

**DRAFT FINAL**  
**REMEDIAL INVESTIGATION/FEASIBILITY**  
**STUDY REPORT**

**Chevron Site No. 207407**  
**Former Chevron Bulk Plant**  
**612 Union Street**  
**Camas, Washington**

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## **1.0 INTRODUCTION**

### **1.1 Objectives**

This report is being submitted to document the activities and findings of a remedial investigation and subsequent feasibility study (RI/FS) into the nature and extent of contamination at Former Chevron Bulk Terminal No. 207407 located at 612 SE Union Street, Camas, Washington (site). This report is intended to fulfill the requirements of the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) (WAC 173-340-350[7] and (WAC 173-340-430[7]) and is being submitted in accordance with Agreed Order 02TCPSR-3991. This RI/FS was performed by SAIC Energy, Environment & Infrastructure, LLC (SAIC), on behalf of Chevron Environmental Management Company (Chevron).

### **1.2 Site Background**

#### ***1.2.1 Site Description***

Former Chevron Bulk Terminal No. 207407 is a decommissioned bulk fuel facility located on a 1.5- acre irregularly shaped lot at the southeast corner of the intersection of SE Sixth Avenue and SE Union Street in Camas, Washington.

The site is bounded to the north by a railroad mainline. The east side of the site was formerly bordered by a railroad spur, and is currently bordered by a post office. The site is bounded to the south by the Tidland Corporation a light industrial company and land use to the west of the site across Union Avenue is residential. The site is located approximately 800 feet southeast of the Washougal River and 1,700 feet north of the Columbia River. The City of Camas (City) municipal well No. 6 is located approximately 250 feet north of the site. The City municipal well No. 5 is located approximately 1,000 feet southeast of the site. A layout of the facility with current and former features is presented as Figure 1.

#### ***1.2.2 Site History***

The former facility operated as a bulk fuel storage plant from the 1920's to 1983. In 1918 Standard Oil (Chevron) acquired a large lot encompassing the current site. From 1918 to 1919 pieces of this large lot were sold until Standard Oil owned only the current property. The site was decommissioned in 1983 and all above ground storage tanks (ASTs) and associated piping were removed. All site buildings and warehouses were removed in 1984 except for the office building located in the southern portion of the site. Chevron sold the property in November 1994 to Triangle Resources who uses the property for wood recycling.

#### ***1.2.3 Previous Environmental Investigations and Remedial Actions***

Several environmental investigations were performed at the site between 1987 and 1994. The results of the investigations were reported by Rittenhouse-Zeman & Associates, Inc, (RZA) in 1987, 1988, and 1991 and by Hart Crowser in 1994.

In December 1987 two (2) soil borings (B-1 and B-2) were completed to approximately 20 to 23 feet below ground surface (bgs).

In September 1988, four (4) monitoring wells (MW-1 through MW-4) were completed to approximately 20 to 23 feet bgs.

Between January and February 1990, three (3) monitoring wells (MW-5 through MW-7) were completed to approximately 45 feet bgs.

In February 1990, a heating oil underground storage tank (UST) located in the southern corner of the site was removed.

In September 1994, 19 test pits (TP-1 through TP-19) were completed at the site at depths varying from 1.5 to 14.5 feet bgs. One sump containing an oil/water mixture was discovered at that time.

In November 1994, a remedial excavation was completed at the site to depths ranging from approximately 2 to 16 feet bgs. Approximately 830 cubic yards of petroleum impacted soil were excavated. The previously discovered sump was also excavated. Monitoring wells MW-1 through MW-4 were abandoned.

Groundwater monitoring was performed at the site from February 1990 through November 1995 and was resumed in 2004. The most recent groundwater monitoring event was conducted in December 2011.

Historic soil and groundwater analytical data are included in Tables 1 and 2.

## **2.0 REMEDIAL INVESTIGATION ACTIVITIES**

### **2.1 Investigation Timeline**

In 2004 and 2008, remedial investigation activities were performed in accordance with the following Ecology approved plans prepared by SAIC: Remedial Investigation Work Plan (April 7, 2004), the Quality Assurance Project Plan (QAPP, April 7, 2004), the Sampling and Analysis Plan (SAP, April 7, 2004), Supplemental Investigation Work Plan (June 7, 2006), Supplemental Investigation Work Plan Addendum (October 18, 2007), and Supplemental Work Plan – Response to Comments (July 25, 2008). These documents specify the type of samples, sample collection methods, sample locations, and analytical methods used, in addition to detection limits and quality assurance measures implemented. The following sections summarize the field investigations, sampling, and analyses that were conducted. All samples were submitted for analysis to Lancaster Laboratories, Inc. in Lancaster, Pennsylvania. Analytical data are summarized in Tables 1 and 2. Laboratory analytical reports are presented in Appendix A.

Sample locations are shown on Figure 1, and investigation activities are outlined below:

- Between July and August 2004: three (3) soil borings SB-1 through SB-3 and seven (7) groundwater monitoring wells MW-8 through MW-14 were completed to further define the extent of petroleum impacted soil and groundwater onsite. Damaged monitoring well MW-7 was abandoned during this time.
- In July 2008, two (2) monitoring wells (MW-15 and MW-16) were installed onsite. These wells were installed to delineate soil and groundwater impacts to the north and northeast of the site. The well locations were selected in areas which are downgradient of previously identified impacts during intermittent periods of groundwater flow direction changes as a result of the operations of City municipal well No. 6.

Groundwater has been monitored intermittently onsite since February 1990 and quarterly since August 2004.

## **2.2 Soil Boring Installation and Soil Sampling**

A total of 12 soil borings (including monitoring wells) were completed on the site during the 2004 and 2008 investigations. Soil borings were advanced using an air-knife for the first 8 feet bgs and a hollow-stem auger drill rig (during 2004 investigation) and a sonic drill rig (during 2008 investigation) below 8 feet. Soil samples were collected in 2.5 to 5 foot intervals using a split-spoon sampler or continuously using macro-samplers and acetate liners for logging and field observations. The large number of boulders and cobbles limited the ability to recover split spoon samples.

The soil borings were advanced to a total depth necessary to collect a non-impacted soil sample or to approximately 50 feet bgs in borings where monitoring wells were installed. Boring logs are presented in Appendix B.

Based on field observations and measurements (presence of hydrocarbon odor, photoionization detector (PID) readings, location, and depth) soil samples were collected from each boring for laboratory analysis. All samples were analyzed in accordance with the scope of work included in the work plans submitted to Ecology. Complete laboratory reports are presented as Appendix A.

## **2.3 Monitoring Well Installation and Groundwater Sampling**

Nine additional monitoring wells were installed on the site during the 2004 and 2008 investigations. Each monitoring well was constructed with a 2-inch diameter Schedule 40 polyvinyl chloride (PVC) blank well casing that was attached to a 15 foot long 0.010-inch factory slotted screen. The wells were screened from approximately 35 to 50 feet bgs to allow sampling during high and low water periods. Well installation logs are presented in Appendix B.

Wells MW-8 through MW-14 were initially sampled in August 2004 as part of the investigation effort and groundwater samples were analyzed in accordance with the work plan submitted to Ecology.

Existing site wells have been sampled on a quarterly basis and analyzed for:

- Gasoline-range hydrocarbons (TPH-G) by Northwest Method NWTPH-Gx;
- Diesel- (TPH-D) and heavy oil-range hydrocarbons (TPH-O) by Northwest Method NWTPH-Dx;
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) and methyl tertiary butyl ether (MTBE) by Environmental Protection Agency (EPA) Method 8021B; and
- Total and dissolved lead by EPA Method 6020.

## **3.0 SUBSURFACE CONDITIONS**

### **3.1 Geology**

Soil borings indicate that lithology is consistent across the site. The site subsurface soil typically consists of gravelly silt between ground surface and 3 to 5 feet bgs. Underlying this layer is very dense gravelly silt and sandy gravel with cobbles and boulders (up to 4 feet in diameter) to a depth of approximately 20 feet bgs. The cobble and boulder content decreases as the sand content increases from approximately 20 to 50 feet bgs. Well logs for the municipal water wells show that the gravel layer continues to about 80 to 85 feet bgs where a harder rock layer is

encountered. This layer is likely weathered basalt. Geologic cross-section transect lines are shown on Figure 2 with the corresponding cross-sections detailing subsurface soil conditions presented on Figures 3 through 5. Boring logs and well construction logs are presented in Appendix B. Municipal water well logs are presented in Appendix C.

### **3.2 Hydrogeology**

Groundwater occurs in a shallow aquifer which is used in the area as a source of irrigation and drinking water. The groundwater depths range between approximately 26 and 45 feet bgs with historical groundwater flow direction to the northeast, northwest, and south-southwest. Results from a rose diagram created using historic groundwater flow direction data and municipal well No. 6 operation records; indicate that operations of the municipal well No. 6 have influenced groundwater flow direction at the site. During the municipal well No. 6 operations the groundwater flow at the site trends in a north-northeast direction. In contrast, when the well is not operating, the groundwater flow trends in a westerly direction.

A groundwater flow direction rose diagram and groundwater elevation contour map based on the December 2011 sampling event are presented on Figure 6.

## **4.0 NATURE AND EXTENT OF IMPACTS**

### **4.1 Soil Impacts**

Soil sample analytical results are summarized in Table 1. Laboratory reports are presented in Appendix A.

Soil impacts exceeding MTCA Method A Cleanup Levels (CULs) are present in the central portion of the site and appear to be located in the area of the former product lines and ASTs. Based on historical and current soil analytical data, petroleum-impacted soils remain at depths ranging from approximately 10.5 feet bgs to 20 feet bgs. The lateral extent of petroleum impacted soil exceeding MTCA Method A CULs is presented on Figure 7.

During the 1994 remedial excavation most areas of impacted soil were removed with the exception of six locations (B-2, TP-13, ES-3, ES-4, ES-5, and ES-7) where petroleum impacted soil exceeding MTCA Method A CULs was left in place.

During the 2004 site investigation, TPH-G was detected in soil borings SB-1 at depths between 6 and 14 feet bgs and SB-2 at depths between 19 and 24 feet bgs. TPH-D was also detected in soil boring SB-2 at a depth of 19 feet bgs. Both borings were located in close proximity to the former ASTs and associated product lines. Boring SB-1 was located within the area excavated in 1994. Boring SB-2 was located within the 1994 excavation, but below the excavation depth.

During the 2008 site investigation, no contaminants of concern were detected at concentrations above the MTCA Method A CULs along the northern portion of the site.

### **4.2 Groundwater Impacts**

Groundwater sample analytical results are summarized in Table 2.

Groundwater onsite is impacted by dissolved phase TPH-G, TPH-D, and TPH-O. TPH-G and TPH-D concentrations have been detected in the past exceeding MTCA Method A.

Concentrations of dissolved phase constituents remain stable or are declining. Hydrographs depicting concentrations trends over time for monitoring wells are provided as Appendix D.

Concentrations of contaminants in monitoring wells MW-7, MW-8, MW-11, MW-13, MW-14, MW-15, and MW-16 have been below the MTCA Method A CULs for 4 quarters or more. Monitoring results suggest that the areal extent of groundwater contamination includes areas west of the former ASTs. Groundwater analytical results for most recent monitoring events are presented on Figure 8.

## **5.0 CONCEPTUAL SITE MODEL**

In order to more fully understand the relationships between contaminants, affected environmental media, indoor media, and human receptors, a conceptual site model was developed. MTCA defines a conceptual site model as “a conceptual understanding of a site that identifies potential or suspected sources of hazardous substances, types and concentrations of hazardous substances, potentially contaminated media, and actual and potential exposure pathways and receptors.” These components will be discussed in the sections below, as an introduction to presenting the site model.

### **5.1 Exposure Pathways and Potential Receptors**

Contaminated media at the site include soil and groundwater. Primary exposure pathways are those routes that are known to be currently transporting petroleum contaminants to or within a certain medium (such as soil contamination to groundwater). Secondary exposure pathways are those routes that: (a) have transported contaminants in the past, but may not be currently (such as releases from ASTs); or (b) may transport contaminants in the future, but do not currently. Precluded exposure pathways are those that are not possible at any time, based on physical evidence, and are therefore considered closed pathways.

Petroleum constituents have been detected in soil and groundwater samples collected at the site. Therefore, soil and groundwater, are contaminated media but may also be considered secondary contaminant sources. The potential exposure pathways associated with each medium/source are discussed below, along with the rationale for excluding or including that pathway.

Previous activities at the site have released petroleum hydrocarbons to the soil and groundwater. Contamination may then move through the unsaturated zone, either by lateral and downward transport to the water table or by lateral transport within the water table.

Groundwater near the site is currently used as a source of potable water for the City. Human ingestion and dermal contact with affected groundwater is considered to be a potential exposure pathway; however, groundwater analytical data indicate that the dissolved plume does not extend offsite to the City well.

The contaminated soil is considered to be a potential direct contact exposure pathway. Access to the site is currently restricted by pavement; however, the subsurface soil could be potentially disturbed during utility or paving activities or future demolition/construction activities.

### **5.2 Cleanup Levels**

#### **5.2.1 Groundwater**

Groundwater cleanup levels are based on estimates of the highest beneficial use and the reasonable maximum exposure expected to occur under both current and potential future site use. Under MTCA 173-340-720, drinking water is the beneficial use requiring the highest

groundwater quality. Therefore, exposure to contaminants through ingestion and other domestic uses represents the reasonable maximum exposure for the site.

A summary of the potential groundwater exposure pathways at the site is presented below.

**Potential Groundwater Exposure Pathways**

<b>Potential Groundwater Exposure Pathways</b>	<b>Applicability</b>
Ingestion/household contact	Primary: The shallow aquifer is not a source of drinking water. However, the proximity of the municipal water wells to the site combined with a very low groundwater gradient limits the possibility of contaminated groundwater reaching the water supply. Groundwater analytical results indicate the contaminated groundwater is not migrating beyond the site.
Incidental exposure resulting from site development or utility construction	Precluded: Groundwater is encountered at depths below 26 feet bgs and therefore could not be encountered during routine site development or utility construction activities.
Groundwater to surface water/sediment	Precluded: The distance from the site eliminates the possibility of contaminated groundwater reaching to surface water bodies and sediments.
Groundwater to vapor (indoor air)	Precluded: The depth to groundwater, low contaminant levels, and paved site surface eliminates the possibility of contaminated groundwater vapors reaching indoor air.

Three of the four potential exposure pathways (Incidental exposure resulting from site development or utility construction, groundwater to surface water/sediment, and groundwater to vapor) presented above are precluded because the exposure pathways are not complete.

Based on the results presented above, the groundwater ingestion pathway is the primary pathway of concern because the aquifer is potable. Groundwater monitoring data indicates that contaminants are not leaving the site and the domestic water wells are not being impacted. An evaluation of MTCA Method A cleanup levels for this pathway indicates that current groundwater conditions do not pose a risk to human health or the environment.

**5.2.2 Terrestrial Ecological Evaluation**

The site is not excluded from the simplified terrestrial ecological evaluation (TEE) requirement (WAC 173-340-7490) based on the following:

- There are greater than 4 acres of contiguous undeveloped land within 500 feet of the site.

The simplified terrestrial ecological evaluation was ended based on WAC173-340-7492 2(a) (i). As shown on Figure 9, the total area of contamination above the point of compliance is less than 350 square feet. TEE Documentation Form and Table 749-1 are included as Appendix E.



### 5.2.3 Soil

Soil cleanup levels are based on the site use requiring the most protective cleanup levels for land use. Exposure to hazardous substances under residential land use conditions represents the reasonable maximum exposure scenario.

An evaluation of the appropriate point of compliance for soil cleanup levels for the site is presented below.

#### Determination of Point of Compliance for Soil Cleanup Levels

Potential Exposure Pathway	MTCA defined point of compliance	Applicability to Site	Site-specific Point of Compliance
Protection of groundwater	Throughout the site	Applicable: Groundwater in this aquifer is potable; Groundwater monitoring data indicate that contamination is delineated and does not extend offsite.	Throughout the site
Soil to vapors (indoor air)	Throughout the site from the ground surface to the uppermost groundwater saturated zone	Not applicable. The site is paved and soil data indicates that contaminate concentrations do not pose a risk to human health or the environment.	Not applicable
Human direct contact	Throughout the site from ground surface to 15 feet bgs	Applicable. The site is paved and completely redeveloped; however, subsurface soil could be potentially disturbed during utility or paving activities or future demolition/construction activities.	Surface to 15 ft bgs
Ecological	Point of compliance to 6 feet below ground surface with institutional controls to prevent disturbance of subsurface soils.	Not applicable. The site is paved and completely redeveloped.	Surface to 6 ft bgs

### 5.3 Preliminary Cleanup Levels

Contaminants of potential concern at the site are limited to petroleum products; therefore, it is appropriate to apply MTCA Method A or B CULs.

MTCA Method B CULs calculations were completed based on soil analytical data collected from soil boring SB-2 at a depth of 19 feet bgs. The MTCA Method B calculation sheets and associated analytical data are presented in Appendix F.

The site-specific Method B CUL for TPH for direct contact pathway is 2,671 mg/kg. The site-specific Method B CULs for TPH for protection of groundwater quality (leaching) is 10,798 mg/kg.

MTCA Method A CULs were used for groundwater concentrations comparison.

## **6.0 ALTERNATIVE COMPONENTS**

A cleanup action alternative is defined as one or more treatment technology, containment action, removal action, engineered control, institutional control, or other type of remedial action (“cleanup action components”) that individually, or in combination, achieves a cleanup action at a site [WAC 173-340-200]. For purposes of this RI/FS, it is convenient to think of a “cleanup action component” as dealing with a specific media/exposure pathway. The media/exposure pathway cleanup action components are then assembled into cleanup action alternatives, which address the site-wide cleanup requirements.

In accordance with MTCA, potential cleanup action components have been screened prior to assembling the components into cleanup action alternatives to reduce the number of alternatives for the final detailed evaluation in this FS. According to WAC 173-340-350(8), an alternative component may be screened from further consideration if either of the following conditions applies:

- The component does not meet the minimum requirements in WAC 173-340-360, including components in which costs are clearly disproportionate. More specifically:
  - The component is not protective of human health and the environment, or
  - The component does not comply with the cleanup standards, or
  - The component does not comply with applicable state or federal laws, or
  - The component does not provide for compliance monitoring.
- The component is not technically feasible.

The Initial Screenings for Soil and Groundwater Cleanup Alternative Components are presented in Table 3 and a Summary of Cleanup Action Alternatives is presented in Table 4.

## **7.0 DEVELOPMENT OF ALTERNATIVES**

The following sections discuss each alternative with a focus on the rationale for the actions and components that have been selected. The proposed alternatives are analyzed in detail in Section 8.0 in accordance with evaluation criteria mandated under MTCA.

Each alternative includes components that are expected to be capable of accomplishing the cleanup levels established for a particular exposure pathway and contaminants as identified in Section 5.0. The alternatives have been developed by assembling various cleanup alternative components in appropriate combinations from among those selected. Selection of a specific



cleanup action component for detailed evaluation in the FS does not preclude later consideration of similar components that are represented by the selected component. Similar cleanup action components that can achieve the same cleanup levels could be re-evaluated for cost effectiveness during the final design phase.

The alternatives developed for the site provide a range of cleanup action components within the confines of protecting the environment and human health as required by MTCA. MTCA [WAC 173-340-360] specifies that each alternative meet the following threshold requirements:

- Protect human health and the environment
- Comply with cleanup standards
- Comply with applicable state and federal laws
- Provide for compliance monitoring

A range of cleanup action alternatives was developed by assembling appropriate cleanup action components from those identified and selected in Section 6.0 (Alternative Components). For media with contaminants exceeding cleanup levels, identifying the exposure route rather than just the acceptable contaminant levels is important because protectiveness can be achieved by preventing exposures (e.g., by containment or institutional controls) as well as by cleanup. Although MTCA strongly reflects a preference for permanent remedial actions to the maximum extent practicable, less permanent solutions may be accepted if controls are put into place to ensure that the solution is protective of human and ecological receptors if demonstrated to be appropriate through the feasibility study evaluation and disproportionate cost analysis.

MTCA requires that a feasibility study include at least one “permanent cleanup action alternative” to serve as the baseline against which all other alternatives are evaluated for the purpose of determining whether the cleanup action selected is permanent to the maximum extent practicable (WAC 173-340-350). MTCA defines a permanent cleanup action to be one in which the cleanup standards of WAC 173-340-700 through 173-340-760 can be met without any further action, with the exception of the disposal of any treatment residue.

## **7.1 Alternative 1 – Monitored Natural Attenuation**

This alternative would reduce and control exposures to subsurface impacts using the following cleanup alternative components:

- Meet MTCA soil and groundwater cleanup levels through natural attenuation;
- Implement environmental monitoring

### **7.1.1 Natural Attenuation**

Relying on natural processes to achieve MTCA cleanup levels for soil and groundwater exceedances is appropriate because petroleum hydrocarbon impacts pose a low level of risk to human health. In addition, hydrocarbon compounds are readily biodegradable into less harmful constituents (typically carbon dioxide and water).

According to the Guidance on Remediation of Petroleum-Contaminated Ground Water By Natural Attenuation (Ecology 2005), “For sites where the ground water is contaminated with

petroleum hydrocarbons, one of the alternatives that could be considered during the RI/FS is an alternative that uses natural attenuation, either alone or in conjunction with other cleanup action components, to clean up the petroleum-contaminated groundwater.” The guidance further states that selection of natural attenuation as a remedial option must meet the minimum requirements specified in WAC 173-340-360(2). These requirements are discussed below.

- Compliance with Cleanup Standards – MTCA specifies that “where an alternative involves containment of soils with hazardous substance concentrations exceeding cleanup levels at the point of compliance, the alternative may be determined to comply with cleanup standards provided it meets several specific requirements, including that the alternative is protective of human health and the environment.” This alternative includes containment and is protective of human health and the environment.
- Compliance with Applicable State and Federal Laws – This alternative is compliant with applicable state and federal laws.
- Protecting Human Health and the Environment – According to Ecology guidance “The cleanup action selected must either reduce or remove (or destroy) the contamination, restoring the site to cleanup levels, or contain the contamination in such a way that will minimize future exposure of humans and ecological receptors.” This alternative uses containment and institutional controls to achieve protectiveness of human health and ecological receptors.
- Providing for Compliance Monitoring - This alternative will provide for compliance monitoring to verify that the cleanup action remains effective over time. A compliance monitoring program consistent with recommendations presented in “Guidance on Remediation of Petroleum-Contaminated Ground Water by Natural Attenuation” will be an integral component of this alternative.
- Using Permanent Solutions to the Maximum Extent Practicable - Ecology guidance defines permanent solutions as “actions in which cleanup standards can be met without further action being required, such as monitoring or institutional controls.” MTCA further allows selection of the most practicable solution from among alternatives protective of human health and the environment through a disproportionate cost analysis. Although this alternative likely involves a very long restoration time frame (discussed below), the solution will be permanent once cleanup levels are met. A cost analysis is presented in Section 8.0.
- Providing for a Reasonable Restoration Time Frame – The time frame for attainment of cleanup levels through monitored natural attenuation alone is impossible to predict. The degree to which this timeframe is considered “reasonable” under WAC 173-340-360(2) will be evaluated, in conjunction with Ecology, during the remedy selection.
- Considering Public Concerns – Public concerns will be addressed after the public comment period.

WAC 173-340-370(7) also states that cleanup actions that use natural attenuation to clean up petroleum-contaminated groundwater must use source control to the maximum extent

practicable. Given that this alternative is protective of human health and the environment, the degree to which this alternative meets the intent of this regulation will be evaluated, in conjunction with Ecology, during the remedy selection.

## **7.2 Alternative 2A – Source Removal with Onsite Treatment, and Natural Attenuation**

This alternative would reduce and control exposures to contaminants by the following area specific cleanup alternative components:

- Meet soil cleanup levels (MTCA Method A) onsite by source removal.
  - Excavation of onsite soil exceeding MTCA Method A.
  - Onsite treatment of excavated soil and reuse on site.
- Meet groundwater cleanup levels through monitored natural attenuation.
- Implement Environmental monitoring.

### **7.2.1 Source Removal**

#### *Excavation of Soil Exceeding MTCA Cleanup Levels*

Alternative 2A would reduce the cleanup timeframe, eliminate potential exposure risk via inhalation of indoor air, and reduce the potential for direct contact by human and ecological receptors by excavation soil with the highest contamination concentrations. Alternative 2 includes excavation of onsite soil exceeding the MTCA Method A cleanup levels. The estimated volume of soil to be removed under this alternative is approximately 1000 cubic yards.

#### *Onsite Treatment*

Excavated soil will be thermally treated onsite to enhance the natural degradation of petroleum products. Once confirmation samples confirm that cleanup levels have been met, the soil will be reused on-site.

### **7.2.2 Meet Groundwater Cleanup Levels through Natural Attenuation**

Attainment of groundwater cleanup levels will be attained through natural attenuation as described in Section 7.1.1.

### **7.2.3 Implement Environmental Monitoring**

As required by MTCA, environmental monitoring will be conducted as described in Section 7.1.1.

## **7.3 Alternative 3 –Excavation, Off-Site Disposal, and Natural Attenuation**

This alternative would reduce and control exposures to contaminants by the following cleanup alternative components:

- Meet soil cleanup levels (MTCA Method A) onsite by source removal
  - Excavation of onsite soil exceeding cleanup levels
  - Off-site transport and disposal of excavated soil
- Meet groundwater cleanup levels through natural attenuation
- Implement environmental monitoring

This alternative is identical to Alternative 2 with the exception that excavated soil will be transported off-site for disposal as opposed to thermally treated and reused on-property.

### ***7.3.1 Off-Site Transport and Disposal of Excavated Soil***

Approximately 1000 cubic yards of excavated soil exceeding cleanup levels will be transported to a Chevron approved disposal facility. A corresponding volume of clean overburden will be transported to the site for use as backfill.

## **7.4 Alternative 4, Soil Vapor Extraction**

This alternative would meet cleanup levels through the following cleanup alternative components.

