. No exceedances of applicable MTCA Method B criteria for groundwater were detected, as indicated in Figure 4-1. TPH, PAHs, and pentachlorophenol were not detected in either sample. In addition, no immiscible product, sheens, or discoloration was observed in either water sample or from saturated soil samples collected at other locations. Based on field observations and laboratory analytical data, no evidence of impacts to shallow groundwater beneath the Western Area was observed.

Table 4-1  
**FIELD MEASUREMENTS**

SOUTHWESTERN SUB-AREA		
SAMPLE ID	FID READING (ppm)	HANBY TEST RESULTS (mg/kg TPH)
99SW-SB1-1-2.5	NR	>200
99SW-SB1-2.5-4	NR	<50
99SW-SB1-4-5.5	NR	<50
99SW-SB1-5.5-7	NR	>100
99SW-SB1-7-8.5	NR	<50
99SW-SB2-1-2.5	NR	<50
99SW-SB2-2.5-4	NR	<50
99SW-SB2-4-5.5	NR	<50
99SW-SB2-5.5-7	NR	<50
99SW-SB2-7-8.5	NR	<50
99SW-SB3-1-2.5	NR	<50
99SW-SB3-2.5-4	680	<50
99SW-SB3-4-5.5	11	<50
99SW-SB3-5.5-7	0	<50
99SW-SB3-7-8.5	NR	<50
99SW-SB3-8.5-10	NR	<50
99SW-SB4-1-2.5	NR	>100
99SW-SB4-2.5-4	NR	<50
99SW-SB4-4-5.5	3000	<50
99SW-SB4-5.5-7	600	<50
99SW-SB4-7-8.5	NR	<50
99SW-SB4-8.5-10	NR	<50
99SW-SB4-10-11.5	NR	<50

NORTHWESTERN SUB-AREA		
SAMPLE ID	FID READING (ppm)	HANBY TEST RESULTS (mg/kg TPH)
99NW-SB1-2.5-4	280	<50
99NW-SB1-4-5.5	NR	>500
99NW-SB1-5.5-7	NR	<50
99NW-SB1-7-8.5	NR	<50
99NW-SB1-8.5-10	NR	<50
99NW-SB2-2.5-4	NR	>100
99NW-SB2-4-5.5	NR	>500
99NW-SB2-5.5-7	NR	<50
99NW-SB2-7-8.5	NR	<50
99NW-SB2-8.5-10	NR	<50
99NW-SB3-2.5-4	NR	>50
99NW-SB3-4-5.5	NR	<50
99NW-SB3-5.5-7	NR	<50
99NW-SB3-7-8.5	NR	<50
99NW-SB3-8.5-10	NR	<50
<b>Notes:</b> NR – Not Recorded FID – Flame Ionization Detector TPH – Total Petroleum Hydrocarbons Ppm – parts per million		

TABLE 4-2  
ORGANIC COMPOUNDS DETECTED IN SOIL SAMPLES

Sample ID Depth Date Sampled	MTCA B	MTCA C Industrial	99NW-SB1 (4 - 5.5 ft bgs) (8.5 - 10 ft bgs)		99NW-SB2 (4 - 5.5 ft bgs) (8.5 - 10 ft bgs)		99NW-SB3 (2.5 - 4 ft bgs) (8.5 - 10 ft bgs)	
			1/6/99	1/6/99	1/6/99	1/6/99	1/6/99	1/6/99
<b>SVOC (ug/kg)</b>								
Fluoranthene	3,200,000	140,000,000	330 U	330 U	33,000 U	3,300 U	3,300 U	330 U
Phenanthrene	NA	NA	330 U	330 U	33,000 U	3,300 U	3,300 U	330 U
<b>PAH-low level (ug/kg)</b>								
Acenaphthene	4,800,000	210,000,000	100 U	100 U	100 U	100 U	10 U	10 U
Anthracene	24,000,000	1,050,000,000	100 U	100 U	100 U	100 U	10 U	10 U
Benzo[a]anthracene	137	18,000	100 U	100 U	100 U	100 U	19	10 U
Benzo[a]pyrene	137	18,000	100 U	100 U	100 U	100 U	21	10 U
Benzo[b]fluoranthene	137	18,000	100 U	100 U	100 U	100 U	51	10 U
Benzo[g,h,i]perylene	NA	NA	100 U	100 U	100 U	100 U	21	10 U
Benzo[k]fluoranthene	137	18,000	100 U	100 U	100 U	100 U	11	10 U
Chrysene	137	18,000	100 U	100 U	100 U	100 U	32	10 U
Dibenz[a,h]anthracene	137	18,000	100 U	100 U	100 U	100 U	10 U	10 U
Fluoranthene	3,200,000	140,000,000	100 U	100 U	100 U	100 U	36	10 U
Fluorene	3,200,000	140,000,000	100 U	100 U	100 U	100 U	10 U	10 U
Indeno[1,2,3-cd]pyrene	137	18,000	100 U	100 U	100 U	100 U	16	10 U
Naphthalene	3,200,000	140,000,000	100 U	100 U	100 U	100 U	12	10 U
Phenanthrene	NA	NA	100 U	100 U	100 U	100 U	17	10 U
Pyrene	2,400,000	105,000,000	100 U	100 U	100 U	100 U	21	10 U
Total cPAHs	137	18,000	100 U	100 U	100 U	100 U	<u>150</u>	10 U
<b>TPH (mg/kg)</b>								
Diesel Region	NA	200 <sup>1</sup>	25 U	25 U	250 U	25 U	25 U	25 U
Oil Region	NA	200 <sup>1</sup>	50 U	50 U	<b>1,200</b>	79	<b>200</b>	50 U
<b>Pesticides/PCBs (ug/kg)</b>								
4,4'-DDD	4,170	547,000	5 U	4 U	4 U	4 U	4 U	5 U
delta-BHC	NA	NA	3 U	2 U	2 U	2 U	2 U	2 U
Dieldrin	63	8,200	5 U	4 U	4 U	4 U	4 U	5 U
Arochlor 1248	130	17,000	130 U	110 U	110 U	110 U	110 U	110 U
<b>Herbicides (ug/kg)</b>								
Dalapon	2,400,000	105,000,000	27	10 U	9 U	10 U	9 U	10 U
Dicamba	2,400,000	105,000,000	17	10 U	9 U	10 U	9 U	10 U

Notes:

Results above MTCA Method C (and MTCA A for TPH) are **boxed**.

Results above MTCA Method B are underlined.

1: Criterion is MTCA Method A.

U: non-detect

J: estimated value

TABLE 4-2  
ORGANIC COMPOUNDS DETECTED IN SOIL SAMPLES

Sample ID Depth Date Sampled	MTCA B	MTCA C Industrial	99SW-SB1			99SW-SB2		99SW-SB3	
			(1 - 2.5 ft bgs) 1/7/99	(5.5 - 7 ft bgs) 1/7/99	(7 - 8.5 ft bgs) 1/7/99	(1 - 2.5 ft bgs) 1/7/99	(5.5 - 7 ft bgs) 1/7/99	(2.5 - 4 ft bgs) 1/7/99	(8.5 - 10 ft bgs) 1/7/99
<b>SVOC (ug/kg)</b>									
Fluoranthene	3,200,000	140,000,000	33,000 U	330 U	330 U	660 U	330 U	330 U	330 U
Phenanthrene	NA	NA	33,000 U	330 U	330 U	660 U	330 U	330 U	330 U
<b>PAH-low level (ug/kg)</b>									
Acenaphthene	4,800,000	210,000,000	1,000 U	100 U	100 U	10 U	10 U	100 U	10 U
Anthracene	24,000,000	1,050,000,000	1,000 U	100 U	100 U	10 U	10 U	100 U	10 U
Benzo[a]anthracene	137	18,000	1,000 U	100 U	100 U	20	10 U	100 U	10 U
Benzo[a]pyrene	137	18,000	1,000 U	100 U	100 U	24	10 U	100 U	10 U
Benzo[b]fluoranthene	137	18,000	1,000 U	100 U	100 U	33	10 U	100 U	10 U
Benzo[g,h,i]perylene	NA	NA	1,000 U	100 U	100 U	18	10 U	100 U	10 U
Benzo[k]fluoranthene	137	18,000	1,000 U	100 U	100 U	13	10 U	100 U	10 U
Chrysene	137	18,000	1,000 U	100 U	100 U	30	10 U	100 U	10 U
Dibenz[a,h]anthracene	137	18,000	1,000 U	100 U	100 U	10 U	10 U	100 U	10 U
Fluoranthene	3,200,000	140,000,000	1,000 U	100 U	100 U	42	10 U	100 U	10 U
Fluorene	3,200,000	140,000,000	1,000 U	100 U	100 U	10 U	10 U	100 U	10 U
Indeno[1,2,3-cd]pyrene	137	18,000	1,000 U	100 U	100 U	15	10 U	100 U	10 U
Naphthalene	3,200,000	140,000,000	1,000 U	100 U	100 U	10 U	10 U	100 U	10 U
Phenanthrene	NA	NA	1,000 U	100 U	100 U	17	10 U	100 U	10 U
Pyrene	2,400,000	105,000,000	1,000 U	100 U	100 U	36	10 U	100 U	10 U
Total cPAHs	137	18,000	1,000 U	100 U	100 U	122	10 U	100 U	10 U
<b>TPH (mg/kg)</b>									
Diesel Region	NA	200 <sup>1</sup>	<b>600</b>	25 U	25 U	25 U	25 U	25 U	25 U
Oil Region	NA	200 <sup>1</sup>	<b>550</b>	50 U	91	74	50 U	50 U	50 U
<b>Pesticides/PCBs (ug/kg)</b>									
4,4'-DDD	4,170	547,000	5 U	5 U	5 U	5 U	4 U	4 U	5 U
delta-BHC	NA	NA	2 U	2 U	2 U	3 U	2 U	2 U	2 U
Dieldrin	63	8,200	5 U	5 U	5 U	5 U	4 U	4 U	5 U
Aroclor 1248	130	17,000	120 U	120 U	120 U	130 U	110 U	110 U	120 U
<b>Herbicides (ug/kg)</b>									
Dalapon	2,400,000	105,000,000	10 U	10 U	10 U	10 U	9 U	9 U	10 U
Dicamba	2,400,000	105,000,000	10 U	10 U	10 U	10 U	9 U	9 U	10 U

Notes:

Results above MTCA Method C (and MTCA A for TPH) are **boxed**.

Results above MTCA Method B are underlined.

1: Criterion is MTCA Method A.

U: non-detect

J: estimated value

TABLE 4-2  
ORGANIC COMPOUNDS DETECTED IN SOIL SAMPLES

Sample ID Depth Date Sampled	MTCA B	MTCA C Industrial	99SW-SB4		
			(1 - 2.5 ft bgs) 1/7/99	(5.5 - 7 ft bgs) 1/7/99	(10 - 11.5 ft bgs) 1/7/99
<b>SVOC (ug/kg)</b>					
Fluoranthene	3,200,000	140,000,000	3,300 U	330 U	3,300 U
Phenanthrene	NA	NA	3,300 U	330 U	3,300 U
<b>PAH-low level (ug/kg)</b>					
Acenaphthene	4,800,000	210,000,000	100 U	10 U	10 U
Anthracene	24,000,000	1,050,000,000	100 U	25	17
Benzo[a]anthracene	137	18,000	100 U	53	10 U
Benzo[a]pyrene	137	18,000	100 U	76	17
Benzo[b]fluoranthene	137	18,000	100 U	<u>179</u>	13
Benzo[g,h,i]perylene	NA	NA	100 U	97	257
Benzo[k]fluoranthene	137	18,000	100 U	51	10 U
Chrysene	137	18,000	100 U	87	10 U
Dibenz[a,h]anthracene	137	18,000	100 U	23	15
Fluoranthene	3,200,000	140,000,000	100 U	55	10 U
Fluorene	3,200,000	140,000,000	100 U	10 U	10 U
Indeno[1,2,3-cd]pyrene	137	18,000	100 U	81	<u>147</u>
Naphthalene	3,200,000	140,000,000	100 U	22	10 U
Phenanthrene	NA	NA	100 U	30	10 U
Pyrene	2,400,000	105,000,000	100 U	50	10 U
Total cPAHs	137	18,000	100 U	<u>550</u>	<u>192</u>
<b>TPH (mg/kg)</b>					
Diesel Region	NA	200 <sup>1</sup>	25 U	25 U	25 U
Oil Region	NA	200 <sup>1</sup>	100	80	50 U
<b>Pesticides/PCBs (ug/kg)</b>					
4,4'-DDD	4,170	547,000	4 U	8	5 U
delta-BHC	NA	NA	2 U	2 U	3 U
Dieldrin	63	8,200	4 U	5	5 U
Aroclor 1248	130	17,000	99 U	110 U	130 U
<b>Herbicides (ug/kg)</b>					
Dalapon	2,400,000	105,000,000	8 U	9 U	11 U
Dicamba	2,400,000	105,000,000	8 U	9 U	11 U

Notes:

Results above MTCA Method C (and MTCA A for TPH) are **boxed**.

Results above MTCA Method B are underlined.

1: Criterion is MTCA Method A.

U: non-detect

J: estimated value

Table 4-3  
**METALS AND CONVENTIONALS DETECTED IN SOIL SAMPLES**

Sample ID Depth Date Sampled	MTCA B	MTCA C Industrial	99NW-SB1		99NW-SB2		99NW-SB3	
			(4 - 5.5 ft bgs) 1/6/99	(8.5 - 10 ft bgs) 1/6/99	(4 - 5.5 ft bgs) 1/6/99	(8.5 - 10 ft bgs) 1/6/99	(2.5 - 4 ft bgs) 1/6/99	(8.5 - 10 ft bgs) 1/6/99
<b>Metals (mg/kg)</b>								
Arsenic	1.67	219	<u>1.5</u>	<u>1.3</u>	<u>1.5</u>	<u>1.1</u>	<u>2.0</u>	<u>1.1</u>
Beryllium	0.233	30.5	<u>0.11</u>	0.1 U	<u>0.14</u>	0.1 U	<u>0.24</u>	0.1 U
Cadmium	80	3500	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium	80000 <sup>2</sup>	3500000 <sup>2</sup>	<u>7.20</u>	<u>6.89</u>	<u>6.90</u>	<u>9.39</u>	<u>17.5</u>	<u>8.02</u>
Copper	2960	130000	<u>20.6</u>	<u>13.8</u>	<u>16.8</u>	<u>15.0</u>	<u>38.9</u>	<u>14.5</u>
Lead	NA	250 <sup>1</sup>	<u>1.5</u>	<u>0.96</u>	<u>24.3</u>	<u>0.92</u>	<u>9.88</u>	<u>0.87</u>
Mercury	24	1050	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	1600	70000	<u>9.2</u>	<u>12.4</u>	<u>10.5</u>	<u>15.9</u>	<u>15.2</u>	<u>14.6</u>
Silver	400	17500	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Zinc	24000	1050000	<u>23.1</u>	<u>22.1</u>	<u>34.4</u>	<u>25.6</u>	<u>53.3</u>	<u>24.1</u>
<b>Conventionals (mg/kg)</b>								
Chloride	NA	NA	<u>1</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>3</u>	<u>2</u>
Fluoride	4800 <sup>3</sup>	210000 <sup>3</sup>	1 UJ	1 J	1 J	1 UJ	1 J	1 UJ
Nitrate as N	128000	5600000	1 U	1 U	1 U	1 U	1 U	1 U
pH (std units)	NA	NA	<u>5.8</u>	<u>7.4</u>	<u>6.5</u>	<u>7.0</u>	<u>5.9</u>	<u>7.4</u>
Sulfate as SO4	NA	NA	<u>6</u>	<u>6</u>	<u>5 U</u>	<u>5 U</u>	<u>5 U</u>	<u>5 U</u>

Notes:

Results above MTCA Method C (and MTCA A for TPH) are **boxed**.

Results above MTCA Method B are **underlined**.

1: Criterion is MTCA Method A.

2: Criterion is for chromium III.

3: Criterion is for fluorine, soluble fluoride.

U: non-detect

J: estimated value

Table 4-3  
**METALS AND CONVENTIONALS DETECTED IN SOIL SAMPLES**

Sample ID Depth Date Sampled	MTCA B	MTCA C Industrial	99SW-SB1			99SW-SB2		99SW-SB3	
			(1 - 2.5 ft bgs) 1/7/99	(5.5 - 7 ft bgs) 1/7/99	(7 - 8.5 ft bgs) 1/7/99	(1 - 2.5 ft bgs) 1/7/99	(5.5 - 7 ft bgs) 1/7/99	(2.5 - 4 ft bgs) 1/7/99	(8.5 - 10 ft bgs) 1/7/99
<b>Metals (mg/kg)</b>									
Arsenic	1.67	219	<u>2.2</u>	<u>1.6</u>	<u>1.4</u>	<u>16.5</u>	<u>1.3</u>	<u>1.7</u>	<u>1.3</u>
Beryllium	0.233	30.5	<u>0.27</u>	0.1 U	0.1 U	<u>0.28</u>	0.1 U	0.1 U	0.1 U
Cadmium	80	3500	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chromium	80000 <sup>2</sup>	3500000 <sup>2</sup>	<u>10.8</u>	<u>9.66</u>	<u>8.71</u>	<u>13.5</u>	<u>8.5</u>	<u>9.37</u>	<u>11.0</u>
Copper	2960	130000	<u>32.5</u>	<u>21.9</u>	<u>15.2</u>	<u>155</u>	<u>14.6</u>	<u>14.6</u>	<u>16.1</u>
Lead	NA	250 <sup>1</sup>	<u>4.9</u>	<u>4.2</u>	<u>1.7</u>	<u>12.5</u>	<u>1.1</u>	<u>1.8</u>	<u>0.93</u>
Mercury	24	1050	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	1600	70000	<u>10.9</u>	<u>15.9</u>	<u>17.9</u>	<u>13.7</u>	<u>15.5</u>	<u>10.2</u>	<u>16.2</u>
Silver	400	17500	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Zinc	24000	1050000	<u>33.6</u>	<u>31.9</u>	<u>27.3</u>	<u>83.0</u>	<u>26.6</u>	<u>36.4</u>	<u>29.3</u>
<b>Conventionals (mg/kg)</b>									
Chloride	NA	NA	1 U	1	2	1	1 U	1 U	1 U
Fluoride	4800 <sup>3</sup>	210000 <sup>3</sup>	2 J	6 J	1 UJ	5 J	1 J	1 UJ	2 J
Nitrate as N	128000	5600000	1 U	1 U	1 U	6	1 U	1 U	2
pH (std units)	NA	NA	7.0	7.3	7.1	6.7	6.3	6.5	7.6
Sulfate as SO4	NA	NA	39	10	5 U	6	5 U	5 U	5 U

Notes:

Results above MTCA Method C (and MTCA A for TPH) are **boxed**.

Results above MTCA Method B are **underlined**.

1: Criterion is MTCA Method A.

2: Criterion is for chromium III.

3: Criterion is for fluorine, soluble fluoride.

U: non-detect

J: estimated value



Table 4-3  
**METALS AND CONVENTIONALS DETECTED IN SOIL SAMPLES**

Sample ID Depth Date Sampled	MTCA B	MTCA C Industrial	99SW-SB4		
			(1 - 2.5 ft bgs) 1/7/99	(5.5 - 7 ft bgs) 1/7/99	(10 - 11.5 ft bgs) 1/7/99
<b>Metals (mg/kg)</b>					
Arsenic	1.67	219	1.0	2.1	1.3
Beryllium	0.233	30.5	0.1 U	0.13	0.1 U
Cadmium	80	3500	1.2	0.2 U	0.2 U
Chromium	80000 <sup>2</sup>	3500000 <sup>2</sup>	9.3	11	9.38
Copper	2960	130000	123	31.5	25.4
Lead	NA	250 <sup>1</sup>	2.5	15.1	1.5
Mercury	24	1050	0.1 U	0.29	0.1 U
Nickel	1600	70000	8.1	11.3	8.9
Silver	400	17500	0.3 U	0.89	0.3 U
Zinc	24000	1050000	48.4	78.5	27.8
<b>Conventionals (mg/kg)</b>					
Chloride	NA	NA	1 U	1 U	1
Fluoride	4800 <sup>3</sup>	210000 <sup>3</sup>	1 UJ	1 J	1 UJ
Nitrate as N	128000	5600000	1 U	1 U	1 U
pH (std units)	NA	NA	8.2	5.9	6.6
Sulfate as SO4	NA	NA	5 U	5 U	5 U

Notes:

Results above MTCA Method C (and MTCA A for TPH) are **boxed**.

Results above MTCA Method B are underlined.

1: Criterion is MTCA Method A.

2: Criterion is for chromium III.

3: Criterion is for fluorine, soluble fluoride.

U: non-detect

J: estimated value

Table 4-4  
**INTERIM TPH GUIDELINE CALCULATION SPREADSHEET**  
**Soil Sample 99NW-SB2**  
**Western Area**

Soil to Groundwater Calculation								
Compound	Soil mg/kg	Mole wt. g/mol	Moles mmol/kg	Mol. Frac. %	Solubility mg/L	Effect. Sol. mg/L	DF	Conc.well mg/L
<b>Aliphatics</b>								
EC8-10*	1325.8	130	10.1985	0.9731237	0.33	0.32113083	20	0.01605654
EC10-12*	0	160	0.0000	0	0.026	0	20	0
EC12-16	0	200	0.0000	0	0.00059	0	20	0
EC16-21	0	270	0.0000	0	0.000001	0	20	0
EC21-34	0	270	0.0000	0	0.000001	0	20	0
<b>Aromatics</b>								
EC8-10*	33.8	120	0.2817	0.0268763	65	1.746957	20	0.08734785
EC10-12*	0	130	0.0000	0	25	0	20	0
EC12-16	0	150	0.0000	0	5.8	0	20	0
EC16-21	0	190	0.0000	0	0.51	0	20	0
EC21-34	0	240	0.0000	0	0.01	0	20	0
<b>totals</b>			10.4801	1.000				0.10340439
* For NDs, one-half of the PQL was used.								
Non-Carcinogen--Human Health Soils Contact								
Compound	Soil Conc.	ORfD	Res. Mult	HQ	Com.Mult.	HQ	Ind. Mult.	HQ
Tot. Aliph	1325.8	0.06	2.08E-04	0.2757664	5.21E-05	0.06907418	4.77E-06	0.00632407
Tot. Arom.	33.8	0.03	4.17E-04	0.0140946	1.04E-04	0.0035152	9.53E-06	0.00032211
Hazard Index				0.289861		0.07258938		0.00664618

Table 4-5  
**CONSTITUENTS DETECTED IN GROUNDWATER SAMPLES  
 WESTERN AREA**

Sample ID Date Sampled	MTCA B Groundwater	99NW-SB2-GW 1/6/99	99NW-SB3-GW 1/6/99
<b>VOC (ug/L)</b>			
Acetone	800	20 U	33
Chloroform	7.17	1 U	1 U
Naphthalene	320	1 U	1 U
<b>SVOC (ug/L)</b>			
2-Methylnaphthalene	NA	10 U	--
Acenaphthene	960	10 U	--
Fluorene	640	10 U	--
Naphthalene	320	10 U	--
<b>PAHs (ug/L)</b>			
Acenaphthene	960	0.1 U	--
Fluorene	640	0.1 U	--
Naphthalene	320	0.1 U	--
Phenanthrene	NA	0.1 U	--
Pentachlorophenol	0.729	0.5 U	--
<b>TPH (mg/L)</b>			
Diesel Region	1.0	0.25 U	--
<b>PCB/Pesticides (ug/L)</b>			
gamma-BHC (Lindane)	0.0673	--	--
Heptachlor	0.0194	--	--

Notes:

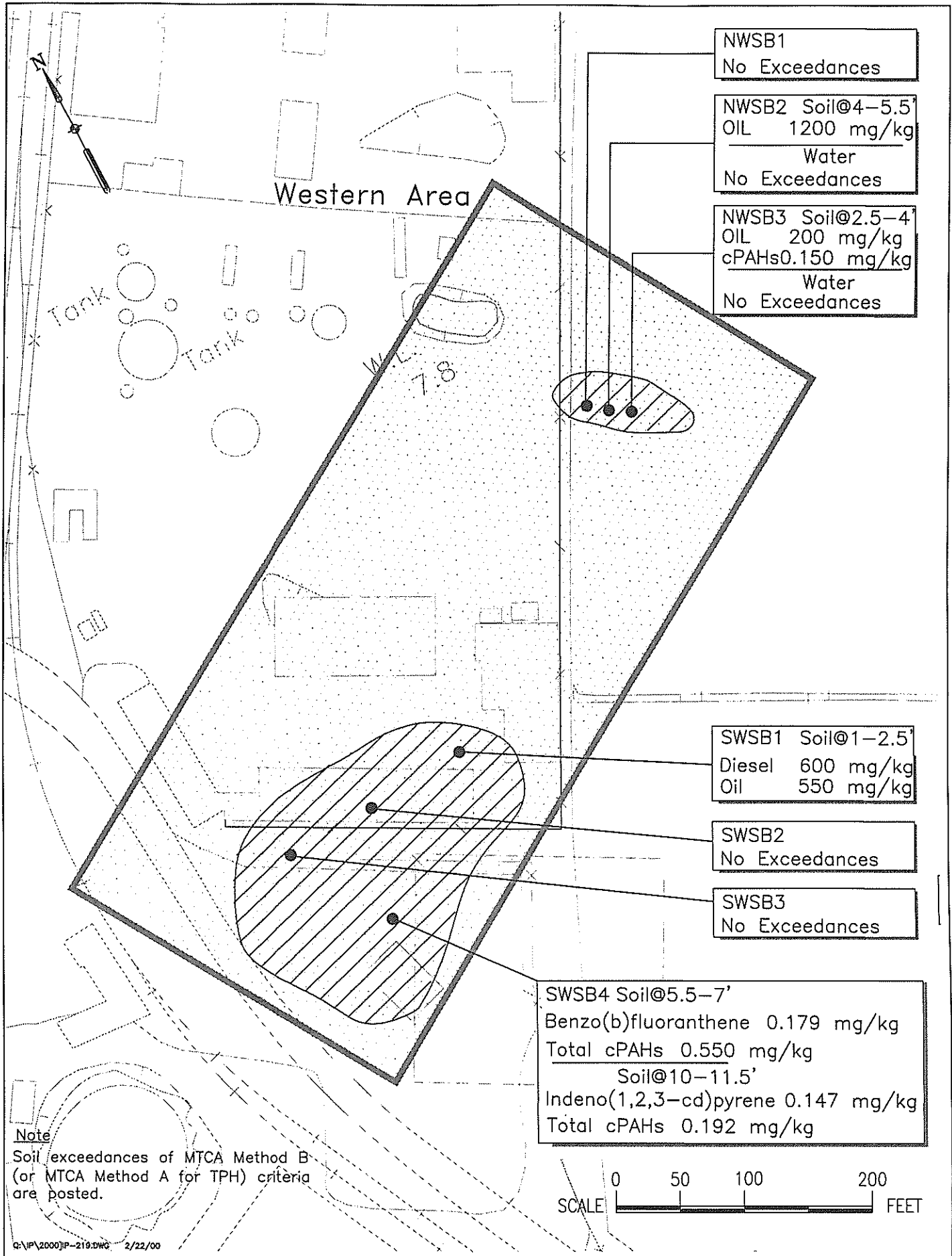
Results above MTCA B Groundwater are underlined.

--: Not analyzed

NA: Not applicable

U: non-detect

J: estimated value



Long Bell Lumber/International Paper owned the area referred to as the Western Area in the early 1900s. Review of aerial photographs showed that the Western Area consisted of two apparent wet sub-areas, including one larger sub-area to the south and a smaller sub-area to the north. Subsequent aerial photographs from 1947 through 1980, along with chain of title information, indicated that a sludge disposal area owned by the City of Longview was operated on the larger of the two wet areas (on the southern sub-area). The construction details of the sludge disposal area, which was part of a City of Longview municipal treatment facility, are unknown. However, the area was likely unlined and had the potential to have received chemicals of varying types from many different sources including solvents, petroleum hydrocarbons, metals, and PCBs, as well as wood product wastes that could include creosote and pentachlorophenol. The Port of Longview purchased the parcel (which includes the Western Area) from the City of Longview in 1980.

A total of seven geoprobe borings were drilled and sampled in the Western Area. Pentachlorophenol was not detected in soil samples from this area. Petroleum hydrocarbons and PAHs were detected in some shallow soil samples. The TPH and total ncPAHs were detected at concentrations below Interim TPH Policy cleanup criteria. Total cPAHs were detected at a concentration above MTCA Method B criteria in one soil sample, but were below MTCA Method C criteria.

Based on the low levels of detections within the Western Area, impacts to soil in this area appear to be minor and localized in extent. The detected constituents were not found in multiple borings or at multiple vertical intervals within a single boring.

According to the rationale presented in the Cleanup Action Plan, MTCA Method C criteria should also be considered to be the appropriate criteria for soils outside of the TWP area, including the Western Area. The TWP constituents present in soil do not pose a current or long-term risk to human health or environment because of the following factors.

- The chemicals of concern are relatively insoluble and highly sorptive and, therefore, largely immobile in subsurface soils and groundwater.
- The hydraulic gradient beneath the TWP area and most likely nearby areas including the Western Area, is nearly flat, further minimizing the potential for migration of chemicals of concern in groundwater.
- Potential exposure pathways in both areas are incomplete. The impacted soils in the Western Area are usually overlain by 6 inches of asphalt pavement at least 5 feet of clean fill or Upper Silt material that has not been impacted, isolating them from potential receptors at the surface. The area used for maintenance and storage is not paved but clean fill overlies the impacted horizon.
- Both the TWP area and the Western Area will remain industrial in the long-term future.
- Practicable removal or treatment options for the chemicals of concern present in subsurface soils in the Western Area, including soils below the water table, are unlikely to be effective in achieving MTCA Method B criteria.

In addition, the chromatograms for the detected hydrocarbons do not resemble the chromatograms for petroleum hydrocarbons normally associated with the former TWP area. Historic operations at the nearby Chevron facility and also at a municipal treatment facility

within the Western Area may have resulted in adverse impacts to soil and groundwater in both the southwestern and northwestern sub-areas.

Pentachlorophenol was not detected in any groundwater samples. No exceedances of MTCA Method B criteria for TWP constituents were detected in groundwater samples.

The low concentrations of detected constituents in soil, their localized distribution and low mobility, coupled with the lack of direct routes of exposure for the detected constituents, indicate that the detected constituents do not pose a significant risk to human health or groundwater quality. Most of the Western Area is capped with 6 inches of asphalt and is used as log storage, maintenance, or office space and parking. The entire surrounding area is heavy industrial. Therefore, additional investigation or remediation in the Western Area is not recommended.

## **SECTION SIX**

## **Limitations**

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We have performed our services for this project in accordance with our Agreement; no guarantees are either expressed or implied.

There is no investigation which is thorough enough to preclude the presence of materials on the Property which presently, or in the future, may be considered hazardous. Because regulatory evaluation criteria are constantly changing, concentrations of contaminants present and considered to be acceptable may, in the future, become subject to different regulatory standards and require remediation.

Opinions and judgments expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal opinions. No third party shall have the right to rely on URS Greiner Woodward Clyde opinions rendered in connection with the services or in this document without URS Greiner Woodward Clyde's written consent and the third party's agreement to be bound to the same conditions and limitations as client.

Ecology - see Washington State Department of Ecology

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**Appendix A**  
**Boring Logs/Well Construction Logs**

Project: International Paper  
 Project Location: Longview WA  
 Project Number: 54-09900003.01

## Log of Boring 99NW-SB1

Sheet 1 of 1

Date(s) Drilled	1/6/99	Logged By	T. Middleton	Checked By	R. Siegel
Drilling Method	Hollow Stem Auger	Drilling Contractor	Cascade Drilling, Inc	Total Depth Drilled (feet)	10.0
Drill Rig Type	CME 75 Truck Mounted	Sampler Type	Modified California (2.5" ID)	Surface Elevation	14.0 MSL
Groundwater Level	NA	Hammer Weight and Drop	30"/140lb	Top of PVC Elevation	NA)
Diameter of Hole (inches)	8	Diameter of Well (inches)	NA	Type of Well Casing	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA	Screen Perforation	NA

Comments cement bentonite grout to surface/concrete top

Elevation, feet	Depth, feet	SAMPLES				MATERIAL DESCRIPTION	Well Completion Log	FID Headspace (ppm)	FID Background (ppm)	Drilling Rate (Time, 24-hour clock)	REMARKS
		Type	Number	Blows per 6-inch Interval	Percent Recovery						
0	0					6" of Asphalt			1000	start drilling	
						Sand (Fill); coarse sand and gravel fill to 2.5'					
			18/15/20	100		SAND (SP); gray brown fine sand and silt; moist; less silt with depth	280		1007		
			3/6/8	100			NR		1015	sample to lab	
	5		6/7/9	100		SILT (ML); tan; gray; iron stained (mottled); trace of wood noted	NR		1022		
			6/8/9	100		SAND (SP); gray; fine; silt ends at 6"; silty lense at 6.25 to 6.5"; moist to wet	NR		1025		
			NR	100		pumice grains noted; saturated at tip	NR				
	5					silty interbed between 9 and 9.25'; saturated	NR			sample to lab	
	10					BORING TERMINATED AT 10 FEET BGS			1045	end drilling	
	0										
	15										
	5										
	20										

Report: ENV\_23A; Project File: I:\PROJECTS\IWCIA\99-102\LONGVIEW.GPJ; Data Template: WC\_CORP1.GDT Printed: 2/18/00

Project: International Paper  
 Project Location: Longview WA  
 Project Number: 54-09900003.01

# Log of Boring 99NW-SB2

Sheet 1 of 1

Date(s) Drilled	1/6/99	Logged By	T. Middleton	Checked By	R. Siegel
Drilling Method	Hollow Stem Auger	Drilling Contractor	Cascade Drilling, Inc	Total Depth Drilled (feet)	10.0
Drill Rig Type	CME 75 Truck Mounted	Sampler Type	Modified California (2.5" ID)	Surface Elevation	NR
Groundwater Level	NA	Hammer Weight and Drop	30"/140lb	Top of PVC Elevation	NA
Diameter of Hole (inches)	8	Diameter of Well (inches)	NA	Type of Well Casing	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA	Screen Perforation	NA

Comments cement bentonite grout to surface/concrete top

Elevation, feet	Depth, feet	SAMPLES			Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	FID Headspace (ppm)	FID Background (ppm)	Drilling Rate (Time, 24-hour clock)	REMARKS
		Type	Number	Blows per 6-inch Interval							
0						6" of asphalt				1110	start drilling
						SAND and GRAVEL (Fill) grades to fine medium sand to 3'; wood chips; sandy silt to 4'					
				20/10/12		SAND (SP); fine to medium; wood chips				1115	
				9/18/20		Sandy SILT (MLS); dark brown; fine; grades to tan gray silt at 4.75' to 5'; grades to gray fine sand; dry to moist				1120	sample to lab
5				6/6/8		iron stained fine sand noted in tip of spoon				1125	
				6/7/9		SAND (SP); fine to medium; tan; gray; saturated; silt interbed at 8'				1132	
				5/15/15		pumice grains at 8'; saturated					sample to lab
10						BORING TERMINATED AT 10 FEET BGS				1135	end drilling
15											
20											

Project: International Paper  
 Project Location: Longview WA  
 Project Number: 54-09900003.01

## Log of Boring 99NW-SB3

Sheet 1 of 1

Date(s) Drilled	1/6/99	Logged By	T. Middleton	Checked By	R. Siegel
Drilling Method	Hollow Stem Auger	Drilling Contractor	Cascade Drilling, Inc	Total Depth Drilled (feet)	10.0
Drill Rig Type	CME 75 Truck Mounted	Sampler Type	Modified California (2.5" ID)	Surface Elevation	14.7 MSL
Groundwater Level	NA	Hammer Weight and Drop	30"/140lb	Top of PVC Elevation	NA)
Diameter of Hole (inches)	8	Diameter of Well (inches)	NA	Type of Well Casing	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA	Screen Perforation	NA
Comments cement bentonite grout to surface/concrete top					

Elevation, feet	Depth, feet	SAMPLES				Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	FID Headspace (ppm)	FID Background (ppm)	Drilling Rate (Time, 24-hour clock)	REMARKS
		Type	Number	Blows per 6-inch Interval	Percent Recovery							
0						6" of asphalt				1335	start drilling	
						SAND and GRAVEL (Fill); coarse						
			18/23/40	100		Silty SAND (SP); dark brown				1340	sample to lab	
			17/20/20	100		SILT (ML); dense; dark gray				1345		
10	5		9/11/15	100						1350		
			9/4/11	100		SAND (SP); medium; trace of pumice at 6'; fine, uniform gray sand; moist to 7'				1355		
			8/10/12	100		silty interbeds; moist				1400	sample to lab	
5	10					slightly coarser; saturated at 9' bgs						
						BORING TERMINATED AT 10 FEET BGS				1400	end drilling	
0	15											
-5	20											

Report: ENV\_23A; Project File: I:\PROJECTS\WCI\99S40990-1.02\LONGVIEW.GPJ; Data Template: WC\_CORP1.GDT Printed: 2/18/00

Project: International Paper  
 Project Location: Longview WA  
 Project Number: 54-09900003.01

# Log of Boring 99SW-SB1

Sheet 1 of 1

Date(s) Drilled	1/7/99	Logged By	T. Middleton	Checked By	R. Siegel
Drilling Method	Hollow Stem Auger	Drilling Contractor	Cascade Drilling, Inc	Total Depth Drilled (feet)	8.5
Drill Rig Type	CME 75 Truck Mounted	Sampler Type	Modified California (2.5" ID)	Surface Elevation	11.8 MSL
Groundwater Level	NA	Hammer Weight and Drop	30"/140lb	Top of PVC Elevation	NA
Diameter of Hole (inches)	8	Diameter of Well (inches)	NA	Type of Well Casing	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA	Screen Perforation	NA
Comments cement bentonite grout to surface/concrete top					

Elevation, feet	Depth, feet	SAMPLES				MATERIAL DESCRIPTION	Well Completion Log	FID Headspace (ppm)	FID Background (ppm)	Drilling Rate (Time, 24-hour clock)	REMARKS
		Type	Number	Blows per 6-inch Interval	Percent Recovery						
0						SAND and GRAVEL (Fill); coarse; brown			0855	start drilling	
-10			10/12/11		100	Sandy SILT (ML); fine; rusty brown; moist			0900		
			7/11/8		100	SAND (SP); fine; gray/brown; trace of medium sand; rusty discoloration; moist; loose			0905	sample to lab	
			5/6/6		100				0912		
5			5/7/11		100	Sandy SILT (ML); iron staining			0920		
			5/7/10		100	SAND (SP); fine; gray/brown; trace of medium sand; silty interbed at 6.5' bgs; wet					
-5						saturated; no odor detected in hole					
						BORING TERMINATED AT 8.5 FEET BGS			0925	end drilling	
10											
0											
15											
-5											
20											

Report: ENV\_23A; Project File: I:\PROJECTS\WCI\A99540990-1.02\LONGVIEW.GPJ; Data Template: WC\_CORP1.GDT Printed: 2/18/00

Project: International Paper  
 Project Location: Longview WA  
 Project Number: 54-09900003.01

# Log of Boring 99SW-SB2

Sheet 1 of 1

Date(s) Drilled	1/7/99	Logged By	T. Middleton	Checked By	R. Siegel
Drilling Method	Hollow Stem Auger	Drilling Contractor	Cascade Drilling, Inc	Total Depth Drilled (feet)	8.5
Drill Rig Type	CME 75 Truck Mounted	Sampler Type	Modified California (2.5" ID)	Surface Elevation	12.8 MSL
Groundwater Level	NA	Hammer Weight and Drop	30"/140lb	Top of PVC Elevation	NA
Diameter of Hole (inches)	8	Diameter of Well (inches)	NA	Type of Well Casing	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA	Screen Perforation	NA

Comments cement bentonite grout to surface/concrete top

Elevation, feet	Depth, feet	SAMPLES				Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	FID Headspace (ppm)	FID Background (ppm)	Drilling Rate (Time, 24-hour clock)	REMARKS
		Type	Number	Blows per 6-inch Interval	Percent Recovery							
0							FILL; large rock in tip of spoon; poor recovery; mostly gravel and coarse sand to 1' bgs				0950	begin drilling
				4/5/8	90		Sandy SILT (MLS); tan brown				0952	sample to lab
-10				6/8/10	90		grades to fine sand				1002	
				6/7/9	90		SAND (SP); dark brown; fine; silt present; trace of wood; trace of medium sand; moist; loose; gray; brown 2" silty layer at 5'; moist				1007	
5				7/9/11	90		fine sand; trace of silt; silty layer at 6'				1015	sample to lab
				7/7/8	90		moist; gray/brown saturated					
-5							BORING TERMINATED AT 8.5 FEET BGS				1025	end drilling
10												
-0												
15												
-5												
20												



**Project: International Paper**  
**Project Location: Longview WA**  
**Project Number: 54-09900003.01**

## Log of Boring 99SW-SB4

Sheet 1 of 1

Date(s) Drilled	1/7/99	Logged By	T. Middleton	Checked By	R. Siegel
Drilling Method	Hollow Stem Auger	Drilling Contractor	Cascade Drilling, Inc	Total Depth Drilled (feet)	11.5
Drill Rig Type	CME 75 Truck Mounted	Sampler Type	Modified California (2.5" ID)	Surface Elevation	16.3 MSL
Groundwater Level	NA	Hammer Weight and Drop	30"/140lb	Top of PVC Elevation	NA
Diameter of Hole (inches)	8	Diameter of Well (inches)	NA	Type of Well Casing	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA	Screen Perforation	NA
Comments	cement bentonite grout to surface/concrete top				

Elevation, feet	Depth, feet	SAMPLES			Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	FID Headspace (ppm)	FID Background (ppm)	Drilling Rate (Time, 24-hour clock)	REMARKS
		Type	Number	Blows per 6-inch Interval							
0					asphalt to 4 inches FILL: gravel and coarse sand				1200	begin drilling	
15					SAND (SP); fine; gray gravel cobbles and pebbles noted; moist		NR		1205		
			20/20/17	90							
			10/16/26	90					1210		
5			15/17/26	90					1217		
10			9/10/10	90	Sandy SILT (MLS); fine; sand lenses		3000		1221	sample to lab	
			11/8/7	90	grades back to... SAND (SP); fine; wet; iron stained; siltier in tip		600		1225		
			9/5/6	90	saturated: finer with depth		NR		1230	sample to lab	
5					BORING TERMINATED AT 11.5 FEET BGS					end drilling	
15											
0											
20											

Report: ENV\_23A; Project File: I:\PROJECTS\WCI\991540990-1.02\LONGVIEW.GPJ; Data Template: WC\_CORP1.GDT Printed: 2/18/00



**Appendix B**  
**QA/QC Review And Laboratory Data Sheets**

## QA/QC REVIEW OF LABORATORY ANALYTICAL DATA

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The analytical results for two water and sixteen soil samples collected in January, 1999 were subject to a QA/QC review including the following:

- \* Chain of custody and holding times
- \* Blank review
- \* Surrogate review
- \* Matrix/blank spike review
- \* Duplicate review
- \* Reporting limits

Samples were collected by URS Greiner Woodward Clyde and analyzed by Oregon Analytical Laboratory of Beaverton, Oregon and Sound Analytical Services of Tacoma, Washington. Samples were submitted to the laboratory between January 5 and 13, 1999. Samples were analyzed for one or more of the following: diesel range hydrocarbons by NWTPH-Dx, volatile organic compounds (VOC's) by United States Environmental Protection Agency (EPA) method 8260, semivolatile organic compounds (SVOC's) by EPA method 8270, low level polynuclear aromatic hydrocarbons (PAH's) by EPA method 8270 SIM, chlorinated pesticides and PCB's by EPA method 8080/8081, organophosphorous pesticides by EPA method 8141 MOD, chlorinated herbicides by EPA method 8150 MOD, total and dissolved metals by EPA method 6010/200, mercury by EPA method 7470, conventionals (cyanide, alkalinity, chloride, fluoride, nitrate, sulfide and sulfate) by EPA 300 series methods, and pH by EPA method 9045.

### Summary

**All analytical data is acceptable for project uses.** The samples were analyzed within the holding times. The method and trip blanks were free of contaminants. No data were qualified due to surrogate percent recoveries. Sixteen soil samples were qualified as estimated (J) due to low fluoride blank spike percent recoveries. Ten soil samples were qualified as estimated (J) due to low 4-nitrophenol matrix spike percent recoveries in the SVOC (8270) analysis. Laboratory duplicate results were comparable. The laboratory reporting limits are acceptable.

### Chain of Custody and Holding Times

The chain of custody forms indicate that samples were maintained under chain of custody, the forms were signed during release and receipt, and that the samples were chilled and appropriately preserved. The laboratory report is complete.

All samples were analyzed within the holding times. No data require qualification based on missed holding times.

### Review of Blanks

The laboratory analyzed one batch method blank for each method. The method blanks did not have detectable levels of any analyte. No data were qualified due to these results. Two trip blanks were analyzed for VOC's. The trip blanks did not have detectable levels of any analyte. No data were qualified due to these results.

#### Surrogate Recovery Review

Each sample was spiked with a surrogate (system monitoring compound) for applicable analyses. The surrogate percent recoveries were within the control limits with the following exceptions.

- One of the three PAH (8270 SIM) surrogate recoveries was below the control limits for sample 99SW-SB1-1-2.5. Associated quality control data were within the control limits; therefore no data were qualified.
- One of the three PAH (8270 SIM) surrogate percent recoveries was above the control limits for sample 99NW-SB2-GW. Associated quality control data were within the control limits; therefore, no data were qualified.
- One of the six SVOC's surrogate percent recoveries was above the control limits for sample 99NW-SB3-8.5-10. Associated quality control data were within the control limits; therefore, no data were qualified.
- One of the six SVOC surrogate percent recoveries was below the control limits for sample 99NW-SB2-GW. Associated quality control data were within the control limits; therefore, no data were qualified.
- Two of the six SVOC surrogate percent recoveries were below the control limits for sample 99SW-SB4-10-11.5. Associated quality control data were within the control limits; therefore no data were qualified.

#### Matrix Spike/Matrix Spike Duplicate Review

The laboratory analyzed a matrix spike/matrix spike duplicate or a blank spike/blank spike duplicate for all analyses. The percent recoveries and duplicate RPD's were within the control limits with the exceptions listed below.

- Soil matrix spike/matrix spike duplicate L9608-17: the SVOC (8270) percent recoveries were below the control limits for 4-nitrophenol at 21% and 25%. Associated data were qualified as estimated (J).
- Soil matrix spike L9547: the percent recovery was below the control limit for fluoride at 72%. Associated data were qualified as estimated (J).
- Soil matrix spike L9547: the percent recovery was above the control limit for selenium at 146%. Associated data were non-detect; therefore, no data were qualified.

- Soil matrix spike L9608: the percent recoveries were below the control limits for fluoride at 46% and 33%. Associated data were qualified as estimated (J).
- Soil matrix spike L9608: the percent recovery was below the control limit for antimony at 58%, and above the control limit for lead and zinc at 128% and 141%. Post digestion spike percent recoveries were within control limits and associated quality control data were acceptable; therefore, no data were qualified.

### Duplicate Review

One water field duplicate was collected during this sampling round. Field duplicate results were comparable. Laboratory duplicates were performed on the following analyses: conventionals, total and dissolved metals, and NWTPH-Dx. Duplicate results greater than five times the reporting limit, are summarized in the following table.

Sample ID/Dup ID	Analyte	Primary Result	Dup Result	RPD %
L9547	sulfate	6 mg/kg	7 mg/kg	15
	chromium	6.68 mg/kg	8.72 mg/kg	26
	copper	15.4 mg/kg	17.7 mg/kg	14
	nickel	8.3 mg/kg	9.8 mg/kg	17
	zinc	21.6 mg/kg	24.7 mg/kg	13
L9608	sulfate	39 mg/kg	35 mg/kg	11
	chromium	10.8 mg/kg	11.7 mg/kg	8
	copper	32.5 mg/kg	34.6 mg/kg	6
	lead	4.9 mg/kg	4.92 mg/kg	0
	nickel	10.9 mg/kg	11 mg/kg	0
	zinc	33.6 mg/kg	35.2 mg/kg	5

### Reporting Limits

The reporting limits are summarized in the table below. Many of the samples required dilution due to high analyte concentration; however, reporting limits meet the project needs.

Analyte	Water Reporting Limit µg/L	Soil Reporting Limit mg/kg
diesel	0.25 mg/L	25 to 250
VOC's	1.0 to 20	10 to 7000 µg/kg
SVOC's	10 to 50	0.33 to 165
PAH's	0.1 to 1.0	10 to 10,000 µg/kg
PCB's/pesticides	0.01 to 1	2 to 320 µg/kg
Organophosphorous pesticides	0.094 to 0.5	17 to 150 µg/kg
herbicides	0.093 to 0.095	8.4 to 15 µg/kg
total metals	0.05 to 20	0.1 to 2.0
dissolved metals	0.05 to 20	NA
conventionals	0.02 to 1.0 mg/L	1.0
sulfide	2.0	20
sulfate	0.5	5.0

### Completeness

The laboratory reported all requested analyses and the laboratory report is complete. Based on the QA/QC review, some data were qualified as estimated (J). The following table summarizes the sample IDs and qualified results for all samples covered by this review:

Sample ID	Laboratory Sample ID	Analyte	Qualifier
99NW-SB1-4-5.5	L9547-2	Fluoride	J
99NW-SB1-8.5-10	L9547-5	Fluoride	J
99NW-SB2-4-5.5	L9547-7	Fluoride	J
99NW-SB2-8.5-10	L9547-10	Fluoride	J
99NW-SB3-2.5-4	L9547-11	Fluoride	J
99NW-SB3-8.5-10	L9547-15	Fluoride	J
99NW-SB2-GW	L9547-16	none	
99NW-SB3-GW	L9547-17	none	
Trip Blank 1/6/99	L9547-18	none	
99SW-SB1-1-2.5	L9608-1	Fluoride 4-nitrophenol	J J
99SW-SB1-5.5-7	L9608-4	Fluoride 4-nitrophenol	J J
99SW-SB1-7-8.5	L9608-5	Fluoride 4-nitrophenol	J J
99SW-SB2-1-2.5	L9608-6	Fluoride 4-nitrophenol	J J
99SW-SB2-5.5-7	L9608-9	Fluoride 4-nitrophenol	J J
99SW-SB3-2.5-4	L9608-12	Fluoride 4-nitrophenol	J J
99SW-SB3-8.5-10	L9608-16	Fluoride 4-nitrophenol	J J
99SW-SB4-1-2.5	L9608-17	Fluoride 4-nitrophenol	J J
99SW-SB4-5.5-7	L9608-20	Fluoride 4-nitrophenol	J J
99SW-SB4-10-11.5	L9608-23	Fluoride 4-nitrophenol	J J



## MEMO

**To:** Michelle McClelland, Woodward Clyde  
**From:** Patty Boyden  
**Subject:** IP Data (OAL# L9547)  
**Date:** 2/3/99

Attached, please find the following:

- Final data for L9547
- NWTPH-Dx Chromatograms (L9547-7,-10, -11)
- Batch QC for all parameters
- Table with surrogate recoveries for GCMS 8270

### Base/Neutral Surrogates:

Compound	% Recovery (Soil)	% Recovery (H2O)
1,2-Dichlorobenzene	56-148	73-114
2-Fluorbiphenyl	77-115	66-132
Nitrobenzene-d5	64-143	47-150

### \*Acid Surrogates:

Compound	% Recovery (Soil)	% Recovery (H2O)
2-Fluorophenol	25-121	21-110
Phenol-d6	24-113	10-110
2,4,6-Tribromophenol	19-122	10-123

\*Source = Environmental Laboratory Data Evaluation, Smith-1996, Genium Publishing.

If you have any questions, feel free to contact me at 590-1338.

Thank you,

Patty Boyden,  
Project Manager

### OREGON ANALYTICAL LABORATORY

A Division of Portland General Electric  
14855 S.W. Scholls Ferry Road, Beaverton, OR 97007  
Phone 503-590-5300 • Fax 503-590-1404



L9547

February 2, 1999

Michelle McClelland  
Woodward Clyde Consultants  
1501 Fourth Avenue  
Suite 1500  
Seattle, WA 98101

Phone: (206) 343-7933 ext: 225  
FAX: (206) 343-0513

Re: Laboratory Sample Analysis

Project: 5491C0796B.00  
IP - Longview

Project Manager: Michelle McClelland

Dear Michelle McClelland:

On Thursday, January 7, 1999, OAL received eighteen (18) samples for analysis: fifteen soil samples; and three water samples. The samples were analyzed utilizing EPA, ASTM, or equivalent methodology.

Should you have any questions concerning the results in this report, please contact us at (503) 590-5300. Refer to OAL login number L9547.

Sincerely,

Patty Boyden  
Project Manager

Suzanne LeMay  
QA/QC Officer

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## Sample Summary

<u>Sample ID</u>	<u>Lab #</u>	<u>Description</u>	<u>Sampled</u>	<u>Received</u>
99NW-SB1-2.5-4	L9547-1	soil	01/06/99	01/07/99
99NW-SB1-4-5.5	L9547-2	soil	01/06/99	01/07/99
99NW-SB1-5.5-7	L9547-3	soil	01/06/99	01/07/99
99NW-SB1-7-8.5	L9547-4	soil	01/06/99	01/07/99
99NW-SB1-8.5-10	L9547-5	soil	01/06/99	01/07/99
99NW-SB2-2.5-4	L9547-6	soil	01/06/99	01/07/99
99NW-SB2-4-5.5	L9547-7	soil	01/06/99	01/07/99
99NW-SB2-5.5-7	L9547-8	soil	01/06/99	01/07/99
99NW-SB2-7-8.5	L9547-9	soil	01/06/99	01/07/99
99NW-SB2-8.5-10	L9547-10	soil	01/06/99	01/07/99
99NW-SB3-2.5-4	L9547-11	soil	01/06/99	01/07/99
99NW-SB3-4-5.5	L9547-12	soil	01/06/99	01/07/99
99NW-SB3-5.5-7	L9547-13	soil	01/06/99	01/07/99
99NW-SB3-7-8.5	L9547-14	soil	01/06/99	01/07/99
99NW-SB3-8.5-10	L9547-15	soil	01/06/99	01/07/99
99NW-SB2-GW	L9547-16	water	01/06/99	01/07/99
99NW-SB3-GW	L9547-17	water	01/06/99	01/07/99
TRIP BLANK 6 JAN 99	L9547-18	water	01/06/99	01/07/99

## Definition of Terms

- D** Reported value is based on a dilution.
- D1** Reported value is based on a dilution due to matrix interference.
- K1** Batch matrix spike recovery outside laboratory QC limits due to suspected matrix interference.
- MI** Matrix interference.
- ND** Analytical result was below the reporting limit.
- Y** Analysis was subcontracted. A copy of the subcontractor's final report will be made available upon request.