- Meet soil cleanup levels through installation and operation of a soil vapor extraction system
- Implement Environmental monitoring

### ***7.4.1 Soil Vapor Extraction***

This alternative would meet cleanup levels through installation and operation of an onsite soil vapor extraction (SVE) system. One or more SVE wells will be located in areas exhibiting impacted soil above cleanup levels. Each SVE well would be screened to an approximate depth of 23 feet bgs which is the maximum depth of known soil impacts. The SVE system would include a blower which would withdraw air and vapor from each well.

### ***7.4.2 Implement Environmental Monitoring***

Environmental monitoring as discussed in Section 7.1.1 will be conducted.

## **8.0 ANALYSIS AND COMPARISON OF ALTERNATIVES**

MTCA requires the use of permanent solutions in which cleanup levels will be attained at the site without additional remedial actions; however, MTCA also recognizes that costs of the permanent solution may be disproportionate to the benefits it provides. Disproportionate costs are defined in MTCA as cases where the incremental costs of an alternative over that of a lower cost alternative exceed the incremental degree of benefits provided by the higher cost alternative. In the case of disproportionate costs, MTCA allows selection of a lower cost alternative that “uses permanent solutions to the maximum extent practicable” (WAC 173-340-360). This lower cost

alternative is selected by conducting a disproportionate cost analysis comparing the costs and benefits of all of the remedial alternatives in the feasibility study.

The disproportionate cost analysis requires that the alternatives be ranked from most to least permanent and that the permanent solution alternative serve as the baseline against which all other alternatives are evaluated. When the benefits of two or more alternatives are equal, the lower cost alternative shall be selected as the preferred alternative.

### **8.1 Permanence Ranking of Alternatives**

Alternative 3 is the most permanent of the remedial alternatives included in the feasibility study because it eliminates risks by excavation, offsite disposal of accessible impacted soil and enhances degradation of petroleum constituents in groundwater through source removal. Alternative 2 is nearly as permanent as Alternative 3. Thermal treatment is anticipated to successfully remediate excavated soil to below MTCA Method A cleanup levels.

All of the alternatives will result in permanent solutions at the site. Other than cost, the primary distinguishing feature of the alternatives is the time required to reach groundwater cleanup levels.

### **8.2 Evaluation of Alternatives against Disproportionate Cost Criteria**

MTCA specifies the various criteria for evaluation and comparison of alternatives when conducting a disproportionate cost analysis to determine whether a remedial action is “permanent to the maximum extent practicable” [WAC 173-340-360(e)]. The alternative analysis presented in Table 5 involves an evaluation of each alternative relative to the specified criteria listed below. Capital costs and Operation and Maintenance (O&M) costs for each alternative are presented in Appendix G.

**Protectiveness.** Overall protectiveness of human health and the environment, including the following considerations:

- Degree to which existing risks are reduced.
- Time required to reduce risks and attain cleanup standards.
- Onsite and offsite risks resulting from implementation of the alternative.
- Improvement in the overall environmental quality.

**Permanence.** The degree to which the alternative permanently reduces the toxicity, mobility, or volume of hazardous substances, including the following considerations:

- Adequacy of the alternative in destroying hazardous substances.
- Reduction or elimination of hazardous substance releases or sources of releases.
- Degree of irreversibility of the waste treatment process.
- Characteristics and quantity of treatment residuals generated.

**Cost.** The cost to implement the alternative, including the followings costs:

- Cost of construction (cost estimates for treatment technologies include pretreatment, analytical, labor, and waste management costs; the cost of replacement and repair of major elements for the estimated design life of the project is included.)
- Net present value of any long-term costs (includes O&M costs, monitoring costs, equipment replacement costs, and the cost of maintaining institutional controls)
- Agency oversight costs that are cost-recoverable

**Long-term effectiveness.** Long-term effectiveness includes the following considerations:

- Degree of certainty that the alternative will be successful
- Reliability of the alternative during the period of time that hazardous substances are expected to remain on site at concentrations exceeding cleanup levels
- Magnitude of the residual risk with the alternative in place
- Effectiveness of controls required to manage the treatment residues or remaining wastes

**Management of short-term risks.** Short-term risk includes the risk to human health and the environment associated with the alternative during construction and the implementation and effectiveness of mitigation measures.

**Ability to implement technically and administratively.** The ability of the alternative to be implemented includes the following considerations:

- Technical possibility of alternative
- Availability of necessary offsite facilities, services, and materials
- Administrative and regulatory requirements
- Scheduling, size, and complexity
- Monitoring requirements
- Access for construction operations and monitoring
- Integration with existing facility operations and other current or potential remedial actions.

**Consideration of public concerns.** Consideration of public concerns includes whether the community has concerns regarding the alternative and, if so, the extent to which the alternative addresses those concerns. This criterion includes concerns from individuals, community groups, local governments, tribes, federal and state agencies, or any other organization that may have an interest in or knowledge of the site.

An evaluation of the alternative versus the cost criterion was accomplished by preparation of estimates of probable capital cost and O&M expenses, and by estimating the life-cycle cost for each alternative using present worth analysis. The time period used in the present worth for each alternative was selected to match the estimate of the life of the remedial action; in cases where the life of the action would be indeterminate or long-term, a 30-year period was used. The present worth was calculated using net discount rates of 3, 5, and 7 percent before taxes and after inflation.

Unit costs were obtained from standard engineering cost indices for construction items (such as RS Means Co., 1997, 2000). Costs for treatment were obtained from local solid waste disposal facilities. Capital costs were developed using the factored-estimate method, in which the overall costs are derived from knowledge of the costs of major equipment or process items.

Factored estimates are generally believed to provide an accuracy of about 30 percent for specified process parameters (Peters and Timmerhaus, 1968). When process conditions are not well known or when a remedial action requires a detailed design or pilot test prior to implementation, uncertainties in the specified parameters (e.g., treatment volume or rate, concentrations of contaminants, or size of equipment) will result in additional cost uncertainty.

### **8.3 Comparative Evaluation of Alternatives**

The remedial action alternatives are evaluated relative to the most permanent solution to illustrate the relative pros and cons between the alternatives and to assist in identification of the most permanent alternative to the extent practicable. Because it represents the most permanent solution, Alternative 3 will serve as the basis for comparison. A comparison of the alternatives is presented in Table 6. The last criterion in this table, public concern, is typically addressed in the final Cleanup Action Plan (CAP) after public comments on the FS and CAP have been received.

MTCA allows identification of a preferred alternative in the feasibility study [WAC 173-340-350(8) (c)]. Alternative 1 has been identified as the preferred alternative based on the following considerations:

- Alternative 1 is protective of human health and the environment.
- Alternative 1 meets MTCA's preferences for a permanent solution and reasonable restoration time frame.
- Alternative 1 is expected to have relatively low short-term risks associated with implementation.
- Alternative 1 is highly implementable.
- Alternative 1 is cost-effective having a moderate projected life-cycle cost.

## **9.0 CONCLUSIONS**

As discussed above, soils and groundwater beneath the Site have been impacted by the former bulk plant operations. Soil and groundwater impacts are present beneath the former Chevron property and have been delineated onsite.

Cleanup levels using MTCA were proposed for soil and groundwater. Natural attenuation of soil and groundwater was selected as the preferred alternative based on the results of the completed Feasibility Study.

Following the acceptance of the FS by Ecology a Cleanup Action Plan will developed.



## TABLES



TABLE 1  
SOIL ANALYTICAL DATA  
FORMER CHEVRON BULK TERMINAL NO. 207407  
612 SE Union Street, Camas, Washington  
Concentrations reported in mg/kg

Sample ID	Sample Depth (feet)	Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	Lead	MTBE	cPAHs	EDB	EDC	Total TPH*
B-1 (0-5)*	0-5	10/12/87	0.007	3.045	-	21.365	-	-	-	-	-	-	-	-	7,870
B-1 (5-10)*	5-10	10/12/87	0.010	0.743	-	12.995	-	-	-	-	-	-	-	-	6,870
B-1 (10-15)*	10-15	10/12/87	U	0.009	-	0.133	-	-	-	-	-	-	-	-	2,240
B-1 (15-20)*	15-20	10/12/87	U	0.005	-	0.164	-	-	-	-	-	-	-	-	429
B-2 (0-5)	0-5	10/13/87	U	U	-	U	-	-	-	-	-	-	-	-	549
B-2 (5-10)	5-10	10/13/87	U	0.007	-	3.92	-	-	-	-	-	-	-	-	1,420
B-2 (10-15)	10-15	10/13/87	U	0.080	-	7.135	-	-	-	-	-	-	-	-	881
B-2 (15-20)	15-20	10/13/87	0.151	4.960	-	21.945	-	-	-	-	-	-	-	-	1,200
MW-1 (8.5-9.5)*	8.5-9.5	09/01/88	U	U	U	U	-	-	-	-	-	-	-	-	552
MW-1 (22-23)	22-23	09/01/88	U	U	U	U	-	-	-	-	-	-	-	-	552
MW-2 (22.5-23.5)	22.5-23.5	09/02/88	U	U	U	U	-	-	-	-	-	-	-	-	<5.0
MW-3 (8.5-9.5)	8.5-9.5	09/06/88	U	U	U	U	-	-	-	-	-	-	-	-	111
MW-3 (22.5-24.0)	22.5-24	09/06/88	U	U	U	U	-	-	-	-	-	-	-	-	<5.0
MW-4 (3.5-4.0)	3.5-4.0	09/07/88	U	U	U	U	-	-	-	-	-	-	-	-	24
MW-4 (16-17)	16-17	09/07/88	U	U	U	U	-	-	-	-	-	-	-	-	8.6
MW-4A (16-17) (D)	16-17	09/07/88	U	U	U	U	-	-	-	-	-	-	-	-	11.0
MW-5 (20)	20	02/08/90	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	7.0
MW-5 (25.5)	25.5	02/08/90	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	<5.0
MW-5 (39.5)	39.5	02/08/90	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	10
MW-6 (21)	21	02/09/90	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	13
MW-6 (25.5)	25.5	02/09/90	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	<5.0
MW-6 (35)	35	02/09/90	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	11
MW-7 (20.5)	20.5	02/23/90	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	<5.0
MW-7 (25)	25	02/23/90	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	5.4
MW-7 (34.5)	34.5	02/23/90	<0.05	<0.05	<0.05	<0.05	-	-	-	-	-	-	-	-	1,200
TP-1 (1.5-2.0)*	1.5-2.0	09/08/94	-	-	-	-	380	820	-	-	-	-	-	-	1,200
TP-1 (5.5-6.0)*	5.5-6.0	09/08/94	-	-	-	-	92	168	-	-	-	-	-	-	260
TP-2 (1.5-2.0)*	1.5-2.0	09/08/94	-	-	-	-	130	310	-	-	-	-	-	-	440
TP-3 (1.5-2.0)	1.5-2.0	09/08/94	-	-	-	-	45	115	-	-	-	-	-	-	160
TP-3 (8.0-8.5)	8.0-8.5	09/08/94	-	-	-	-	-	-	-	-	-	-	-	-	-
TP-4 (1.5-2.0)	1.5-2.0	09/08/94	-	-	-	-	-	-	-	-	-	-	-	-	-
TP-4 (5.0-5.5)	5.0-5.5	09/08/94	-	-	-	-	-	-	-	-	-	-	-	-	-
TP-5 (1.5-2.0)*	1.5-2.0	09/08/94	<0.031	<0.031	0.30	1.3	590	13,000	14,000	-	-	-	-	-	27,590
TP-5 (9.0-9.5)*	9.0-9.5	09/08/94	<0.030	<0.030	0.37	1.3	720	4,900	11,100	-	-	-	-	-	16,720
TP-6 (1.5-2.0)	1.5-2.0	09/08/94	-	-	-	-	-	-	-	-	-	-	-	-	-
TP-7 (1.5-2.0)	1.5-2.0	09/08/94	<0.027	<0.027	<0.027	<0.027	<5.5	220	1,080	-	-	-	-	-	1,300
TP-7 (5.5-6.0)	5.5-6.0	09/08/94	-	-	-	-	-	120	370	-	-	-	-	-	490
TP-8 (1.5-2.0)*	1.5-2.0	09/08/94	-	-	-	-	-	70	400	-	-	-	-	-	470
TP-8 (5.5-6.0)*	5.5-6.0	09/08/94	-	-	-	-	-	27	103	-	-	-	-	-	130
TP-9 (1.5-2.0)*	1.5-2.0	09/09/94	<0.027	<0.027	<0.027	<0.027	25	2,500	1,200	-	-	-	-	-	3,725
TP-10 (1.5-2.0)*	1.5-2.0	09/09/94	-	-	-	-	-	400	180	-	-	-	-	-	580
TP-10 (6.5-7.0)*	6.5-7.0	09/09/94	-	-	-	-	-	<22	79	-	-	-	-	-	79



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Concentrations reported in mg/kg

Sample ID	Sample Depth (feet)	Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	Lead	MTBE	cPAHs	EDB	EDC	Total TPH*
TP-11 (2.5-3.0)*	2.5-3.0	09/09/94	-	-	-	-	-	-	-	-	-	-	-	-	-
TP-11 (6.0-6.5)*	6.0-6.5	09/09/94	-	-	-	-	24	-	54	-	-	-	-	-	78
TP-12 (2.0-2.5)	2.0-2.5	09/09/94	-	-	-	-	-	-	-	-	-	-	-	-	-
TP-13 (1.5-2.0)	1.5-2.0	09/09/94	<0.029	<0.029	5.7	24.0	87	530	60	-	-	-	-	-	677
TP-13 (10.0-10.5)	10.0-10.5	09/09/94	<0.030	<0.030	0.095	0.46	300	-	-	-	-	-	-	-	300
TP-14 (2.0-2.5)	2.0-2.5	09/09/94	-	-	-	-	67	-	233	-	-	-	-	-	300
TP-14 (7.5-8.0)	7.5-8.0	09/09/94	-	-	-	-	27	-	113	-	-	-	-	-	140
TP-15 (1.5-2.0)*	1.5-2.0	09/09/94	<0.027	<0.027	<0.027	0.37	300	1,500	500	-	-	-	-	-	2,300
TP-15 (7.0-7.5)*	7.0-7.5	09/09/94	<0.028	<0.028	<0.028	1.5	350	2,000	300	-	-	-	-	-	2,650
TP-16 (2.0-2.5)*	2.0-2.5	09/09/94	-	-	-	-	130	-	80	-	-	-	-	-	210
TP-16 (7.0-7.5)*	7.0-7.5	09/09/94	-	-	-	-	260	-	80	-	-	-	-	-	340
TP-17 (1.5-2.0)	1.5-2.0	09/09/94	-	-	-	-	-	-	-	-	-	-	-	-	-
TP-17 (5.5-6.0)	5.5-6.0	09/09/94	-	-	-	-	-	110	180	-	-	-	-	-	290
TP-18 (3.0-3.5)*	3.0-3.5	09/09/94	<0.030	<0.030	0.75	2.3	1,200	7,500	600	-	-	-	-	-	9,300
TP-18 (9.0-9.5)	9.0-9.5	09/09/94	<0.029	<0.029	<0.029	0.075	57	420	80	-	-	-	-	-	557
TP-18 (14.0-14.5)*	14.0-14.5	09/09/94	<0.030	<0.030	0.80	1.9	1,100	7,100	900	-	-	-	-	-	9,100
TP-19 (2.0-2.5)	2.0-2.5	09/09/94	-	-	-	-	-	-	-	-	-	-	-	-	-
ES-1 (6)*	6	11/07/94	<0.031	<0.031	<0.031	<0.031	<6.2	<25	<120	-	-	-	-	-	0
ES-2 (4)*	4	11/07/94	<0.030	<0.030	<0.030	<0.030	<6.0	<24	<120	-	-	-	-	-	0
ES-3 (16)	16	11/07/94	<0.034	<0.034	0.51	1.6	400	3,600	<140	-	-	-	-	-	4,000
ES-4 (15)	15	11/07/94	<0.029	<0.029	1.8	8.3	510	2,600	<120	-	-	-	-	-	3,110
ES-5 (15)	15	11/08/94	<0.035	<0.035	5.9	47	1,800	2,000	<140	-	-	-	-	-	3,800
ES-6 (11)*	11	11/08/94	<0.030	<0.030	<0.030	<0.035	10	1,000	200	-	-	-	-	-	1,210
ES-7 (15)	15	11/08/94	<0.030	<0.030	1.9	7.9	1,700	2,900	<120	-	-	-	-	-	4,600
ES-8 (11)*	11	11/08/94	<0.029	<0.029	<0.029	<0.029	<5.9	28	<120	-	-	-	-	-	28
ES-9 (5.5)*	5.5	11/08/94	<0.029	<0.029	<0.029	<0.029	<5.7	74	<110	-	-	-	-	-	74
SB-1-6	6	07/16/04	<0.05	<0.05	<0.2	<1.5	1,600	960	<100	54.2	<0.5	0.00488	<0.13	<0.13	2,560
SB-1-14	14	07/16/04	<0.005	<0.005	<0.02	<0.2	400	880	<100	4.34	<0.05	<0.003	<0.12	<0.12	1,280
SB-1-19	19	07/16/04	<0.005	<0.005	<0.02	<0.2	69	110	12	3.10	<0.05	<0.003	<0.12	<0.12	191
SB-1-24	24	07/16/04	<0.005	<0.005	<0.02	<0.2	<1.0	110	19	-	<0.05	<0.003	-	-	129
SB-2-19	19	08/22/04	<0.2	<0.2	<0.4	4.9	3,300	3,700	<200	4.88	<2.0	0.0005	<0.13	<0.13	7,000
SB-2-24	24	08/22/04	<0.005	<0.005	<0.005	0.03	110	390	37	4.43	<0.05	<0.003	<0.001	<0.001	537
SB-3-14	14	08/22/04	<0.005	<0.005	<0.005	<0.02	<1.0	<3.0	<10	-	-	-	-	-	0
SB-3-19	19	08/22/04	<0.005	<0.005	<0.005	<0.02	<1.0	<3.0	<10	-	<0.05	-	-	-	0
MW-8-24	24	08/20/04	<0.005	<0.005	<0.005	<0.02	<1.0	<3.0	<10	-	-	-	-	-	0
MW-8-29	29	08/20/04	<0.005	<0.005	<0.005	<0.02	<1.0	<3.0	<10	-	-	-	-	-	0
MW-9-19	19	07/16/04	<0.005	<0.005	<0.005	<0.02	<1.0	<3.0	<10	-	-	-	-	-	0
MW-10-29	29	08/22/04	<0.005	<0.005	<0.005	<0.02	<1.0	<3.0	<10	-	-	-	-	-	0
MW-11-19	19	08/21/04	<0.005	<0.005	<0.005	<0.02	<1.0	<3.0	<10	-	-	-	-	-	0
MW-12-19	19	07/18/04	<0.005	<0.005	<0.005	<0.02	<1.0	<3.0	<10	-	-	-	-	-	0
MW-13-24	24	07/17/04	<0.005	<0.005	<0.005	<0.02	<1.0	<3.0	<10	-	-	-	-	-	0
MW-13-44	44	07/17/04	<0.005	<0.005	<0.005	<0.02	<1.0	4.8	<10	-	-	<0.0003	-	-	4.8
MW-14-24	24	07/19/04	<0.005	<0.005	<0.005	<0.02	<1.0	<3.0	<10	-	-	-	-	-	0



**TABLE 1**  
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Sample ID	Sample Depth (feet)	Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes	TPH-GRO	TPH-DRO	TPH-HRO	Lead	MTBE	cPAHs	EDB	EDC	Total TPH*
MW-15-30	30	07/30/08	<0.0006	<0.0001	<0.0001	<0.0001	<1	<3.4	<11	-	-	-	-	-	0
MW-15-35	35	07/30/08	<0.0004	<0.0008	<0.0008	<0.0008	<0.9	<3.2	<11	-	-	-	-	-	0
MW-15-40	40	07/30/08	<0.0005	<0.0009	<0.0009	<0.0009	<1.2	<3.4	<11	-	-	-	-	-	0
MW-15-45	45	07/30/08	<0.0005	<0.0001	<0.0001	<0.0001	<1.1	<3.3	<11	-	-	-	-	-	0
MW-15-50	50	07/30/08	<0.0005	<0.0001	<0.0001	<0.0001	<1.4	<3.5	<12	-	-	-	-	-	0
MW-16-25	25	07/31/08	<0.0004	<0.0009	<0.0009	<0.0009	<1	<3.3	<11	-	-	-	-	-	0
MW-16-30	30	07/31/08	<0.0005	<0.0001	<0.0001	<0.0001	<1	4.1	<12	-	-	-	-	-	4.1
MW-16-35	35	07/31/08	<0.0005	<0.0009	<0.0009	<0.0009	<1.2	<3.2	<11	-	-	-	-	-	0
MW-16-40	40	07/31/08	<0.0005	<0.0009	<0.0009	<0.0009	<1.2	<3.4	<11	-	-	-	-	-	0
MW-16-45	45	07/31/08	<0.0005	<0.0009	<0.0009	<0.0009	<1.2	<3.2	<11	-	-	-	-	-	0
MW-16-50	50	07/31/08	<0.0006	<0.0001	<0.0001	<0.0001	<0.9	<3.4	<11	-	-	-	-	-	0
MTCA Method A CULs			0.03	7	6	9	30/100	2,000	2,000	250	0.1	0.1	0.005	-	-
MTCA Method B CULs			18	6,400	8,000	16,000	-	-	-	-	-	-	-	-	2,671

**EXPLANATIONS:**

Bolding and shading indicate a contaminant concentration detected above the MTCA Method B CUL.  
 MTCA Method B cleanup levels calculated for Direct Contact, Unrestricted Land Uses.  
 TPH prior to 1994 measured by Method 418.1; recent values are the sum of Gasoline, Diesel, and Lubricant oil-range Hydrocarbons.

- cPAHs = Carcinogenic polycyclic aromatic hydrocarbons
- CULs = Cleanup levels
- (D) = Duplicate
- EDB = Ethylene dibromide (1,2-dibromoethane)
- EDC = Ethylene dichloride (1,2-dichloroethane)
- mg/kg = Milligrams per kilogram
- MTBE = Methyl Tertiary Butyl Ether
- MTCA = Model Toxics Control Act
- TPH = Total Petroleum Hydrocarbons
- TPH-DRO = TPH as Diesel-Range Organics
- TPH-GRO = TPH as Gasoline-Range Organics
- TPH-HRO = TPH as Heavy Oil-Range Organics
- U = The analyte was not detected at or above the laboratory detection limit
- \* = locations removed during the 1994 soil excavation.
- (-) = Sample not analyzed
- = Not Measured/Not Analyzed

**TABLE 2**  
**GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 S.E. Union Street**  
**Camas, Washington**

Well ID	Date	TOC (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	T. Lead	D. Lead	
															Concentrations reported in µg/L
MW-5	02/22/90	--	--	--	--	--	--	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	--	6.2	--	
	12/30/93	--	--	--	-- <sup>2</sup>	-- <sup>2</sup>	670	7.0	-- <sup>2</sup>	61	1.4	--	6.4	--	
	03/03/94	--	--	--	--	--	<b>1,000</b>	11	-- <sup>2</sup>	54	0.8	--	--	--	
	08/17/94	--	--	--	--	--	--	--	--	--	--	--	--	--	
	11/29/94	--	--	--	--	--	<b>3,600</b>	19	-- <sup>2</sup>	120	11	--	--	--	
	05/25/95	--	--	--	--	--	770	0.83	-- <sup>2</sup>	5.7	-- <sup>2</sup>	--	--	--	
	11/27/95	--	--	--	--	--	--	--	--	--	--	--	--	--	
	08/23/04	50.47	DRY	--	--	--	--	--	--	--	--	--	--	--	
	11/08/04	50.47	38.78	11.69	260	130	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	
	02/03/05	50.47	37.86	12.61	200	<100	<48	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	
	04/11/05	50.47	37.66	12.81	150	<98	<48	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	
	07/19/05	50.47	38.30	12.17	370	<99	79	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	
	06/22/06	50.47	31.25	19.22	200 <sup>1</sup>	340 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	
	09/21/06	50.47	43.02	7.45	NOT SAMPLED DUE TO INSUFFICIENT WATER										
	12/05/06	50.47	35.58	14.89	2,200 <sup>1</sup>	<500 <sup>1</sup>	100	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	
	03/15/07	50.47	34.42	16.05	380 <sup>1</sup>	1,100 <sup>1</sup>	63	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	
	06/22/07	50.47	36.25	14.22	<960 <sup>1</sup>	3,100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	
	09/25/07	50.47	43.32	-- <sup>4</sup>	NOT SAMPLED DUE TO INSUFFICIENT WATER										
	12/07/07	50.47	34.05	16.42	450 <sup>1</sup>	<99 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	
	03/21/08	50.47	35.85	14.62	3,900 <sup>1</sup>	3,500 <sup>1</sup>	74	<0.5	<0.5	<0.5	<0.5	<1.5	<0.5 <sup>5</sup>	1.1	
06/24/08	50.47	30.96	19.51	<77 <sup>1</sup>	<96 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--		
09/20/08	44.72	43.10	-- <sup>4</sup>	NOT SAMPLED DUE TO INSUFFICIENT WATER											
12/14/08	44.72	38.65	6.07	2,500 <sup>1</sup>	440 <sup>1</sup>	200	<0.5	<0.5	<0.5	<0.5	<1.5	<0.5 <sup>5</sup>	0.48		
03/28/09	44.72	36.70	8.02	280 <sup>1</sup>	<69 <sup>1</sup>	340	<0.5	<0.5	<0.5	<0.5	<1.5	<0.5 <sup>5</sup>	0.34		
06/12/09	44.72	30.80	13.92	100 <sup>1</sup>	250 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--		
09/18/09	44.72	42.80	1.92	NOT SAMPLED DUE TO INSUFFICIENT WATER											
12/09/09	44.72	39.33	5.39	7,900 <sup>1</sup>	<690 <sup>1</sup>	460	<0.5	<0.5	<0.5	<0.5	<1.5	<0.5	0.68		
12/09/09 (D)	--	--	--	5,100 <sup>1</sup>	<700 <sup>1,8</sup>	550	<0.5	<0.5	<0.5	<0.5	<1.5	<0.5	0.69		
03/26/10	44.72	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--		
06/16/10	44.72	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--		
09/24/10	44.72	42.80	1.92	NOT SAMPLED DUE TO INSUFFICIENT WATER											

**TABLE 2**  
**GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**

612 S.E. Union Street  
 Camas, Washington

Concentrations reported in µg/L

Well ID	Date	TOC (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	T. Lead	D. Lead
MW-5 (cont.)	12/15/10	44.72	INACCESSIBLE		--	--	--	--	--	--	--	--	--	--
	03/25/11	44.72	INACCESSIBLE		--	--	--	--	--	--	--	--	--	--
	06/30/11	44.72	26.28	18.44	81 <sup>1,10</sup>	680 <sup>1,10</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/30/11	44.72	41.30	3.42	91 <sup>1,10</sup>	<67 <sup>1,10</sup>	170	<2.0	<0.5	<0.5	<1.5	<0.5	1	--
	12/06/11	44.72	37.90	6.82	<30 <sup>1</sup>	<69 <sup>1</sup>	61	<0.5	<0.5	<0.5	<1.5	<0.5	--	0.15
	02/22/90	--	--	--	--	--	--	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	--	--	--
	12/30/93	--	--	--	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	--	--
	03/03/94	--	--	--	--	--	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	--	<6.0
	08/17/94	--	--	--	--	--	--	--	--	--	--	--	--	5.4
	11/29/94	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-6	05/25/95	--	--	--	--	--	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	--	--	--
	11/27/95	--	--	--	--	--	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	-- <sup>2</sup>	--	--	--
	08/23/04	50.00	44.07	5.93	--	--	--	--	--	--	--	--	--	--
	11/08/04	50.00	38.36	11.64	<80	<100	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	02/03/05	50.00	37.42	12.58	<78	<98	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
	04/11/05	50.00	37.24	12.76	<75	<94	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
	07/19/05	50.00	37.86	12.14	100	<100	<48	<0.5	0.6	<0.5	<1.5	--	--	--
	06/22/06	50.00	30.76	19.24	<81 <sup>1</sup>	190 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/21/06	50.00	42.57	7.43	2,500 <sup>1</sup>	12,000 <sup>1</sup>	<48	<0.5	0.5	<0.5	<1.5	--	--	--
	12/05/06	50.00	35.17	14.83	<82 <sup>1</sup>	<100 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
03/15/07	50.00	34.03	15.97	<160 <sup>1</sup>	1,100 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/22/07	50.00	35.70	14.30	<85 <sup>1</sup>	<110 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
09/25/07	50.00	DRY	--	--	--	--	--	--	--	--	--	--	--	
12/07/07	50.00	33.68	16.32	<76 <sup>1</sup>	330 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
03/21/08	50.00	35.41	14.59	<79 <sup>1</sup>	210 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/24/08	50.00	30.35	19.65	120 <sup>1</sup>	<95 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
09/20/08	44.24	42.69	1.55	35,000 <sup>1</sup>	210,000 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
12/14/08	44.24	38.20	6.04	110 <sup>1</sup>	380 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
03/28/09	44.24	36.30	7.94	<30 <sup>1</sup>	<69 <sup>1</sup>	65	<0.5	<0.5	<0.5	<1.5	<0.5 <sup>5</sup>	--	<0.050	
06/12/09	44.24	30.25	13.99	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
09/18/09	44.24	42.35	1.89	2,000 <sup>1</sup>	7,600 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	



**TABLE 2  
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS  
FORMER CHEVRON BULK TERMINAL NO. 207407**

**612 S.E. Union Street  
Camas, Washington**

Concentrations reported in µg/L

Well ID	Date	TOC (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	T. Lead	D. Lead	
MW-6 (cont.)	12/09/09	44.24	38.91	5.33	220 <sup>1</sup>	600 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/26/10	44.24	38.50	5.74	44 <sup>1</sup>	300 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/16/10	44.24	27.97	16.27	39 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/24/10	44.24	42.02	2.22	<31 <sup>1</sup>	<71 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	12/15/10	44.24	32.38	11.86	77 <sup>1</sup>	450 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/25/11	44.24	32.09	12.15	350 <sup>1</sup>	1,800 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/30/11	44.24	25.86	18.38	<150 <sup>1,11</sup>	760 <sup>1,11</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/30/11	44.24	40.95	3.29	280 <sup>1,10</sup>	450 <sup>1,10</sup>	71	<0.5	<0.5	<0.5	<1.5	<0.5	<0.080	--	
	12/06/11	44.24	37.46	6.78	<30 <sup>1</sup>	170 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	02/22/90	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12/30/93	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	03/03/94	--	--	--	--	--	--	--	--	--	--	--	<6.0	--	
	08/17/94	--	--	--	--	--	--	--	--	--	--	--	<3.0	--	
	11/29/94	--	--	--	--	--	--	--	--	--	--	--	--	--	
	05/25/95	--	--	--	--	--	--	--	--	--	--	--	--	--	
	11/27/95	--	--	--	--	--	--	--	--	--	--	--	--	--	
	DECOMMISSIONED IN 2004														
	MW-8	08/23/04	50.70	45.33	5.37	<92	210	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
08/23/04 (D)		50.70	45.33	5.37	<160	<200	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
11/08/04		50.70	39.00	11.70	<77	<97	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
02/03/05		50.70	38.08	12.62	<78	<97	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
04/11/05		50.70	37.88	12.82	<75	<94	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
07/20/05		50.70	38.54	12.16	<78	<98	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/22/06		50.70	31.35	19.35	100 <sup>1</sup>	<110 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
09/21/06		50.70	43.15	7.55	<75 <sup>1</sup>	<94 <sup>1</sup>	<48	0.6	1	<0.5	<1.5	--	--	--	
12/05/06		50.70	35.83	14.87	<77 <sup>1</sup>	<97 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
03/15/07		50.70	34.66	16.04	<78 <sup>1</sup>	<97 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/22/07		50.70	36.44	14.26	<80 <sup>1</sup>	<100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
09/25/07	50.70	45.42	5.28	<76 <sup>1</sup>	<95 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--		
12/07/07	50.70	34.29	16.41	<80 <sup>1</sup>	<100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--		
03/21/08	50.70	36.00	14.70	330 <sup>1</sup>	<98 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--		



**TABLE 2**  
**GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 S.E. Union Street**  
**Camas, Washington**

Well ID	Date	TOC (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	T. Lead	D. Lead
MW-8 (cont.)	06/24/08	50.70	31.09	19.61	210 <sup>1</sup>	<96 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/20/08	44.96	43.32	1.64	<83 <sup>1</sup>	<100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/14/08	44.96	38.85	6.11	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	03/28/09	44.96	36.95	8.01	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/12/09	44.96	30.98	13.98	70 <sup>1</sup>	<74 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/18/09	44.96	42.95	2.01	<31 <sup>1</sup>	<73 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/09/09	44.96	39.54	5.42	150 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	03/26/10	44.96	39.13	5.83	<30 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/16/10	44.96	28.60	16.36	40 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/24/10	44.96	42.55	2.41	<29 <sup>1</sup>	<68 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/15/10	44.96	32.95	12.01	85 <sup>1</sup>	470 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	03/25/11	44.96	32.72	12.24	31 <sup>1</sup>	190 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/30/11	44.96	26.57	18.39	<31 <sup>1,10</sup>	140 <sup>1,10</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/30/11	44.96	41.55	3.41	<29 <sup>1,10</sup>	<69 <sup>1,10</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/06/11	44.96	38.18	6.78	<30 <sup>1</sup>	120 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	08/23/04	51.22	45.83	5.39	<80	<100	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	11/08/04	51.22	39.50	11.72	<79	<99	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
02/03/05	51.22	38.58	12.64	<77	<96	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
04/11/05	51.22	38.38	12.84	<74	<93	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
07/19/05	51.22	39.02	12.20	<80	<100	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/22/06	51.22	30.63	20.59	<80 <sup>1</sup>	<100 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
09/21/06	51.22	43.63	7.59	<76 <sup>1</sup>	<95 <sup>1</sup>	<48	0.7	1.1	<0.5	<1.5	--	--	--	
12/05/06	51.22	36.31	14.91	<79 <sup>1</sup>	<99 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
03/15/07	51.22	35.15	16.07	110 <sup>1</sup>	<99 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/22/07	51.22	36.98	14.24	250 <sup>1</sup>	<110 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
09/25/07	51.22	43.50	7.72	93 <sup>1</sup>	130 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
12/07/07	51.22	34.78	16.44	<79 <sup>1</sup>	<99 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
03/21/08	51.22	36.52	14.70	<79 <sup>1</sup>	<99 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/24/08	51.22	31.65	19.57	<77 <sup>1</sup>	<96 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
09/20/08	45.48	43.83	1.65	<80 <sup>1</sup>	<100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
12/14/08	45.48	39.36	6.12	<27 <sup>1</sup>	<64 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
MW-9														



**TABLE 2**  
**GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 S.E. Union Street**  
**Camas, Washington**

Well ID	Date	TOC (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	T. Lead	D. Lead
MW-9 (cont.)	03/28/09	45.48	37.44	8.04	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/12/09	45.48	31.51	13.97	51 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/18/09	45.48	43.44	2.04	<29 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/09/09	45.48	INACCESSIBLE		--	--	--	--	--	--	--	--	--	--
	03/26/10	45.48	38.97	6.51	<29 <sup>1</sup>	77 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/16/10	45.48	29.09	16.39	30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/24/10	45.48	43.05	2.43	<29 <sup>1</sup>	120 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/15/10	45.48	33.41	12.07	97 <sup>1</sup>	440 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/15/10	--	--	--	<30 <sup>1</sup>	170 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	03/25/11	45.48	33.22	12.26	<29 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/30/11	45.48	27.05	18.43	<150 <sup>1,11</sup>	600 <sup>1,11</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/30/11	45.48	42.00	3.48	<30 <sup>1,10</sup>	<71 <sup>1,10</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/06/11	45.48	38.66	6.82	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	MW-10	08/23/04	50.14	44.86	5.28	<160	<200	<50	<0.5	<0.5	<0.5	<1.5	--	--
11/08/04		50.14	38.48	11.66	<79	<99	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
02/03/05		50.14	37.55	12.59	<80	<100	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
04/11/05		50.14	37.35	12.79	<77	<96	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
07/19/05		50.14	38.03	12.11	<79	<98	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
06/22/06		50.14	30.99	19.15	<78 <sup>1</sup>	130 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
09/21/06		50.14	42.68	7.46	<75 <sup>1</sup>	120 <sup>1</sup>	<48	0.7	0.9	<0.5	<1.5	--	--	--
12/05/06		50.14	35.28	14.86	140 <sup>1</sup>	<99 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
03/15/07		50.14	34.12	16.02	<78 <sup>1</sup>	<97 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
06/22/07		50.14	35.93	14.21	210 <sup>1</sup>	<110 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
09/25/07		50.14	44.92	5.22	110 <sup>1</sup>	120 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
12/07/07		50.14	33.77	16.37	<78 <sup>1</sup>	<97 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
03/21/08		50.14	35.51	14.63	250 <sup>1</sup>	370 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
06/24/08		50.14	30.62	19.52	97 <sup>1</sup>	<98 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
09/20/08	44.41	42.84	1.57	<75 <sup>1</sup>	<94 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
12/14/08	44.41	38.35	6.06	<31 <sup>1</sup>	<71 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	





**TABLE 2**  
**GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 S.E. Union Street**  
**Camas, Washington**

Well ID	Date	TOC (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	T. Lead	D. Lead
MW-10 (cont.)	03/28/09	44.41	36.41	8.00	<30 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/12/09	44.41	30.50	13.91	31 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/18/09	44.41	42.46	1.95	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/09/09	44.41	39.03	5.38	67 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	03/26/10	44.41	38.60	5.81	<29 <sup>1</sup>	88 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/16/10	44.41	28.09	16.32	61 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/24/10	44.41	42.06	2.35	<29 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/15/10	44.41	32.51	11.90	240 <sup>1</sup>	<b>1,600<sup>1</sup></b>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	03/25/11	44.41	32.21	12.20	130 <sup>1</sup>	<b>530<sup>1</sup></b>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/30/11	44.41	26.04	18.37	<31 <sup>1,12</sup>	<72 <sup>1,12</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/30/11	44.41	41.05	3.36	<30 <sup>1,10</sup>	<71 <sup>1,10</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/06/11	44.41	37.62	6.79	<76 <sup>1,9,13</sup>	420 <sup>1,13</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	08/23/04	50.73	45.35	5.38	<77	<96	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	11/08/04	50.73	39.05	11.68	<77	<96	<50	<0.5	<0.5	<0.5	<1.5	--	--	--
	02/03/05	50.73	38.13	12.60	<80	<100	<48	<0.5	<0.5	<0.5	<1.5	--	--	--
04/11/05	50.73	37.90	12.83	<78	<98	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
07/19/05	50.73	38.58	12.15	<77	<97	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/22/06	50.73	31.50	19.23	<79 <sup>1</sup>	<98 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
09/21/06	50.73	43.21	7.52	<75 <sup>1</sup>	<94 <sup>1</sup>	<48	0.8	1.1	<0.5	<1.5	--	--	--	
12/05/06	50.73	35.86	14.87	<85 <sup>1</sup>	<110 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
03/15/07	50.73	34.71	16.02	<90 <sup>1</sup>	<110 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/22/07	50.73	36.52	14.21	290 <sup>1</sup>	<100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
09/25/07	50.73	45.49	5.24	87 <sup>1</sup>	<110 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
12/07/07	50.73	34.33	16.40	87 <sup>1</sup>	<110 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
03/21/08	50.73	36.04	14.69	<88 <sup>1</sup>	<110 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/24/08	50.73	31.21	19.52	140 <sup>1</sup>	<95 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
09/20/08	45.00	43.40	1.60	<78 <sup>1</sup>	<97 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
12/14/08	45.00	38.92	6.08	<29	<68 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
03/28/09	45.00	36.98	8.02	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/12/09	45.00	31.06	13.94	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
09/18/09	45.00	43.00	2.00	<29 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	



**TABLE 2**  
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**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 S.E. Union Street**  
**Camas, Washington**

Well ID	Date	TOC (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	T. Lead	D. Lead	Concentrations reported in µg/L									
															TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	T. Lead	D. Lead
MW-11 (cont.)	12/09/09	45.00	39.58	5.42	39 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--										
	03/26/10	45.00	39.17	5.83	<29 <sup>1</sup>	98 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--										
	06/16/10	45.00	28.65	16.35	70 <sup>1</sup>	<68 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--										
	09/24/10	45.00	42.61	2.39	<30 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--										
	12/15/10	45.00	32.97	12.03	<32 <sup>1</sup>	<75 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--										
	03/25/11	45.00	32.77	12.23	<29 <sup>1</sup>	120 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--										
	06/30/11	45.00	26.60	18.40	<59 <sup>1,10</sup>	320 <sup>1,10</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--										
	09/30/11	45.00	41.60	3.40	<30 <sup>1,10</sup>	<70 <sup>1,10</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--										
	12/06/11	45.00	38.21	6.79	<74 <sup>1,9,13</sup>	210 <sup>1,13</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--										
	08/23/04	50.11	44.82	5.29	<160	<200	<50	<0.5	<0.5	<0.5	<1.5	--	--	--										
	11/08/04	50.11	38.43	11.68	<78	<98	<50	<0.5	<0.5	<0.5	<1.5	--	--	--										
	02/03/05	50.11	37.50	12.61	<79	<98	<48	<0.5	<0.5	<0.5	<1.5	--	--	--										
	04/11/05	50.11	37.33	12.78	<82	<100	<48	<0.5	<0.5	<0.5	<1.5	--	--	--										
	07/20/05	50.11	37.99	12.12	97	<100	<48	<0.5	<0.5	<0.5	<1.5	--	--	--										
06/22/06	50.11	30.94	19.17	<78 <sup>1</sup>	110 <sup>1</sup>	<48	<0.5	1.5	<0.5	<1.5	--	--	--											
09/21/06	50.11	42.71	7.40	180 <sup>1</sup>	<100 <sup>1</sup>	<48	0.8	1.2	<0.5	<1.5	--	--	--											
12/05/06	50.11	35.22	14.89	<79 <sup>1</sup>	260 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--											
03/15/07	50.11	34.09	16.02	<79 <sup>1</sup>	130 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--											
06/22/07	50.11	35.84	14.27	100 <sup>1</sup>	140 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--											
09/25/07	50.11	44.89	5.22	<76 <sup>1</sup>	100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--											
12/07/07	50.11	33.67	16.44	95 <sup>1</sup>	<100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--											
03/21/08	50.11	35.52	14.59	1,200 <sup>1</sup>	880 <sup>1</sup>	53	<0.5	<0.5	<0.5	<1.5	<5 <sup>17</sup>	--	<0.050											
06/24/08	50.11	30.62	19.49	98 <sup>1</sup>	<98 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--											
09/20/08	44.32	42.72	1.60	<78 <sup>1</sup>	<97 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--											
09/20/08 (D)	--	--	--	<78 <sup>1</sup>	<97 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--											
12/14/08	44.32	38.25	6.07	5,800 <sup>1</sup>	12,000 <sup>1</sup>	<50	<0.5	0.8	<0.5	<1.5	--	--	--											
12/14/08 (D)	--	--	--	3,400 <sup>1</sup>	7,200 <sup>1</sup>	<50	<0.5	1.4	<0.5	<1.5	--	--	--											
03/28/09	44.32	36.31	8.01	69 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--											
03/28/09 (D)	--	--	--	<29 <sup>1</sup>	<68 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--											
06/12/09	44.32	30.44	13.88	140 <sup>1</sup>	290 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--											
06/12/09 (D)	--	--	--	130 <sup>1</sup>	300 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--											

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**GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 S.E. Union Street**  
**Camas, Washington**

Concentrations reported in µg/L

Well ID	Date	TOC (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	T. Lead	D. Lead	
MW-12 (cont.)	09/18/09	44.32	42.34	1.98	<29 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/18/09 (D)	--	--	--	<30 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	12/09/09	44.32	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	
	03/26/10	44.32	38.48	5.84	<30 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/26/10 (D)	--	--	--	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/16/10	44.32	27.97	16.35	160 <sup>1</sup>	230 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/16/10 (D)	--	--	--	32 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/24/10	44.32	41.96	2.36	35 <sup>1</sup>	220 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/24/10 (D)	--	--	--	160 <sup>1</sup>	600 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/15/10	44.32	32.32	12.00	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--
	03/25/11	44.32	32.11	12.21	<150 <sup>1,9</sup>	730 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--
	03/25/11 (D)	--	--	--	700 <sup>1</sup>	1,400 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/30/11	44.32	25.93	18.39	<30 <sup>1</sup>	250 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/30/11 (D)	--	--	--	<30 <sup>1,10</sup>	170 <sup>1,10</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/30/11	44.32	40.90	3.42	<29 <sup>1,10</sup>	<68 <sup>1,10</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--
	12/06/11	44.32	37.55	6.77	<30 <sup>1,13</sup>	<69 <sup>1,13</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--
	08/23/04	50.41	45.12	5.29	150	<95	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--
11/08/04	50.41	38.73	11.68	440	<98	670	<0.5	<0.5	1.0	<0.5	<1.5	--	--	--	
02/03/05	50.41	37.80	12.61	320	<96	1,000	<0.5	<0.5	1.7	<0.5	<1.5	--	--	--	
04/11/05	50.41	37.60	12.81	720	<95	1,100	<2.0	<0.5	<2.0	<1.5	--	--	--	--	
07/20/05	50.41	38.33	12.08	720	<96	540	<2.0	<0.5	0.5	<1.5	--	--	--	--	
07/20/05 (D)	--	--	--	1,000	120	520	<2.0	<0.5	0.5	<1.5	--	--	--	--	
06/22/06 <sup>3</sup>	50.41	31.33	19.08	2,000 <sup>1</sup>	2,500 <sup>1</sup>	160	<0.5	11	<0.5	<0.5	<1.5	--	--	--	
09/21/06 <sup>3</sup>	50.41	43.10	7.31	4,200 <sup>1</sup>	5,300 <sup>1</sup>	690	1.7	45	0.5	<1.5	--	--	--	--	
09/21/06 (D)	--	--	--	3,000 <sup>1</sup>	4,800 <sup>1</sup>	630	<2.0	45	0.5	<1.5	--	--	--	--	
12/05/06	50.41	35.53	14.88	650 <sup>1</sup>	710 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--	
12/05/06 (D)	--	--	--	500 <sup>1</sup>	1,600 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--	
03/15/07	50.41	34.42	15.99	140 <sup>1</sup>	460 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--	
03/15/07 (D)	--	--	--	290 <sup>1</sup>	1,100 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/22/07	50.41	36.22	14.19	380 <sup>1</sup>	270 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--	
06/22/07 (D)	--	--	--	360 <sup>1</sup>	240 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<0.5	<1.5	--	--	--	



**TABLE 2**  
**GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 S.E. Union Street**  
**Camas, Washington**

Well ID	Date	TOC (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	T. Lead	D. Lead	
															Concentrations reported in µg/L
MW-13 (cont.)	09/25/07	50.41	45.18	5.23	<82 <sup>1</sup>	<100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	9/25/07 (D)	--	--	--	<91 <sup>1</sup>	<110 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	12/07/07	50.41	34.02	16.39	180 <sup>1</sup>	190 <sup>1</sup>	61	<0.5	<0.5	<0.5	<1.5	<0.5 <sup>5</sup>	0.11	--	
	12/07/07 (D)	--	--	--	200 <sup>1</sup>	160 <sup>1</sup>	85	<0.5	<0.5	<0.5	<1.5	<0.5 <sup>5</sup>	0.11	--	
	03/21/08	50.41	35.64	14.77	<82 <sup>1</sup>	<100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/21/08 (D)	--	--	--	<76 <sup>1</sup>	230 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/24/08	50.41	30.90	19.51	84 <sup>1</sup>	160 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/24/08 (D)	--	--	--	96 <sup>1</sup>	120 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/20/08	44.60	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	--
	12/14/08	44.60	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	--
	03/28/09	44.60	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	--
	06/12/09	44.60	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	--
	09/18/09	44.60	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	--
	12/09/09	44.60	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	--
	03/26/10	44.60	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	--
	06/16/10	44.60	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	--
09/24/10	44.60	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	--	
12/15/10	44.60	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	--	
03/25/11	44.60	INACCESSIBLE	INACCESSIBLE	--	--	--	--	--	--	--	--	--	--	--	
06/30/11	44.60	DAMAGED	DAMAGED	--	--	--	--	--	--	--	--	--	--	--	
09/30/11	44.60	DAMAGED	DAMAGED	--	--	--	--	--	--	--	--	--	--	--	
DECOMMISSIONED IN DECEMBER 2011															
MW-14	08/23/04	50.59	45.30	5.29	1,100	100	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	11/08/04	50.59	38.90	11.69	300	<100	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	02/03/05	50.59	37.97	12.62	<81	<100	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
	02/03/05	50.59	37.97	12.62	<78	<98	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
	04/11/05	50.59	37.78	12.81	<81	<100	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
	07/19/05	50.59	38.43	12.16	300	<110	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/22/06	50.59	31.41	19.18	<87 <sup>1</sup>	<110 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/21/06	50.59	43.23	7.36	150 <sup>1</sup>	310 <sup>1</sup>	<48	<0.5	0.7	<0.5	<1.5	--	--	--	
	12/05/06	50.59	35.73	14.86	<80 <sup>1</sup>	<100 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	



**TABLE 2**  
**GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 S.E. Union Street**  
**Camas, Washington**

Concentrations reported in µg/L

Well ID	Date	TOC (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	T. Lead	D. Lead	
MW-14 (cont.)	03/15/07	50.59	34.55	16.04	<78 <sup>1</sup>	<98 <sup>1</sup>	<48	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/22/07	50.59	36.40	14.19	120 <sup>1</sup>	<97 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/25/07	50.59	45.35	5.24	<82 <sup>1</sup>	<100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	12/07/07	50.59	34.18	16.41	<81 <sup>1</sup>	<100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/21/08	50.59	35.90	14.69	<78 <sup>1</sup>	<98 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/24/08	50.59	31.11	19.48	<76 <sup>1</sup>	<95 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/20/08	44.86	43.25	1.61	<78 <sup>1</sup>	<97 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	12/14/08	44.86	38.79	6.07	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/28/09	44.86	36.85	8.01	<30 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/12/09	44.86	30.98	13.88	87 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/18/09	44.86	42.86	2.00	34 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	12/09/09	44.86	39.43	5.43	<29 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/26/10	44.86	39.00	5.86	<29 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/16/10	44.86	28.51	16.35	180 <sup>1</sup>	120 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/24/10	44.86	42.47	2.39	75 <sup>1</sup>	110 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	12/15/10	44.86	32.81	12.05	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/25/11	44.86	32.65	12.21	<29 <sup>1</sup>	<68 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/30/11	44.86	DAMAGED		--	--	--	--	--	--	--	--	--	--	--
	09/30/11	44.86	DAMAGED		--	--	--	--	--	--	--	--	--	--	--
DECOMMISSIONED IN DECEMBER 2011															
MW-15	09/20/08	45.45	43.79	1.66	<80 <sup>1</sup>	<100 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	12/14/08	45.45	39.31	6.14	<29 <sup>1</sup>	<68	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/28/09	45.45	37.36	8.09	<30 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/12/09	45.45	31.60	13.85	<30 <sup>1</sup>	<71 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/18/09	45.45	INACCESSIBLE		--	--	--	--	--	--	--	--	--	--	
	12/09/09	45.45	39.97	5.48	<29 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/26/10	45.45	39.52	5.93	<30 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/16/10	45.45	29.05	16.40	33 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/24/10	45.45	INACCESSIBLE		--	--	--	--	--	--	--	--	--	--	
12/15/10	45.45	INACCESSIBLE		--	--	--	--	--	--	--	--	--	--		
03/25/11	45.45	INACCESSIBLE		--	--	--	--	--	--	--	--	--	--		



**TABLE 2  
GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS  
FORMER CHEVRON BULK TERMINAL NO. 207407**

**612 S.E. Union Street  
Camas, Washington**

Concentrations reported in µg/L

Well ID	Date	TOC (ft.)	DTW (ft.)	GWE (ft.)	TPH-DRO	TPH-HRO	TPH-GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	T. Lead	D. Lead	
MW-15 (cont.)	06/30/11	45.45	27.04	18.41	<59 <sup>1,10</sup>	300 <sup>1,10</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/30/11	45.45	INACCESSIBLE		--	--	--	--	--	--	--	--	--	--	
	12/06/11	45.45	38.60	6.85	<30 <sup>1</sup>	<70 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/20/08	44.35	42.75	1.60	<79 <sup>1</sup>	<99 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	12/14/08	44.35	38.28	6.07	31 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/28/09	44.35	36.31	8.04	<30 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	06/12/09	44.35	30.52	13.83	99 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/18/09	44.35	42.36	1.99	<29 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	12/09/09	44.35	38.93	5.42	45 <sup>1</sup>	<72 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/26/10	44.35	38.49	5.86	35 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
MW-16	06/16/10	44.35	28.00	16.35	<29 <sup>1</sup>	<69 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/24/10	44.35	41.96	2.39	<29 <sup>1</sup>	<67 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	12/15/10	44.35	32.27	12.08	<32 <sup>1</sup>	82 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	03/25/11	44.35	INACCESSIBLE		--	--	--	--	--	--	--	--	--	--	
	06/30/11	44.35	25.96	18.39	<29 <sup>1,10</sup>	<68 <sup>1,10</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	09/30/11	44.34	INACCESSIBLE		--	--	--	--	--	--	--	--	--	--	
	12/06/11	44.35	37.50	6.85	<31 <sup>1</sup>	<72 <sup>1</sup>	<50	<0.5	<0.5	<0.5	<1.5	--	--	--	
	MTCA Method A CULs:					500	500	800/1,000	5	1,000	700	1,000	20	15	15

**EXPLANATIONS:**

CULs = Cleanup levels

(D) = Duplicate

D. Lead = Dissolved Lead

DTW = Depth to Water

(ft.) = Feet

GC/MS = Gas chromatography/mass spectrometry

GWE = Groundwater Elevation

MTBE = Methyl Tertiary Butyl Ether

MTCA = Model Toxics Control Act

QA = Quality assurance

T. Lead = Total Lead

TOC = Top of Casing

TPH = Total Petroleum Hydrocarbons

TPH-DRO = TPH as Diesel-Range Organics

TPH-GRO = TPH as Gasoline-Range Organics

TPH-HRO = TPH as Heavy Oil-Range Organics

USEPA = United States Environmental Protection Agency

µg/L = Micrograms per liter

-- = Not Measured/Not Analyzed

TOC Elevations surveyed August 18, 2008. Elevations based on benchmark #242 "Lacamas-19" Elevation = 39.03 feet.