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L9547

<u>Analysts</u>		
<u>Initials</u>	<u>Analyst</u>	<u>Title</u>
CAC	Cindy Covey	Technician
CV	Cheryl Vezzani	Chemist
DM	Dan Miller	Organics Chemist
DMC <sup>2</sup>	Debbie McBreen-McKenzie	Chemist /Supervisor
GCK	Bill Kernion	Chemist
NB	Nancy Boss	Technician
PB	Pat Buddrus	Organics Chemist
RJ	Rick Jordan	Chemist

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L9547

### Method Summary

<u>Analysis</u>	<u>Method</u>
8260 Volatile Organic Compounds (VOC)	EPA 8260
Antimony	EPA 200.7/6010
Arsenic	EPA 200.9
Beryllium	EPA 200.7/6010
Cadmium	EPA 200.7/6010
Chloride	EPA 300.0
Chlorinated Herbicides	EPA 8150 MOD
Chlorinated Pesticides and PCBs	EPA 8080/8081
Chromium	EPA 200.7/6010
Copper	EPA 200.7/6010
Cyanide, Total	EPA 335.3/9010
Fluoride	EPA 300.0
Lead	EPA 200.9
Mercury	EPA 245.5/7471A
Nickel	EPA 200.7/6010
Nitrate as N	EPA 300.0
Organophosphorus Pesticides	EPA 8141 MOD
Polynuclear Aromatic Hydrocarbons (PNA)	EPA 8270 SIM
Selenium	EPA 200.9
Semi-Volatile Petroleum Products	NWTPH-DX
Semivolatiles	EPA 8270
Silver	EPA 200.7/6010
Sulfate as SO <sub>4</sub>	EPA 300.0
Sulfide, Reactive	SW846 7.3.4
Thallium	EPA 200.9
Zinc	EPA 200.7/6010
pH	EPA 9045

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Inorganics

Sample ID	Matrix	Result	Reporting Limit	Units	Date Analyzed	Method	Lab Number	Comment	Analyst
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99NW-SB1-4-5.5	Soil					Sampled: 01/06/99	L9547-2		
Chloride		1.	1.	mg/kg	01/08/99	EPA 300.0			CAC
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010			NB
Fluoride		ND	1.0	mg/kg	01/08/99	EPA 300.0		K1	CAC
Nitrate as N		ND	1.	mg/kg	01/08/99	EPA 300.0			CAC
Sulfate as SO4		6.	5.	mg/kg	01/08/99	EPA 300.0			CAC
Sulfide, Reactive		ND	20	mg/kg	01/13/99	SW846 7.3.4		Y	
pH		5.8		Std Units	01/08/99	EPA 9045			CAC

99NW-SB1-8.5-10	Soil					Sampled: 01/06/99	L9547-5		
Chloride		2.	1.	mg/kg	01/08/99	EPA 300.0			CAC
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010			NB
Fluoride		1.5	1.0	mg/kg	01/08/99	EPA 300.0		K1	CAC
Nitrate as N		ND	1.	mg/kg	01/08/99	EPA 300.0			CAC
Sulfate as SO4		6.	5.	mg/kg	01/08/99	EPA 300.0			CAC
Sulfide, Reactive		ND	20	mg/kg	01/13/99	SW846 7.3.4		Y	
pH		7.4		Std Units	01/08/99	EPA 9045			CAC

99NW-SB2-4-5.5	Soil					Sampled: 01/06/99	L9547-7		
Chloride		2.	1.	mg/kg	01/08/99	EPA 300.0			CAC
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010			NB
Fluoride		1.5	1.0	mg/kg	01/08/99	EPA 300.0		K1	CAC
Nitrate as N		ND	1.	mg/kg	01/08/99	EPA 300.0			CAC
Sulfate as SO4		ND	5.	mg/kg	01/08/99	EPA 300.0			CAC
Sulfide, Reactive		ND	20	mg/kg	01/13/99	SW846 7.3.4		Y	
pH		6.5		Std Units	01/08/99	EPA 9045			CAC



Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Inorganics

Sample ID	Matrix						Lab Number
Analyte		Result	Reporting Limit	Units	Date Analyzed	Method	Comment Analyt
99NW-SB2-8.5-10	Soil					Sampled: 01/06/99	L9547-10
Chloride		2.	1.	mg/kg	01/08/99	EPA 300.0	CAC
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010	NE
Fluoride		ND	1.0	mg/kg	01/08/99	EPA 300.0	K1 CAC
Nitrate as N		ND	1.	mg/kg	01/08/99	EPA 300.0	CAC
Sulfate as SO4		ND	5.	mg/kg	01/08/99	EPA 300.0	CAC
Sulfide, Reactive		ND	20	mg/kg	01/13/99	SW846 7.3.4	Y
pH		7.0		Std Units	01/08/99	EPA 9045	CAC

Sample ID	Matrix						Lab Number
Analyte		Result	Reporting Limit	Units	Date Analyzed	Method	Comment Analyt
99NW-SB3-2.5-4	Soil					Sampled: 01/06/99	L9547-11
Chloride		3.	1.	mg/kg	01/08/99	EPA 300.0	CAC
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010	NB
Fluoride		1.5	1.0	mg/kg	01/08/99	EPA 300.0	K1 CAC
Nitrate as N		ND	1.	mg/kg	01/08/99	EPA 300.0	CAC
Sulfate as SO4		ND	5.	mg/kg	01/08/99	EPA 300.0	CAC
Sulfide, Reactive		ND	20	mg/kg	01/13/99	SW846 7.3.4	Y
pH		5.9		Std Units	01/08/99	EPA 9045	CAC

Sample ID	Matrix						Lab Number
Analyte		Result	Reporting Limit	Units	Date Analyzed	Method	Comment Analyt
99NW-SB3-8.5-10	Soil					Sampled: 01/06/99	L9547-15
Chloride		2.	1.	mg/kg	01/08/99	EPA 300.0	CAC
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010	NB
Fluoride		ND	1.0	mg/kg	01/08/99	EPA 300.0	K1 CAC
Nitrate as N		ND	1.	mg/kg	01/08/99	EPA 300.0	CAC
Sulfate as SO4		ND	5.	mg/kg	01/08/99	EPA 300.0	CAC
Sulfide, Reactive		ND	20	mg/kg	01/13/99	SW846 7.3.4	Y
pH		7.4		Std Units	01/08/99	EPA 9045	CAC

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Total Metals

Sample ID	Matrix						Lab Number
Analyte	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst
99NW-SB1-4-5.5	Soil						L9547-2
					Hot Plate Digestion EPA 200.2/3050A:01/15/99		
					Mercury Digestion: 01/18/99		
Antimony	ND	2.0	mg/kg	01/18/99	EPA 200.7/6010		CV
Arsenic	1.5	1.0	mg/kg	01/19/99	EPA 200.9	D1	CV
Beryllium	0.11	0.10	mg/kg	01/18/99	EPA 200.7/6010		CV
Cadmium	ND	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV
Chromium	7.20	0.50	mg/kg	01/18/99	EPA 200.7/6010		CV
Copper	20.6	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV
Lead	1.5	0.50	mg/kg	01/18/99	EPA 200.9	D1	GCK
Mercury	ND	0.10	mg/kg	01/20/99	EPA 245.5/7471A		GCK
Nickel	9.2	1.0	mg/kg	01/18/99	EPA 200.7/6010		CV
Selenium	ND	1.0	mg/kg	01/19/99	EPA 200.9	D1	CV
Silver	ND	0.30	mg/kg	01/18/99	EPA 200.7/6010		CV
Thallium	ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	DMC <sup>2</sup>
Zinc	23.1	1.0	mg/kg	01/18/99	EPA 200.7/6010		CV



L9547

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Project: 5491C0796B.00  
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### Total Metals

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst
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Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst
99NW-SB1-8.5-10	Soil							
Sampled: 01/06/99 ✓ Hot Plate Digestion EPA 200.2/3050A: 01/15/99 ✓ Mercury Digestion: 01/18/99 ✓								
							L9547-5	
Antimony		ND	2.0	mg/kg	01/18/99	EPA 200.7/6010		CV
Arsenic		1.3	1.0	mg/kg	01/19/99	EPA 200.9	D1	CV
Beryllium		ND	0.10	mg/kg	01/18/99	EPA 200.7/6010		CV
Cadmium		ND	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV
Chromium		6.89	0.50	mg/kg	01/18/99	EPA 200.7/6010		CV
Copper		13.8	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV
Lead		0.96	0.50	mg/kg	01/18/99	EPA 200.9	D1	GCK
Mercury		ND	0.10	mg/kg	01/20/99	EPA 245.5/7471A		GCK
Nickel		12.4	1.0	mg/kg	01/18/99	EPA 200.7/6010		CV
Selenium		ND	1.0	mg/kg	01/19/99	EPA 200.9	D1	CV
Silver		ND	0.30	mg/kg	01/18/99	EPA 200.7/6010		CV
Thallium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	DMC <sup>2</sup>
Zinc		22.1	1.0	mg/kg	01/18/99	EPA 200.7/6010		CV

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Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Total Metals

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst	Lab Number
99NW-SB2-4-5.5	Soil								L9547-7
						Hot Plate Digestion EPA 200.2/3050A:01/15/99			
						Mercury Digestion:01/18/99			
						Sampled:01/06/99			
Antimony		ND	2.0	mg/kg	01/18/99	EPA 200.7/6010			CV
Arsenic		1.5	1.0	mg/kg	01/19/99	EPA 200.9	D1		CV
Beryllium		0.14	0.10	mg/kg	01/18/99	EPA 200.7/6010			CV
Cadmium		ND	0.20	mg/kg	01/18/99	EPA 200.7/6010			CV
Chromium		6.90	0.50	mg/kg	01/18/99	EPA 200.7/6010			CV
Copper		16.8	0.20	mg/kg	01/18/99	EPA 200.7/6010			CV
Lead		24.3	0.50	mg/kg	01/18/99	EPA 200.9	D1		GCK
Mercury		ND	0.10	mg/kg	01/20/99	EPA 245.5/7471A			GCK
Nickel		10.5	1.0	mg/kg	01/18/99	EPA 200.7/6010			CV
Selenium		ND	1.0	mg/kg	01/19/99	EPA 200.9	D1		CV
Silver		ND	0.30	mg/kg	01/18/99	EPA 200.7/6010			CV
Thallium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1		DMC <sup>2</sup>
Zinc		34.4	1.0	mg/kg	01/18/99	EPA 200.7/6010			CV

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Total Metals

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Lab Number	Comment	Analyst
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Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Lab Number	Comment	Analyst
99NW-SB2-8.5-10	Soil						L9547-10		
Sampled: 01/06/99 Hot Plate Digestion EPA 200.2/3050A: 01/15/99 Mercury Digestion: 01/18/99									
Antimony		ND	2.0	mg/kg	01/18/99	EPA 200.7/6010			CV
Arsenic		1.1	1.0	mg/kg	01/19/99	EPA 200.9	D1		CV
Beryllium		ND	0.10	mg/kg	01/18/99	EPA 200.7/6010			CV
Cadmium		ND	0.20	mg/kg	01/18/99	EPA 200.7/6010			CV
Chromium		9.39	0.50	mg/kg	01/18/99	EPA 200.7/6010			CV
Copper		15.0	0.20	mg/kg	01/18/99	EPA 200.7/6010			CV
Lead		0.92	0.50	mg/kg	01/18/99	EPA 200.9	D1		GCK
Mercury		ND	0.10	mg/kg	01/20/99	EPA 245.5/7471A			GCK
Nickel		15.9	1.0	mg/kg	01/18/99	EPA 200.7/6010			CV
Selenium		ND	1.0	mg/kg	01/19/99	EPA 200.9	D1		CV
Silver		ND	0.30	mg/kg	01/18/99	EPA 200.7/6010			CV
Thallium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1		DMC <sup>2</sup>
Zinc		25.6	1.0	mg/kg	01/18/99	EPA 200.7/6010			CV

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Total Metals

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst
-----------	--------	--------	-----------------	-------------	---------------	--------	---------	---------

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst
99NW-SB3-2.5-4	Soil					Hot Plate Digestion EPA 200.2/3050A:01/15/99 Mercury Digestion:01/18/99		
								Lab Number: L9547-11
								Sampled: 01/06/99
Antimony		ND	2.0	mg/kg	01/18/99	EPA 200.7/6010		CV
Arsenic		2.0	1.0	mg/kg	01/19/99	EPA 200.9	D1	CV
Beryllium		0.24	0.10	mg/kg	01/18/99	EPA 200.7/6010		CV
Cadmium		ND	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV
Chromium		17.5	0.50	mg/kg	01/18/99	EPA 200.7/6010		CV
Copper		38.9	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV
Lead		9.88	0.50	mg/kg	01/18/99	EPA 200.9	D1	GCK
Mercury		ND	0.10	mg/kg	01/20/99	EPA 245.5/7471A		GCK
Nickel		15.2	1.0	mg/kg	01/18/99	EPA 200.7/6010		CV
Selenium		ND	1.0	mg/kg	01/19/99	EPA 200.9	D1	CV
Silver		ND	0.30	mg/kg	01/18/99	EPA 200.7/6010		CV
Thallium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	DMC?
Zinc		53.3	1.0	mg/kg	01/18/99	EPA 200.7/6010		CV

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Total Metals

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Lab Number	Comment	Analyst
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Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Lab Number	Comment	Analyst
99NW-SB3-8.5-10	Soil					Sampled: 01/06/99 Hot Plate Digestion EPA 200.2/3050A: 01/15/99 Mercury Digestion: 01/18/99	L9547-15		
Antimony		ND	2.0	mg/kg	01/18/99	EPA 200.7/6010			CV
Arsenic		1.1	1.0	mg/kg	01/19/99	EPA 200.9	D1		CV
Beryllium		ND	0.10	mg/kg	01/18/99	EPA 200.7/6010			CV
Cadmium		ND	0.20	mg/kg	01/18/99	EPA 200.7/6010			CV
Chromium		8.02	0.50	mg/kg	01/18/99	EPA 200.7/6010			CV
Copper		14.5	0.20	mg/kg	01/18/99	EPA 200.7/6010			CV
Lead		0.87	0.50	mg/kg	01/18/99	EPA 200.9	D1		GCK
Mercury		ND	0.10	mg/kg	01/20/99	EPA 245.5/7471A			GCK
Nickel		14.6	1.0	mg/kg	01/18/99	EPA 200.7/6010			CV
Selenium		ND	1.0	mg/kg	01/19/99	EPA 200.9	D1		CV
Silver		ND	0.30	mg/kg	01/18/99	EPA 200.7/6010			CV
Thallium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1		DMC <sup>2</sup>
Zinc		24.1	1.0	mg/kg	01/18/99	EPA 200.7/6010			CV

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### Chlorinated Herbicides by EPA 8150 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB1-4-5.5	Soil				Sampled: 01/06/99 Analyzed: 01/14/99	L9547-2
2,4,5-T		ND	11.	µg/kg	Y	
2,4,5-TP (Silvex)		ND	11.	µg/kg	Y	
2,4-D		ND	11.	µg/kg	Y	
2,4-DB		ND	11.	µg/kg	Y	
Dalapon		27.	11.	µg/kg	Y	
Dicamba		17.	11.	µg/kg	Y	
Dichloroprop		ND	11.	µg/kg	Y	
Dinoseb		ND	11.	µg/kg	Y	
MCPA		ND	11.	µg/kg	Y	
MCPP		ND	11.	µg/kg	Y	
Surrogate				Recovery		Limit
2,4,6-Tribromophenol				94. %		50. - 150.

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB1-8.5-10	Soil				Sampled: 01/06/99 Analyzed: 01/14/99	L9547-5
2,4,5-T		ND	9.5	µg/kg	Y	
2,4,5-TP (Silvex)		ND	9.5	µg/kg	Y	
2,4-D		ND	9.5	µg/kg	Y	
2,4-DB		ND	9.5	µg/kg	Y	
Dalapon		ND	9.5	µg/kg	Y	
Dicamba		ND	9.5	µg/kg	Y	
Dichloroprop		ND	9.5	µg/kg	Y	
Dinoseb		ND	9.5	µg/kg	Y	
MCPA		ND	9.5	µg/kg	Y	
MCPP		ND	9.5	µg/kg	Y	
Surrogate				Recovery		Limit
2,4,6-Tribromophenol				110. %		50. - 150.

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 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
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## Chlorinated Herbicides by EPA 8150 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-4-5.5	Soil				Sampled: 01/06/99 Analyzed: 01/14/99	L9547-7
2,4,5-T		ND	8.7	µg/kg	Y	
2,4,5-TP (Silvex)		ND	8.7	µg/kg	Y	
2,4-D		ND	8.7	µg/kg	Y	
2,4-DB		ND	8.7	µg/kg	Y	
Dalapon		ND	8.7	µg/kg	Y	
Dicamba		ND	8.7	µg/kg	Y	
Dichloroprop		ND	8.7	µg/kg	Y	
Dinoseb		ND	8.7	µg/kg	Y	
MCPA		ND	8.7	µg/kg	Y	
MCPP		ND	8.7	µg/kg	Y	
Surrogate					Recovery	Limit
2,4,6-Tribromophenol					110.%	50. - 150.

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-8.5-10	Soil				Sampled: 01/06/99 Analyzed: 01/14/99	L9547-10
2,4,5-T		ND	9.5	µg/kg	Y	
2,4,5-TP (Silvex)		ND	9.5	µg/kg	Y	
2,4-D		ND	9.5	µg/kg	Y	
2,4-DB		ND	9.5	µg/kg	Y	
Dalapon		ND	9.5	µg/kg	Y	
Dicamba		ND	9.5	µg/kg	Y	
Dichloroprop		ND	9.5	µg/kg	Y	
Dinoseb		ND	9.5	µg/kg	Y	
MCPA		ND	9.5	µg/kg	Y	
MCPP		ND	9.5	µg/kg	Y	
Surrogate					Recovery	Limit
2,4,6-Tribromophenol					118.%	50. - 150.

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### Chlorinated Herbicides by EPA 8150 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-2.5-4	Soil				Sampled: 01/06/99 Analyzed: 01/14/99	L9547-11
2,4,5-T		ND	8.7	µg/kg	Y	
2,4,5-TP (Silvex)		ND	8.7	µg/kg	Y	
2,4-D		ND	8.7	µg/kg	Y	
2,4-DB		ND	8.7	µg/kg	Y	
Dalapon		ND	8.7	µg/kg	Y	
Dicamba		ND	8.7	µg/kg	Y	
Dichloroprop		ND	8.7	µg/kg	Y	
Dinoseb		ND	8.7	µg/kg	Y	
MCPA		ND	8.7	µg/kg	Y	
MCPP		ND	8.7	µg/kg	Y	
Surrogate				Recovery	Limit	
2,4,6-Tribromophenol				117. %	50. - 150.	

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-8.5-10	Soil				Sampled: 01/06/99 Analyzed: 01/14/99	L9547-15
2,4,5-T		ND	9.6	µg/kg	Y	
2,4,5-TP (Silvex)		ND	9.6	µg/kg	Y	
2,4-D		ND	9.6	µg/kg	Y	
2,4-DB		ND	9.6	µg/kg	Y	
Dalapon		ND	9.6	µg/kg	Y	
Dicamba		ND	9.6	µg/kg	Y	
Dichloroprop		ND	9.6	µg/kg	Y	
Dinoseb		ND	9.6	µg/kg	Y	
MCPA		ND	9.6	µg/kg	Y	
MCPP		ND	9.6	µg/kg	Y	
Surrogate				Recovery	Limit	
2,4,6-Tribromophenol				105. %	50. - 150.	

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### Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB1-4-5.5	Soil					L9547-2
						Sampled: 01/06/99 Analyzed: 01/20/99
4,4'-DDD		ND	5.	µg/kg	Y	
4,4'-DDE		ND	5.	µg/kg	Y	
4,4'-DDT		ND	5.	µg/kg	Y	
Aldrin		ND	3.	µg/kg	Y	
Aroclor 1016		ND	130	µg/kg	Y	
Aroclor 1221		ND	130	µg/kg	Y	
Aroclor 1232		ND	130	µg/kg	Y	
Aroclor 1242		ND	130	µg/kg	Y	
Aroclor 1248		ND	130	µg/kg	Y	
Aroclor 1254		ND	130	µg/kg	Y	
Aroclor 1260		ND	130	µg/kg	Y	
Chlordane (Technical)		ND	26.	µg/kg	Y	
Dieldrin		ND	5.	µg/kg	Y	
Endosulfan I		ND	3.	µg/kg	Y	
Endosulfan II		ND	5.	µg/kg	Y	
Endosulfan sulfate		ND	5.	µg/kg	Y	
Endrin		ND	5.	µg/kg	Y	
Endrin aldehyde		ND	5.	µg/kg	Y	
Endrin ketone		ND	5.	µg/kg	Y	
Heptachlor		ND	3.	µg/kg	Y	
Heptachlor epoxide		ND	3.	µg/kg	Y	
Methoxychlor		ND	26.	µg/kg	Y	
Toxaphene		ND	260	µg/kg	Y	
alpha-BHC		ND	3.	µg/kg	Y	
beta-BHC		ND	3.	µg/kg	Y	
delta-BHC		ND	3.	µg/kg	Y	
gamma-BHC (Lindane)		ND	3.	µg/kg	Y	
		Surrogate	Recovery		Limit	
		Decachlorobiphenyl	82.%		50 - 150	Y
		Tetrachloro-m-xylene	99.%		50 - 150	Y

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### Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB1-8.5-10	Soil					L9547-5
						Sampled: 01/06/99 Analyzed: 01/20/99
4,4'-DDD		ND	4.	µg/kg	Y	
4,4'-DDE		ND	4.	µg/kg	Y	
4,4'-DDT		ND	4.	µg/kg	Y	
Aldrin		ND	2.	µg/kg	Y	
Aroclor 1016		ND	110	µg/kg	Y	
Aroclor 1221		ND	110	µg/kg	Y	
Aroclor 1232		ND	110	µg/kg	Y	
Aroclor 1242		ND	110	µg/kg	Y	
Aroclor 1248		ND	110	µg/kg	Y	
Aroclor 1254		ND	110	µg/kg	Y	
Aroclor 1260		ND	110	µg/kg	Y	
Chlordane (Technical)		ND	22.	µg/kg	Y	
Dieldrin		ND	4.	µg/kg	Y	
Endosulfan I		ND	2.	µg/kg	Y	
Endosulfan II		ND	4.	µg/kg	Y	
Endosulfan sulfate		ND	4.	µg/kg	Y	
Endrin		ND	4.	µg/kg	Y	
Endrin aldehyde		ND	4.	µg/kg	Y	
Endrin ketone		ND	4.	µg/kg	Y	
Heptachlor		ND	2.	µg/kg	Y	
Heptachlor epoxide		ND	2.	µg/kg	Y	
Methoxychlor		ND	22.	µg/kg	Y	
Toxaphene		ND	220	µg/kg	Y	
alpha-BHC		ND	2.	µg/kg	Y	
beta-BHC		ND	2.	µg/kg	Y	
delta-BHC		ND	2.	µg/kg	Y	
gamma-BHC (Lindane)		ND	2.	µg/kg	Y	
Surrogate				Recovery		Limit
Decachlorobiphenyl				79.%		50 - 150 Y
Tetrachloro-m-xylene				96.%		50 - 150 Y

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### Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-4-5.5	Soil				Sampled: 01/06/99 Analyzed: 01/20/99	L9547-7
4,4'-DDD		ND	4.	µg/kg	Y	
4,4'-DDE		ND	4.	µg/kg	Y	
4,4'-DDT		ND	4.	µg/kg	Y	
Aldrin		ND	2.	µg/kg	Y	
Aroclor 1016		ND	110	µg/kg	Y	
Aroclor 1221		ND	110	µg/kg	Y	
Aroclor 1232		ND	110	µg/kg	Y	
Aroclor 1242		ND	110	µg/kg	Y	
Aroclor 1248		ND	110	µg/kg	Y	
Aroclor 1254		ND	110	µg/kg	Y	
Aroclor 1260		ND	110	µg/kg	Y	
Chlordane (Technical)		ND	22.	µg/kg	Y	
Dieldrin		ND	4.	µg/kg	Y	
Endosulfan I		ND	2.	µg/kg	Y	
Endosulfan II		ND	4.	µg/kg	Y	
Endosulfan sulfate		ND	4.	µg/kg	Y	
Endrin		ND	4.	µg/kg	Y	
Endrin aldehyde		ND	4.	µg/kg	Y	
Endrin ketone		ND	4.	µg/kg	Y	
Heptachlor		ND	2.	µg/kg	Y	
Heptachlor epoxide		ND	2.	µg/kg	Y	
Methoxychlor		ND	22.	µg/kg	Y	
Toxaphene		ND	220	µg/kg	Y	
alpha-BHC		ND	2.	µg/kg	Y	
beta-BHC		ND	2.	µg/kg	Y	
delta-BHC		ND	2.	µg/kg	Y	
gamma-BHC (Lindane)		ND	2.	µg/kg	Y	
Surrogate				Recovery	Limit	
Decachlorobiphenyl				83. %	50 - 150	Y
Tetrachloro-m-xylene				88. %	50 - 150	Y

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### Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-8.5-10	Soil					L9547-10
Sampled: 01/06/99 Analyzed: 01/20/99						
4,4'-DDD		ND	4.	µg/kg	Y	
4,4'-DDE		ND	4.	µg/kg	Y	
4,4'-DDT		ND	4.	µg/kg	Y	
Aldrin		ND	2.	µg/kg	Y	
Aroclor 1016		ND	110	µg/kg	Y	
Aroclor 1221		ND	110	µg/kg	Y	
Aroclor 1232		ND	110	µg/kg	Y	
Aroclor 1242		ND	110	µg/kg	Y	
Aroclor 1248		ND	110	µg/kg	Y	
Aroclor 1254		ND	110	µg/kg	Y	
Aroclor 1260		ND	110	µg/kg	Y	
Chlordane (Technical)		ND	22.	µg/kg	Y	
Dieldrin		ND	4.	µg/kg	Y	
Endosulfan I		ND	2.	µg/kg	Y	
Endosulfan II		ND	4.	µg/kg	Y	
Endosulfan sulfate		ND	4.	µg/kg	Y	
Endrin		ND	4.	µg/kg	Y	
Endrin aldehyde		ND	4.	µg/kg	Y	
Endrin ketone		ND	4.	µg/kg	Y	
Heptachlor		ND	2.	µg/kg	Y	
Heptachlor epoxide		ND	2.	µg/kg	Y	
Methoxychlor		ND	22.	µg/kg	Y	
Toxaphene		ND	220	µg/kg	Y	
alpha-BHC		ND	2.	µg/kg	Y	
beta-BHC		ND	2.	µg/kg	Y	
delta-BHC		ND	2.	µg/kg	Y	
gamma-BHC (Lindane)		ND	2.	µg/kg	Y	
		Surrogate	Recovery		Limit	
		Decachlorobiphenyl	96. %		50 - 150	Y
		Tetrachloro-m-xylene	92. %		50 - 150	Y

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## Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix		Reporting Limit	Units (ppb)	Lab Number
Analyte		Result			Comment

Sample ID	Matrix		Reporting Limit	Units (ppb)	Lab Number
99NW-SB3-2.5-4	Soil				L9547-11
		Sampled: 01/06/99 Analyzed: 01/20/99			
4,4'-DDD		ND	4.	µg/kg	Y
4,4'-DDE		ND	4.	µg/kg	Y
4,4'-DDT		ND	4.	µg/kg	Y
Aldrin		ND	2.	µg/kg	Y
Aroclor 1016		ND	110	µg/kg	Y
Aroclor 1221		ND	110	µg/kg	Y
Aroclor 1232		ND	110	µg/kg	Y
Aroclor 1242		ND	110	µg/kg	Y
Aroclor 1248		ND	110	µg/kg	Y
Aroclor 1254		ND	110	µg/kg	Y
Aroclor 1260		ND	110	µg/kg	Y
Chlordane (Technical)		ND	22.	µg/kg	Y
Dieldrin		ND	4.	µg/kg	Y
Endosulfan I		ND	2.	µg/kg	Y
Endosulfan II		ND	4.	µg/kg	Y
Endosulfan sulfate		ND	4.	µg/kg	Y
Endrin		ND	4.	µg/kg	Y
Endrin aldehyde		ND	4.	µg/kg	Y
Endrin ketone		ND	4.	µg/kg	Y
Heptachlor		ND	2.	µg/kg	Y
Heptachlor epoxide		ND	2.	µg/kg	Y
Methoxychlor		ND	22.	µg/kg	Y
Toxaphene		ND	220	µg/kg	Y
alpha-BHC		ND	2.	µg/kg	Y
beta-BHC		ND	2.	µg/kg	Y
delta-BHC		ND	2.	µg/kg	Y
gamma-BHC (Lindane)		ND	2.	µg/kg	Y
		Surrogate	Recovery		Limit
		Decachlorobiphenyl	83. %		50 - 150 Y
		Tetrachloro-m-xylene	107. %		50 - 150 Y

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### Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-8.5-10	Soil					L9547-15
Sampled: 01/06/99 Analyzed: 01/20/99 /						
4,4'-DDD		ND	5.	µg/kg	Y	
4,4'-DDE		ND	5.	µg/kg	Y	
4,4'-DDT		ND	5.	µg/kg	Y	
Aldrin		ND	2.	µg/kg	Y	
Aroclor 1016		ND	110	µg/kg	Y	
Aroclor 1221		ND	110	µg/kg	Y	
Aroclor 1232		ND	110	µg/kg	Y	
Aroclor 1242		ND	110	µg/kg	Y	
Aroclor 1248		ND	110	µg/kg	Y	
Aroclor 1254		ND	110	µg/kg	Y	
Aroclor 1260		ND	110	µg/kg	Y	
Chlordane (Technical)		ND	23.	µg/kg	Y	
Dieldrin		ND	5.	µg/kg	Y	
Endosulfan I		ND	2.	µg/kg	Y	
Endosulfan II		ND	5.	µg/kg	Y	
Endosulfan sulfate		ND	5.	µg/kg	Y	
Endrin		ND	5.	µg/kg	Y	
Endrin aldehyde		ND	5.	µg/kg	Y	
Endrin ketone		ND	5.	µg/kg	Y	
Heptachlor		ND	2.	µg/kg	Y	
Heptachlor epoxide		ND	2.	µg/kg	Y	
Methoxychlor		ND	23.	µg/kg	Y	
Toxaphene		ND	230	µg/kg	Y	
alpha-BHC		ND	2.	µg/kg	Y	
beta-BHC		ND	2.	µg/kg	Y	
delta-BHC		ND	2.	µg/kg	Y	
gamma-BHC (Lindane)		ND	2.	µg/kg	Y	
		Surrogate	Recovery		Limit	
		Decachlorobiphenyl	84. % /		50 - 150	Y
		Tetrachloro-m-xylene	97. % /		50 - 150	Y



L9547

Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB1-4-5.5	Soil				Sampled: 01/06/99 Extracted: 01/08/99 Analyzed: 01/11/99 by DM	L9547-2
	Dichlorodifluoromethane	ND	20.	µg/kg		
	Chloromethane	ND	20.	µg/kg		
	Vinyl chloride	ND	20.	µg/kg		
	Bromomethane	ND	20.	µg/kg		
	Chloroethane	ND	20.	µg/kg		
	Trichlorofluoromethane	ND	10.	µg/kg		
	Acetone	ND	200	µg/kg		
	1,1-Dichloroethene	ND	10.	µg/kg		
	Methylene chloride	ND	20.	µg/kg		
	Carbon disulfide	ND	10.	µg/kg		
	trans-1,2-Dichloroethene	ND	10.	µg/kg		
	1,1-Dichloroethane	ND	10.	µg/kg		
	2-Butanone	ND	200	µg/kg		
	2,2-Dichloropropane	ND	10.	µg/kg		
	cis-1,2-Dichloroethene	ND	10.	µg/kg		
	Bromochloromethane	ND	10.	µg/kg		
	Chloroform	ND	10.	µg/kg		
	1,1,1-Trichloroethane	ND	10.	µg/kg		
	Carbon tetrachloride	ND	10.	µg/kg		
	1,1-Dichloropropene	ND	10.	µg/kg		
	Benzene	ND	10.	µg/kg		
	1,2-Dichloroethane	ND	10.	µg/kg		
	Trichloroethene	ND	10.	µg/kg		
	1,2-Dichloropropane	ND	10.	µg/kg		
	Dibromomethane	ND	10.	µg/kg		
	Bromodichloromethane	ND	10.	µg/kg		
	cis-1,3-Dichloropropene	ND	10.	µg/kg		
	4-Methyl-2-pentanone	ND	100	µg/kg		
	Toluene	ND	10.	µg/kg		
	2-Hexanone	ND	100	µg/kg		
	trans-1,3-Dichloropropene	ND	10.	µg/kg		

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Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
<i>99NW-SB1-4-5.5</i>	<i>Soil</i>				Sampled: <i>01/06/99</i> Extracted: <i>01/08/99</i> Analyzed: <i>01/11/99 by DM</i>	<i>L9547-2</i>
		1,1,2-Trichloroethane	ND	10.	µg/kg	
		Tetrachloroethene	ND	10.	µg/kg	
		1,3-Dichloropropane	ND	10.	µg/kg	
		Dibromochloromethane	ND	10.	µg/kg	
		1,2-Dibromoethane	ND	10.	µg/kg	
		Chlorobenzene	ND	10.	µg/kg	
		1,1,1,2-Tetrachloroethane	ND	10.	µg/kg	
		Ethylbenzene	ND	10.	µg/kg	
		Styrene	ND	10.	µg/kg	
		Bromoform	ND	10.	µg/kg	
		Isopropylbenzene	ND	10.	µg/kg	
		Bromobenzene	ND	10.	µg/kg	
		1,1,2,2-Tetrachloroethane	ND	10.	µg/kg	
		1,2,3-Trichloropropane	ND	10.	µg/kg	
		n-Propylbenzene	ND	10.	µg/kg	
		2-Chlorotoluene	ND	10.	µg/kg	
		4-Chlorotoluene	ND	10.	µg/kg	
		1,3,5-Trimethylbenzene	ND	10.	µg/kg	
		tert-Butylbenzene	ND	10.	µg/kg	
		1,2,4-Trimethylbenzene	ND	10.	µg/kg	
		sec-Butylbenzene	ND	10.	µg/kg	
		1,3-Dichlorobenzene	ND	10.	µg/kg	
		4-Isopropyltoluene	ND	10.	µg/kg	
		1,4-Dichlorobenzene	ND	10.	µg/kg	
		1,2-Dichlorobenzene	ND	10.	µg/kg	
		n-Butylbenzene	ND	10.	µg/kg	
		1,2-Dibromo-3-chloropropane	ND	10.	µg/kg	
		1,2,4-Trichlorobenzene	ND	10.	µg/kg	
		Hexachlorobutadiene	ND	10.	µg/kg	
		Naphthalene	ND	10.	µg/kg	
		1,2,3-Trichlorobenzene	ND	10.	µg/kg	

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L9547

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
99NW-SB1-4-5.5	Soil	ND	10.	µg/kg		L9547-2
Sampled: 01/06/99 Extracted: 01/08/99 Analyzed: 01/11/99 by DM						
Total Xylenes						
	Surrogate			Recovery	Limit	
	1,2-Dichloroethane-d4			94. %	85. - 128.	
	Toluene-d8			108. %	76. - 132.	
	4-Bromofluorobenzene			107. %	79. - 121.	

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L9547

Client: Woodward Clyde Consultants  
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Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB1-8.5-10	Soil				Sampled: 01/06/99 Extracted: 01/08/99 Analyzed: 01/11/99 by DM	L9547-5
		Dichlorodifluoromethane	ND	20.	µg/kg	
		Chloromethane	ND	20.	µg/kg	
		Vinyl chloride	ND	20.	µg/kg	
		Bromomethane	ND	20.	µg/kg	
		Chloroethane	ND	20.	µg/kg	
		Trichlorofluoromethane	ND	10.	µg/kg	
		Acetone	ND	200	µg/kg	
		1,1-Dichloroethene	ND	10.	µg/kg	
		Methylene chloride	ND	20.	µg/kg	
		Carbon disulfide	ND	10.	µg/kg	
		trans-1,2-Dichloroethene	ND	10.	µg/kg	
		1,1-Dichloroethane	ND	10.	µg/kg	
		2-Butanone	ND	200	µg/kg	
		2,2-Dichloropropane	ND	10.	µg/kg	
		cis-1,2-Dichloroethene	ND	10.	µg/kg	
		Bromochloromethane	ND	10.	µg/kg	
		Chloroform	ND	10.	µg/kg	
		1,1,1-Trichloroethane	ND	10.	µg/kg	
		Carbon tetrachloride	ND	10.	µg/kg	
		1,1-Dichloropropene	ND	10.	µg/kg	
		Benzene	ND	10.	µg/kg	
		1,2-Dichloroethane	ND	10.	µg/kg	
		Trichloroethene	ND	10.	µg/kg	
		1,2-Dichloropropane	ND	10.	µg/kg	
		Dibromomethane	ND	10.	µg/kg	
		Bromodichloromethane	ND	10.	µg/kg	
		cis-1,3-Dichloropropene	ND	10.	µg/kg	
		4-Methyl-2-pentanone	ND	100	µg/kg	
		Toluene	ND	10.	µg/kg	
		2-Hexanone	ND	100	µg/kg	
		trans-1,3-Dichloropropene	ND	10.	µg/kg	

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Project: 5491C0796B.00  
IP - Longview

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SBI-8.5-10	Soil				Sampled: 01/06/99 Extracted: 01/08/99 Analyzed: 01/11/99 by DM	L9547-5
		1,1,2-Trichloroethane	ND	10.	µg/kg	
		Tetrachloroethene	ND	10.	µg/kg	
		1,3-Dichloropropane	ND	10.	µg/kg	
		Dibromochloromethane	ND	10.	µg/kg	
		1,2-Dibromoethane	ND	10.	µg/kg	
		Chlorobenzene	ND	10.	µg/kg	
		1,1,1,2-Tetrachloroethane	ND	10.	µg/kg	
		Ethylbenzene	ND	10.	µg/kg	
		Styrene	ND	10.	µg/kg	
		Bromoform	ND	10.	µg/kg	
		Isopropylbenzene	ND	10.	µg/kg	
		Bromobenzene	ND	10.	µg/kg	
		1,1,2,2-Tetrachloroethane	ND	10.	µg/kg	
		1,2,3-Trichloropropane	ND	10.	µg/kg	
		n-Propylbenzene	ND	10.	µg/kg	
		2-Chlorotoluene	ND	10.	µg/kg	
		4-Chlorotoluene	ND	10.	µg/kg	
		1,3,5-Trimethylbenzene	ND	10.	µg/kg	
		tert-Butylbenzene	ND	10.	µg/kg	
		1,2,4-Trimethylbenzene	ND	10.	µg/kg	
		sec-Butylbenzene	ND	10.	µg/kg	
		1,3-Dichlorobenzene	ND	10.	µg/kg	
		4-Isopropyltoluene	ND	10.	µg/kg	
		1,4-Dichlorobenzene	ND	10.	µg/kg	
		1,2-Dichlorobenzene	ND	10.	µg/kg	
		n-Butylbenzene	ND	10.	µg/kg	
		1,2-Dibromo-3-chloropropane	ND	10.	µg/kg	
		1,2,4-Trichlorobenzene	ND	10.	µg/kg	
		Hexachlorobutadiene	ND	10.	µg/kg	
		Naphthalene	ND	10.	µg/kg	
		1,2,3-Trichlorobenzene	ND	10.	µg/kg	

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L9547

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>99NW-SB1-8.5-10</i>	<i>Soil</i>					Sampled: <i>01/06/99</i> Extracted: <i>01/08/99</i> Analyzed: <i>01/11/99 by DM</i>	<i>L9547-5</i>
Total Xylenes		ND	10.	µg/kg			
	Surrogate				Recovery	Limit	
	1,2-Dichloroethane-d4				93. %	85. - 128.	
	Toluene-d8				95. %	76. - 132.	
	4-Bromofluorobenzene				99. %	79. - 121.	

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 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix					Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment	

Sample ID	Matrix					Lab Number
99NW-SB2-4-5.5	Soil	Sampled: 01/06/99 Extracted: 01/08/99 ✓ Analyzed: 01/12/99 by DM				L9547-7
Dichlorodifluoromethane		ND	20.	µg/kg		
Chloromethane		ND	20.	µg/kg		
Vinyl chloride		ND	20.	µg/kg		
Bromomethane		ND	20.	µg/kg		
Chloroethane		ND	20.	µg/kg		
Trichlorofluoromethane		ND	10.	µg/kg		
Acetone		ND	200	µg/kg		
1,1-Dichloroethene		ND	10.	µg/kg		
Methylene chloride		ND	20.	µg/kg		
Carbon disulfide		ND	10.	µg/kg		
trans-1,2-Dichloroethene		ND	10.	µg/kg		
1,1-Dichloroethane		ND	10.	µg/kg		
2-Butanone		ND	200	µg/kg		
2,2-Dichloropropane		ND	10.	µg/kg		
cis-1,2-Dichloroethene		ND	10.	µg/kg		
Bromochloromethane		ND	10.	µg/kg		
Chloroform		ND	10.	µg/kg		
1,1,1-Trichloroethane		ND	10.	µg/kg		
Carbon tetrachloride		ND	10.	µg/kg		
1,1-Dichloropropene		ND	10.	µg/kg		
Benzene		ND	10.	µg/kg		
1,2-Dichloroethane		ND	10.	µg/kg		
Trichloroethene		ND	10.	µg/kg		
1,2-Dichloropropane		ND	10.	µg/kg		
Dibromomethane		ND	10.	µg/kg		
Bromodichloromethane		ND	10.	µg/kg		
cis-1,3-Dichloropropene		ND	10.	µg/kg		
4-Methyl-2-pentanone		ND	100	µg/kg		
Toluene		ND	10.	µg/kg		
2-Hexanone		ND	100	µg/kg		
trans-1,3-Dichloropropene		ND	10.	µg/kg		

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## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment
					Sampled: 01/06/99
					Extracted: 01/08/99
					Analyzed: 01/12/99 by DM
99NW-SB2-4-5.5	Soil				L9547-7
1,1,2-Trichloroethane		ND	10.	µg/kg	
Tetrachloroethene		ND	10.	µg/kg	
1,3-Dichloropropane		ND	10.	µg/kg	
Dibromochloromethane		ND	10.	µg/kg	
1,2-Dibromoethane		ND	10.	µg/kg	
Chlorobenzene		ND	10.	µg/kg	
1,1,1,2-Tetrachloroethane		ND	10.	µg/kg	
Ethylbenzene		ND	10.	µg/kg	
Styrene		ND	10.	µg/kg	
Bromoform		ND	10.	µg/kg	
Isopropylbenzene		ND	10.	µg/kg	
Bromobenzene		ND	10.	µg/kg	
1,1,2,2-Tetrachloroethane		ND	10.	µg/kg	
1,2,3-Trichloropropane		ND	10.	µg/kg	
n-Propylbenzene		ND	10.	µg/kg	
2-Chlorotoluene		ND	10.	µg/kg	
4-Chlorotoluene		ND	10.	µg/kg	
1,3,5-Trimethylbenzene		ND	10.	µg/kg	
tert-Butylbenzene		ND	10.	µg/kg	
1,2,4-Trimethylbenzene		ND	10.	µg/kg	
sec-Butylbenzene		ND	10.	µg/kg	
1,3-Dichlorobenzene		ND	10.	µg/kg	
4-Isopropyltoluene		ND	10.	µg/kg	
1,4-Dichlorobenzene		ND	10.	µg/kg	
1,2-Dichlorobenzene		ND	10.	µg/kg	
n-Butylbenzene		ND	10.	µg/kg	
1,2-Dibromo-3-chloropropane		ND	10.	µg/kg	
1,2,4-Trichlorobenzene		ND	10.	µg/kg	
Hexachlorobutadiene		ND	10.	µg/kg	
Naphthalene		ND	10.	µg/kg	
1,2,3-Trichlorobenzene		ND	10.	µg/kg	

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L9547

Client: Woodward Clyde Consultants  
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Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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99NW-SB2-4-5.5	Soil					Sampled: 01/06/99 Extracted: 01/08/99 Analyzed: 01/12/99 by DM	L9547-7
Total Xylenes		ND	10.	µg/kg			
	Surrogate				Recovery	Limit	
	1,2-Dichloroethane-d4				98. %	85. - 128.	
	Toluene-d8				124. %	76. - 132.	
	4-Bromofluorobenzene				118. %	79. - 121.	

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L9547

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*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Analyte	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
-----------	--------	---------	--------	-----------------	-------------	---------	------------

99NW-SB2-8.5-10

Soil

Sampled: 01/06/99

Extracted: 01/08/99

Analyzed: 01/11/99 by DM

L9547-10

Dichlorodifluoromethane	ND	20.	µg/kg
Chloromethane	ND	20.	µg/kg
Vinyl chloride	ND	20.	µg/kg
Bromomethane	ND	20.	µg/kg
Chloroethane	ND	20.	µg/kg
Trichlorofluoromethane	ND	10.	µg/kg
Acetone	ND	200	µg/kg
1,1-Dichloroethene	ND	10.	µg/kg
Methylene chloride	ND	20.	µg/kg
Carbon disulfide	ND	10.	µg/kg
trans-1,2-Dichloroethene	ND	10.	µg/kg
1,1-Dichloroethane	ND	10.	µg/kg
2-Butanone	ND	200	µg/kg
2,2-Dichloropropane	ND	10.	µg/kg
cis-1,2-Dichloroethene	ND	10.	µg/kg
Bromochloromethane	ND	10.	µg/kg
Chloroform	ND	10.	µg/kg
1,1,1-Trichloroethane	ND	10.	µg/kg
Carbon tetrachloride	ND	10.	µg/kg
1,1-Dichloropropene	ND	10.	µg/kg
Benzene	ND	10.	µg/kg
1,2-Dichloroethane	ND	10.	µg/kg
Trichloroethene	ND	10.	µg/kg
1,2-Dichloropropane	ND	10.	µg/kg
Dibromomethane	ND	10.	µg/kg
Bromodichloromethane	ND	10.	µg/kg
cis-1,3-Dichloropropene	ND	10.	µg/kg
4-Methyl-2-pentanone	ND	100	µg/kg
Toluene	ND	10.	µg/kg
2-Hexanone	ND	100	µg/kg
trans-1,3-Dichloropropene	ND	10.	µg/kg

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## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
<p style="text-align: right;">           Sampled: <i>01/06/99</i>            Extracted: <i>01/08/99</i>            Analyzed: <i>01/11/99 by DM</i> </p>						<i>L9547-10</i>
<i>99NW-SB2-8.5-10</i>	<i>Soil</i>					
1,1,2-Trichloroethane		ND	10.	µg/kg		
Tetrachloroethene		ND	10.	µg/kg		
1,3-Dichloropropane		ND	10.	µg/kg		
Dibromochloromethane		ND	10.	µg/kg		
1,2-Dibromoethane		ND	10.	µg/kg		
Chlorobenzene		ND	10.	µg/kg		
1,1,1,2-Tetrachloroethane		ND	10.	µg/kg		
Ethylbenzene		ND	10.	µg/kg		
Styrene		ND	10.	µg/kg		
Bromoform		ND	10.	µg/kg		
Isopropylbenzene		ND	10.	µg/kg		
Bromobenzene		ND	10.	µg/kg		
1,1,2,2-Tetrachloroethane		ND	10.	µg/kg		
1,2,3-Trichloropropane		ND	10.	µg/kg		
n-Propylbenzene		ND	10.	µg/kg		
2-Chlorotoluene		ND	10.	µg/kg		
4-Chlorotoluene		ND	10.	µg/kg		
1,3,5-Trimethylbenzene		ND	10.	µg/kg		
tert-Butylbenzene		ND	10.	µg/kg		
1,2,4-Trimethylbenzene		ND	10.	µg/kg		
sec-Butylbenzene		ND	10.	µg/kg		
1,3-Dichlorobenzene		ND	10.	µg/kg		
4-Isopropyltoluene		ND	10.	µg/kg		
1,4-Dichlorobenzene		ND	10.	µg/kg		
1,2-Dichlorobenzene		ND	10.	µg/kg		
n-Butylbenzene		ND	10.	µg/kg		
1,2-Dibromo-3-chloropropane		ND	10.	µg/kg		
1,2,4-Trichlorobenzene		ND	10.	µg/kg		
Hexachlorobutadiene		ND	10.	µg/kg		
Naphthalene		ND	10.	µg/kg		
1,2,3-Trichlorobenzene		ND	10.	µg/kg		

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-8.5-10	Soil	ND	10.	µg/kg		L9547-10
<p style="text-align: right;">Sampled: 01/06/99 Extracted: 01/08/99 Analyzed: 01/11/99 by DM</p>						
Total Xylenes						
Surrogate				Recovery	Limit	
1,2-Dichloroethane-d4				95. %	85. - 128.	
Toluene-d8				105. %	76. - 132.	
4-Bromofluorobenzene				110. %	79. - 121.	

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L9547

Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Analyte	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Analyte	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-2.5-4	Soil					Sampled: 01/06/99 / Extracted: 01/08/99 / Analyzed: 01/11/99 by DM	L9547-11
		Dichlorodifluoromethane	ND	20.	µg/kg		
		Chloromethane	ND	20.	µg/kg		
		Vinyl chloride	ND	20.	µg/kg		
		Bromomethane	ND	20.	µg/kg		
		Chloroethane	ND	20.	µg/kg		
		Trichlorofluoromethane	ND	10.	µg/kg		
		Acetone	ND	200	µg/kg		
		1,1-Dichloroethene	ND	10.	µg/kg		
		Methylene chloride	ND	20.	µg/kg		
		Carbon disulfide	ND	10.	µg/kg		
		trans-1,2-Dichloroethene	ND	10.	µg/kg		
		1,1-Dichloroethane	ND	10.	µg/kg		
		2-Butanone	ND	200	µg/kg		
		2,2-Dichloropropane	ND	10.	µg/kg		
		cis-1,2-Dichloroethene	ND	10.	µg/kg		
		Bromochloromethane	ND	10.	µg/kg		
		Chloroform	ND	10.	µg/kg		
		1,1,1-Trichloroethane	ND	10.	µg/kg		
		Carbon tetrachloride	ND	10.	µg/kg		
		1,1-Dichloropropene	ND	10.	µg/kg		
		Benzene	ND	10.	µg/kg		
		1,2-Dichloroethane	ND	10.	µg/kg		
		Trichloroethene	ND	10.	µg/kg		
		1,2-Dichloropropane	ND	10.	µg/kg		
		Dibromomethane	ND	10.	µg/kg		
		Bromodichloromethane	ND	10.	µg/kg		
		cis-1,3-Dichloropropene	ND	10.	µg/kg		
		4-Methyl-2-pentanone	ND	100	µg/kg		
		Toluene	ND	10.	µg/kg		
		2-Hexanone	ND	100	µg/kg		
		trans-1,3-Dichloropropene	ND	10.	µg/kg		

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L9547

Client: Woodward Clyde Consultants  
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Project: 5491C0796B.00  
IP - Longview

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-2.5-4	Soil					L9547-11
					Sampled: 01/06/99	
					Extracted: 01/08/99	
					Analyzed: 01/11/99 by DM	
		1,1,2-Trichloroethane	ND	10.	µg/kg	
		Tetrachloroethene	ND	10.	µg/kg	
		1,3-Dichloropropane	ND	10.	µg/kg	
		Dibromochloromethane	ND	10.	µg/kg	
		1,2-Dibromoethane	ND	10.	µg/kg	
		Chlorobenzene	ND	10.	µg/kg	
		1,1,1,2-Tetrachloroethane	ND	10.	µg/kg	
		Ethylbenzene	ND	10.	µg/kg	
		Styrene	ND	10.	µg/kg	
		Bromoform	ND	10.	µg/kg	
		Isopropylbenzene	ND	10.	µg/kg	
		Bromobenzene	ND	10.	µg/kg	
		1,1,2,2-Tetrachloroethane	ND	10.	µg/kg	
		1,2,3-Trichloropropane	ND	10.	µg/kg	
		n-Propylbenzene	ND	10.	µg/kg	
		2-Chlorotoluene	ND	10.	µg/kg	
		4-Chlorotoluene	ND	10.	µg/kg	
		1,3,5-Trimethylbenzene	ND	10.	µg/kg	
		tert-Butylbenzene	ND	10.	µg/kg	
		1,2,4-Trimethylbenzene	ND	10.	µg/kg	
		sec-Butylbenzene	ND	10.	µg/kg	
		1,3-Dichlorobenzene	ND	10.	µg/kg	
		4-Isopropyltoluene	ND	10.	µg/kg	
		1,4-Dichlorobenzene	ND	10.	µg/kg	
		1,2-Dichlorobenzene	ND	10.	µg/kg	
		n-Butylbenzene	ND	10.	µg/kg	
		1,2-Dibromo-3-chloropropane	ND	10.	µg/kg	
		1,2,4-Trichlorobenzene	ND	10.	µg/kg	
		Hexachlorobutadiene	ND	10.	µg/kg	
		Naphthalene	ND	10.	µg/kg	
		1,2,3-Trichlorobenzene	ND	10.	µg/kg	

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L9547

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

<i>Sample ID</i>	<i>Matrix</i>				<i>Lab Number</i>
Analyte		Result	Reporting Limit	Units (ppb)	Comment

<i>99NW-SB3-2.5-4</i>	<i>Soil</i>					
					Sampled: <i>01/06/99</i>	
					Extracted: <i>01/08/99</i>	
					Analyzed: <i>01/11/99 by DM</i>	<i>L9547-11</i>
Total Xylenes		ND	10.	µg/kg		
	Surrogate				Recovery	Limit
	1,2-Dichloroethane-d4				93. %	85. - 128.
	Toluene-d8				111. %	76. - 132.
	4-Bromofluorobenzene				110. %	79. - 121.

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Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-8.5-10	Soil				Sampled: 01/06/99 Extracted: 01/08/99 Analyzed: 01/12/99 by DM	L9547-15
		Dichlorodifluoromethane	ND	20.	µg/kg	
		Chloromethane	ND	20.	µg/kg	
		Vinyl chloride	ND	20.	µg/kg	
		Bromomethane	ND	20.	µg/kg	
		Chloroethane	ND	20.	µg/kg	
		Trichlorofluoromethane	ND	10.	µg/kg	
		Acetone	ND	200	µg/kg	
		1,1-Dichloroethene	ND	10.	µg/kg	
		Methylene chloride	ND	20.	µg/kg	
		Carbon disulfide	ND	10.	µg/kg	
		trans-1,2-Dichloroethene	ND	10.	µg/kg	
		1,1-Dichloroethane	ND	10.	µg/kg	
		2-Butanone	ND	200	µg/kg	
		2,2-Dichloropropane	ND	10.	µg/kg	
		cis-1,2-Dichloroethene	ND	10.	µg/kg	
		Bromochloromethane	ND	10.	µg/kg	
		Chloroform	ND	10.	µg/kg	
		1,1,1-Trichloroethane	ND	10.	µg/kg	
		Carbon tetrachloride	ND	10.	µg/kg	
		1,1-Dichloropropene	ND	10.	µg/kg	
		Benzene	ND	10.	µg/kg	
		1,2-Dichloroethane	ND	10.	µg/kg	
		Trichloroethene	ND	10.	µg/kg	
		1,2-Dichloropropane	ND	10.	µg/kg	
		Dibromomethane	ND	10.	µg/kg	
		Bromodichloromethane	ND	10.	µg/kg	
		cis-1,3-Dichloropropene	ND	10.	µg/kg	
		4-Methyl-2-pentanone	ND	100	µg/kg	
		Toluene	ND	10.	µg/kg	
		2-Hexanone	ND	100	µg/kg	
		trans-1,3-Dichloropropene	ND	10.	µg/kg	

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IP - Longview

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-8.5-10	Soil			Sampled: 01/06/99 Extracted: 01/08/99 Analyzed: 01/12/99 by DM	L9547-15
1,1,2-Trichloroethane	ND	10.	µg/kg		
Tetrachloroethene	ND	10.	µg/kg		
1,3-Dichloropropane	ND	10.	µg/kg		
Dibromochloromethane	ND	10.	µg/kg		
1,2-Dibromoethane	ND	10.	µg/kg		
Chlorobenzene	ND	10.	µg/kg		
1,1,1,2-Tetrachloroethane	ND	10.	µg/kg		
Ethylbenzene	ND	10.	µg/kg		
Styrene	ND	10.	µg/kg		
Bromoform	ND	10.	µg/kg		
Isopropylbenzene	ND	10.	µg/kg		
Bromobenzene	ND	10.	µg/kg		
1,1,2,2-Tetrachloroethane	ND	10.	µg/kg		
1,2,3-Trichloropropane	ND	10.	µg/kg		
n-Propylbenzene	ND	10.	µg/kg		
2-Chlorotoluene	ND	10.	µg/kg		
4-Chlorotoluene	ND	10.	µg/kg		
1,3,5-Trimethylbenzene	ND	10.	µg/kg		
tert-Butylbenzene	ND	10.	µg/kg		
1,2,4-Trimethylbenzene	ND	10.	µg/kg		
sec-Butylbenzene	ND	10.	µg/kg		
1,3-Dichlorobenzene	ND	10.	µg/kg		
4-Isopropyltoluene	ND	10.	µg/kg		
1,4-Dichlorobenzene	ND	10.	µg/kg		
1,2-Dichlorobenzene	ND	10.	µg/kg		
n-Butylbenzene	ND	10.	µg/kg		
1,2-Dibromo-3-chloropropane	ND	10.	µg/kg		
1,2,4-Trichlorobenzene	ND	10.	µg/kg		
Hexachlorobutadiene	ND	10.	µg/kg		
Naphthalene	ND	10.	µg/kg		
1,2,3-Trichlorobenzene	ND	10.	µg/kg		

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Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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99NW-SB3-8.5-10	Soil					Sampled: 01/06/99 Extracted: 01/08/99 Analyzed: 01/12/99 by DM	L9547-15
Total Xylenes		ND	10.	µg/kg			
	Surrogate				Recovery	Limit	
	1,2-Dichloroethane-d4				94. % ✓	85. - 128.	
	Toluene-d8				107. % ✓	76. - 132.	
	4-Bromofluorobenzene				114. % ✓	79. - 121.	

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IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-GW	Water				Sampled: 01/06/99 Analyzed: 01/08/99 by DM	L9547-16
Dichlorodifluoromethane		ND	2.0	µg/L		
Chloromethane		ND	2.0	µg/L		
Vinyl chloride		ND	2.0	µg/L		
Bromomethane		ND	2.0	µg/L		
Chloroethane		ND	2.0	µg/L		
Trichlorofluoromethane		ND	1.0	µg/L		
Acetone		ND	20.	µg/L		
1,1-Dichloroethene		ND	1.0	µg/L		
Methylene chloride		ND	2.0	µg/L		
Carbon disulfide		ND	1.0	µg/L		
trans-1,2-Dichloroethene		ND	1.0	µg/L		
1,1-Dichloroethane		ND	1.0	µg/L		
2-Butanone		ND	20.	µg/L		
2,2-Dichloropropane		ND	1.0	µg/L		
cis-1,2-Dichloroethene		ND	1.0	µg/L		
Bromochloromethane		ND	1.0	µg/L		
Chloroform		ND	1.0	µg/L		
1,1,1-Trichloroethane		ND	1.0	µg/L		
Carbon tetrachloride		ND	1.0	µg/L		
1,1-Dichloropropene		ND	1.0	µg/L		
Benzene		ND	1.0	µg/L		
1,2-Dichloroethane		ND	1.0	µg/L		
Trichloroethene		ND	1.0	µg/L		
1,2-Dichloropropane		ND	1.0	µg/L		
Dibromomethane		ND	1.0	µg/L		
Bromodichloromethane		ND	1.0	µg/L		
cis-1,3-Dichloropropene		ND	1.0	µg/L		
4-Methyl-2-pentanone		ND	10.	µg/L		
Toluene		ND	1.0	µg/L		
2-Hexanone		ND	10.	µg/L		
trans-1,3-Dichloropropene		ND	1.0	µg/L		
1,1,2-Trichloroethane		ND	1.0	µg/L		

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L9547

Client: **Woodward Clyde Consultants**  
Contact: **Michelle McClelland**

Project: **5491C0796B.00**  
**IP - Longview**

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-GW	Water				Sampled: 01/06/99 Analyzed: 01/08/99 by DM	L9547-16
		Tetrachloroethene	ND	1.0	µg/L	
		1,3-Dichloropropane	ND	1.0	µg/L	
		Dibromochloromethane	ND	1.0	µg/L	
		1,2-Dibromoethane	ND	1.0	µg/L	
		Chlorobenzene	ND	1.0	µg/L	
		1,1,1,2-Tetrachloroethane	ND	1.0	µg/L	
		Ethylbenzene	ND	1.0	µg/L	
		Styrene	ND	1.0	µg/L	
		Bromoform	ND	1.0	µg/L	
		Isopropylbenzene	ND	1.0	µg/L	
		Bromobenzene	ND	1.0	µg/L	
		1,1,2,2-Tetrachloroethane	ND	1.0	µg/L	
		1,2,3-Trichloropropane	ND	1.0	µg/L	
		n-Propylbenzene	ND	1.0	µg/L	
		2-Chlorotoluene	ND	1.0	µg/L	
		4-Chlorotoluene	ND	1.0	µg/L	
		1,3,5-Trimethylbenzene	ND	1.0	µg/L	
		tert-Butylbenzene	ND	1.0	µg/L	
		1,2,4-Trimethylbenzene	ND	1.0	µg/L	
		sec-Butylbenzene	ND	1.0	µg/L	
		1,3-Dichlorobenzene	ND	1.0	µg/L	
		4-Isopropyltoluene	ND	1.0	µg/L	
		1,4-Dichlorobenzene	ND	1.0	µg/L	
		1,2-Dichlorobenzene	ND	1.0	µg/L	
		n-Butylbenzene	ND	1.0	µg/L	
		1,2-Dibromo-3-chloropropane	ND	1.0	µg/L	
		1,2,4-Trichlorobenzene	ND	1.0	µg/L	
		Hexachlorobutadiene	ND	1.0	µg/L	
		Naphthalene	ND	1.0	µg/L	
		1,2,3-Trichlorobenzene	ND	1.0	µg/L	
		Total Xylenes	ND	1.0	µg/L	
		Surrogate			Recovery	Limit

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L9547

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>99NW-SB2-GW</i>	<i>Water</i>					Sampled: <i>01/06/99</i> Analyzed: <i>01/08/99 by DM</i>	<i>L9547-16</i>
		<i>Surrogate</i>		<i>Recovery</i>		<i>Limit</i>	
		1,2-Dichloroethane-d4		102. %		79. - 121.	
		Toluene-d8		99. %		76. - 132.	
		4-Bromofluorobenzene		99. %		79. - 121.	

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### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-GW	Water				Sampled: 01/06/99 Analyzed: 01/08/99 by DM	L9547-17
	Dichlorodifluoromethane	ND	2.0	µg/L		
	Chloromethane	ND	2.0	µg/L		
	Vinyl chloride	ND	2.0	µg/L		
	Bromomethane	ND	2.0	µg/L		
	Chloroethane	ND	2.0	µg/L		
	Trichlorofluoromethane	ND	1.0	µg/L		
	<b>Acetone</b>	<b>33.</b>	<b>20.</b>	<b>µg/L</b>		
	1,1-Dichloroethene	ND	1.0	µg/L		
	Methylene chloride	ND	2.0	µg/L		
	Carbon disulfide	ND	1.0	µg/L		
	trans-1,2-Dichloroethene	ND	1.0	µg/L		
	1,1-Dichloroethane	ND	1.0	µg/L		
	2-Butanone	ND	20.	µg/L		
	2,2-Dichloropropane	ND	1.0	µg/L		
	cis-1,2-Dichloroethene	ND	1.0	µg/L		
	Bromochloromethane	ND	1.0	µg/L		
	Chloroform	ND	1.0	µg/L		
	1,1,1-Trichloroethane	ND	1.0	µg/L		
	Carbon tetrachloride	ND	1.0	µg/L		
	1,1-Dichloropropene	ND	1.0	µg/L		
	Benzene	ND	1.0	µg/L		
	1,2-Dichloroethane	ND	1.0	µg/L		
	Trichloroethene	ND	1.0	µg/L		
	1,2-Dichloropropane	ND	1.0	µg/L		
	Dibromomethane	ND	1.0	µg/L		
	Bromodichloromethane	ND	1.0	µg/L		
	cis-1,3-Dichloropropene	ND	1.0	µg/L		
	4-Methyl-2-pentanone	ND	10.	µg/L		
	Toluene	ND	1.0	µg/L		
	2-Hexanone	ND	10.	µg/L		
	trans-1,3-Dichloropropene	ND	1.0	µg/L		
	1,1,2-Trichloroethane	ND	1.0	µg/L		

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-GW	Water					L9547-17
						Sampled: 01/06/99 Analyzed: 01/08/99 by DM
Tetrachloroethene		ND	1.0	µg/L		
1,3-Dichloropropane		ND	1.0	µg/L		
Dibromochloromethane		ND	1.0	µg/L		
1,2-Dibromoethane		ND	1.0	µg/L		
Chlorobenzene		ND	1.0	µg/L		
1,1,1,2-Tetrachloroethane		ND	1.0	µg/L		
Ethylbenzene		ND	1.0	µg/L		
Styrene		ND	1.0	µg/L		
Bromoform		ND	1.0	µg/L		
Isopropylbenzene		ND	1.0	µg/L		
Bromobenzene		ND	1.0	µg/L		
1,1,2,2-Tetrachloroethane		ND	1.0	µg/L		
1,2,3-Trichloropropane		ND	1.0	µg/L		
n-Propylbenzene		ND	1.0	µg/L		
2-Chlorotoluene		ND	1.0	µg/L		
4-Chlorotoluene		ND	1.0	µg/L		
1,3,5-Trimethylbenzene		ND	1.0	µg/L		
tert-Butylbenzene		ND	1.0	µg/L		
1,2,4-Trimethylbenzene		ND	1.0	µg/L		
sec-Butylbenzene		ND	1.0	µg/L		
1,3-Dichlorobenzene		ND	1.0	µg/L		
4-Isopropyltoluene		ND	1.0	µg/L		
1,4-Dichlorobenzene		ND	1.0	µg/L		
1,2-Dichlorobenzene		ND	1.0	µg/L		
n-Butylbenzene		ND	1.0	µg/L		
1,2-Dibromo-3-chloropropane		ND	1.0	µg/L		
1,2,4-Trichlorobenzene		ND	1.0	µg/L		
Hexachlorobutadiene		ND	1.0	µg/L		
Naphthalene		ND	1.0	µg/L		
1,2,3-Trichlorobenzene		ND	1.0	µg/L		
Total Xylenes		ND	1.0	µg/L		
	Surrogate			Recovery	Limit	

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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99NW-SB3-GW	Water	Sampled: 01/06/99					L9547-17
		Analyzed: 01/08/99 by DM					
		Surrogate		Recovery		Limit	
		1,2-Dichloroethane-d4		102. %		79. - 121.	
		Toluene-d8		100. %		76. - 132.	
		4-Bromofluorobenzene		99. %		79. - 121.	