Groundwater Elevations relative to site datum, surveyed in December 2003.

Bolding and shading indicate a contaminant concentration detected above the MTCA Method A CUL.



**TABLE 2**  
**GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 S.E. Union Street**  
**Camas, Washington**

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**EXPLANATIONS (cont.):**

- 1 Analyzed with silica-gel cleanup.
- 2 The analyte was not detected at or above the reported value.
- 3 Unable to take duplicate sample due to the close proximity of a truck filled with mulch. The equipment was moved for safety purposes.
- 4 Insufficient water to determine GWE.
- 5 MTBE by USEPA Method 8260.
- 6 Laboratory unable to run QA, vials not received.
- 7 Laboratory report indicates the reporting limits for GC/MS volatile compounds were raised due to sample foaming.
- 8 Laboratory report indicates due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.
- 9 Laboratory report indicates the reporting limits were raised due to interference from the sample matrix.
- 10 Laboratory report indicates the reverse surrogate, capric acid, was present at 0%.
- 11 Laboratory report indicates that due to dilution necessary to bring target analytes into the calibration range of the analytical system, recovery of the reverse surrogate, capric acid, could not be determined.
- 12 Laboratory report indicates the surrogate recovery was outside the method limits. The sample was re-extracted past the method hold time. Surrogate recovery for the re-extracted is within the limits. Since the hold time had expired prior to the re-extraction, all data is reported from the original trial.
- 13 Laboratory report indicates that due to the dilution of the sample extract, capric acid recovery could not be determined.

**TABLE 3**  
**INITIAL SCREENING OF CLEANUP ALTERNATIVE COMPONENTS – SOIL AND GROUNDWATER**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 SE Union Street, Camas, Washington**

<b>Category</b>	<b>Cleanup Alternative Component</b>	<b>Description of Action</b>	<b>Technical Feasibility Screening Comment</b>
Removal	Removal of impacted soil	Use of mechanical equipment to unearth soil for on-site treatment, off-site treatment or disposal in order to achieve significant reduction in risk.	Retained. The soil is located at depths below ground surface that could be removed by remedial excavation.
On-Site Treatment	Natural Attenuation	Reduction in mass, mobility, and concentration of contaminants in the subsurface by intrinsic processes.	Retained. Because the soil exceeding the cleanup levels is located at depths greater than 15 feet below ground surface, the actual human exposure risk is limited to potential construction activities. The historic nature of the releases and limited extent of soil contamination suggests that contaminant migration is not an issue. By nature, petroleum components are readily biodegradable and will attenuate in time.
	Soil Vapor Extraction (SVE)	Reduce the toxicity, volume, or mobility of contaminants by the use of processes that remove, destroy, or stabilize the contaminants of concern.	Retained. Depending on the stratigraphy of the impacted soil, SVE may be effective at reducing the concentration of contaminants in the vadose zone.
	Bioremediation	In-situ injection and mixing of specific acclimated microorganisms into the contaminated soil to enhance biodegradation breaking the contaminants down into carbon dioxide and water.	Rejected. Because the contaminated soil is located in the vadose zone, distribution of the microorganisms would require extensive mixing of the soil by augers or heavy equipment. Minimal exposure is currently occurring because the contaminated soil is located a minimum of 10 feet below ground surface. This technology is not protective of human health.
Off-Site Treatment	Removal of impacted soil	N/A	Retained. The soil may be transported to a thermal treatment facility and subsequently recycled.
Disposal	N/A	N/A	Retained. The excavated soil may be removed to a landfill.



**TABLE 4**  
**SUMMARY OF CLEANUP ACTION ALTERNATIVES**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 SE Union Street, Camas, Washington**

<b>Action</b>	<b>Alternative 1 Natural Attenuation of Soil, Groundwater Monitoring</b>	<b>Alternative 2 Soil Removal by Excavation, Onsite Treatment</b>	<b>Alternative 3 Soil Removal by Excavation, Offsite Treatment</b>	<b>Alternative 4 SVE with Groundwater Monitoring</b>
Natural Attenuation	•	•	•	•
Soil Vapor Extraction				•
Groundwater Monitoring	•	•	•	•
On-Site Treatment		•		
Off-Site Disposal			•	•

**TABLE 5**  
**CLEANUP ACTION ALTERNATIVE ANALYSIS**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 SE Union Street, Camas, Washington**

<p><b>Evaluation criteria</b></p> <p>Time required to reduce risk and attain cleanup levels</p>	<p><b>Alternative 1 Natural Attenuation of Soil, Groundwater Monitoring</b></p> <p>This alternative is expected to result in attainment of soil cleanup levels. This alternative relies on natural attenuation for soil, making prediction of the cleanup time frame difficult to predict. Because the site is currently paved and all soil above the point of compliance meets direct contact CULs.</p> <p>Groundwater currently meets MTCA A CULs with the exception of MW-5, MW-6, MW-9, MW-10, and MW-12 which occasionally exceed the CUL. It is expected that groundwater will meet CULs in the near future through natural attenuation.</p>	<p><b>Alternative 2 Soil Removal by Excavation, Onsite Treatment</b></p> <p>Soil cleanup levels for the protection of groundwater above 23 feet will be met as soon the excavation is completed. Excavations of this size typically are completed within two weeks.</p> <p>Groundwater currently meets MTCA A CULs with the exception of MW-5, MW-6, MW-9, MW-10, and MW-12 which occasionally exceed the CUL. It is expected that groundwater will meet CULs in the near future through natural attenuation.</p>	<p><b>Alternative 3 Soil Removal by Excavation, Offsite Disposal</b></p> <p>Identical to Alternative 2</p>	<p><b>Alternative 4 SVE with Groundwater Monitoring</b></p> <p>Similar to Alternative 2, however the time required to cleanup the hot spot using SVE technology is difficult to predict. Cleanup duration would be influenced by subsurface conditions. A pilot test would be conducted to predict efficiencies.</p>
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**TABLE 5  
CLEANUP ACTION ALTERNATIVE ANALYSIS  
FORMER CHEVRON BULK TERMINAL NO. 207407  
612 SE Union Street, Camas, Washington**

	<b>Alternative 1 Natural Attenuation of Soil, Groundwater Monitoring</b>	<b>Alternative 2 Soil Removal by Excavation, Onsite Treatment</b>	<b>Alternative 3 Soil Removal by Excavation, Offsite Disposal</b>	<b>Alternative 4 SVE with Groundwater Monitoring</b>
<b>Evaluation criteria</b> On-site and off-site risks resulting from implementation	There is no on- or off-site risks associated with this alternative.	Potential risk to humans and the environment may occur from exposure to impacts in soils during excavation. In addition, on site risks include the operation of heavy machinery and trucks.	Potential risk to humans and the environment may occur from exposure to contamination during excavation activities. Off-site risks will result from the transportation of contaminated soil by truck to the disposal facility.	Potential risk to humans and the environment may occur from impacts in drill cuttings during installation of new extraction wells.
Improvement in overall environmental quality	This alternative will result in substantial improvement to the environmental quality of the site by removing the residual soil contamination.	Identical to Alternative 1.	Identical to Alternative 1.	Identical to Alternative 1.
Adequacy of hazardous substances destruction	Soil impacts will be biodegraded.	Impacted soil will be treated resulting in complete destruction of the contaminants.	Impacted soil will be removed from the site.	Soil impacts will be eliminated by vapor extraction.
Reduction or elimination of releases or sources of releases	The primary release sources were eliminated prior to initiating this RI/FS.	Identical to Alternative 1.	Identical to Alternative 1.	Identical to Alternative 1.
Degree of irreversibility of waste treatment process	Natural attenuation of soil hot spots is not reversible.	Soil excavation and treatment is not reversible.	Identical to Alternative 1.	Vapor extraction of impacts is not reversible.
Treatment residual characteristics and quantity	N/A. There is no treatment residual associated with this alternative.	N/A. There is no treatment residual associated with this alternative.	N/A. There is no treatment residual associated with this alternative.	N/A. There is no treatment residual associated with this alternative.
Estimated Cost of Implementation	\$35,420	\$516,400	\$524,850	\$725,980
Degree of certainty of alternative success	Natural attenuation is commonly used to remediate petroleum contaminants in soil.	This alternative uses commonly employed remedial actions.	This alternative uses commonly employed remedial actions.	This alternative uses commonly employed remedial actions. The success of the impact removal will be dependent on the mobility of contaminants and the results of treatability and pilot tests.

**TABLE 5  
CLEANUP ACTION ALTERNATIVE ANALYSIS  
FORMER CHEVRON BULK TERMINAL NO. 207407  
612 SE Union Street, Camas, Washington**

	<b>Alternative 1 Natural Attenuation of Soil, Groundwater Monitoring</b>	<b>Alternative 2 Soil Removal by Excavation, Onsite Treatment</b>	<b>Alternative 3 Soil Removal by Excavation, Offsite Disposal</b>	<b>Alternative 4 SVE with Groundwater Monitoring</b>
<b>Evaluation criteria</b> Reliability	The release of contaminants on the site greater than 20 years ago. The majority of the impacted soil was removed during previous remedial activities. A minimal volume of impacted soil remains in-place. An asphalt cap is currently serving to restrict surface water infiltration. Current conditions are reliably preventing contaminant migration.	Identical to Alternative 1.	Identical to Alternative 1.	Identical to Alternative 1.
Magnitude of residual risk with the alternative in place	Currently the impacts left in-place do not pose a risk. Soil above the point of compliance (15 feet bgs) meet MTCA Method B direct contact CULs. Groundwater contamination is minimal and does not extend off-site.	Identical to Alternative 1.	Identical to Alternative 1.	Identical to Alternative 1.
Effectiveness of controls required to manage treatment residues or remaining wastes	There will be no treatment residues with this alternative.	Soil will be thermally treated on-site. The vapor stream will need to be treated.	Soil will be disposed at an off-site hazardous waste facility. No other treatment residues will be generated.	The installation/ operation of an SVE system will require permitting and treatment of the vapor stream. This technology is effective and commonly used.
Management of short-term risks	There are no short-term risks associated with this alternative.	The potential risks to human health and the environment during soil removal include potential worker and public exposures to impacted soil and vapors. Additional risks include the traffic risks associated with the use of heavy machinery (excavators, loaders)	The potential risks to human health and the environment during soil removal include potential worker and public exposures to impacted soil and vapors. Additional risks include the traffic risks associated with transporting contaminated soil and the use of heavy machinery (excavators, loaders)	Potential risks to human health and the environment during installation of new extraction wells include potential worker and public exposures to contaminated drill cuttings and vapors. All drill cuttings will be immediately drummed and moved to a safe location onsite to await analytical results and disposal. Potential risks associated with vault installation and utility trenching includes the potential for falls and traffic hazards. Additional hazards such as accidentally breaking an existing electrical line or underground piping may occur during utility trenching.



**TABLE 5**  
**CLEANUP ACTION ALTERNATIVE ANALYSIS**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 SE Union Street, Camas, Washington**

Evaluation criteria	Alternative 1 Natural Attenuation of Soil, Groundwater Monitoring	Alternative 2 Soil Removal by Excavation, Onsite Treatment	Alternative 3 Soil Removal by Excavation, Offsite Disposal	Alternative 4 SVE with Groundwater Monitoring
Technical possibility of alternative	This alternative relies on standard techniques and is not expected to be technically difficult to implement.	Identical to Alternative 1.	Identical to Alternative 1	The technical possibility of this alternative will be determined during pilot testing.
Availability of necessary off-site facilities, services, and materials	All necessary services are expected to be available locally or within the state.	Identical to Alternative 1.	Identical to Alternative 1.	Identical to Alternative 1.
Administrative and regulatory requirements	This alternative is expected to comply with all regulatory requirements.	Identical to Alternative 1.	Identical to Alternative 1.	Similar to Alternative 1.
Scheduling, size, and complexity	This alternative does not interfere with the property owners business and therefore is not schedule reliant.	Because the site is located on an active commercial site this alternative will cause disruption to the business.	Identical to Alternative 2.	Identical to Alternative 2 with the addition of complexity and size related to trenching, piping, additional wells, and treatment facility; greater complexity of system may impact success or schedule.
Monitoring requirements	Performance monitoring will be conducted to confirm that soil left in-place is not impacting the aquifer. This monitoring will continue until four consecutive quarters of groundwater samples are below MTCA Method A CULs	Identical to Alternative 1.	Identical to Alternative 1.	Similar to Alternative 1 with the added component of vapor stream monitoring during the system operation.
Access for construction operations and monitoring	This alternative does not interfere with the property owners business. No additional access is needed.	Because the site is located on an active commercial site this alternative will cause disruption to the business. Access for the construction will be difficult to obtain.	Identical to Alternative 2.	Identical to Alternative 2.
Integration with existing facility operations and other potential remedial actions	Natural attenuation will not affect the commercial business.	Because the site is located on an active commercial site remedial work should be conducted during the “off-season”. This however will still pose a risk of commercial disruption.	Identical to Alternative 2.	Identical to Alternative 2.



**TABLE 5**  
**CLEANUP ACTION ALTERNATIVE ANALYSIS**  
**FORMER CHEVRON BULK TERMINAL NO. 207407**  
**612 SE Union Street, Camas, Washington**

<p><b>Evaluation criteria</b>          Consideration of public concerns</p>	<p><b>Alternative 1</b>  <b>Natural Attenuation of Soil, Groundwater Monitoring</b>          Public concerns will be addressed following the public comment period.</p>	<p><b>Alternative 2</b>  <b>Soil Removal by Excavation, Onsite Treatment</b>          Identical to Alternative 1.</p>	<p><b>Alternative 3</b>  <b>Soil Removal by Excavation, Offsite Disposal</b>          Identical to Alternative 1.</p>	<p><b>Alternative 4</b>  <b>SVE with Groundwater Monitoring</b>          Identical to Alternative 1.</p>
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**TABLE 6  
COMPARISON OF ALTERNATIVES  
FORMER CHEVRON BULK TERMINAL NO. 207407  
612 SE Union Street, Camas, Washington**

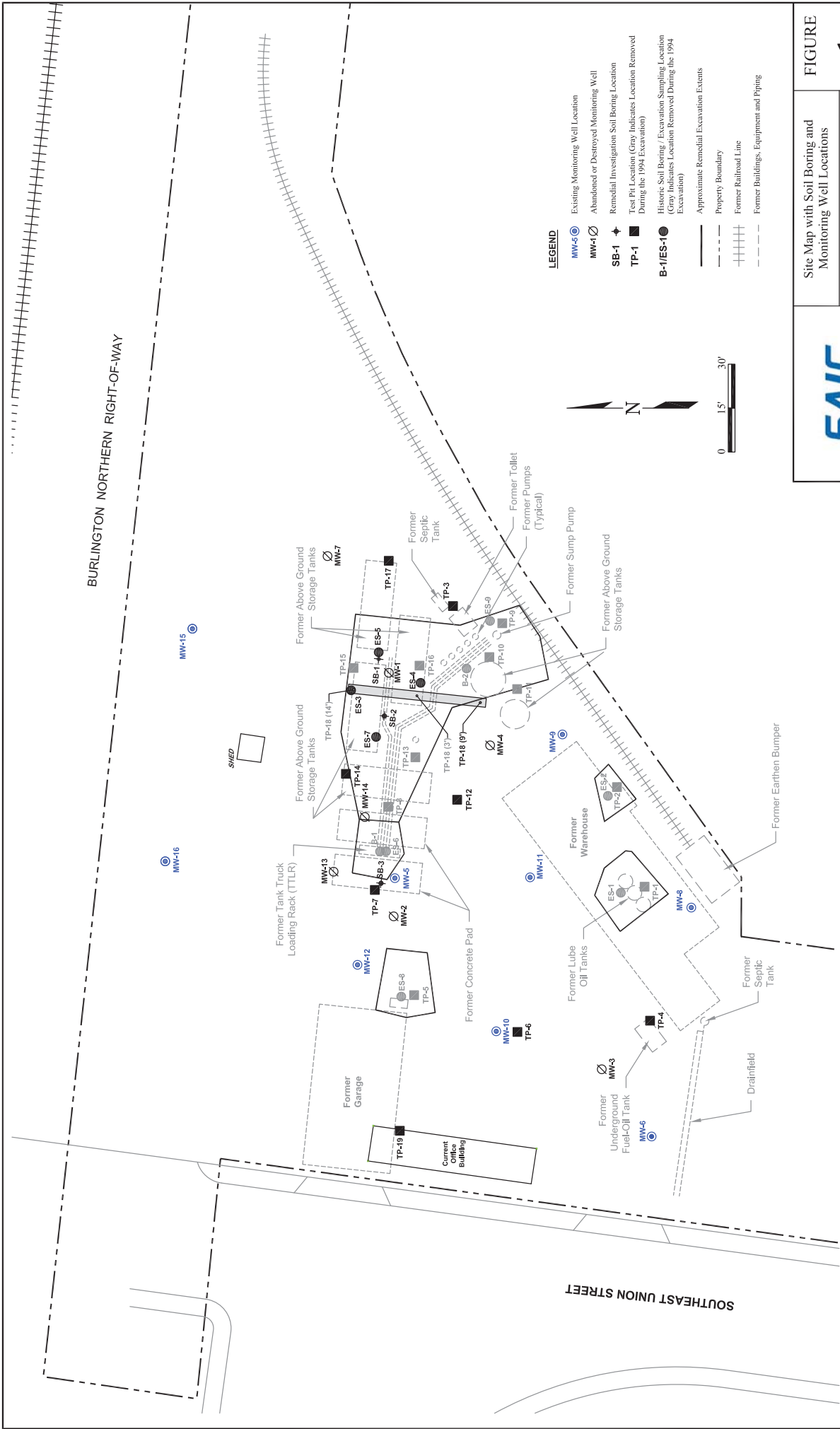
<b>Evaluation Factor</b>	<b>Alternative 1 Natural Attenuation of Soil, Groundwater Monitoring</b>	<b>Alternative 2 Soil Removal by Excavation, Onsite Treatment</b>	<b>Alternative 3 Soil Removal by Excavation, Offsite Disposal</b>	<b>Alternative 4 SVE with Groundwater Monitoring</b>
<b>Protectiveness</b>	There is no current or potential future exposure risks associated with the residual soil contamination. Implementation possible immediately; cleanup levels will be met upon completion. Low probability of additional risks due to implementation. High degree of environmental quality improvement due to prevention of exposures to soil contamination within the point of compliance.	There is no current or potential future exposure risks associated with the residual soil contamination. Implementation is dependent on property owners schedule; cleanup levels will be met upon completion. Low probability of additional risks due to implementation. High degree of environmental quality improvement due to prevention of exposures to soil contamination within the point of compliance.	Identical to Alternative 2	Identical to Alternative 2.
<b>Permanence</b>	Soil contamination will be permanently destroyed. Releases to secondary media at levels exceeding cleanup levels have not been indicated. Does not include waste treatment process, so no treatment residual.	Identical to Alternative 1.	Identical to Alternative 1.	Identical to Alternative 1.
<b>Cost</b>	\$35,420	\$516,400	\$524,850	\$725,980
<b>Long-Term Effectiveness</b>	Good degree of success; Contaminants will be removed from the site.	Identical to Alternative 1.	Similar to Alternative 2, but greater reliability of method due to simplicity.	Similar to Alternative 2; however a pilot test will be used to determine effectiveness.

**TABLE 6  
COMPARISON OF ALTERNATIVES  
FORMER CHEVRON BULK TERMINAL NO. 207407  
612 SE Union Street, Camas, Washington**

Evaluation Factor	Alternative 1 Natural Attenuation of Soil, Groundwater Monitoring	Alternative 2 Soil Removal by Excavation, Onsite Treatment	Alternative 3 Soil Removal by Excavation, Offsite Disposal	Alternative 4 SVE with Groundwater Monitoring
Management of Short-Term Risks	<p>Low magnitude of residual risk through removal of contaminants.</p> <p>No short-term risks associated with this Alternative.</p>		Identical to Alternative 2.	Identical to Alternative 2.
Technical and Administrative Implementability	<p>High technical possibility uses standard construction techniques. All off-site services are readily available.</p> <p>Expected to comply with all regulations.</p>	<p>High potential for short-term risks, worker soil exposures, hazards associated with heavy equipment.</p> <p>Schedule impacted by property owner's business schedule.</p> <p>Long-term monitoring required to ensure that water-table aquifer is not impacted and that cleanup levels are maintained in the future.</p> <p>Access within the site is limited due to existing buildings and traffic.</p> <p>No integration issue</p>	Identical to Alternative 2.	Similar to Alternative 2, dependent on the results of the pilot testing.
Consideration of Public Concerns	To be addressed after public comment period.	To be addressed after public comment period.	To be addressed after public comment period.	To be addressed after public comment period.