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L9547

Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
<i>TRIP BLANK 6 JAN 99</i>	<i>Water</i>				Sampled: <i>01/06/99</i> Analyzed: <i>01/08/99 by DM</i>	<i>L9547-18</i>
		ND	2.0	µg/L	Dichlorodifluoromethane	
		ND	2.0	µg/L	Chloromethane	
		ND	2.0	µg/L	Vinyl chloride	
		ND	2.0	µg/L	Bromomethane	
		ND	2.0	µg/L	Chloroethane	
		ND	1.0	µg/L	Trichlorofluoromethane	
		ND	20.	µg/L	Acetone	
		ND	1.0	µg/L	1,1-Dichloroethene	
		ND	2.0	µg/L	Methylene chloride	
		ND	1.0	µg/L	Carbon disulfide	
		ND	1.0	µg/L	trans-1,2-Dichloroethene	
		ND	1.0	µg/L	1,1-Dichloroethane	
		ND	20.	µg/L	2-Butanone	
		ND	1.0	µg/L	2,2-Dichloropropane	
		ND	1.0	µg/L	cis-1,2-Dichloroethene	
		ND	1.0	µg/L	Bromochloromethane	
		ND	1.0	µg/L	Chloroform	
		ND	1.0	µg/L	1,1,1-Trichloroethane	
		ND	1.0	µg/L	Carbon tetrachloride	
		ND	1.0	µg/L	1,1-Dichloropropene	
		ND	1.0	µg/L	Benzene	
		ND	1.0	µg/L	1,2-Dichloroethane	
		ND	1.0	µg/L	Trichloroethene	
		ND	1.0	µg/L	1,2-Dichloropropane	
		ND	1.0	µg/L	Dibromomethane	
		ND	1.0	µg/L	Bromodichloromethane	
		ND	1.0	µg/L	cis-1,3-Dichloropropene	
		ND	10.	µg/L	4-Methyl-2-pentanone	
		ND	1.0	µg/L	Toluene	
		ND	10.	µg/L	2-Hexanone	
		ND	1.0	µg/L	trans-1,3-Dichloropropene	
		ND	1.0	µg/L	1,1,2-Trichloroethane	

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Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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					Sampled: 01/06/99	
					Analyzed: 01/08/99 by DM	L9547-18
TRIP BLANK 6 JAN 99	Water					
Tetrachloroethene		ND	1.0	µg/L		
1,3-Dichloropropane		ND	1.0	µg/L		
Dibromochloromethane		ND	1.0	µg/L		
1,2-Dibromoethane		ND	1.0	µg/L		
Chlorobenzene		ND	1.0	µg/L		
1,1,1,2-Tetrachloroethane		ND	1.0	µg/L		
Ethylbenzene		ND	1.0	µg/L		
Styrene		ND	1.0	µg/L		
Bromoform		ND	1.0	µg/L		
Isopropylbenzene		ND	1.0	µg/L		
Bromobenzene		ND	1.0	µg/L		
1,1,2,2-Tetrachloroethane		ND	1.0	µg/L		
1,2,3-Trichloropropane		ND	1.0	µg/L		
n-Propylbenzene		ND	1.0	µg/L		
2-Chlorotoluene		ND	1.0	µg/L		
4-Chlorotoluene		ND	1.0	µg/L		
1,3,5-Trimethylbenzene		ND	1.0	µg/L		
tert-Butylbenzene		ND	1.0	µg/L		
1,2,4-Trimethylbenzene		ND	1.0	µg/L		
sec-Butylbenzene		ND	1.0	µg/L		
1,3-Dichlorobenzene		ND	1.0	µg/L		
4-Isopropyltoluene		ND	1.0	µg/L		
1,4-Dichlorobenzene		ND	1.0	µg/L		
1,2-Dichlorobenzene		ND	1.0	µg/L		
n-Butylbenzene		ND	1.0	µg/L		
1,2-Dibromo-3-chloropropane		ND	1.0	µg/L		
1,2,4-Trichlorobenzene		ND	1.0	µg/L		
Hexachlorobutadiene		ND	1.0	µg/L		
Naphthalene		ND	1.0	µg/L		
1,2,3-Trichlorobenzene		ND	1.0	µg/L		
Total Xylenes		ND	1.0	µg/L		
	Surrogate		Recovery	Limit		

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L9547

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>TRIP BLANK 6 JAN 99</i>	<i>Water</i>					Sampled: <i>01/06/99</i> Analyzed: <i>01/08/99 by DM</i> <i>L9547-18</i>
		<i>Surrogate</i>		<i>Recovery</i>		<i>Limit</i>
		1,2-Dichloroethane-d4		102. %		79. - 121.
		Toluene-d8		101. %		76. - 132.
		4-Bromofluorobenzene		100. %		79. - 121.

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Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment
99NW-SB1-4-5.5	Soil				Sampled: 01/06/99 Analyzed: 01/15/99 L9547-2
Dichlorvos		ND	21.	µg/kg	Y
Mevinphos		ND	21.	µg/kg	Y
Ethoprop		ND	21.	µg/kg	Y
Sulfotepp		ND	21.	µg/kg	Y
Monocrotophos		ND	21.	µg/kg	Y
Phorate		ND	100	µg/kg	Y
Dimethoate		ND	21.	µg/kg	Y
Demeton, o-s		ND	21.	µg/kg	Y
Diazinon		ND	21.	µg/kg	Y
Disulfoton		ND	100	µg/kg	Y
Parathion, methyl		ND	21.	µg/kg	Y
Ronnel		ND	21.	µg/kg	Y
Chlorpyrifos		ND	21.	µg/kg	Y
Malathion		ND	21.	µg/kg	Y
Fenthion		ND	100	µg/kg	Y
Parathion		ND	21.	µg/kg	Y
Trichloronate		ND	21.	µg/kg	Y
Tetrachlorvinphos		ND	21.	µg/kg	Y
Merphos		ND	21.	µg/kg	Y
Tokuthion		ND	21.	µg/kg	Y
Fensulfothion		ND	21.	µg/kg	Y
Bolstar		ND	100	µg/kg	Y
EPN		ND	21.	µg/kg	Y
Azinphos, methyl		ND	21.	µg/kg	Y
Coumaphos		ND	21.	µg/kg	Y
Famphur		ND	21.	µg/kg	Y
	Surrogate			Recovery	Limit
	Tributyl Phosphate			73. %	58-103 Y
	Triphenyl Phosphate			83. %	95-125 Y

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Client: Woodward Clyde Consultants  
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Project: 5491C0796B.00  
IP - Longview

## Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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99NW-SB1-8.5-10	Soil					Sampled: 01/06/99 Analyzed: 01/15/99	L9547-5
Dichlorvos		ND	19.	µg/kg	Y		
Mevinphos		ND	19.	µg/kg	Y		
Ethoprop		ND	19.	µg/kg	Y		
Sulfotepp		ND	19.	µg/kg	Y		
Monocrotophos		ND	19.	µg/kg	Y		
Phorate		ND	95.	µg/kg	Y		
Dimethoate		ND	19.	µg/kg	Y		
Demeton, o-s		ND	19.	µg/kg	Y		
Diazinon		ND	19.	µg/kg	Y		
Disulfoton		ND	95.	µg/kg	Y		
Parathion, methyl		ND	95.	µg/kg	Y		
Ronnel		ND	19.	µg/kg	Y		
Chlorpyrifos		ND	19.	µg/kg	Y		
Malathion		ND	19.	µg/kg	Y		
Fenthion		ND	19.	µg/kg	Y		
Parathion		ND	95.	µg/kg	Y		
Trichloronate		ND	19.	µg/kg	Y		
Tetrachlorvinphos		ND	19.	µg/kg	Y		
Merphos		ND	19.	µg/kg	Y		
Tokuthion		ND	19.	µg/kg	Y		
Fensulfothion		ND	19.	µg/kg	Y		
Bolstar		ND	95.	µg/kg	Y		
EPN		ND	19.	µg/kg	Y		
Azinphos, methyl		ND	19.	µg/kg	Y		
Coumaphos		ND	19.	µg/kg	Y		
Famphur		ND	19.	µg/kg	Y		
Surrogate				Recovery		Limit	
Tributyl Phosphate				68. %		Y	
Triphenyl Phosphate				87. %		Y	

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## Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment
99NW-SB2-4-5.5	Soil				Sampled: 01/06/99 Analyzed: 01/15/99 L9547-7
Dichlorvos		ND	18.	µg/kg	Y
Mevinphos		ND	18.	µg/kg	Y
Ethoprop		ND	18.	µg/kg	Y
Sulfotepp		ND	18.	µg/kg	Y
Monocrotophos		ND	18.	µg/kg	Y
Phorate		ND	90	µg/kg	Y
Dimethoate		ND	18.	µg/kg	Y
Demeton, o-s		ND	18.	µg/kg	Y
Diazinon		ND	18.	µg/kg	Y
Disulfoton		ND	90	µg/kg	Y
Parathion, methyl		ND	18.	µg/kg	Y
Ronnel		ND	18.	µg/kg	Y
Chlorpyrifos		ND	18.	µg/kg	Y
Malathion		ND	18.	µg/kg	Y
Fenthion		ND	90	µg/kg	Y
Parathion		ND	18.	µg/kg	Y
Trichloronate		ND	18.	µg/kg	Y
Tetrachlorvinphos		ND	18.	µg/kg	Y
Merphos		ND	18.	µg/kg	Y
Tokuthion		ND	18.	µg/kg	Y
Fensulfothion		ND	18.	µg/kg	Y
Bolstar		ND	90	µg/kg	Y
EPN		ND	18.	µg/kg	Y
Azinphos, methyl		ND	18.	µg/kg	Y
Coumaphos		ND	18.	µg/kg	Y
Famphur		ND	18.	µg/kg	Y
	Surrogate			Recovery	Limit
	Tributyl Phosphate			70. %	Y
	Triphenyl Phosphate			89. %	Y

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### Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment

99NW-SB2-8.5-10	Soil				Sampled: 01/06/99 Analyzed: 01/15/99	L9547-10
Dichlorvos		ND	19.	µg/kg	Y	
Mevinphos		ND	19.	µg/kg	Y	
Ethoprop		ND	19.	µg/kg	Y	
Sulfotepp		ND	19.	µg/kg	Y	
Monocrotophos		ND	19.	µg/kg	Y	
Phorate		ND	96.	µg/kg	Y	
Dimethoate		ND	19.	µg/kg	Y	
Demeton, o-s		ND	19.	µg/kg	Y	
Diazinon		ND	19.	µg/kg	Y	
Disulfoton		ND	96.	µg/kg	Y	
Parathion, methyl		ND	19.	µg/kg	Y	
Ronnel		ND	19.	µg/kg	Y	
Chlorpyrifos		ND	19.	µg/kg	Y	
Malathion		ND	19.	µg/kg	Y	
Fenthion		ND	96.	µg/kg	Y	
Parathion		ND	19.	µg/kg	Y	
Trichloronate		ND	19.	µg/kg	Y	
Tetrachlorvinphos		ND	19.	µg/kg	Y	
Merphos		ND	19.	µg/kg	Y	
Tokuthion		ND	19.	µg/kg	Y	
Fensulfothion		ND	19.	µg/kg	Y	
Bolstar		ND	96.	µg/kg	Y	
EPN		ND	19.	µg/kg	Y	
Azinphos, methyl		ND	19.	µg/kg	Y	
Coumaphos		ND	19.	µg/kg	Y	
Famphur		ND	19.	µg/kg	Y	
	Surrogate				Recovery	Limit
	Tributyl Phosphate				70. % ✓	Y
	Triphenyl Phosphate				81. % ✓	Y

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### Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment
99NW-SB3-2.5-4	Soil				Sampled: 01/06/99 Analyzed: 01/15/99 L9547-11
Dichlorvos		ND	19.	µg/kg	Y
Mevinphos		ND	19.	µg/kg	Y
Ethoprop		ND	19.	µg/kg	Y
Sulfotepp		ND	19.	µg/kg	Y
Monocrotophos		ND	19.	µg/kg	Y
Phorate		ND	93.	µg/kg	Y
Dimethoate		ND	19.	µg/kg	Y
Demeton, o-s		ND	19.	µg/kg	Y
Diazinon		ND	19.	µg/kg	Y
Disulfoton		ND	93.	µg/kg	Y
Parathion, methyl		ND	19.	µg/kg	Y
Ronnel		ND	19.	µg/kg	Y
Chlorpyrifos		ND	19.	µg/kg	Y
Malathion		ND	19.	µg/kg	Y
Fenthion		ND	93.	µg/kg	Y
Parathion		ND	19.	µg/kg	Y
Trichloronate		ND	19.	µg/kg	Y
Tetrachlorvinphos		ND	19.	µg/kg	Y
Merphos		ND	19.	µg/kg	Y
Tokuthion		ND	19.	µg/kg	Y
Fensulfothion		ND	19.	µg/kg	Y
Bolstar		ND	93.	µg/kg	Y
EPN		ND	19.	µg/kg	Y
Azinphos, methyl		ND	19.	µg/kg	Y
Coumaphos		ND	19.	µg/kg	Y
Famphur		ND	19.	µg/kg	Y
	Surrogate			Recovery	Limit
	Tributyl Phosphate			84. % ✓	Y
	Triphenyl Phosphate			95. % ✓	Y

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### Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-8.5-10	Soil					L9547-15
						Sampled: 01/06/99 Analyzed: 01/15/99
Dichlorvos		ND	19.	µg/kg	Y	
Mevinphos		ND	19.	µg/kg	Y	
Ethoprop		ND	19.	µg/kg	Y	
Sulfotepp		ND	19.	µg/kg	Y	
Monocrotophos		ND	19.	µg/kg	Y	
Phorate		ND	95.	µg/kg	Y	
Dimethoate		ND	19.	µg/kg	Y	
Demeton, o-s		ND	19.	µg/kg	Y	
Diazinon		ND	19.	µg/kg	Y	
Disulfoton		ND	95.	µg/kg	Y	
Parathion, methyl		ND	19.	µg/kg	Y	
Ronnel		ND	19.	µg/kg	Y	
Chlorpyrifos		ND	19.	µg/kg	Y	
Malathion		ND	19.	µg/kg	Y	
Fenthion		ND	95.	µg/kg	Y	
Parathion		ND	19.	µg/kg	Y	
Trichloronate		ND	19.	µg/kg	Y	
Tetrachlorvinphos		ND	19.	µg/kg	Y	
Merphos		ND	19.	µg/kg	Y	
Tokuthion		ND	19.	µg/kg	Y	
Fensulfothion		ND	19.	µg/kg	Y	
Bolstar		ND	95.	µg/kg	Y	
EPN		ND	19.	µg/kg	Y	
Azinphos, methyl		ND	19.	µg/kg	Y	
Coumaphos		ND	19.	µg/kg	Y	
Famphur		ND	19.	µg/kg	Y	
Surrogate				Recovery	Limit	
Tributyl Phosphate				85.%		Y
Triphenyl Phosphate				93.%		Y

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB1-4-5.5	Soil					L9547-2
Sampled: 01/06/99 Extracted: 01/11/99 Analyzed: 01/12/99 by PB						
Naphthalene		ND	100	µg/kg	D1	
Acenaphthylene		ND	100	µg/kg	D1	
Acenaphthene		ND	100	µg/kg	D1	
Fluorene		ND	100	µg/kg	D1	
Pentachlorophenol		ND	1,000	µg/kg	D1	
Phenanthrene		ND	100	µg/kg	D1	
Anthracene		ND	100	µg/kg	D1	
Fluoranthene		ND	100	µg/kg	D1	
Pyrene		ND	100	µg/kg	D1	
Benzo[a]anthracene		ND	100	µg/kg	D1	
Chrysene		ND	100	µg/kg	D1	
Benzo[b]fluoranthene		ND	100	µg/kg	D1	
Benzo[k]fluoranthene		ND	100	µg/kg	D1	
Benzo[a]pyrene		ND	100	µg/kg	D1	
Indeno[1,2,3-cd]pyrene		ND	100	µg/kg	D1	
Dibenz[a,h]anthracene		ND	100	µg/kg	D1	
Benzo[g,h,i]perylene		ND	100	µg/kg	D1	
		<u>Surrogate</u>		<u>Recovery</u>		<u>Limit</u>
		1,2-Dichlorobenzene-d4		95. %		56-148
		Nitrobenzene-d5		78. %		64-143
		2-Fluorobiphenyl		100. %		77-115

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## Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB1-8.5-10	Soil					L9547-5
						Sampled: 01/06/99 Extracted: 01/11/99 ✓ Analyzed: 01/12/99 by PB
Naphthalene		ND	100	µg/kg	D1	
Acenaphthylene		ND	100	µg/kg	D1	
Acenaphthene		ND	100	µg/kg	D1	
Fluorene		ND	100	µg/kg	D1	
Pentachlorophenol		ND	1,000	µg/kg	D1	
Phenanthrene		ND	100	µg/kg	D1	
Anthracene		ND	100	µg/kg	D1	
Fluoranthene		ND	100	µg/kg	D1	
Pyrene		ND	100	µg/kg	D1	
Benzo[a]anthracene		ND	100	µg/kg	D1	
Chrysene		ND	100	µg/kg	D1	
Benzo[b]fluoranthene		ND	100	µg/kg	D1	
Benzo[k]fluoranthene		ND	100	µg/kg	D1	
Benzo[a]pyrene		ND	100	µg/kg	D1	
Indeno[1,2,3-cd]pyrene		ND	100	µg/kg	D1	
Dibenz[a,h]anthracene		ND	100	µg/kg	D1	
Benzo[g,h,i]perylene		ND	100	µg/kg	D1	
		Surrogate		Recovery	Limit	
		1,2-Dichlorobenzene-d4		96. % ✓		
		Nitrobenzene-d5		79. % ✓		
		2-Fluorobiphenyl		103. % ✓		

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Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment
99NW-SB2-4-5.5	Soil				Sampled: 01/06/99 Extracted: 01/11/99 Analyzed: 01/13/99 by PB
					L9547-7
Naphthalene		ND	100	µg/kg	D1
Acenaphthylene		ND	100	µg/kg	D1
Acenaphthene		ND	100	µg/kg	D1
Fluorene		ND	100	µg/kg	D1
Pentachlorophenol		ND	1,000	µg/kg	D1
Phenanthrene		ND	100	µg/kg	D1
Anthracene		ND	100	µg/kg	D1
Fluoranthene		ND	100	µg/kg	D1
Pyrene		ND	100	µg/kg	D1
Benzo[a]anthracene		ND	100	µg/kg	D1
Chrysene		ND	100	µg/kg	D1
Benzo[b]fluoranthene		ND	100	µg/kg	D1
Benzo[k]fluoranthene		ND	100	µg/kg	D1
Benzo[a]pyrene		ND	100	µg/kg	D1
Indeno[1,2,3-cd]pyrene		ND	100	µg/kg	D1
Dibenz[a,h]anthracene		ND	100	µg/kg	D1
Benzo[g,h,i]perylene		ND	100	µg/kg	D1
	Surrogate			Recovery	Limit
	1,2-Dichlorobenzene-d4			108. %	
	Nitrobenzene-d5			128. %	
	2-Fluorobiphenyl			112. %	

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Project: 5491C0796B.00  
IP - Longview

## Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-8.5-10	Soil					L9547-10
Sampled: 01/06/99 Extracted: 01/11/99 Analyzed: 01/19/99 by PB						
Naphthalene		ND	100	µg/kg	D1	
Acenaphthylene		ND	100	µg/kg	D1	
Acenaphthene		ND	100	µg/kg	D1	
Fluorene		ND	100	µg/kg	D1	
Pentachlorophenol		ND	1,000	µg/kg	D1	
Phenanthrene		ND	100	µg/kg	D1	
Anthracene		ND	100	µg/kg	D1	
Fluoranthene		ND	100	µg/kg	D1	
Pyrene		ND	100	µg/kg	D1	
Benzo[a]anthracene		ND	100	µg/kg	D1	
Chrysene		ND	100	µg/kg	D1	
Benzo[b]fluoranthene		ND	100	µg/kg	D1	
Benzo[k]fluoranthene		ND	100	µg/kg	D1	
Benzo[a]pyrene		ND	100	µg/kg	D1	
Indeno[1,2,3-cd]pyrene		ND	100	µg/kg	D1	
Dibenz[a,h]anthracene		ND	100	µg/kg	D1	
Benzo[g,h,i]perylene		ND	100	µg/kg	D1	
Surrogate				Recovery	Limit	
1,2-Dichlorobenzene-d4				100. % ✓		
Nitrobenzene-d5				71. % ✓		
2-Fluorobiphenyl				104. % ✓		

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## Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-2.5-4	Soil				Sampled: 01/06/99 Extracted: 01/11/99 ✓ Analyzed: 01/13/99 ✓ by PB	L9547-11
Naphthalene		12.	10.	µg/kg		
Acenaphthylene		ND	10.	µg/kg		
Acenaphthene		ND	10.	µg/kg		
Fluorene		ND	10.	µg/kg		
Pentachlorophenol		ND	100	µg/kg		
Phenanthrene		17.	10.	µg/kg		
Anthracene		ND	10.	µg/kg		
Fluoranthene		36.	10.	µg/kg		
Pyrene		21.	10.	µg/kg		
Benzo[a]anthracene		19.	10.	µg/kg		
Chrysene		32.	10.	µg/kg		
Benzo[b]fluoranthene		51.	10.	µg/kg		
Benzo[k]fluoranthene		11.	10.	µg/kg		
Benzo[a]pyrene		21.	10.	µg/kg		
Indeno[1,2,3-cd]pyrene		16.	10.	µg/kg		
Dibenz[a,h]anthracene		ND	10.	µg/kg		
Benzo[g,h,i]perylene		21.	10.	µg/kg		
	Surrogate			Recovery	Limit	
	1,2-Dichlorobenzene-d4			90.% ✓		
	Nitrobenzene-d5			130.% ✓		
	2-Fluorobiphenyl			92.% ✓		

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## Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-8.5-10				Soil	L9547-15
				Sampled: 01/06/99	
				Extracted: 01/11/99	
				Analyzed: 01/12/99 by PB	
Naphthalene	ND	10.	µg/kg		
Acenaphthylene	ND	10.	µg/kg		
Acenaphthene	ND	10.	µg/kg		
Fluorene	ND	10.	µg/kg		
Pentachlorophenol	ND	100	µg/kg		
Phenanthrene	ND	10.	µg/kg		
Anthracene	ND	10.	µg/kg		
Fluoranthene	ND	10.	µg/kg		
Pyrene	ND	10.	µg/kg		
Benzo[a]anthracene	ND	10.	µg/kg		
Chrysene	ND	10.	µg/kg		
Benzo[b]fluoranthene	ND	10.	µg/kg		
Benzo[k]fluoranthene	ND	10.	µg/kg		
Benzo[a]pyrene	ND	10.	µg/kg		
Indeno[1,2,3-cd]pyrene	ND	10.	µg/kg		
Dibenz[a,h]anthracene	ND	10.	µg/kg		
Benzo[g,h,i]perylene	ND	10.	µg/kg		
	Surrogate		Recovery	Limit	
	1,2-Dichlorobenzene-d4		85. %		
	Nitrobenzene-d5		78. %		
	2-Fluorobiphenyl		92. %		

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## Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix				Lab Number
Analyte	Result	Reporting Limit	Units (ppb)	Comment	
99NW-SB2-GW	Water				L9547-16
					Sampled: 01/06/99 Extracted: 01/12/98 Analyzed: 01/13/99 by PB
Naphthalene	ND	0.1	µg/L		
Acenaphthylene	ND	0.1	µg/L		
Acenaphthene	ND	0.1	µg/L		
Fluorene	ND	0.1	µg/L		
Pentachlorophenol	ND	0.5	µg/L		
Phenanthrene	ND	0.1	µg/L		
Anthracene	ND	0.1	µg/L		
Fluoranthene	ND	0.1	µg/L		
Pyrene	ND	0.1	µg/L		
Benzo[a]anthracene	ND	0.1	µg/L		
Chrysene	ND	0.1	µg/L		
Benzo[b]fluoranthene	ND	0.1	µg/L		
Benzo[k]fluoranthene	ND	0.1	µg/L		
Benzo[a]pyrene	ND	0.1	µg/L		
Indeno[1,2,3-cd]pyrene	ND	0.1	µg/L		
Dibenz[a,h]anthracene	ND	0.1	µg/L		
Benzo[g,h,i]perylene	ND	0.1	µg/L		
Surrogate		Recovery		Limit	
1,2-Dichlorobenzene-d4		111.1%			
Nitrobenzene-d5		146.0%			6A-143
2-Fluorobiphenyl		115.0%			

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Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Semi-Volatile Petroleum Products by NWTPH-DX

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
99NW-SB1-4-5.5	Soil					L9547-2
	Diesel Region	ND	25.	mg/kg		
	Oil Region	ND	50.	mg/kg		
	Surrogate			Recovery	Limit	
	2-Fluorobiphenyl			84. %	50 - 150	
	O-terphenyl			97. %	50 - 150	

Sampled: 01/06/99  
 Extracted: 01/08/99  
 Analyzed: 01/08/99 by RJ

99NW-SB1-8.5-10	Soil					L9547-5
	Diesel Region	ND	25.	mg/kg		
	Oil Region	ND	50.	mg/kg		
	Surrogate			Recovery	Limit	
	2-Fluorobiphenyl			80. %	50 - 150	
	O-terphenyl			95. %	50 - 150	

Sampled: 01/06/99  
 Extracted: 01/08/99  
 Analyzed: 01/08/99 by RJ

99NW-SB2-4-5.5	Soil					L9547-7
	Diesel Region	ND	250	mg/kg	D	
	Oil Region	1,200	500	mg/kg	1,D	
	Surrogate			Recovery	Limit	
	2-Fluorobiphenyl			80. %	50 - 150	
	O-terphenyl			117. %	50 - 150	

Sampled: 01/06/99  
 Extracted: 01/08/99  
 Analyzed: 01/11/99 by RJ

<sup>1</sup> Product appears to be oil.



L9547

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Project: 5491C0796B.00  
IP - Longview

## Semi-Volatile Petroleum Products by NWTPH-DX

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
99NW-SB2-8.5-10	Soil				Sampled: 01/06/99 Extracted: 01/08/99 Analyzed: 01/08/99 by RJ	L9547-10
Diesel Region		ND	25.	mg/kg		
Oil Region		79.	50.	mg/kg	1	
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				87. %	50 - 150
	O-terphenyl				99. %	50 - 150
<sup>1</sup> Product appears to be oil.						

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
99NW-SB3-2.5-4	Soil				Sampled: 01/06/99 Extracted: 01/08/99 Analyzed: 01/08/99 by RJ	L9547-11
Diesel Region		ND	25.	mg/kg		
Oil Region		200	50.	mg/kg	1	
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				99. %	50 - 150
	O-terphenyl				107. %	50 - 150
<sup>1</sup> Product appears to be oil.						

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
99NW-SB3-8.5-10	Soil				Sampled: 01/06/99 Extracted: 01/08/99 Analyzed: 01/08/99 by RJ	L9547-15
Diesel Region		ND	25.	mg/kg		
Oil Region		ND	50.	mg/kg		
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				83. %	50 - 150
	O-terphenyl				102. %	50 - 150

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### Semi-Volatile Petroleum Products by NWTPH-DX

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
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99NW-SB2-GW	Water					Sampled: 01/06/99 Extracted: 01/08/99 ✓ Analyzed: 01/08/99 by RJ	L9547-16
	Diesel Region	ND	0.25	mg/L			
	Oil Region	ND	0.50	mg/L			
	Surrogate				Recovery	Limit	
	2-Fluorobiphenyl				90. % ✓	50 - 150	
	O-terphenyl				102. % ✓	50 - 150	

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Project: *5491C0796B.00*  
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## Semivolatiles by EPA 8270

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment
<i>99NW-SB1-4-5.5</i>	<i>Soil</i>				Sampled: <i>01/06/99</i> Extracted: <i>01/13/99</i> Analyzed: <i>01/15/99 by PB</i>
Phenol		ND	330	µg/kg	
bis(2-Chloroethyl)ether		ND	330	µg/kg	
2-Chlorophenol		ND	330	µg/kg	
1,3-Dichlorobenzene		ND	330	µg/kg	
1,4-Dichlorobenzene		ND	330	µg/kg	
Benzyl Alcohol		ND	660	µg/kg	
1,2-Dichlorobenzene		ND	330	µg/kg	
2-Methylphenol		ND	330	µg/kg	
bis(2-Chloroisopropyl)ether		ND	330	µg/kg	
4-Methylphenol		ND	330	µg/kg	
N-Nitroso-di-n-propylamine		ND	330	µg/kg	
Hexachloroethane		ND	330	µg/kg	
Nitrobenzene		ND	330	µg/kg	
Isophorone		ND	330	µg/kg	
2-Nitrophenol		ND	330	µg/kg	
2,4-Dimethylphenol		ND	330	µg/kg	
Benzoic Acid		ND	1,650	µg/kg	
bis(2-Chloroethoxy)methane		ND	330	µg/kg	
2,4-Dichlorophenol		ND	330	µg/kg	
1,2,4-Trichlorobenzene		ND	330	µg/kg	
Naphthalene		ND	330	µg/kg	
4-Chloroaniline		ND	660	µg/kg	
Hexachlorobutadiene		ND	330	µg/kg	
4-Chloro-3-methylphenol		ND	660	µg/kg	
2-Methylnaphthalene		ND	330	µg/kg	
Hexachlorocyclopentadiene		ND	330	µg/kg	
2,4,6-Trichlorophenol		ND	330	µg/kg	
2,4,5-Trichlorophenol		ND	330	µg/kg	
2-Chloronaphthalene		ND	330	µg/kg	
2-Nitroaniline		ND	1,650	µg/kg	
Acenaphthylene		ND	330	µg/kg	

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## Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB1-4-5.5	Soil				Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB	L9547-2
		Dimethylphthalate	ND	330	µg/kg	
		2,6-Dinitrotoluene	ND	330	µg/kg	
		Acenaphthene	ND	330	µg/kg	
		3-Nitroaniline	ND	1,650	µg/kg	
		2,4-Dinitrophenol	ND	1,650	µg/kg	
		Dibenzofuran	ND	330	µg/kg	
		2,4-Dinitrotoluene	ND	330	µg/kg	
		4-Nitrophenol	ND	1,650	µg/kg	
		Fluorene	ND	330	µg/kg	
		4-Chlorophenyl-phenylether	ND	330	µg/kg	
		Diethylphthalate	ND	330	µg/kg	
		4-Nitroaniline	ND	1,650	µg/kg	
		1,2-Diphenylhydrazine	ND	1,650	µg/kg	
		4,6-Dinitro-2-methylphenol	ND	1,650	µg/kg	
		n-Nitrosodiphenylamine	ND	330	µg/kg	
		4-Bromophenyl-phenylether	ND	330	µg/kg	
		Hexachlorobenzene	ND	330	µg/kg	
		Pentachlorophenol	ND	1,650	µg/kg	
		Phenanthrene	ND	330	µg/kg	
		Anthracene	ND	330	µg/kg	
		Di-n-butylphthalate	ND	330	µg/kg	
		Fluoranthene	ND	330	µg/kg	
		Pyrene	ND	330	µg/kg	
		Butylbenzylphthalate	ND	330	µg/kg	
		3,3'-Dichlorobenzidine	ND	660	µg/kg	
		Benzo[a]anthracene	ND	330	µg/kg	
		Chrysene	ND	330	µg/kg	
		bis(2-Ethylhexyl)phthalate	ND	330	µg/kg	
		Di-n-octylphthalate	ND	330	µg/kg	
		Benzo[b]fluoranthene	ND	330	µg/kg	
		Benzo[k]fluoranthene	ND	330	µg/kg	

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB1-4-5.5	Soil				Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB	L9547-2
		Benzo[a]pyrene	ND	330	µg/kg	
		Indeno[1,2,3-cd]pyrene	ND	330	µg/kg	
		Dibenz[a,h]anthracene	ND	330	µg/kg	
		Benzo[g,h,i]perylene	ND	330	µg/kg	
		Surrogate			Recovery	Limit
		2-Fluorophenol			97.%	77-115
		Phenol-d6			107.%	24-113
		2,4,6-Tribromophenol			60.%	11-112
		1,2-Dichlorobenzene-d4			83.%	56-148
		Nitrobenzene-d5			105.%	10-143
		2-Fluorobiphenyl			83.%	11-115

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### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment
99NW-SB1-8.5-10				Soil
				Sampled: 01/06/99
				Extracted: 01/13/99 ✓
				Analyzed: 01/15/99 by PB
				L9547-5
Phenol	ND	330	µg/kg	
bis(2-Chloroethyl)ether	ND	330	µg/kg	
2-Chlorophenol	ND	330	µg/kg	
1,3-Dichlorobenzene	ND	330	µg/kg	
1,4-Dichlorobenzene	ND	330	µg/kg	
Benzyl Alcohol	ND	660	µg/kg	
1,2-Dichlorobenzene	ND	330	µg/kg	
2-Methylphenol	ND	330	µg/kg	
bis(2-Chloroisopropyl)ether	ND	330	µg/kg	
4-Methylphenol	ND	330	µg/kg	
N-Nitroso-di-n-propylamine	ND	330	µg/kg	
Hexachloroethane	ND	330	µg/kg	
Nitrobenzene	ND	330	µg/kg	
Isophorone	ND	330	µg/kg	
2-Nitrophenol	ND	330	µg/kg	
2,4-Dimethylphenol	ND	330	µg/kg	
Benzoic Acid	ND	1,650	µg/kg	
bis(2-Chloroethoxy)methane	ND	330	µg/kg	
2,4-Dichlorophenol	ND	330	µg/kg	
1,2,4-Trichlorobenzene	ND	330	µg/kg	
Naphthalene	ND	330	µg/kg	
4-Chloroaniline	ND	660	µg/kg	
Hexachlorobutadiene	ND	330	µg/kg	
4-Chloro-3-methylphenol	ND	660	µg/kg	
2-Methylnaphthalene	ND	330	µg/kg	
Hexachlorocyclopentadiene	ND	330	µg/kg	
2,4,6-Trichlorophenol	ND	330	µg/kg	
2,4,5-Trichlorophenol	ND	330	µg/kg	
2-Chloronaphthalene	ND	330	µg/kg	
2-Nitroaniline	ND	1,650	µg/kg	
Acenaphthylene	ND	330	µg/kg	

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### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB1-8.5-10	Soil					L9547-5
					Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB	
		Dimethylphthalate	ND	330	µg/kg	
		2,6-Dinitrotoluene	ND	330	µg/kg	
		Acenaphthene	ND	330	µg/kg	
		3-Nitroaniline	ND	1,650	µg/kg	
		2,4-Dinitrophenol	ND	1,650	µg/kg	
		Dibenzofuran	ND	330	µg/kg	
		2,4-Dinitrotoluene	ND	330	µg/kg	
		4-Nitrophenol	ND	1,650	µg/kg	
		Fluorene	ND	330	µg/kg	
		4-Chlorophenyl-phenylether	ND	330	µg/kg	
		Diethylphthalate	ND	330	µg/kg	
		4-Nitroaniline	ND	1,650	µg/kg	
		1,2-Diphenylhydrazine	ND	1,650	µg/kg	
		4,6-Dinitro-2-methylphenol	ND	1,650	µg/kg	
		n-Nitrosodiphenylamine	ND	330	µg/kg	
		4-Bromophenyl-phenylether	ND	330	µg/kg	
		Hexachlorobenzene	ND	330	µg/kg	
		Pentachlorophenol	ND	1,650	µg/kg	
		Phenanthrene	ND	330	µg/kg	
		Anthracene	ND	330	µg/kg	
		Di-n-butylphthalate	ND	330	µg/kg	
		Fluoranthene	ND	330	µg/kg	
		Pyrene	ND	330	µg/kg	
		Butylbenzylphthalate	ND	330	µg/kg	
		3,3'-Dichlorobenzidine	ND	660	µg/kg	
		Benzo[a]anthracene	ND	330	µg/kg	
		Chrysene	ND	330	µg/kg	
		bis(2-Ethylhexyl)phthalate	ND	330	µg/kg	
		Di-n-octylphthalate	ND	330	µg/kg	
		Benzo[b]fluoranthene	ND	330	µg/kg	
		Benzo[k]fluoranthene	ND	330	µg/kg	

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L9547

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

### Semivolatiles by EPA 8270

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>Analyte</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>
<i>99NW-SB1-8.5-10</i>	<i>Soil</i>			Sampled: <i>01/06/99</i> Extracted: <i>01/13/99</i> Analyzed: <i>01/15/99 by PB</i>
Benzo[a]pyrene	ND	330	µg/kg	
Indeno[1,2,3-cd]pyrene	ND	330	µg/kg	
Dibenz[a,h]anthracene	ND	330	µg/kg	
Benzo[g,h,i]perylene	ND	330	µg/kg	
	<u>Surrogate</u>		<u>Recovery</u>	<u>Limit</u>
	2-Fluorophenol		95. %	
	Phenol-d6		107. %	
	2,4,6-Tribromophenol		62. %	
	1,2-Dichlorobenzene-d4		79. %	
	Nitrobenzene-d5		102. %	
	2-Fluorobiphenyl		82. %	

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IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-4-5.5	Soil					L9547-7
					Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB	
		Phenol	ND	33,000	µg/kg	D1
		bis(2-Chloroethyl)ether	ND	33,000	µg/kg	D1
		2-Chlorophenol	ND	33,000	µg/kg	D1
		1,3-Dichlorobenzene	ND	33,000	µg/kg	D1
		1,4-Dichlorobenzene	ND	33,000	µg/kg	D1
		Benzyl Alcohol	ND	66,000	µg/kg	D1
		1,2-Dichlorobenzene	ND	33,000	µg/kg	D1
		2-Methylphenol	ND	33,000	µg/kg	D1
		bis(2-Chloroisopropyl)ether	ND	33,000	µg/kg	D1
		4-Methylphenol	ND	33,000	µg/kg	D1
		N-Nitroso-di-n-propylamine	ND	33,000	µg/kg	D1
		Hexachloroethane	ND	33,000	µg/kg	D1
		Nitrobenzene	ND	33,000	µg/kg	D1
		Isophorone	ND	33,000	µg/kg	D1
		2-Nitrophenol	ND	33,000	µg/kg	D1
		2,4-Dimethylphenol	ND	33,000	µg/kg	D1
		Benzoic Acid	ND	165,000	µg/kg	D1
		bis(2-Chloroethoxy)methane	ND	33,000	µg/kg	D1
		2,4-Dichlorophenol	ND	33,000	µg/kg	D1
		1,2,4-Trichlorobenzene	ND	33,000	µg/kg	D1
		Naphthalene	ND	33,000	µg/kg	D1
		4-Chloroaniline	ND	66,000	µg/kg	D1
		Hexachlorobutadiene	ND	33,000	µg/kg	D1
		4-Chloro-3-methylphenol	ND	66,000	µg/kg	D1
		2-Methylnaphthalene	ND	33,000	µg/kg	D1
		Hexachlorocyclopentadiene	ND	33,000	µg/kg	D1
		2,4,6-Trichlorophenol	ND	33,000	µg/kg	D1
		2,4,5-Trichlorophenol	ND	33,000	µg/kg	D1
		2-Chloronaphthalene	ND	33,000	µg/kg	D1
		2-Nitroaniline	ND	165,000	µg/kg	D1
		Acenaphthylene	ND	33,000	µg/kg	D1

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L9547

Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Semivolatiles by EPA 8270

Sample ID	Matrix					Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment	
99NW-SB2-4-5.5	Soil	Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB				L9547-7
Dimethylphthalate		ND	33,000	µg/kg		D1
2,6-Dinitrotoluene		ND	33,000	µg/kg		D1
Acenaphthene		ND	33,000	µg/kg		D1
3-Nitroaniline		ND	165,000	µg/kg		D1
2,4-Dinitrophenol		ND	165,000	µg/kg		D1
Dibenzofuran		ND	33,000	µg/kg		D1
2,4-Dinitrotoluene		ND	33,000	µg/kg		D1
4-Nitrophenol		ND	165,000	µg/kg		D1
Fluorene		ND	33,000	µg/kg		D1
4-Chlorophenyl-phenylether		ND	33,000	µg/kg		D1
Diethylphthalate		ND	33,000	µg/kg		D1
4-Nitroaniline		ND	165,000	µg/kg		D1
1,2-Diphenylhydrazine		ND	165,000	µg/kg		D1
4,6-Dinitro-2-methylphenol		ND	165,000	µg/kg		D1
n-Nitrosodiphenylamine		ND	33,000	µg/kg		D1
4-Bromophenyl-phenylether		ND	33,000	µg/kg		D1
Hexachlorobenzene		ND	33,000	µg/kg		D1
Pentachlorophenol		ND	165,000	µg/kg		D1
Phenanthrene		ND	33,000	µg/kg		D1
Anthracene		ND	33,000	µg/kg		D1
Di-n-butylphthalate		ND	33,000	µg/kg		D1
Fluoranthene		ND	33,000	µg/kg		D1
Pyrene		ND	33,000	µg/kg		D1
Butylbenzylphthalate		ND	33,000	µg/kg		D1
3,3'-Dichlorobenzidine		ND	66,000	µg/kg		D1
Benzo[a]anthracene		ND	33,000	µg/kg		D1
Chrysene		ND	33,000	µg/kg		D1
bis(2-Ethylhexyl)phthalate		ND	33,000	µg/kg		D1
Di-n-octylphthalate		ND	33,000	µg/kg		D1
Benzo[b]fluoranthene		ND	33,000	µg/kg		D1
Benzo[k]fluoranthene		ND	33,000	µg/kg		D1

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Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-4-5.5	Soil					L9547-7
Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB						
Benzo[a]pyrene		ND	33,000	µg/kg	D1	
Indeno[1,2,3-cd]pyrene		ND	33,000	µg/kg	D1	
Dibenz[a,h]anthracene		ND	33,000	µg/kg	D1	
Benzo[g,h,i]perylene		ND	33,000	µg/kg	D1	
	Surrogate			Recovery		Limit
	2-Fluorophenol			79. %		
	Phenol-d6			90. %		
	2,4,6-Tribromophenol			MI		M
	1,2-Dichlorobenzene-d4			MI		M
	Nitrobenzene-d5			76. %		
	2-Fluorobiphenyl			MI		M





L9547

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### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
-----------	--------	--------	-----------------	-------------	---------	------------

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-8.5-10	Soil					L9547-10
					Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB	
		Phenol	ND	3,300	µg/kg	D1
		bis(2-Chloroethyl)ether	ND	3,300	µg/kg	D1
		2-Chlorophenol	ND	3,300	µg/kg	D1
		1,3-Dichlorobenzene	ND	3,300	µg/kg	D1
		1,4-Dichlorobenzene	ND	3,300	µg/kg	D1
		Benzyl Alcohol	ND	6,600	µg/kg	D1
		1,2-Dichlorobenzene	ND	3,300	µg/kg	D1
		2-Methylphenol	ND	3,300	µg/kg	D1
		bis(2-Chloroisopropyl)ether	ND	3,300	µg/kg	D1
		4-Methylphenol	ND	3,300	µg/kg	D1
		N-Nitroso-di-n-propylamine	ND	3,300	µg/kg	D1
		Hexachloroethane	ND	3,300	µg/kg	D1
		Nitrobenzene	ND	3,300	µg/kg	D1
		Isophorone	ND	3,300	µg/kg	D1
		2-Nitrophenol	ND	3,300	µg/kg	D1
		2,4-Dimethylphenol	ND	3,300	µg/kg	D1
		Benzoic Acid	ND	16,500	µg/kg	D1
		bis(2-Chloroethoxy)methane	ND	3,300	µg/kg	D1
		2,4-Dichlorophenol	ND	3,300	µg/kg	D1
		1,2,4-Trichlorobenzene	ND	3,300	µg/kg	D1
		Naphthalene	ND	3,300	µg/kg	D1
		4-Chloroaniline	ND	6,600	µg/kg	D1
		Hexachlorobutadiene	ND	3,300	µg/kg	D1
		4-Chloro-3-methylphenol	ND	6,600	µg/kg	D1
		2-Methylnaphthalene	ND	3,300	µg/kg	D1
		Hexachlorocyclopentadiene	ND	3,300	µg/kg	D1
		2,4,6-Trichlorophenol	ND	3,300	µg/kg	D1
		2,4,5-Trichlorophenol	ND	3,300	µg/kg	D1
		2-Chloronaphthalene	ND	3,300	µg/kg	D1
		2-Nitroaniline	ND	16,500	µg/kg	D1
		Acenaphthylene	ND	3,300	µg/kg	D1

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IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-8.5-10	Soil					L9547-10
					Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB	
		Dimethylphthalate	ND	3,300	µg/kg	D1
		2,6-Dinitrotoluene	ND	3,300	µg/kg	D1
		Acenaphthene	ND	3,300	µg/kg	D1
		3-Nitroaniline	ND	16,500	µg/kg	D1
		2,4-Dinitrophenol	ND	16,500	µg/kg	D1
		Dibenzofuran	ND	3,300	µg/kg	D1
		2,4-Dinitrotoluene	ND	3,300	µg/kg	D1
		4-Nitrophenol	ND	16,500	µg/kg	D1
		Fluorene	ND	3,300	µg/kg	D1
		4-Chlorophenyl-phenylether	ND	3,300	µg/kg	D1
		Diethylphthalate	ND	3,300	µg/kg	D1
		4-Nitroaniline	ND	16,500	µg/kg	D1
		1,2-Diphenylhydrazine	ND	16,500	µg/kg	D1
		4,6-Dinitro-2-methylphenol	ND	16,500	µg/kg	D1
		n-Nitrosodiphenylamine	ND	3,300	µg/kg	D1
		4-Bromophenyl-phenylether	ND	3,300	µg/kg	D1
		Hexachlorobenzene	ND	3,300	µg/kg	D1
		Pentachlorophenol	ND	16,500	µg/kg	D1
		Phenanthrene	ND	3,300	µg/kg	D1
		Anthracene	ND	3,300	µg/kg	D1
		Di-n-butylphthalate	ND	3,300	µg/kg	D1
		Fluoranthene	ND	3,300	µg/kg	D1
		Pyrene	ND	3,300	µg/kg	D1
		Butylbenzylphthalate	ND	3,300	µg/kg	D1
		3,3'-Dichlorobenzidine	ND	6,600	µg/kg	D1
		Benzo[a]anthracene	ND	3,300	µg/kg	D1
		Chrysene	ND	3,300	µg/kg	D1
		bis(2-Ethylhexyl)phthalate	ND	3,300	µg/kg	D1
		Di-n-octylphthalate	ND	3,300	µg/kg	D1
		Benzo[b]fluoranthene	ND	3,300	µg/kg	D1
		Benzo[k]fluoranthene	ND	3,300	µg/kg	D1

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Project: 5491C0796B.00  
IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment
99NW-SB2-8.5-10	Soil			
Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB				
				L9547-10
Benzo[a]pyrene	ND	3,300	µg/kg	D1
Indeno[1,2,3-cd]pyrene	ND	3,300	µg/kg	D1
Dibenz[a,h]anthracene	ND	3,300	µg/kg	D1
Benzo[g,h,i]perylene	ND	3,300	µg/kg	D1
	Surrogate		Recovery	Limit
	2-Fluorophenol		83. %	
	Phenol-d6		102. %	
	2,4,6-Tribromophenol		45. %	
	1,2-Dichlorobenzene-d4		90. %	
	Nitrobenzene-d5		101. %	
	2-Fluorobiphenyl		79. %	

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L9547

Client: **Woodward Clyde Consultants**  
 Contact: **Michelle McClelland**

Project: **5491C0796B.00**  
**IP - Longview**

## Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
Sampled: 01/06/99 ✓ Extracted: 01/13/99 ✓ Analyzed: 01/15/99 by PB						L9547-11
99NW-SB3-2.5-4	Soil					
Phenol		ND	3,300	µg/kg	D1	
bis(2-Chloroethyl)ether		ND	3,300	µg/kg	D1	
2-Chlorophenol		ND	3,300	µg/kg	D1	
1,3-Dichlorobenzene		ND	3,300	µg/kg	D1	
1,4-Dichlorobenzene		ND	3,300	µg/kg	D1	
Benzyl Alcohol		ND	6,600	µg/kg	D1	
1,2-Dichlorobenzene		ND	3,300	µg/kg	D1	
2-Methylphenol		ND	3,300	µg/kg	D1	
bis(2-Chloroisopropyl)ether		ND	3,300	µg/kg	D1	
4-Methylphenol		ND	3,300	µg/kg	D1	
N-Nitroso-di-n-propylamine		ND	3,300	µg/kg	D1	
Hexachloroethane		ND	3,300	µg/kg	D1	
Nitrobenzene		ND	3,300	µg/kg	D1	
Isophorone		ND	3,300	µg/kg	D1	
2-Nitrophenol		ND	3,300	µg/kg	D1	
2,4-Dimethylphenol		ND	3,300	µg/kg	D1	
Benzoic Acid		ND	16,500	µg/kg	D1	
bis(2-Chloroethoxy)methane		ND	3,300	µg/kg	D1	
2,4-Dichlorophenol		ND	3,300	µg/kg	D1	
1,2,4-Trichlorobenzene		ND	3,300	µg/kg	D1	
Naphthalene		ND	3,300	µg/kg	D1	
4-Chloroaniline		ND	6,600	µg/kg	D1	
Hexachlorobutadiene		ND	3,300	µg/kg	D1	
4-Chloro-3-methylphenol		ND	6,600	µg/kg	D1	
2-Methylnaphthalene		ND	3,300	µg/kg	D1	
Hexachlorocyclopentadiene		ND	3,300	µg/kg	D1	
2,4,6-Trichlorophenol		ND	3,300	µg/kg	D1	
2,4,5-Trichlorophenol		ND	3,300	µg/kg	D1	
2-Chloronaphthalene		ND	3,300	µg/kg	D1	
2-Nitroaniline		ND	16,500	µg/kg	D1	
Acenaphthylene		ND	3,300	µg/kg	D1	

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L9547

Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Semivolatiles by EPA 8270

Sample ID	Matrix					Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment	

Sample ID	Matrix					Lab Number
99NW-SB3-2.5-4	Soil	Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB				L9547-11
Dimethylphthalate		ND	3,300	µg/kg	D1	
2,6-Dinitrotoluene		ND	3,300	µg/kg	D1	
Acenaphthene		ND	3,300	µg/kg	D1	
3-Nitroaniline		ND	16,500	µg/kg	D1	
2,4-Dinitrophenol		ND	16,500	µg/kg	D1	
Dibenzofuran		ND	3,300	µg/kg	D1	
2,4-Dinitrotoluene		ND	3,300	µg/kg	D1	
4-Nitrophenol		ND	16,500	µg/kg	D1	
Fluorene		ND	3,300	µg/kg	D1	
4-Chlorophenyl-phenylether		ND	3,300	µg/kg	D1	
Diethylphthalate		ND	3,300	µg/kg	D1	
4-Nitroaniline		ND	16,500	µg/kg	D1	
1,2-Diphenylhydrazine		ND	16,500	µg/kg	D1	
4,6-Dinitro-2-methylphenol		ND	16,500	µg/kg	D1	
n-Nitrosodiphenylamine		ND	3,300	µg/kg	D1	
4-Bromophenyl-phenylether		ND	3,300	µg/kg	D1	
Hexachlorobenzene		ND	3,300	µg/kg	D1	
Pentachlorophenol		ND	16,500	µg/kg	D1	
Phenanthrene		ND	3,300	µg/kg	D1	
Anthracene		ND	3,300	µg/kg	D1	
Di-n-butylphthalate		ND	3,300	µg/kg	D1	
Fluoranthene		ND	3,300	µg/kg	D1	
Pyrene		ND	3,300	µg/kg	D1	
Butylbenzylphthalate		ND	3,300	µg/kg	D1	
3,3'-Dichlorobenzidine		ND	6,600	µg/kg	D1	
Benzo[a]anthracene		ND	3,300	µg/kg	D1	
Chrysene		ND	3,300	µg/kg	D1	
bis(2-Ethylhexyl)phthalate		ND	3,300	µg/kg	D1	
Di-n-octylphthalate		ND	3,300	µg/kg	D1	
Benzo[b]fluoranthene		ND	3,300	µg/kg	D1	
Benzo[k]fluoranthene		ND	3,300	µg/kg	D1	

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-2.5-4	Soil					L9547-11
Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB						
Benzo[a]pyrene		ND	3,300	µg/kg	D1	
Indeno[1,2,3-cd]pyrene		ND	3,300	µg/kg	D1	
Dibenz[a,h]anthracene		ND	3,300	µg/kg	D1	
Benzo[g,h,i]perylene		ND	3,300	µg/kg	D1	
	Surrogate			Recovery		Limit
	2-Fluorophenol			79. %		
	Phenol-d6			108. %		
	2,4,6-Tribromophenol			45. %		
	1,2-Dichlorobenzene-d4			90. %		
	Nitrobenzene-d5			101. %		
	2-Fluorobiphenyl			79. %		

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## Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-8.5-10	Soil				Sampled: 01/06/99 Extracted: 01/13/99 ✓ Analyzed: 01/15/99 by PB	L9547-15
		Phenol	ND	330	µg/kg	
		bis(2-Chloroethyl)ether	ND	330	µg/kg	
		2-Chlorophenol	ND	330	µg/kg	
		1,3-Dichlorobenzene	ND	330	µg/kg	
		1,4-Dichlorobenzene	ND	330	µg/kg	
		Benzyl Alcohol	ND	660	µg/kg	
		1,2-Dichlorobenzene	ND	330	µg/kg	
		2-Methylphenol	ND	330	µg/kg	
		bis(2-Chloroisopropyl)ether	ND	330	µg/kg	
		4-Methylphenol	ND	330	µg/kg	
		N-Nitroso-di-n-propylamine	ND	330	µg/kg	
		Hexachloroethane	ND	330	µg/kg	
		Nitrobenzene	ND	330	µg/kg	
		Isophorone	ND	330	µg/kg	
		2-Nitrophenol	ND	330	µg/kg	
		2,4-Dimethylphenol	ND	330	µg/kg	
		Benzoic Acid	ND	1,650	µg/kg	
		bis(2-Chloroethoxy)methane	ND	330	µg/kg	
		2,4-Dichlorophenol	ND	330	µg/kg	
		1,2,4-Trichlorobenzene	ND	330	µg/kg	
		Naphthalene	ND	330	µg/kg	
		4-Chloroaniline	ND	660	µg/kg	
		Hexachlorobutadiene	ND	330	µg/kg	
		4-Chloro-3-methylphenol	ND	660	µg/kg	
		2-Methylnaphthalene	ND	330	µg/kg	
		Hexachlorocyclopentadiene	ND	330	µg/kg	
		2,4,6-Trichlorophenol	ND	330	µg/kg	
		2,4,5-Trichlorophenol	ND	330	µg/kg	
		2-Chloronaphthalene	ND	330	µg/kg	
		2-Nitroaniline	ND	1,650	µg/kg	
		Acenaphthylene	ND	330	µg/kg	

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IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-8.5-10	Soil				Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB	L9547-15
		Dimethylphthalate	ND	330	µg/kg	
		2,6-Dinitrotoluene	ND	330	µg/kg	
		Acenaphthene	ND	330	µg/kg	
		3-Nitroaniline	ND	1,650	µg/kg	
		2,4-Dinitrophenol	ND	1,650	µg/kg	
		Dibenzofuran	ND	330	µg/kg	
		2,4-Dinitrotoluene	ND	330	µg/kg	
		4-Nitrophenol	ND	1,650	µg/kg	
		Fluorene	ND	330	µg/kg	
		4-Chlorophenyl-phenylether	ND	330	µg/kg	
		Diethylphthalate	ND	330	µg/kg	
		4-Nitroaniline	ND	1,650	µg/kg	
		1,2-Diphenylhydrazine	ND	1,650	µg/kg	
		4,6-Dinitro-2-methylphenol	ND	1,650	µg/kg	
		n-Nitrosodiphenylamine	ND	330	µg/kg	
		4-Bromophenyl-phenylether	ND	330	µg/kg	
		Hexachlorobenzene	ND	330	µg/kg	
		Pentachlorophenol	ND	1,650	µg/kg	
		Phenanthrene	ND	330	µg/kg	
		Anthracene	ND	330	µg/kg	
		Di-n-butylphthalate	ND	330	µg/kg	
		Fluoranthene	ND	330	µg/kg	
		Pyrene	ND	330	µg/kg	
		Butylbenzylphthalate	ND	330	µg/kg	
		3,3'-Dichlorobenzidine	ND	660	µg/kg	
		Benzo[a]anthracene	ND	330	µg/kg	
		Chrysene	ND	330	µg/kg	
		bis(2-Ethylhexyl)phthalate	ND	330	µg/kg	
		Di-n-octylphthalate	ND	330	µg/kg	
		Benzo[b]fluoranthene	ND	330	µg/kg	
		Benzo[k]fluoranthene	ND	330	µg/kg	

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### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
-----------	--------	--------	-----------------	-------------	---------	------------

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB3-8.5-10	Soil					L9547-15
Sampled: 01/06/99 Extracted: 01/13/99 Analyzed: 01/15/99 by PB						
Benzo[a]pyrene		ND	330	µg/kg		
Indeno[1,2,3-cd]pyrene		ND	330	µg/kg		
Dibenz[a,h]anthracene		ND	330	µg/kg		
Benzo[g,h,i]perylene		ND	330	µg/kg		
		Surrogate		Recovery	Limit	
		2-Fluorophenol		99.%		
		Phenol-d6		116.%	24-113	
		2,4,6-Tribromophenol		45.%		
		1,2-Dichlorobenzene-d4		90.%		
		Nitrobenzene-d5		101.%		
		2-Fluorobiphenyl		79.%		

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### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-GW	Water				Sampled: 01/06/99 Extracted: 01/11/99 ✓ Analyzed: 01/11/99 by PB	L9547-16
		Phenol	ND	10.	µg/L	
		bis(2-Chloroethyl)ether	ND	10.	µg/L	
		2-Chlorophenol	ND	10.	µg/L	
		1,3-Dichlorobenzene	ND	10.	µg/L	
		1,4-Dichlorobenzene	ND	10.	µg/L	
		Benzyl Alcohol	ND	20.	µg/L	
		1,2-Dichlorobenzene	ND	10.	µg/L	
		2-Methylphenol	ND	10.	µg/L	
		bis(2-Chloroisopropyl)ether	ND	10.	µg/L	
		4-Methylphenol	ND	10.	µg/L	
		N-Nitroso-di-n-propylamine	ND	10.	µg/L	
		Hexachloroethane	ND	10.	µg/L	
		Nitrobenzene	ND	10.	µg/L	
		Isophorone	ND	10.	µg/L	
		2-Nitrophenol	ND	10.	µg/L	
		2,4-Dimethylphenol	ND	10.	µg/L	
		Benzoic Acid	ND	50.	µg/L	
		bis(2-Chloroethoxy)methane	ND	10.	µg/L	
		2,4-Dichlorophenol	ND	10.	µg/L	
		1,2,4-Trichlorobenzene	ND	10.	µg/L	
		Naphthalene	ND	10.	µg/L	
		4-Chloroaniline	ND	20.	µg/L	
		Hexachlorobutadiene	ND	10.	µg/L	
		4-Chloro-3-methylphenol	ND	20.	µg/L	
		2-Methylnaphthalene	ND	10.	µg/L	
		Hexachlorocyclopentadiene	ND	10.	µg/L	
		2,4,6-Trichlorophenol	ND	10.	µg/L	
		2,4,5-Trichlorophenol	ND	10.	µg/L	
		2-Chloronaphthalene	ND	10.	µg/L	
		2-Nitroaniline	ND	50.	µg/L	
		Acenaphthylene	ND	10.	µg/L	



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### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
-----------	--------	--------	-----------------	-------------	---------	------------

Analyte	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-GW	Water			Sampled: 01/06/99 Extracted: 01/11/99 Analyzed: 01/11/99 by PB	L9547-16
Dimethylphthalate	ND	10.	µg/L		
2,6-Dinitrotoluene	ND	10.	µg/L		
Acenaphthene	ND	10.	µg/L		
3-Nitroaniline	ND	50.	µg/L		
2,4-Dinitrophenol	ND	50.	µg/L		
Dibenzofuran	ND	10.	µg/L		
2,4-Dinitrotoluene	ND	10.	µg/L		
4-Nitrophenol	ND	50.	µg/L		
Fluorene	ND	10.	µg/L		
4-Chlorophenyl-phenylether	ND	10.	µg/L		
Diethylphthalate	ND	10.	µg/L		
4-Nitroaniline	ND	50.	µg/L		
1,2-Diphenylhydrazine	ND	50.	µg/L		
4,6-Dinitro-2-methylphenol	ND	50.	µg/L		
n-Nitrosodiphenylamine	ND	10.	µg/L		
4-Bromophenyl-phenylether	ND	10.	µg/L		
Hexachlorobenzene	ND	10.	µg/L		
Pentachlorophenol	ND	50.	µg/L		
Phenanthrene	ND	10.	µg/L		
Anthracene	ND	10.	µg/L		
Di-n-butylphthalate	ND	10.	µg/L		
Fluoranthene	ND	10.	µg/L		
Pyrene	ND	10.	µg/L		
Butylbenzylphthalate	ND	10.	µg/L		
3,3'-Dichlorobenzidine	ND	20.	µg/L		
Benzo[a]anthracene	ND	10.	µg/L		
Chrysene	ND	10.	µg/L		
bis(2-Ethylhexyl)phthalate	ND	10.	µg/L		
Di-n-octylphthalate	ND	10.	µg/L		
Benzo[b]fluoranthene	ND	10.	µg/L		
Benzo[k]fluoranthene	ND	10.	µg/L		

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## Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99NW-SB2-GW	Water				Sampled: 01/06/99 Extracted: 01/11/99 Analyzed: 01/11/99 by PB	L9547-16
		Benzo[a]pyrene	ND	10.	µg/L	
		Indeno[1,2,3-cd]pyrene	ND	10.	µg/L	
		Dibenz[a,h]anthracene	ND	10.	µg/L	
		Benzo[g,h,i]perylene	ND	10.	µg/L	
		Surrogate			Recovery	Limit
		2-Fluorophenol			73.%	74-115
		Phenol-d6			51.%	
		2,4,6-Tribromophenol			112.%	
		1,2-Dichlorobenzene-d4			96.%	
		Nitrobenzene-d5			101.%	
		2-Fluorobiphenyl			105.%	

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**Batch Q.C.**  
**Blank**  
**Inorganics - Soils (mg/kg)**

Analyte	Result	Reporting		Date
		Limit	Q	Analyzed
Chloride .....	ND	1		01/08/99
Cyanide, Total .....	ND	1		01/15/99
Fluoride .....	ND	1		01/08/99
Nitrate as N .....	ND	1		01/08/99
pH .....	NA	0.1		01/08/99
Sulfate as SO4 .....	ND	5		01/08/99
Comments: Cyanide Batch QC for L9547-2 & -5.				

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L9547

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**Batch Q.C.**  
**Blank**  
**Inorganics - Soils (mg/kg)**

Analyte	Result	Reporting Limit	Q	Date Analyzed
---------	--------	-----------------	---	---------------

Cyanide, Total .....	ND	1		01/15/99
Comments: Cyanide Batch QC for L9547-7, -10, -11, & -15.				

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L9547

Client: *Woodward Clyde Consultants*  
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Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**LCSW**  
**Inorganics - Soils (mg/kg)**

Analyte	True Value	Result	% Recovery	% Limit	Date Analyzed
Chloride .....	10.00	9.34	93 ✓	90-110	01/08/99
Cyanide, Total .....	60	53	88 ✓	85-115	01/15/99
Fluoride .....	4.00	3.90	98 ✓	90-110	01/08/99
Nitrate as N .....	5.00	4.50	90 ✓	90-110	01/08/99
pH .....	6.0	6.0	100 ✓	0.1 †	01/08/99
Sulfate as SO4 .....	30.0	28.5	95 ✓	90-110	01/08/99

Comments: † Limit for pH is calculated using the difference of results.  
Cyanide Batch QC for L9547-2 & -5.

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**Batch Q.C.**  
**LCSW**  
**Inorganics - Soils (mg/kg)**

Analyte	True Value	Result	% Recovery	% Limit	Date Analyzed
Cyanide, Total .....	60	58	97	85-115	01/15/99
Comments: Cyanide Batch QC for L9547-7, -10, -11, & -15.					