## FIGURES



**LEGEND**

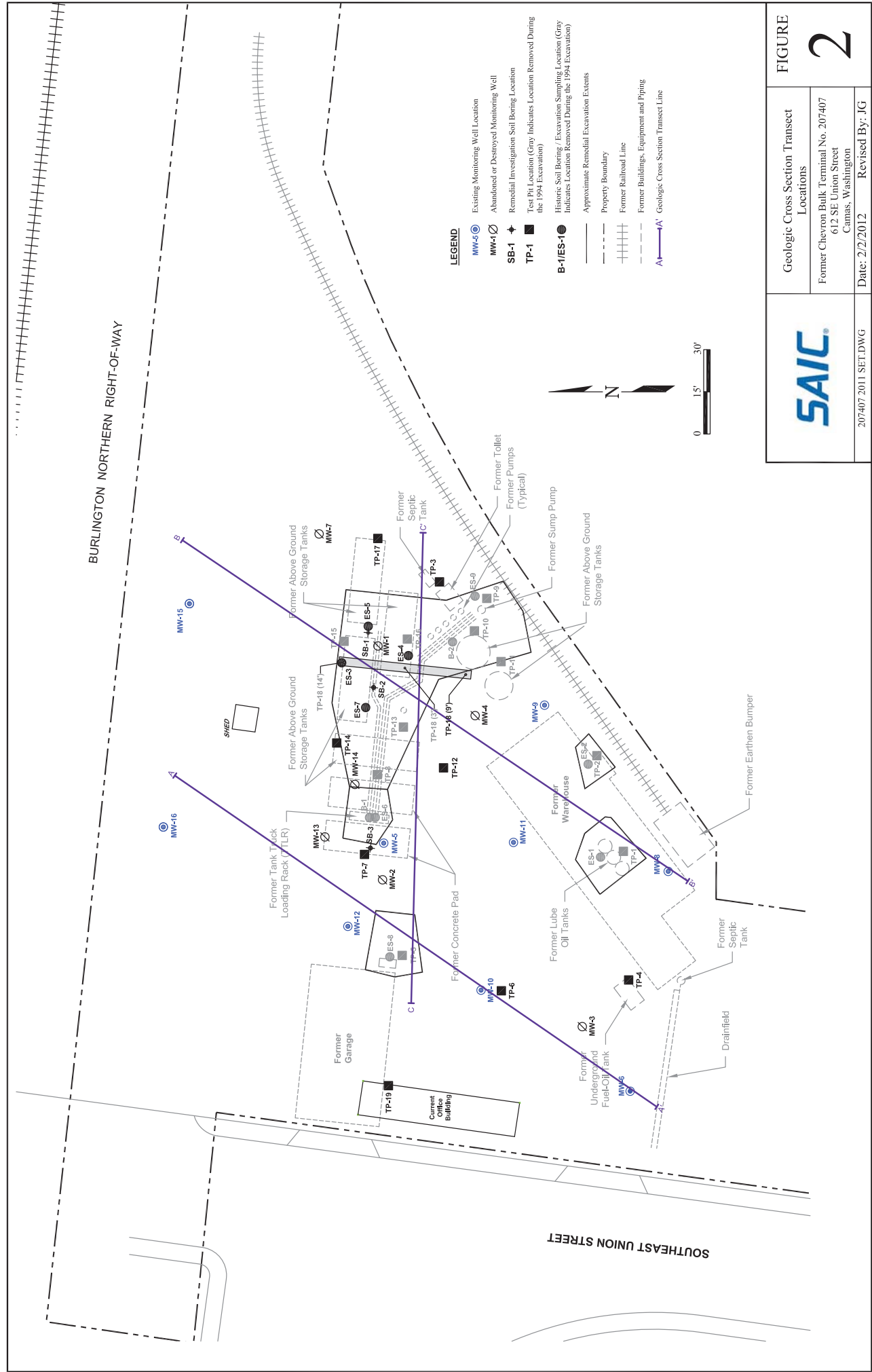
- MW-5 Existing Monitoring Well Location
- MW-1 Abandoned or Destroyed Monitoring Well
- SB-1 Remedial Investigation Soil Boring Location
- TP-1 Test Pit Location (Gray Indicates Location Removed During the 1994 Excavation)
- B-1/ES-1 Historic Soil Boring / Excavation Sampling Location (Gray Indicates Location Removed During the 1994 Excavation)
- Approximate Remedial Excavation Extents
- Property Boundary
- Former Railroad Line
- Former Buildings, Equipment and Piping



	<b>Site Map with Soil Boring and Monitoring Well Locations</b>	
	Former Chevron Bulk Terminal No. 207407 612 SE Union Street Camas, Washington	
207407 2011 SET.DWG	Date: 2/1/2012	Revised By: IIC

1

**FIGURE**



**SAIC**

207407 2011 SET.DWG Date: 2/2/2012 Revised By: JG

Geologic Cross Section Transect Locations

Former Chevron Bulk Terminal No. 207407  
612 SE Union Street  
Camas, Washington

**FIGURE 2**

**LEGEND:**

- Boring
- Screened interval
- Highest recorded groundwater elevation
- Lowest recorded groundwater elevation
- Soil analytical sample location

10 Diesel-range hydrocarbon concentration in milligrams per kilogram mg/kg

7,000 Total Petroleum Hydrocarbon (TPH) concentration in mg/kg

ND No Analytes were detected at or above laboratory detection limits

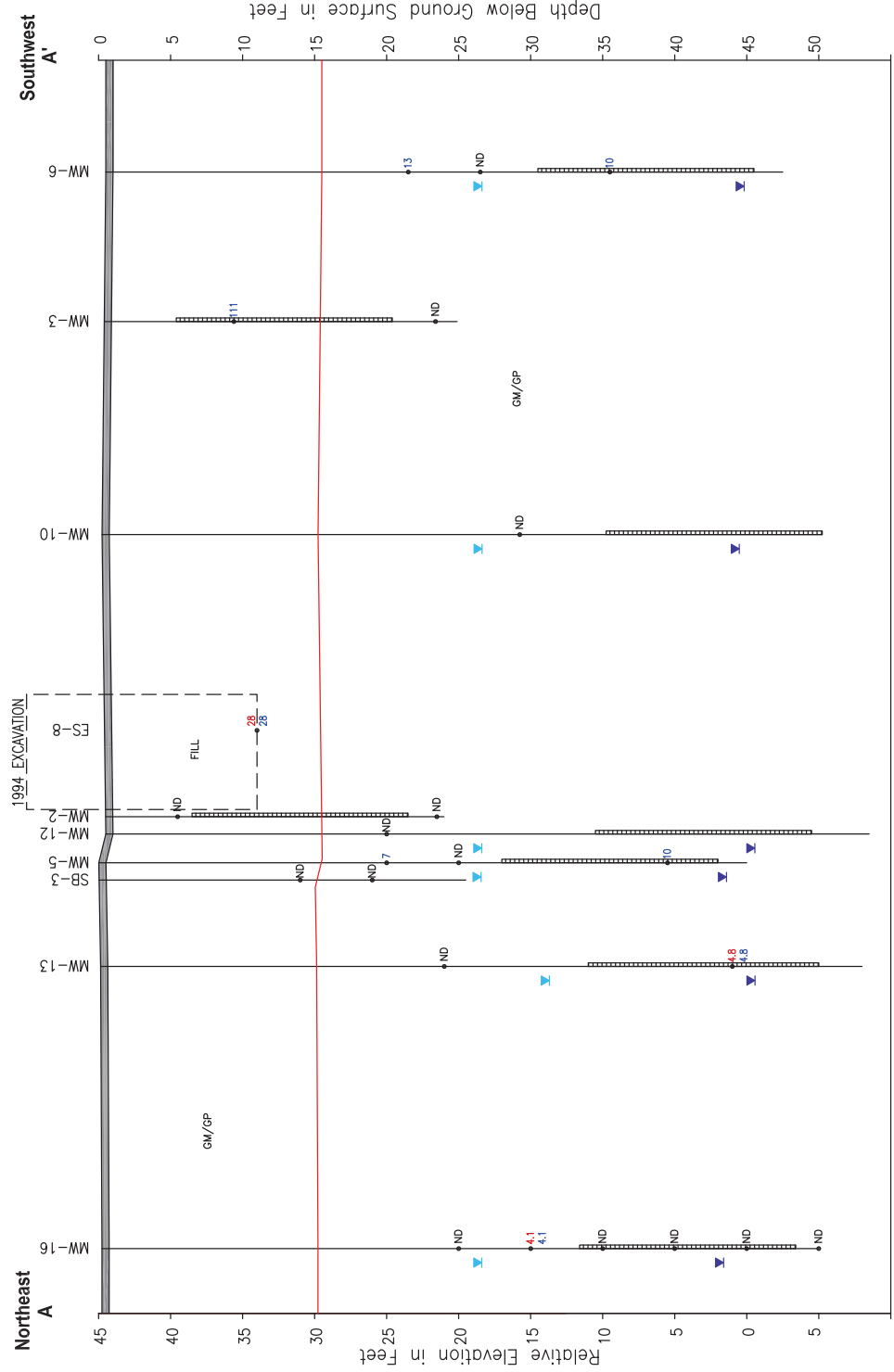
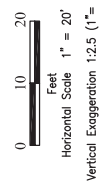
--- Approximate Extent of Remedial Excavations

█ Asphalt

█ GM/GP

█ Brown to Gray, silty, sandy gravel with cobbles and boulders and varying amounts of silt & sand

— Point of Compliance for soil (15 ft below ground surface)



207407\_X-SECT.DWG

Generalized Geologic Cross-Section A-A'

Former Chevron Bulk Terminal No. 207407  
612 SE Union Street  
Camas, Washington

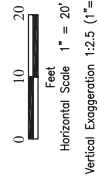
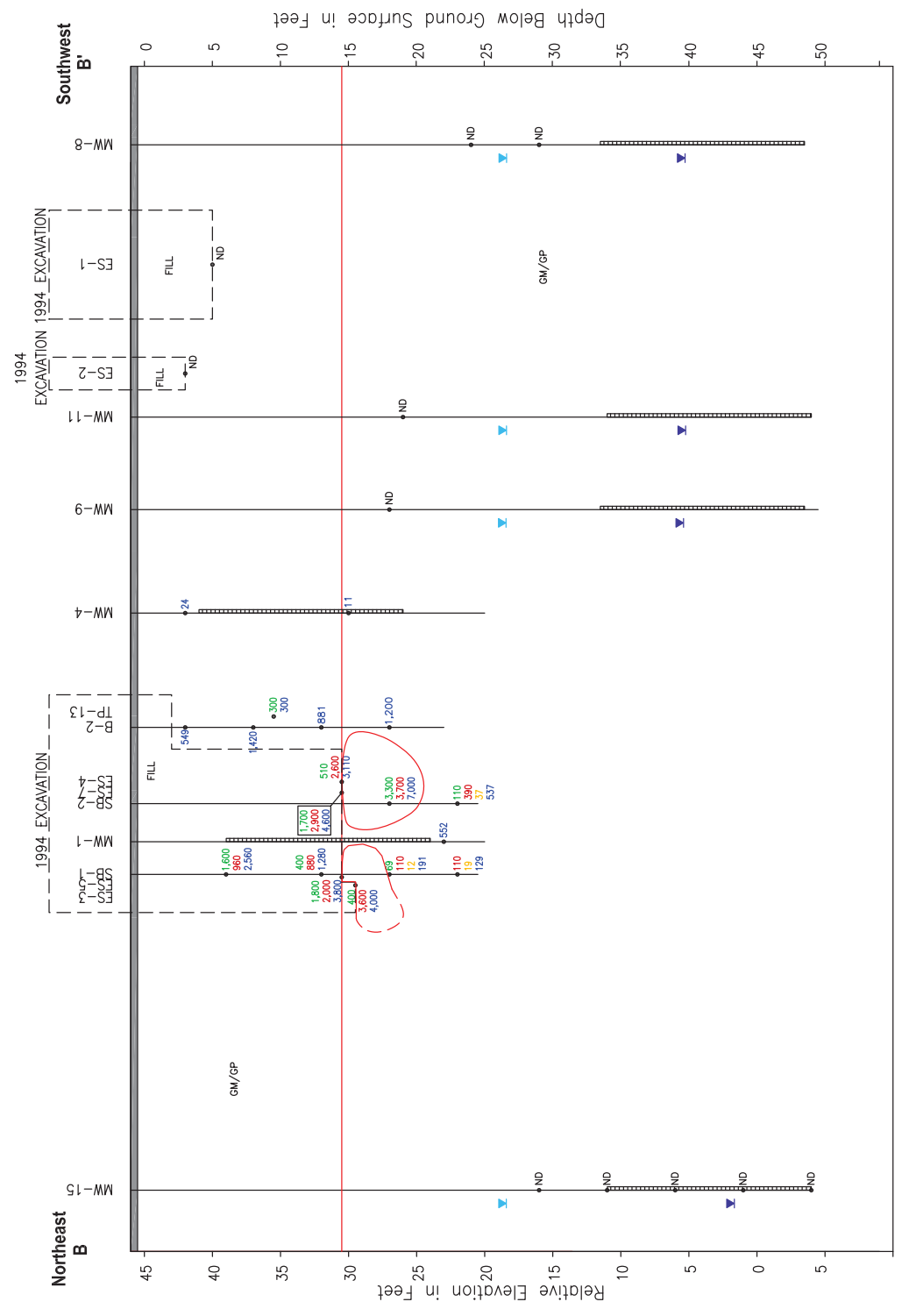
Date: 2/1/2012 Revised By: LLC

FIGURE

3

**LEGEND:**

- Boring
- Screened interval
- Highest recorded groundwater elevation
- Lowest recorded groundwater elevation
- Soil analytical sample location
- Approximate extent of soil contamination exceeding the Model Toxics Control Act (MTC-A) Method B cleanup level of 2,671 milligrams per kilogram (mg/kg) for total petroleum hydrocarbons (TPH) (dashed where inferred)
- 28 Gasoline-range hydrocarbon concentration in (mg/kg)
- 10 Diesel-range hydrocarbon concentration in mg/Kg
- 10 Heavy oil-range hydrocarbon concentration in mg/Kg
- 7,000 Total Petroleum Hydrocarbon (TPH) concentration in mg/kg
- ND No Analytes were detected at or above laboratory detection limits
- - - Approximate Extent of Remedial Excavations
- Asphalt
- GM/GP Brown to Gray, silty, sandy gravel with cobbles and boulders and varying amounts of silt & sand
- Point of Compliance for soil (15 ft below ground surface)



207407\_X-SECT.DWG

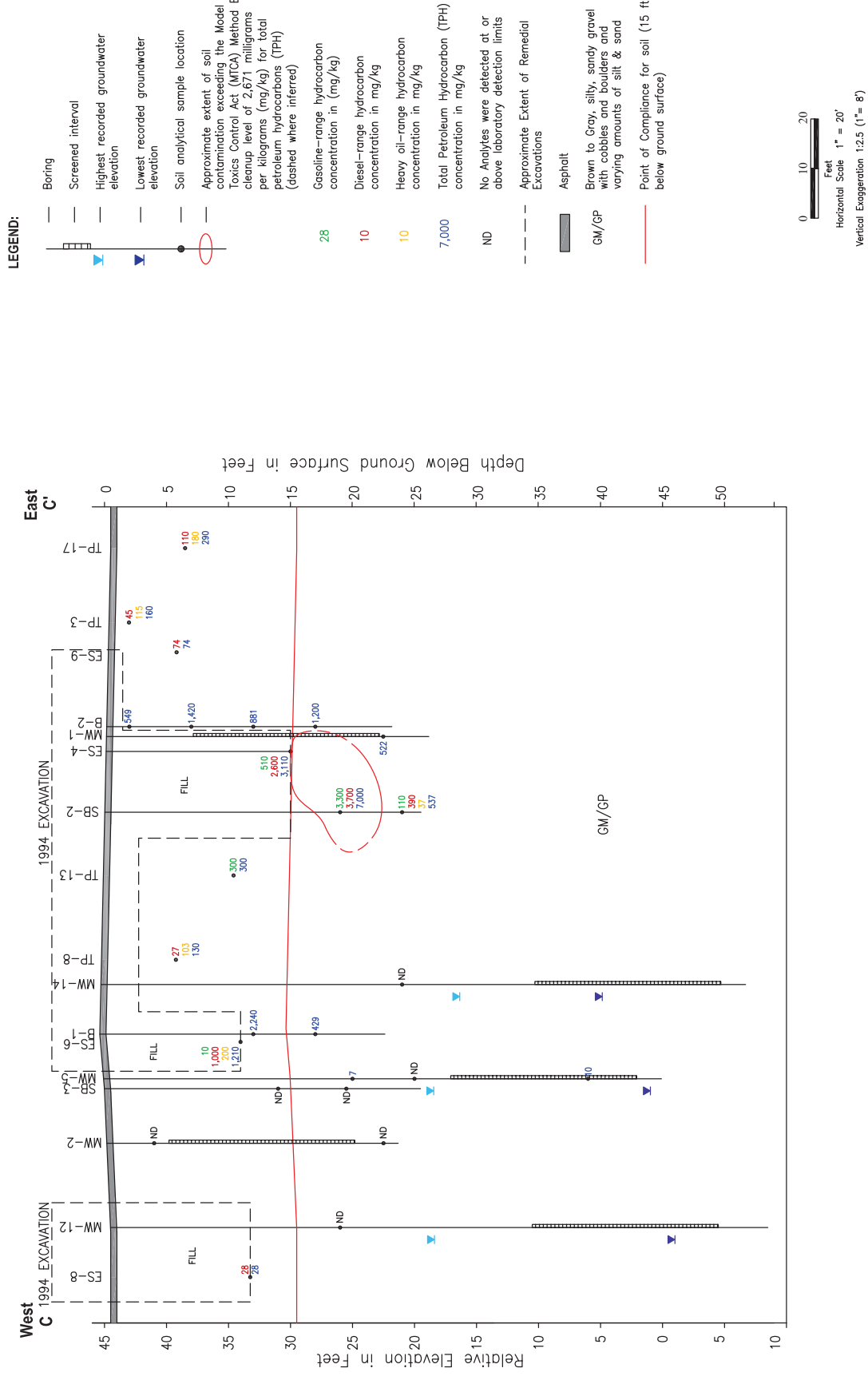
**FIGURE**

**4**

Generalized Geologic Cross-Section B-B'

Former Chevron Bulk Terminal No. 207407  
612 SE Union Street  
Camas, Washington

Date: 2/1/2012 Revised By: LLC



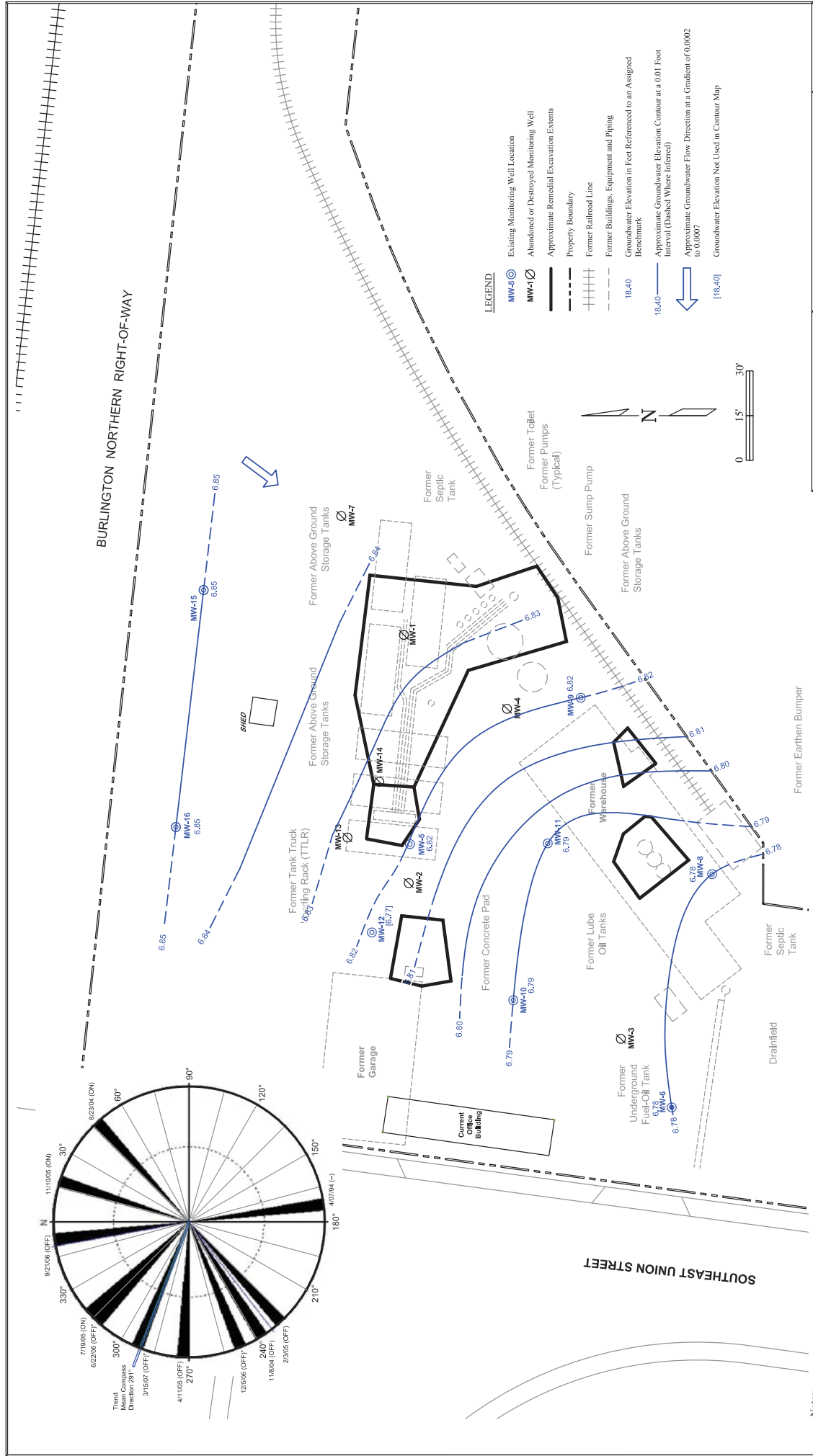
207407\_X-SECT.DWG

Generalized Geologic Cross-Section C-C'

Former Chevron Bulk Terminal No. 207407  
612 SE Union Street  
Camas, Washington

Date: 2/1/2012 Revised By: LLC

FIGURE 5



**SAIC**

207407 2011 Set.dwg

**FIGURE 6**

Combined Groundwater Flow Direction Rose Diagram and Groundwater Elevation Contour Map (December 6, 2011)

Former Chevron Bulk Terminal No. 207407  
612 SE Union Street  
Camas, Washington

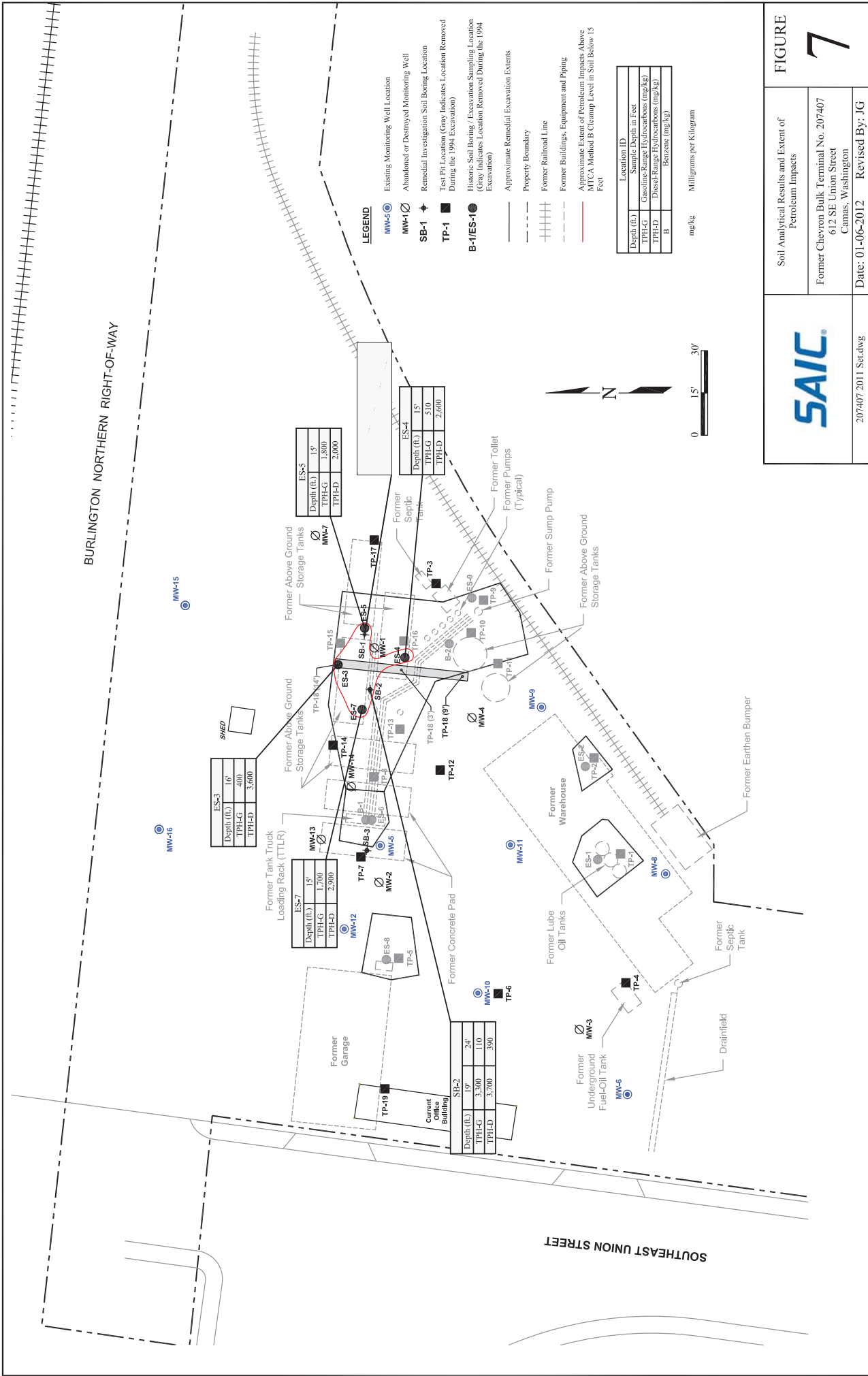
Date: 01-04-2012 Revised By: JG

Notes:

- Plot Type: Arithmetic Plot
- Number of Points: 11
- Groundwater Flow Direction Trend: 291°

Reference:

- Rose Diagram plotted using program written by Todd Thompson of the Indiana Geological Survey at Bloomington.
- ON/OFF - Operational Status of Camas Municipal Well No. 6
- No Data Available for this Date
- \* Well Not Operating (City of Camas Water Supervisor)