L9547

Client: *Woodward Clyde Consultants*  
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**Batch Q.C.**  
**Duplicate**  
**Inorganics - Soils (mg/kg)**

Analyte	Duplicate		Reporting	RPD		Date
	Result	Result	Limit	RPD	Limit	Q Analyzed

Chloride .....	1	2	1	NA	20	‡	01/08/99
Cyanide, Total .....	ND	ND	1	<1	20		01/15/99
Fluoride .....	ND	ND	1	<1	20		01/08/99
Nitrate as N .....	ND	ND	1	<1	20		01/08/99
pH .....	5.8	5.7	0.1	0.1	±0.1 †		01/08/99
Sulfate as SO4 .....	6	7	5	15	20		01/08/99

Comments: † Limit for pH is calculated using the difference of results, not Relative Percent Difference (RPD).  
‡ QC limits do not apply when the sample or duplicate result is less than 5 times the reporting limit  
Cyanide Batch QC for L9547-2 & -5.

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L9547

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Duplicate**  
**Inorganics - Soils (mg/kg)**

Analyte	Result	Duplicate Result	Reporting Limit	RPD	RPD Limit	Q	Date Analyzed
Cyanide, Total .....	ND	ND	1	<1	20		01/15/99
Comments: Cyanide Batch QC for L9547-7, -10, -11, & -15.							

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L9547

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Project: *5491C0796B.00*  
*IP - Longview*

### Batch Q.C.

#### Spike

#### Inorganics - Soils (mg/kg)

Analyte	Spike Result	Sample Result	Spike Added	% Recovery	% Limit	Q	Date Analyzed
---------	--------------	---------------	-------------	------------	---------	---	---------------

Chloride .....	72	3	78	88 ✓	75-125		01/08/99
Cyanide, Total .....	25	ND	26	96 ✓	75-125		01/15/99
Fluoride .....	28	ND	39	72 ✓	75-125	K1	01/08/99
Nitrate as N .....	34	ND	39	87 ✓	75-125		01/08/99
pH .....	NA	NA	NA	NA ✓			01/08/99
Sulfate as SO4 .....	220	ND	235	94 ✓	75-125		01/08/99

Comments: Cyanide Batch QC for L9547-2 & -5.  
K1 = Batch matrix spike recovery outside laboratory QC limits due to suspected matrix interference.

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L9547

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### Batch Q.C.

### Spike Inorganics - Soils (mg/kg)

Analyte	Spike Result	Sample Result	Spike Added	% Recovery	% Limit	Q	Date Analyzed
Cyanide, Total .....	20	ND	21	95	75-125		01/15/99
Comments: Cyanide Batch QC for L9547-7, -10, -11, & -15.							



L9547

Client: *Woodward Clyde Consultants*  
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Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Method Blank**  
**Metals / Total by Weight (mg/kg)**

Analyte	Result	Reporting Limit	Q	Date Analyzed
Antimony . . . . .	ND	2.0		01/18/99
Arsenic . . . . .	ND	0.20		01/19/99
Beryllium . . . . .	ND	0.10		01/18/99
Cadmium . . . . .	ND	0.20		01/18/99
Chromium . . . . .	ND	0.50		01/18/99
Copper . . . . .	ND	0.20		01/18/99
Lead . . . . .	ND	0.10		01/18/99
Mercury . . . . .	ND	0.10		01/20/99
Nickel . . . . .	ND	1.0		01/18/99
Selenium . . . . .	ND	0.20		01/19/99
Silver . . . . .	ND	0.30		01/18/99
Thallium . . . . .	ND	0.20		01/20/99
Zinc . . . . .	ND	1.0		01/18/99
Comments:				

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L9547

Client: *Woodward Clyde Consultants*  
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Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**LCSW**  
**Metals / Total by Volume (mg/L)**

Analyte	True Value	Result	% Recovery	% Limit	Date Analyzed
Antimony . . . . .	1.00	0.991	99	80-120	01/18/99
Arsenic . . . . .	0.0800	0.0820	103	80-120	01/19/99
Beryllium . . . . .	0.100	0.0995	100	80-120	01/18/99
Cadmium . . . . .	0.100	0.0956	96	80-120	01/18/99
Chromium . . . . .	0.400	0.386	97	80-120	01/18/99
Copper . . . . .	0.500	0.487	97	80-120	01/18/99
Lead . . . . .	0.0400	0.0399	100	80-120	01/18/99
Mercury . . . . .	0.00200	0.0018	90	80-120	01/20/99
Nickel . . . . .	1.00	0.962	96	80-120	01/18/99
Selenium . . . . .	0.0200	0.0225	113	80-120	01/19/99
Silver . . . . .	0.100	0.0932	93	80-120	01/18/99
Thallium . . . . .	0.100	0.0938	94	80-120	01/20/99
Zinc . . . . .	1.00	0.946	95	80-120	01/18/99

Comments: LCSW = Laboratory Control Sample: Water

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L9547

Client: *Woodward Clyde Consultants*  
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Project: *5491C0796B.00*  
*IP - Longview*

### Batch Q.C.

### LCSS

### Metals / Total by Weight (mg/kg)

Analyte	Mean Value	Result	% Recovery	mg/kg Limit	Date Analyzed
Antimony . . . . .	129	127 ✓	98	89.0 - 170	01/18/99
Arsenic . . . . .	68.9	77.6 ✓	113	45.5 - 92.2	01/19/99
Beryllium . . . . .	105	106 ✓	101	90.6 - 120	01/18/99
Cadmium . . . . .	58.0	57.8 ✓	100	49.6 - 66.3	01/18/99
Chromium . . . . .	92.3	85.7 ✓	93	74.2 - 110	01/18/99
Copper . . . . .	178	172 ✓	97	151 - 205	01/18/99
Lead . . . . .	147	133 ✓	90	78.8 - 216	01/18/99
Mercury . . . . .	3.96	4.60 ✓	116	2.82 - 5.11	01/20/99
Nickel . . . . .	70.4	71.2 ✓	101	61.1 - 79.7	01/18/99
Selenium . . . . .	75.3	87.6 ✓	116	57.8 - 92.8	01/19/99
Silver . . . . .	72.8	71.5 ✓	98	61.4 - 84.2	01/18/99
Thallium . . . . .	58.5	75.1 ✓	128	56.2 - 108*	01/20/99
Zinc . . . . .	92.0	88.9 ✓	97	77.2 - 107	01/18/99

Comments: LCSS: Laboratory Control Sample: Solid Control limits are based on OAL control charts  
\* = less then 20 points have been collected, therefore manufactures control limits are being used



L9547

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Project: *5491C0796B.00*  
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**Batch Q.C.**  
**Duplicate**  
**Metals / Total by Weight (mg/kg)**

Analyte	Result	Duplicate Result	Reporting Limit	RPD	RPD Limit	Q	Date Analyzed
Antimony . . . . .	ND	ND	2.0	NA	35		01/18/99
Arsenic . . . . .	1.1	1.3	1.0	17	35		01/19/99
Beryllium . . . . .	ND	ND	0.10	NA	35		01/18/99
Cadmium . . . . .	ND	ND	0.20	NA	35		01/18/99
Chromium . . . . .	6.68	8.72	0.50	26	35		01/18/99
Copper . . . . .	15.4	17.7	0.20	14	35		01/18/99
Lead . . . . .	1.1	1.2	0.50	9	35		01/18/99
Mercury . . . . .	ND	ND	0.10	NA	35		01/20/99
Nickel . . . . .	8.3	9.8	1.0	17	35		01/18/99
Selenium . . . . .	ND	ND	1.0	NA	35		01/19/99
Silver . . . . .	ND	ND	0.30	NA	35		01/18/99
Thallium . . . . .	ND	ND	1.0	NA	35		01/20/99
Zinc . . . . .	21.6	24.7	1.0	13	35		01/18/99

Comments:





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Project: *5491C0796B.00*  
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**Batch Q.C.**  
**Spike**  
**Metals / Total by Weight (mg/kg)**

Analyte	Spike Result	Sample Result	Spike Added	% Recovery	% Limit	Q	Date Analyzed
Antimony . . . . .	78.3	ND	98.1	80 ✓	75-125		01/18/99
Arsenic . . . . .	7.79	1.1	7.93	84 ✓	75-125		01/19/99
Beryllium . . . . .	9.57	ND	9.81	98 ✓	75-125		01/18/99
Cadmium . . . . .	9.01	ND	9.81	92 ✓	75-125		01/18/99
Chromium . . . . .	43.7	6.68	39.3	94 ✓	75-125		01/18/99
Copper . . . . .	61.8	15.4	49.1	95 ✓	75-125		01/18/99
Lead . . . . .	5.10	1.1	4.00	100 ✓	75-125		01/18/99
Mercury . . . . .	1.86	ND	1.84	101 ✓	75-125		01/20/99
Nickel . . . . .	98.2	8.3	98.1	92 ✓	75-125		01/18/99
Selenium . . . . .	2.9	ND	1.98	146 ✓	75-125	‡	01/19/99
Silver . . . . .	8.81	ND	9.81	90 ✓	75-125		01/18/99
Thallium . . . . .	9.1	ND	9.92	92 ✓	75-125		01/20/99
Zinc . . . . .	113	21.6	98.1	93 ✓	75-125		01/18/99

Comments: ‡ All samples associated with this batch were less than the reporting limit, therefore no flag was needed.

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### Volatiles LCS by EPA Method 8260

					<i>Lab Number</i>
Analyte	Results	Amount Spiked	Units	Recovery	

Analyzed : 01/08/99					<i>LCS0108</i>
CAS #					
75-35-4	1,1-Dichloroethene .....	19.2	20.0	ug/L	96% ✓
71-43-2	Benzene .....	21.0	20.0	ug/L	105% ✓
79-01-6	Trichloroethene .....	20.6	20.0	ug/L	103% ✓
108-88-3	Toluene .....	20.9	20.0	ug/L	105% ✓
108-90-7	Chlorobenzene .....	21.0	20.0	ug/L	105% ✓
	<b>Surrogates</b>				<b>Recovery</b>
					<b>LCS0108</b>
	1,2-Dichloroethane-d4				102% ✓
	Toluene-d8				100% ✓
	4-Bromofluorobenzene				100% ✓

none detected = nd

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Project: 5491C0796B.00

### Volatiles LCS by EPA Method 8260

Analyte	Results	Amount Spiked	Units	Recovery	Lab Number
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Analyzed : 01/11/99					LCS0111
CAS #					
75-35-4	1,1-Dichloroethene . . . . .	41	40	ug/Kg	103% ✓
71-43-2	Benzene . . . . .	43	40	ug/Kg	106% ✓
79-01-6	Trichloroethene . . . . .	43	40	ug/Kg	108% ✓
108-88-3	Toluene . . . . .	41	40	ug/Kg	103% ✓
108-90-7	Chlorobenzene . . . . .	41	40	ug/Kg	103% ✓
	<b>Surrogates</b>				<b>Recovery</b>
					<b>LCS0111</b>
	1,2-Dichloroethane-d4				105% ✓
	Toluene-d8				101% ✓
	4-Bromofluorobenzene				101% ✓

none detected = nd



L9547

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Project: 5491C0796B.00

### Volatiles LCS by EPA Method 8260

						<i>Lab Number</i>
Analyte	Results	Amount Spiked	Units	Recovery		
<b>Analyzed : 01/12/99</b>						<i>LCS0112</i>
<b>CAS #</b>						
75-35-4	1,1-Dichloroethene . . . . .	39	40	ug/Kg	98%	✓
71-43-2	Benzene . . . . .	41	40	ug/Kg	102%	✓
79-01-6	Trichloroethene . . . . .	41	40	ug/Kg	104%	✓
108-88-3	Toluene . . . . .	38	40	ug/Kg	95%	✓
108-90-7	Chlorobenzene . . . . .	40	40	ug/Kg	99%	✓
					<b>Recovery</b>	
					<b>Surrogates</b>	<b>LCS0112</b>
					1,2-Dichloroethane-d4	98%
					Toluene-d8	96%
					4-Bromofluorobenzene	93%

none detected = nd

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L9547

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### Volatiles MS/MSD by EPA Method 8260

Sample ID					Lab Number
Analyte	MS % Recovery	MSD % Recovery	RPD	Comment	

XXXXX	Soil					L9521-4
CAS #		MS %	MSD %	RPD		
75-35-4	1,1-Dichloroethene .....	97%✓	99%✓	3%✓		
71-43-2	Benzene .....	95%✓	95%✓	0%✓		
79-01-6	Trichloroethene .....	96%✓	95%✓	1%✓		
108-88-3	Toluene .....	91%✓	98%✓	8%✓		
108-90-7	Chlorobenzene .....	94%✓	98%✓	4%✓		
					Recovery	Recovery
		<b>Surrogates</b>			MS	MSD
		1,2-Dichloroethane-d4			102%✓	99%✓
		Toluene-d8			98%✓	105%✓
		4-Bromofluorobenzene			100%✓	97%✓

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### Volatiles MS/MSD by EPA Method 8260

<i>Sample ID</i>				<i>Lab Number</i>
Analyte	Recovery MS	Recovery MSD	RPD	

XXXXX	Water	%	%	%	Analyzed : 12/31/98	L9444-1
<b>CAS #</b>						
75-35-4	1,1-Dichloroethene .....	104 ✓	105 ✓	<1		
71-43-2	Benzene .....	108 ✓	109 ✓	<1		
79-01-6	Trichloroethene .....	103 ✓	104 ✓	<1		
108-88-3	Toluene .....	106 ✓	106 ✓	<1		
108-90-7	Chlorobenzene .....	106 ✓	107 ✓	<1		
<b>Surrogates</b>						
	1,2-Dichloroethane-d4	100 ✓	102 ✓			
	Toluene-d8	99 ✓	99 ✓			
	4-Bromofluorobenzene	100 ✓	100 ✓			

none detected = nd

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L9547

Client: Woodward Clyde Consultants  
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Project: 5491C0796B.00

## Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
<b>MB0108</b>					Analyzed : 01/08/99
<b>CAS #</b>					
75-71-8	Dichlorodifluoromethane . . . . .	nd	2	ug/L	
74-87-3	Chloromethane . . . . .	nd	2	ug/L	
75-01-4	Vinyl chloride . . . . .	nd	2	ug/L	
74-83-9	Bromomethane . . . . .	nd	2	ug/L	
75-00-3	Chloroethane . . . . .	nd	2	ug/L	
75-69-4	Trichlorofluoromethane . . . . .	nd	1	ug/L	
67-64-1	Acetone . . . . .	nd	20	ug/L	
75-35-4	1,1-Dichloroethene . . . . .	nd	1	ug/L	
75-09-2	Methylene chloride . . . . .	nd	2	ug/L	
75-15-0	Carbon disulfide . . . . .	nd	1	ug/L	
156-60-5	trans-1,2-Dichloroethene . . . . .	nd	1	ug/L	
75-34-3	1,1-Dichloroethane . . . . .	nd	1	ug/L	
78-93-3	2-Butanone . . . . .	nd	20	ug/L	
590-20-7	2,2-Dichloropropane . . . . .	nd	1	ug/L	
156-59-4	cis-1,2-Dichloroethene . . . . .	nd	1	ug/L	
74-97-5	Bromochloromethane . . . . .	nd	1	ug/L	
67-86-3	Chloroform . . . . .	nd	1	ug/L	
71-55-6	1,1,1-Trichloroethane . . . . .	nd	1	ug/L	
56-23-5	Carbon tetrachloride . . . . .	nd	1	ug/L	
563-58-6	1,1-Dichloropropene . . . . .	nd	1	ug/L	
71-43-2	Benzene . . . . .	nd	1	ug/L	
107-06-2	1,2-Dichloroethane . . . . .	nd	1	ug/L	
79-01-6	Trichloroethene . . . . .	nd	1	ug/L	

none detected = nd  
Samples: L9547-16, -17, -18

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L9547

Client: Woodward Clyde Consultants  
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Project: 5491C0796B.00

**Volatiles Blank**  
 by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
					Analyzed : 01/08/99
<b>MB0108</b>					
<b>CAS #</b>					
78-87-5	1,2-Dichloropropane . . . . .	nd	1	ug/L	
74-95-3	Dibromomethane . . . . .	nd	1	ug/L	
75-27-4	Bromodichloromethane . . . . .	nd	1	ug/L	
10061-01-5	cis-1,3-Dichloropropene . . . . .	nd	1	ug/L	
108-10-1	4-Methyl-2-pentanone . . . . .	nd	10	ug/L	
108-88-3	Toluene . . . . .	nd	1	ug/L	
591-78-6	2-Hexanone . . . . .	nd	10	ug/L	
10061-02-6	trans-1,3-Dichloropropene . . . . .	nd	1	ug/L	
79-00-5	1,1,2-Trichloroethane . . . . .	nd	1	ug/L	
127-18-4	Tetrachloroethene . . . . .	nd	1	ug/L	
542-75-6	1,3-Dichloropropane . . . . .	nd	1	ug/L	
124-48-1	Dibromochloromethane . . . . .	nd	1	ug/L	
106-93-4	1,2-Dibromoethane . . . . .	nd	1	ug/L	
108-90-7	Chlorobenzene . . . . .	nd	1	ug/L	
630-20-6	1,1,1,2-Tetrachloroethane . . . . .	nd	1	ug/L	
100-41-4	Ethylbenzene . . . . .	nd	1	ug/L	
100-42-5	Styrene . . . . .	nd	1	ug/L	
75-25-2	Bromoform . . . . .	nd	1	ug/L	
98-82-8	Isopropylbenzene . . . . .	nd	1	ug/L	
108-86-1	Bromobenzene . . . . .	nd	1	ug/L	
79-34-5	1,1,2,2-Tetrachloroethane . . . . .	nd	1	ug/L	
96-18-4	1,2,3-Trichloropropane . . . . .	nd	1	ug/L	
103-65-1	n-Propylbenzene . . . . .	nd	1	ug/L	

none detected = nd  
 Samples: L9547-16, -17, -18





L9547

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

### Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
<b>MB0108</b>					Analyzed : 01/08/99
<b>CAS #</b>					
95-49-8	2-Chlorotoluene .....	nd	1	ug/L	
106-43-4	4-Chlorotoluene .....	nd	1	ug/L	
108-67-8	1,3,5-Trimethylbenzene .....	nd	1	ug/L	
98-06-6	tert-Butylbenzene .....	nd	1	ug/L	
95-63-6	1,2,4-Trimethylbenzene .....	nd	1	ug/L	
135-98-8	sec-Butylbenzene .....	nd	1	ug/L	
541-73-1	1,3-Dichlorobenzene .....	nd	1	ug/L	
99-87-6	4-Isopropyltoluene .....	nd	1	ug/L	
106-46-7	1,4-Dichlorobenzene .....	nd	1	ug/L	
95-50-1	1,2-Dichlorobenzene .....	nd	1	ug/L	
104-51-8	n-Butylbenzene .....	nd	1	ug/L	
98-12-8	1,2-Dibromo-3-chloropropane ...	nd	1	ug/L	
120-82-1	1,2,4-Trichlorobenzene .....	nd	1	ug/L	
87-68-3	Hexachlorobutadiene .....	nd	1	ug/L	
91-20-3	Naphthalene .....	nd	1	ug/L	
87-61-6	1,2,3-Trichlorobenzene .....	nd	1	ug/L	
	Total Xylenes .....	nd	1	ug/L	
	<b>Surrogates</b>				<b>Recovery</b>
	1,2-Dichloroethane-d4				MB0108 102%
	Toluene-d8				102%
	4-Bromofluorobenzene				101%

none detected = nd  
 Samples: L9547-16, -17, -18

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L9547

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

### Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
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MB0108VV		Analyzed: 01/11/99			
CAS #					
75-71-8	Dichlorodifluoromethane	nd	20	ug/Kg	
74-87-3	Chloromethane	nd	20	ug/Kg	
75-01-4	Vinyl chloride	nd	20	ug/Kg	
74-83-9	Bromomethane	nd	20	ug/Kg	
75-00-3	Chloroethane	nd	20	ug/Kg	
75-69-4	Trichlorofluoromethane	nd	10	ug/Kg	
67-64-1	Acetone	nd	200	ug/Kg	
75-35-4	1,1-Dichloroethene	nd	10	ug/Kg	
75-09-2	Methylene chloride	nd	20	ug/Kg	
75-15-0	Carbon disulfide	nd	10	ug/Kg	
156-60-5	trans-1,2-Dichloroethene	nd	10	ug/Kg	
75-34-3	1,1-Dichloroethane	nd	10	ug/Kg	
78-93-3	2-Butanone	nd	200	ug/Kg	
590-20-7	2,2-Dichloropropane	nd	10	ug/Kg	
156-59-4	cis-1,2-Dichloroethene	nd	10	ug/Kg	
74-97-5	Bromochloromethane	nd	10	ug/Kg	
67-66-3	Chloroform	nd	10	ug/Kg	
71-55-6	1,1,1-Trichloroethane	nd	10	ug/Kg	
56-23-5	Carbon tetrachloride	nd	10	ug/Kg	
563-58-6	1,1-Dichloropropene	nd	10	ug/Kg	
71-43-2	Benzene	nd	10	ug/Kg	
107-06-2	1,2-Dichloroethane	nd	10	ug/Kg	
79-01-6	Trichloroethene	nd	10	ug/Kg	

none detected = nd  
 Samples: L9547-2, -5, -10, -11, -15



L9547

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

## Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
MB0108W					Analyzed : 01/11/99
	<b>CAS #</b>				
	78-87-5	1,2-Dichloropropane . . . . .	nd	10	ug/Kg
	74-95-3	Dibromomethane . . . . .	nd	10	ug/Kg
	75-27-4	Bromodichloromethane . . . . .	nd	10	ug/Kg
	10061-01-5	cis-1,3-Dichloropropene . . . . .	nd	10	ug/Kg
	108-10-1	4-Methyl-2-pentanone . . . . .	nd	100	ug/Kg
	108-88-3	Toluene . . . . .	nd	10	ug/Kg
	591-78-6	2-Hexanone . . . . .	nd	100	ug/Kg
	10061-02-6	trans-1,3-Dichloropropene . . . . .	nd	10	ug/Kg
	79-00-5	1,1,2-Trichloroethane . . . . .	nd	10	ug/Kg
	127-18-4	Tetrachloroethene . . . . .	nd	10	ug/Kg
	542-75-6	1,3-Dichloropropane . . . . .	nd	10	ug/Kg
	124-48-1	Dibromochloromethane . . . . .	nd	10	ug/Kg
	106-93-4	1,2-Dibromoethane . . . . .	nd	10	ug/Kg
	108-90-7	Chlorobenzene . . . . .	nd	10	ug/Kg
	630-20-6	1,1,1,2-Tetrachloroethane . . . . .	nd	10	ug/Kg
	100-41-4	Ethylbenzene . . . . .	nd	10	ug/Kg
	100-42-5	Styrene . . . . .	nd	10	ug/Kg
	75-25-2	Bromoform . . . . .	nd	10	ug/Kg
	98-82-8	Isopropylbenzene . . . . .	nd	10	ug/Kg
	108-86-1	Bromobenzene . . . . .	nd	10	ug/Kg
	79-34-5	1,1,2,2-Tetrachloroethane . . . . .	nd	10	ug/Kg
	96-18-4	1,2,3-Trichloropropane . . . . .	nd	10	ug/Kg
	103-65-1	n-Propylbenzene . . . . .	nd	10	ug/Kg

none detected = nd  
 Samples: L9547-2, -5, -10, -11, -15

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L9547

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

## Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
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<b>MB0108W</b>				Analyzed : 01/11/99	
<u>CAS #</u>					
95-49-8	2-Chlorotoluene .....	nd	10	ug/Kg	
106-43-4	4-Chlorotoluene .....	nd	10	ug/Kg	
108-87-8	1,3,5-Trimethylbenzene .....	nd	10	ug/Kg	
98-06-6	tert-Butylbenzene .....	nd	10	ug/Kg	
95-83-6	1,2,4-Trimethylbenzene .....	nd	10	ug/Kg	
135-98-8	sec-Butylbenzene .....	nd	10	ug/Kg	
541-73-1	1,3-Dichlorobenzene .....	nd	10	ug/Kg	
99-87-6	4-Isopropyltoluene .....	nd	10	ug/Kg	
106-46-7	1,4-Dichlorobenzene .....	nd	10	ug/Kg	
95-50-1	1,2-Dichlorobenzene .....	nd	10	ug/Kg	
104-51-8	n-Butylbenzene .....	nd	10	ug/Kg	
96-12-8	1,2-Dibromo-3-chloropropane ..	nd	10	ug/Kg	
120-82-1	1,2,4-Trichlorobenzene .....	nd	10	ug/Kg	
87-68-3	Hexachlorobutadiene .....	nd	10	ug/Kg	
91-20-3	Naphthalene .....	nd	10	ug/Kg	
87-61-6	1,2,3-Trichlorobenzene .....	nd	10	ug/Kg	
	Total Xylenes .....	nd	10	ug/Kg	
<b>Surrogates</b>					<b>Recovery</b>
					<b>MB0108W</b>
1,2-Dichloroethane-d4					98%
Toluene-d8					112%
4-Bromofluorobenzene					113%

none detected = nd  
 Samples: L9547-2, -5, -10, -11, -15



L9547

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Project: 5491C0796B.00

### Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
MB0112Z					Analyzed : 01/12/99
<b>CAS #</b>					
75-71-8	Dichlorodifluoromethane . . . . .	nd	20	ug/Kg	
74-87-3	Chloromethane . . . . .	nd	20	ug/Kg	
75-01-4	Vinyl chloride . . . . .	nd	20	ug/Kg	
74-83-9	Bromomethane . . . . .	nd	20	ug/Kg	
75-00-3	Chloroethane . . . . .	nd	20	ug/Kg	
75-69-4	Trichlorofluoromethane . . . . .	nd	10	ug/Kg	
67-64-1	Acetone . . . . .	nd	200	ug/Kg	
75-35-4	1,1-Dichloroethene . . . . .	nd	10	ug/Kg	
75-09-2	Methylene chloride . . . . .	nd	20	ug/Kg	
75-15-0	Carbon disulfide . . . . .	nd	10	ug/Kg	
156-60-5	trans-1,2-Dichloroethene . . . . .	nd	10	ug/Kg	
75-34-3	1,1-Dichloroethane . . . . .	nd	10	ug/Kg	
78-93-3	2-Butanone . . . . .	nd	200	ug/Kg	
590-20-7	2,2-Dichloropropane . . . . .	nd	10	ug/Kg	
156-59-4	cis-1,2-Dichloroethene . . . . .	nd	10	ug/Kg	
74-97-5	Bromochloromethane . . . . .	nd	10	ug/Kg	
67-86-3	Chloroform . . . . .	nd	10	ug/Kg	
71-55-6	1,1,1-Trichloroethane . . . . .	nd	10	ug/Kg	
56-23-5	Carbon tetrachloride . . . . .	nd	10	ug/Kg	
563-58-6	1,1-Dichloropropene . . . . .	nd	10	ug/Kg	
71-43-2	Benzene . . . . .	nd	10	ug/Kg	
107-06-2	1,2-Dichloroethane . . . . .	nd	10	ug/Kg	
79-01-6	Trichloroethene . . . . .	nd	10	ug/Kg	

none detected = nd  
 Sample: L9547-7

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L9547

Client: Woodward Clyde Consultants  
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Project: 5491C0796B.00

## Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
<b>MB0112Z</b>					Analyzed : 01/12/99
	<b>CAS#</b>				
	78-87-5	1,2-Dichloropropane . . . . .	nd	10	ug/Kg
	74-95-3	Dibromomethane . . . . .	nd	10	ug/Kg
	75-27-4	Bromodichloromethane . . . . .	nd	10	ug/Kg
	10061-01-5	cis-1,3-Dichloropropene . . . . .	nd	10	ug/Kg
	108-10-1	4-Methyl-2-pentanone . . . . .	nd	100	ug/Kg
	108-88-3	Toluene . . . . .	nd	10	ug/Kg
	591-78-6	2-Hexanone . . . . .	nd	100	ug/Kg
	10061-02-6	trans-1,3-Dichloropropene . . . . .	nd	10	ug/Kg
	79-00-5	1,1,2-Trichloroethane . . . . .	nd	10	ug/Kg
	127-18-4	Tetrachloroethene . . . . .	nd	10	ug/Kg
	542-75-6	1,3-Dichloropropane . . . . .	nd	10	ug/Kg
	124-48-1	Dibromochloromethane . . . . .	nd	10	ug/Kg
	106-93-4	1,2-Dibromoethane . . . . .	nd	10	ug/Kg
	108-90-7	Chlorobenzene . . . . .	nd	10	ug/Kg
	630-20-6	1,1,1,2-Tetrachloroethane . . . . .	nd	10	ug/Kg
	100-41-4	Ethylbenzene . . . . .	nd	10	ug/Kg
	100-42-5	Styrene . . . . .	nd	10	ug/Kg
	75-25-2	Bromoform . . . . .	nd	10	ug/Kg
	98-82-8	Isopropylbenzene . . . . .	nd	10	ug/Kg
	108-86-1	Bromobenzene . . . . .	nd	10	ug/Kg
	79-34-5	1,1,2,2-Tetrachloroethane . . . . .	nd	10	ug/Kg
	96-18-4	1,2,3-Trichloropropane . . . . .	nd	10	ug/Kg
	103-65-1	n-Propylbenzene . . . . .	nd	10	ug/Kg

none detected = nd  
 Sample: L9547-7

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L9547

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

## Volatiles Blank by EPA Method 8260

Sample ID					
Analyte	Result	Reporting Limit	Units	Comment	
<b>MB0112Z</b>					Analyzed : 01/12/99
<b>CAS #</b>					
95-49-8	2-Chlorotoluene . . . . .	nd	10	ug/Kg	
106-43-4	4-Chlorotoluene . . . . .	nd	10	ug/Kg	
108-67-8	1,3,5-Trimethylbenzene . . . . .	nd	10	ug/Kg	
98-06-6	tert-Butylbenzene . . . . .	nd	10	ug/Kg	
95-63-6	1,2,4-Trimethylbenzene . . . . .	nd	10	ug/Kg	
135-98-8	sec-Butylbenzene . . . . .	nd	10	ug/Kg	
541-73-1	1,3-Dichlorobenzene . . . . .	nd	10	ug/Kg	
99-87-6	4-Isopropyltoluene . . . . .	nd	10	ug/Kg	
106-46-7	1,4-Dichlorobenzene . . . . .	nd	10	ug/Kg	
95-50-1	1,2-Dichlorobenzene . . . . .	nd	10	ug/Kg	
104-51-8	n-Butylbenzene . . . . .	nd	10	ug/Kg	
96-12-8	1,2-Dibromo-3-chloropropane . . . . .	nd	10	ug/Kg	
120-82-1	1,2,4-Trichlorobenzene . . . . .	nd	10	ug/Kg	
87-88-3	Hexachlorobutadiene . . . . .	nd	10	ug/Kg	
91-20-3	Naphthalene . . . . .	nd	10	ug/Kg	
87-61-6	1,2,3-Trichlorobenzene . . . . .	nd	10	ug/Kg	
	Total Xylenes . . . . .	nd	10	ug/Kg	
<b>Surrogates</b>					<b>Recovery</b>
	1,2-Dichloroethane-d4				MB0112Z 101%
	Toluene-d8				92%
	4-Bromofluorobenzene				93%

none detected = nd  
 Sample: L9547-7



L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### PNA LCS & LCSD by modified EPA method 8270 (SIM)

Sample ID	Lab Number	Lab Number		
Analyte	Recovery	Recovery	RPD	COMMENT

CAS#	LCS0107S	LCSD0107S	RPD	COMMENT
91-20-3	Naphthalene . . . . . 99%	93%	7%	
208-96-8	Acenaphthylene . . . . . 83%	79%	6%	
83-32-9	Acenaphthene . . . . . 103%	100%	3%	
86-73-7	Fluorene . . . . . 100%	96%	3%	
87-86-5	Pentachlorophenol . . . . . 56%	51%	9%	
85-01-8	Phenanthrene . . . . . 110%	106%	4%	
120-12-7	Anthracene . . . . . 90%	82%	10%	
206-44-0	Fluoranthene . . . . . 107%	101%	5%	
129-00-0	Pyrene . . . . . 103%	103%	0%	
56-55-3	Benzo[a]anthracene . . . . . 99%	97%	2%	
218-01-9	Chrysene . . . . . 107%	102%	5%	
205-99-2	Benzo[b]fluoranthene . . . . . 97%	93%	4%	
207-08-9	Benzo[k]fluoranthene . . . . . 94%	94%	0%	
50-32-8	Benzo[a]pyrene . . . . . 86%	81%	6%	
193-39-5	Indeno[1,2,3-cd]pyrene . . . . . 93%	91%	3%	
53-70-3	Dibenz[a,h]anthracene . . . . . 91%	89%	2%	
191-24-2	Benzo[g,h,i]perylene . . . . . 99%	95%	3%	
				Sampled: NA Analyzed: 01/08/99
				Recovery
<b>Acid Surrogates:</b>				<b>LCSD0107S</b>
2-Fluorophenol				70%
Phenol-d4				46%
2,4,6-Tribromophenol				49%
				Recovery
<b>Base / Neutral Surrogates:</b>				<b>LCSD0107S</b>
1,2-Dichlorobenzene-d4				96%
Nitrobenzene-d5				84%
2-Fluorobiphenyl				102%

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L9547

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Contact: Michelle McClelland

Project: 5491C0796B.00

### PNA LCS & LCSD by modified EPA method 8270 (SIM)

Sample ID	Lab Number	Lab Number		
Analyte	Recovery	Recovery	RPD	COMMENT

CAS#	SOIL	LCS0111F	LCSD0111F		Sampled: NA
					Analyzed: 01/12/99
91-20-3	Naphthalene . . . . .	85%	94%	10%	
208-96-8	Acenaphthylene . . . . .	76%	82%	7%	
83-32-9	Acenaphthene . . . . .	92%	100%	8%	
86-73-7	Fluorene . . . . .	87%	93%	7%	
87-86-5	Pentachlorophenol . . . . .	46%	54%	16%	
85-01-8	Phenanthrene . . . . .	93%	101%	7%	
120-12-7	Anthracene . . . . .	80%	84%	5%	
206-44-0	Fluoranthene . . . . .	87%	97%	10%	
129-00-0	Pyrene . . . . .	91%	99%	8%	
56-55-3	Benzo[a]anthracene . . . . .	85%	93%	9%	
218-01-9	Chrysene . . . . .	91%	97%	7%	
205-99-2	Benzo[b]fluoranthene . . . . .	81%	88%	9%	
207-08-9	Benzo[k]fluoranthene . . . . .	80%	88%	9%	
50-32-8	Benzo[a]pyrene . . . . .	74%	81%	8%	
193-39-5	Indeno[1,2,3-cd]pyrene . . . . .	79%	86%	8%	
53-70-3	Dibenz[a,h]anthracene . . . . .	78%	85%	8%	
191-24-2	Benzo[g,h,i]perylene . . . . .	81%	88%	9%	
				<b>Recovery</b>	<b>Recovery</b>
<b>Acid Surrogates:</b>				<b>0%</b>	<b>LCSD0111F</b>
2-Fluorophenol				85%	91%
Phenol-d4				84%	90%
2,4,6-Tribromophenol				60%	62%
				<b>LCSD0111F</b>	<b>LCSD0111F</b>
<b>Base / Neutral Surrogates:</b>					
1,2-Dichlorobenzene-d4				88%	95%
Nitrobenzene-d5				76%	80%
2-Fluorobiphenyl				95%	99%

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Project: 5491C0796B.00

### PNA LCS & LCSD by modified EPA method 8270 (SIM)

Sample ID	Lab Number	Lab Number		
Analyte	Recovery	Recovery	RPD	COMMENT

CAS#	SOIL	LCS0111F	LCSD0111F	
91-20-3	Naphthalene	85%	94%	10%
208-96-8	Acenaphthylene	76%	82%	7%
83-32-9	Acenaphthene	92%	100%	8%
86-73-7	Fluorene	87%	93%	7%
87-86-5	Pentachlorophenol	46%	54%	16%
85-01-8	Phenanthrene	93%	101%	7%
120-12-7	Anthracene	80%	84%	5%
206-44-0	Fluoranthene	87%	97%	10%
129-00-0	Pyrene	91%	99%	8%
56-55-3	Benzo[a]anthracene	85%	93%	9%
218-01-9	Chrysene	91%	97%	7%
205-99-2	Benzo[b]fluoranthene	81%	88%	9%
207-08-9	Benzo[k]fluoranthene	80%	88%	9%
50-32-8	Benzo[a]pyrene	74%	81%	8%
193-39-5	Indeno[1,2,3-cd]pyrene	79%	86%	8%
53-70-3	Dibenz[a,h]anthracene	78%	85%	8%
191-24-2	Benzo[g,h,i]perylene	81%	88%	9%

	Recovery	Recovery
Acid Surrogates:	0%	LCSD0111F
2-Fluorophenol	85%	91%
Phenol-d4	84%	90%
2,4,6-Tribromophenol	60%	62%
Base / Neutral Surrogates:	LCS0111F	LCSD0111F
1,2-Dichlorobenzene-d4	88%	95%
Nitrobenzene-d5	76%	80%
2-Fluorobiphenyl	95%	99%

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L9547

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

**EPA Method 8310 Polynuclear Aromatic Hydrocarbons Blank  
 by modified EPA method 8270 (SIM)**

Sample ID	Analyte	Blank Result	Reporting Limit	Units	COMMENT	Lab Number
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MB0111F	SOIL	MB0111F			Analyzed: 01/12/99	MB0111F
CAS#						
91-20-3	Naphthalene	nd	10	ug/Kg		
208-96-8	Acenaphthylene	nd	10	ug/Kg		
83-32-9	Acenaphthene	nd	10	ug/Kg		
86-73-7	Fluorene	nd	10	ug/Kg		
87-88-5	Pentachlorophenol	nd	100	ug/Kg		
85-01-8	Phenanthrene	nd	10	ug/Kg		
120-12-7	Anthracene	nd	10	ug/Kg		
206-44-0	Fluoranthene	nd	10	ug/Kg		
129-00-0	Pyrene	nd	10	ug/Kg		
56-55-3	Benzo[a]anthracene	nd	10	ug/Kg		
218-01-9	Chrysene	nd	10	ug/Kg		
205-99-2	Benzo[b]fluoranthene	nd	10	ug/Kg		
207-08-9	Benzo[k]fluoranthene	nd	10	ug/Kg		
50-32-8	Benzo[a]pyrene	nd	10	ug/Kg		
193-39-5	Indeno[1,2,3-cd]pyrene	nd	10	ug/Kg		
53-70-3	Dibenz[a,h]anthracene	nd	10	ug/Kg		
191-24-2	Benzo[g,h,i]perylene	nd	10	ug/Kg		

	Recovery
<b>Acid Surrogates:</b>	<b>MB0111F</b>
2-Fluorophenol	99%
Phenol-d4	98%
2,4,6-Tribromophenol	63%
<b>Base / Neutral Surrogates:</b>	<b>MB0111F</b>
1,2-Dichlorobenzene-d4	102%
Nitrobenzene-d5	89%
2-Fluorobiphenyl	101%

none detected = nd  
 Samples: L9547-2,5,7,10,11,15



L9547

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

**EPA Method 8310 Polynuclear Aromatic Hydrocarbons Blank  
 by modified EPA method 8270 (SIM)**

Sample ID	Analyte	Blank Result	Reporting Limit	Units	COMMENT	Lab Number
MB0112T	WATER	MB0112T			Analyzed: 01/13/99	MB0112T
	<b>CAS#</b>					
	91-20-3 Naphthalene	nd	0.1	ug/L		
	208-96-8 Acenaphthylene	nd	0.1	ug/L		
	83-32-9 Acenaphthene	nd	0.1	ug/L		
	86-73-7 Fluorene	nd	0.1	ug/L		
	87-86-5 Pentachlorophenol	nd	0.5	ug/L		
	85-01-8 Phenanthrene	nd	0.1	ug/L		
	120-12-7 Anthracene	nd	0.1	ug/L		
	206-44-0 Fluoranthene	nd	0.1	ug/L		
	129-00-0 Pyrene	nd	0.1	ug/L		
	56-55-3 Benzo[a]anthracene	nd	0.1	ug/L		
	218-01-9 Chrysene	nd	0.1	ug/L		
	205-99-2 Benzo[b]fluoranthene	nd	0.1	ug/L		
	207-08-9 Benzo[k]fluoranthene	nd	0.1	ug/L		
	50-32-8 Benzo[a]pyrene	nd	0.1	ug/L		
	193-39-5 Indeno[1,2,3-cd]pyrene	nd	0.1	ug/L		
	53-70-3 Dibenz[a,h]anthracene	nd	0.1	ug/L		
	191-24-2 Benzo[g,h,i]perylene	nd	0.1	ug/L		
					<b>Recovery</b>	
		<b>Acid Surrogates:</b>			<b>MB0112T</b>	
		2-Fluorophenol			85%	
		Phenol-d4			68%	
		2,4,6-Tribromophenol			73%	
		<b>Base / Neutral Surrogates:</b>			<b>MB0112T</b>	
		1,2-Dichlorobenzene-d4			105%	
		Nitrobenzene-d5			136%	
		2-Fluorobiphenyl			111%	

none detected = nd  
 Sample: L9547-16

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L9547

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Method Blank**  
**NWTPH-Dx/Soil (mg/kg)**

Analyte	Result	Reporting		Date Analyzed
		Limit	Q	
<b>NWTPH-Dx</b>				
Diesel range .....	ND	25		01/08/99
Oil range .....	ND	50		
<b>Surrogates</b>				
		<b>% Recovery</b>		
Fluorobiphenyl		97		
O-terphenyl		113		
Comments:				

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Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Method Blank**  
**NWTPH-Dx/Water (mg/L)**

Analyte	Result	Reporting Limit	Q	Date Analyzed
<b>NWTPH-Dx</b>				
Diesel range .....	ND	0.25		01/08/99
Oil range .....	ND	0.50		
<b>Surrogates</b>				
	<b>% Recovery</b>			
Fluorobiphenyl	80			
O-terphenyl	90			
Comments:				



L9547

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### Batch Q.C.

LCS

NWTPH-Dx/Soil (mg/kg)

Analyte	Result	True Value	% Recovery	Q	Date Analyzed
NWTPH-Dx .....	135	128	105 /		01/06/99
<b>Surrogates</b>					
	<b>% Recovery</b>				
Fluorobiphenyl	104				
O-terphenyl	110				
Comments:					

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### Batch Q.C.

LCS

NWTPH-Dx/Water (mg/L)

Analyte	Result	True Value	% Recovery	Q	Date Analyzed
NWTPH-Dx .....	0.98	1.28	77		12/28/99
<b>Surrogates</b>					
			<b>% Recovery</b>		
Fluorobiphenyl			98		
O-terphenyl			105		
Comments:					

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Project: *5491C0796B.00*  
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### Batch Q.C.

MS

NWTPH-Dx/Soil (mg/kg)

Analyte	Sample Result	MS Result	True Value	% Recovery	Q	Date Analyzed
NWTPH-Dx.....	ND	137	124	110 ✓		01/06/99
<b>Surrogates</b>	<b>% Recovery</b>	<b>% Recovery</b>				
	Sample	MS				
Fluorobiphenyl	93 ✓	113 ✓				
O-terphenyl	100 ✓	112 ✓				
Comments:						

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L9547

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**Batch Q.C.**  
**Duplicate**  
**NWTPH-Dx/Soil (mg/kg)**

Analyte	Result	Duplicate		RPD	Reporting		Date Analyzed
		Result			Limit	Q	
<b>NWTPH-Dx</b>							
Diesel range .....	ND	ND		NA	25		01/08/99
Oil range .....	ND	ND		NA	50		
		<b>% Recovery</b>	<b>% Recovery</b>				
<b>Surrogates</b>		Sample	Duplicate				
Fluorobiphenyl		77	82				
O-terphenyl		88	95				
Comments:							



L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### Semivolatiles Matrix Spike by EPA Method 8270

Sample ID	Lab Number	Lab Number		
Analyte	Recovery	Recovery	RPD	COMMENT

				Sampled: NA	
				Analyzed: 01/14/99	
CAS#	SOIL	L9540-SMS	L9540-SMSD		
108-95-2	Phenol	107%	115%	8%	
95-57-8	2-Chlorophenol	90%	96%	6%	
106-46-7	1,4-Dichlorobenzene	62%	66%	6%	
621-64-7	N-Nitroso-di-n-propylamine	86%	95%	9%	
120-82-1	1,2,4-Trichlorobenzene	45%	47%	4%	
59-50-7	4-Chloro-3-methylphenol	88%	91%	3%	
83-32-9	Acenaphthene	73%	79%	9%	
121-14-2	2,4-Dinitrotoluene	58%	61%	5%	
100-02-7	4-Nitrophenol	101%	111%	9%	
87-86-5	Pentachlorophenol	60%	65%	7%	
129-00-0	Pyrene	71%	78%	9%	
<b>Acid Surrogates:</b>				<b>Recovery</b>	<b>Recovery</b>
				<i>L9540-SMS</i>	<i>L9540-SMSD</i>
2-Fluorophenol				102%	105%
Phenol-d6				111%	113%
2,4,6-Tribromophenol				80%	79%
<b>Base / Neutral Surrogates:</b>					
1,2-Dichlorobenzene d-4				95%	92%
Nitrobenzene-d5				111%	112%
2-Fluorobiphenyl				99%	98%

none detected = nd

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L9547

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### Semivolatiles LCS & LCSD by EPA Method 8270

Sample ID	Lab Number	Lab Number		
Analyte	Recovery	Recovery	RPD	COMMENT

WATER		LCS0111S	LCSD0111S	Sampled: NA Analyzed: 01/11/99	
CAS#					
108-95-2	Phenol	50%	51%	1%	
95-57-8	2-Chlorophenol	98%	94%	4%	
106-46-7	1,4-Dichlorobenzene	105%	98%	7%	
621-64-7	N-Nitroso-di-n-propylamine	97%	92%	5%	
120-82-1	1,2,4-Trichlorobenzene	104%	97%	7%	
59-50-7	4-Chloro-3-methylphenol	90%	85%	6%	
83-32-9	Acenaphthene	116%	108%	7%	
121-14-2	2,4-Dinitrotoluene	90%	91%	1%	
100-02-7	4-Nitrophenol	35%	39%	11%	
87-86-5	Pentachlorophenol	89%	86%	4%	
129-00-0	Pyrene	110%	102%	8%	
<b>Acid Surrogates:</b>				<b>Recovery</b>	<b>Recovery</b>
				<b>LCS0111S</b>	<b>LCSD0111S</b>
2-Fluorophenol				78%	83%
Phenol-d6				55%	60%
2,4,6-Tribromophenol				105%	108%
<b>Base / Neutral Surrogates:</b>					
1,2-Dichlorobenzene d-4				81%	80%
Nitrobenzene-d5				98%	103%
2-Fluorobiphenyl				95%	96%

none detected = nd



L9547

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

### Semivolatiles Blank by EPA Method 8270

Sample ID	Analyte	Blank Result	Reporting Limit	Units	COMMENT	Lab Number
MB0115	WATER	MB0115			Analyzed: 01/11/99	MB0115
CAS#						
108-95-2	Phenol	nd	10	ug/L		
111-44-4	bis(2-Chloroethyl)ether	nd	10	ug/L		
95-57-8	2-Chlorophenol	nd	10	ug/L		
541-73-1	1,3-Dichlorobenzene	nd	10	ug/L		
108-46-7	1,4-Dichlorobenzene	nd	10	ug/L		
100-51-4	Benzyl alcohol	nd	20	ug/L		
95-50-1	1,2-Dichlorobenzene	nd	10	ug/L		
95-48-7	2-Methylphenol	nd	10	ug/L		
108-60-1	bis(2-chloroisopropyl)ether	nd	10	ug/L		
106-44-5	4-Methylphenol	nd	10	ug/L		
621-64-7	N-Nitroso-di-n-propylamine	nd	10	ug/L		
67-72-1	Hexachloroethane	nd	10	ug/L		
98-95-3	Nitrobenzene	nd	10	ug/L		
78-59-1	Isophorone	nd	10	ug/L		
88-75-5	2-Nitrophenol	nd	10	ug/L		
105-67-9	2,4-Dimethylphenol	nd	10	ug/L		
65-85-0	Benzoic acid	nd	50	ug/L		
111-91-1	bis(2-Chloroethoxy)methane	nd	10	ug/L		
120-83-2	2,4-Dichlorophenol	nd	10	ug/L		
120-82-1	1,2,4-Trichlorobenzene	nd	10	ug/L		
91-20-3	Naphthalene	nd	10	ug/L		
106-47-8	4-Chloroaniline	nd	20	ug/L		
87-68-3	Hexachlorobutadiene	nd	10	ug/L		
59-50-7	4-Chloro-3-methylphenol	nd	20	ug/L		
91-57-6	2-Methylnaphthalene	nd	10	ug/L		
77-47-4	Hexachlorocyclopentadiene	nd	10	ug/L		

none detected = nd  
 Sample: L9547-16

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L9547

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### Semivolatiles Blank by EPA Method 8270

Sample ID	Analyte	Blank Result	Reporting Limit	Units	COMMENT	Lab Number
MB011S	WATER	MB011S			Analyzed: 01/11/99	MB011S
<b>CASE</b>						
88-06-2	2,4,6-Trichlorophenol	nd	10	ug/L		
95-95-4	2,4,5-Trichlorophenol	nd	10	ug/L		
91-58-7	2-Chloronaphthalene	nd	10	ug/L		
88-74-4	2-Nitroaniline	nd	50	ug/L		
208-96-8	Acenaphthylene	nd	10	ug/L		
131-11-3	Dimethylphthalate	nd	10	ug/L		
606-20-2	2,6-Dinitrotoluene	nd	10	ug/L		
83-32-9	Acenaphthene	nd	10	ug/L		
99-09-2	3-Nitroaniline	nd	50	ug/L		
51-28-5	2,4-Dinitrophenol	nd	50	ug/L		
132-84-9	Dibenzofuran	nd	10	ug/L		
121-14-2	2,4-Dinitrotoluene	nd	10	ug/L		
100-02-7	4-Nitrophenol	nd	50	ug/L		
86-73-7	Fluorene	nd	10	ug/L		
7005-72-3	4-Chlorophenyl-phenylether	nd	10	ug/L		
84-66-2	Diethylphthalate	nd	10	ug/L		
100-01-6	4-Nitroaniline	nd	50	ug/L		
122-66-7	1,2-Diphenylhydrazine	nd	50	ug/L		
534-52-1	4,6-Dinitro-2-methylphenol	nd	50	ug/L		
86-30-6	n-Nitrosodiphenylamine	nd	10	ug/L		
101-55-3	4-Bromophenyl-phenylether	nd	10	ug/L		
118-74-1	Hexachlorobenzene	nd	10	ug/L		
87-88-5	Pentachlorophenol	nd	50	ug/L		
85-01-8	Phenanthrene	nd	10	ug/L		
120-12-7	Anthracene	nd	10	ug/L		
84-74-2	Di-n-butylphthalate	nd	10	ug/L		

none detected = nd  
 Sample: L9547-16

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L9547

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

### Semivolatiles Blank by EPA Method 8270

Sample ID	Analyte	Blank Result	Reporting Limit	Units	COMMENT
MB0111S	WATER	MB0111S			Analyzed: 01/11/99
CAS#					MB0111S
206-44-0	Fluoranthene	nd	10	ug/L	
129-00-0	Pyrene	nd	10	ug/L	
85-68-7	Butylbenzylphthalate	nd	10	ug/L	
91-94-1	3,3'-Dichlorobenzidine	nd	20	ug/L	
56-55-3	Benzo[a]anthracene	nd	10	ug/L	
218-01-9	Chrysene	nd	10	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate	nd	10	ug/L	
117-84-0	Di-n-octylphthalate	nd	10	ug/L	
205-99-2	Benzo[b]fluoranthene	nd	10	ug/L	
207-08-9	Benzo[k]fluoranthene	nd	10	ug/L	
50-32-8	Benzo[a]pyrene	nd	10	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene	nd	10	ug/L	
53-70-3	Dibenz[a,h]anthracene	nd	10	ug/L	
191-24-2	Benzo[g,h,i]perylene	nd	10	ug/L	
	<b>Acid Surrogates:</b>				<b>Recovery</b>
	2-Fluorophenol				MB0111S
	Phenol-d8				78%
	2,4,6-Tribromophenol				57%
					101%
	<b>Base / Neutral Surrogates:</b>				
	1,2-Dichlorobenzene d-4				90%
	Nitrobenzene-d5				96%
	2-Fluorobiphenyl				98%

none detected = nd  
 Sample: L9547-16

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L9547

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

### Semivolatiles Blank by EPA Method 8270

Sample ID	Analyte	Blank Result	Reporting Limit	Units	COMMENT	Lab Number
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MB0113F	SOIL	MB0113F	Reporting Limit	Units	COMMENT	Analyzed: 01/14/99	MB0113F
CAS#							
108-95-2	Phenol	nd	330	ug/Kg			
111-44-4	bis(2-Chloroethyl)ether	nd	330	ug/Kg			
95-57-8	2-Chlorophenol	nd	330	ug/Kg			
541-73-1	1,3-Dichlorobenzene	nd	330	ug/Kg			
106-46-7	1,4-Dichlorobenzene	nd	330	ug/Kg			
100-51-4	Benzyl alcohol	nd	660	ug/Kg			
95-50-1	1,2-Dichlorobenzene	nd	330	ug/Kg			
95-48-7	2-Methylphenol	nd	330	ug/Kg			
108-60-1	bis(2-chloroisopropyl)ether	nd	330	ug/Kg			
106-44-5	4-Methylphenol	nd	330	ug/Kg			
621-64-7	N-Nitroso-di-n-propylamine	nd	330	ug/Kg			
67-72-1	Hexachloroethane	nd	330	ug/Kg			
98-95-3	Nitrobenzene	nd	330	ug/Kg			
78-59-1	Isophorone	nd	330	ug/Kg			
88-75-5	2-Nitrophenol	nd	330	ug/Kg			
105-67-9	2,4-Dimethylphenol	nd	330	ug/Kg			
65-85-0	Benzoic acid	nd	1,850	ug/Kg			
111-91-1	bis(2-Chloroethoxy)methane	nd	330	ug/Kg			
120-83-2	2,4-Dichlorophenol	nd	330	ug/Kg			
120-82-1	1,2,4-Trichlorobenzene	nd	330	ug/Kg			
91-20-3	Naphthalene	nd	330	ug/Kg			
106-47-8	4-Chloroaniline	nd	660	ug/Kg			
87-68-3	Hexachlorobutadiene	nd	330	ug/Kg			
59-50-7	4-Chloro-3-methylphenol	nd	660	ug/Kg			
91-57-6	2-Methylnaphthalene	nd	330	ug/Kg			
77-47-4	Hexachlorocyclopentadiene	nd	330	ug/Kg			

none detected = nd  
 Samples: L9547-2,5,7,10,11,15

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L9547

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 Contact: Michelle McClelland

Project: 5491C0796B.00

### Semivolatiles Blank by EPA Method 8270

Sample ID	Analyte	Blank Result	Reporting Limit	Units	COMMENT	Lab Number
MB0113F	SOIL	MB0113F			Analyzed: 01/14/99	MB0113F
	CAS#					
	88-06-2	2,4,6-Trichlorophenol	nd	330	ug/Kg	
	95-95-4	2,4,5-Trichlorophenol	nd	330	ug/Kg	
	91-58-7	2-Chloronaphthalene	nd	330	ug/Kg	
	88-74-4	2-Nitroaniline	nd	1,650	ug/Kg	
	208-96-8	Acenaphthylene	nd	330	ug/Kg	
	131-11-3	Dimethylphthalate	nd	330	ug/Kg	
	606-20-2	2,6-Dinitrotoluene	nd	330	ug/Kg	
	83-32-9	Acenaphthene	nd	330	ug/Kg	
	99-09-2	3-Nitroaniline	nd	1,650	ug/Kg	
	51-28-5	2,4-Dinitrophenol	nd	1,650	ug/Kg	
	132-64-9	Dibenzofuran	nd	330	ug/Kg	
	121-14-2	2,4-Dinitrotoluene	nd	330	ug/Kg	
	100-02-7	4-Nitrophenol	nd	1,650	ug/Kg	
	86-73-7	Fluorene	nd	330	ug/Kg	
	7005-72-3	4-Chlorophenyl-phenylether	nd	330	ug/Kg	
	84-66-2	Diethylphthalate	nd	330	ug/Kg	
	100-01-6	4-Nitroaniline	nd	1,650	ug/Kg	
	122-66-7	1,2-Diphenylhydrazine	nd	1,650	ug/Kg	
	534-52-1	4,6-Dinitro-2-methylphenol	nd	1,650	ug/Kg	
	86-30-6	n-Nitrosodiphenylamine	nd	330	ug/Kg	
	101-55-3	4-Bromophenyl-phenylether	nd	330	ug/Kg	
	118-74-1	Hexachlorobenzene	nd	330	ug/Kg	
	87-86-5	Pentachlorophenol	nd	1,650	ug/Kg	
	85-01-8	Phenanthrene	nd	330	ug/Kg	
	120-12-7	Anthracene	nd	330	ug/Kg	
	84-74-2	Di-n-butylphthalate	nd	330	ug/Kg	

none detected = nd  
 Samples: L9547-2,5,7,10,11,15

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L9547

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

### Semivolatiles Blank by EPA Method 8270

Sample ID					Lab Number
Analyte	Blank Result	Reporting Limit	Units	COMMENT	
<i>MB0113F</i>	<i>SOIL</i>	<i>MB0113F</i>		Analyzed: 01/14/99	
<u>CAS#</u>					<i>MB0113F</i>
206-44-0	Fluoranthene	nd	330	ug/Kg	
129-00-0	Pyrene	nd	330	ug/Kg	
85-68-7	Butylbenzylphthalate	nd	330	ug/Kg	
91-94-1	3,3'-Dichlorobenzidine	nd	660	ug/Kg	
56-55-3	Benzo[a]anthracene	nd	330	ug/Kg	
218-01-8	Chrysene	nd	330	ug/Kg	
117-81-7	bis(2-Ethylhexyl)phthalate	nd	330	ug/Kg	
117-84-0	Di-n-octylphthalate	nd	330	ug/Kg	
205-99-2	Benzo[b]fluoranthene	nd	330	ug/Kg	
207-08-9	Benzo[k]fluoranthene	nd	330	ug/Kg	
50-32-8	Benzo[a]pyrene	nd	330	ug/Kg	
193-39-5	Indeno[1,2,3-cd]pyrene	nd	330	ug/Kg	
53-70-3	Dibenz[a,h]anthracene	nd	330	ug/Kg	
191-24-2	Benzo[g,h,i]perylene	nd	330	ug/Kg	
				<b>Recovery</b>	
<b>Acid Surrogates:</b>				<i>MB0113F</i>	
2-Fluorophenol					101%
Phenol-d6					100%
2,4,6-Tribromophenol					92%
<b>Base / Neutral Surrogates:</b>					
1,2-Dichlorobenzene d-4					98%
Nitrobenzene-d5					103%
2-Fluorobiphenyl					101%

none detected = nd  
 Samples: L9547-2,5,7,10,11,15

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1501 4th Avenue, Suite 1500, Seattle, WA 98101-1662 Phone: (206) 343-7933 Fax: (206) 343-0513	URSGWC Project Number: 5491C0796B.00 URSGWC Proj. Mgr.: Randy Siegal Ph/Fax: 206-343-7933 / 298
--	--

Shipping Form Tracking No.:	Lab: _____ No of Coolers: _____
Sampler (Signature): <i>[Signature]</i>	Turn Around Time (circle): 48 hrs. 5 days <b>STD</b> Other: _____
Printed Name: <i>Johnny Crook</i>	Page 1 of _____

Date	Time	Sample Identification	Matrix	Lab ID	Analyses											Number of Containers			
					Indicators 8270 sim <sup>1</sup>	PAHs Only 8270 sim <sup>2</sup>	NWTPH-Dx <sup>3</sup>	VOCs 8260	SVOCs 8270	Pest/PCBs	total aromatic metals (13)	Con V. *	SHI o-Phos PESTS	SHI HERB	HOLD		Preservatives Y/N		
6Jan	1007	99NW-SB1-2.5-4	Soil	19547-1													X	N	4
	1015	99NW-SB1-4-5.5		-2															4
	1026	99NW-SB1-5.5-7		-3													X		4
	1025	99NW-SB1-7-8.5		-4													X		4
	1045	99NW-SB1-8.5-10		-5															4
	1115	99NW-SB2-2.5-4		-6													X		4
	1120	99NW-SB2-4-5.5		-7															4
	1125	99NW-SB2-5.5-7		-8													X		4
	1132	99NW-SB2-7-8.5		-9													X		4
	1135	99NW-SB2-8.5-10		-10															4
	1340	99NW-SB3-2.5-4		-11															4
	1345	99NW-SB3-4-5.5		-12													X		4
	1350	99NW-SB3-5.5-7		-13													X		4
	1355	99NW-SB3-7-8.5		-14													X		4
	1400	99NW-SB3-8.5-10	✓	-15															4
	1155	99NW-SB2-6W	Water	-16															6
✓	1430	99NW-SB3-6W	Water	-17															3
		Trip Blank-6Jan99	Water	-18														✓	1

**Comments:** Please call Michelle McClelland with questions.

1: Report naphthalene, benzo(a)anthracene, chrysene and pentachlorophenol only.  
 2: PAHs Only will also include Pentachlorophenol.  
 3: Include chromatograms with all NWTPH analyses.