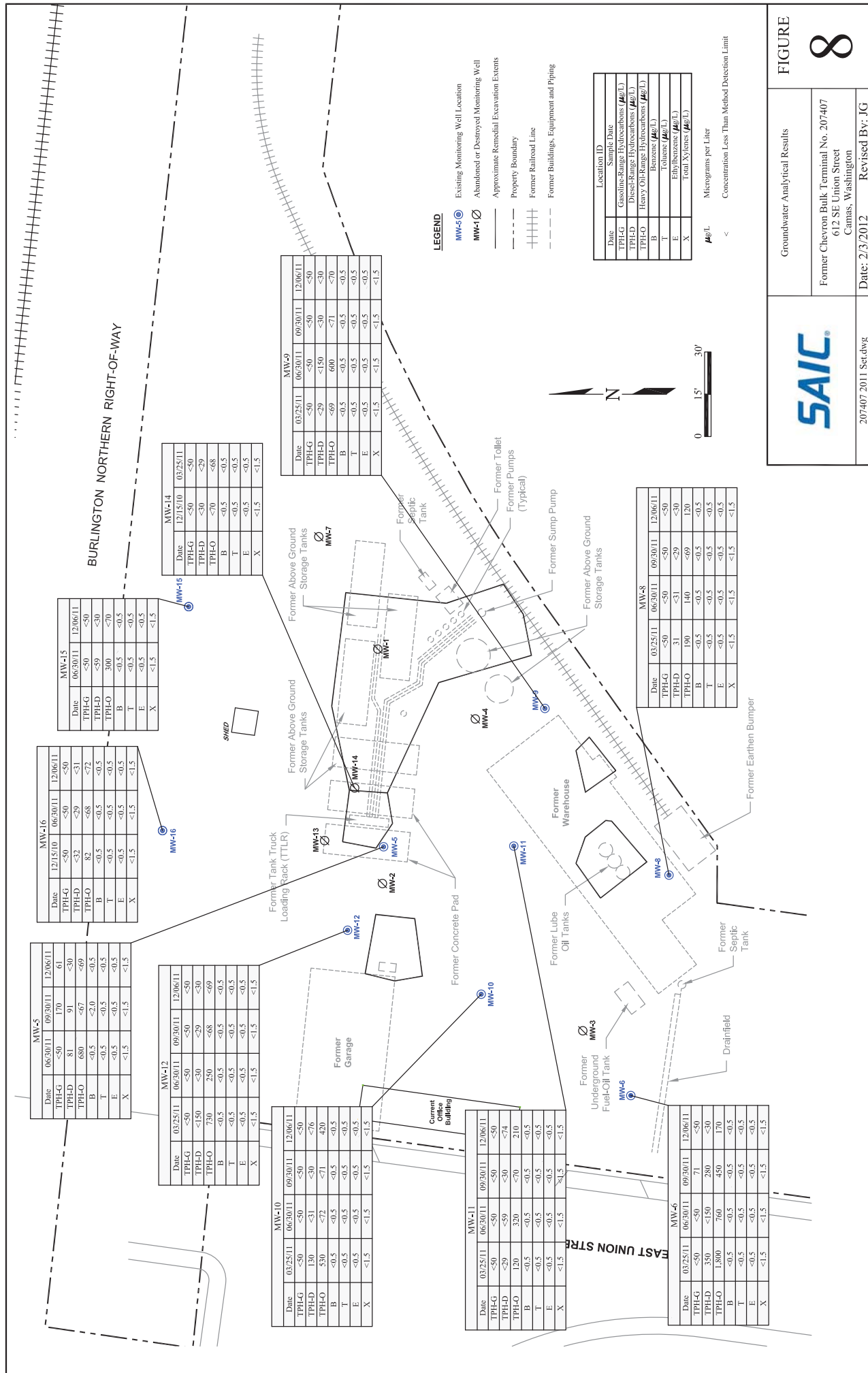
**FIGURE 7**

Soil Analytical Results and Extent of Petroleum Impacts

Former Chevron Bulk Terminal No. 207407  
612 SE Union Street  
Camas, Washington

Date: 01-06-2012      Revised By: JG





**FIGURE 8**

Groundwater Analytical Results

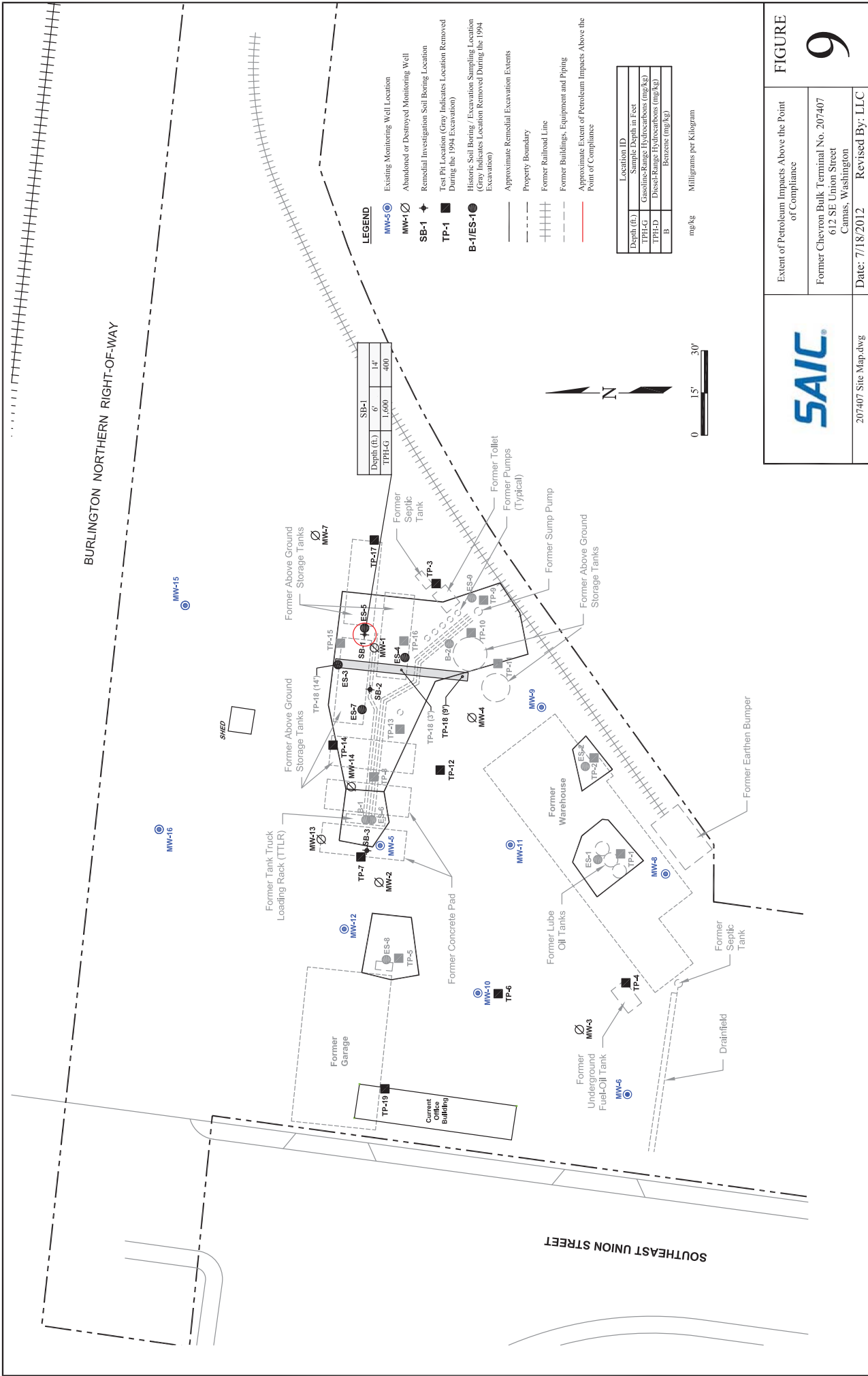
Former Chevron Bulk Terminal No. 207407  
612 SE Union Street  
Camas, Washington

207407 2011 Set.dwg

Date: 2/3/2012

Revised By: JG

SAIC



**FIGURE 9**

## APPENDICES

**APPENDIX A**  
**LABORATORY REPORTS**

## ANALYTICAL RESULTS

Prepared for:

ChevronTexaco  
6001 Bollinger Canyon Rd L4310  
San Ramon CA 94583

925-842-8582

Prepared by:

Lancaster Laboratories  
2425 New Holland Pike  
Lancaster, PA 17605-2425SAMPLE GROUP

The sample group for this submittal is 904257. Samples arrived at the laboratory on Tuesday, July 20, 2004. The PO# for this group is 99011184 and the release number is HUNTER.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
SB-1-6 Grab Soil Sample	4313521
MW-9-19 Grab Soil Sample	4313522
MW-13-24 Grab Soil Sample	4313523
MW-13-44 Grab Soil Sample	4313524
MW-12-19 Grab Soil Sample	4313525
MW-14-24 Grab Soil Sample	4313526
SB-1-14 Grab Soil Sample	4313527
SB-1-19 Grab Soil Sample	4313528
SB-1-24 Grab Soil Sample	4313529

1 COPY TO SAIC

Attn: Don Wyl

Questions? Contact your Client Services Representative  
Teresa L Cunningham at (717) 656-2300.

Respectfully Submitted,



Max E. Snavelly  
Senior Chemist

**Lancaster Laboratories Sample No. SW 4313521**
**SB-1-6 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St Camas, WA**

Collected: 07/16/2004 11:00

by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:18

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

1XX6X

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01155	Lead (furnace method)	7439-92-1	54.2	1.88	mg/kg	10
02006	TPH by NWTTPH-Gx soils					
02007	TPH by NWTTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately. A poor surrogate recovery was observed due to the dilution needed to perform the analysis.	n.a.	1,600.	100.	mg/kg	2500
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.05	mg/kg	250
02177	Toluene	108-88-3	N.D.	0.05	mg/kg	250
02178	Ethylbenzene	100-41-4	N.D.	0.2	mg/kg	250
02182	Total Xylenes	1330-20-7	N.D.	1.5	mg/kg	250
02199	MTBE The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately. A poor surrogate recovery was observed due to the dilution needed to perform the analysis.	1634-04-4	N.D.	0.5	mg/kg	250
<p>Due to the presence of interferents near their retention time, normal reporting limits were not attained for ethylbenzene and total xylenes. The presence or concentration of these compounds cannot be determined below the reporting limits due to the presence of these interferents.</p>						
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	960.	30.	mg/kg	10
02098	Heavy Range Organics Accurate surrogate recoveries could not be determined due to the dilution required for analysis of the sample.	n.a.	N.D.	100.	mg/kg	10
02858	Selected SVOA's in soil by SIM					
02863	Naphthalene	91-20-3	0.12	0.010	mg/kg	10
02867	Acenaphthylene	208-96-8	0.050	0.003	mg/kg	10
02868	Acenaphthene	83-32-9	0.092	0.003	mg/kg	10
02870	Fluorene	86-73-7	0.48	0.003	mg/kg	10
02871	Phenanthrene	85-01-8	0.42	0.003	mg/kg	10
02872	Anthracene	120-12-7	0.18	0.003	mg/kg	10

**Lancaster Laboratories Sample No. SW 4313521**
**SB-1-6 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St Camas, WA**

Collected: 07/16/2004 11:00

by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:18

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

1XX6X

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
02874	Fluoranthene	206-44-0	0.024	0.007	mg/kg	10
02875	Pyrene	129-00-0	0.033	0.007	mg/kg	10
02876	Benzo(a)anthracene	56-55-3	0.003	0.003	mg/kg	10
02877	Chrysene	218-01-9	0.008	0.003	mg/kg	10
02878	Benzo(b)fluoranthene	205-99-2	0.005	0.003	mg/kg	10
02879	Benzo(k)fluoranthene	207-08-9	N.D.	0.003	mg/kg	10
02880	Benzo(a)pyrene	50-32-8	N.D.	0.003	mg/kg	10
02881	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.003	mg/kg	10
02882	Dibenz(a,h)anthracene	53-70-3	N.D.	0.003	mg/kg	10
02883	Benzo(g,h,i)perylene	191-24-2	0.004	0.003	mg/kg	10

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the GC/MS semivolatile compounds were raised.

Surrogate recoveries were outside of QC limits for the GC/MS semivolatile compounds due to the dilution needed to perform the analysis.

07361 BTEX+5 Oxygenates+EDC+EDB

05461	1,2-Dichloroethane	107-06-2	N.D.	0.13	mg/kg	126.26
05471	1,2-Dibromoethane	106-93-4	N.D.	0.13	mg/kg	126.26

The GC/MS volatile analysis was performed according to the medium level soil method due to the level of non-target compounds. Therefore, the reporting limits were raised.

State of Washington Lab Certification No. C259

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
01155	Lead (furnace method)	SW-846 7421 modified	1	08/12/2004 12:03		Jessica L Boyd	10
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	07/21/2004 18:23		Deborah S Garrison	2500
02160	BTEX/MTBE	SW-846 8021B	1	07/21/2004 14:05		Deborah S Garrison	250
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602(modified)	1	07/21/2004 15:34		Matthew E Barton	10
02858	Selected SVOA's in soil by SIM	SW-846 8270C (SIM)	1	07/29/2004 02:21		Linda M Hartenstine	10
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	07/27/2004 14:42		Parker D Lindstrom	126.26
00374	GC/MS VOA Soil Prep	SW-846 5030A	1	07/27/2004 09:33		Parker D Lindstrom	n.a.
00381	BNA Soil Extraction	SW-846 3550B	1	07/28/2004 10:00		Olivia Arosemena	1



**Lancaster Laboratories Sample No. SW 4313521**

**SB-1-6 Grab Soil Sample**

**Facility# 207407**

**612 SE Union St Camas, WA**

Collected: 07/16/2004 11:00 by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:18

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

1XX6X

01150	GC VOA Soil Prep	SW-846 5035	1	07/20/2004 15:32	Jesse L Mertz	n.a.
05710	SW SW846 GFAA Digest	SW-846 3050B	1	08/10/2004 08:00	Denise K Conners	1
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	07/20/2004 22:00	Karen L Beyer	1

**Lancaster Laboratories Sample No. SW 4313522**
**MW-9-19 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St Camas, WA**

Collected: 07/16/2004 18:30

by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:18

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

X919X

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02006	TPH by NWTTPH-Gx soils					
02007	TPH by NWTTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	n.a.	N.D.	1.0	mg/kg	25
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1330-20-7	N.D.	0.02	mg/kg	25
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	10.	mg/kg	1

State of Washington Lab Certification No. C259

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02006	TPH by NWTTPH-Gx soils	NWTTPH-Gx - 8015B Mod.	1	07/21/2004 07:12	Deborah S Garrison	25
02160	BTEX/MTBE	SW-846 8021B	1	07/21/2004 07:12	Deborah S Garrison	25
02214	TPH by NWTTPH-Dx(soils) w/SiGel	NWTTPH-Dx, ECY 97-602 (modified)	1	07/21/2004 10:34	Matthew E Barton	1
01150	GC VOA Soil Prep	SW-846 5035	1	07/20/2004 15:33	Jesse L Mertz	n.a.
07004	Extraction - DRO (Soils)	NWTTPH-Dx, ECY 97-602, 6/97	1	07/20/2004 22:00	Karen L Beyer	1

**Lancaster Laboratories Sample No. SW 4313523**
**MW-13-24 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St Camas, WA**

Collected: 07/17/2004 16:00 by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:18

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

X1324

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	n.a.	N.D.	1.0	mg/kg	25
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1330-20-7	N.D.	0.02	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	10.	mg/kg	1

State of Washington Lab Certification No. C259

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	07/21/2004 09:42	Deborah S Garrison	25
02160	BTEX/MTBE	SW-846 8021B	1	07/21/2004 09:42	Deborah S Garrison	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602 (modified)	1	07/21/2004 11:49	Matthew E Barton	1
01150	GC VOA Soil Prep	SW-846 5035	1	07/20/2004 15:34	Jesse L Mertz	n.a.
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	07/20/2004 22:00	Karen L Beyer	1

**Lancaster Laboratories Sample No. SW 4313524**
**MW-13-44 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St Camas, WA**

Collected: 07/17/2004 18:00 by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:18

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

X1344

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	n.a.	N.D.	1.0	mg/kg	25
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1330-20-7	N.D.	0.02	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	4.8	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	10.	mg/kg	1
02858	Selected SVOA's in soil by SIM					
02863	Naphthalene	91-20-3	N.D.	0.001	mg/kg	1
02867	Acenaphthylene	208-96-8	N.D.	0.0003	mg/kg	1
02868	Acenaphthene	83-32-9	N.D.	0.0003	mg/kg	1
02870	Fluorene	86-73-7	N.D.	0.0003	mg/kg	1
02871	Phenanthrene	85-01-8	0.0006	0.0003	mg/kg	1
02872	Anthracene	120-12-7	N.D.	0.0003	mg/kg	1
02874	Fluoranthene	206-44-0	N.D.	0.0007	mg/kg	1
02875	Pyrene	129-00-0	N.D.	0.0007	mg/kg	1
02876	Benzo(a)anthracene	56-55-3	N.D.	0.0003	mg/kg	1
02877	Chrysene	218-01-9	N.D.	0.0003	mg/kg	1
02878	Benzo(b)fluoranthene	205-99-2	N.D.	0.0003	mg/kg	1
02879	Benzo(k)fluoranthene	207-08-9	N.D.	0.0003	mg/kg	1
02880	Benzo(a)pyrene	50-32-8	N.D.	0.0003	mg/kg	1
02881	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.0003	mg/kg	1
02882	Dibenz(a,h)anthracene	53-70-3	N.D.	0.0003	mg/kg	1
02883	Benzo(g,h,i)perylene	191-24-2	N.D.	0.0003	mg/kg	1

Lancaster Laboratories Sample No. SW 4313524

MW-13-44 Grab Soil Sample

Facility# 207407

612 SE Union St Camas, WA

Collected: 07/17/2004 18:00 by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

Reported: 08/16/2004 at 10:18

Discard: 09/16/2004

ChevronTexaco

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

X1344

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	07/21/2004 10:20		Deborah S Garrison	25
02160	BTEX/MTBE	SW-846 8021B	1	07/21/2004 10:20		Deborah S Garrison	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97- 602(modified)	1	07/21/2004 12:14		Matthew E Barton	1
02858	Selected SVOA's in soil by SIM	SW-846 8270C (SIM)	1	07/29/2004 19:02		Linda M Hartenstine	1
00381	BNA Soil Extraction	SW-846 3550B	1	07/28/2004 10:00		Olivia Arosemena	1
01150	GC VOA Soil Prep	SW-846 5035	1	07/20/2004 15:35		Jesse L Mertz	n.a.
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	07/20/2004 22:00		Karen L Beyer	1



# Analysis Report

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Page 1 of 1

Lancaster Laboratories Sample No. SW 4313525

MW-12-19 Grab Soil Sample

Facility# 207407

612 SE Union St Camas, WA

Collected: 07/18/2004 12:30 by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:19

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

X1219

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	n.a.	N.D.	1.0	mg/kg	25
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1330-20-7	N.D.	0.02	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	10.	mg/kg	1

State of Washington Lab Certification No. C259

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	07/21/2004 10:57	Deborah S Garrison	25
02160	BTEX/MTBE	SW-846 8021B	1	07/21/2004 10:57	Deborah S Garrison	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602 (modified)	1	07/28/2004 10:52	Matthew E Barton	1
01150	GC VOA Soil Prep	SW-846 5035	1	07/20/2004 15:36	Jesse L Mertz	n.a.
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	2	07/27/2004 19:00	Sally L Appleyard	1

**Lancaster Laboratories Sample No. SW 4313526**
**MW-14-24 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St Camas, WA**

Collected: 07/19/2004 10:00 by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:19

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

X1424

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	n.a.	N.D.	1.0	mg/kg	25
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1330-20-7	N.D.	0.02	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	10.	mg/kg	1

State of Washington Lab Certification No. C259

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	07/21/2004 11:35	Deborah S Garrison	25
02160	BTEX/MTBE	SW-846 8021B	1	07/21/2004 11:35	Deborah S Garrison	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602 (modified)	1	07/21/2004 13:04	Matthew E Barton	1
01150	GC VOA Soil Prep	SW-846 5035	1	07/20/2004 15:37	Jesse L Mertz	n.a.
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	07/20/2004 22:00	Karen L Beyer	1

**Lancaster Laboratories Sample No. SW 4313527**
**SB-1-14 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St Camas, WA**

Collected: 07/19/2004 14:45

by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:19

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

X114-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01155	Lead (furnace method)	7439-92-1	4.34	0.184	mg/kg	1
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately. A poor surrogate recovery was observed due to the dilution needed to perform the analysis.	n.a.	400.	20.	mg/kg	500
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.02	mg/kg	25
02182	Total Xylenes	1330-20-7	N.D.	0.2	mg/kg	25
02199	MTBE The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately. Due to the presence of interferents near their retention time, normal reporting limits were not attained for toluene and total xylenes. The presence or concentration of these compounds cannot be determined below the reporting limits due to the presence of these interferents.	1634-04-4	N.D.	0.05	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	880.	30.	mg/kg	10
02098	Heavy Range Organics Accurate surrogate recoveries could not be determined due to the dilution required for analysis of the sample.	n.a.	N.D.	100.	mg/kg	10
02858	Selected SVOA's in soil by SIM					
02863	Naphthalene	91-20-3	0.024	0.010	mg/kg	10
02867	Acenaphthylene	208-96-8	0.009	0.003	mg/kg	10
02868	Acenaphthene	83-32-9	0.023	0.003	mg/kg	10
02870	Fluorene	86-73-7	0.099	0.003	mg/kg	10
02871	Phenanthrene	85-01-8	0.17	0.003	mg/kg	10
02872	Anthracene	120-12-7	0.035	0.003	mg/kg	10
02874	Fluoranthene	206-44-0	N.D.	0.007	mg/kg	10
02875	Pyrene	129-00-0	N.D.	0.007	mg/kg	10
02876	Benzo(a)anthracene	56-55-3	N.D.	0.003	mg/kg	10



**Lancaster Laboratories Sample No. SW 4313527**
**SB-1-14 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St Camas, WA**

Collected: 07/19/2004 14:45

by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:19

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

X114-

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
02877	Chrysene	218-01-9	N.D.	Detection Limit 0.003	mg/kg	10
02878	Benzo(b)fluoranthene	205-99-2	N.D.	0.003	mg/kg	10
02879	Benzo(k)fluoranthene	207-08-9	N.D.	0.003	mg/kg	10
02880	Benzo(a)pyrene	50-32-8	N.D.	0.003	mg/kg	10
02881	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.003	mg/kg	10
02882	Dibenz(a,h)anthracene	53-70-3	N.D.	0.003	mg/kg	10
02883	Benzo(g,h,i)perylene	191-24-2	N.D.	0.003	mg/kg	10

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the GC/MS semivolatile compounds were raised.

07361 BTEX+5 Oxygenates+EDC+EDB

05461	1,2-Dichloroethane	107-06-2	N.D.	0.12	mg/kg	124.69
05471	1,2-Dibromoethane	106-93-4	N.D.	0.12	mg/kg	124.69

The GC/MS volatile analysis was performed according to the medium level soil method due to the level of non-target compounds. Therefore, the reporting limits were raised.

State of Washington Lab Certification No. C259

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
01155	Lead (furnace method)	SW-846 7421 modified	1	08/12/2004 12:07		Jessica L Boyd	1
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	07/21/2004 17:45		Deborah S Garrison	500
02160	BTEX/MTBE	SW-846 8021B	1	07/21/2004 12:12		Deborah S Garrison	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602 (modified)	1	07/21/2004 16:24		Matthew E Barton	10
02858	Selected SVOA's in soil by SIM	SW-846 8270C (SIM)	1	07/29/2004 00:54		Linda M Hartenstine	10
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	07/27/2004 15:10		Parker D Lindstrom	124.69
00374	GC/MS VOA Soil Prep	SW-846 5030A	1	07/27/2004 09:35		Parker D Lindstrom	n.a.
00381	BNA Soil Extraction	SW-846 3550B	1	07/28/2004 10:00		Olivia Arosemena	1
01150	GC VOA Soil Prep	SW-846 5035	1	07/20/2004 15:38		Jesse L Mertz	n.a.
05710	SW SW846 GFAA Digest	SW-846 3050B	1	08/10/2004 08:00		Denise K Connors	1
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	07/20/2004 22:00		Karen L Beyer	1

**Lancaster Laboratories Sample No. SW 4313528**
**SB-1-19 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St Camas, WA**

Collected: 07/19/2004 15:00

by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:19

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

X119G

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01155	Lead (furnace method)	7439-92-1	3.10	0.188	mg/kg	1
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately. A poor surrogate recovery was observed due to the dilution needed to perform the analysis.	n.a.	69.	4.0	mg/kg	100
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes	1330-20-7	N.D.	0.02	mg/kg	25
02199	MTBE The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1634-04-4	N.D.	0.05	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	110.	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	12.	10.	mg/kg	1
02858	Selected SVOA's in soil by SIM					
02863	Naphthalene	91-20-3	N.D.	0.010	mg/kg	10
02867	Acenaphthylene	208-96-8	N.D.	0.003	mg/kg	10
02868	Acenaphthene	83-32-9	N.D.	0.003	mg/kg	10
02870	Fluorene	86-73-7	N.D.	0.003	mg/kg	10
02871	Phenanthrene	85-01-8	0.005	0.003	mg/kg	10
02872	Anthracene	120-12-7	0.005	0.003	mg/kg	10
02874	Fluoranthene	206-44-0	N.D.	0.007	mg/kg	10
02875	Pyrene	129-00-0	N.D.	0.007	mg/kg	10
02876	Benzo(a)anthracene	56-55-3	N.D.	0.003	mg/kg	10
02877	Chrysene	218-01-9	N.D.	0.003	mg/kg	10
02878	Benzo(b)fluoranthene	205-99-2	N.D.	0.003	mg/kg	10
02879	Benzo(k)fluoranthene	207-08-9	N.D.	0.003	mg/kg	10
02880	Benzo(a)pyrene	50-32-8	N.D.	0.003	mg/kg	10
02881	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.003	mg/kg	10
02882	Dibenz(a,h)anthracene	53-70-3	N.D.	0.003	mg/kg	10

**Lancaster Laboratories Sample No. SW 4313528**
**SB-1-19 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St Camas, WA**

Collected: 07/19/2004 15:00

by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:19

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

X119G

CAT No.	Analysis Name	CAS Number	As Received Result	As Received	Units	Dilution Factor
				Method		
				Detection Limit		
02883	Benzo(g,h,i)perylene	191-24-2	N.D.	0.003	mg/kg	10
Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the GC/MS semivolatile compounds were raised.						
07361	BTEX+5 Oxygenates+EDC+EDB					
05461	1,2-Dichloroethane	107-06-2	N.D.	0.12	mg/kg	124.69
05471	1,2-Dibromoethane	106-93-4	N.D.	0.12	mg/kg	124.69
The GC/MS volatile analysis was performed according to the medium level soil method due to the level of non-target compounds. Therefore, the reporting limits were raised.						