\* C.N. Chloride, Fluoride, Nitrate, PH, Sulfate, Sulfide

Total Number of Containers: 2 coolers, 3 1L BOTTLES, 7 VOCs, 458 OR JARS, & 15 4oz JARS @ 0°C. R

Relinquished By (signature): <i>[Signature]</i> Date/Time: 1/7/99 1330	Relinquished By (signature): <i>[Signature]</i> Date/Time: 1-7-99 1600
Received By (signature): <i>[Signature]</i> Date/Time: 1-7-99 1430	Relinquished By (signature): <i>[Signature]</i> Date/Time: 1/6/99 1615



## MEMO

**To:** Michelle McClelland, Woodward Clyde  
**From:** Patty Boyden  
**Subject:** IP Data (OAL# L9608)  
**Date:** 2/4/99

Attached, please find the following:

- Final data for L9608
- NWTPH-Dx Chromatograms (L9608-1, -5, -6, -17, 20)
- Batch QC for all parameters
- Table with surrogate recoveries for GCMS 8270

### Base/Neutral Surrogates:

Compound	% Recovery (Soil)	% Recovery (H2O)
1,2-Dichlorobenzene	56-148	73-114
2-Fluorobiphenyl	77-115	66-132
Nitrobenzene-d5	64-143	47-150

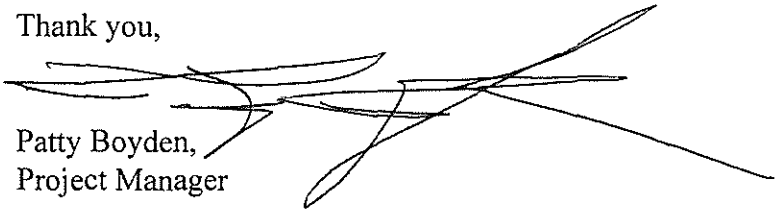
### \*Acid Surrogates:

Compound	% Recovery (Soil)	% Recovery (H2O)
2-Fluorophenol	25-121	21-110
Phenol-d6	24-113	10-110
2,4,6-Tribromophenol	19-122	10-123

\*Source = Environmental Laboratory Data Evaluation, Smith-1996, Genium Publishing.

If you have any questions, feel free to contact me at 590-1338.

Thank you,

  
Patty Boyden,  
Project Manager

### OREGON ANALYTICAL LABORATORY

A Division of Portland General Electric  
14855 S.W. Scholls Ferry Road, Beaverton, OR 97007  
Phone 503-590-5300 • Fax 503-590-1404



L9608

February 3, 1999

Michelle McClelland  
Woodward Clyde Consultants  
1501 Fourth Avenue  
Suite 1500  
Seattle, WA 98101

Phone: (206) 343-7933 ext: 225  
FAX: (206) 343-0513

Re: Laboratory Sample Analysis

Project: 5491C0796B.00  
IP - Longview

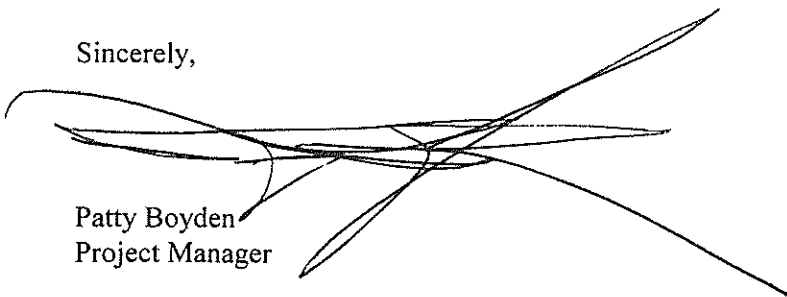
Project Manager: Michelle McClelland

Dear Michelle McClelland:

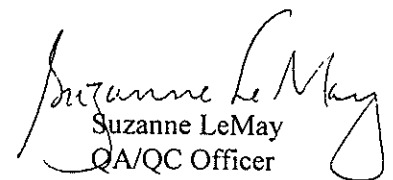
On Friday, January 8, 1999, OAL received twenty-three (23) soil samples for analysis. The samples were analyzed utilizing EPA, ASTM, or equivalent methodology.

Should you have any questions concerning the results in this report, please contact us at (503) 590-5300. Refer to OAL login number L9608.

Sincerely,



Patty Boyden  
Project Manager



Suzanne LeMay  
QA/QC Officer

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Phone 503-590-5300 • Fax 503-590-1404

### Definition of Terms

- \*1** Batch duplicate analysis exceeds laboratory control limits due to sample inhomogeneity.
- D** Reported value is based on a dilution.
- D1** Reported value is based on a dilution due to matrix interference.
- K1** Batch matrix spike recovery outside laboratory QC limits due to suspected matrix interference.
- K3** Batch matrix spike recovery outside laboratory QC limits. A post digestion spike was performed and was within acceptable QC limits.
- ND** Analytical result was below the reporting limit.
- U** Analytical result was below the reporting limit.
- Y** Analysis was subcontracted. A copy of the subcontractor's final report will be made available upon request.
- Z1** Reporting limit raised due to insufficient sample volume.

### Analysts

<u>Initials</u>	<u>Analyst</u>	<u>Title</u>
CAC	Cindy Covey	Technician
CV	Cheryl Vezzani	Chemist
DM	Dan Miller	Organics Chemist
DMC <sup>2</sup>	Debbie McBreen-McKenzie	Chemist /Supervisor
GCK	Bill Kernion	Chemist
JD	Jason Davendonis	Technician
KDK	Kirk Keyes	Chemist
NB	Nancy Boss	Technician
PB	Pat Buddrus	Organics Chemist
RJ	Rick Jordan	Chemist
WB	Wayne Boyle	Analyst



L9608

### Sample Summary

<u>Sample ID</u>	<u>Lab #</u>	<u>Description</u>	<u>Sampled</u>	<u>Received</u>
99SW-SB1-1-2.5	L9608-1	soil	01/07/99 09:00	01/08/99
99SW-SB1-2.5-4	L9608-2	soil	01/07/99 09:10	01/08/99
99SW-SB1-4-5.5	L9608-3	soil	01/07/99 09:12	01/08/99
99SW-SB1-5.5-7	L9608-4	soil	01/07/99 09:20	01/08/99
99SW-SB1-7-8.5	L9608-5	soil	01/07/99 09:25	01/08/99
99SW-SB2-1-2.5	L9608-6	soil	01/07/99 09:52	01/08/99
99SW-SB2-2.5-4	L9608-7	soil	01/07/99 10:02	01/08/99
99SW-SB2-4-5.5	L9608-8	soil	01/07/99 10:07	01/08/99
99SW-SB2-5.5-7	L9608-9	soil	01/07/99 10:15	01/08/99
99SW-SB2-7-8.5	L9608-10	soil	01/07/99 10:20	01/08/99
99SW-SB3-1-2.5	L9608-11	soil	01/07/99 10:50	01/08/99
99SW-SB3-2.5-4	L9608-12	soil	01/07/99 10:55	01/08/99
99SW-SB3-4-5.5	L9608-13	soil	01/07/99 11:02	01/08/99
99SW-SB3-5.5-7	L9608-14	soil	01/07/99 11:10	01/08/99
99SW-SB3-7-8.5	L9608-15	soil	01/07/99 11:15	01/08/99
99SW-SB3-8.5-10	L9608-16	soil	01/07/99 11:20	01/08/99
99SW-SB4-1-2.5	L9608-17	soil	01/07/99 12:01	01/08/99
99SW-SB4-2.5-4	L9608-18	soil	01/07/99 12:05	01/08/99
99SW-SB4-4-5.5	L9608-19	soil	01/07/99 12:10	01/08/99
99SW-SB4-5.5-7	L9608-20	soil	01/07/99 12:17	01/08/99
99SW-SB4-7-8.5	L9608-21	soil	01/07/99 12:21	01/08/99
99SW-SB4-8.5-10	L9608-22	soil	01/07/99 12:25	01/08/99
99SW-SB4-10-11.5	L9608-23	soil	01/07/99 12:30	01/08/99

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L9608

### Method Summary

<u>Analysis</u>	<u>Method</u>
8260 Volatile Organic Compounds (VOC)	EPA 8260
Antimony	EPA 200.7/6010
Arsenic	EPA 200.9
Beryllium	EPA 200.7/6010
Cadmium	EPA 200.7/6010
Chloride	EPA 300.0
Chlorinated Herbicides	EPA 8150 MOD
Chlorinated Pesticides and PCBs	EPA 8080/8081
Chromium	EPA 200.7/6010
Copper	EPA 200.7/6010
Cyanide, Total	EPA 335.3/9010
Fluoride	EPA 300.0
Lead	EPA 200.9
Mercury	EPA 245.5/7471A
Nickel	EPA 200.7/6010
Nitrate as N	EPA 300.0
Organophosphorus Pesticides	EPA 8141 MOD
Polynuclear Aromatic Hydrocarbons (PNA)	EPA 8270 SIM
Selenium	EPA 200.9
Semi-Volatile Petroleum Products	NWTPH-DX
Semivolatiles	EPA 8270
Silver	EPA 200.7/6010
Sulfate as SO <sub>4</sub>	EPA 300.0
Sulfide, Reactive	SW846 7.3.4
Thallium	EPA 200.9
Zinc	EPA 200.7/6010
pH	EPA 9045

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Inorganics

Sample ID	Matrix						Lab Number
Analyte	Result	Reporting Limit	Units	Date Analyzed	Method	Comment	Analyst

99SW-SB1-1-2.5	Soil	Sampled: 01/07/99					L9608-1
Chloride	ND	1.	mg/kg	01/13/99	EPA 300.0		KDK
Cyanide, Total	ND	1.	mg/kg	01/15/99	EPA 335.3/9010		NB
Fluoride	2.5	1.0	mg/kg	01/13/99	EPA 300.0	K1	KDK
Nitrate as N	ND	1.	mg/kg	01/13/99	EPA 300.0		KDK
Sulfate as SO4	39.	5.	mg/kg	01/13/99	EPA 300.0		KDK
Sulfide, Reactive	ND	20	mg/kg	01/14/98	SW846 7.3.4	Y	KDK
pH	7.0		Std Units	01/12/99	EPA 9045		CAC

99SW-SB1-5.5-7	Soil	Sampled: 01/07/99					L9608-4
Chloride	1.	1.	mg/kg	01/13/99	EPA 300.0		KDK
Cyanide, Total	ND	1.	mg/kg	01/15/99	EPA 335.3/9010		NB
Fluoride	6.5	1.0	mg/kg	01/13/99	EPA 300.0	K1	KDK
Nitrate as N	ND	1.	mg/kg	01/13/99	EPA 300.0		KDK
Sulfate as SO4	10.	5.	mg/kg	01/13/99	EPA 300.0		KDK
Sulfide, Reactive	ND	20	mg/kg	01/14/98	SW846 7.3.4	Y	KDK
pH	7.3		Std Units	01/12/99	EPA 9045		CAC

99SW-SB1-7-8.5	Soil	Sampled: 01/07/99					L9608-5
Chloride	2.	1.	mg/kg	01/13/99	EPA 300.0		KDK
Cyanide, Total	ND	1.	mg/kg	01/15/99	EPA 335.3/9010		NB
Fluoride	ND	1.0	mg/kg	01/13/99	EPA 300.0	K1	KDK
Nitrate as N	ND	1.	mg/kg	01/13/99	EPA 300.0		KDK
Sulfate as SO4	ND	5.	mg/kg	01/13/99	EPA 300.0		KDK
Sulfide, Reactive	ND	20	mg/kg	01/14/98	SW846 7.3.4	Y	KDK
pH	7.1		Std Units	01/12/99	EPA 9045		CAC

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Inorganics

Sample ID	Matrix	Result	Reporting Limit	Units	Date Analyzed	Method	Comment	Analyst
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99SW-SB2-1-2.5	Soil	Sampled: 01/07/99					L9608-6	
Chloride		1.	1.	mg/kg	01/13/99	EPA 300.0		KDK
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010		NB
Fluoride		5.7	1.0	mg/kg	01/13/99	EPA 300.0	K1	KDK
Nitrate as N		6.	1.	mg/kg	01/13/99	EPA 300.0		KDK
Sulfate as SO4		6.	5.	mg/kg	01/13/99	EPA 300.0		KDK
Sulfide, Reactive		ND	20	mg/kg	01/14/98	SW846 7.3.4	Y	KDK
pH		6.7		Std Units	01/14/99	EPA 9045		CAC

99SW-SB2-5.5-7	Soil	Sampled: 01/07/99					L9608-9	
Chloride		ND	1.	mg/kg	01/13/99	EPA 300.0		KDK
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010		NB
Fluoride		1.7	1.0	mg/kg	01/13/99	EPA 300.0	K1	KDK
Nitrate as N		ND	1.	mg/kg	01/13/99	EPA 300.0		KDK
Sulfate as SO4		ND	5.	mg/kg	01/13/99	EPA 300.0		KDK
Sulfide, Reactive		ND	20	mg/kg	01/14/98	SW846 7.3.4	Y	KDK
pH		6.3		Std Units	01/12/99	EPA 9045		CAC

99SW-SB3-2.5-4	Soil	Sampled: 01/07/99					L9608-12	
Chloride		ND	1.	mg/kg	01/13/99	EPA 300.0		KDK
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010		NB
Fluoride		ND	1.0	mg/kg	01/13/99	EPA 300.0	K1	KDK
Nitrate as N		ND	1.	mg/kg	01/13/99	EPA 300.0		KDK
Sulfate as SO4		ND	5.	mg/kg	01/13/99	EPA 300.0		KDK
Sulfide, Reactive		ND	20	mg/kg	01/14/98	SW846 7.3.4	Y	KDK
pH		6.5		Std Units	01/12/99	EPA 9045		CAC

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Inorganics

Sample ID	Matrix	Result	Reporting Limit	Units	Date Analyzed	Method	Lab Number	Comment	Analyst
-----------	--------	--------	-----------------	-------	---------------	--------	------------	---------	---------

99SW-SB3-8.5-10	Soil						Sampled: 01/07/99	L9608-16	
Chloride		ND	1.	mg/kg	01/13/99	EPA 300.0			KDK
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010			NB
Fluoride		2.5	1.0	mg/kg	01/13/99	EPA 300.0		K1	KDK
Nitrate as N		2.	1.	mg/kg	01/13/99	EPA 300.0			KDK
Sulfate as SO4		ND	5.	mg/kg	01/13/99	EPA 300.0			KDK
Sulfide, Reactive		ND	20	mg/kg	01/14/98	SW846 7.3.4		Y	KDK
pH		7.6		Std Units	01/12/99	EPA 9045			CAC

99SW-SB4-1-2.5	Soil						Sampled: 01/07/99	L9608-17	
Chloride		ND	1.	mg/kg	01/13/99	EPA 300.0			KDK
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010			NB
Fluoride		ND	1.0	mg/kg	01/13/99	EPA 300.0		K1	KDK
Nitrate as N		ND	1.	mg/kg	01/13/99	EPA 300.0			KDK
Sulfate as SO4		ND	5.	mg/kg	01/13/99	EPA 300.0			KDK
Sulfide, Reactive		ND	20	mg/kg	01/14/98	SW846 7.3.4		Y	KDK
pH		8.2		Std Units	01/12/99	EPA 9045			CAC

99SW-SB4-5.5-7	Soil						Sampled: 01/07/99	L9608-20	
Chloride		ND	1.	mg/kg	01/13/99	EPA 300.0			KDK
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010			NB
Fluoride		1.5	1.0	mg/kg	01/13/99	EPA 300.0		K1	KDK
Nitrate as N		ND	1.	mg/kg	01/13/99	EPA 300.0			KDK
Sulfate as SO4		ND	5.	mg/kg	01/13/99	EPA 300.0			KDK
Sulfide, Reactive		ND	20	mg/kg	01/14/98	SW846 7.3.4		Y	KDK
pH		5.9		Std Units	01/12/99	EPA 9045			CAC

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

### Inorganics

<i>Sample ID</i>	<i>Matrix</i>					<i>Lab Number</i>	
Analyte		Result	Reporting Limit	Units	Date Analyzed	Method	Comment Analyst
<i>99SW-SB4-10-11.5</i>	<i>Soil</i>					<i>Sampled: 01/07/99</i>	<i>L9608-23</i>
Chloride		1.	1.	mg/kg	01/13/99	EPA 300.0	KDK
Cyanide, Total		ND	1.	mg/kg	01/15/99	EPA 335.3/9010	NB
Fluoride		ND	1.0	mg/kg	01/13/99	EPA 300.0	K1 KDK
Nitrate as N		ND	1.	mg/kg	01/13/99	EPA 300.0	KDK
Sulfate as SO4		ND	5.	mg/kg	01/13/99	EPA 300.0	KDK
Sulfide, Reactive		ND	20	mg/kg	01/14/98	SW846 7.3.4	Y KDK
pH		6.6		Std Units	01/12/99	EPA 9045	CAC



L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Total Metals

Sample ID	Matrix							Lab Number
Analyte	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst	
99SW-SB1-1-2.5	Soil	Sampled: 01/07/99 Hot Plate Digestion EPA 200.2/3050A: 01/18/99 Mercury Digestion: 01/20/99						L9608-1
Antimony	ND	2.0	mg/kg	01/18/99	EPA 200.7/6010	K3	CV	
Arsenic	2.2	1.0	mg/kg	01/20/99	EPA 200.9	D1	CV	
Beryllium	0.27	0.10	mg/kg	01/18/99	EPA 200.7/6010		CV	
Cadmium	ND	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV	
Chromium	10.8	0.50	mg/kg	01/18/99	EPA 200.7/6010		CV	
Copper	32.5	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV	
Lead	4.9	0.50	mg/kg	01/18/99	EPA 200.9	K3,D1	GCK	
Mercury	ND	0.10	mg/kg	01/21/99	EPA 245.5/7471A		JD	
Nickel	10.9	1.0	mg/kg	01/18/99	EPA 200.7/6010		CV	
Selenium	ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	CV	
Silver	ND	0.30	mg/kg	01/18/99	EPA 200.7/6010		CV	
Thallium	ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	DMC <sup>2</sup>	
Zinc	33.6	1.0	mg/kg	01/18/99	EPA 200.7/6010	K3	CV	

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

### Total Metals

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppm)</i>	<i>Date Analyzed</i>	<i>Method</i>	<i>Comment</i>	<i>Lab Number</i>	<i>Analyst</i>
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<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppm)</i>	<i>Date Analyzed</i>	<i>Method</i>	<i>Comment</i>	<i>Lab Number</i>	<i>Analyst</i>
Sampled: 01/07/99 Hot Plate Digestion EPA 200.2/3050A: 01/18/99 ✓ Mercury Digestion: 01/20/99 ✓									
99SW-SB1-5.5-7	Soil							L9608-4	
Antimony		ND	2.0	mg/kg	01/18/99	EPA 200.7/6010		K3	CV
Arsenic		1.6	1.0	mg/kg	01/20/99	EPA 200.9		D1	CV
Beryllium		ND	0.10	mg/kg	01/18/99	EPA 200.7/6010			CV
Cadmium		ND	0.20	mg/kg	01/18/99	EPA 200.7/6010			CV
Chromium		9.66	0.50	mg/kg	01/18/99	EPA 200.7/6010			CV
Copper		21.9	0.20	mg/kg	01/18/99	EPA 200.7/6010			CV
Lead		4.2	0.50	mg/kg	01/18/99	EPA 200.9		K3,D1	GCK
Mercury		ND	0.10	mg/kg	01/21/99	EPA 245.5/7471A			JD
Nickel		15.9	1.0	mg/kg	01/18/99	EPA 200.7/6010			CV
Selenium		ND	1.0	mg/kg	01/20/99	EPA 200.9		D1	CV
Silver		ND	0.30	mg/kg	01/18/99	EPA 200.7/6010			CV
Thallium		ND	1.0	mg/kg	01/20/99	EPA 200.9		D1	DMC <sup>2</sup>
Zinc		31.9	1.0	mg/kg	01/18/99	EPA 200.7/6010		K3	CV

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<i>Sample ID</i>	<i>Matrix</i>							<i>Lab Number</i>
Analyte	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst	
		Sampled: 01/07/99						
		Hot Plate Digestion EPA 200.2/3050A: 01/18/99						
		Mercury Digestion: 01/20/99						
99SW-SB1-7-8.5	Soil							L9608-5
Antimony	ND	2.0	mg/kg	01/18/99	EPA 200.7/6010	K3	CV	
Arsenic	1.4	1.0	mg/kg	01/20/99	EPA 200.9	D1	CV	
Beryllium	ND	0.10	mg/kg	01/18/99	EPA 200.7/6010		CV	
Cadmium	ND	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV	
Chromium	8.71	0.50	mg/kg	01/18/99	EPA 200.7/6010		CV	
Copper	15.2	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV	
Lead	1.7	0.50	mg/kg	01/18/99	EPA 200.9	K3,D1	GCK	
Mercury	ND	0.10	mg/kg	01/21/99	EPA 245.5/7471A		JD	
Nickel	17.9	1.0	mg/kg	01/18/99	EPA 200.7/6010		CV	
Selenium	ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	CV	
Silver	ND	0.30	mg/kg	01/18/99	EPA 200.7/6010		CV	
Thallium	ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	DMC <sup>2</sup>	
Zinc	27.3	1.0	mg/kg	01/18/99	EPA 200.7/6010	K3	CV	

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### Total Metals

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst
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Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst
99SW-SB2-1-2.5	Soil					Sampled: 01/07/99 Hot Plate Digestion EPA 200.2/3050A: 01/18/99 ✓ Mercury Digestion: 01/20/99 ✓	L9608-6	
		Antimony	ND	2.0	01/18/99	EPA 200.7/6010	K3	CV
		Arsenic	16.5	1.0	01/20/99	EPA 200.9	D1	CV
		Beryllium	0.28	0.10	01/18/99	EPA 200.7/6010		CV
		Cadmium	ND	0.20	01/18/99	EPA 200.7/6010		CV
		Chromium	13.5	0.50	01/18/99	EPA 200.7/6010		CV
		Copper	155.	0.20	01/18/99	EPA 200.7/6010		CV
		Lead	12.5	0.50	01/18/99	EPA 200.9	K3,D1	GCK
		Mercury	ND	0.10	01/21/99	EPA 245.5/7471A		JD
		Nickel	13.7	1.0	01/18/99	EPA 200.7/6010		CV
		Selenium	ND	1.0	01/20/99	EPA 200.9	D1	CV
		Silver	ND	0.30	01/18/99	EPA 200.7/6010		CV
		Thallium	ND	1.0	01/20/99	EPA 200.9	D1	DMC <sup>2</sup>
		Zinc	83.0	1.0	01/18/99	EPA 200.7/6010	K3	CV

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### Total Metals

Sample ID	Matrix						Lab Number
Analyte	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst

Sample ID	Matrix						Lab Number
99SW-SB2-5.5-7	Soil						L9608-9
					Sampled: 01/07/99 Hot Plate Digestion EPA 200.2/3050A: 01/18/99 ✓ Mercury Digestion: 01/20/99 ✓		
Antimony	ND	2.0	mg/kg	01/18/99	EPA 200.7/6010	K3	CV
Arsenic	1.3	1.0	mg/kg	01/20/99	EPA 200.9	D1	CV
Beryllium	ND	0.10	mg/kg	01/18/99	EPA 200.7/6010		CV
Cadmium	ND	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV
Chromium	8.50	0.50	mg/kg	01/18/99	EPA 200.7/6010		CV
Copper	14.6	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV
Lead	1.1	0.50	mg/kg	01/18/99	EPA 200.9	K3,D1	GCK
Mercury	ND	0.10	mg/kg	01/21/99	EPA 245.5/7471A		JD
Nickel	15.5	1.0	mg/kg	01/18/99	EPA 200.7/6010		CV
Selenium	ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	CV
Silver	ND	0.30	mg/kg	01/18/99	EPA 200.7/6010		CV
Thallium	ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	DMC <sup>2</sup>
Zinc	26.6	1.0	mg/kg	01/18/99	EPA 200.7/6010	K3	CV

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### Total Metals

<i>Sample ID</i>	<i>Matrix</i>						<i>Lab Number</i>
Analyte		Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment Analyst

		Sampled: 01/07/99							
		Hot Plate Digestion EPA 200.2/3050A: 01/18/99 ✓							
		Mercury Digestion: 01/20/99 ✓						L9608-12	
<i>99SW-SB3-2.5-4</i>	<i>Soil</i>								
Antimony		ND	2.0	mg/kg	01/18/99	EPA 200.7/6010	K3	CV	
Arsenic		1.7	1.0	mg/kg	01/20/99	EPA 200.9	D1	CV	
Beryllium		ND	0.10	mg/kg	01/18/99	EPA 200.7/6010		CV	
Cadmium		ND	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV	
Chromium		9.37	0.50	mg/kg	01/18/99	EPA 200.7/6010		CV	
Copper		14.6	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV	
Lead		1.8	0.50	mg/kg	01/18/99	EPA 200.9	K3,D1	GCK	
Mercury		ND	0.10	mg/kg	01/21/99	EPA 245.5/7471A		JD	
Nickel		10.2	1.0	mg/kg	01/18/99	EPA 200.7/6010		CV	
Selenium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	CV	
Silver		ND	0.30	mg/kg	01/18/99	EPA 200.7/6010		CV	
Thallium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	DMC <sup>2</sup>	
Zinc		36.4	1.0	mg/kg	01/18/99	EPA 200.7/6010	K3	CV	

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### Total Metals

Sample ID	Matrix						Lab Number
Analyte		Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment Analyst
Sampled: 01/07/99							
Hot Plate Digestion EPA 200.2/3050A: 01/18/99							
99SW-SB3-8.5-10	Soil					Mercury Digestion: 01/20/99	L9608-16
Antimony		ND	2.0	mg/kg	01/18/99	EPA 200.7/6010	K3 CV
Arsenic		1.3	1.0	mg/kg	01/20/99	EPA 200.9	D1 CV
Beryllium		ND	0.10	mg/kg	01/18/99	EPA 200.7/6010	CV
Cadmium		ND	0.20	mg/kg	01/18/99	EPA 200.7/6010	CV
Chromium		11.0	0.50	mg/kg	01/18/99	EPA 200.7/6010	CV
Copper		16.1	0.20	mg/kg	01/18/99	EPA 200.7/6010	CV
Lead		0.93	0.50	mg/kg	01/18/99	EPA 200.9	K3,D1 GCK
Mercury		ND	0.10	mg/kg	01/21/99	EPA 245.5/7471A	JD
Nickel		16.2	1.0	mg/kg	01/18/99	EPA 200.7/6010	CV
Selenium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1 CV
Silver		ND	0.30	mg/kg	01/18/99	EPA 200.7/6010	CV
Thallium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1 DMC <sup>2</sup>
Zinc		29.3	1.0	mg/kg	01/18/99	EPA 200.7/6010	K3 CV

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Sample ID	Matrix						Lab Number		
Analyte		Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Comment	Analyst	
		Sampled: 01/07/99							
		Hot Plate Digestion EPA 200.2/3050A: 01/18/99							
		Mercury Digestion: 01/20/99							
99SW-SB4-1-2.5	Soil							L9608-17	
Antimony		ND	2.0	mg/kg	01/18/99	EPA 200.7/6010	K3	CV	
Arsenic		1.0	1.0	mg/kg	01/20/99	EPA 200.9	D1	CV	
Beryllium		ND	0.10	mg/kg	01/18/99	EPA 200.7/6010		CV	
Cadmium		1.2	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV	
Chromium		9.30	0.50	mg/kg	01/18/99	EPA 200.7/6010		CV	
Copper		123.	0.20	mg/kg	01/18/99	EPA 200.7/6010		CV	
Lead		2.5	0.50	mg/kg	01/18/99	EPA 200.9	K3,D1	GCK	
Mercury		ND	0.10	mg/kg	01/21/99	EPA 245.5/7471A		JD	
Nickel		8.1	1.0	mg/kg	01/18/99	EPA 200.7/6010		CV	
Selenium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	CV	
Silver		ND	0.30	mg/kg	01/18/99	EPA 200.7/6010		CV	
Thallium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1	DMC <sup>2</sup>	
Zinc		48.4	1.0	mg/kg	01/18/99	EPA 200.7/6010	K3	CV	

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Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Lab Number	Comment	Analyst
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Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Lab Number	Comment	Analyst
99SW-SB4-5.5-7	Soil						L9608-20		
Sampled: 01/07/99									
Hot Plate Digestion EPA 200.2/3050A: 01/18/99									
Mercury Digestion: 01/20/99									
Antimony		ND	2.0	mg/kg	01/18/99	EPA 200.7/6010	K3		CV
Arsenic		2.1	1.0	mg/kg	01/20/99	EPA 200.9	D1		CV
Beryllium		0.13	0.10	mg/kg	01/18/99	EPA 200.7/6010			CV
Cadmium		ND	0.20	mg/kg	01/18/99	EPA 200.7/6010			CV
Chromium		11.0	0.50	mg/kg	01/18/99	EPA 200.7/6010			CV
Copper		31.5	0.20	mg/kg	01/18/99	EPA 200.7/6010			CV
Lead		15.1	0.50	mg/kg	01/18/99	EPA 200.9	K3,D1		GCK
Mercury		0.29	0.10	mg/kg	01/21/99	EPA 245.5/7471A			JD
Nickel		11.3	1.0	mg/kg	01/18/99	EPA 200.7/6010			CV
Selenium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1		CV
Silver		0.89	0.30	mg/kg	01/18/99	EPA 200.7/6010			CV
Thallium		ND	1.0	mg/kg	01/20/99	EPA 200.9	D1		DMC <sup>2</sup>
Zinc		78.5	1.0	mg/kg	01/18/99	EPA 200.7/6010	K3		CV

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### Total Metals

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Lab Number	Comment	Analyst
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Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Date Analyzed	Method	Lab Number	Comment	Analyst
99SW-SB4-10-11.5	Soil					Hot Plate Digestion EPA 200.2/3050A:01/18/99 Mercury Digestion:01/20/99	L9608-23		
		Antimony	ND	2.0	01/18/99	EPA 200.7/6010	K3		CV
		Arsenic	1.3	1.0	01/20/99	EPA 200.9	D1		CV
		Beryllium	ND	0.10	01/18/99	EPA 200.7/6010			CV
		Cadmium	ND	0.20	01/18/99	EPA 200.7/6010			CV
		Chromium	9.38	0.50	01/18/99	EPA 200.7/6010			CV
		Copper	25.4	0.20	01/18/99	EPA 200.7/6010			CV
		Lead	1.5	0.50	01/18/99	EPA 200.9	K3,D1		GCK
		Mercury	ND	0.10	01/21/99	EPA 245.5/7471A			JD
		Nickel	8.9	1.0	01/18/99	EPA 200.7/6010			CV
		Selenium	ND	1.0	01/20/99	EPA 200.9	D1		CV
		Silver	ND	0.30	01/18/99	EPA 200.7/6010			CV
		Thallium	ND	1.0	01/20/99	EPA 200.9	D1		DMC <sup>2</sup>
		Zinc	27.8	1.0	01/18/99	EPA 200.7/6010	K3		CV

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### Chlorinated Herbicides by EPA 8150 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-1-2.5	Soil					L9608-1
		Sampled: 01/07/99				
		Analyzed: 01/14/99 by WB				
2,4,5-T		ND	10.	µg/kg	Y	
2,4,5-TP (Silvex)		ND	10.	µg/kg	Y	
2,4-D		ND	10.	µg/kg	Y	
2,4-DB		ND	10.	µg/kg	Y	
Dalapon		ND	10.	µg/kg	Y	
Dicamba		ND	10.	µg/kg	Y	
Dichloroprop		ND	10.	µg/kg	Y	
Dinoseb		ND	10.	µg/kg	Y	
MCPA		ND	10.	µg/kg	Y	
MCPP		ND	10.	µg/kg	Y	
		Surrogate		Recovery	Limit	
		2,4,6-Tribromophenol		114. %	50. - 150.	

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-5.5-7	Soil					L9608-4
		Sampled: 01/07/99				
		Analyzed: 01/14/99 by WB				
2,4,5-T		ND	10.	µg/kg	Y	
2,4,5-TP (Silvex)		ND	10.	µg/kg	Y	
2,4-D		ND	10.	µg/kg	Y	
2,4-DB		ND	10.	µg/kg	Y	
Dalapon		ND	10.	µg/kg	Y	
Dicamba		ND	10.	µg/kg	Y	
Dichloroprop		ND	10.	µg/kg	Y	
Dinoseb		ND	10.	µg/kg	Y	
MCPA		ND	10.	µg/kg	Y	
MCPP		ND	10.	µg/kg	Y	
		Surrogate		Recovery	Limit	
		2,4,6-Tribromophenol		119. %	50. - 150.	

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### Chlorinated Herbicides by EPA 8150 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-7-8.5	Soil					L9608-5
Sampled: 01/07/99 Analyzed: 01/14/99 by WB						
2,4,5-T		ND	9.7	µg/kg	Y	
2,4,5-TP (Silvex)		ND	9.7	µg/kg	Y	
2,4-D		ND	9.7	µg/kg	Y	
2,4-DB		ND	9.7	µg/kg	Y	
Dalapon		ND	9.7	µg/kg	Y	
Dicamba		ND	9.7	µg/kg	Y	
Dichloroprop		ND	9.7	µg/kg	Y	
Dinoseb		ND	9.7	µg/kg	Y	
MCPA		ND	9.7	µg/kg	Y	
MCPP		ND	9.7	µg/kg	Y	
		Surrogate		Recovery		Limit
		2,4,6-Tribromophenol		122. %		50. - 150.

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB2-1-2.5	Soil					L9608-6
Sampled: 01/07/99 Analyzed: 01/14/99 by WB						
2,4,5-T		ND	10.	µg/kg	Y	
2,4,5-TP (Silvex)		ND	10.	µg/kg	Y	
2,4-D		ND	10.	µg/kg	Y	
2,4-DB		ND	10.	µg/kg	Y	
Dalapon		ND	10.	µg/kg	Y	
Dicamba		ND	10.	µg/kg	Y	
Dichloroprop		ND	10.	µg/kg	Y	
Dinoseb		ND	10.	µg/kg	Y	
MCPA		ND	10.	µg/kg	Y	
MCPP		ND	10.	µg/kg	Y	
		Surrogate		Recovery		Limit
		2,4,6-Tribromophenol		107. %		50. - 150.

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Chlorinated Herbicides by EPA 8150 MOD

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment
99SW-SB2-5.5-7	Soil				Sampled: 01/07/99 Analyzed: 01/14/99 by WB L9608-9
2,4,5-T		ND	9.1	µg/kg	Y
2,4,5-TP (Silvex)		ND	9.1	µg/kg	Y
2,4-D		ND	9.1	µg/kg	Y
2,4-DB		ND	9.1	µg/kg	Y
Dalapon		ND	9.1	µg/kg	Y
Dicamba		ND	9.1	µg/kg	Y
Dichloroprop		ND	9.1	µg/kg	Y
Dinoseb		ND	9.1	µg/kg	Y
MCPA		ND	9.1	µg/kg	Y
MCPP		ND	9.1	µg/kg	Y
	Surrogate			Recovery	Limit
	2,4,6-Tribromophenol			125. % /	50. - 150.

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment
99SW-SB3-2.5-4	Soil				Sampled: 01/07/99 Analyzed: 01/14/99 by WB L9608-12
2,4,5-T		ND	9.1	µg/kg	Y
2,4,5-TP (Silvex)		ND	9.1	µg/kg	Y
2,4-D		ND	9.1	µg/kg	Y
2,4-DB		ND	9.1	µg/kg	Y
Dalapon		ND	9.1	µg/kg	Y
Dicamba		ND	9.1	µg/kg	Y
Dichloroprop		ND	9.1	µg/kg	Y
Dinoseb		ND	9.1	µg/kg	Y
MCPA		ND	9.1	µg/kg	Y
MCPP		ND	9.1	µg/kg	Y
	Surrogate			Recovery	Limit
	2,4,6-Tribromophenol			119. % /	50. - 150.

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### Chlorinated Herbicides by EPA 8150 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-8.5-10	Soil					L9608-16
						Sampled: 01/07/99 Analyzed: 01/14/99 by WB
2,4,5-T		ND	10.	µg/kg	Y	
2,4,5-TP (Silvex)		ND	10.	µg/kg	Y	
2,4-D		ND	10.	µg/kg	Y	
2,4-DB		ND	10.	µg/kg	Y	
Dalapon		ND	10.	µg/kg	Y	
Dicamba		ND	10.	µg/kg	Y	
Dichloroprop		ND	10.	µg/kg	Y	
Dinoseb		ND	10.	µg/kg	Y	
MCPA		ND	10.	µg/kg	Y	
MCPP		ND	10.	µg/kg	Y	
		Surrogate		Recovery		Limit
		2,4,6-Tribromophenol		115. %		50. - 150.

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-1-2.5	Soil					L9608-17
						Sampled: 01/07/99 Analyzed: 01/14/99 by WB
2,4,5-T		ND	8.4	µg/kg	Y	
2,4,5-TP (Silvex)		ND	8.4	µg/kg	Y	
2,4-D		ND	8.4	µg/kg	Y	
2,4-DB		ND	8.4	µg/kg	Y	
Dalapon		ND	8.4	µg/kg	Y	
Dicamba		ND	8.4	µg/kg	Y	
Dichloroprop		ND	8.4	µg/kg	Y	
Dinoseb		ND	8.4	µg/kg	Y	
MCPA		ND	8.4	µg/kg	Y	
MCPP		ND	8.4	µg/kg	Y	
		Surrogate		Recovery		Limit
		2,4,6-Tribromophenol		123. %		50. - 150.

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### Chlorinated Herbicides by EPA 8150 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-5.5-7	Soil					L9608-20
Sampled: 01/07/99 Analyzed: 01/14/99 by WB						
2,4,5-T		ND	9.4	µg/kg	Y	
2,4,5-TP (Silvex)		ND	9.4	µg/kg	Y	
2,4-D		ND	9.4	µg/kg	Y	
2,4-DB		ND	9.4	µg/kg	Y	
Dalapon		ND	9.4	µg/kg	Y	
Dicamba		ND	9.4	µg/kg	Y	
Dichloroprop		ND	9.4	µg/kg	Y	
Dinoseb		ND	9.4	µg/kg	Y	
MCPA		ND	9.4	µg/kg	Y	
MCPP		ND	9.4	µg/kg	Y	
		Surrogate		Recovery		Limit
		2,4,6-Tribromophenol		114. %		50. - 150.

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-10-11.5	Soil					L9608-23
Sampled: 01/07/99 Analyzed: 01/14/99 by WB						
2,4,5-T		ND	11.	µg/kg	Y	
2,4,5-TP (Silvex)		ND	11.	µg/kg	Y	
2,4-D		ND	11.	µg/kg	Y	
2,4-DB		ND	11.	µg/kg	Y	
Dalapon		ND	11.	µg/kg	Y	
Dicamba		ND	11.	µg/kg	Y	
Dichloroprop		ND	11.	µg/kg	Y	
Dinoseb		ND	11.	µg/kg	Y	
MCPA		ND	11.	µg/kg	Y	
MCPP		ND	11.	µg/kg	Y	
		Surrogate		Recovery		Limit
		2,4,6-Tribromophenol		112. %		50. - 150.

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### Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-1-2.5	Soil					L9608-1
Sampled: 01/07/99 Analyzed: 01/20/99 by WB						
4,4'-DDD		ND	5.	µg/kg	Y	
4,4'-DDE		ND	5.	µg/kg	Y	
4,4'-DDT		ND	5.	µg/kg	Y	
Aldrin		ND	2.	µg/kg	Y	
Aroclor 1016		ND	120	µg/kg	Y	
Aroclor 1221		ND	120	µg/kg	Y	
Aroclor 1232		ND	120	µg/kg	Y	
Aroclor 1242		ND	120	µg/kg	Y	
Aroclor 1248		ND	120	µg/kg	Y	
Aroclor 1254		ND	120	µg/kg	Y	
Aroclor 1260		ND	120	µg/kg	Y	
Chlordane (Technical)		ND	24.	µg/kg	Y	
Dieldrin		ND	5.	µg/kg	Y	
Endosulfan I		ND	2.	µg/kg	Y	
Endosulfan II		ND	5.	µg/kg	Y	
Endosulfan sulfate		ND	5.	µg/kg	Y	
Endrin		ND	5.	µg/kg	Y	
Endrin aldehyde		ND	5.	µg/kg	Y	
Endrin ketone		ND	5.	µg/kg	Y	
Heptachlor		ND	2.	µg/kg	Y	
Heptachlor epoxide		ND	2.	µg/kg	Y	
Methoxychlor		ND	24.	µg/kg	Y	
Toxaphene		ND	240	µg/kg	Y	
alpha-BHC		ND	2.	µg/kg	Y	
beta-BHC		ND	2.	µg/kg	Y	
delta-BHC		ND	2.	µg/kg	Y	
gamma-BHC (Lindane)		ND	2.	µg/kg	Y	
		Surrogate	Recovery		Limit	
		Decachlorobiphenyl	71.%		50 - 150	Y
		Tetrachloro-m-xylene	101.%		50 - 150	Y

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### Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-5.5-7	Soil					L9608-4
						Sampled: 01/07/99 Analyzed: 01/20/99 by WB
4,4'-DDD		ND	5.	µg/kg	Y	
4,4'-DDE		ND	5.	µg/kg	Y	
4,4'-DDT		ND	5.	µg/kg	Y	
Aldrin		ND	2.	µg/kg	Y	
Aroclor 1016		ND	120	µg/kg	Y	
Aroclor 1221		ND	120	µg/kg	Y	
Aroclor 1232		ND	120	µg/kg	Y	
Aroclor 1242		ND	120	µg/kg	Y	
Aroclor 1248		ND	120	µg/kg	Y	
Aroclor 1254		ND	120	µg/kg	Y	
Aroclor 1260		ND	120	µg/kg	Y	
Chlordane (Technical)		ND	24.	µg/kg	Y	
Dieldrin		ND	5.	µg/kg	Y	
Endosulfan I		ND	2.	µg/kg	Y	
Endosulfan II		ND	5.	µg/kg	Y	
Endosulfan sulfate		ND	5.	µg/kg	Y	
Endrin		ND	5.	µg/kg	Y	
Endrin aldehyde		ND	5.	µg/kg	Y	
Endrin ketone		ND	5.	µg/kg	Y	
Heptachlor		ND	2.	µg/kg	Y	
Heptachlor epoxide		ND	2.	µg/kg	Y	
Methoxychlor		ND	24.	µg/kg	Y	
Toxaphene		ND	240	µg/kg	Y	
alpha-BHC		ND	2.	µg/kg	Y	
beta-BHC		ND	2.	µg/kg	Y	
delta-BHC		ND	2.	µg/kg	Y	
gamma-BHC (Lindane)		ND	2.	µg/kg	Y	
Surrogate				Recovery	Limit	
Decachlorobiphenyl				75. %	50 - 150	Y
Tetrachloro-m-xylene				93. %	50 - 150	Y



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### Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-7-8.5	Soil					L9608-5
Sampled: 01/07/99 Analyzed: 01/20/99 by WB						
4,4'-DDD		ND	5.	µg/kg	Y	
4,4'-DDE		ND	5.	µg/kg	Y	
4,4'-DDT		ND	5.	µg/kg	Y	
Aldrin		ND	2.	µg/kg	Y	
Aroclor 1016		ND	120	µg/kg	Y	
Aroclor 1221		ND	120	µg/kg	Y	
Aroclor 1232		ND	120	µg/kg	Y	
Aroclor 1242		ND	120	µg/kg	Y	
Aroclor 1248		ND	120	µg/kg	Y	
Aroclor 1254		ND	120	µg/kg	Y	
Aroclor 1260		ND	120	µg/kg	Y	
Chlordane (Technical)		ND	23.	µg/kg	Y	
Dieldrin		ND	5.	µg/kg	Y	
Endosulfan I		ND	2.	µg/kg	Y	
Endosulfan II		ND	5.	µg/kg	Y	
Endosulfan sulfate		ND	5.	µg/kg	Y	
Endrin		ND	5.	µg/kg	Y	
Endrin aldehyde		ND	5.	µg/kg	Y	
Endrin ketone		ND	5.	µg/kg	Y	
Heptachlor		ND	2.	µg/kg	Y	
Heptachlor epoxide		ND	2.	µg/kg	Y	
Methoxychlor		ND	23.	µg/kg	Y	
Toxaphene		ND	230	µg/kg	Y	
alpha-BHC		ND	2.	µg/kg	Y	
beta-BHC		ND	2.	µg/kg	Y	
delta-BHC		ND	2.	µg/kg	Y	
gamma-BHC (Lindane)		ND	2.	µg/kg	Y	
Surrogate				Recovery	Limit	
Decachlorobiphenyl				78. %	50 - 150	Y
Tetrachloro-m-xylene				93. %	50 - 150	Y

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### Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB2-1-2.5	Soil					L9608-6
						Sampled: 01/07/99 Analyzed: 01/20/99 by WB
4,4'-DDD		ND	5.	µg/kg	Y	
4,4'-DDE		ND	5.	µg/kg	Y	
4,4'-DDT		ND	5.	µg/kg	Y	
Aldrin		ND	3.	µg/kg	Y	
Aroclor 1016		ND	130	µg/kg	Y	
Aroclor 1221		ND	130	µg/kg	Y	
Aroclor 1232		ND	130	µg/kg	Y	
Aroclor 1242		ND	130	µg/kg	Y	
Aroclor 1248		ND	130	µg/kg	Y	
Aroclor 1254		ND	130	µg/kg	Y	
Aroclor 1260		ND	130	µg/kg	Y	
Chlordane (Technical)		ND	25.	µg/kg	Y	
Dieldrin		ND	5.	µg/kg	Y	
Endosulfan I		ND	3.	µg/kg	Y	
Endosulfan II		ND	5.	µg/kg	Y	
Endosulfan sulfate		ND	5.	µg/kg	Y	
Endrin		ND	5.	µg/kg	Y	
Endrin aldehyde		ND	5.	µg/kg	Y	
Endrin ketone		ND	5.	µg/kg	Y	
Heptachlor		ND	3.	µg/kg	Y	
Heptachlor epoxide		ND	3.	µg/kg	Y	
Methoxychlor		ND	25.	µg/kg	Y	
Toxaphene		ND	250	µg/kg	Y	
alpha-BHC		ND	3.	µg/kg	Y	
beta-BHC		ND	3.	µg/kg	Y	
delta-BHC		ND	3.	µg/kg	Y	
gamma-BHC (Lindane)		ND	3.	µg/kg	Y	
				Surrogate	Recovery	Limit
				Decachlorobiphenyl	74. % ✓	50 - 150 Y
				Tetrachloro-m-xylene	93. % ✓	50 - 150 Y

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### Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB2-5.5-7	Soil				Sampled: 01/07/99 Analyzed: 01/20/99 by WB	L9608-9
4,4'-DDD		ND	4.	µg/kg	Y	
4,4'-DDE		ND	4.	µg/kg	Y	
4,4'-DDT		ND	4.	µg/kg	Y	
Aldrin		ND	2.	µg/kg	Y	
Aroclor 1016		ND	110	µg/kg	Y	
Aroclor 1221		ND	110	µg/kg	Y	
Aroclor 1232		ND	110	µg/kg	Y	
Aroclor 1242		ND	110	µg/kg	Y	
Aroclor 1248		ND	110	µg/kg	Y	
Aroclor 1254		ND	110	µg/kg	Y	
Aroclor 1260		ND	110	µg/kg	Y	
Chlordane (Technical)		ND	22.	µg/kg	Y	
Dieldrin		ND	4.	µg/kg	Y	
Endosulfan I		ND	2.	µg/kg	Y	
Endosulfan II		ND	4.	µg/kg	Y	
Endosulfan sulfate		ND	4.	µg/kg	Y	
Endrin		ND	4.	µg/kg	Y	
Endrin aldehyde		ND	4.	µg/kg	Y	
Endrin ketone		ND	4.	µg/kg	Y	
Heptachlor		ND	2.	µg/kg	Y	
Heptachlor epoxide		ND	2.	µg/kg	Y	
Methoxychlor		ND	22.	µg/kg	Y	
Toxaphene		ND	220	µg/kg	Y	
alpha-BHC		ND	2.	µg/kg	Y	
beta-BHC		ND	2.	µg/kg	Y	
delta-BHC		ND	2.	µg/kg	Y	
gamma-BHC (Lindane)		ND	2.	µg/kg	Y	
Surrogate		Recovery		Limit		
Decachlorobiphenyl		82. %		50 - 150		Y
Tetrachloro-m-xylene		92. %		50 - 150		Y

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## Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment
99SW-SB3-2.5-4	Soil				Sampled: 01/07/99 Analyzed: 01/20/99 by WB L9608-12
4,4'-DDD		ND	4.	µg/kg	Y
4,4'-DDE		ND	4.	µg/kg	Y
4,4'-DDT		ND	4.	µg/kg	Y
Aldrin		ND	2.	µg/kg	Y
Aroclor 1016		ND	110	µg/kg	Y
Aroclor 1221		ND	110	µg/kg	Y
Aroclor 1232		ND	110	µg/kg	Y
Aroclor 1242		ND	110	µg/kg	Y
Aroclor 1248		ND	110	µg/kg	Y
Aroclor 1254		ND	110	µg/kg	Y
Aroclor 1260		ND	110	µg/kg	Y
Chlordane (Technical)		ND	22.	µg/kg	Y
Dieldrin		ND	4.	µg/kg	Y
Endosulfan I		ND	2.	µg/kg	Y
Endosulfan II		ND	4.	µg/kg	Y
Endosulfan sulfate		ND	4.	µg/kg	Y
Endrin		ND	4.	µg/kg	Y
Endrin aldehyde		ND	4.	µg/kg	Y
Endrin ketone		ND	4.	µg/kg	Y
Heptachlor		ND	2.	µg/kg	Y
Heptachlor epoxide		ND	2.	µg/kg	Y
Methoxychlor		ND	22.	µg/kg	Y
Toxaphene		ND	220	µg/kg	Y
alpha-BHC		ND	2.	µg/kg	Y
beta-BHC		ND	2.	µg/kg	Y
delta-BHC		ND	2.	µg/kg	Y
gamma-BHC (Lindane)		ND	2.	µg/kg	Y
	Surrogate			Recovery	Limit
	Decachlorobiphenyl			80.% /	50 - 150 Y
	Tetrachloro-m-xylene			99.% /	50 - 150 Y

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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-8.5-10	Soil					L9608-16
						Sampled: 01/07/99 Analyzed: 01/20/99 by WB
4,4'-DDD		ND	5.	µg/kg	Y	
4,4'-DDE		ND	5.	µg/kg	Y	
4,4'-DDT		ND	5.	µg/kg	Y	
Aldrin		ND	2.	µg/kg	Y	
Aroclor 1016		ND	120	µg/kg	Y	
Aroclor 1221		ND	120	µg/kg	Y	
Aroclor 1232		ND	120	µg/kg	Y	
Aroclor 1242		ND	120	µg/kg	Y	
Aroclor 1248		ND	120	µg/kg	Y	
Aroclor 1254		ND	120	µg/kg	Y	
Aroclor 1260		ND	120	µg/kg	Y	
Chlordane (Technical)		ND	23.	µg/kg	Y	
Dieldrin		ND	5.	µg/kg	Y	
Endosulfan I		ND	2.	µg/kg	Y	
Endosulfan II		ND	5.	µg/kg	Y	
Endosulfan sulfate		ND	5.	µg/kg	Y	
Endrin		ND	5.	µg/kg	Y	
Endrin aldehyde		ND	5.	µg/kg	Y	
Endrin ketone		ND	5.	µg/kg	Y	
Heptachlor		ND	2.	µg/kg	Y	
Heptachlor epoxide		ND	2.	µg/kg	Y	
Methoxychlor		ND	23.	µg/kg	Y	
Toxaphene		ND	230	µg/kg	Y	
alpha-BHC		ND	2.	µg/kg	Y	
beta-BHC		ND	2.	µg/kg	Y	
delta-BHC		ND	2.	µg/kg	Y	
gamma-BHC (Lindane)		ND	2.	µg/kg	Y	
				Surrogate	Recovery	Limit
				Decachlorobiphenyl	64. % /	50 - 150 Y
				Tetrachloro-m-xylene	84. % /	50 - 150 Y

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Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix					Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment	
<i>99SW-SB4-1-2.5</i>						<i>L9608-17</i>
<i>Soil</i>						
		Sampled: <i>01/07/99</i>				
		Analyzed: <i>01/20/99 by WB</i>				
4,4'-DDD		ND	4.	µg/kg	Y	
4,4'-DDE		ND	4.	µg/kg	Y	
4,4'-DDT		ND	4.	µg/kg	Y	
Aldrin		ND	2.	µg/kg	Y	
Aroclor 1016		ND	99.	µg/kg	Y	
Aroclor 1221		ND	99.	µg/kg	Y	
Aroclor 1232		ND	99.	µg/kg	Y	
Aroclor 1242		ND	99.	µg/kg	Y	
Aroclor 1248		ND	99.	µg/kg	Y	
Aroclor 1254		ND	99.	µg/kg	Y	
Aroclor 1260		ND	99.	µg/kg	Y	
Chlordane (Technical)		ND	20.	µg/kg	Y	
Dieldrin		ND	4.	µg/kg	Y	
Endosulfan I		ND	2.	µg/kg	Y	
Endosulfan II		ND	4.	µg/kg	Y	
Endosulfan sulfate		ND	4.	µg/kg	Y	
Endrin		ND	4.	µg/kg	Y	
Endrin aldehyde		ND	4.	µg/kg	Y	
Endrin ketone		ND	4.	µg/kg	Y	
Heptachlor		ND	2.	µg/kg	Y	
Heptachlor epoxide		ND	2.	µg/kg	Y	
Methoxychlor		ND	20.	µg/kg	Y	
Toxaphene		ND	200	µg/kg	Y	
alpha-BHC		ND	2.	µg/kg	Y	
beta-BHC		ND	2.	µg/kg	Y	
delta-BHC		ND	2.	µg/kg	Y	
gamma-BHC (Lindane)		ND	2.	µg/kg	Y	
		<u>Surrogate</u>	<u>Recovery</u>		<u>Limit</u>	
		Decachlorobiphenyl	94. %		50 - 150	Y
		Tetrachloro-m-xylene	97. %		50 - 150	Y

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Project: 5491C0796B.00  
IP - Longview

### Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-5.5-7	Soil					L9608-20
Sampled: 01/07/99 Analyzed: 01/20/99 by WB						
4,4'-DDD		8.	5.	µg/kg	1,Y	
4,4'-DDE		ND	5.	µg/kg	Y	
4,4'-DDT		ND	5.	µg/kg	Y	
Aldrin		ND	2.	µg/kg	Y	
Aroclor 1016		ND	110	µg/kg	Y	
Aroclor 1221		ND	110	µg/kg	Y	
Aroclor 1232		ND	110	µg/kg	Y	
Aroclor 1242		ND	110	µg/kg	Y	
Aroclor 1248		ND	110	µg/kg	Y	
Aroclor 1254		ND	110	µg/kg	Y	
Aroclor 1260		ND	110	µg/kg	Y	
Chlordane (Technical)		ND	23.	µg/kg	Y	
Dieldrin		5.	5.	µg/kg	2,Y	
Endosulfan I		ND	2.	µg/kg	Y	
Endosulfan II		ND	5.	µg/kg	Y	
Endosulfan sulfate		ND	5.	µg/kg	Y	
Endrin		ND	5.	µg/kg	Y	
Endrin aldehyde		ND	5.	µg/kg	Y	
Endrin ketone		ND	5.	µg/kg	Y	
Heptachlor		ND	2.	µg/kg	Y	
Heptachlor epoxide		ND	2.	µg/kg	Y	
Methoxychlor		ND	23.	µg/kg	Y	
Toxaphene		ND	230	µg/kg	Y	
alpha-BHC		ND	2.	µg/kg	Y	
beta-BHC		ND	2.	µg/kg	Y	
delta-BHC		ND	2.	µg/kg	Y	
gamma-BHC (Lindane)		ND	2.	µg/kg	Y	

Surrogate	Recovery	Limit	
Decachlorobiphenyl	87.%	50 - 150	Y
Tetrachloro-m-xylene	105.%	50 - 150	Y

<sup>1</sup> Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be <=40%.

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Project: *5491C0796B.00*  
*IP - Longview*

## Chlorinated Pesticides and PCBs by EPA 8080/8081

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
<i>99SW-SB4-5.5-7</i>	<i>Soil</i>					
Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be >40%. The higher result was reported unless anomalies were noted.						

Sampled: 01/07/99

Analyzed: 01/20/99 by WB

L9608-20



Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Chlorinated Pesticides and PCBs by EPA 8080/8081

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-10-11.5	Soil					L9608-23
						Sampled: 01/07/99 Analyzed: 01/20/99 by WB
4,4'-DDD		ND	5.	µg/kg	Y	
4,4'-DDE		ND	5.	µg/kg	Y	
4,4'-DDT		ND	5.	µg/kg	Y	
Aldrin		ND	3.	µg/kg	Y	
Aroclor 1016		ND	130	µg/kg	Y	
Aroclor 1221		ND	130	µg/kg	Y	
Aroclor 1232		ND	130	µg/kg	Y	
Aroclor 1242		ND	130	µg/kg	Y	
Aroclor 1248		ND	130	µg/kg	Y	
Aroclor 1254		ND	130	µg/kg	Y	
Aroclor 1260		ND	130	µg/kg	Y	
Chlordane (Technical)		ND	27.	µg/kg	Y	
Dieldrin		ND	5.	µg/kg	Y	
Endosulfan I		ND	3.	µg/kg	Y	
Endosulfan II		ND	5.	µg/kg	Y	
Endosulfan sulfate		ND	5.	µg/kg	Y	
Endrin		ND	5.	µg/kg	Y	
Endrin aldehyde		ND	5.	µg/kg	Y	
Endrin ketone		ND	5.	µg/kg	Y	
Heptachlor		ND	3.	µg/kg	Y	
Heptachlor epoxide		ND	3.	µg/kg	Y	
Methoxychlor		ND	27.	µg/kg	Y	
Toxaphene		ND	270	µg/kg	Y	
alpha-BHC		ND	3.	µg/kg	Y	
beta-BHC		ND	3.	µg/kg	Y	
delta-BHC		ND	3.	µg/kg	Y	
gamma-BHC (Lindane)		ND	3.	µg/kg	Y	
		Surrogate	Recovery		Limit	
		Decachlorobiphenyl	87. % /		50 - 150	Y
		Tetrachloro-m-xylene	92. % /		50 - 150	Y

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Client: Woodward Clyde Consultants  
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Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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99SW-SB1-1-2.5

Soil

Sampled: 01/07/99  
Extracted: 01/14/99  
Analyzed: 01/15/99 by DM

L9608-1

Dichlorodifluoromethane	ND	20.	µg/kg
Chloromethane	ND	20.	µg/kg
Vinyl chloride	ND	20.	µg/kg
Bromomethane	ND	20.	µg/kg
Chloroethane	ND	20.	µg/kg
Trichlorofluoromethane	ND	10.	µg/kg
Acetone	ND	200	µg/kg
1,1-Dichloroethene	ND	10.	µg/kg
Methylene chloride	ND	20.	µg/kg
Carbon disulfide	ND	10.	µg/kg
trans-1,2-Dichloroethene	ND	10.	µg/kg
1,1-Dichloroethane	ND	10.	µg/kg
2-Butanone	ND	200	µg/kg
2,2-Dichloropropane	ND	10.	µg/kg
cis-1,2-Dichloroethene	ND	10.	µg/kg
Bromochloromethane	ND	10.	µg/kg
Chloroform	ND	10.	µg/kg
1,1,1-Trichloroethane	ND	10.	µg/kg
Carbon tetrachloride	ND	10.	µg/kg
1,1-Dichloropropene	ND	10.	µg/kg
Benzene	ND	10.	µg/kg
1,2-Dichloroethane	ND	10.	µg/kg
Trichloroethene	ND	10.	µg/kg
1,2-Dichloropropane	ND	10.	µg/kg
Dibromomethane	ND	10.	µg/kg
Bromodichloromethane	ND	10.	µg/kg
cis-1,3-Dichloropropene	ND	10.	µg/kg
4-Methyl-2-pentanone	ND	100	µg/kg
Toluene	ND	10.	µg/kg
2-Hexanone	ND	100	µg/kg
trans-1,3-Dichloropropene	ND	10.	µg/kg

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## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM						L9608-1
99SW-SB1-1-2.5	Soil					
1,1,2-Trichloroethane		ND	10.	µg/kg		
Tetrachloroethene		ND	10.	µg/kg		
1,3-Dichloropropane		ND	10.	µg/kg		
Dibromochloromethane		ND	10.	µg/kg		
1,2-Dibromoethane		ND	10.	µg/kg		
Chlorobenzene		ND	10.	µg/kg		
1,1,1,2-Tetrachloroethane		ND	10.	µg/kg		
Ethylbenzene		ND	10.	µg/kg		
Styrene		ND	10.	µg/kg		
Bromoform		ND	10.	µg/kg		
Isopropylbenzene		ND	10.	µg/kg		
Bromobenzene		ND	10.	µg/kg		
1,1,2,2-Tetrachloroethane		ND	10.	µg/kg		
1,2,3-Trichloropropane		ND	10.	µg/kg		
n-Propylbenzene		ND	10.	µg/kg		
2-Chlorotoluene		ND	10.	µg/kg		
4-Chlorotoluene		ND	10.	µg/kg		
1,3,5-Trimethylbenzene		ND	10.	µg/kg		
tert-Butylbenzene		ND	10.	µg/kg		
1,2,4-Trimethylbenzene		ND	10.	µg/kg		
sec-Butylbenzene		ND	10.	µg/kg		
1,3-Dichlorobenzene		ND	10.	µg/kg		
4-Isopropyltoluene		ND	10.	µg/kg		
1,4-Dichlorobenzene		ND	10.	µg/kg		
1,2-Dichlorobenzene		ND	10.	µg/kg		
n-Butylbenzene		ND	10.	µg/kg		
1,2-Dibromo-3-chloropropane		ND	10.	µg/kg		
1,2,4-Trichlorobenzene		ND	10.	µg/kg		
Hexachlorobutadiene		ND	10.	µg/kg		
Naphthalene		ND	10.	µg/kg		
1,2,3-Trichlorobenzene		ND	10.	µg/kg		

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-1-2.5	Soil	ND	10.	µg/kg		L9608-1
Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM						
Total Xylenes		ND	10.	µg/kg		
		Surrogate		Recovery	Limit	
		1,2-Dichloroethane-d4		96. %	85. - 128.	
		Toluene-d8		100. % ✓	76. - 132.	
		4-Bromofluorobenzene		100. % ✓	79. - 121.	