State of Washington Lab Certification No. C259

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
01155	Lead (furnace method)	SW-846 7421 modified	1	08/13/2004	08:20	Jessica L Boyd	1
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	07/21/2004	20:57	Deborah S Garrison	100
02160	BTEX/MTBE	SW-846 8021B	1	07/21/2004	12:50	Deborah S Garrison	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602(modified)	1	07/21/2004	13:54	Matthew E Barton	1
02858	Selected SVOA's in soil by SIM	SW-846 8270C (SIM)	1	07/29/2004	01:23	Linda M Hartenstine	10
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	07/27/2004	15:37	Parker D Lindstrom	124.69
00374	GC/MS VOA Soil Prep	SW-846 5030A	1	07/27/2004	09:38	Parker D Lindstrom	n.a.
00381	BNA Soil Extraction	SW-846 3550B	1	07/28/2004	10:00	Olivia Arosemena	1
01150	GC VOA Soil Prep	SW-846 5035	1	07/20/2004	15:39	Jesse L Mertz	n.a.
05710	SW SW846 GFAA Digest	SW-846 3050B	1	08/10/2004	08:00	Denise K Connors	1
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	07/20/2004	22:00	Karen L Beyer	1

**Lancaster Laboratories Sample No. SW 4313529**
**SB-1-24 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St Camas, WA**

Collected: 07/19/2004 16:00

by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:19

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

X124G

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	n.a.	N.D.	1.0	mg/kg	25
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1330-20-7	N.D.	0.02	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	110.	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	19.	10.	mg/kg	1
02858	Selected SVOA's in soil by SIM					
02863	Naphthalene	91-20-3	N.D.	0.010	mg/kg	10
02867	Acenaphthylene	208-96-8	N.D.	0.003	mg/kg	10
02868	Acenaphthene	83-32-9	N.D.	0.003	mg/kg	10
02870	Fluorene	86-73-7	N.D.	0.003	mg/kg	10
02871	Phenanthrene	85-01-8	N.D.	0.003	mg/kg	10
02872	Anthracene	120-12-7	N.D.	0.003	mg/kg	10
02874	Fluoranthene	206-44-0	N.D.	0.007	mg/kg	10
02875	Pyrene	129-00-0	N.D.	0.007	mg/kg	10
02876	Benzo(a)anthracene	56-55-3	N.D.	0.003	mg/kg	10
02877	Chrysene	218-01-9	N.D.	0.003	mg/kg	10
02878	Benzo(b)fluoranthene	205-99-2	N.D.	0.003	mg/kg	10
02879	Benzo(k)fluoranthene	207-08-9	N.D.	0.003	mg/kg	10
02880	Benzo(a)pyrene	50-32-8	N.D.	0.003	mg/kg	10
02881	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.003	mg/kg	10
02882	Dibenz(a,h)anthracene	53-70-3	N.D.	0.003	mg/kg	10
02883	Benzo(g,h,i)perylene	191-24-2	N.D.	0.003	mg/kg	10

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the GC/MS semivolatile compounds were raised.

Lancaster Laboratories Sample No. SW 4313529

SB-1-24 Grab Soil Sample

Facility# 207407

612 SE Union St Camas, WA

Collected: 07/19/2004 16:00 by JH

Account Number: 11255

Submitted: 07/20/2004 08:50

ChevronTexaco

Reported: 08/16/2004 at 10:19

6001 Bollinger Canyon Rd L4310

Discard: 09/16/2004

San Ramon CA 94583

X124G

CAT	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
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State of Washington Lab Certification No. C259

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	07/21/2004 20:19		Deborah S Garrison	25
02160	BTEX/MTBE	SW-846 8021B	1	07/21/2004 13:28		Deborah S Garrison	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602 (modified)	1	07/21/2004 15:09		Matthew E Barton	1
02858	Selected SVOA's in soil by SIM	SW-846 8270C (SIM)	1	07/29/2004 01:52		Linda M Hartenstine	10
00381	BNA Soil Extraction	SW-846 3550B	1	07/28/2004 10:00		Olivia Arosemena	1
01150	GC VOA Soil Prep	SW-846 5035	1	07/20/2004 15:40		Jesse L Mertz	n.a.
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	07/20/2004 22:00		Karen L Beyer	1

## Quality Control Summary

 Client Name: ChevronTexaco  
 Reported: 08/16/04 at 10:19 AM

Group Number: 904257

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

### Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 042020006A	Sample number(s): 4313521-4313524, 4313526-4313529							
Diesel Range Organics	N.D.	3.0	mg/kg	94		60-120		
Heavy Range Organics	N.D.	10.	mg/kg					
Batch number: 04203A31A	Sample number(s): 4313521-4313529							
TPH by NWTPH-Gx soils	N.D.	1.0	mg/kg	93		67-119		
Benzene	N.D.	0.005	mg/kg	97		86-113		
Toluene	N.D.	0.005	mg/kg	90		88-113		
Ethylbenzene	N.D.	0.005	mg/kg	100		89-112		
Total Xylenes	N.D.	0.02	mg/kg	99		90-112		
MTBE	N.D.	0.05	mg/kg	86		70-131		
Batch number: 042090000A	Sample number(s): 4313525							
Diesel Range Organics	N.D.	3.0	mg/kg	92		60-120		
Heavy Range Organics	N.D.	10.	mg/kg					
Batch number: 04210SLB026	Sample number(s): 4313521, 4313524, 4313527-4313529							
Naphthalene	N.D.	1.	ug/kg	95		58-114		
Acenaphthylene	N.D.	0.3	ug/kg	90		43-122		
Acenaphthene	N.D.	0.3	ug/kg	96		58-114		
Fluorene	N.D.	0.3	ug/kg	99		59-124		
Phenanthrene	N.D.	0.3	ug/kg	98		55-128		
Anthracene	N.D.	0.3	ug/kg	91		40-142		
Fluoranthene	N.D.	0.7	ug/kg	97		55-132		
Pyrene	N.D.	0.7	ug/kg	100		53-131		
Benzo(a)anthracene	N.D.	0.3	ug/kg	95		53-125		
Chrysene	N.D.	0.3	ug/kg	100		55-131		
Benzo(b)fluoranthene	N.D.	0.3	ug/kg	101		39-152		
Benzo(k)fluoranthene	N.D.	0.3	ug/kg	97		38-152		
Benzo(a)pyrene	N.D.	0.3	ug/kg	94		37-126		
Indeno(1,2,3-cd)pyrene	N.D.	0.3	ug/kg	98		47-140		
Dibenz(a,h)anthracene	N.D.	0.3	ug/kg	97		37-148		
Benzo(g,h,i)perylene	N.D.	0.3	ug/kg	96		48-141		
Batch number: 042235710001	Sample number(s): 4313521, 4313527-4313528							
Lead (furnace method)	N.D.	0.190	mg/kg	95		74-126		
Batch number: Q041983AE	Sample number(s): 4313521, 4313527-4313528							
1,2-Dichloroethane	N.D.	130.	ug/kg	92		76-126		
1,2-Dibromoethane	N.D.	130.	ug/kg	94		77-114		

### Sample Matrix Quality Control

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

## Quality Control Summary

 Client Name: ChevronTexaco  
 Reported: 08/16/04 at 10:19 AM

Group Number: 904257

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 042020006A	Sample number(s): 4313521-4313524, 4313526-4313529								
Diesel Range Organics						960.	860.	10	20
Heavy Range Organics						N.D.	N.D.	0 (1)	20
Batch number: 04203A31A	Sample number(s): 4313521-4313529								
TPH by NWTPH-Gx soils	174*	143*	39-118	17	30				
Benzene	93	96	60-111	4	30				
Toluene	87	91	61-114	5	30				
Ethylbenzene	96	101	66-110	5	30				
Total Xylenes	97	102	66-112	5	30				
MTBE	94	96	50-119	3	30				
Batch number: 042090000A	Sample number(s): 4313525								
Diesel Range Organics						N.D.	N.D.	0 (1)	20
Heavy Range Organics						N.D.	N.D.	0 (1)	20
Batch number: 04210SLB026	Sample number(s): 4313521, 4313524, 4313527-4313529								
Naphthalene	129*	78	49-118	11	30				
Acenaphthylene	81	80	48-126	1	30				
Acenaphthene	130*	103	46-129	7	30				
Fluorene	(2)	(2)	47-136	6	30				
Phenanthrene	(2)	(2)	46-140	15	30				
Anthracene	(2)	(2)	43-139	11	30				
Fluoranthene	108	88	42-146	12	30				
Pyrene	149*	115	50-140	15	30				
Benzo(a)anthracene	118	103	42-146	13	30				
Chrysene	118	103	47-147	11	30				
Benzo(b)fluoranthene	100	90	13-173	9	30				
Benzo(k)fluoranthene	106	96	39-145	10	30				
Benzo(a)pyrene	107	97	27-146	10	30				
Indeno(1,2,3-cd)pyrene	109	99	23-162	10	30				
Dibenz(a,h)anthracene	102	93	29-156	9	30				
Benzo(g,h,i)perylene	103	91	33-158	11	30				
Batch number: 042235710001	Sample number(s): 4313521, 4313527-4313528								
Lead (furnace method)	(2)	(2)	80-120	14	20				
Batch number: Q041983AE	Sample number(s): 4313521, 4313527-4313528								
1,2-Dichloroethane	83	81	57-137	2	30				
1,2-Dibromoethane	87	90	61-125	3	30				

## Surrogate Quality Control

Analysis Name: TPH by NWTPH-Dx(soils) w/SiGel

 Batch number: 042020006A  
 Orthoterphenyl

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4313521	353*
4313522	86
4313523	92
4313524	113
4313526	88

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

## Quality Control Summary

Client Name: ChevronTexaco  
Reported: 08/16/04 at 10:19 AM

Group Number: 904257

### Surrogate Quality Control

4313527 326\*  
4313528 91  
4313529 96  
Blank 88  
DUP 309\*  
LCS 114

Limits: 50-150

Analysis Name: TPH by NWTPH-Gx soils  
Batch number: 04203A31A

	Trifluorotoluene-F	Trifluorotoluene-P
4313521	2*	8*
4313522	75	81
4313523	77	83
4313524	77	85
4313525	77	84
4313526	76	85
4313527	6*	74
4313528	21*	86
4313529	74	83
Blank	90	105
LCS	91	109
MS	78	77
MSD	79	79

Limits: 61-122 72-122

Analysis Name: TPH by NWTPH-Dx(soils) w/SiGel  
Batch number: 042090000A  
Orthoterphenyl

4313525 101  
Blank 107  
DUP 86  
LCS 112

Limits: 50-150

Analysis Name: Selected SVOA's in soil by SIM  
Batch number: 04210SLB026

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
4313521	636*	160*	111
4313524	90	86	95
4313527	66	87	83
4313528	95	98	108
4313529	89	90	105
Blank	101	99	109
LCS	106	103	105
MS	1241*	183*	129
MSD	1116*	188*	125

Limits: 41-150 41-148 36-152

Analysis Name: BTEX+5 Oxygenates+EDC+EDB  
Batch number: Q041983AE

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.



## Quality Control Summary

Client Name: ChevronTexaco  
Reported: 08/16/04 at 10:19 AM

Group Number: 904257

### Surrogate Quality Control

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
4313521	107	102	88	95
4313527	104	103	88	91
4313528	103	100	92	92
Blank	98	98	95	85
LCS	99	99	94	85
MS	88	91	95	115
MSD	86	89	93	112
Limits:	70-129	70-121	70-130	70-128

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

# Chevron Northwest Region Analysis Request/Chain of Custody



**Lancaster Laboratories**  
Where quality is a science

Facility #: 20 7407  
Site Address: 612 SE Union St Carnas WA  
Chevron PM: Brett Hunter Lead Consultant: SAC  
Consultant/Office: SAC - Bothell  
Consultant Prj. Mgr.: Don Wyl  
Consultant Phone #: 425-482-3315 Fax #: \_\_\_\_\_  
Sampler: Jim Horvath  
Service Order #: \_\_\_\_\_  Non SAR: \_\_\_\_\_

Acct. #: 11255 Sample #: 4313521-24  
For Lancaster Laboratories use only  
SER#: 464257

### Analyses Requested

### Preservation Codes

**Preservative Codes**  
H = HCl      T = Thioculfate  
N = HNO<sub>3</sub>    B = NaOH  
S = H<sub>2</sub>SO<sub>4</sub>   O = Other

J value reporting needed  
 Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation

Confirm MTBE + Naphthalene

Confirm highest hit by 8260

Confirm all hits by 8260

Run \_\_\_ oxy s on highest hit

Run \_\_\_ oxy s on all hits

### Comments / Remarks

IA TPH-G Detection  
Run - Lead 7421

- MTBE 8021 B  
w/ 8260 B conf.

- EDB/EDC by  
8035 & 8260

IF NUTPH-DX Detection  
Run Conc. PAHs  
8270

8270

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix		Soil	Water	Oil <input type="checkbox"/> Air <input type="checkbox"/>	Total Number of Containers	Preservation Codes	
					<input type="checkbox"/> Potable	<input type="checkbox"/> NPDES					BTEX + MTBE 8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>	8260 full scan
SB-1-6	7/16/04	1100	X	X	X	X	X	X	X	X	X	X
MW-9-19	↓	1830	X	X	X	X	X	X	X	X	X	X
MW-9-24	7/17/04	1850	X	X	X	X	X	X	X	X	X	X
MW-13-24	7/17/04	1600	X	X	X	X	X	X	X	X	X	X
MW-13-34	7/17/04	1730	X	X	X	X	X	X	X	X	X	X
MW-13-44	7/17/04	1800	X	X	X	X	X	X	X	X	X	X
MW-12-19	7/18/04	1230	X	X	X	X	X	X	X	X	X	X
MW-12-24	7/18/04	1300	X	X	X	X	X	X	X	X	X	X
MW-14-19	7/19/04	0740	X	X	X	X	X	X	X	X	X	X
MW-14-24	7/19/04	1000	X	X	X	X	X	X	X	X	X	X
SB-1-14	7/19/04	1445	X	X	X	X	X	X	X	X	X	X
SB-1-19	7/19/04	1500	X	X	X	X	X	X	X	X	X	X
SB-1-24	7/19/04	1600	X	X	X	X	X	X	X	X	X	X

Relinquished by: Jim Horvath

Relinquished by: Jim Horvath

Relinquished by: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Date: 7/19/04 Time: 1600

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Received by: \_\_\_\_\_

Received by: \_\_\_\_\_

Received by: \_\_\_\_\_

Received by: \_\_\_\_\_

Received by: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Turnaround Time Requested (TAT) (please circle)  
STD. TAT 24 hour 72 hour 48 hour 5 day

Data Package Options (please circle if required)  
QC Summary Type I - Full  
Type VI (Raw Data) Disk / EMD  
WIP (RWOCB) Standard Format  
Disk Other: \_\_\_\_\_

Relinquished by: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_

Relinquished by: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_  
Relinquished by: \_\_\_\_\_

Lancaster Laboratories, Inc., 2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 (717) 656-2300  
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

# Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

<b>N.D.</b>	none detected	<b>BMQL</b>	Below Minimum Quantitation Level
<b>TNTC</b>	Too Numerous To Count	<b>MPN</b>	Most Probable Number
<b>IU</b>	International Units	<b>CP Units</b>	cobalt-chloroplatinate units
<b>umhos/cm</b>	micromhos/cm	<b>NTU</b>	nephelometric turbidity units
<b>C</b>	degrees Celsius	<b>F</b>	degrees Fahrenheit
<b>meq</b>	milliequivalents	<b>lb.</b>	pound(s)
<b>g</b>	gram(s)	<b>kg</b>	kilogram(s)
<b>ug</b>	microgram(s)	<b>mg</b>	milligram(s)
<b>ml</b>	milliliter(s)	<b>l</b>	liter(s)
<b>m3</b>	cubic meter(s)	<b>ul</b>	microliter(s)
<b>&lt;</b>	less than - The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
<b>&gt;</b>	greater than		
<b>J</b>	estimated value – The result is $\geq$ the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).		
<b>ppm</b>	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

## U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
<b>A</b>	TIC is a possible aldol-condensation product	<b>B</b>	Value is $<$ CRDL, but $\geq$ IDL
<b>B</b>	Analyte was also detected in the blank	<b>E</b>	Estimated due to interference
<b>C</b>	Pesticide result confirmed by GC/MS	<b>M</b>	Duplicate injection precision not met
<b>D</b>	Compound quantitated on a diluted sample	<b>N</b>	Spike sample not within control limits
<b>E</b>	Concentration exceeds the calibration range of the instrument	<b>S</b>	Method of standard additions (MSA) used for calculation
<b>N</b>	Presumptive evidence of a compound (TICs only)	<b>U</b>	Compound was not detected
<b>P</b>	Concentration difference between primary and confirmation columns $>25\%$	<b>W</b>	Post digestion spike out of control limits
<b>U</b>	Compound was not detected	<b>*</b>	Duplicate analysis not within control limits
<b>X,Y,Z</b>	Defined in case narrative	<b>+</b>	Correlation coefficient for MSA $<0.995$

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions of Lancaster Laboratories and we hereby object to any conflicting terms contained in any acceptance or order submitted by client.

## ANALYTICAL RESULTS

Prepared for:

ChevronTexaco  
6001 Bollinger Canyon Rd L4310  
San Ramon CA 94583

925-842-8582

Prepared by:

Lancaster Laboratories  
2425 New Holland Pike  
Lancaster, PA 17605-2425SAMPLE GROUP

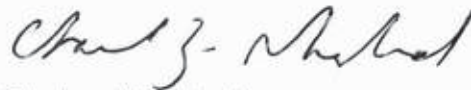
The sample group for this submittal is 909224. Samples arrived at the laboratory on Tuesday, August 24, 2004. The PO# for this group is 99011184 and the release number is HUNTER.

<u>Client Description</u>	<u>Lancaster Labs Number</u>
MW-8-24 Grab Soil Sample	4337906
MW-8-29 Grab Soil Sample	4337907
MW-11-19 Grab Soil Sample	4337908
MW-10-29 Grab Soil Sample	4337909
SB-3-14 Grab Soil Sample	4337910
SB-3-19 Grab Soil Sample	4337911
SB-2-19 Grab Soil Sample	4337912
SB-2-24 Grab Soil Sample	4337913
TB-2 Water Sample	4337914
FB-1 Grab Water Sample	4337915
RB-1 Grab Water Sample	4337916

1 COPY TO SAIC  
ELECTRONIC SAIC  
COPY TOAttn: Don Wyll  
Attn: Jim Harms

Questions? Contact your Client Services Representative  
Teresa L Cunningham at (717) 656-2300.

Respectfully Submitted,



Charles J. Neslund  
Group Leader



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Lancaster Laboratories Sample No. SW 4337906

MW-8-24 Grab Soil Sample

Facility# 207407

612 SE Union St. - Camas, WA

Collected: 08/20/2004 15:30 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:32

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEU24

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils	n.a.	N.D.	1.0	mg/kg	25
	The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.					
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes	1330-20-7	N.D.	0.02	mg/kg	25
	The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.					
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	10.	mg/kg	1

State of Washington Lab Certification No. C259

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	08/26/2004 13:53	Steven A Skiles	25
02160	BTEX/MTBE	SW-846 8021B	1	08/26/2004 13:53	Steven A Skiles	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602 (modified)	1	08/26/2004 21:54	Matthew E Barton	1
01150	GC VOA Soil Prep	SW-846 5035	1	08/25/2004 04:00	Eric L Vera	n.a.
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	08/25/2004 16:15	Jason A Heisey	1





# Analysis Report

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Page 1 of 1

Lancaster Laboratories Sample No. SW 4337907

MW-8-29 Grab Soil Sample

Facility# 207407

612 SE Union St. - Camas, WA

Collected: 08/20/2004 16:00 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:32

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEU29

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	n.a.	N.D.	1.0	mg/kg	25
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1330-20-7	N.D.	0.02	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	10.	mg/kg	1

State of Washington Lab Certification No. C259

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	08/26/2004 18:11	Steven A Skiles	25
02160	BTEX/MTBE	SW-846 8021B	1	08/26/2004 18:11	Steven A Skiles	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602 (modified)	1	08/26/2004 22:20	Matthew E Barton	1
01150	GC VOA Soil Prep	SW-846 5035	1	08/25/2004 04:05	Eric L Vera	n.a.
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	08/25/2004 16:15	Jason A Heisey	1



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Lancaster Laboratories Sample No. SW 4337908

MW-11-19 Grab Soil Sample

Facility# 207407

612 SE Union St. - Camas, WA

Collected: 08/21/2004 12:00 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:32

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEU11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	n.a.	N.D.	1.0	mg/kg	25
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1330-20-7	N.D.	0.02	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	10.	mg/kg	1

State of Washington Lab Certification No. C259

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	08/26/2004 18:48	Steven A Skiles	25
02160	BTEX/MTBE	SW-846 8021B	1	08/26/2004 18:48	Steven A Skiles	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602 (modified)	1	08/26/2004 22:45	Matthew E Barton	1
01150	GC VOA Soil Prep	SW-846 5035	1	08/25/2004 04:07	Eric L Vera	n.a.
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	08/25/2004 16:15	Jason A Heisey	1





# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Lancaster Laboratories Sample No. SW 4337909

MW-10-29 Grab Soil Sample

Facility# 207407

612 SE Union St. - Camas, WA

Collected: 08/22/2004 08:30 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:32

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEU10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	n.a.	N.D.	1.0	mg/kg	25
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1330-20-7	N.D.	0.02	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	10.	mg/kg	1

State of Washington Lab Certification No. C259

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	08/26/2004 19:25	Steven A Skiles	25
02160	BTEX/MTBE	SW-846 8021B	1	08/26/2004 19:25	Steven A Skiles	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602 (modified)	1	08/26/2004 21:04	Matthew E Barton	1
01150	GC VOA Soil Prep	SW-846 5035	1	08/25/2004 04:09	Eric L Vera	n.a.
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	08/25/2004 16:15	Jason A Heisey	1



# Analysis Report

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Lancaster Laboratories Sample No. SW 4337910

SB-3-14 Grab Soil Sample

Facility# 207407

612 SE Union St. - Camas, WA

Collected: 08/22/2004 11:30 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:32

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEU34

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	n.a.	N.D.	1.0	mg/kg	25
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1330-20-7	N.D.	0.02	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	10.	mg/kg	1

State of Washington Lab Certification No. C259

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	08/27/2004 05:10	Steven A Skiles	25
02160	BTEX/MTBE	SW-846 8021B	1	08/27/2004 05:10	Steven A Skiles	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602 (modified)	1	08/26/2004 23:10	Matthew E Barton	1
01150	GC VOA Soil Prep	SW-846 5035	1	08/25/2004 14:30	Eric L Vera	n.a.
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	08/25/2004 16:15	Jason A Heisey	1

**Lancaster Laboratories Sample No. SW 4337911**
**SB-3-19 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St. - Camas, WA**

Collected: 08/22/2004 11:40 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:32

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEU39

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	n.a.	N.D.	1.0	mg/kg	25
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1330-20-7	N.D.	0.02	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.0	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	10.	mg/kg	1
05666	WA- VPH soils					
05726	Methyl t-butyl ether	1634-04-4	N.D.	0.0500	mg/kg	50
05738	Benzene	71-43-2	N.D.	0.0500	mg/kg	50
05739	Toluene	108-88-3	N.D.	0.0500	mg/kg	50
05740	Ethylbenzene	100-41-4	N.D.	0.0500	mg/kg	50
05741	m,p-Xylenes	1330-20-7	N.D.	0.100	mg/kg	50
05777	o-Xylene	95-47-6	N.D.	0.0500	mg/kg	50
05779	C5-C6 Aliphatic Hydrocarbons	n.a.	N.D.	2.50	mg/kg	50
05786	C6-C8 Aliphatic Hydrocarbons	n.a.	N.D.	2.50	mg/kg	50
05793	C8-C10 Aliphatic Hydrocarbons	n.a.	N.D.	2.50	mg/kg	50
05794	C8-C10 Aromatic Hydrocarbons	n.a.	N.D.	2.50	mg/kg	50
05970	WA EPH in Soil					
05971	>C10 - C12 Aliphatic	n.a.	N.D.	1.0	mg/kg	1
05972	>C12 - C16 Aliphatic	n.a.	N.D.	1.0	mg/kg	1
05973	>C16 - C21 Aliphatic	n.a.	N.D.	1.0	mg/kg	1
05974	>C21 - C34 Aliphatic	n.a.	N.D.	1.0	mg/kg	1
05975	>C10 - C12 Aromatic	n.a.	N.D.	1.0	mg/kg	1
05976	>C12 - C16 Aromatic	n.a.	N.D.	1.0	mg/kg	1

**Lancaster Laboratories Sample No. SW 4337911**
**SB-3-19 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St. - Camas, WA**

Collected: 08/22/2004 11:40 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:32

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEU39

CAT No.	Analysis Name	CAS Number	As Received Result	As Received	Units	Dilution Factor
				Method		
				Detection Limit		
05977	>C16 - C21 Aromatic	n.a.	1.4	1.0	mg/kg	1
05978	>C21 - C34 Aromatic	n.a.	N.D.	1.0	mg/kg	1
Various ranges were detected in the method blank associated with this sample. The associated LCS had several ranges with spike recoveries below the QC limit. Surrogate recoveries are below the QC window in the method blank, LCS, and sample. The holding time expired prior to the reextraction so all data is reported from the original extraction. The LCS associated with the reextraction had some ranges where the spike recoveries were below the QC limit. The sample results were N.D. in the reextraction. The sample surrogate results were within the QC limits.						
06373	8260 Special Cmpds for Soils					
08197	Naphthalene	91-20-3	N.D.	0.001	mg/kg	0.99
08339	n-Hexane	110-54-3	N.D.	0.001	mg/kg	0.99