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## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment
Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM				
99SW-SB1-5.5-7	Soil			L9608-4
Dichlorodifluoromethane	ND	20.	µg/kg	
Chloromethane	ND	20.	µg/kg	
Vinyl chloride	ND	20.	µg/kg	
Bromomethane	ND	20.	µg/kg	
Chloroethane	ND	20.	µg/kg	
Trichlorofluoromethane	ND	10.	µg/kg	
Acetone	ND	200	µg/kg	
1,1-Dichloroethene	ND	10.	µg/kg	
Methylene chloride	ND	20.	µg/kg	
Carbon disulfide	ND	10.	µg/kg	
trans-1,2-Dichloroethene	ND	10.	µg/kg	
1,1-Dichloroethane	ND	10.	µg/kg	
2-Butanone	ND	200	µg/kg	
2,2-Dichloropropane	ND	10.	µg/kg	
cis-1,2-Dichloroethene	ND	10.	µg/kg	
Bromochloromethane	ND	10.	µg/kg	
Chloroform	ND	10.	µg/kg	
1,1,1-Trichloroethane	ND	10.	µg/kg	
Carbon tetrachloride	ND	10.	µg/kg	
1,1-Dichloropropene	ND	10.	µg/kg	
Benzene	ND	10.	µg/kg	
1,2-Dichloroethane	ND	10.	µg/kg	
Trichloroethene	ND	10.	µg/kg	
1,2-Dichloropropane	ND	10.	µg/kg	
Dibromomethane	ND	10.	µg/kg	
Bromodichloromethane	ND	10.	µg/kg	
cis-1,3-Dichloropropene	ND	10.	µg/kg	
4-Methyl-2-pentanone	ND	100	µg/kg	
Toluene	ND	10.	µg/kg	
2-Hexanone	ND	100	µg/kg	
trans-1,3-Dichloropropene	ND	10.	µg/kg	

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### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-5.5-7	Soil				Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM	L9608-4
		1,1,2-Trichloroethane	ND	10.	µg/kg	
		Tetrachloroethene	ND	10.	µg/kg	
		1,3-Dichloropropane	ND	10.	µg/kg	
		Dibromochloromethane	ND	10.	µg/kg	
		1,2-Dibromoethane	ND	10.	µg/kg	
		Chlorobenzene	ND	10.	µg/kg	
		1,1,1,2-Tetrachloroethane	ND	10.	µg/kg	
		Ethylbenzene	ND	10.	µg/kg	
		Styrene	ND	10.	µg/kg	
		Bromoform	ND	10.	µg/kg	
		Isopropylbenzene	ND	10.	µg/kg	
		Bromobenzene	ND	10.	µg/kg	
		1,1,2,2-Tetrachloroethane	ND	10.	µg/kg	
		1,2,3-Trichloropropane	ND	10.	µg/kg	
		n-Propylbenzene	ND	10.	µg/kg	
		2-Chlorotoluene	ND	10.	µg/kg	
		4-Chlorotoluene	ND	10.	µg/kg	
		1,3,5-Trimethylbenzene	ND	10.	µg/kg	
		tert-Butylbenzene	ND	10.	µg/kg	
		1,2,4-Trimethylbenzene	ND	10.	µg/kg	
		sec-Butylbenzene	ND	10.	µg/kg	
		1,3-Dichlorobenzene	ND	10.	µg/kg	
		4-Isopropyltoluene	ND	10.	µg/kg	
		1,4-Dichlorobenzene	ND	10.	µg/kg	
		1,2-Dichlorobenzene	ND	10.	µg/kg	
		n-Butylbenzene	ND	10.	µg/kg	
		1,2-Dibromo-3-chloropropane	ND	10.	µg/kg	
		1,2,4-Trichlorobenzene	ND	10.	µg/kg	
		Hexachlorobutadiene	ND	10.	µg/kg	
		Naphthalene	ND	10.	µg/kg	
		1,2,3-Trichlorobenzene	ND	10.	µg/kg	

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
99SW-SB1-5.5-7	Soil	ND	10.	µg/kg	Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM	L9608-4
Total Xylenes						
Surrogate					Recovery	Limit
1,2-Dichloroethane-d4					94. %	85. - 128.
Toluene-d8					101. %/	76. - 132.
4-Bromofluorobenzene					97. %/	79. - 121.

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Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-7-8.5	Soil				Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM	L9608-5
		Dichlorodifluoromethane	ND	20.	µg/kg	
		Chloromethane	ND	20.	µg/kg	
		Vinyl chloride	ND	20.	µg/kg	
		Bromomethane	ND	20.	µg/kg	
		Chloroethane	ND	20.	µg/kg	
		Trichlorofluoromethane	ND	10.	µg/kg	
		Acetone	ND	200	µg/kg	
		1,1-Dichloroethene	ND	10.	µg/kg	
		Methylene chloride	ND	20.	µg/kg	
		Carbon disulfide	ND	10.	µg/kg	
		trans-1,2-Dichloroethene	ND	10.	µg/kg	
		1,1-Dichloroethane	ND	10.	µg/kg	
		2-Butanone	ND	200	µg/kg	
		2,2-Dichloropropane	ND	10.	µg/kg	
		cis-1,2-Dichloroethene	ND	10.	µg/kg	
		Bromochloromethane	ND	10.	µg/kg	
		Chloroform	ND	10.	µg/kg	
		1,1,1-Trichloroethane	ND	10.	µg/kg	
		Carbon tetrachloride	ND	10.	µg/kg	
		1,1-Dichloropropene	ND	10.	µg/kg	
		Benzene	ND	10.	µg/kg	
		1,2-Dichloroethane	ND	10.	µg/kg	
		Trichloroethene	ND	10.	µg/kg	
		1,2-Dichloropropane	ND	10.	µg/kg	
		Dibromomethane	ND	10.	µg/kg	
		Bromodichloromethane	ND	10.	µg/kg	
		cis-1,3-Dichloropropene	ND	10.	µg/kg	
		4-Methyl-2-pentanone	ND	100	µg/kg	
		Toluene	ND	10.	µg/kg	
		2-Hexanone	ND	100	µg/kg	
		trans-1,3-Dichloropropene	ND	10.	µg/kg	

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Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
 IP - Longview

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM						L9608-5
99SW-SB1-7-8.5	Soil					
	1,1,2-Trichloroethane	ND	10.	µg/kg		
	Tetrachloroethene	ND	10.	µg/kg		
	1,3-Dichloropropane	ND	10.	µg/kg		
	Dibromochloromethane	ND	10.	µg/kg		
	1,2-Dibromoethane	ND	10.	µg/kg		
	Chlorobenzene	ND	10.	µg/kg		
	1,1,1,2-Tetrachloroethane	ND	10.	µg/kg		
	Ethylbenzene	ND	10.	µg/kg		
	Styrene	ND	10.	µg/kg		
	Bromoform	ND	10.	µg/kg		
	Isopropylbenzene	ND	10.	µg/kg		
	Bromobenzene	ND	10.	µg/kg		
	1,1,2,2-Tetrachloroethane	ND	10.	µg/kg		
	1,2,3-Trichloropropane	ND	10.	µg/kg		
	n-Propylbenzene	ND	10.	µg/kg		
	2-Chlorotoluene	ND	10.	µg/kg		
	4-Chlorotoluene	ND	10.	µg/kg		
	1,3,5-Trimethylbenzene	ND	10.	µg/kg		
	tert-Butylbenzene	ND	10.	µg/kg		
	1,2,4-Trimethylbenzene	ND	10.	µg/kg		
	sec-Butylbenzene	ND	10.	µg/kg		
	1,3-Dichlorobenzene	ND	10.	µg/kg		
	4-Isopropyltoluene	ND	10.	µg/kg		
	1,4-Dichlorobenzene	ND	10.	µg/kg		
	1,2-Dichlorobenzene	ND	10.	µg/kg		
	n-Butylbenzene	ND	10.	µg/kg		
	1,2-Dibromo-3-chloropropane	ND	10.	µg/kg		
	1,2,4-Trichlorobenzene	ND	10.	µg/kg		
	Hexachlorobutadiene	ND	10.	µg/kg		
	Naphthalene	ND	10.	µg/kg		
	1,2,3-Trichlorobenzene	ND	10.	µg/kg		

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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99SW-SB1-7-8.5	Soil	Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM					L9608-5
		Total Xylenes	ND	10.	µg/kg		
	Surrogate				Recovery	Limit	
	1,2-Dichloroethane-d4				91.%	85. - 128.	
	Toluene-d8				98.%	76. - 132.	
	4-Bromofluorobenzene				98.%	79. - 121.	

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Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
Sampled: <i>01/07/99</i> Extracted: <i>01/12/99</i> Analyzed: <i>01/15/99 by DM</i>					
<i>99SW-SB2-1-2.5</i>	<i>Soil</i>				<i>L9608-6</i>
Dichlorodifluoromethane	ND	20.	µg/kg		
Chloromethane	ND	20.	µg/kg		
Vinyl chloride	ND	20.	µg/kg		
Bromomethane	ND	20.	µg/kg		
Chloroethane	ND	20.	µg/kg		
Trichlorofluoromethane	ND	10.	µg/kg		
Acetone	ND	200	µg/kg		
1,1-Dichloroethene	ND	10.	µg/kg		
Methylene chloride	ND	20.	µg/kg		
Carbon disulfide	ND	10.	µg/kg		
trans-1,2-Dichloroethene	ND	10.	µg/kg		
1,1-Dichloroethane	ND	10.	µg/kg		
2-Butanone	ND	200	µg/kg		
2,2-Dichloropropane	ND	10.	µg/kg		
cis-1,2-Dichloroethene	ND	10.	µg/kg		
Bromochloromethane	ND	10.	µg/kg		
Chloroform	ND	10.	µg/kg		
1,1,1-Trichloroethane	ND	10.	µg/kg		
Carbon tetrachloride	ND	10.	µg/kg		
1,1-Dichloropropene	ND	10.	µg/kg		
Benzene	ND	10.	µg/kg		
1,2-Dichloroethane	ND	10.	µg/kg		
Trichloroethene	ND	10.	µg/kg		
1,2-Dichloropropane	ND	10.	µg/kg		
Dibromomethane	ND	10.	µg/kg		
Bromodichloromethane	ND	10.	µg/kg		
cis-1,3-Dichloropropene	ND	10.	µg/kg		
4-Methyl-2-pentanone	ND	100	µg/kg		
Toluene	ND	10.	µg/kg		
2-Hexanone	ND	100	µg/kg		
trans-1,3-Dichloropropene	ND	10.	µg/kg		

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### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB2-1-2.5	Soil				Sampled: 01/07/99 Extracted: 01/12/99 Analyzed: 01/15/99 by DM	L9608-6
		1,1,2-Trichloroethane	ND	10.	µg/kg	
		Tetrachloroethene	ND	10.	µg/kg	
		1,3-Dichloropropane	ND	10.	µg/kg	
		Dibromochloromethane	ND	10.	µg/kg	
		1,2-Dibromoethane	ND	10.	µg/kg	
		Chlorobenzene	ND	10.	µg/kg	
		1,1,1,2-Tetrachloroethane	ND	10.	µg/kg	
		Ethylbenzene	ND	10.	µg/kg	
		Styrene	ND	10.	µg/kg	
		Bromoform	ND	10.	µg/kg	
		Isopropylbenzene	ND	10.	µg/kg	
		Bromobenzene	ND	10.	µg/kg	
		1,1,2,2-Tetrachloroethane	ND	10.	µg/kg	
		1,2,3-Trichloropropane	ND	10.	µg/kg	
		n-Propylbenzene	ND	10.	µg/kg	
		2-Chlorotoluene	ND	10.	µg/kg	
		4-Chlorotoluene	ND	10.	µg/kg	
		1,3,5-Trimethylbenzene	ND	10.	µg/kg	
		tert-Butylbenzene	ND	10.	µg/kg	
		1,2,4-Trimethylbenzene	ND	10.	µg/kg	
		sec-Butylbenzene	ND	10.	µg/kg	
		1,3-Dichlorobenzene	ND	10.	µg/kg	
		4-Isopropyltoluene	ND	10.	µg/kg	
		1,4-Dichlorobenzene	ND	10.	µg/kg	
		1,2-Dichlorobenzene	ND	10.	µg/kg	
		n-Butylbenzene	ND	10.	µg/kg	
		1,2-Dibromo-3-chloropropane	ND	10.	µg/kg	
		1,2,4-Trichlorobenzene	ND	10.	µg/kg	
		Hexachlorobutadiene	ND	10.	µg/kg	
		Naphthalene	ND	10.	µg/kg	
		1,2,3-Trichlorobenzene	ND	10.	µg/kg	

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Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>99SW-SB2-1-2.5</i>	<i>Soil</i>	Sampled: <i>01/07/99</i> Extracted: <i>01/12/99</i> Analyzed: <i>01/15/99 by DM</i>					<i>L9608-6</i>
		Total Xylenes	ND	10.	µg/kg		
	Surrogate			Recovery	Limit		
	1,2-Dichloroethane-d4			96. %	85. - 128.		
	Toluene-d8			106. %	76. - 132.		
	4-Bromofluorobenzene			106. %	79. - 121.		

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment
99SW-SB2-5.5-7				Soil
Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM				
				L9608-9
Dichlorodifluoromethane	ND	20.	µg/kg	
Chloromethane	ND	20.	µg/kg	
Vinyl chloride	ND	20.	µg/kg	
Bromomethane	ND	20.	µg/kg	
Chloroethane	ND	20.	µg/kg	
Trichlorofluoromethane	ND	10.	µg/kg	
Acetone	ND	200	µg/kg	
1,1-Dichloroethene	ND	10.	µg/kg	
Methylene chloride	ND	20.	µg/kg	
Carbon disulfide	ND	10.	µg/kg	
trans-1,2-Dichloroethene	ND	10.	µg/kg	
1,1-Dichloroethane	ND	10.	µg/kg	
2-Butanone	ND	200	µg/kg	
2,2-Dichloropropane	ND	10.	µg/kg	
cis-1,2-Dichloroethene	ND	10.	µg/kg	
Bromochloromethane	ND	10.	µg/kg	
Chloroform	ND	10.	µg/kg	
1,1,1-Trichloroethane	ND	10.	µg/kg	
Carbon tetrachloride	ND	10.	µg/kg	
1,1-Dichloropropene	ND	10.	µg/kg	
Benzene	ND	10.	µg/kg	
1,2-Dichloroethane	ND	10.	µg/kg	
Trichloroethene	ND	10.	µg/kg	
1,2-Dichloropropane	ND	10.	µg/kg	
Dibromomethane	ND	10.	µg/kg	
Bromodichloromethane	ND	10.	µg/kg	
cis-1,3-Dichloropropene	ND	10.	µg/kg	
4-Methyl-2-pentanone	ND	100	µg/kg	
Toluene	ND	10.	µg/kg	
2-Hexanone	ND	100	µg/kg	
trans-1,3-Dichloropropene	ND	10.	µg/kg	

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Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
-----------	--------	--------	-----------------	-------------	---------	------------

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB2-5.5-7	Soil				Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM	L9608-9
	1,1,2-Trichloroethane	ND	10.	µg/kg		
	Tetrachloroethene	ND	10.	µg/kg		
	1,3-Dichloropropane	ND	10.	µg/kg		
	Dibromochloromethane	ND	10.	µg/kg		
	1,2-Dibromoethane	ND	10.	µg/kg		
	Chlorobenzene	ND	10.	µg/kg		
	1,1,1,2-Tetrachloroethane	ND	10.	µg/kg		
	Ethylbenzene	ND	10.	µg/kg		
	Styrene	ND	10.	µg/kg		
	Bromoform	ND	10.	µg/kg		
	Isopropylbenzene	ND	10.	µg/kg		
	Bromobenzene	ND	10.	µg/kg		
	1,1,2,2-Tetrachloroethane	ND	10.	µg/kg		
	1,2,3-Trichloropropane	ND	10.	µg/kg		
	n-Propylbenzene	ND	10.	µg/kg		
	2-Chlorotoluene	ND	10.	µg/kg		
	4-Chlorotoluene	ND	10.	µg/kg		
	1,3,5-Trimethylbenzene	ND	10.	µg/kg		
	tert-Butylbenzene	ND	10.	µg/kg		
	1,2,4-Trimethylbenzene	ND	10.	µg/kg		
	sec-Butylbenzene	ND	10.	µg/kg		
	1,3-Dichlorobenzene	ND	10.	µg/kg		
	4-Isopropyltoluene	ND	10.	µg/kg		
	1,4-Dichlorobenzene	ND	10.	µg/kg		
	1,2-Dichlorobenzene	ND	10.	µg/kg		
	n-Butylbenzene	ND	10.	µg/kg		
	1,2-Dibromo-3-chloropropane	ND	10.	µg/kg		
	1,2,4-Trichlorobenzene	ND	10.	µg/kg		
	Hexachlorobutadiene	ND	10.	µg/kg		
	Naphthalene	ND	10.	µg/kg		
	1,2,3-Trichlorobenzene	ND	10.	µg/kg		

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 Contact: **Michelle McClelland**

Project: **5491C0796B.00**  
 IP - Longview

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix		Reporting Limit	Units (ppb)	Comment	Lab Number
Analyte		Result				

<b>99SW-SB2-5.5-7</b>	<b>Soil</b>	Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM				<b>L9608-9</b>
Total Xylenes		ND	10.	µg/kg		
	Surrogate				Recovery	Limit
	1,2-Dichloroethane-d4				91. % /	85. - 128.
	Toluene-d8				92. % /	76. - 132.
	4-Bromofluorobenzene				92. % /	79. - 121.



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Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment
99SW-SB3-2.5-4	Soil			Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM L9608-12
Dichlorodifluoromethane	ND	20.	µg/kg	
Chloromethane	ND	20.	µg/kg	
Vinyl chloride	ND	20.	µg/kg	
Bromomethane	ND	20.	µg/kg	
Chloroethane	ND	20.	µg/kg	
Trichlorofluoromethane	ND	10.	µg/kg	
Acetone	ND	200	µg/kg	
1,1-Dichloroethene	ND	10.	µg/kg	
Methylene chloride	ND	20.	µg/kg	
Carbon disulfide	ND	10.	µg/kg	
trans-1,2-Dichloroethene	ND	10.	µg/kg	
1,1-Dichloroethane	ND	10.	µg/kg	
2-Butanone	ND	200	µg/kg	
2,2-Dichloropropane	ND	10.	µg/kg	
cis-1,2-Dichloroethene	ND	10.	µg/kg	
Bromochloromethane	ND	10.	µg/kg	
Chloroform	ND	10.	µg/kg	
1,1,1-Trichloroethane	ND	10.	µg/kg	
Carbon tetrachloride	ND	10.	µg/kg	
1,1-Dichloropropene	ND	10.	µg/kg	
Benzene	ND	10.	µg/kg	
1,2-Dichloroethane	ND	10.	µg/kg	
Trichloroethene	ND	10.	µg/kg	
1,2-Dichloropropane	ND	10.	µg/kg	
Dibromomethane	ND	10.	µg/kg	
Bromodichloromethane	ND	10.	µg/kg	
cis-1,3-Dichloropropene	ND	10.	µg/kg	
4-Methyl-2-pentanone	ND	100	µg/kg	
Toluene	ND	10.	µg/kg	
2-Hexanone	ND	100	µg/kg	
trans-1,3-Dichloropropene	ND	10.	µg/kg	

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### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
-----------	--------	--------	-----------------	-------------	---------	------------

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-2.5-4	Soil				Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM	L9608-12
		1,1,2-Trichloroethane	ND	10.	µg/kg	
		Tetrachloroethene	ND	10.	µg/kg	
		1,3-Dichloropropane	ND	10.	µg/kg	
		Dibromochloromethane	ND	10.	µg/kg	
		1,2-Dibromoethane	ND	10.	µg/kg	
		Chlorobenzene	ND	10.	µg/kg	
		1,1,1,2-Tetrachloroethane	ND	10.	µg/kg	
		Ethylbenzene	ND	10.	µg/kg	
		Styrene	ND	10.	µg/kg	
		Bromoform	ND	10.	µg/kg	
		Isopropylbenzene	ND	10.	µg/kg	
		Bromobenzene	ND	10.	µg/kg	
		1,1,2,2-Tetrachloroethane	ND	10.	µg/kg	
		1,2,3-Trichloropropane	ND	10.	µg/kg	
		n-Propylbenzene	ND	10.	µg/kg	
		2-Chlorotoluene	ND	10.	µg/kg	
		4-Chlorotoluene	ND	10.	µg/kg	
		1,3,5-Trimethylbenzene	ND	10.	µg/kg	
		tert-Butylbenzene	ND	10.	µg/kg	
		1,2,4-Trimethylbenzene	ND	10.	µg/kg	
		sec-Butylbenzene	ND	10.	µg/kg	
		1,3-Dichlorobenzene	ND	10.	µg/kg	
		4-Isopropyltoluene	ND	10.	µg/kg	
		1,4-Dichlorobenzene	ND	10.	µg/kg	
		1,2-Dichlorobenzene	ND	10.	µg/kg	
		n-Butylbenzene	ND	10.	µg/kg	
		1,2-Dibromo-3-chloropropane	ND	10.	µg/kg	
		1,2,4-Trichlorobenzene	ND	10.	µg/kg	
		Hexachlorobutadiene	ND	10.	µg/kg	
		Naphthalene	ND	10.	µg/kg	
		1,2,3-Trichlorobenzene	ND	10.	µg/kg	

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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99SW-SB3-2.5-4	Soil					Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM	L9608-12
Total Xylenes		ND	10.	µg/kg			
	Surrogate				Recovery	Limit	
	1,2-Dichloroethane-d4				95.%	85. - 128.	
	Toluene-d8				117.%	76. - 132.	
	4-Bromofluorobenzene				107.%	79. - 121.	

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L9608

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Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment
99SW-SB3-8.5-10	Soil				Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM L9608-16
Dichlorodifluoromethane		ND	20.	µg/kg	
Chloromethane		ND	20.	µg/kg	
Vinyl chloride		ND	20.	µg/kg	
Bromomethane		ND	20.	µg/kg	
Chloroethane		ND	20.	µg/kg	
Trichlorofluoromethane		ND	10.	µg/kg	
Acetone		ND	200	µg/kg	
1,1-Dichloroethene		ND	10.	µg/kg	
Methylene chloride		ND	20.	µg/kg	
Carbon disulfide		ND	10.	µg/kg	
trans-1,2-Dichloroethene		ND	10.	µg/kg	
1,1-Dichloroethane		ND	10.	µg/kg	
2-Butanone		ND	200	µg/kg	
2,2-Dichloropropane		ND	10.	µg/kg	
cis-1,2-Dichloroethene		ND	10.	µg/kg	
Bromochloromethane		ND	10.	µg/kg	
Chloroform		ND	10.	µg/kg	
1,1,1-Trichloroethane		ND	10.	µg/kg	
Carbon tetrachloride		ND	10.	µg/kg	
1,1-Dichloropropene		ND	10.	µg/kg	
Benzene		ND	10.	µg/kg	
1,2-Dichloroethane		ND	10.	µg/kg	
Trichloroethene		ND	10.	µg/kg	
1,2-Dichloropropane		ND	10.	µg/kg	
Dibromomethane		ND	10.	µg/kg	
Bromodichloromethane		ND	10.	µg/kg	
cis-1,3-Dichloropropene		ND	10.	µg/kg	
4-Methyl-2-pentanone		ND	100	µg/kg	
Toluene		ND	10.	µg/kg	
2-Hexanone		ND	100	µg/kg	
trans-1,3-Dichloropropene		ND	10.	µg/kg	

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-8.5-10	Soil					L9608-16
					Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM	
		1,1,2-Trichloroethane	ND	10.	µg/kg	
		Tetrachloroethene	ND	10.	µg/kg	
		1,3-Dichloropropane	ND	10.	µg/kg	
		Dibromochloromethane	ND	10.	µg/kg	
		1,2-Dibromoethane	ND	10.	µg/kg	
		Chlorobenzene	ND	10.	µg/kg	
		1,1,1,2-Tetrachloroethane	ND	10.	µg/kg	
		Ethylbenzene	ND	10.	µg/kg	
		Styrene	ND	10.	µg/kg	
		Bromoform	ND	10.	µg/kg	
		Isopropylbenzene	ND	10.	µg/kg	
		Bromobenzene	ND	10.	µg/kg	
		1,1,2,2-Tetrachloroethane	ND	10.	µg/kg	
		1,2,3-Trichloropropane	ND	10.	µg/kg	
		n-Propylbenzene	ND	10.	µg/kg	
		2-Chlorotoluene	ND	10.	µg/kg	
		4-Chlorotoluene	ND	10.	µg/kg	
		1,3,5-Trimethylbenzene	ND	10.	µg/kg	
		tert-Butylbenzene	ND	10.	µg/kg	
		1,2,4-Trimethylbenzene	ND	10.	µg/kg	
		sec-Butylbenzene	ND	10.	µg/kg	
		1,3-Dichlorobenzene	ND	10.	µg/kg	
		4-Isopropyltoluene	ND	10.	µg/kg	
		1,4-Dichlorobenzene	ND	10.	µg/kg	
		1,2-Dichlorobenzene	ND	10.	µg/kg	
		n-Butylbenzene	ND	10.	µg/kg	
		1,2-Dibromo-3-chloropropane	ND	10.	µg/kg	
		1,2,4-Trichlorobenzene	ND	10.	µg/kg	
		Hexachlorobutadiene	ND	10.	µg/kg	
		Naphthalene	ND	10.	µg/kg	
		1,2,3-Trichlorobenzene	ND	10.	µg/kg	

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>99SW-SB3-8.5-10</i>	<i>Soil</i>					Sampled: <i>01/07/99</i> Extracted: <i>01/14/99</i> Analyzed: <i>01/15/99 by DM</i>	<i>L9608-16</i>
Total Xylenes		ND	10.	µg/kg			
	Surrogate				Recovery	Limit	
	1,2-Dichloroethane-d4				95. %	85. - 128.	
	Toluene-d8				97. %	76. - 132.	
	4-Bromofluorobenzene				97. %	79. - 121.	

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Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-1-2.5	Soil				Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM	L9608-17
	Dichlorodifluoromethane	ND	20.	µg/kg		
	Chloromethane	ND	20.	µg/kg		
	Vinyl chloride	ND	20.	µg/kg		
	Bromomethane	ND	20.	µg/kg		
	Chloroethane	ND	20.	µg/kg		
	Trichlorofluoromethane	ND	10.	µg/kg		
	Acetone	ND	200	µg/kg		
	1,1-Dichloroethene	ND	10.	µg/kg		
	Methylene chloride	ND	20.	µg/kg		
	Carbon disulfide	ND	10.	µg/kg		
	trans-1,2-Dichloroethene	ND	10.	µg/kg		
	1,1-Dichloroethane	ND	10.	µg/kg		
	2-Butanone	ND	200	µg/kg		
	2,2-Dichloropropane	ND	10.	µg/kg		
	cis-1,2-Dichloroethene	ND	10.	µg/kg		
	Bromochloromethane	ND	10.	µg/kg		
	Chloroform	ND	10.	µg/kg		
	1,1,1-Trichloroethane	ND	10.	µg/kg		
	Carbon tetrachloride	ND	10.	µg/kg		
	1,1-Dichloropropene	ND	10.	µg/kg		
	Benzene	ND	10.	µg/kg		
	1,2-Dichloroethane	ND	10.	µg/kg		
	Trichloroethene	ND	10.	µg/kg		
	1,2-Dichloropropane	ND	10.	µg/kg		
	Dibromomethane	ND	10.	µg/kg		
	Bromodichloromethane	ND	10.	µg/kg		
	cis-1,3-Dichloropropene	ND	10.	µg/kg		
	4-Methyl-2-pentanone	ND	100	µg/kg		
	Toluene	ND	10.	µg/kg		
	2-Hexanone	ND	100	µg/kg		
	trans-1,3-Dichloropropene	ND	10.	µg/kg		

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### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-1-2.5	Soil					L9608-17
					Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM	
		1,1,2-Trichloroethane	ND	10.	µg/kg	
		Tetrachloroethene	ND	10.	µg/kg	
		1,3-Dichloropropane	ND	10.	µg/kg	
		Dibromochloromethane	ND	10.	µg/kg	
		1,2-Dibromoethane	ND	10.	µg/kg	
		Chlorobenzene	ND	10.	µg/kg	
		1,1,1,2-Tetrachloroethane	ND	10.	µg/kg	
		Ethylbenzene	ND	10.	µg/kg	
		Styrene	ND	10.	µg/kg	
		Bromoform	ND	10.	µg/kg	
		Isopropylbenzene	ND	10.	µg/kg	
		Bromobenzene	ND	10.	µg/kg	
		1,1,2,2-Tetrachloroethane	ND	10.	µg/kg	
		1,2,3-Trichloropropane	ND	10.	µg/kg	
		n-Propylbenzene	ND	10.	µg/kg	
		2-Chlorotoluene	ND	10.	µg/kg	
		4-Chlorotoluene	ND	10.	µg/kg	
		1,3,5-Trimethylbenzene	ND	10.	µg/kg	
		tert-Butylbenzene	ND	10.	µg/kg	
		1,2,4-Trimethylbenzene	ND	10.	µg/kg	
		sec-Butylbenzene	ND	10.	µg/kg	
		1,3-Dichlorobenzene	ND	10.	µg/kg	
		4-Isopropyltoluene	ND	10.	µg/kg	
		1,4-Dichlorobenzene	ND	10.	µg/kg	
		1,2-Dichlorobenzene	ND	10.	µg/kg	
		n-Butylbenzene	ND	10.	µg/kg	
		1,2-Dibromo-3-chloropropane	ND	10.	µg/kg	
		1,2,4-Trichlorobenzene	ND	10.	µg/kg	
		Hexachlorobutadiene	ND	10.	µg/kg	
		Naphthalene	ND	10.	µg/kg	
		1,2,3-Trichlorobenzene	ND	10.	µg/kg	

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Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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99SW-SB4-1-2.5	Soil					Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM	L9608-17
Total Xylenes		ND	10.	µg/kg			
		Surrogate			Recovery	Limit	
		1,2-Dichloroethane-d4			94. %	85. - 128.	
		Toluene-d8			116. %	76. - 132.	
		4-Bromofluorobenzene			116. %	79. - 121.	

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### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-5.5-7	Soil				Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM	L9608-20
		Dichlorodifluoromethane	ND	20.	µg/kg	
		Chloromethane	ND	20.	µg/kg	
		Vinyl chloride	ND	20.	µg/kg	
		Bromomethane	ND	20.	µg/kg	
		Chloroethane	ND	20.	µg/kg	
		Trichlorofluoromethane	ND	10.	µg/kg	
		Acetone	ND	200	µg/kg	
		1,1-Dichloroethene	ND	10.	µg/kg	
		Methylene chloride	ND	20.	µg/kg	
		Carbon disulfide	ND	10.	µg/kg	
		trans-1,2-Dichloroethene	ND	10.	µg/kg	
		1,1-Dichloroethane	ND	10.	µg/kg	
		2-Butanone	ND	200	µg/kg	
		2,2-Dichloropropane	ND	10.	µg/kg	
		cis-1,2-Dichloroethene	ND	10.	µg/kg	
		Bromochloromethane	ND	10.	µg/kg	
		Chloroform	ND	10.	µg/kg	
		1,1,1-Trichloroethane	ND	10.	µg/kg	
		Carbon tetrachloride	ND	10.	µg/kg	
		1,1-Dichloropropene	ND	10.	µg/kg	
		Benzene	ND	10.	µg/kg	
		1,2-Dichloroethane	ND	10.	µg/kg	
		Trichloroethene	ND	10.	µg/kg	
		1,2-Dichloropropane	ND	10.	µg/kg	
		Dibromomethane	ND	10.	µg/kg	
		Bromodichloromethane	ND	10.	µg/kg	
		cis-1,3-Dichloropropene	ND	10.	µg/kg	
		4-Methyl-2-pentanone	ND	100	µg/kg	
		Toluene	ND	10.	µg/kg	
		2-Hexanone	ND	100	µg/kg	
		trans-1,3-Dichloropropene	ND	10.	µg/kg	

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IP - Longview

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment
99SW-SB4-5.5-7	Soil			Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM
1,1,2-Trichloroethane	ND	10.	µg/kg	
Tetrachloroethene	ND	10.	µg/kg	
1,3-Dichloropropane	ND	10.	µg/kg	
Dibromochloromethane	ND	10.	µg/kg	
1,2-Dibromoethane	ND	10.	µg/kg	
Chlorobenzene	ND	10.	µg/kg	
1,1,1,2-Tetrachloroethane	ND	10.	µg/kg	
Ethylbenzene	ND	10.	µg/kg	
Styrene	ND	10.	µg/kg	
Bromoform	ND	10.	µg/kg	
Isopropylbenzene	ND	10.	µg/kg	
Bromobenzene	ND	10.	µg/kg	
1,1,2,2-Tetrachloroethane	ND	10.	µg/kg	
1,2,3-Trichloropropane	ND	10.	µg/kg	
n-Propylbenzene	ND	10.	µg/kg	
2-Chlorotoluene	ND	10.	µg/kg	
4-Chlorotoluene	ND	10.	µg/kg	
1,3,5-Trimethylbenzene	ND	10.	µg/kg	
tert-Butylbenzene	ND	10.	µg/kg	
1,2,4-Trimethylbenzene	ND	10.	µg/kg	
sec-Butylbenzene	ND	10.	µg/kg	
1,3-Dichlorobenzene	ND	10.	µg/kg	
4-Isopropyltoluene	ND	10.	µg/kg	
1,4-Dichlorobenzene	ND	10.	µg/kg	
1,2-Dichlorobenzene	ND	10.	µg/kg	
n-Butylbenzene	ND	10.	µg/kg	
1,2-Dibromo-3-chloropropane	ND	10.	µg/kg	
1,2,4-Trichlorobenzene	ND	10.	µg/kg	
Hexachlorobutadiene	ND	10.	µg/kg	
Naphthalene	ND	10.	µg/kg	
1,2,3-Trichlorobenzene	ND	10.	µg/kg	

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IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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99SW-SB4-5.5-7	Soil	Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/15/99 by DM					L9608-20
		Total Xylenes	ND	10.	µg/kg		
		Surrogate			Recovery	Limit	
		1,2-Dichloroethane-d4			93. % /	85. - 128.	
		Toluene-d8			110. % /	76. - 132.	
		4-Bromofluorobenzene			107. % /	79. - 121.	

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Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Analyte	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Analyte	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
<i>99SW-SB4-10-11.5</i>	<i>Soil</i>					Sampled: <i>01/07/99</i> Extracted: <i>01/14/99</i> Analyzed: <i>01/15/99 by DM</i>	<i>L9608-23</i>
		Dichlorodifluoromethane	ND	20.	µg/kg		
		Chloromethane	ND	20.	µg/kg		
		Vinyl chloride	ND	20.	µg/kg		
		Bromomethane	ND	20.	µg/kg		
		Chloroethane	ND	20.	µg/kg		
		Trichlorofluoromethane	ND	10.	µg/kg		
		Acetone	ND	200	µg/kg		
		1,1-Dichloroethene	ND	10.	µg/kg		
		Methylene chloride	ND	20.	µg/kg		
		Carbon disulfide	ND	10.	µg/kg		
		trans-1,2-Dichloroethene	ND	10.	µg/kg		
		1,1-Dichloroethane	ND	10.	µg/kg		
		2-Butanone	ND	200	µg/kg		
		2,2-Dichloropropane	ND	10.	µg/kg		
		cis-1,2-Dichloroethene	ND	10.	µg/kg		
		Bromochloromethane	ND	10.	µg/kg		
		Chloroform	ND	10.	µg/kg		
		1,1,1-Trichloroethane	ND	10.	µg/kg		
		Carbon tetrachloride	ND	10.	µg/kg		
		1,1-Dichloropropene	ND	10.	µg/kg		
		Benzene	ND	10.	µg/kg		
		1,2-Dichloroethane	ND	10.	µg/kg		
		Trichloroethene	ND	10.	µg/kg		
		1,2-Dichloropropane	ND	10.	µg/kg		
		Dibromomethane	ND	10.	µg/kg		
		Bromodichloromethane	ND	10.	µg/kg		
		cis-1,3-Dichloropropene	ND	10.	µg/kg		
		4-Methyl-2-pentanone	ND	100	µg/kg		
		Toluene	ND	10.	µg/kg		
		2-Hexanone	ND	100	µg/kg		
		trans-1,3-Dichloropropene	ND	10.	µg/kg		

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Project: 5491C0796B.00  
IP - Longview

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment
99SW-SB4-10-11.5				Soil
				Sampled: 01/07/99
				Extracted: 01/14/99
				Analyzed: 01/15/99 by DM
				L9608-23
1,1,2-Trichloroethane	ND	10.	µg/kg	
Tetrachloroethene	ND	10.	µg/kg	
1,3-Dichloropropane	ND	10.	µg/kg	
Dibromochloromethane	ND	10.	µg/kg	
1,2-Dibromoethane	ND	10.	µg/kg	
Chlorobenzene	ND	10.	µg/kg	
1,1,1,2-Tetrachloroethane	ND	10.	µg/kg	
Ethylbenzene	ND	10.	µg/kg	
Styrene	ND	10.	µg/kg	
Bromoform	ND	10.	µg/kg	
Isopropylbenzene	ND	10.	µg/kg	
Bromobenzene	ND	10.	µg/kg	
1,1,2,2-Tetrachloroethane	ND	10.	µg/kg	
1,2,3-Trichloropropane	ND	10.	µg/kg	
n-Propylbenzene	ND	10.	µg/kg	
2-Chlorotoluene	ND	10.	µg/kg	
4-Chlorotoluene	ND	10.	µg/kg	
1,3,5-Trimethylbenzene	ND	10.	µg/kg	
tert-Butylbenzene	ND	10.	µg/kg	
1,2,4-Trimethylbenzene	ND	10.	µg/kg	
sec-Butylbenzene	ND	10.	µg/kg	
1,3-Dichlorobenzene	ND	10.	µg/kg	
4-Isopropyltoluene	ND	10.	µg/kg	
1,4-Dichlorobenzene	ND	10.	µg/kg	
1,2-Dichlorobenzene	ND	10.	µg/kg	
n-Butylbenzene	ND	10.	µg/kg	
1,2-Dibromo-3-chloropropane	ND	10.	µg/kg	
1,2,4-Trichlorobenzene	ND	10.	µg/kg	
Hexachlorobutadiene	ND	10.	µg/kg	
Naphthalene	ND	10.	µg/kg	
1,2,3-Trichlorobenzene	ND	10.	µg/kg	

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L9608

Client: *Woodward Clyde Consultants*  
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Project: *5491C0796B.00*  
*IP - Longview*

### 8260 Volatile Organic Compounds (VOC) by EPA 8260

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>99SW-SB4-10-11.5</i>	<i>Soil</i>					Sampled: <i>01/07/99</i> Extracted: <i>01/14/99</i> Analyzed: <i>01/15/99 by DM</i>	<i>L9608-23</i>
Total Xylenes		ND	10.	µg/kg			
	Surrogate				Recovery	Limit	
	1,2-Dichloroethane-d4				95. % ✓	85. - 128.	
	Toluene-d8				104. % ✓	76. - 132.	
	4-Bromofluorobenzene				107. % ✓	79. - 121.	

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-1-2.5	Soil					L9608-1
						Sampled: 01/07/99 Analyzed: 01/15/99 by WB
Dichlorvos		ND	20	µg/kg	Y	
Mevinphos		ND	20	µg/kg	Y	
Ethoprop		ND	20	µg/kg	Y	
Sulfotepp		ND	20	µg/kg	Y	
Monocrotophos		ND	20	µg/kg	Y	
Phorate		ND	99.	µg/kg	Y	
Dimethoate		ND	20	µg/kg	Y	
Demeton, o-s		ND	20	µg/kg	Y	
Diazinon		ND	20	µg/kg	Y	
Disulfoton		ND	99.	µg/kg	Y	
Parathion, methyl		ND	20	µg/kg	Y	
Ronnel		ND	20	µg/kg	Y	
Chlorpyrifos		ND	20	µg/kg	Y	
Malathion		ND	20	µg/kg	Y	
Fenthion		ND	99.	µg/kg	Y	
Parathion		ND	20	µg/kg	Y	
Trichloronate		ND	20	µg/kg	Y	
Tetrachlorvinphos		ND	20	µg/kg	Y	
Merphos		ND	20	µg/kg	Y	
Tokuthion		ND	20	µg/kg	Y	
Fensulfothion		ND	20	µg/kg	Y	
Bolstar		ND	99.	µg/kg	Y	
EPN		ND	20	µg/kg	Y	
Azinphos, methyl		ND	20	µg/kg	Y	
Coumaphos		ND	20	µg/kg	Y	
Famphur		ND	20	µg/kg	Y	
				Surrogate	Recovery	Limit
				Tributyl Phosphate	87.%	60000 U,Y
				Triphenyl Phosphate	95.%	60000 U,Y

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### Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-5.5-7	Soil					L9608-4
Sampled: 01/07/99 Analyzed: 01/15/99 by WB						
Dichlorvos		ND	20	µg/kg	Y	
Mevinphos		ND	20	µg/kg	Y	
Ethoprop		ND	20	µg/kg	Y	
Sulfotepp		ND	20	µg/kg	Y	
Monocrotophos		ND	20	µg/kg	Y	
Phorate		ND	100	µg/kg	Y	
Dimethoate		ND	20	µg/kg	Y	
Demeton, o-s		ND	20	µg/kg	Y	
Diazinon		ND	20	µg/kg	Y	
Disulfoton		ND	100	µg/kg	Y	
Parathion, methyl		ND	20	µg/kg	Y	
Ronnel		ND	20	µg/kg	Y	
Chlorpyrifos		ND	20	µg/kg	Y	
Malathion		ND	20	µg/kg	Y	
Fenthion		ND	100	µg/kg	Y	
Parathion		ND	20	µg/kg	Y	
Trichloronate		ND	20	µg/kg	Y	
Tetrachlorvinphos		ND	20	µg/kg	Y	
Merphos		ND	20	µg/kg	Y	
Tokuthion		ND	20	µg/kg	Y	
Fensulfothion		ND	20	µg/kg	Y	
Bolstar		ND	100	µg/kg	Y	
EPN		ND	20	µg/kg	Y	
Azinphos, methyl		ND	20	µg/kg	Y	
Coumaphos		ND	20	µg/kg	Y	
Famphur		ND	20	µg/kg	Y	
Surrogate				Recovery	Limit	
Tributyl Phosphate				84. %		Y
Triphenyl Phosphate				98. %		Y

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### Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-7-8.5	Soil				Sampled: 01/07/99 Analyzed: 01/15/99 by WB	L9608-5
Dichlorvos		ND	21.	µg/kg	Y	
Mevinphos		ND	21.	µg/kg	Y	
Ethoprop		ND	21.	µg/kg	Y	
Sulfotepp		ND	21.	µg/kg	Y	
Monocrotophos		ND	21.	µg/kg	Y	
Phorate		ND	100	µg/kg	Y	
Dimethoate		ND	21.	µg/kg	Y	
Demeton, o-s		ND	21.	µg/kg	Y	
Diazinon		ND	21.	µg/kg	Y	
Disulfoton		ND	100	µg/kg	Y	
Parathion, methyl		ND	21.	µg/kg	Y	
Ronnel		ND	21.	µg/kg	Y	
Chlorpyrifos		ND	21.	µg/kg	Y	
Malathion		ND	21.	µg/kg	Y	
Fenthion		ND	100	µg/kg	Y	
Parathion		ND	21.	µg/kg	Y	
Trichloronate		ND	21.	µg/kg	Y	
Tetrachlorvinphos		ND	21.	µg/kg	Y	
Merphos		ND	21.	µg/kg	Y	
Tokuthion		ND	21.	µg/kg	Y	
Fensulfothion		ND	21.	µg/kg	Y	
Bolstar		ND	100	µg/kg	Y	
EPN		ND	21.	µg/kg	Y	
Azinphos, methyl		ND	21.	µg/kg	Y	
Coumaphos		ND	21.	µg/kg	Y	
Famphur		ND	21.	µg/kg	Y	
	Surrogate			Recovery	Limit	
	Tributyl Phosphate			81.0%	Y	
	Triphenyl Phosphate			91.0%	Y	

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## Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment
99SW-SB2-1-2.5	Soil				Sampled: 01/07/99 / Analyzed: 01/15/99 by WB L9608-6
Dichlorvos		ND	20	µg/kg	Y
Mevinphos		ND	20	µg/kg	Y
Ethoprop		ND	20	µg/kg	Y
Sulfotepp		ND	20	µg/kg	Y
Monocrotophos		ND	20	µg/kg	Y
Phorate		ND	100	µg/kg	Y
Dimethoate		ND	20	µg/kg	Y
Demeton, o-s		ND	20	µg/kg	Y
Diazinon		ND	20	µg/kg	Y
Disulfoton		ND	100	µg/kg	Y
Parathion, methyl		ND	20	µg/kg	Y
Ronnel		ND	20	µg/kg	Y
Chlorpyrifos		ND	20	µg/kg	Y
Malathion		ND	20	µg/kg	Y
Fenthion		ND	100	µg/kg	Y
Parathion		ND	20	µg/kg	Y
Trichloronate		ND	20	µg/kg	Y
Tetrachlorvinphos		ND	20	µg/kg	Y
Merphos		ND	20	µg/kg	Y
Tokuthion		ND	20	µg/kg	Y
Fensulfothion		ND	20	µg/kg	Y
Bolstar		ND	100	µg/kg	Y
EPN		ND	20	µg/kg	Y
Azinphos, methyl		ND	20	µg/kg	Y
Coumaphos		ND	20	µg/kg	Y
Famphur		ND	20	µg/kg	Y
	Surrogate			Recovery	Limit
	Tributyl Phosphate			84. % /	Y
	Triphenyl Phosphate			95. % /	Y

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Project: 5491C0796B.00  
IP - Longview

### Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB2-5.5-7	Soil					L9608-9
						Sampled: 01/07/99 Analyzed: 01/15/99 by WB
Dichlorvos		ND	18.	µg/kg	Y	
Mevinphos		ND	18.	µg/kg	Y	
Ethoprop		ND	18.	µg/kg	Y	
Sulfotepp		ND	18.	µg/kg	Y	
Monocrotophos		ND	18.	µg/kg	Y	
Phorate		ND	90	µg/kg	Y	
Dimethoate		ND	18.	µg/kg	Y	
Demeton, o-s		ND	18.	µg/kg	Y	
Diazinon		ND	18.	µg/kg	Y	
Disulfoton		ND	90	µg/kg	Y	
Parathion, methyl		ND	18.	µg/kg	Y	
Ronnel		ND	18.	µg/kg	Y	
Chlorpyrifos		ND	18.	µg/kg	Y	
Malathion		ND	18.	µg/kg	Y	
Fenthion		ND	90	µg/kg	Y	
Parathion		ND	18.	µg/kg	Y	
Trichloronate		ND	18.	µg/kg	Y	
Tetrachlorvinphos		ND	18.	µg/kg	Y	
Merphos		ND	18.	µg/kg	Y	
Tokuthion		ND	18.	µg/kg	Y	
Fensulfothion		ND	18.	µg/kg	Y	
Bolstar		ND	90	µg/kg	Y	
EPN		ND	18.	µg/kg	Y	
Azinphos, methyl		ND	18.	µg/kg	Y	
Coumaphos		ND	18.	µg/kg	Y	
Famphur		ND	18.	µg/kg	Y	
Surrogate				Recovery	Limit	
Tributyl Phosphate				81.% /		Y
Triphenyl Phosphate				99.% /		Y

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L9608

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Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
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## Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-2.5-4	Soil				Sampled: 01/07/99 Analyzed: 01/15/99 by WB	L9608-12
Dichlorvos		ND	18.	µg/kg	Y	
Mevinphos		ND	18.	µg/kg	Y	
Ethoprop		ND	18.	µg/kg	Y	
Sulfotepp		ND	18.	µg/kg	Y	
Monocrotophos		ND	18.	µg/kg	Y	
Phorate		ND	92.	µg/kg	Y	
Dimethoate		ND	18.	µg/kg	Y	
Demeton, o-s		ND	18.	µg/kg	Y	
Diazinon		ND	18.	µg/kg	Y	
Disulfoton		ND	92.	µg/kg	Y	
Parathion, methyl		ND	18.	µg/kg	Y	
Ronnel		ND	18.	µg/kg	Y	
Chlorpyrifos		ND	18.	µg/kg	Y	
Malathion		ND	18.	µg/kg	Y	
Fenthion		ND	92.	µg/kg	Y	
Parathion		ND	18.	µg/kg	Y	
Trichloronate		ND	18.	µg/kg	Y	
Tetrachlorvinphos		ND	18.	µg/kg	Y	
Merphos		ND	18.	µg/kg	Y	
Tokuthion		ND	18.	µg/kg	Y	
Fensulfothion		ND	18.	µg/kg	Y	
Bolstar		ND	92.	µg/kg	Y	
EPN		ND	18.	µg/kg	Y	
Azinphos, methyl		ND	18.	µg/kg	Y	
Coumaphos		ND	18.	µg/kg	Y	
Famphur		ND	18.	µg/kg	Y	
	Surrogate			Recovery	Limit	
	Tributyl Phosphate			82.% /		Y
	Triphenyl Phosphate			95.% /		Y

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## Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
<i>99SW-SB3-8.5-10</i>	<i>Soil</i>				Sampled: <i>01/07/99</i> Analyzed: <i>01/15/99 by WB</i>	<i>L9608-16</i>
Dichlorvos		ND	20	µg/kg	Y	
Mevinphos		ND	20	µg/kg	Y	
Ethoprop		ND	20	µg/kg	Y	
Sulfotepp		ND	20	µg/kg	Y	
Monocrotophos		ND	20	µg/kg	Y	
Phorate		ND	100	µg/kg	Y	
Dimethoate		ND	20	µg/kg	Y	
Demeton, o-s		ND	20	µg/kg	Y	
Diazinon		ND	20	µg/kg	Y	
Disulfoton		ND	100	µg/kg	Y	
Parathion, methyl		ND	20	µg/kg	Y	
Ronnel		ND	20	µg/kg	Y	
Chlorpyrifos		ND	20	µg/kg	Y	
Malathion		ND	20	µg/kg	Y	
Fenthion		ND	100	µg/kg	Y	
Parathion		ND	20	µg/kg	Y	
Trichloronate		ND	20	µg/kg	Y	
Tetrachlorvinphos		ND	20	µg/kg	Y	
Merphos		ND	20	µg/kg	Y	
Tokuthion		ND	20	µg/kg	Y	
Fensulfothion		ND	20	µg/kg	Y	
Bolstar		ND	100	µg/kg	Y	
EPN		ND	20	µg/kg	Y	
Azinphos, methyl		ND	20	µg/kg	Y	
Coumaphos		ND	20	µg/kg	Y	
Famphur		ND	20	µg/kg	Y	
	<u>Surrogate</u>			<u>Recovery</u>		<u>Limit</u>
	Tributyl Phosphate			78. %/		Y
	Triphenyl Phosphate			83. %/		Y

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### Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-1-2.5	Soil					L9608-17
						Sampled: 01/07/99 Analyzed: 01/15/99 by WB
Dichlorvos		ND	17.	µg/kg	Y	
Mevinphos		ND	17.	µg/kg	Y	
Ethoprop		ND	17.	µg/kg	Y	
Sulfotepp		ND	17.	µg/kg	Y	
Monocrotophos		ND	17.	µg/kg	Y	
Phorate		ND	86.	µg/kg	Y	
Dimethoate		ND	17.	µg/kg	Y	
Demeton, o-s		ND	17.	µg/kg	Y	
Diazinon		ND	17.	µg/kg	Y	
Disulfoton		ND	86.	µg/kg	Y	
Parathion, methyl		ND	17.	µg/kg	Y	
Ronnel		ND	17.	µg/kg	Y	
Chlorpyrifos		ND	17.	µg/kg	Y	
Malathion		ND	17.	µg/kg	Y	
Fenthion		ND	86.	µg/kg	Y	
Parathion		ND	17.	µg/kg	Y	
Trichloronate		ND	17.	µg/kg	Y	
Tetrachlorvinphos		ND	17.	µg/kg	Y	
Merphos		ND	17.	µg/kg	Y	
Tokuthion		ND	17.	µg/kg	Y	
Fensulfothion		ND	17.	µg/kg	Y	
Bolstar		ND	86.	µg/kg	Y	
EPN		ND	17.	µg/kg	Y	
Azinphos, methyl		ND	17.	µg/kg	Y	
Coumaphos		ND	17.	µg/kg	Y	
Famphur		ND	17.	µg/kg	Y	
Surrogate				Recovery	Limit	
Tributyl Phosphate				75.%	Y	
Triphenyl Phosphate				91.%	Y	

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## Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-5.5-7	Soil					L9608-20
						Sampled: 01/07/99 Analyzed: 01/15/99 by WB
Dichlorvos		ND	19.	µg/kg	Y	
Mevinphos		ND	19.	µg/kg	Y	
Ethoprop		ND	19.	µg/kg	Y	
Sulfotepp		ND	19.	µg/kg	Y	
Monocrotophos		ND	19.	µg/kg	Y	
Phorate		ND	97.	µg/kg	Y	
Dimethoate		ND	19.	µg/kg	Y	
Demeton, o-s		ND	19.	µg/kg	Y	
Diazinon		ND	19.	µg/kg	Y	
Disulfoton		ND	97.	µg/kg	Y	
Parathion, methyl		ND	19.	µg/kg	Y	
Ronnel		ND	19.	µg/kg	Y	
Chlorpyrifos		ND	19.	µg/kg	Y	
Malathion		ND	19.	µg/kg	Y	
Fenthion		ND	97.	µg/kg	Y	
Parathion		ND	19.	µg/kg	Y	
Trichloronate		ND	19.	µg/kg	Y	
Tetrachlorvinphos		ND	19.	µg/kg	Y	
Merphos		ND	19.	µg/kg	Y	
Tokuthion		ND	19.	µg/kg	Y	
Fensulfothion		ND	19.	µg/kg	Y	
Boistar		ND	97.	µg/kg	Y	
EPN		ND	19.	µg/kg	Y	
Azinphos, methyl		ND	19.	µg/kg	Y	
Coumaphos		ND	19.	µg/kg	Y	
Famphur		ND	19.	µg/kg	Y	
				Surrogate	Recovery	Limit
				Tributyl Phosphate	80. % ✓	Y
				Triphenyl Phosphate	95. % ✓	Y

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### Organophosphorus Pesticides by EPA 8141 MOD

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-10-11.5	Soil					L9608-23
Sampled: 01/07/99 Analyzed: 01/15/99 by WB						
Dichlorvos		ND	23.	µg/kg	Y	
Mevinphos		ND	23.	µg/kg	Y	
Ethoprop		ND	23.	µg/kg	Y	
Sulfotepp		ND	23.	µg/kg	Y	
Monocrotophos		ND	23.	µg/kg	Y	
Phorate		ND	110	µg/kg	Y	
Dimethoate		ND	23.	µg/kg	Y	
Demeton, o-s		ND	23.	µg/kg	Y	
Diazinon		ND	23.	µg/kg	Y	
Disulfoton		ND	110	µg/kg	Y	
Parathion, methyl		ND	23.	µg/kg	Y	
Ronnel		ND	23.	µg/kg	Y	
Chlorpyrifos		ND	23.	µg/kg	Y	
Malathion		ND	23.	µg/kg	Y	
Fenthion		ND	110	µg/kg	Y	
Parathion		ND	23.	µg/kg	Y	
Trichloronate		ND	23.	µg/kg	Y	
Tetrachlorvinphos		ND	23.	µg/kg	Y	
Merphos		ND	23.	µg/kg	Y	
Tokuthion		ND	23.	µg/kg	Y	
Fensulfothion		ND	23.	µg/kg	Y	
Bolstar		ND	110	µg/kg	Y	
EPN		ND	23.	µg/kg	Y	
Azinphos, methyl		ND	23.	µg/kg	Y	
Coumaphos		ND	23.	µg/kg	Y	
Famphur		ND	23.	µg/kg	Y	
	Surrogate			Recovery		Limit
	Tributyl Phosphate			77. % /		Y
	Triphenyl Phosphate			94. % /		Y

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Project: *5491C0796B.00*  
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## Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-1-2.5	Soil					L9608-1
Analyte .....						
Naphthalene .....						
Acenaphthylene .....						
Acenaphthene .....						
Fluorene .....						
Pentachlorophenol .....						
Phenanthrene .....						
Anthracene .....						
Fluoranthene .....						
Pyrene .....						
Benzo[a]anthracene .....						
Chrysene .....						
Benzo[b]fluoranthene .....						
Benzo[k]fluoranthene .....						
Benzo[a]pyrene .....						
Indeno[1,2,3-cd]pyrene .....						
Dibenz[a,h]anthracene .....						
Benzo[g,h,i]perylene .....						
Surrogate .....						
				Recovery	Limit	
1,2-Dichlorobenzene-d4				109.%	50-148	
Nitrobenzene-d5				62.%	64-148	
2-Fluorobiphenyl				103.%	72,115	

Sampled: 01/07/99  
 Extracted: 01/14/99  
 Analyzed: 01/19/99 by PB

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Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment
Sampled: 01/07/99 / Extracted: 01/14/99 / Analyzed: 01/19/99 by PB				
99SW-SB1-5.5-7	Soil			L9608-4
Naphthalene	ND	100	µg/kg	D1
Acenaphthylene	ND	100	µg/kg	D1
Acenaphthene	ND	100	µg/kg	D1
Fluorene	ND	100	µg/kg	D1
Pentachlorophenol	ND	1,000	µg/kg	D1
Phenanthrene	ND	100	µg/kg	D1
Anthracene	ND	100	µg/kg	D1
Fluoranthene	ND	100	µg/kg	D1
Pyrene	ND	100	µg/kg	D1
Benzo[a]anthracene	ND	100	µg/kg	D1
Chrysene	ND	100	µg/kg	D1
Benzo[b]fluoranthene	ND	100	µg/kg	D1
Benzo[k]fluoranthene	ND	100	µg/kg	D1
Benzo[a]pyrene	ND	100	µg/kg	D1
Indeno[1,2,3-cd]pyrene	ND	100	µg/kg	D1
Dibenz[a,h]anthracene	ND	100	µg/kg	D1
Benzo[g,h,i]perylene	ND	100	µg/kg	D1
	Surrogate		Recovery	Limit
	1,2-Dichlorobenzene-d4		105. % /	
	Nitrobenzene-d5		81. % /	
	2-Fluorobiphenyl		105. % /	

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Project: *5491C0796B.00*  
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## Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

<i>Sample ID</i>	<i>Matrix</i>				<i>Lab Number</i>
Analyte		Result	Reporting Limit	Units (ppb)	Comment
<i>99SW-SB1-7-8.5</i>	<i>Soil</i>				Sampled: <i>01/07/99</i> Extracted: <i>01/14/99</i> Analyzed: <i>01/19/99 by PB</i>
					<i>L9608-5</i>
Naphthalene		ND	100	µg/kg	D1
Acenaphthylene		ND	100	µg/kg	D1
Acenaphthene		ND	100	µg/kg	D1
Fluorene		ND	100	µg/kg	D1
Pentachlorophenol		ND	1,000	µg/kg	D1
Phenanthrene		ND	100	µg/kg	D1
Anthracene		ND	100	µg/kg	D1
Fluoranthene		ND	100	µg/kg	D1
Pyrene		ND	100	µg/kg	D1
Benzo[a]anthracene		ND	100	µg/kg	D1
Chrysene		ND	100	µg/kg	D1
Benzo[b]fluoranthene		ND	100	µg/kg	D1
Benzo[k]fluoranthene		ND	100	µg/kg	D1
Benzo[a]pyrene		ND	100	µg/kg	D1
Indeno[1,2,3-cd]pyrene		ND	100	µg/kg	D1
Dibenz[a,h]anthracene		ND	100	µg/kg	D1
Benzo[g,h,i]perylene		ND	100	µg/kg	D1
	Surrogate			Recovery	Limit
	1,2-Dichlorobenzene-d4			100. % ✓	
	Nitrobenzene-d5			77. % ✓	
	2-Fluorobiphenyl			99. % ✓	

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Project: *5491C0796B.00*  
*IP - Longview*

## Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment
<i>99SW-SB2-1-2.5</i>	<i>Soil</i>			Sampled: <i>01/07/99</i> Extracted: <i>01/14/99</i> / Analyzed: <i>01/19/99</i> by <i>PB</i>
				<i>L9608-6</i>
Naphthalene	ND	10.	µg/kg	
Acenaphthylene	ND	10.	µg/kg	
Acenaphthene	ND	10.	µg/kg	
Fluorene	ND	10.	µg/kg	
Pentachlorophenol	ND	100	µg/kg	
<b>Phenanthrene</b>	<b>17.</b>	<b>10.</b>	<b>µg/kg</b>	
Anthracene	ND	10.	µg/kg	
<b>Fluoranthene</b>	<b>42.</b>	<b>10.</b>	<b>µg/kg</b>	
<b>Pyrene</b>	<b>36.</b>	<b>10.</b>	<b>µg/kg</b>	
<b>Benzo[a]anthracene</b>	<b>20.</b>	<b>10.</b>	<b>µg/kg</b>	
<b>Chrysene</b>	<b>30.</b>	<b>10.</b>	<b>µg/kg</b>	
<b>Benzo[b]fluoranthene</b>	<b>33.</b>	<b>10.</b>	<b>µg/kg</b>	
<b>Benzo[k]fluoranthene</b>	<b>13.</b>	<b>10.</b>	<b>µg/kg</b>	
<b>Benzo[a]pyrene</b>	<b>24.</b>	<b>10.</b>	<b>µg/kg</b>	
<b>Indeno[1,2,3-cd]pyrene</b>	<b>15.</b>	<b>10.</b>	<b>µg/kg</b>	
Dibenz[a,h]anthracene	ND	10.	µg/kg	
<b>Benzo[g,h,i]perylene</b>	<b>18.</b>	<b>10.</b>	<b>µg/kg</b>	
	<b>Surrogate</b>		<b>Recovery</b>	<b>Limit</b>
	1,2-Dichlorobenzene-d4		95. % /	
	Nitrobenzene-d5		89. % /	
	2-Fluorobiphenyl		101. % /	

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### Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB2-5.5-7	Soil				Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/19/99 by PB	L9608-9
		Naphthalene	ND	10.	µg/kg	
		Acenaphthylene	ND	10.	µg/kg	
		Acenaphthene	ND	10.	µg/kg	
		Fluorene	ND	10.	µg/kg	
		Pentachlorophenol	ND	100	µg/kg	
		Phenanthrene	ND	10.	µg/kg	
		Anthracene	ND	10.	µg/kg	
		Fluoranthene	ND	10.	µg/kg	
		Pyrene	ND	10.	µg/kg	
		Benzo[a]anthracene	ND	10.	µg/kg	
		Chrysene	ND	10.	µg/kg	
		Benzo[b]fluoranthene	ND	10.	µg/kg	
		Benzo[k]fluoranthene	ND	10.	µg/kg	
		Benzo[a]pyrene	ND	10.	µg/kg	
		Indeno[1,2,3-cd]pyrene	ND	10.	µg/kg	
		Dibenz[a,h]anthracene	ND	10.	µg/kg	
		Benzo[g,h,i]perylene	ND	10.	µg/kg	
		Surrogate			Recovery	Limit
		1,2-Dichlorobenzene-d4			101. %	
		Nitrobenzene-d5			94. %	
		2-Fluorobiphenyl			104. %	

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### Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-2.5-4	Soil					L9608-12
Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/19/99 by PB						
Naphthalene		ND	100	µg/kg	D1	
Acenaphthylene		ND	100	µg/kg	D1	
Acenaphthene		ND	100	µg/kg	D1	
Fluorene		ND	100	µg/kg	D1	
Pentachlorophenol		ND	1,000	µg/kg	D1	
Phenanthrene		ND	100	µg/kg	D1	
Anthracene		ND	100	µg/kg	D1	
Fluoranthene		ND	100	µg/kg	D1	
Pyrene		ND	100	µg/kg	D1	
Benzo[a]anthracene		ND	100	µg/kg	D1	
Chrysene		ND	100	µg/kg	D1	
Benzo[b]fluoranthene		ND	100	µg/kg	D1	
Benzo[k]fluoranthene		ND	100	µg/kg	D1	
Benzo[a]pyrene		ND	100	µg/kg	D1	
Indeno[1,2,3-cd]pyrene		ND	100	µg/kg	D1	
Dibenz[a,h]anthracene		ND	100	µg/kg	D1	
Benzo[g,h,i]perylene		ND	100	µg/kg	D1	
		Surrogate		Recovery	Limit	
		1,2-Dichlorobenzene-d4		99.%	/	
		Nitrobenzene-d5		84.%	/	
		2-Fluorobiphenyl		101.%	/	

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### Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-8.5-10	Soil				Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/19/99 by PB	L9608-16
Naphthalene		ND	10.	µg/kg		
Acenaphthylene		ND	10.	µg/kg		
Acenaphthene		ND	10.	µg/kg		
Fluorene		ND	10.	µg/kg		
Pentachlorophenol		ND	100	µg/kg		
Phenanthrene		ND	10.	µg/kg		
Anthracene		ND	10.	µg/kg		
Fluoranthene		ND	10.	µg/kg		
Pyrene		ND	10.	µg/kg		
Benzo[a]anthracene		ND	10.	µg/kg		
Chrysene		ND	10.	µg/kg		
Benzo[b]fluoranthene		ND	10.	µg/kg		
Benzo[k]fluoranthene		ND	10.	µg/kg		
Benzo[a]pyrene		ND	10.	µg/kg		
Indeno[1,2,3-cd]pyrene		ND	10.	µg/kg		
Dibenz[a,h]anthracene		ND	10.	µg/kg		
Benzo[g,h,i]perylene		ND	10.	µg/kg		
	Surrogate			Recovery	Limit	
	1,2-Dichlorobenzene-d4			100. %		
	Nitrobenzene-d5			93. %		
	2-Fluorobiphenyl			103. %		



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## Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment
99SW-SB4-1-2.5	Soil			Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/19/99 by PB L9608-17
Naphthalene	ND	100	µg/kg	D1
Acenaphthylene	ND	100	µg/kg	D1
Acenaphthene	ND	100	µg/kg	D1
Fluorene	ND	100	µg/kg	D1
Pentachlorophenol	ND	1,000	µg/kg	D1
Phenanthrene	ND	100	µg/kg	D1
Anthracene	ND	100	µg/kg	D1
Fluoranthene	ND	100	µg/kg	D1
Pyrene	ND	100	µg/kg	D1
Benzo[a]anthracene	ND	100	µg/kg	D1
Chrysene	ND	100	µg/kg	D1
Benzo[b]fluoranthene	ND	100	µg/kg	D1
Benzo[k]fluoranthene	ND	100	µg/kg	D1
Benzo[a]pyrene	ND	100	µg/kg	D1
Indeno[1,2,3-cd]pyrene	ND	100	µg/kg	D1
Dibenz[a,h]anthracene	ND	100	µg/kg	D1
Benzo[g,h,i]perylene	ND	100	µg/kg	D1
	Surrogate		Recovery	Limit
	1,2-Dichlorobenzene-d4		103.%	
	Nitrobenzene-d5		86.%	
	2-Fluorobiphenyl		110.%	

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### Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-5.5-7	Soil				Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/19/99 by PB	L9608-20
Naphthalene		22.	10.	µg/kg		
Acenaphthylene		ND	10.	µg/kg		
Acenaphthene		ND	10.	µg/kg		
Fluorene		ND	10.	µg/kg		
Pentachlorophenol		ND	100	µg/kg		
Phenanthrene		30.	10.	µg/kg		
Anthracene		25.	10.	µg/kg		
Fluoranthene		55.	10.	µg/kg		
Pyrene		50.	10.	µg/kg		
Benzo[a]anthracene		53.	10.	µg/kg		
Chrysene		87.	10.	µg/kg		
Benzo[b]fluoranthene		179.	10.	µg/kg		
Benzo[k]fluoranthene		51.	10.	µg/kg		
Benzo[a]pyrene		76.	10.	µg/kg		
Indeno[1,2,3-cd]pyrene		81.	10.	µg/kg		
Dibenz[a,h]anthracene		23.	10.	µg/kg		
Benzo[g,h,i]perylene		97.	10.	µg/kg		
Surrogate				Recovery	Limit	
1,2-Dichlorobenzene-d4				86. %		
Nitrobenzene-d5				84. %		
2-Fluorobiphenyl				98. %		

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## Polynuclear Aromatic Hydrocarbons (PNA) by EPA 8270 SIM

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-10-11.5	Soil				Sampled: 01/07/99 Extracted: 01/14/99 Analyzed: 01/19/99 by PB	L9608-23
		Naphthalene	ND	10.	µg/kg	
		Acenaphthylene	ND	10.	µg/kg	
		Acenaphthene	ND	10.	µg/kg	
		Fluorene	ND	10.	µg/kg	
		Pentachlorophenol	ND	100	µg/kg	
		Phenanthrene	ND	10.	µg/kg	
		<b>Anthracene</b>	<b>17.</b>	<b>10.</b>	<b>µg/kg</b>	
		Fluoranthene	ND	10.	µg/kg	
		Pyrene	ND	10.	µg/kg	
		Benzo[a]anthracene	ND	10.	µg/kg	
		Chrysene	ND	10.	µg/kg	
		<b>Benzo[b]fluoranthene</b>	<b>13.</b>	<b>10.</b>	<b>µg/kg</b>	
		Benzo[k]fluoranthene	ND	10.	µg/kg	
		<b>Benzo[a]pyrene</b>	<b>17.</b>	<b>10.</b>	<b>µg/kg</b>	
		Indeno[1,2,3-cd]pyrene	147.	10.	µg/kg	
		Dibenz[a,h]anthracene	15.	10.	µg/kg	
		<b>Benzo[g,h,i]perylene</b>	<b>257.</b>	<b>10.</b>	<b>µg/kg</b>	
		Surrogate			Recovery	Limit
		1,2-Dichlorobenzene-d4			102. % ✓	
		Nitrobenzene-d5			102. % ✓	
		2-Fluorobiphenyl			107. % ✓	





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### Semi-Volatile Petroleum Products by NWTPH-DX

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
99SW-SB1-1-2.5	Soil					L9608-1
					Sampled: 01/07/99 Extracted: 01/12/99 Analyzed: 01/13/99 by RJ	
Diesel Region		600	130	mg/kg	1,D	
Oil Region		550	250	mg/kg	2,D	
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				89. %	50 - 150
	O-terphenyl				105. %	50 - 150
<sup>1</sup> Product appears to be diesel. <sup>2</sup> Product appears to be oil.						

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
99SW-SB1-5.5-7	Soil					L9608-4
					Sampled: 01/07/99 Extracted: 01/12/99 Analyzed: 01/12/99 by RJ	
Diesel Region		ND	25.	mg/kg		
Oil Region		ND	50.	mg/kg		
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				84. %	50 - 150
	O-terphenyl				102. %	50 - 150

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
99SW-SB1-7-8.5	Soil					L9608-5
					Sampled: 01/07/99 Extracted: 01/12/99 Analyzed: 01/12/99 by RJ	
Diesel Region		ND	25.	mg/kg		
Oil Region		91.	50.	mg/kg	1	
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				96. %	50 - 150
	O-terphenyl				111. %	50 - 150
<sup>1</sup> Product appears to be oil.						

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### Semi-Volatile Petroleum Products by NWTPH-DX

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
99SW-SB2-1-2.5	Soil					L9608-6
					Sampled: 01/07/99 Extracted: 01/12/99 Analyzed: 01/12/99 by RJ	
Diesel Region		ND	25.	mg/kg		
Oil Region		74.	50.	mg/kg	1	
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				91. %	50 - 150
	O-terphenyl				104. %	50 - 150
1 Product appears to be oil.						

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
99SW-SB2-5.5-7	Soil					L9608-9
					Sampled: 01/07/99 Extracted: 01/12/99 Analyzed: 01/12/99 by RJ	
Diesel Region		ND	25.	mg/kg		
Oil Region		ND	50.	mg/kg		
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				76. %	50 - 150
	O-terphenyl				95. %	50 - 150

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
99SW-SB3-2.5-4	Soil					L9608-12
					Sampled: 01/07/99 Extracted: 01/12/99 Analyzed: 01/12/99 by RJ	
Diesel Region		ND	25.	mg/kg		
Oil Region		ND	50.	mg/kg		
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				84. %	50 - 150
	O-terphenyl				102. %	50 - 150

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## Semi-Volatile Petroleum Products by NWTPH-DX

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
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<i>99SW-SB3-8.5-10</i>	<i>Soil</i>					<i>L9608-16</i>
Sampled: <i>01/07/99</i> Extracted: <i>01/12/99</i> Analyzed: <i>01/12/99 by RJ</i>						
Diesel Region .....		ND	25.	mg/kg		
Oil Region .....		ND	50.	mg/kg		
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				88. % ✓	50 - 150
	O-terphenyl				108. % ✓	50 - 150

<i>99SW-SB4-1-2.5</i>	<i>Soil</i>					<i>L9608-17</i>
Sampled: <i>01/07/99</i> Extracted: <i>01/12/99</i> Analyzed: <i>01/12/99 by RJ</i>						
Diesel Region .....		ND	25.	mg/kg		
Oil Region .....		100	50.	mg/kg	1,*1	
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				97. % ✓	50 - 150
	O-terphenyl				112. % ✓	50 - 150

<sup>1</sup> Product appears to be oil.

<i>99SW-SB4-5.5-7</i>	<i>Soil</i>					<i>L9608-20</i>
Sampled: <i>01/07/99</i> Extracted: <i>01/12/99</i> Analyzed: <i>01/12/99 by RJ</i>						
Diesel Region .....		ND	25.	mg/kg		
Oil Region .....		80.	50.	mg/kg	1	
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				92. % ✓	50 - 150
	O-terphenyl				105. % ✓	50 - 150

<sup>1</sup> Product appears to be oil.



L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

## Semi-Volatile Petroleum Products by NWTPH-DX

Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppm)	Comment	Lab Number
99SW-SB4-10-11.5	Soil				Sampled: 01/07/99 Extracted: 01/12/99 Analyzed: 01/12/99 by RJ	L9608-23
	Diesel Region	ND	25.	mg/kg		
	Oil Region	ND	50.	mg/kg		
	Surrogate				Recovery	Limit
	2-Fluorobiphenyl				91.%	50 - 150
	O-terphenyl				105.%	50 - 150

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L9608

Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
Sampled: 01/07/99 Extracted: 01/15/99 / Analyzed: 01/20/99 by PB						L9608-1
99SW-SB1-1-2.5	Soil					
	Phenol	ND	33,000	µg/kg	D1	
	bis(2-Chloroethyl)ether	ND	33,000	µg/kg	D1	
	2-Chlorophenol	ND	33,000	µg/kg	D1	
	1,3-Dichlorobenzene	ND	33,000	µg/kg	D1	
	1,4-Dichlorobenzene	ND	33,000	µg/kg	D1	
	Benzyl Alcohol	ND	66,000	µg/kg	D1	
	1,2-Dichlorobenzene	ND	33,000	µg/kg	D1	
	2-Methylphenol	ND	33,000	µg/kg	D1	
	bis(2-Chloroisopropyl)ether	ND	33,000	µg/kg	D1	
	4-Methylphenol	ND	33,000	µg/kg	D1	
	N-Nitroso-di-n-propylamine	ND	33,000	µg/kg	D1	
	Hexachloroethane	ND	33,000	µg/kg	D1	
	Nitrobenzene	ND	33,000	µg/kg	D1	
	Isophorone	ND	33,000	µg/kg	D1	
	2-Nitrophenol	ND	33,000	µg/kg	D1	
	2,4-Dimethylphenol	ND	33,000	µg/kg	D1	
	Benzoic Acid	ND	165,000	µg/kg	D1	
	bis(2-Chloroethoxy)methane	ND	33,000	µg/kg	D1	
	2,4-Dichlorophenol	ND	33,000	µg/kg	D1	
	1,2,4-Trichlorobenzene	ND	33,000	µg/kg	D1	
	Naphthalene	ND	33,000	µg/kg	D1	
	4-Chloroaniline	ND	66,000	µg/kg	D1	
	Hexachlorobutadiene	ND	33,000	µg/kg	D1	
	4-Chloro-3-methylphenol	ND	66,000	µg/kg	D1	
	2-Methylnaphthalene	ND	33,000	µg/kg	D1	
	Hexachlorocyclopentadiene	ND	33,000	µg/kg	D1	
	2,4,6-Trichlorophenol	ND	33,000	µg/kg	D1	
	2,4,5-Trichlorophenol	ND	33,000	µg/kg	D1	
	2-Chloronaphthalene	ND	33,000	µg/kg	D1	
	2-Nitroaniline	ND	165,000	µg/kg	D1	
	Acenaphthylene	ND	33,000	µg/kg	D1	

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Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Semivolatiles by EPA 8270

Sample ID	Matrix		Reporting Limit	Units (ppb)	Lab Number
Analyte		Result			Comment

Sample ID	Matrix		Reporting Limit	Units (ppb)	Lab Number
<i>99SW-SB1-1-2.5</i>	<i>Soil</i>				<i>L9608-1</i>
					Sampled: <i>01/07/99</i> Extracted: <i>01/15/99</i> Analyzed: <i>01/20/99 by PB</i>
Dimethylphthalate		ND	33,000	µg/kg	D1
2,6-Dinitrotoluene		ND	33,000	µg/kg	D1
Acenaphthene		ND	33,000	µg/kg	D1
3-Nitroaniline		ND	165,000	µg/kg	D1
2,4-Dinitrophenol		ND	165,000	µg/kg	D1
Dibenzofuran		ND	33,000	µg/kg	D1
2,4-Dinitrotoluene		ND	33,000	µg/kg	D1
4-Nitrophenol		ND	165,000	µg/kg	D1
Fluorene		ND	33,000	µg/kg	D1
4-Chlorophenyl-phenylether		ND	33,000	µg/kg	D1
Diethylphthalate		ND	33,000	µg/kg	D1
4-Nitroaniline		ND	165,000	µg/kg	D1
1,2-Diphenylhydrazine		ND	165,000	µg/kg	D1
4,6-Dinitro-2-methylphenol		ND	165,000	µg/kg	D1
n-Nitrosodiphenylamine		ND	33,000	µg/kg	D1
4-Bromophenyl-phenylether		ND	33,000	µg/kg	D1
Hexachlorobenzene		ND	33,000	µg/kg	D1
Pentachlorophenol		ND	165,000	µg/kg	D1
Phenanthrene		ND	33,000	µg/kg	D1
Anthracene		ND	33,000	µg/kg	D1
Di-n-butylphthalate		ND	33,000	µg/kg	D1
Fluoranthene		ND	33,000	µg/kg	D1
Pyrene		ND	33,000	µg/kg	D1
Butylbenzylphthalate		ND	33,000	µg/kg	D1
3,3'-Dichlorobenzidine		ND	66,000	µg/kg	D1
Benzo[a]anthracene		ND	33,000	µg/kg	D1
Chrysene		ND	33,000	µg/kg	D1
bis(2-Ethylhexyl)phthalate		ND	33,000	µg/kg	D1
Di-n-octylphthalate		ND	33,000	µg/kg	D1
Benzo[b]fluoranthene		ND	33,000	µg/kg	D1
Benzo[k]fluoranthene		ND	33,000	µg/kg	D1

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Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-1-2.5	Soil					L9608-1
Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB						
Benzo[a]pyrene		ND	33,000	µg/kg	D1	
Indeno[1,2,3-cd]pyrene		ND	33,000	µg/kg	D1	
Dibenz[a,h]anthracene		ND	33,000	µg/kg	D1	
Benzo[g,h,i]perylene		ND	33,000	µg/kg	D1	
	Surrogate			Recovery		Limit
	2-Fluorophenol			96.%		28-121
	Phenol-d6			105.%		4-112
	2,4,6-Tribromophenol			94.%		11-112
	1,2-Dichlorobenzene-d4			113.%		32-113
	Nitrobenzene-d5			78.%		64-113
	2-Fluorobiphenyl			106.%		74-113

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Project: *5491C0796B.00*  
*IP - Longview*

## Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-5.5-7	Soil				Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	L9608-4
		Phenol	ND	330	µg/kg	
		bis(2-Chloroethyl)ether	ND	330	µg/kg	
		2-Chlorophenol	ND	330	µg/kg	
		1,3-Dichlorobenzene	ND	330	µg/kg	
		1,4-Dichlorobenzene	ND	330	µg/kg	
		Benzyl Alcohol	ND	660	µg/kg	
		1,2-Dichlorobenzene	ND	330	µg/kg	
		2-Methylphenol	ND	330	µg/kg	
		bis(2-Chloroisopropyl)ether	ND	330	µg/kg	
		4-Methylphenol	ND	330	µg/kg	
		N-Nitroso-di-n-propylamine	ND	330	µg/kg	
		Hexachloroethane	ND	330	µg/kg	
		Nitrobenzene	ND	330	µg/kg	
		Isophorone	ND	330	µg/kg	
		2-Nitrophenol	ND	330	µg/kg	
		2,4-Dimethylphenol	ND	330	µg/kg	
		Benzoic Acid	ND	1,650	µg/kg	
		bis(2-Chloroethoxy)methane	ND	330	µg/kg	
		2,4-Dichlorophenol	ND	330	µg/kg	
		1,2,4-Trichlorobenzene	ND	330	µg/kg	
		Naphthalene	ND	330	µg/kg	
		4-Chloroaniline	ND	660	µg/kg	
		Hexachlorobutadiene	ND	330	µg/kg	
		4-Chloro-3-methylphenol	ND	660	µg/kg	
		2-Methylnaphthalene	ND	330	µg/kg	
		Hexachlorocyclopentadiene	ND	330	µg/kg	
		2,4,6-Trichlorophenol	ND	330	µg/kg	
		2,4,5-Trichlorophenol	ND	330	µg/kg	
		2-Chloronaphthalene	ND	330	µg/kg	
		2-Nitroaniline	ND	1,650	µg/kg	
		Acenaphthylene	ND	330	µg/kg	





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### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-5.5-7	Soil					L9608-4
					Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	
		Dimethylphthalate	ND	330	µg/kg	
		2,6-Dinitrotoluene	ND	330	µg/kg	
		Acenaphthene	ND	330	µg/kg	
		3-Nitroaniline	ND	1,650	µg/kg	
		2,4-Dinitrophenol	ND	1,650	µg/kg	
		Dibenzofuran	ND	330	µg/kg	
		2,4-Dinitrotoluene	ND	330	µg/kg	
		4-Nitrophenol	ND	1,650	µg/kg	
		Fluorene	ND	330	µg/kg	
		4-Chlorophenyl-phenylether	ND	330	µg/kg	
		Diethylphthalate	ND	330	µg/kg	
		4-Nitroaniline	ND	1,650	µg/kg	
		1,2-Diphenylhydrazine	ND	1,650	µg/kg	
		4,6-Dinitro-2-methylphenol	ND	1,650	µg/kg	
		n-Nitrosodiphenylamine	ND	330	µg/kg	
		4-Bromophenyl-phenylether	ND	330	µg/kg	
		Hexachlorobenzene	ND	330	µg/kg	
		Pentachlorophenol	ND	1,650	µg/kg	
		Phenanthrene	ND	330	µg/kg	
		Anthracene	ND	330	µg/kg	
		Di-n-butylphthalate	ND	330	µg/kg	
		Fluoranthene	ND	330	µg/kg	
		Pyrene	ND	330	µg/kg	
		Butylbenzylphthalate	ND	330	µg/kg	
		3,3'-Dichlorobenzidine	ND	660	µg/kg	
		Benzo[a]anthracene	ND	330	µg/kg	
		Chrysene	ND	330	µg/kg	
		bis(2-Ethylhexyl)phthalate	ND	330	µg/kg	
		Di-n-octylphthalate	ND	330	µg/kg	
		Benzo[b]fluoranthene	ND	330	µg/kg	
		Benzo[k]fluoranthene	ND	330	µg/kg	

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SBI-5.5-7	Soil				Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	L9608-4
		Benzo[a]pyrene	ND	330	µg/kg	
		Indeno[1,2,3-cd]pyrene	ND	330	µg/kg	
		Dibenz[a,h]anthracene	ND	330	µg/kg	
		Benzo[g,h,i]perylene	ND	330	µg/kg	
		Surrogate			Recovery	Limit
		2-Fluorophenol			83. %	
		Phenol-d6			87. %	
		2,4,6-Tribromophenol			87. %	
		1,2-Dichlorobenzene-d4			86. %	
		Nitrobenzene-d5			86. %	
		2-Fluorobiphenyl			87. %	

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 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Semivolatiles by EPA 8270

Sample ID	Matrix		Reporting Limit	Units (ppb)	Comment	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment	
					Sampled: <i>01/07/99</i> Extracted: <i>01/15/99</i> Analyzed: <i>01/20/99 by PB</i>
<i>99SW-SB1-7-8.5</i>	<i>Soil</i>				<i>L9608-5</i>
Phenol .....	ND	330	µg/kg		
bis(2-Chloroethyl)ether .....	ND	330	µg/kg		
2-Chlorophenol .....	ND	330	µg/kg		
1,3-Dichlorobenzene .....	ND	330	µg/kg		
1,4-Dichlorobenzene .....	ND	330	µg/kg		
Benzyl Alcohol .....	ND	660	µg/kg		
1,2-Dichlorobenzene .....	ND	330	µg/kg		
2-Methylphenol .....	ND	330	µg/kg		
bis(2-Chloroisopropyl)ether .....	ND	330	µg/kg		
4-Methylphenol .....	ND	330	µg/kg		
N-Nitroso-di-n-propylamine .....	ND	330	µg/kg		
Hexachloroethane .....	ND	330	µg/kg		
Nitrobenzene .....	ND	330	µg/kg		
Isophorone .....	ND	330	µg/kg		
2-Nitrophenol .....	ND	330	µg/kg		
2,4-Dimethylphenol .....	ND	330	µg/kg		
Benzoic Acid .....	ND	1,650	µg/kg		
bis(2-Chloroethoxy)methane .....	ND	330	µg/kg		
2,4-Dichlorophenol .....	ND	330	µg/kg		
1,2,4-Trichlorobenzene .....	ND	330	µg/kg		
Naphthalene .....	ND	330	µg/kg		
4-Chloroaniline .....	ND	660	µg/kg		
Hexachlorobutadiene .....	ND	330	µg/kg		
4-Chloro-3-methylphenol .....	ND	660	µg/kg		
2-Methylnaphthalene .....	ND	330	µg/kg		
Hexachlorocyclopentadiene .....	ND	330	µg/kg		
2,4,6-Trichlorophenol .....	ND	330	µg/kg		
2,4,5-Trichlorophenol .....	ND	330	µg/kg		
2-Chloronaphthalene .....	ND	330	µg/kg		
2-Nitroaniline .....	ND	1,650	µg/kg		
Acenaphthylene .....	ND	330	µg/kg		

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Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB1-7-8.5					L9608-5
				Sampled: 01/07/99	
				Extracted: 01/15/99	
				Analyzed: 01/20/99 by PB	
Soil					
Dimethylphthalate	ND	330	µg/kg		
2,6-Dinitrotoluene	ND	330	µg/kg		
Acenaphthene	ND	330	µg/kg		
3-Nitroaniline	ND	1,650	µg/kg		
2,4-Dinitrophenol	ND	1,650	µg/kg		
Dibenzofuran	ND	330	µg/kg		
2,4-Dinitrotoluene	ND	330	µg/kg		
4-Nitrophenol	ND	1,650	µg/kg		
Fluorene	ND	330	µg/kg		
4-Chlorophenyl-phenylether	ND	330	µg/kg		
Diethylphthalate	ND	330	µg/kg		
4-Nitroaniline	ND	1,650	µg/kg		
1,2-Diphenylhydrazine	ND	1,650	µg/kg		
4,6-Dinitro-2-methylphenol	ND	1,650	µg/kg		
n-Nitrosodiphenylamine	ND	330	µg/kg		
4-Bromophenyl-phenylether	ND	330	µg/kg		
Hexachlorobenzene	ND	330	µg/kg		
Pentachlorophenol	ND	1,650	µg/kg		
Phenanthrene	ND	330	µg/kg		
Anthracene	ND	330	µg/kg		
Di-n-butylphthalate	ND	330	µg/kg		
Fluoranthene	ND	330	µg/kg		
Pyrene	ND	330	µg/kg		
Butylbenzylphthalate	ND	330	µg/kg		
3,3'-Dichlorobenzidine	ND	660	µg/kg		
Benzo[a]anthracene	ND	330	µg/kg		
Chrysene	ND	330	µg/kg		
bis(2-Ethylhexyl)phthalate	ND	330	µg/kg		
Di-n-octylphthalate	ND	330	µg/kg		
Benzo[b]fluoranthene	ND	330	µg/kg		
Benzo[k]fluoranthene	ND	330	µg/kg		

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

### Semivolatiles by EPA 8270

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
99SW-SB1-7-8.5	Soil				Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	L9608-5
		Benzo[a]pyrene	ND	330	µg/kg	
		Indeno[1,2,3-cd]pyrene	ND	330	µg/kg	
		Dibenz[a,h]anthracene	ND	330	µg/kg	
		Benzo[g,h,i]perylene	ND	330	µg/kg	
		<u>Surrogate</u>			<u>Recovery</u>	<u>Limit</u>
		2-Fluorophenol			95. % ✓	
		Phenol-d6			98. % ✓	
		2,4,6-Tribromophenol			95. % ✓	
		1,2-Dichlorobenzene-d4			91. % ✓	
		Nitrobenzene-d5			97. % ✓	
		2-Fluorobiphenyl			95. % ✓	



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Project: 5491C0796B.00  
IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB2-1-2.5	Soil					L9608-6
						Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/96 by PB
		Phenol	ND	660	µg/kg	Z1
		bis(2-Chloroethyl)ether	ND	660	µg/kg	Z1
		2-Chlorophenol	ND	660	µg/kg	Z1
		1,3-Dichlorobenzene	ND	660	µg/kg	Z1
		1,4-Dichlorobenzene	ND	660	µg/kg	Z1
		Benzyl Alcohol	ND	1,300	µg/kg	Z1
		1,2-Dichlorobenzene	ND	660	µg/kg	Z1
		2-Methylphenol	ND	660	µg/kg	Z1
		bis(2-Chloroisopropyl)ether	ND	660	µg/kg	Z1
		4-Methylphenol	ND	660	µg/kg	Z1
		N-Nitroso-di-n-propylamine	ND	660	µg/kg	Z1
		Hexachloroethane	ND	660	µg/kg	Z1
		Nitrobenzene	ND	660	µg/kg	Z1
		Isophorone	ND	660	µg/kg	Z1
		2-Nitrophenol	ND	660	µg/kg	Z1
		2,4-Dimethylphenol	ND	660	µg/kg	Z1
		Benzoic Acid	ND	3,300	µg/kg	Z1
		bis(2-Chloroethoxy)methane	ND	660	µg/kg	Z1
		2,4-Dichlorophenol	ND	660	µg/kg	Z1
		1,2,4-Trichlorobenzene	ND	660	µg/kg	Z1
		Naphthalene	ND	660	µg/kg	Z1
		4-Chloroaniline	ND	1,300	µg/kg	Z1
		Hexachlorobutadiene	ND	660	µg/kg	Z1
		4-Chloro-3-methylphenol	ND	1,300	µg/kg	Z1
		2-Methylnaphthalene	ND	660	µg/kg	Z1
		Hexachlorocyclopentadiene	ND	660	µg/kg	Z1
		2,4,6-Trichlorophenol	ND	660	µg/kg	Z1
		2,4,5-Trichlorophenol	ND	660	µg/kg	Z1
		2-Chloronaphthalene	ND	660	µg/kg	Z1
		2-Nitroaniline	ND	3,300	µg/kg	Z1
		Acenaphthylene	ND	660	µg/kg	Z1

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB2-1-2.5	Soil					L9608-6
						Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/96 by PB
		Dimethylphthalate	ND	660	µg/kg	Z1
		2,6-Dinitrotoluene	ND	660	µg/kg	Z1
		Acenaphthene	ND	660	µg/kg	Z1
		3-Nitroaniline	ND	3,300	µg/kg	Z1
		2,4-Dinitrophenol	ND	3,300	µg/kg	Z1
		Dibenzofuran	ND	660	µg/kg	Z1
		2,4-Dinitrotoluene	ND	660	µg/kg	Z1
		4-Nitrophenol	ND <sup>T</sup>	3,300	µg/kg	Z1
		Fluorene	ND	660	µg/kg	Z1
		4-Chlorophenyl-phenylether	ND	660	µg/kg	Z1
		Diethylphthalate	ND	660	µg/kg	Z1
		4-Nitroaniline	ND	3,300	µg/kg	Z1
		1,2-Diphenylhydrazine	ND	3,300	µg/kg	Z1
		4,6-Dinitro-2-methylphenol	ND	3,300	µg/kg	Z1
		n-Nitrosodiphenylamine	ND	660	µg/kg	Z1
		4-Bromophenyl-phenylether	ND	660	µg/kg	Z1
		Hexachlorobenzene	ND	660	µg/kg	Z1
		Pentachlorophenol	ND	3,300	µg/kg	Z1
		Phenanthrene	ND	660	µg/kg	Z1
		Anthracene	ND	660	µg/kg	Z1
		Di-n-butylphthalate	ND	660	µg/kg	Z1
		Fluoranthene	ND	660	µg/kg	Z1
		Pyrene	ND	660	µg/kg	Z1
		Butylbenzylphthalate	ND	660	µg/kg	Z1
		3,3'-Dichlorobenzidine	ND	1,320	µg/kg	Z1
		Benzo[a]anthracene	ND	660	µg/kg	Z1
		Chrysene	ND	660	µg/kg	Z1
		bis(2-Ethylhexyl)phthalate	ND	660	µg/kg	Z1
		Di-n-octylphthalate	ND	660	µg/kg	Z1
		Benzo[b]fluoranthene	ND	660	µg/kg	Z1
		Benzo[k]fluoranthene	ND	660	µg/kg	Z1

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

### Semivolatiles by EPA 8270

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
99SW-SB2-1-2.5	Soil				Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/96 by PB	L9608-6
		Benzo[a]pyrene	ND	660	µg/kg	Z1
		Indeno[1,2,3-cd]pyrene	ND	660	µg/kg	Z1
		Dibenz[a,h]anthracene	ND	660	µg/kg	Z1
		Benzo[g,h,i]perylene	ND	660	µg/kg	Z1
		Surrogate			Recovery	Limit
		2-Fluorophenol			102. %	✓
		Phenol-d6			102. %	✓
		2,4,6-Tribromophenol			96. %	✓
		1,2-Dichlorobenzene-d4			104. %	✓
		Nitrobenzene-d5			102. %	✓
		2-Fluorobiphenyl			98. %	✓

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IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB2-5.5-7	Soil				Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	L9608-9
		Phenol	ND	330	µg/kg	
		bis(2-Chloroethyl)ether	ND	330	µg/kg	
		2-Chlorophenol	ND	330	µg/kg	
		1,3-Dichlorobenzene	ND	330	µg/kg	
		1,4-Dichlorobenzene	ND	330	µg/kg	
		Benzyl Alcohol	ND	660	µg/kg	
		1,2-Dichlorobenzene	ND	330	µg/kg	
		2-Methylphenol	ND	330	µg/kg	
		bis(2-Chloroisopropyl)ether	ND	330	µg/kg	
		4-Methylphenol	ND	330	µg/kg	
		N-Nitroso-di-n-propylamine	ND	330	µg/kg	
		Hexachloroethane	ND	330	µg/kg	
		Nitrobenzene	ND	330	µg/kg	
		Isophorone	ND	330	µg/kg	
		2-Nitrophenol	ND	330	µg/kg	
		2,4-Dimethylphenol	ND	330	µg/kg	
		Benzoic Acid	ND	1,650	µg/kg	
		bis(2-Chloroethoxy)methane	ND	330	µg/kg	
		2,4-Dichlorophenol	ND	330	µg/kg	
		1,2,4-Trichlorobenzene	ND	330	µg/kg	
		Naphthalene	ND	330	µg/kg	
		4-Chloroaniline	ND	660	µg/kg	
		Hexachlorobutadiene	ND	330	µg/kg	
		4-Chloro-3-methylphenol	ND	660	µg/kg	
		2-Methylnaphthalene	ND	330	µg/kg	
		Hexachlorocyclopentadiene	ND	330	µg/kg	
		2,4,6-Trichlorophenol	ND	330	µg/kg	
		2,4,5-Trichlorophenol	ND	330	µg/kg	
		2-Chloronaphthalene	ND	330	µg/kg	
		2-Nitroaniline	ND	1,650	µg/kg	
		Acenaphthylene	ND	330	µg/kg	

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Project: *5491C0796B.00*  
*IP - Longview*

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB2-5.5-7	Soil					L9608-9
					Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	
		Dimethylphthalate	ND	330	µg/kg	
		2,6-Dinitrotoluene	ND	330	µg/kg	
		Acenaphthene	ND	330	µg/kg	
		3-Nitroaniline	ND	1,650	µg/kg	
		2,4-Dinitrophenol	ND	1,650	µg/kg	
		Dibenzofuran	ND	330	µg/kg	
		2,4-Dinitrotoluene	ND	330	µg/kg	
		4-Nitrophenol	ND	1,650	µg/kg	
		Fluorene	ND	330	µg/kg	
		4-Chlorophenyl-phenylether	ND	330	µg/kg	
		Diethylphthalate	ND	330	µg/kg	
		4-Nitroaniline	ND	1,650	µg/kg	
		1,2-Diphenylhydrazine	ND	1,650	µg/kg	
		4,6-Dinitro-2-methylphenol	ND	1,650	µg/kg	
		n-Nitrosodiphenylamine	ND	330	µg/kg	
		4-Bromophenyl-phenylether	ND	330	µg/kg	
		Hexachlorobenzene	ND	330	µg/kg	
		Pentachlorophenol	ND	1,650	µg/kg	
		Phenanthrene	ND	330	µg/kg	
		Anthracene	ND	330	µg/kg	
		Di-n-butylphthalate	ND	330	µg/kg	
		Fluoranthene	ND	330	µg/kg	
		Pyrene	ND	330	µg/kg	
		Butylbenzylphthalate	ND	330	µg/kg	
		3,3'-Dichlorobenzidine	ND	660	µg/kg	
		Benzo[a]anthracene	ND	330	µg/kg	
		Chrysene	ND	330	µg/kg	
		bis(2-Ethylhexyl)phthalate	ND	330	µg/kg	
		Di-n-octylphthalate	ND	330	µg/kg	
		Benzo[b]fluoranthene	ND	330	µg/kg	
		Benzo[k]fluoranthene	ND	330	µg/kg	

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*IP - Longview*

## Semivolatiles by EPA 8270

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
99SW-SB2-5.5-7	Soil				Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	L9608-9
		Benzo[a]pyrene	ND	330	µg/kg	
		Indeno[1,2,3-cd]pyrene	ND	330	µg/kg	
		Dibenz[a,h]anthracene	ND	330	µg/kg	
		Benzo[g,h,i]perylene	ND	330	µg/kg	
		Surrogate			Recovery	Limit
		2-Fluorophenol			96. % ✓	
		Phenol-d6			99. % ✓	
		2,4,6-Tribromophenol			94. % ✓	
		1,2-Dichlorobenzene-d4			96. % ✓	
		Nitrobenzene-d5			97. % ✓	
		2-Fluorobiphenyl			100. % ✓	

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### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-2.5-4	Soil				Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	L9608-12
		Phenol	ND	330	µg/kg	
		bis(2-Chloroethyl)ether	ND	330	µg/kg	
		2-Chlorophenol	ND	330	µg/kg	
		1,3-Dichlorobenzene	ND	330	µg/kg	
		1,4-Dichlorobenzene	ND	330	µg/kg	
		Benzyl Alcohol	ND	660	µg/kg	
		1,2-Dichlorobenzene	ND	330	µg/kg	
		2-Methylphenol	ND	330	µg/kg	
		bis(2-Chloroisopropyl)ether	ND	330	µg/kg	
		4-Methylphenol	ND	330	µg/kg	
		N-Nitroso-di-n-propylamine	ND	330	µg/kg	
		Hexachloroethane	ND	330	µg/kg	
		Nitrobenzene	ND	330	µg/kg	
		Isophorone	ND	330	µg/kg	
		2-Nitrophenol	ND	330	µg/kg	
		2,4-Dimethylphenol	ND	330	µg/kg	
		Benzoic Acid	ND	1,650	µg/kg	
		bis(2-Chloroethoxy)methane	ND	330	µg/kg	
		2,4-Dichlorophenol	ND	330	µg/kg	
		1,2,4-Trichlorobenzene	ND	330	µg/kg	
		Naphthalene	ND	330	µg/kg	
		4-Chloroaniline	ND	660	µg/kg	
		Hexachlorobutadiene	ND	330	µg/kg	
		4-Chloro-3-methylphenol	ND	660	µg/kg	
		2-Methylnaphthalene	ND	330	µg/kg	
		Hexachlorocyclopentadiene	ND	330	µg/kg	
		2,4,6-Trichlorophenol	ND	330	µg/kg	
		2,4,5-Trichlorophenol	ND	330	µg/kg	
		2-Chloronaphthalene	ND	330	µg/kg	
		2-Nitroaniline	ND	1,650	µg/kg	
		Acenaphthylene	ND	330	µg/kg	

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Project: *5491C0796B.00*  
*IP - Longview*

## Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-2.5-4	Soil					L9608-12
					Sampled: 01/07/99	
					Extracted: 01/15/99	
					Analyzed: 01/20/99 by PB	
		Dimethylphthalate	ND	330	µg/kg	
		2,6-Dinitrotoluene	ND	330	µg/kg	
		Acenaphthene	ND	330	µg/kg	
		3-Nitroaniline	ND	1,650	µg/kg	
		2,4-Dinitrophenol	ND	1,650	µg/kg	
		Dibenzofuran	ND	330	µg/kg	
		2,4-Dinitrotoluene	ND	330	µg/kg	
		4-Nitrophenol	ND	1,650	µg/kg	
		Fluorene	ND	330	µg/kg	
		4-Chlorophenyl-phenylether	ND	330	µg/kg	
		Diethylphthalate	ND	330	µg/kg	
		4-Nitroaniline	ND	1,650	µg/kg	
		1,2-Diphenylhydrazine	ND	1,650	µg/kg	
		4,6-Dinitro-2-methylphenol	ND	1,650	µg/kg	
		n-Nitrosodiphenylamine	ND	330	µg/kg	
		4-Bromophenyl-phenylether	ND	330	µg/kg	
		Hexachlorobenzene	ND	330	µg/kg	
		Pentachlorophenol	ND	1,650	µg/kg	
		Phenanthrene	ND	330	µg/kg	
		Anthracene	ND	330	µg/kg	
		Di-n-butylphthalate	ND	330	µg/kg	
		Fluoranthene	ND	330	µg/kg	
		Pyrene	ND	330	µg/kg	
		Butylbenzylphthalate	ND	330	µg/kg	
		3,3'-Dichlorobenzidine	ND	660	µg/kg	
		Benzo[a]anthracene	ND	330	µg/kg	
		Chrysene	ND	330	µg/kg	
		bis(2-Ethylhexyl)phthalate	ND	330	µg/kg	
		Di-n-octylphthalate	ND	330	µg/kg	
		Benzo[b]fluoranthene	ND	330	µg/kg	
		Benzo[k]fluoranthene	ND	330	µg/kg	

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### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-2.5-4	Soil			Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	L9608-12
Benzo[a]pyrene	ND	330	µg/kg		
Indeno[1,2,3-cd]pyrene	ND	330	µg/kg		
Dibenz[a,h]anthracene	ND	330	µg/kg		
Benzo[g,h,i]perylene	ND	330	µg/kg		
Surrogate				Recovery	Limit
2-Fluorophenol				95. % ✓	
Phenol-d6				97. % ✓	
2,4,6-Tribromophenol				97. % ✓	
1,2-Dichlorobenzene-d4				97. % ✓	
Nitrobenzene-d5				97. % ✓	
2-Fluorobiphenyl				94. % ✓	

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### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-8.5-10	Soil				Sampled: 01/07/99 Extracted: 01/15/99 ✓ Analyzed: 01/20/99 by PB	L9608-16
		Phenol	ND	330	µg/kg	
		bis(2-Chloroethyl)ether	ND	330	µg/kg	
		2-Chlorophenol	ND	330	µg/kg	
		1,3-Dichlorobenzene	ND	330	µg/kg	
		1,4-Dichlorobenzene	ND	330	µg/kg	
		Benzyl Alcohol	ND	660	µg/kg	
		1,2-Dichlorobenzene	ND	330	µg/kg	
		2-Methylphenol	ND	330	µg/kg	
		bis(2-Chloroisopropyl)ether	ND	330	µg/kg	
		4-Methylphenol	ND	330	µg/kg	
		N-Nitroso-di-n-propylamine	ND	330	µg/kg	
		Hexachloroethane	ND	330	µg/kg	
		Nitrobenzene	ND	330	µg/kg	
		Isophorone	ND	330	µg/kg	
		2-Nitrophenol	ND	330	µg/kg	
		2,4-Dimethylphenol	ND	330	µg/kg	
		Benzoic Acid	ND	1,650	µg/kg	
		bis(2-Chloroethoxy)methane	ND	330	µg/kg	
		2,4-Dichlorophenol	ND	330	µg/kg	
		1,2,4-Trichlorobenzene	ND	330	µg/kg	
		Naphthalene	ND	330	µg/kg	
		4-Chloroaniline	ND	660	µg/kg	
		Hexachlorobutadiene	ND	330	µg/kg	
		4-Chloro-3-methylphenol	ND	660	µg/kg	
		2-Methylnaphthalene	ND	330	µg/kg	
		Hexachlorocyclopentadiene	ND	330	µg/kg	
		2,4,6-Trichlorophenol	ND	330	µg/kg	
		2,4,5-Trichlorophenol	ND	330	µg/kg	
		2-Chloronaphthalene	ND	330	µg/kg	
		2-Nitroaniline	ND	1,650	µg/kg	
		Acenaphthylene	ND	330	µg/kg	

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## Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-8.5-10	Soil					L9608-16
					Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	
		Dimethylphthalate	ND	330	µg/kg	
		2,6-Dinitrotoluene	ND	330	µg/kg	
		Acenaphthene	ND	330	µg/kg	
		3-Nitroaniline	ND	1,650	µg/kg	
		2,4-Dinitrophenol	ND	1,650	µg/kg	
		Dibenzofuran	ND	330	µg/kg	
		2,4-Dinitrotoluene	ND	330	µg/kg	
		4-Nitrophenol	ND	1,650	µg/kg	
		Fluorene	ND	330	µg/kg	
		4-Chlorophenyl-phenylether	ND	330	µg/kg	
		Diethylphthalate	ND	330	µg/kg	
		4-Nitroaniline	ND	1,650	µg/kg	
		1,2-Diphenylhydrazine	ND	1,650	µg/kg	
		4,6-Dinitro-2-methylphenol	ND	1,650	µg/kg	
		n-Nitrosodiphenylamine	ND	330	µg/kg	
		4-Bromophenyl-phenylether	ND	330	µg/kg	
		Hexachlorobenzene	ND	330	µg/kg	
		Pentachlorophenol	ND	1,650	µg/kg	
		Phenanthrene	ND	330	µg/kg	
		Anthracene	ND	330	µg/kg	
		Di-n-butylphthalate	ND	330	µg/kg	
		Fluoranthene	ND	330	µg/kg	
		Pyrene	ND	330	µg/kg	
		Butylbenzylphthalate	ND	330	µg/kg	
		3,3'-Dichlorobenzidine	ND	660	µg/kg	
		Benzo[a]anthracene	ND	330	µg/kg	
		Chrysene	ND	330	µg/kg	
		bis(2-Ethylhexyl)phthalate	ND	330	µg/kg	
		Di-n-octylphthalate	ND	330	µg/kg	
		Benzo[b]fluoranthene	ND	330	µg/kg	
		Benzo[k]fluoranthene	ND	330	µg/kg	

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB3-8.5-10	Soil				Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	L9608-16
		Benzo[a]pyrene	ND	330	µg/kg	
		Indeno[1,2,3-cd]pyrene	ND	330	µg/kg	
		Dibenz[a,h]anthracene	ND	330	µg/kg	
		Benzo[g,h,i]perylene	ND	330	µg/kg	
		Surrogate			Recovery	Limit
		2-Fluorophenol			95. %	
		Phenol-d6			100. %	
		2,4,6-Tribromophenol			102. %	
		1,2-Dichlorobenzene-d4			97. %	
		Nitrobenzene-d5			100. %	
		2-Fluorobiphenyl			98. %	

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Client: Woodward Clyde Consultants  
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Project: 5491C0796B.00  
IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix				Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment
99SW-SB4-1-2.5	Soil				
					Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB
Phenol		ND	3,300	µg/kg	D1
bis(2-Chloroethyl)ether		ND	3,300	µg/kg	D1
2-Chlorophenol		ND	3,300	µg/kg	D1
1,3-Dichlorobenzene		ND	3,300	µg/kg	D1
1,4-Dichlorobenzene		ND	3,300	µg/kg	D1
Benzyl Alcohol		ND	6,600	µg/kg	D1
1,2-Dichlorobenzene		ND	3,300	µg/kg	D1
2-Methylphenol		ND	3,300	µg/kg	D1
bis(2-Chloroisopropyl)ether		ND	3,300	µg/kg	D1
4-Methylphenol		ND	3,300	µg/kg	D1
N-Nitroso-di-n-propylamine		ND	3,300	µg/kg	D1
Hexachloroethane		ND	3,300	µg/kg	D1
Nitrobenzene		ND	3,300	µg/kg	D1
Isophorone		ND	3,300	µg/kg	D1
2-Nitrophenol		ND	3,300	µg/kg	D1
2,4-Dimethylphenol		ND	3,300	µg/kg	D1
Benzoic Acid		ND	16,500	µg/kg	D1
bis(2-Chloroethoxy)methane		ND	3,300	µg/kg	D1
2,4-Dichlorophenol		ND	3,300	µg/kg	D1
1,2,4-Trichlorobenzene		ND	3,300	µg/kg	D1
Naphthalene		ND	3,300	µg/kg	D1
4-Chloroaniline		ND	6,600	µg/kg	D1
Hexachlorobutadiene		ND	3,300	µg/kg	D1
4-Chloro-3-methylphenol		ND	6,600	µg/kg	D1
2-Methylnaphthalene		ND	3,300	µg/kg	D1
Hexachlorocyclopentadiene		ND	3,300	µg/kg	D1
2,4,6-Trichlorophenol		ND	3,300	µg/kg	D1
2,4,5-Trichlorophenol		ND	3,300	µg/kg	D1
2-Chloronaphthalene		ND	3,300	µg/kg	D1
2-Nitroaniline		ND	16,500	µg/kg	D1
Acenaphthylene		ND	3,300	µg/kg	D1

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Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Semivolatiles by EPA 8270

Sample ID	Matrix					Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment	
		Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB				
99SW-SB4-1-2.5	Soil					L9608-17
Dimethylphthalate		ND	3,300	µg/kg	D1	
2,6-Dinitrotoluene		ND	3,300	µg/kg	D1	
Acenaphthene		ND	3,300	µg/kg	D1	
3-Nitroaniline		ND	16,500	µg/kg	D1	
2,4-Dinitrophenol		ND	16,500	µg/kg	D1	
Dibenzofuran		ND	3,300	µg/kg	D1	
2,4-Dinitrotoluene		ND	3,300	µg/kg	D1	
4-Nitrophenol		ND	16,500	µg/kg	D1	
Fluorene		ND	3,300	µg/kg	D1	
4-Chlorophenyl-phenylether		ND	3,300	µg/kg	D1	
Diethylphthalate		ND	3,300	µg/kg	D1	
4-Nitroaniline		ND	16,500	µg/kg	D1	
1,2-Diphenylhydrazine		ND	16,500	µg/kg	D1	
4,6-Dinitro-2-methylphenol		ND	16,500	µg/kg	D1	
n-Nitrosodiphenylamine		ND	3,300	µg/kg	D1	
4-Bromophenyl-phenylether		ND	3,300	µg/kg	D1	
Hexachlorobenzene		ND	3,300	µg/kg	D1	
Pentachlorophenol		ND	16,500	µg/kg	D1	
Phenanthrene		ND	3,300	µg/kg	D1	
Anthracene		ND	3,300	µg/kg	D1	
Di-n-butylphthalate		ND	3,300	µg/kg	D1	
Fluoranthene		ND	3,300	µg/kg	D1	
Pyrene		ND	3,300	µg/kg	D1	
Butylbenzylphthalate		ND	3,300	µg/kg	D1	
3,3'-Dichlorobenzidine		ND	6,600	µg/kg	D1	
Benzo[a]anthracene		ND	3,300	µg/kg	D1	
Chrysene		ND	3,300	µg/kg	D1	
bis(2-Ethylhexyl)phthalate		ND	3,300	µg/kg	D1	
Di-n-octylphthalate		ND	3,300	µg/kg	D1	
Benzo[b]fluoranthene		ND	3,300	µg/kg	D1	
Benzo[k]fluoranthene		ND	3,300	µg/kg	D1	

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-1-2.5	Soil					L9608-17
Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB						
Benzo[a]pyrene		ND	3,300	µg/kg	D1	
Indeno[1,2,3-cd]pyrene		ND	3,300	µg/kg	D1	
Dibenz[a,h]anthracene		ND	3,300	µg/kg	D1	
Benzo[g,h,i]perylene		ND	3,300	µg/kg	D1	
	Surrogate			Recovery	Limit	
	2-Fluorophenol			113. %		
	Phenol-d6			113. %		
	2,4,6-Tribromophenol			91. %		
	1,2-Dichlorobenzene-d4			121. %		
	Nitrobenzene-d5			106. %		
	2-Fluorobiphenyl			114. %		

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

### Semivolatiles by EPA 8270

<i>Sample ID</i>	<i>Matrix</i>				<i>Lab Number</i>
Analyte		Result	Reporting Limit	Units (ppb)	Comment

<i>Sample ID</i>	<i>Matrix</i>				
99SW-SB4-5.5-7	Soil				Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB
					L9608-20
Phenol		ND	330	µg/kg	
bis(2-Chloroethyl)ether		ND	330	µg/kg	
2-Chlorophenol		ND	330	µg/kg	
1,3-Dichlorobenzene		ND	330	µg/kg	
1,4-Dichlorobenzene		ND	330	µg/kg	
Benzyl Alcohol		ND	660	µg/kg	
1,2-Dichlorobenzene		ND	330	µg/kg	
2-Methylphenol		ND	330	µg/kg	
bis(2-Chloroisopropyl)ether		ND	330	µg/kg	
4-Methylphenol		ND	330	µg/kg	
N-Nitroso-di-n-propylamine		ND	330	µg/kg	
Hexachloroethane		ND	330	µg/kg	
Nitrobenzene		ND	330	µg/kg	
Isophorone		ND	330	µg/kg	
2-Nitrophenol		ND	330	µg/kg	
2,4-Dimethylphenol		ND	330	µg/kg	
Benzoic Acid		ND	1,650	µg/kg	
bis(2-Chloroethoxy)methane		ND	330	µg/kg	
2,4-Dichlorophenol		ND	330	µg/kg	
1,2,4-Trichlorobenzene		ND	330	µg/kg	
Naphthalene		ND	330	µg/kg	
4-Chloroaniline		ND	660	µg/kg	
Hexachlorobutadiene		ND	330	µg/kg	
4-Chloro-3-methylphenol		ND	660	µg/kg	
2-Methylnaphthalene		ND	330	µg/kg	
Hexachlorocyclopentadiene		ND	330	µg/kg	
2,4,6-Trichlorophenol		ND	330	µg/kg	
2,4,5-Trichlorophenol		ND	330	µg/kg	
2-Chloronaphthalene		ND	330	µg/kg	
2-Nitroaniline		ND	1,650	µg/kg	
Acenaphthylene		ND	330	µg/kg	

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L9608

Client: Woodward Clyde Consultants  
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Project: 5491C0796B.00  
IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
99SW-SB4-5.5-7	Soil					L9608-20
					Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	
		Dimethylphthalate	ND	330	µg/kg	
		2,6-Dinitrotoluene	ND	330	µg/kg	
		Acenaphthene	ND	330	µg/kg	
		3-Nitroaniline	ND	1,650	µg/kg	
		2,4-Dinitrophenol	ND	1,650	µg/kg	
		Dibenzofuran	ND	330	µg/kg	
		2,4-Dinitrotoluene	ND	330	µg/kg	
		4-Nitrophenol	ND	1,650	µg/kg	
		Fluorene	ND	330	µg/kg	
		4-Chlorophenyl-phenylether	ND	330	µg/kg	
		Diethylphthalate	ND	330	µg/kg	
		4-Nitroaniline	ND	1,650	µg/kg	
		1,2-Diphenylhydrazine	ND	1,650	µg/kg	
		4,6-Dinitro-2-methylphenol	ND	1,650	µg/kg	
		n-Nitrosodiphenylamine	ND	330	µg/kg	
		4-Bromophenyl-phenylether	ND	330	µg/kg	
		Hexachlorobenzene	ND	330	µg/kg	
		Pentachlorophenol	ND	1,650	µg/kg	
		Phenanthrene	ND	330	µg/kg	
		Anthracene	ND	330	µg/kg	
		Di-n-butylphthalate	ND	330	µg/kg	
		Fluoranthene	ND	330	µg/kg	
		Pyrene	ND	330	µg/kg	
		Butylbenzylphthalate	ND	330	µg/kg	
		3,3'-Dichlorobenzidine	ND	660	µg/kg	
		Benzo[a]anthracene	ND	330	µg/kg	
		Chrysene	ND	330	µg/kg	
		bis(2-Ethylhexyl)phthalate	ND	330	µg/kg	
		Di-n-octylphthalate	ND	330	µg/kg	
		Benzo[b]fluoranthene	ND	330	µg/kg	
		Benzo[k]fluoranthene	ND	330	µg/kg	

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

### Semivolatiles by EPA 8270

<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
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<i>Sample ID</i>	<i>Matrix</i>	<i>Result</i>	<i>Reporting Limit</i>	<i>Units (ppb)</i>	<i>Comment</i>	<i>Lab Number</i>
99SW-SB4-5.5-7	Soil				Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB	L9608-20
		Benzo[a]pyrene	ND	330	µg/kg	
		Indeno[1,2,3-cd]pyrene	ND	330	µg/kg	
		Dibenz[a,h]anthracene	ND	330	µg/kg	
		Benzo[g,h,i]perylene	ND	330	µg/kg	
		Surrogate			Recovery	Limit
		2-Fluorophenol			105. %	
		Phenol-d6			109. %	
		2,4,6-Tribromophenol			108. %	
		1,2-Dichlorobenzene-d4			106. %	
		Nitrobenzene-d5			111. %	
		2-Fluorobiphenyl			110. %	

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Project: *5491C0796B.00*  
*IP - Longview*

## Semivolatiles by EPA 8270

Sample ID	Matrix					Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment	
<i>99SW-SB4-10-11.5</i>	<i>Soil</i>	Sampled: <i>01/07/99</i> Extracted: <i>01/15/99</i> Analyzed: <i>01/20/99 by PB</i>				<i>L9608-23</i>
Phenol		ND	3,300	µg/kg		D1
bis(2-Chloroethyl)ether		ND	3,300	µg/kg		D1
2-Chlorophenol		ND	3,300	µg/kg		D1
1,3-Dichlorobenzene		ND	3,300	µg/kg		D1
1,4-Dichlorobenzene		ND	3,300	µg/kg		D1
Benzyl Alcohol		ND	6,600	µg/kg		D1
1,2-Dichlorobenzene		ND	3,300	µg/kg		D1
2-Methylphenol		ND	3,300	µg/kg		D1
bis(2-Chloroisopropyl)ether		ND	3,300	µg/kg		D1
4-Methylphenol		ND	3,300	µg/kg		D1
N-Nitroso-di-n-propylamine		ND	3,300	µg/kg		D1
Hexachloroethane		ND	3,300	µg/kg		D1
Nitrobenzene		ND	3,300	µg/kg		D1
Isophorone		ND	3,300	µg/kg		D1
2-Nitrophenol		ND	3,300	µg/kg		D1
2,4-Dimethylphenol		ND	3,300	µg/kg		D1
Benzoic Acid		ND	16,500	µg/kg		D1
bis(2-Chloroethoxy)methane		ND	3,300	µg/kg		D1
2,4-Dichlorophenol		ND	3,300	µg/kg		D1
1,2,4-Trichlorobenzene		ND	3,300	µg/kg		D1
Naphthalene		ND	3,300	µg/kg		D1
4-Chloroaniline		ND	6,600	µg/kg		D1
Hexachlorobutadiene		ND	3,300	µg/kg		D1
4-Chloro-3-methylphenol		ND	6,600	µg/kg		D1
2-Methylnaphthalene		ND	3,300	µg/kg		D1
Hexachlorocyclopentadiene		ND	3,300	µg/kg		D1
2,4,6-Trichlorophenol		ND	3,300	µg/kg		D1
2,4,5-Trichlorophenol		ND	3,300	µg/kg		D1
2-Chloronaphthalene		ND	3,300	µg/kg		D1
2-Nitroaniline		ND	16,500	µg/kg		D1
Acenaphthylene		ND	3,300	µg/kg		D1

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L9608

Client: *Woodward Clyde Consultants*  
 Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Semivolatiles by EPA 8270

Sample ID	Matrix					Lab Number
Analyte		Result	Reporting Limit	Units (ppb)	Comment	
		Sampled: <i>01/07/99</i> Extracted: <i>01/15/99</i> Analyzed: <i>01/20/99 by PB</i>				
<i>99SW-SB4-10-11.5</i>	<i>Soil</i>					<i>L9608-23</i>
Dimethylphthalate		ND	3,300	µg/kg	D1	
2,6-Dinitrotoluene		ND	3,300	µg/kg	D1	
Acenaphthene		ND	3,300	µg/kg	D1	
3-Nitroaniline		ND	16,500	µg/kg	D1	
2,4-Dinitrophenol		ND	16,500	µg/kg	D1	
Dibenzofuran		ND	3,300	µg/kg	D1	
2,4-Dinitrotoluene		ND	3,300	µg/kg	D1	
4-Nitrophenol		ND	16,500	µg/kg	D1	
Fluorene		ND	3,300	µg/kg	D1	
4-Chlorophenyl-phenylether		ND	3,300	µg/kg	D1	
Diethylphthalate		ND	3,300	µg/kg	D1	
4-Nitroaniline		ND	16,500	µg/kg	D1	
1,2-Diphenylhydrazine		ND	16,500	µg/kg	D1	
4,6-Dinitro-2-methylphenol		ND	16,500	µg/kg	D1	
n-Nitrosodiphenylamine		ND	3,300	µg/kg	D1	
4-Bromophenyl-phenylether		ND	3,300	µg/kg	D1	
Hexachlorobenzene		ND	3,300	µg/kg	D1	
Pentachlorophenol		ND	16,500	µg/kg	D1	
Phenanthrene		ND	3,300	µg/kg	D1	
Anthracene		ND	3,300	µg/kg	D1	
Di-n-butylphthalate		ND	3,300	µg/kg	D1	
Fluoranthene		ND	3,300	µg/kg	D1	
Pyrene		ND	3,300	µg/kg	D1	
Butylbenzylphthalate		ND	3,300	µg/kg	D1	
3,3'-Dichlorobenzidine		ND	6,600	µg/kg	D1	
Benzo[a]anthracene		ND	3,300	µg/kg	D1	
Chrysene		ND	3,300	µg/kg	D1	
bis(2-Ethylhexyl)phthalate		ND	3,300	µg/kg	D1	
Di-n-octylphthalate		ND	3,300	µg/kg	D1	
Benzo[b]fluoranthene		ND	3,300	µg/kg	D1	
Benzo[k]fluoranthene		ND	3,300	µg/kg	D1	

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Semivolatiles by EPA 8270

Sample ID	Matrix	Result	Reporting Limit	Units (ppb)	Comment	Lab Number
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Analyte	Result	Reporting Limit	Units (ppb)	Comment
99SW-SB4-10-11.5	Soil			Sampled: 01/07/99 Extracted: 01/15/99 Analyzed: 01/20/99 by PB L9608-23
Benzo[a]pyrene	ND	3,300	µg/kg	D1
Indeno[1,2,3-cd]pyrene	ND	3,300	µg/kg	D1
Dibenz[a,h]anthracene	ND	3,300	µg/kg	D1
Benzo[g,h,i]perylene	ND	3,300	µg/kg	D1
Surrogate			Recovery	Limit
2-Fluorophenol			70.%	
Phenol-d6			73.%	
2,4,6-Tribromophenol			55.%	
1,2-Dichlorobenzene-d4			74.%	
Nitrobenzene-d5			59.%	
2-Fluorobiphenyl			72.%	

(4-115)  
22-115

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L9608

Client: *Woodward Clyde Consultants*  
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Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Blank**  
**Inorganics - Soils (mg/kg)**

Analyte	Result	Reporting		Date Analyzed
		Limit	Q	
Chloride .....	ND	1		01/13/99
Cyanide, Total .....	ND	1		01/15/99
Fluoride .....	ND	1		01/13/99
Nitrate as N .....	ND	1		01/13/99
pH .....	NA	0.1		01/12/99
Sulfate as SO4 .....	ND	5		01/13/99

Comments: Chloride, Fluoride, Nitrate, & Sulfate Batch QC for L9608-1, -4, -5, -9, -12, -16, -17, -20, & -23.  
Cyanide Batch QC for L9608-1 & -4.

**OREGON ANALYTICAL LABORATORY**

A Division of Portland General Electric  
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Phone 503-590-5300 • Fax 503-590-1404



L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Blank**  
**Inorganics - Soils (mg/kg)**

Analyte	Result	Reporting		Date Analyzed
		Limit	Q	
Chloride .....	ND	1		01/13/99
Cyanide, Total .....	ND	1		01/15/99
Fluoride .....	ND	1		01/13/99
Nitrate as N .....	ND	1		01/13/99
pH .....	NA	0.1		01/14/99
Sulfate as SO4 .....	ND	5		01/13/99
Comments: Chloride, Fluoride, Nitrate, pH, & Sulfate Batch QC for L9608-6. Cyanide Batch QC for L9608-5, -6, -9, -12, -16, -17, & -20.				

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Blank**  
**Inorganics - Soils (mg/kg)**

Analyte	Result	Reporting Limit	Q	Date Analyzed
Cyanide, Total .....	ND	1		01/15/99
Comments: Cyanide Batch QC for L9608-23.				

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

**Batch Q.C.**  
**LCSW**  
**Inorganics - Soils (mg/kg)**

Analyte	True Value	Result	% Recovery	% Limit	Date Analyzed
Chloride .....	6.0	5.5	92 ✓	90-110	01/13/99
Cyanide, Total .....	60	53	88 ✓	85-115	01/15/99
Fluoride .....	3.0	2.9	97 ✓	90-110	01/13/99
Nitrate as N .....	3.0	2.7	90 ✓	90-110	01/13/99
pH .....	8.0	8.1	101 ✓	0.1 †	01/12/99
Sulfate as SO4 .....	18	17	94 ✓	90-110	01/13/99

Comments: † Limit for pH is calculated using the difference of results.  
Chloride, Fluoride, Nitrate, & Sulfate Batch QC for L9608-1, -4, -5, -9, -12, -16, -17, -20, & -23.  
Cyanide Batch QC for L9608-1 & -4.

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**LCSW**  
**Inorganics - Soils (mg/kg)**

Analyte	True Value	Result	% Recovery	% Limit	Date Analyzed
Chloride .....	6.0	5.8	97	90-110	01/13/99
Cyanide, Total .....	60	58	97	85-115	01/15/99
Fluoride .....	3.0	3.0	100	90-110	01/13/99
Nitrate as N .....	3.0	2.8	93	90-110	01/13/99
pH .....	6.0	6.0	100	0.1 †	01/14/99
Sulfate as SO4 .....	18	18	100	90-110	01/13/99
Comments: Chloride, Fluoride, Nitrate, pH, & Sulfate Batch QC for L9608-6. Cyanide Batch QC for L9608-5, -6, -9, -12, -16, -17, -20 & -23.					

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Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Batch Q.C. Duplicate Inorganics - Soils (mg/kg)

Analyte	Result	Duplicate	Reporting	RPD		Date
		Result	Limit	RPD	Limit	Q Analyzed

Chloride . . . . .	ND	1	1	NA	20	‡	01/13/99
Cyanide, Total . . . . .	ND	ND	1	<1	20		01/15/99
Fluoride . . . . .	2	3	1	NA	20	‡	01/13/99
Nitrate as N . . . . .	ND	ND	1	<1	20		01/13/99
pH . . . . .	7.1	7.1	0.1	<1	±0.1 †		01/12/99
Sulfate as SO4 . . . . .	39	35	5	11	20		01/13/99

Comments: † Limit for pH is calculated using the difference of results, not Relative Percent Difference (RPD).  
‡ QC limits do not apply when the sample or duplicate result is less than 5 times the reporting limit  
Chloride, Fluoride, Nitrate, & Sulfate Batch QC for L9608-1, -4, -5, -9, -12, -16, -17, -20, & -23.  
Cyanide Batch QC for L9608-1, -4, -5, -6, -9, -12, -16, -17, & -20.

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Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Duplicate**  
**Inorganics - Soils (mg/kg)**

Analyte	Result	Duplicate Result	Reporting Limit	RPD	RPD Limit	Q	Date Analyzed
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Chloride .....	1	1	1	<1	20		01/13/99
Cyanide, Total .....	ND	ND	1	<1	20		01/15/99
Fluoride .....	5	4	1	NA	20	‡	01/13/99
Nitrate as N .....	6	6	1	<1	20		01/13/99
pH .....	6.7	6.7	0.1	<1	±0.1 †		01/14/99
Sulfate as SO4 .....	6	6	5	<1	20		01/13/99
Comments: Chloride, Fluoride, Nitrate, pH, & Sulfate Batch QC for L9608-6. Cyanide Batch QC for L9608-23.							

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Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Spike**  
**Inorganics - Soils (mg/kg)**

Analyte	Spike Result	Sample Result	Spike Added	% Recovery	% Limit	Q	Date Analyzed
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Chloride . . . . .	47	ND	52	90	75-125		01/13/99
Cyanide, Total . . . . .	20	ND	21	95	75-125		01/15/99
Fluoride . . . . .	14	2	26	46	75-125	K1	01/13/99
Nitrate as N . . . . .	23	ND	26	88	75-125		01/13/99
pH . . . . .	NA	NA	NA	NA			01/12/99
Sulfate as SO4 . . . . .	180	39	150	94	75-125		01/13/99

Comments: Chloride, Fluoride, Nitrate, & Sulfate Batch QC for L9608-1, -4, -5, -9, -12, -16, -17, -20, & -23.  
Cyanide Batch QC for L9608-1, -4, -5, -6, -9, -12, -16, -17, & -20.  
K1 = Batch matrix spike recovery outside laboratory QC limits due to suspected matrix interference.

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Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

### Batch Q.C.

### Spike Inorganics - Soils (mg/kg)

Analyte	Spike Result	Sample Result	Spike Added	% Recovery	% Limit	Q	Date Analyzed
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Chloride .....	52	1	54	94	75-125		01/13/99
Cyanide, Total .....	22	ND	24	92	75-125		01/15/99
Fluoride .....	14	5	27	33	75-125	K1	01/13/99
Nitrate as N .....	31	6	27	93	75-125		01/13/99
pH .....	NA	NA	NA	NA			01/14/99
Sulfate as SO4 .....	160	6	160	96	75-125		01/13/99

Comments: Chloride, Fluoride, Nitrate, pH, & Sulfate Batch QC for L9608-6.  
Cyanide Batch QC for L9608-23.  
K1 = Batch matrix spike recovery outside laboratory QC limits due to suspected matrix interference.

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Method Blank**  
**Metals / Total by Weight (mg/kg)**

Analyte	Result	Reporting Limit	Q	Date Analyzed
Antimony . . . . .	ND	2.0		01/18/99
Arsenic . . . . .	ND	0.20		01/20/99
Beryllium . . . . .	ND	0.10		01/18/99
Cadmium . . . . .	ND	0.20		01/18/99
Chromium . . . . .	ND	0.50		01/18/99
Copper . . . . .	ND	0.20		01/18/99
Lead . . . . .	ND	0.10		01/18/99
Mercury . . . . .	ND	0.10		01/21/99
Nickel . . . . .	ND	1.0		01/18/99
Selenium . . . . .	ND	0.20		01/20/99
Silver . . . . .	ND	0.30		01/18/99
Thallium . . . . .	ND	0.20		01/20/99
Zinc . . . . .	ND	1.0		01/18/99
Comments:				

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Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

## Batch Q.C. LCSW Metals / Total by Volume (mg/L)

Analyte	True Value	Result	% Recovery	% Limit	Date Analyzed
Antimony .....	1.00	1.01	101✓	80-120	01/18/99
Arsenic .....	0.0800	0.0808	101✓	80-120	01/20/99
Beryllium .....	0.100	0.101	101✓	80-120	01/18/99
Cadmium .....	0.100	0.0989	99✓	80-120	01/18/99
Chromium .....	0.400	0.399	100✓	80-120	01/18/99
Copper .....	0.500	0.491	98✓	80-120	01/18/99
Lead .....	0.0400	0.0384	96✓	80-120	01/18/99
Mercury .....	0.00200	0.0018	90✓	80-120	01/21/99
Nickel .....	1.00	0.989	99✓	80-120	01/18/99
Selenium .....	0.0200	0.0204	102✓	80-120	01/20/99
Silver .....	0.100	0.0958	96✓	80-120	01/18/99
Thallium .....	0.100	0.0934	93✓	80-120	01/20/99
Zinc .....	1.00	0.975	98✓	80-120	01/18/99

Comments: LCSW = Laboratory Control Sample: Water

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Client: **Woodward Clyde Consultants**  
 Contact: **Michelle McClelland**

Project: **5491C0796B.00**  
**IP - Longview**

## Batch Q.C. LCSS Metals / Total by Weight (mg/kg)

Analyte	Mean Value	Result	% Recovery	mg/kg Limit	Date Analyzed
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Antimony . . . . .	129	138	107	89.0 - 170	01/18/99
Arsenic . . . . .	68.9	76.8	111	45.5 - 92.2	01/20/99
Beryllium . . . . .	105	113	108	90.6 - 120	01/18/99
Cadmium . . . . .	58.0	63.6	110	49.6 - 66.3	01/18/99
Chromium . . . . .	92.3	93.9	102	74.2 - 110	01/18/99
Copper . . . . .	178	187	105	151 - 205	01/18/99
Lead . . . . .	147	149	101	78.8 - 216	01/18/99
Mercury . . . . .	3.96	4.85	122	2.82 - 5.11	01/21/99
Nickel . . . . .	70.4	77.3	110	61.1 - 79.7	01/18/99
Selenium . . . . .	75.3	73.8	98	57.8 - 92.8	01/20/99
Silver . . . . .	72.8	78.3	108	61.4 - 84.2	01/18/99
Thallium . . . . .	58.5	80.3	137	56.2 - 108*	01/20/99
Zinc . . . . .	92.0	94.3	103	77.2 - 107	01/18/99

Comments: LCSS: Laboratory Control Sample: Solid Control limits are based on OAL control charts  
 \* = less than 20 points have been collected, therefore manufactures control limits are being used

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Duplicate**  
**Metals / Total by Weight (mg/kg)**

Analyte	Result	Duplicate Result	Reporting Limit	RPD	RPD Limit	Q	Date Analyzed
Antimony . . . . .	ND	ND	2.0	NA	35		01/18/99
Arsenic . . . . .	2.2	2.1	1.0	5	35		01/20/99
Beryllium . . . . .	0.27	0.26	0.10	4	35		01/18/99
Cadmium . . . . .	ND	ND	0.20	NA	35		01/18/99
Chromium . . . . .	10.8	11.7	0.50	8	35		01/18/99
Copper . . . . .	32.5	34.6	0.20	6	35		01/18/99
Lead . . . . .	4.9	4.92	0.50	<1	35		01/18/99
Mercury . . . . .	ND	ND	0.10	NA	35		01/21/99
Nickel . . . . .	10.9	11	1.0	<1	35		01/18/99
Selenium . . . . .	ND	ND	1.0	NA	35		01/20/99
Silver . . . . .	ND	ND	0.30	NA	35		01/18/99
Thallium . . . . .	ND	ND	1.0	NA	35		01/20/99
Zinc . . . . .	33.6	35.2	1.0	5	35		01/18/99
Comments:							

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00  
IP - Longview

### Batch Q.C.

### Spike

### Metals / Total by Weight (mg/kg)

Analyte	Spike Result	Sample Result	Spike Added	% Recovery	% Limit	Q	Date Analyzed
Antimony	57.6	ND	99.5	58	75-125	K3	01/18/99
Arsenic	9.67	2.2	7.90	95	75-125		01/20/99
Beryllium	9.82	0.27	9.95	96	75-125		01/18/99
Cadmium	9.23	ND	9.95	93	75-125		01/18/99
Chromium	47.8	10.8	39.8	93	75-125		01/18/99
Copper	77.7	32.5	49.7	91	75-125		01/18/99
Lead	9.97	4.9	3.95	128	75-125	K3	01/18/99
Mercury	1.98	ND	1.86	106	75-125		01/21/99
Nickel	101	10.9	99.5	91	75-125		01/18/99
Selenium	2.4	ND	1.97	122	75-125		01/20/99
Silver	8.91	ND	9.95	90	75-125		01/18/99
Thallium	8.1	ND	9.87	82	75-125		01/20/99
Zinc	174	33.6	99.5	141	75-125	K3	01/18/99

Comments:

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### Volatiles LCS by EPA Method 8260

					<i>Lab Number</i>
Analyte	Results	Amount Spiked	Units	Recovery	

Analyzed : 01/15/99					<i>LCS0115</i>
CAS #					
75-35-4	1,1-Dichloroethene .....	38	40	ug/Kg	96% ✓
71-43-2	Benzene .....	41	40	ug/Kg	102% ✓
79-01-6	Trichloroethene .....	41	40	ug/Kg	103% ✓
108-88-3	Toluene .....	44	40	ug/Kg	110% ✓
108-90-7	Chlorobenzene .....	44	40	ug/Kg	109% ✓
<b>Surrogates</b>					<b>Recovery</b>
					<b>LCS0115</b>
1,2-Dichloroethane-d4					95% ✓
Toluene-d8					108% ✓
4-Bromofluorobenzene					101% ✓

none detected = nd



L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### Volatiles MS/MSD by EPA Method 8260

Sample ID						Lab Number
Analyte		MS % Recovery	MSD % Recovery	RPD	Comment	
99SW-SB1-1-2.5 Soil						L9608-1
<b>CAS #</b>						
75-35-4	1,1-Dichloroethene . . . . .	94%✓	97%✓	3%		
71-43-2	Benzene . . . . .	95%✓	97%✓	3%		
79-01-6	Trichloroethene . . . . .	91%✓	94%✓	3%		
108-88-3	Toluene . . . . .	99%✓	102%✓	3%		
108-90-7	Chlorobenzene . . . . .	101%✓	106%✓	5%		
<b>Surrogates</b>						
						Recovery
						MS
						Recovery
						MSD
1,2-Dichloroethane-d4						90%✓
Toluene-d8						109%✓
4-Bromofluorobenzene						108%✓



L9608

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

## Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
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MB0114Z					Analyzed : 01/15/99
CAS #					
75-71-8	Dichlorodifluoromethane	nd	20	ug/Kg	
74-87-3	Chloromethane	nd	20	ug/Kg	
75-01-4	Vinyl chloride	nd	20	ug/Kg	
74-83-9	Bromomethane	nd	20	ug/Kg	
75-00-3	Chloroethane	nd	20	ug/Kg	
75-69-4	Trichlorofluoromethane	nd	10	ug/Kg	
67-64-1	Acetone	nd	200	ug/Kg	
75-35-4	1,1-Dichloroethene	nd	10	ug/Kg	
75-09-2	Methylene chloride	nd	20	ug/Kg	
75-15-0	Carbon disulfide	nd	10	ug/Kg	
156-60-5	trans-1,2-Dichloroethene	nd	10	ug/Kg	
75-34-3	1,1-Dichloroethane	nd	10	ug/Kg	
78-93-3	2-Butanone	nd	200	ug/Kg	
590-20-7	2,2-Dichloropropane	nd	10	ug/Kg	
156-59-4	cis-1,2-Dichloroethene	nd	10	ug/Kg	
74-97-5	Bromochloromethane	nd	10	ug/Kg	
67-66-3	Chloroform	nd	10	ug/Kg	
71-55-6	1,1,1-Trichloroethane	nd	10	ug/Kg	
56-23-5	Carbon tetrachloride	nd	10	ug/Kg	
563-58-6	1,1-Dichloropropene	nd	10	ug/Kg	
71-43-2	Benzene	nd	10	ug/Kg	
107-06-2	1,2-Dichloroethane	nd	10	ug/Kg	
79-01-6	Trichloroethene	nd	10	ug/Kg	

none detected = nd  
 Samples: L9608-1, -4, -5, -9, -12, -16, -17, -20, -23

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L9608

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

## Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
<b>MB0114Z</b>					
	<b>CAS #</b>				<b>Analyzed : 01/15/99</b>
	78-87-5	1,2-Dichloropropane . . . . .	nd	10	ug/Kg
	74-95-3	Dibromomethane . . . . .	nd	10	ug/Kg
	75-27-4	Bromodichloromethane . . . . .	nd	10	ug/Kg
	10061-01-5	cis-1,3-Dichloropropene . . . . .	nd	10	ug/Kg
	108-10-1	4-Methyl-2-pentanone . . . . .	nd	100	ug/Kg
	108-88-3	Toluene . . . . .	nd	10	ug/Kg
	591-78-6	2-Hexanone . . . . .	nd	100	ug/Kg
	10061-02-6	trans-1,3-Dichloropropene . . . . .	nd	10	ug/Kg
	79-00-5	1,1,2-Trichloroethane . . . . .	nd	10	ug/Kg
	127-18-4	Tetrachloroethene . . . . .	nd	10	ug/Kg
	542-75-6	1,3-Dichloropropane . . . . .	nd	10	ug/Kg
	124-48-1	Dibromochloromethane . . . . .	nd	10	ug/Kg
	106-93-4	1,2-Dibromoethane . . . . .	nd	10	ug/Kg
	108-90-7	Chlorobenzene . . . . .	nd	10	ug/Kg
	630-20-6	1,1,1,2-Tetrachloroethane . . . . .	nd	10	ug/Kg
	100-41-4	Ethylbenzene . . . . .	nd	10	ug/Kg
	100-42-5	Styrene . . . . .	nd	10	ug/Kg
	75-25-2	Bromoform . . . . .	nd	10	ug/Kg
	98-82-8	Isopropylbenzene . . . . .	nd	10	ug/Kg
	108-86-1	Bromobenzene . . . . .	nd	10	ug/Kg
	79-34-5	1,1,2,2-Tetrachloroethane . . . . .	nd	10	ug/Kg
	96-18-4	1,2,3-Trichloropropane . . . . .	nd	10	ug/Kg
	103-65-1	n-Propylbenzene . . . . .	nd	10	ug/Kg

none detected = nd  
 Samples: L9608-1, -4, -5, -8, -12, -16, -17, -20, -23

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
-----------	---------	--------	-----------------	-------	---------

MB0114Z					Analyzed : 01/15/99
CAS #					
95-49-8	2-Chlorotoluene	nd	10	ug/Kg	
106-43-4	4-Chlorotoluene	nd	10	ug/Kg	
108-67-8	1,3,5-Trimethylbenzene	nd	10	ug/Kg	
98-06-6	tert-Butylbenzene	nd	10	ug/Kg	
95-83-6	1,2,4-Trimethylbenzene	nd	10	ug/Kg	
135-98-8	sec-Butylbenzene	nd	10	ug/Kg	
541-73-1	1,3-Dichlorobenzene	nd	10	ug/Kg	
99-87-6	4-Isopropyltoluene	nd	10	ug/Kg	
106-46-7	1,4-Dichlorobenzene	nd	10	ug/Kg	
95-50-1	1,2-Dichlorobenzene	nd	10	ug/Kg	
104-51-8	n-Butylbenzene	nd	10	ug/Kg	
96-12-8	1,2-Dibromo-3-chloropropane	nd	10	ug/Kg	
120-82-1	1,2,4-Trichlorobenzene	nd	10	ug/Kg	
87-68-3	Hexachlorobutadiene	nd	10	ug/Kg	
91-20-3	Naphthalene	nd	10	ug/Kg	
87-61-6	1,2,3-Trichlorobenzene	nd	10	ug/Kg	
	Total Xylenes	nd	10	ug/Kg	
					<b>Recovery</b>
<b>Surrogates</b>					<b>MB0114Z</b>
1,2-Dichloroethane-d4					98%
Toluene-d8					95%
4-Bromofluorobenzene					94%

none detected = nd  
Samples: L9608-1, -4, -5, -9, -12, -16, -17, -20, -23

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L9608

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

## Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
MBD112H					Analyzed : 01/15/99
<b>CAS #</b>					
75-71-8	Dichlorodifluoromethane . . . . .	nd	20	ug/Kg	
74-87-3	Chloromethane . . . . .	nd	20	ug/Kg	
75-01-4	Vinyl chloride . . . . .	nd	20	ug/Kg	
74-83-9	Bromomethane . . . . .	nd	20	ug/Kg	
75-00-3	Chloroethane . . . . .	nd	20	ug/Kg	
75-69-4	Trichlorofluoromethane . . . . .	nd	10	ug/Kg	
67-64-1	Acetone . . . . .	nd	200	ug/Kg	
75-35-4	1,1-Dichloroethene . . . . .	nd	10	ug/Kg	
75-09-2	Methylene chloride . . . . .	nd	20	ug/Kg	
75-15-0	Carbon disulfide . . . . .	nd	10	ug/Kg	
156-60-5	trans-1,2-Dichloroethene . . . . .	nd	10	ug/Kg	
75-34-3	1,1-Dichloroethane . . . . .	nd	10	ug/Kg	
78-93-3	2-Butanone . . . . .	nd	200	ug/Kg	
590-20-7	2,2-Dichloropropane . . . . .	nd	10	ug/Kg	
158-59-4	cis-1,2-Dichloroethene . . . . .	nd	10	ug/Kg	
74-97-5	Bromochloromethane . . . . .	nd	10	ug/Kg	
67-66-3	Chloroform . . . . .	nd	10	ug/Kg	
71-55-6	1,1,1-Trichloroethane . . . . .	nd	10	ug/Kg	
56-23-5	Carbon tetrachloride . . . . .	nd	10	ug/Kg	
563-58-6	1,1-Dichloropropene . . . . .	nd	10	ug/Kg	
71-43-2	Benzene . . . . .	nd	10	ug/Kg	
107-06-2	1,2-Dichloroethane . . . . .	nd	10	ug/Kg	
79-01-6	Trichloroethene . . . . .	nd	10	ug/Kg	

none detected = nd  
 Sample: L9608-6

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

## Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
MB0112H					Analyzed : 01/15/99
CAS #					
78-87-5	1,2-Dichloropropane . . . . .	nd	10	ug/Kg	
74-95-3	Dibromomethane . . . . .	nd	10	ug/Kg	
75-27-4	Bromodichloromethane . . . . .	nd	10	ug/Kg	
10061-01-5	cis-1,3-Dichloropropene . . . . .	nd	10	ug/Kg	
108-10-1	4-Methyl-2-pentanone . . . . .	nd	100	ug/Kg	
108-88-3	Toluene . . . . .	nd	10	ug/Kg	
591-78-6	2-Hexanone . . . . .	nd	100	ug/Kg	
10061-02-6	trans-1,3-Dichloropropene . . . . .	nd	10	ug/Kg	
79-00-5	1,1,2-Trichloroethane . . . . .	nd	10	ug/Kg	
127-18-4	Tetrachloroethene . . . . .	nd	10	ug/Kg	
542-75-6	1,3-Dichloropropane . . . . .	nd	10	ug/Kg	
124-48-1	Dibromochloromethane . . . . .	nd	10	ug/Kg	
106-93-4	1,2-Dibromoethane . . . . .	nd	10	ug/Kg	
108-90-7	Chlorobenzene . . . . .	nd	10	ug/Kg	
630-20-6	1,1,1,2-Tetrachloroethane . . . . .	nd	10	ug/Kg	
100-41-4	Ethylbenzene . . . . .	nd	10	ug/Kg	
100-42-5	Styrene . . . . .	nd	10	ug/Kg	
75-25-2	Bromoform . . . . .	nd	10	ug/Kg	
98-82-8	Isopropylbenzene . . . . .	nd	10	ug/Kg	
108-86-1	Bromobenzene . . . . .	nd	10	ug/Kg	
79-34-5	1,1,2,2-Tetrachloroethane . . . . .	nd	10	ug/Kg	
96-18-4	1,2,3-Trichloropropane . . . . .	nd	10	ug/Kg	
103-65-1	n-Propylbenzene . . . . .	nd	10	ug/Kg	

none detected = nd  
Sample: L9608-6

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L9608

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

### Volatiles Blank by EPA Method 8260

Sample ID	Analyte	Result	Reporting Limit	Units	Comment
MB0112H					Analyzed : 01/15/99
<b>CAS #</b>					
95-49-8	2-Chlorotoluene . . . . .	nd	10	ug/Kg	
106-43-4	4-Chlorotoluene . . . . .	nd	10	ug/Kg	
108-67-8	1,3,5-Trimethylbenzene . . . . .	nd	10	ug/Kg	
98-06-6	tert-Butylbenzene . . . . .	nd	10	ug/Kg	
95-63-6	1,2,4-Trimethylbenzene . . . . .	nd	10	ug/Kg	
135-98-8	sec-Butylbenzene . . . . .	nd	10	ug/Kg	
541-73-1	1,3-Dichlorobenzene . . . . .	nd	10	ug/Kg	
99-87-6	4-Isopropyltoluene . . . . .	nd	10	ug/Kg	
106-46-7	1,4-Dichlorobenzene . . . . .	nd	10	ug/Kg	
95-50-1	1,2-Dichlorobenzene . . . . .	nd	10	ug/Kg	
104-51-8	n-Butylbenzene . . . . .	nd	10	ug/Kg	
96-12-8	1,2-Dibromo-3-chloropropane . . . . .	nd	10	ug/Kg	
120-82-1	1,2,4-Trichlorobenzene . . . . .	nd	10	ug/Kg	
87-68-3	Hexachlorobutadiene . . . . .	nd	10	ug/Kg	
91-20-3	Naphthalene . . . . .	nd	10	ug/Kg	
87-61-6	1,2,3-Trichlorobenzene . . . . .	nd	10	ug/Kg	
	Total Xylenes . . . . .	nd	10	ug/Kg	
					<b>Recovery</b>
					<b>MB0112H</b>
	<b>Surrogates</b>				
	1,2-Dichloroethane-d4				97%
	Toluene-d8				94%
	4-Bromofluorobenzene				98%

none detected = nd  
 Sample: L9608-6

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### PNA LCS & LCSD by modified EPA method 8270 (SIM)

Sample ID	Lab Number	Lab Number		
Analyte	Recovery	Recovery	RPD	COMMENT

				Sampled: NA
				Analyzed: 01/12/99
CAS#	SOIL	LCS0111F	LCSD0111F	
91-20-3	Naphthalene	85%	94%	10%
208-96-8	Acenaphthylene	76%	82%	7%
83-32-9	Acenaphthene	92%	100%	8%
86-73-7	Fluorene	87%	93%	7%
87-86-5	Pentachlorophenol	46%	54%	16%
85-01-8	Phenanthrene	93%	101%	7%
120-12-7	Anthracene	80%	84%	5%
206-44-0	Fluoranthene	87%	97%	10%
129-00-0	Pyrene	91%	99%	8%
56-55-3	Benzo[a]anthracene	85%	93%	9%
218-01-9	Chrysene	91%	97%	7%
205-99-2	Benzo[b]fluoranthene	81%	88%	9%
207-08-9	Benzo[k]fluoranthene	80%	88%	9%
50-32-8	Benzo[a]pyrene	74%	81%	8%
193-39-5	Indeno[1,2,3-cd]pyrene	79%	86%	8%
53-70-3	Dibenz[a,h]anthracene	78%	85%	8%
191-24-2	Benzo[g,h,i]perylene	81%	88%	9%
				Recovery
				0%
				LCSD0111F
<b>Acid Surrogates:</b>				
2-Fluorophenol				85%
Phenol-d4				84%
2,4,6-Tribromophenol				60%
				62%
<b>Base / Neutral Surrogates:</b>				
				LCS0111F
1,2-Dichlorobenzene-d4				88%
Nitrobenzene-d5				76%
2-Fluorobiphenyl				95%
				99%

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### EPA Method 8310 Polynuclear Aromatic Hydrocarbons Blank by modified EPA method 8270 (SIM)

Sample ID	Analyte	Blank Result	Reporting Limit	Units	COMMENT	Lab Number
MB0114F	SOIL	MB0114F			Analyzed: 01/19/99	MB0114F
<b>CAS#</b>						
91-20-3	Naphthalene	nd	10	ug/Kg		
208-96-8	Acenaphthylene	nd	10	ug/Kg		
83-32-9	Acenaphthene	nd	10	ug/Kg		
86-73-7	Fluorene	nd	10	ug/Kg		
87-86-5	Pentachlorophenol	nd	100	ug/Kg		
85-01-8	Phenanthrene	nd	10	ug/Kg		
120-12-7	Anthracene	nd	10	ug/Kg		
206-44-0	Fluoranthene	nd	10	ug/Kg		
129-00-0	Pyrene	nd	10	ug/Kg		
56-55-3	Benzo[a]anthracene	nd	10	ug/Kg		
218-01-9	Chrysene	nd	10	ug/Kg		
205-99-2	Benzo[b]fluoranthene	nd	10	ug/Kg		
207-08-9	Benzo[k]fluoranthene	nd	10	ug/Kg		
50-32-8	Benzo[a]pyrene	nd	10	ug/Kg		
193-39-5	Indeno[1,2,3-cd]pyrene	nd	10	ug/Kg		
53-70-3	Dibenz[a,h]anthracene	nd	10	ug/Kg		
191-24-2	Benzo[g,h,i]perylene	nd	10	ug/Kg		
	<b>Acid Surrogates:</b>				<b>Recovery</b>	
	2-Fluorophenol				MB0114F	
	Phenol-d4					100%
	2,4,6-Tribromophenol					100%
						95%
	<b>Base / Neutral Surrogates:</b>				<b>MB0114F</b>	
	1,2-Dichlorobenzene-d4					103%
	Nitrobenzene-d5					88%
	2-Fluorobiphenyl					108%

none detected = nd  
Samples: L9608-1,4,5,6,9,12,16,17,20,23

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Method Blank**  
**NWTPH-Dx/Soil (mg/kg)**

Analyte	Result	Reporting		Date
		Limit	Q	Analyzed
<b>NWTPH-Dx</b>				
Diesel range .....	ND	25		01/12/99
Oil range .....	ND	50		
<b>Surrogates</b>				
		<b>% Recovery</b>		
Fluorobiphenyl		76		
O-terphenyl		92		
Comments:				

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**LCS**  
**NWTPH-Dx/Soil (mg/kg)**

Analyte	Result	True Value	% Recovery	Q	Date Analyzed
NWTPH-Dx .....	125	128	98 ✓		01/12/99
<b>Surrogates</b>			<b>% Recovery</b>		
Fluorobiphenyl			90 ✓		
O-terphenyl			103 ✓		
Comments:					



L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**MS**  
**NWTPH-Dx/Soil (mg/kg)**

Analyte	Sample Result	MS Result	True Value	% Recovery	Q	Date Analyzed
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NWTPH-Dx .....	ND	134	133	101 ✓		01/12/99
<b>Surrogates</b>	<b>% Recovery</b>	<b>% Recovery</b>				
	Sample	MS				
Fluorobiphenyl	87 ✓	92 ✓				
O-terphenyl	104 ✓	107 ✓				
Comments:						

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L9608

Client: *Woodward Clyde Consultants*  
Contact: *Michelle McClelland*

Project: *5491C0796B.00*  
*IP - Longview*

**Batch Q.C.**  
**Duplicate**  
**NWTPH-Dx/Soil (mg/kg)**

Analyte	Result	Duplicate		RPD	Reporting	Q	Date
		Result			Limit		Analyzed
<b>NWTPH-Dx</b>							
Diesel range .....	ND	ND		NA	25		01/12/99
Oil range .....	100	ND		<20	50	*1	
		<b>% Recovery</b>	<b>% Recovery</b>				
<b>Surrogates</b>		<b>Sample</b>	<b>Duplicate</b>				
Fluorobiphenyl		97	97				
O-terphenyl		112	115				
Comments: *1=Duplicate analysis exceeds laboratory QC requirements due to sample inhomogeneity.							

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### Semivolatiles LCS by EPA Method 8270

Sample ID	Lab Number	
Analyte	Recovery	COMMENT

CAS#	SOIL	LCS0115S	Recovery
			Sampled: NA Analyzed: 01/20/99
108-95-2	Phenol . . . . .	94%	
95-57-8	2-Chlorophenol . . . . .	99%	
106-46-7	1,4-Dichlorobenzene . . . . .	61%	
621-64-7	N-Nitroso-di-n-propylamine . . . . .	109%	
120-82-1	1,2,4-Trichlorobenzene . . . . .	118%	
59-50-7	4-Chloro-3-methylphenol . . . . .	98%	
83-32-9	Acenaphthene . . . . .	125%	
121-14-2	2,4-Dinitrotoluene . . . . .	91%	
100-02-7	4-Nitrophenol . . . . .	59%	
87-86-5	Pentachlorophenol . . . . .	120%	
129-00-0	Pyrene . . . . .	111%	
	<b>Acid Surrogates:</b>		
	2-Fluorophenol		105%
	Phenol-d6		104%
	2,4,6-Tribromophenol		110%
	<b>Base / Neutral Surrogates:</b>		
	1,2-Dichlorobenzene d-4		107%
	Nitrobenzene-d5		107%
	2-Fluorobiphenyl		108%

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### Semivolatiles Matrix Spike by EPA Method 8270

Sample ID	Lab Number	Lab Number		
Analyte	Recovery	Recovery	RPD	COMMENT

				Sampled: NA
				Analyzed: 01/20/99
CAS#	SOIL	L9608-17MS	L9608-17MSD	
108-95-2	Phenol . . . . .	95% ✓	102% ✓	7%
95-57-8	2-Chlorophenol . . . . .	95% ✓	101% ✓	6%
106-46-7	1,4-Dichlorobenzene . . . . .	43% ✓	43% ✓	0%
621-64-7	N-Nitroso-di-n-propylamine . . . . .	72% ✓	69% ✓	3%
120-82-1	1,2,4-Trichlorobenzene . . . . .	77% ✓	77% ✓	0%
59-50-7	4-Chloro-3-methylphenol . . . . .	90% ✓	98% ✓	8%
83-32-9	Acenaphthene . . . . .	85% ✓	89% ✓	4%
121-14-2	2,4-Dinitrotoluene . . . . .	37% ✓	37% ✓	1%
100-02-7	4-Nitrophenol . . . . .	21% ✓	25% ✓	15%
87-86-5	Pentachlorophenol . . . . .	39% ✓	48% ✓	20%
129-00-0	Pyrene . . . . .	76% ✓	77% ✓	2%
<b>Acid Surrogates:</b>				
				Recovery
				L9608-17MS
				Recovery
				L9608-17MSD
2-Fluorophenol				104% ✓
Phenol-d6				108% ✓
2,4,6-Tribromophenol				96% ✓
<b>Base / Neutral Surrogates:</b>				
1,2-Dichlorobenzene d-4				118% ✓
Nitrobenzene-d5				95% ✓
2-Fluorobiphenyl				112% ✓

none detected = nd





L9608

Client: Woodward Clyde Consultants  
 Contact: Michelle McClelland

Project: 5491C0796B.00

### Semivolatiles Blank by EPA Method 8270

Sample ID	Analyte	Blank Result	Reporting Limit	Units	COMMENT	Lab Number
MB01155	SOIL	MB01155			Analyzed: 01/20/99	MB01155
<b>CASE</b>						
108-95-2	Phenol	nd	330	ug/Kg		
111-44-4	bis(2-Chloroethyl)ether	nd	330	ug/Kg		
85-57-8	2-Chlorophenol	nd	330	ug/Kg		
541-73-1	1,3-Dichlorobenzene	nd	330	ug/Kg		
106-46-7	1,4-Dichlorobenzene	nd	330	ug/Kg		
100-51-4	Benzyl alcohol	nd	660	ug/Kg		
95-50-1	1,2-Dichlorobenzene	nd	330	ug/Kg		
86-48-7	2-Methylphenol	nd	330	ug/Kg		
108-80-1	bis(2-Chloroisopropyl)ether	nd	330	ug/Kg		
106-44-5	4-Methylphenol	nd	330	ug/Kg		
621-64-7	N-Nitroso-di-n-propylamine	nd	330	ug/Kg		
67-72-1	Hexachloroethane	nd	330	ug/Kg		
98-95-3	Nitrobenzene	nd	330	ug/Kg		
78-59-1	Isophorone	nd	330	ug/Kg		
88-75-5	2-Nitrophenol	nd	330	ug/Kg		
105-67-9	2,4-Dimethylphenol	nd	330	ug/Kg		
65-85-0	Benzoic acid	nd	1,650	ug/Kg		
111-91-1	bis(2-Chloroethoxy)methane	nd	330	ug/Kg		
120-83-2	2,4-Dichlorophenol	nd	330	ug/Kg		
120-82-1	1,2,4-Trichlorobenzene	nd	330	ug/Kg		
91-20-3	Naphthalene	nd	330	ug/Kg		
106-47-8	4-Chloroaniline	nd	660	ug/Kg		
87-68-3	Hexachlorobutadiene	nd	330	ug/Kg		
59-50-7	4-Chloro-3-methylphenol	nd	660	ug/Kg		
81-57-6	2-Methylnaphthalene	nd	330	ug/Kg		
77-47-4	Hexachlorocyclopentadiene	nd	330	ug/Kg		

none detected = nd  
 Samples: L9608-1,4,5,6,9,12,16,17,20,23

**OREGON ANALYTICAL LABORATORY**

A Division of Portland General Electric  
 14855 S.W. Scholls Ferry Road, Beaverton, OR 97007  
 Phone 503-590-5300 • Fax 503-590-1404  
 www.oalab.com/oal • Toll-Free 1-800-644-0967



L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### Semivolatiles Blank by EPA Method 8270

Sample ID	Analyte	Blank Result	Reporting Limit	Units	COMMENT	Lab Number	
MB0155	SOIL	MB0155	Analyzed: 01/20/99				MB0155
CAS#							
88-08-2	2,4,6-Trichlorophenol	nd	330	ug/Kg			
95-95-4	2,4,5-Trichlorophenol	nd	330	ug/Kg			
91-58-7	2-Chloronaphthalene	nd	330	ug/Kg			
88-74-4	2-Nitroaniline	nd	1,650	ug/Kg			
208-96-8	Acenaphthylene	nd	330	ug/Kg			
131-11-3	Dimethylphthalate	nd	330	ug/Kg			
606-20-2	2,6-Dinitrotoluene	nd	330	ug/Kg			
83-32-9	Acenaphthene	nd	330	ug/Kg			
99-09-2	3-Nitroaniline	nd	1,650	ug/Kg			
51-28-5	2,4-Dinitrophenol	nd	1,650	ug/Kg			
132-64-9	Dibenzofuran	nd	330	ug/Kg			
121-14-2	2,4-Dinitrotoluene	nd	330	ug/Kg			
100-02-7	4-Nitrophenol	nd	1,650	ug/Kg			
86-73-7	Fluorene	nd	330	ug/Kg			
7005-72-3	4-Chlorophenyl-phenylether	nd	330	ug/Kg			
84-66-2	Diethylphthalate	nd	330	ug/Kg			
100-01-8	4-Nitroaniline	nd	1,650	ug/Kg			
122-66-7	1,2-Diphenylhydrazine	nd	1,650	ug/Kg			
534-52-1	4,6-Dinitro-2-methylphenol	nd	1,650	ug/Kg			
86-30-6	n-Nitrosodiphenylamine	nd	330	ug/Kg			
101-55-3	4-Bromophenyl-phenylether	nd	330	ug/Kg			
118-74-1	Hexachlorobenzene	nd	330	ug/Kg			
87-88-5	Pentachlorophenol	nd	1,650	ug/Kg			
85-01-8	Phenanthrene	nd	330	ug/Kg			
120-12-7	Anthracene	nd	330	ug/Kg			
84-74-2	Di-n-butylphthalate	nd	330	ug/Kg			

none detected = nd  
Samples: L9608-1,4,6,9,12,16,17,20,23

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L9608

Client: Woodward Clyde Consultants  
Contact: Michelle McClelland

Project: 5491C0796B.00

### Semivolatiles Blank by EPA Method 8270

Sample ID	Analyte	Blank Result	Reporting Limit	Units	COMMENT	Lab Number
MB0155	SOIL	MB0155			Analysed: 01/20/99	MB0155
<b>CASE</b>						
206-44-0	Fluoranthene	nd	330	ug/Kg		
129-00-0	Pyrene	nd	330	ug/Kg		
85-68-7	Butylbenzylphthalate	nd	330	ug/Kg		
91-94-1	3,3'-Dichlorobenzidine	nd	660	ug/Kg		
56-55-3	Benzo[a]anthracene	nd	330	ug/Kg		
218-01-9	Chrysene	nd	330	ug/Kg		
117-81-7	bis(2-Ethylhexyl)phthalate	nd	330	ug/Kg		
117-84-0	Di-n-octylphthalate	nd	330	ug/Kg		
205-99-2	Benzo[b]fluoranthene	nd	330	ug/Kg		
207-08-9	Benzo[k]fluoranthene	nd	330	ug/Kg		
50-32-8	Benzo[a]pyrene	nd	330	ug/Kg		
193-39-5	Indeno[1,2,3-cd]pyrene	nd	330	ug/Kg		
53-70-3	Dibenz[a,h]anthracene	nd	330	ug/Kg		
191-24-2	Benzo[g,h,i]perylene	nd	330	ug/Kg		
	<b>Acid Surrogates:</b>					<b>Recovery</b>
	2-Fluorophenol					MB0155
	Phenol-d5					99%
	2,4,6-Tribromophenol					99%
	<b>Base / Neutral Surrogates:</b>					
	1,2-Dichlorobenzene d-4					100%
	Nitrobenzene-d5					101%
	2-Fluorobiphenyl					101%

none detected = nd  
Samples: L9608-1,4,5,6,9,12,16,17,20,23

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1501 4th Avenue, Suite 1500, Seattle, WA 98101-1662 Phone: (206) 343-7933 Fax: (206) 343-0513	URSGWC Project Number: 5491C0796B.00 URSGWC Proj. Mgr.: Randy Siegal Ph/Fax: 206-343-7933 / 298
--	--

Shipping Form Tracking No.:	Lab: _____ No of Coolers: _____
Sampler (Signature): <i>[Signature]</i>	Turn Around Time (circle): 48 hrs. 5 days <b>(STD)</b> Other: _____
Printed Name: <i>Jenny Crook</i>	Page _____ of _____

Date	Time	Sample Identification	Matrix	Lab ID	Analyses										Preservatives Y/N	Number of Containers		
					Indicators 8270 sim <sup>1</sup>	PAHs Only 8270 sim <sup>2</sup>	NWTPH-Dx <sup>3</sup>	VOCs 8260	SVOCs 8270	Pest/PCBs (4)	total and diss metals (13)	CONV * (1)	814 (2)	8151 (3)			HOLD	
1/7/99	0910	99SW-SB1-1-2.5	SOIL	69608-1	X	X	X	X	X	X	X	X	X	X	X	X	X	4
	0910	99SW-SB1-2.5-4		-2												XX		4
	0912	99SW-SB1-4-5.5		-3												XX		4
	0920	99SW-SB1-5.5-7		-4	X	X	X	X	X	X	X	X	X	X	X	X	X	4
	0925	99SW-SB1-7-8.5		-5	X	X	X	X	X	X	X	X	X	X	X	X	X	4
	0952	99SW-SB2-1-2.5		-6	X	X	X	X	X	X	X	X	X	X	X	X	X	2
	1002	99SW-SB2-2.5-4		-7												X		4
	1007	99SW-SB2-4-5.5		-8												X		4
	1015	99SW-SB2-5.5-7		-9	X	X	X	X	X	X	X	X	X	X	X	X	X	4
	1020	99SW-SB2-7-8.5		-10												X		4
	1050	99SW-SB3-1-2.5		-11												X		4
	1055	99SW-SB3-2.5-4		-12	X	X	X	X	X	X	X	X	X	X	X	X	X	4
	1102	99SW-SB3-4-5.5		-13												X		4
	1110	99SW-SB3-5.5-7		-14												X		4
	1115	99SW-SB3-7-8.5		-15												X		4
	1120	99SW-SB3-8.5-10		-16	X	X	X	X	X	X	X	X	X	X	X	X	X	4
	1201	99SW-SB4-1-2.5		-17	X	X	X	X	X	X	X	X	X	X	X	X	X	4
	1205	99SW-SB4-2.5-4		-18												X		4
	1210	99SW-SB4-4-5.5		-19												X		4
	1217	99SW-SB4-5.5-7		-20	X	X	X	X	X	X	X	X	X	X	X	X	X	4
	1221	99SW-SB4-7-8.5		-21												X		4
	1225	99SW-SB4-8.5-10		-22												X		4
	1230	99SW-SB4-10-11.5		-23	X	X	X	X	X	X	X	X	X	X	X	X	X	4

Comments: Please call Michelle McClelland with questions.

1: Report naphthalene, benzo(a)anthracene, chrysene and pentachlorophenol only.

2: PAHs Only will also include Pentachlorophenol.

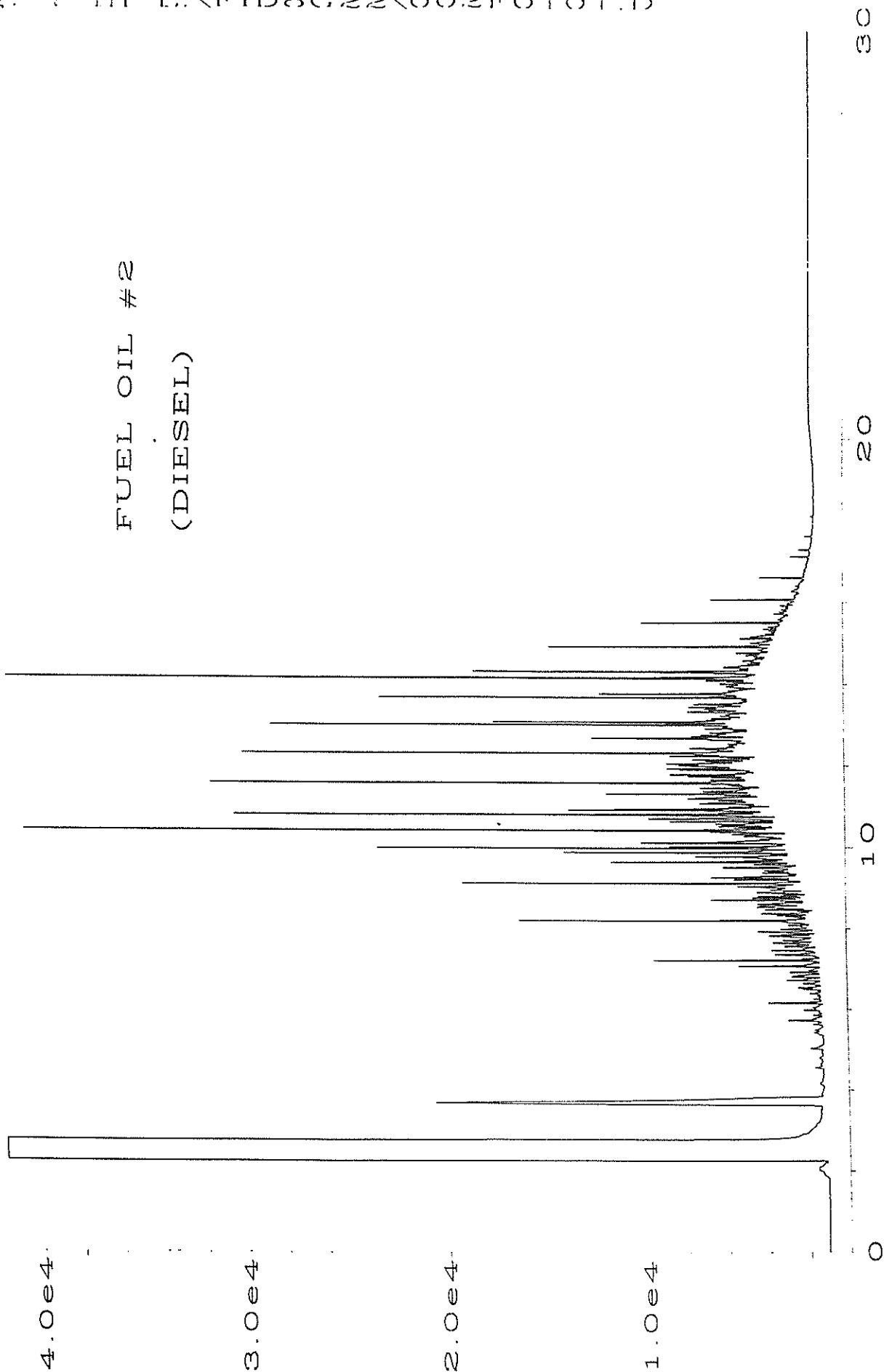
3: Include chromatograms with all NWTPH analyses.

\* CN, Chloride, Fluoride, Nitrate, PH, sulfate, sulfide

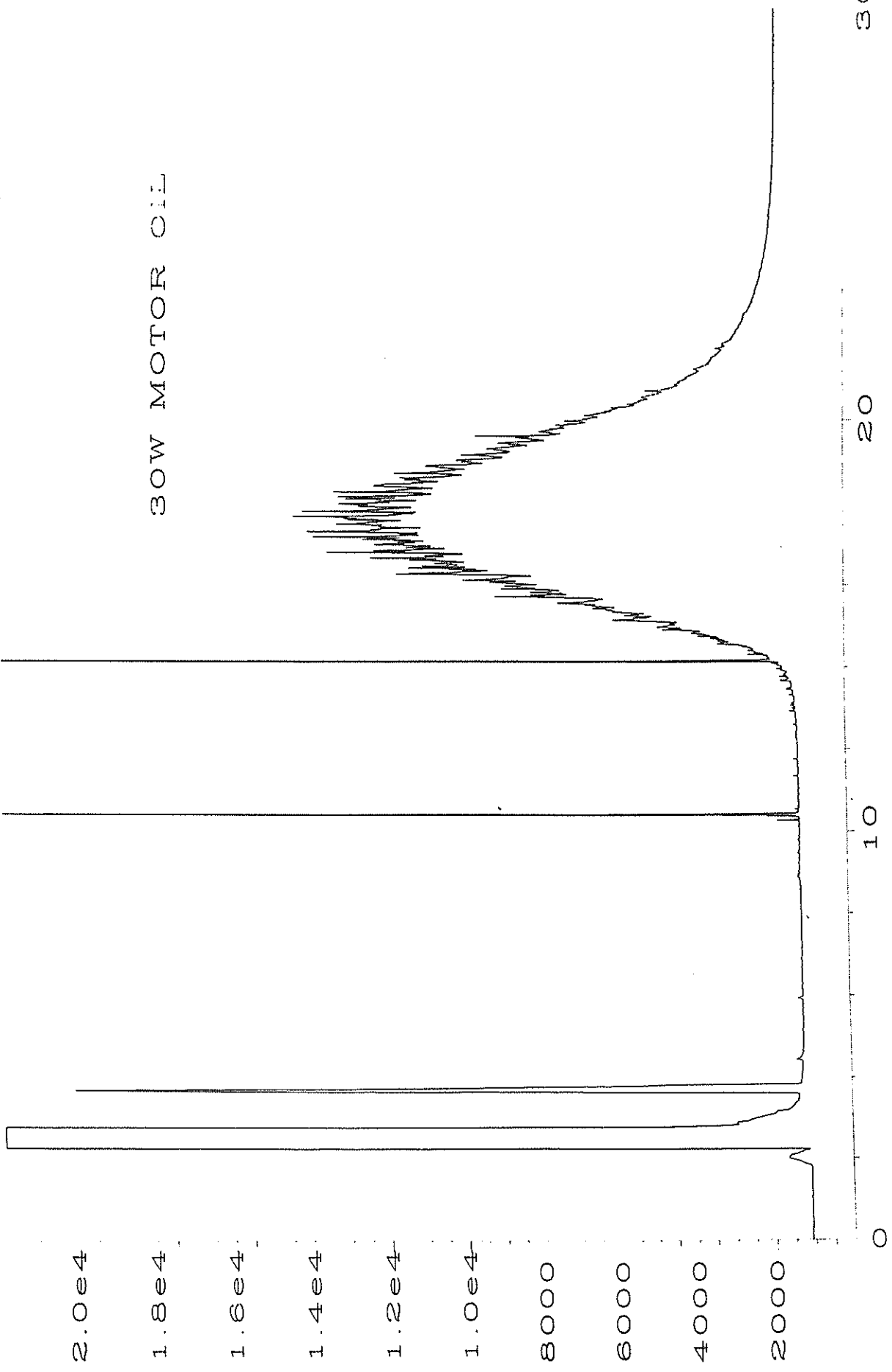
Total Number of Containers **(X)** 90  
 @ 200 SO JARS: 67 802 + 23  
 402. @ 1°C.P.L

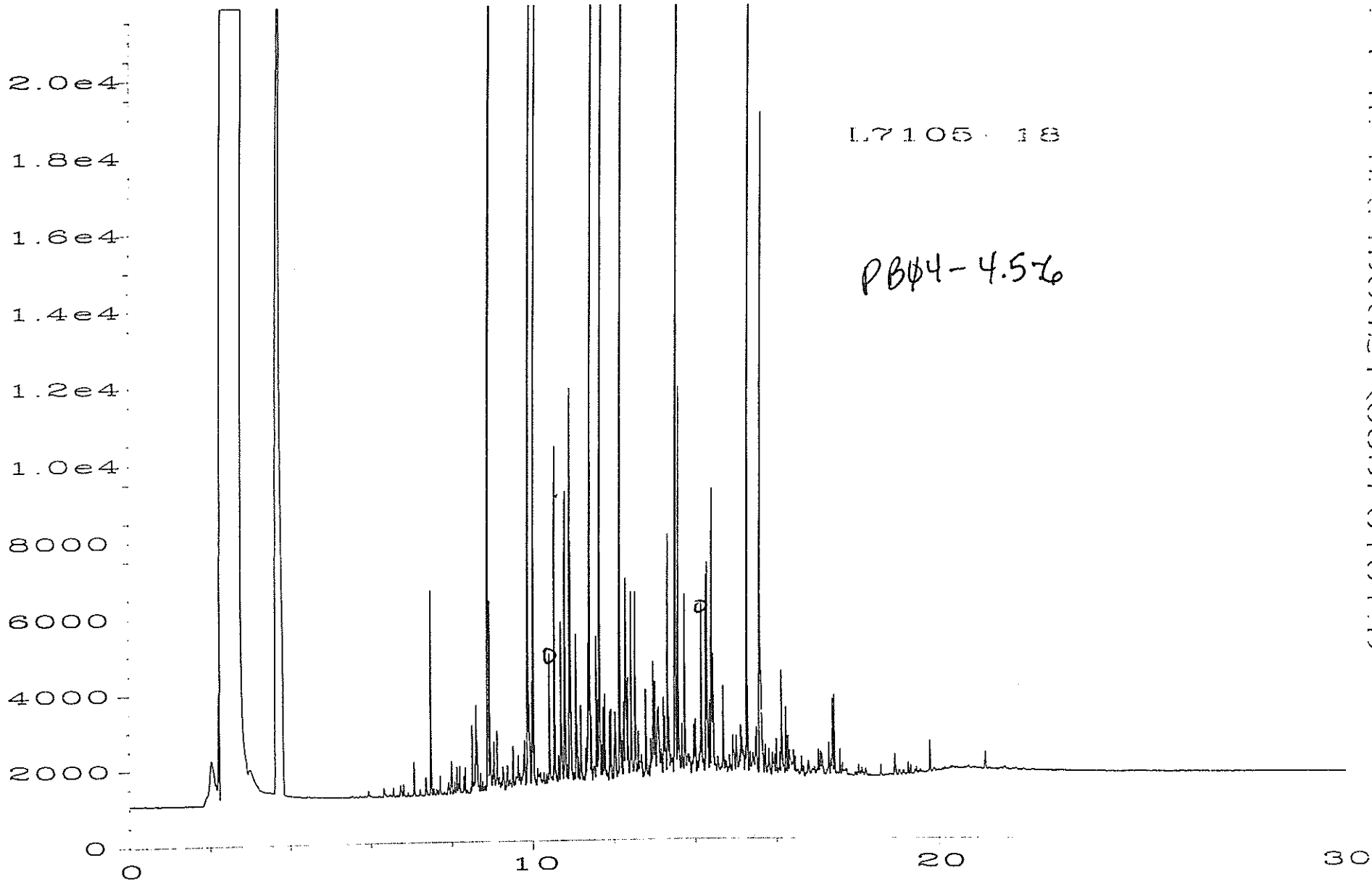
Relinquished By (signature): <i>[Signature]</i> Date/Time: 1/8/99 1345	Relinquished By (signature): <i>[Signature]</i> Date/Time: 1-8-99 1605
Received By (signature): <i>[Signature]</i> Date/Time: 1-8-99 1400	Relinquished By (signature): <i>[Signature]</i> Date/Time: 1/8/99 1615

**Appendix C**  
**Chromatograms**



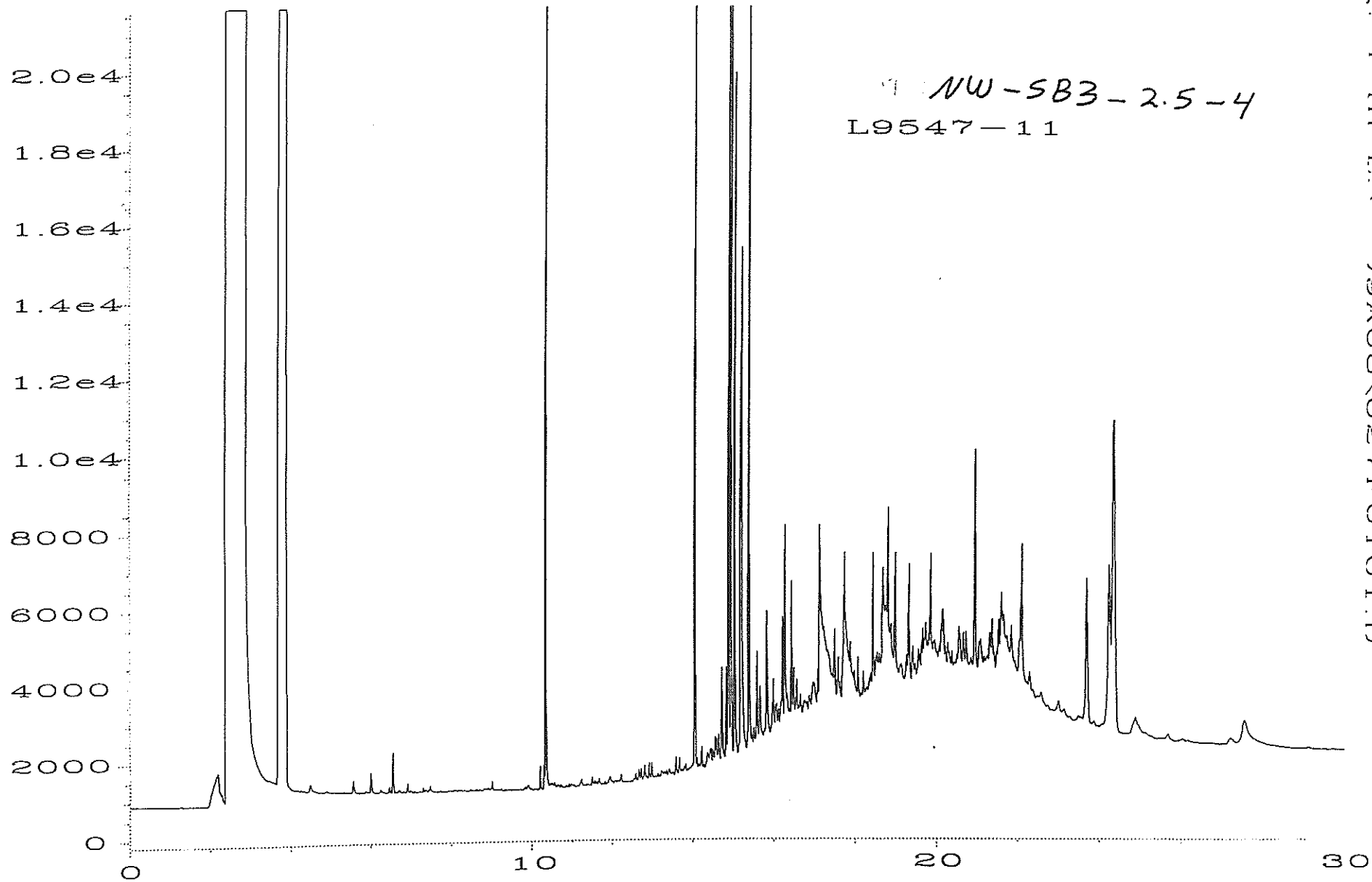
30W MOTOR OIL





L7105-18  
PB4-4.5%





FILE: I:\N\1009\08\02\10101.D

995W-SB4-1-2.5  
L9608-17