State of Washington Lab Certification No. C259

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis	Analyst	Dilution Factor
				Date and Time		
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	08/27/2004 03:19	Steven A Skiles	25
02160	BTEX/MTBE	SW-846 8021B	1	08/27/2004 03:19	Steven A Skiles	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602(modified)	1	08/26/2004 23:36	Matthew E Barton	1
05666	WA- VPH soils	WA State DOE-VPH	1	08/25/2004 11:29	Steven A Skiles	50
05970	WA EPH in Soil	WA EPH ECY97-602	1	08/31/2004 14:35	Robert T Vincent	1
05970	WA EPH in Soil	WA EPH ECY97-602	1	08/31/2004 15:26	Robert T Vincent	1
06373	8260 Special Cmpds for Soils	SW-846 8260B	1	08/27/2004 02:24	Elizabeth M Taylor	0.99
00374	GC/MS VOA Soil Prep	SW-846 5030A	1	08/26/2004 21:01	Lauren C Marzario	n.a.
00497	Silica Gel Fractionation MA HC	SW-846 3630C Mod.	1	08/26/2004 11:15	Jason A Heisey	1
01150	GC VOA Soil Prep	SW-846 5035	1	08/25/2004 14:30	Eric L Vera	n.a.
06170	VPH Bulk Soil Prep	MADEP-VPH mod.	1	08/26/2004 14:18	Eric L Vera	n.a.
07004	Extraction - DRO (Soils)	WA EPH, ECY97-602	2	08/25/2004 16:30	Jason A Heisey	1

**Lancaster Laboratories Sample No. SW 4337912**
**SB-2-19 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St. - Camas, WA**

Collected: 08/22/2004 14:50 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:32

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEU21

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01155	Lead (furnace method)	7439-92-1	4.88	0.345	mg/kg	2
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately. A poor surrogate recovery was observed due to the dilution needed to perform the analysis.	n.a.	3,300.	200.	mg/kg	5000
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.2	mg/kg	1000
02177	Toluene	108-88-3	N.D.	0.2	mg/kg	1000
02178	Ethylbenzene	100-41-4	N.D.	0.4	mg/kg	1000
02182	Total Xylenes	1330-20-7	4.9	0.6	mg/kg	1000
02199	MTBE The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately. A poor surrogate recovery was observed due to the dilution needed to perform the analysis.	1634-04-4	N.D.	2.0	mg/kg	1000
<p>Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.</p>						
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	3,700.	60.	mg/kg	20
02098	Heavy Range Organics Accurate surrogate recoveries could not be determined due to the dilution required for analysis of the sample.	n.a.	N.D.	200.	mg/kg	20
05666	WA- VPH soils					
05726	Methyl t-butyl ether	1634-04-4	N.D.	0.100	mg/kg	100
05738	Benzene	71-43-2	N.D.	0.100	mg/kg	100
05739	Toluene	108-88-3	N.D.	0.100	mg/kg	100
05740	Ethylbenzene	100-41-4	N.D.	0.100	mg/kg	100
05741	m,p-Xylenes	1330-20-7	N.D.	0.200	mg/kg	100
05777	o-Xylene	95-47-6	3.77	0.100	mg/kg	100
05779	C5-C6 Aliphatic Hydrocarbons	n.a.	N.D.	5.00	mg/kg	100

**Lancaster Laboratories Sample No. SW 4337912**
**SB-2-19 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St. - Camas, WA**

Collected: 08/22/2004 14:50 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:32

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEU21

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
05786	C6-C8 Aliphatic Hydrocarbons	n.a.	70.4	Detection Limit	mg/kg	100
05793	C8-C10 Aliphatic Hydrocarbons	n.a.	488.	Detection Limit	mg/kg	100
05794	C8-C10 Aromatic Hydrocarbons	n.a.	429.	Detection Limit	mg/kg	100
Due to dilution of the sample made necessary by the high level of non-target compounds, normal reporting limits were not attained.						
05970	WA EPH in Soil					
05971	>C10 - C12 Aliphatic	n.a.	400.	10.	mg/kg	10
05972	>C12 - C16 Aliphatic	n.a.	1,400.	10.	mg/kg	10
05973	>C16 - C21 Aliphatic	n.a.	760.	10.	mg/kg	10
05974	>C21 - C34 Aliphatic	n.a.	77.	10.	mg/kg	10
05975	>C10 - C12 Aromatic	n.a.	N.D.	10.	mg/kg	10
05976	>C12 - C16 Aromatic	n.a.	96.	10.	mg/kg	10
05977	>C16 - C21 Aromatic	n.a.	220.	10.	mg/kg	10
05978	>C21 - C34 Aromatic	n.a.	22.	10.	mg/kg	10

Various ranges were detected in the method blank associated with this sample. The associated LCS had several ranges with spike recoveries below the QC limit. Surrogate recoveries are below the QC window in the method blank and LCS. The holding time expired prior to the reextraction so all data is reported from the original extraction. The LCS associated with the reextraction had some ranges where the spike recoveries were below the QC limit. The sample results were higher in the reextraction. Accurate surrogate recoveries could not be determined for the reextraction due to the dilution required for analysis.

02858 Selected SVOA's in soil by SIM

02876	Benzo(a)anthracene	56-55-3	0.004	0.003	mg/kg	10
02877	Chrysene	218-01-9	0.009	0.003	mg/kg	10
02878	Benzo(b)fluoranthene	205-99-2	N.D.	0.003	mg/kg	10
02879	Benzo(k)fluoranthene	207-08-9	N.D.	0.003	mg/kg	10
02880	Benzo(a)pyrene	50-32-8	N.D.	0.003	mg/kg	10
02881	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.003	mg/kg	10
02882	Dibenz(a,h)anthracene	53-70-3	N.D.	0.003	mg/kg	10

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the GC/MS semivolatile compounds were raised.

Surrogate recoveries were outside of QC limits for the GC/MS semivolatile compounds due to the dilution needed to perform the analysis.

**Lancaster Laboratories Sample No. SW 4337912**
**SB-2-19 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St. - Camas, WA**

Collected: 08/22/2004 14:50 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:32

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEU21

CAT No.	Analysis Name	CAS Number	As Received	As Received	Units	Dilution Factor
			Result	Method Detection Limit		
06373	8260 Special Cmpds for Soils					
02596	1,2-Dichloroethane	107-06-2	N.D.	0.13	mg/kg	125.94
05677	1,2-Dibromoethane	106-93-4	N.D.	0.13	mg/kg	125.94
08197	Naphthalene	91-20-3	0.19	0.13	mg/kg	125.94
08339	n-Hexane	110-54-3	N.D.	0.13	mg/kg	125.94

The GC/MS volatile analysis was performed according to the medium level soil method due to the level of non-target compounds. Therefore, the reporting limits were raised.

State of Washington Lab Certification No. C259  
Carcinogenic PAH's have been reported for this sample.

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
01155	Lead (furnace method)	SW-846 7421 modified	1	09/02/2004 09:32		Jessica L Boyd	2
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	08/27/2004 08:15		Steven A Skiles	5000
02160	BTEX/MTBE	SW-846 8021B	1	08/27/2004 03:56		Steven A Skiles	1000
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602(modified)	1	08/27/2004 11:24		Matthew E Barton	20
05666	WA- VPH soils	WA State DOE-VPH	1	08/26/2004 09:59		Steven A Skiles	100
05970	WA EPH in Soil	WA EPH ECY97-602	1	09/18/2004 21:29		Robert T Vincent	10
05970	WA EPH in Soil	WA EPH ECY97-602	1	09/18/2004 22:20		Robert T Vincent	10
02858	Selected SVOA's in soil by SIM	SW-846 8270C (SIM)	1	09/09/2004 04:29		Linda M Hartenstine	10
06373	8260 Special Cmpds for Soils	SW-846 8260B	1	08/26/2004 16:07		Parker D Lindstrom	125.94
00374	GC/MS VOA Soil Prep	SW-846 5030A	1	08/26/2004 08:01		Seth J Good	n.a.
00381	BNA Soil Extraction	SW-846 3550B	1	09/01/2004 16:30		Luis E Villamil	1
00497	Silica Gel Fractionation MA HC	SW-846 3630C Mod.	1	08/26/2004 11:15		Jason A Heisey	1
01150	GC VOA Soil Prep	SW-846 5035	1	08/25/2004 04:11		Eric L Vera	n.a.
05710	SW SW846 GFAA Digest	SW-846 3050B	1	09/01/2004 19:30		Annamaria Stipkovits	1
06170	VPH Bulk Soil Prep	MADEP-VPH mod.	1	08/26/2004 14:33		Eric L Vera	n.a.
07004	Extraction - DRO (Soils)	WA EPH, ECY97-602	2	08/25/2004 16:30		Jason A Heisey	1

**Lancaster Laboratories Sample No. SW 4337913**
**SB-2-24 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St. - Camas, WA**

Collected: 08/22/2004 15:00 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:33

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEU22

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01155	Lead (furnace method)	7439-92-1	4.43	0.186	mg/kg	1
02006	TPH by NWTPH-Gx soils					
02007	TPH by NWTPH-Gx soils The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately. A poor surrogate recovery was observed due to the dilution needed to perform the analysis.	n.a.	110.	10.	mg/kg	250
02160	BTEX/MTBE					
02174	Benzene	71-43-2	N.D.	0.005	mg/kg	25
02177	Toluene	108-88-3	N.D.	0.005	mg/kg	25
02178	Ethylbenzene	100-41-4	N.D.	0.005	mg/kg	25
02182	Total Xylenes	1330-20-7	0.03	0.02	mg/kg	25
02199	MTBE The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.	1634-04-4	N.D.	0.05	mg/kg	25
02214	TPH by NWTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	390.	6.0	mg/kg	2
02098	Heavy Range Organics The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.	n.a.	37.	20.	mg/kg	2
02858	Selected SVOA's in soil by SIM					
02876	Benzo(a)anthracene	56-55-3	N.D.	0.003	mg/kg	10
02877	Chrysene	218-01-9	N.D.	0.003	mg/kg	10
02878	Benzo(b)fluoranthene	205-99-2	N.D.	0.003	mg/kg	10
02879	Benzo(k)fluoranthene	207-08-9	N.D.	0.003	mg/kg	10
02880	Benzo(a)pyrene	50-32-8	N.D.	0.003	mg/kg	10
02881	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	0.003	mg/kg	10
02882	Dibenz(a,h)anthracene Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the GC/MS semivolatile compounds were raised.	53-70-3	N.D.	0.003	mg/kg	10
07361	BTEX+5 Oxygenates+EDC+EDB					



**Lancaster Laboratories Sample No. SW 4337913**
**SB-2-24 Grab Soil Sample**
**Facility# 207407**
**612 SE Union St. - Camas, WA**

Collected: 08/22/2004 15:00 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:33

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEU22

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Dilution Factor
				Method	Units	
05461	1,2-Dichloroethane	107-06-2	N.D.	Detection Limit	mg/kg	1.01
05471	1,2-Dibromoethane	106-93-4	N.D.	Detection Limit	mg/kg	1.01

 State of Washington Lab Certification No. C259  
 Carcinogenic PAH's have been reported for this sample.

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
01155	Lead (furnace method)	SW-846 7421 modified	1	09/02/2004 10:11		Jessica L Boyd	1
02006	TPH by NWTPH-Gx soils	NWTPH-Gx - 8015B Mod.	1	08/27/2004 08:52		Steven A Skiles	250
02160	BTEX/MTBE	SW-846 8021B	1	08/27/2004 04:33		Steven A Skiles	25
02214	TPH by NWTPH-Dx(soils) w/SiGel	NWTPH-Dx, ECY 97-602(modified)	1	08/27/2004 10:59		Matthew E Barton	2
02858	Selected SVOA's in soil by SIM	SW-846 8270C (SIM)	1	09/09/2004 05:03		Linda M Hartenstine	10
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	09/01/2004 16:10		Parker D Lindstrom	1.01
00374	GC/MS VOA Soil Prep	SW-846 5030A	1	09/01/2004 15:49		Parker D Lindstrom	n.a.
00381	BNA Soil Extraction	SW-846 3550B	1	09/01/2004 16:30		Luis E Villamil	1
01150	GC VOA Soil Prep	SW-846 5035	1	08/25/2004 04:15		Eric L Vera	n.a.
05710	SW SW846 GFAA Digest	SW-846 3050B	1	09/01/2004 19:30		Annamaria Stipkovits	1
07004	Extraction - DRO (Soils)	NWTPH-Dx, ECY 97-602, 6/97	1	08/25/2004 16:15		Jason A Heisey	1



# Analysis Report

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Lancaster Laboratories Sample No. WW 4337914

TB-2 Water Sample  
Facility# 207407  
612 SE Union St. - Camas, WA  
Collected: 08/22/2004

Account Number: 11255

Submitted: 08/24/2004 08:55  
Reported: 09/28/2004 at 15:33  
Discard: 10/29/2004

ChevronTexaco  
6001 Bollinger Canyon Rd L4310  
San Ramon CA 94583

SEUTB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
05879	BTEX					
02161	Benzene	71-43-2	N.D.	0.5	ug/l	1
02164	Toluene	108-88-3	N.D.	0.5	ug/l	1
02166	Ethylbenzene	100-41-4	N.D.	0.5	ug/l	1
02171	Total Xylenes	1330-20-7	N.D.	1.5	ug/l	1
08274	TPH by NWTPH-Gx waters					
01648	TPH by NWTPH-Gx waters	n.a.	N.D.	50.	ug/l	1

State of Washington Lab Certification No. C259

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
05879	BTEX	SW-846 8021B	1	08/25/2004 09:17	Linda C Pape	1
08274	TPH by NWTPH-Gx waters	NWTPH-Gx - 8015B Mod.	1	08/25/2004 09:17	Linda C Pape	1
01146	GC VOA Water Prep	SW-846 5030B	1	08/25/2004 09:17	Linda C Pape	n.a.

**Lancaster Laboratories Sample No. WW 4337915**
**FB-1 Grab Water Sample**
**Facility# 207407**
**612 SE Union St. - Camas, WA**

Collected: 08/22/2004 09:00 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:33

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

**SEUFB**

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
02211	TPH by NWTPH-Dx(water) w/SiGel						
02095	Diesel Range Organics	n.a.	N.D.	76.		ug/l	1
02096	Heavy Range Organics	n.a.	N.D.	95.		ug/l	1
05879	BTEX						
02161	Benzene	71-43-2	N.D.	0.5		ug/l	1
02164	Toluene	108-88-3	N.D.	0.5		ug/l	1
02166	Ethylbenzene	100-41-4	N.D.	0.5		ug/l	1
02171	Total Xylenes	1330-20-7	N.D.	1.5		ug/l	1
08274	TPH by NWTPH-Gx waters						
01648	TPH by NWTPH-Gx waters	n.a.	N.D.	50.		ug/l	1

State of Washington Lab Certification No. C259

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
02211	TPH by NWTPH-Dx(water) w/SiGel	NWTPH-Dx, ECY 97-602(modified)	1	08/26/2004	16:00	Matthew E Barton	1
05879	BTEX	SW-846 8021B	1	08/25/2004	10:13	Linda C Pape	1
08274	TPH by NWTPH-Gx waters	NWTPH-Gx - 8015B Mod.	1	08/25/2004	10:13	Linda C Pape	1
01146	GC VOA Water Prep	SW-846 5030B	1	08/25/2004	10:13	Linda C Pape	n.a.
07003	Extraction - DRO (Waters)	NWTPH-Dx, ECY 97-602, 6/97	1	08/25/2004	17:45	JoElla L Rice	1



# Analysis Report

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Lancaster Laboratories Sample No. WW 4337916

RB-1 Grab Water Sample

Facility# 207407

612 SE Union St. - Camas, WA

Collected: 08/22/2004 09:30 by JH

Account Number: 11255

Submitted: 08/24/2004 08:55

ChevronTexaco

Reported: 09/28/2004 at 15:33

6001 Bollinger Canyon Rd L4310

Discard: 10/29/2004

San Ramon CA 94583

SEURB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received		Units	Dilution Factor
				Method	Detection Limit		
02211	TPH by NWTPH-Dx(water) w/SiGel						
02095	Diesel Range Organics	n.a.	N.D.	78.		ug/l	1
02096	Heavy Range Organics	n.a.	N.D.	97.		ug/l	1
05879	BTEX						
02161	Benzene	71-43-2	N.D.	0.5		ug/l	1
02164	Toluene	108-88-3	N.D.	0.5		ug/l	1
02166	Ethylbenzene	100-41-4	N.D.	0.5		ug/l	1
02171	Total Xylenes	1330-20-7	N.D.	1.5		ug/l	1
08274	TPH by NWTPH-Gx waters						
01648	TPH by NWTPH-Gx waters	n.a.	N.D.	50.		ug/l	1

State of Washington Lab Certification No. C259

## Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis		Analyst	Dilution Factor
				Date and Time			
02211	TPH by NWTPH-Dx(water) w/SiGel	NWTPH-Dx, ECY 97-602(modified)	1	08/26/2004	16:25	Matthew E Barton	1
05879	BTEX	SW-846 8021B	1	08/25/2004	10:46	Linda C Pape	1
08274	TPH by NWTPH-Gx waters	NWTPH-Gx - 8015B Mod.	1	08/25/2004	10:46	Linda C Pape	1
01146	GC VOA Water Prep	SW-846 5030B	1	08/25/2004	10:46	Linda C Pape	n.a.
07003	Extraction - DRO (Waters)	NWTPH-Dx, ECY 97-602, 6/97	1	08/25/2004	17:45	JoElla L Rice	1

## Quality Control Summary

 Client Name: ChevronTexaco  
 Reported: 09/28/04 at 03:33 PM

Group Number: 909224

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

### Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 04236A01A	Sample number(s): 4337911							
Methyl t-butyl ether	N.D.	0.0500	mg/kg	103	105	70-130	1	50
Benzene	N.D.	0.0500	mg/kg	99	103	70-130	4	50
Toluene	N.D.	0.0500	mg/kg	99	103	70-130	4	50
Ethylbenzene	N.D.	0.0500	mg/kg	100	104	70-130	4	50
m,p-Xylenes	N.D.	0.100	mg/kg	101	105	70-130	4	50
o-Xylene	N.D.	0.0500	mg/kg	100	103	70-130	3	50
C5-C6 Aliphatic Hydrocarbons	N.D.	2.50	mg/kg	90	96	70-130	6	50
C6-C8 Aliphatic Hydrocarbons	N.D.	2.50	mg/kg	91	97	70-130	6	50
C8-C10 Aliphatic Hydrocarbons	N.D.	2.50	mg/kg	101	103	70-130	2	50
C8-C10 Aromatic Hydrocarbons	N.D.	2.50	mg/kg	100	102	70-130	3	50
Batch number: 04236A01B	Sample number(s): 4337912							
Methyl t-butyl ether	N.D.	0.0500	mg/kg	103	105	70-130	1	50
Benzene	N.D.	0.0500	mg/kg	99	103	70-130	4	50
Toluene	N.D.	0.0500	mg/kg	99	103	70-130	4	50
Ethylbenzene	N.D.	0.0500	mg/kg	100	104	70-130	4	50
m,p-Xylenes	N.D.	0.100	mg/kg	101	105	70-130	4	50
o-Xylene	N.D.	0.0500	mg/kg	100	103	70-130	3	50
C5-C6 Aliphatic Hydrocarbons	N.D.	2.50	mg/kg	90	96	70-130	6	50
C6-C8 Aliphatic Hydrocarbons	N.D.	2.50	mg/kg	91	97	70-130	6	50
C8-C10 Aliphatic Hydrocarbons	N.D.	2.50	mg/kg	101	103	70-130	2	50
C8-C10 Aromatic Hydrocarbons	N.D.	2.50	mg/kg	100	102	70-130	3	50
Batch number: 04237A56B	Sample number(s): 4337914-4337916							
TPH by NWTPH-Gx waters	N.D.	0.048	mg/l	76	78	70-130	3	30
Benzene	N.D.	0.5	ug/l	102	104	79-123	3	30
Toluene	N.D.	0.5	ug/l	105	106	82-119	1	30
Ethylbenzene	N.D.	0.5	ug/l	102	105	81-119	3	30
Total Xylenes	N.D.	1.5	ug/l	103	106	82-120	3	30
Batch number: 042380015A	Sample number(s): 4337915-4337916							
Diesel Range Organics	N.D.	0.080	mg/l	86		51-113		
Heavy Range Organics	N.D.	0.10	mg/l					
Batch number: 042380016A	Sample number(s): 4337906-4337913							
Diesel Range Organics	N.D.	3.0	mg/kg	87		60-120		
Heavy Range Organics	N.D.	10.	mg/kg					
Batch number: 042380017A	Sample number(s): 4337911-4337912							
>C10 - C12 Aliphatic	N.D.	1.0	mg/kg	54*		70-130		
>C12 - C16 Aliphatic	N.D.	1.0	mg/kg	60*		70-130		
>C16 - C21 Aliphatic	N.D.	1.0	mg/kg	62*		70-130		
>C21 - C34 Aliphatic	2.2	1.0	mg/kg					

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

## Quality Control Summary

 Client Name: ChevronTexaco  
 Reported: 09/28/04 at 03:33 PM

Group Number: 909224

### Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
>C10 - C12 Aromatic	3.0	1.0	mg/kg	38*		70-130		
>C12 - C16 Aromatic	10.	1.0	mg/kg	39*		70-130		
>C16 - C21 Aromatic	11.	1.0	mg/kg	75		70-130		
>C21 - C34 Aromatic	N.D.	1.0	mg/kg	73		70-130		
Batch number: 04239A34A	Sample number(s): 4337906-4337913							
TPH by NWTPH-Gx soils	N.D.	1.0	mg/kg	83		67-119		
Benzene	N.D.	0.005	mg/kg	112		86-113		
Toluene	N.D.	0.005	mg/kg	106		81-119		
Ethylbenzene	N.D.	0.005	mg/kg	107		89-112		
Total Xylenes	N.D.	0.02	mg/kg	105		90-112		
MTBE	N.D.	0.05	mg/kg	96		70-131		
Batch number: 042455710001	Sample number(s): 4337912-4337913							
Lead (furnace method)	0.219	0.190	mg/kg	98		74-126		
Batch number: 04245SLB026	Sample number(s): 4337912-4337913							
Benzo(a)anthracene	N.D.	0.3	ug/kg	118	116	53-125	2	30
Chrysene	N.D.	0.3	ug/kg	127	127	55-131	0	30
Benzo(b)fluoranthene	N.D.	0.3	ug/kg	111	126	39-152	13	30
Benzo(k)fluoranthene	N.D.	0.3	ug/kg	111	124	38-152	11	30
Benzo(a)pyrene	N.D.	0.3	ug/kg	110	109	37-126	0	30
Indeno(1,2,3-cd)pyrene	N.D.	0.3	ug/kg	117	130	47-140	10	30
Dibenz(a,h)anthracene	N.D.	0.3	ug/kg	116	129	37-148	11	30
Batch number: A042392AA	Sample number(s): 4337911							
Naphthalene	N.D.	1.	ug/kg	103		58-114		
n-Hexane	N.D.	1.	ug/kg	89		51-135		
Batch number: D042441AB	Sample number(s): 4337913							
1,2-Dichloroethane	N.D.	1.	ug/kg	90		76-126		
1,2-Dibromoethane	N.D.	1.	ug/kg	83		77-114		
Batch number: Q042371AB	Sample number(s): 4337912							
1,2-Dichloroethane	N.D.	130.	ug/kg	106		76-126		
1,2-Dibromoethane	N.D.	130.	ug/kg	110		77-114		
Naphthalene	N.D.	130.	ug/kg	102		58-114		
n-Hexane	N.D.	130.	ug/kg	92		51-135		

### Sample Matrix Quality Control

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 04237A56B	Sample number(s): 4337914-4337916								
TPH by NWTPH-Gx waters	77		63-154						
Benzene	109		78-131						
Toluene	111		78-129						
Ethylbenzene	109		75-133						
Total Xylenes	109		86-132						
Batch number: 042380015A	Sample number(s): 4337915-4337916								
Diesel Range Organics						N.D.	N.D.	0 (1)	20

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

## Quality Control Summary

 Client Name: ChevronTexaco  
 Reported: 09/28/04 at 03:33 PM

Group Number: 909224

### Sample Matrix Quality Control

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u>	<u>RPD</u> <u>MAX</u>	<u>BKG</u> <u>Conc</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup</u> <u>RPD</u> <u>Max</u>
Heavy Range Organics						N.D.	N.D.	0 (1)	20
Batch number: 042380016A	Sample number(s): 4337906-4337913								
Diesel Range Organics						N.D.	N.D.	0 (1)	20
Heavy Range Organics						N.D.	N.D.	0 (1)	20
Batch number: 042380017A	Sample number(s): 4337911-4337912								
>C10 - C12 Aliphatic	71		70-130			N.D.	N.D.	0 (1)	25
>C12 - C16 Aliphatic	130		70-130			N.D.	N.D.	0 (1)	25
>C16 - C21 Aliphatic	122		70-130			N.D.	N.D.	0 (1)	25
>C21 - C34 Aliphatic						N.D.	N.D.	0 (1)	25
>C10 - C12 Aromatic	93		70-130			N.D.	N.D.	0 (1)	25
>C12 - C16 Aromatic	155*		70-130			N.D.	N.D.	0 (1)	25
>C16 - C21 Aromatic	242*		70-130			1.4	2.8	69* (1)	25
>C21 - C34 Aromatic	230*		70-130			N.D.	2.3	200* (1)	25
Batch number: 04239A34A	Sample number(s): 4337906-4337913								
TPH by NWTTPH-Gx soils	76	80	39-118	5	30				
Benzene	104	108	52-135	3	30				
Toluene	99	102	59-129	4	30				
Ethylbenzene	100	104	56-132	4	30				
Total Xylenes	99	103	54-134	4	30				
MTBE	93	99	45-141	6	30				
Batch number: 042455710001	Sample number(s): 4337912-4337913								
Lead (furnace method)	275*	51*	80-120	54*	20	4.88	12.2	86* (1)	20
Batch number: A042392AA	Sample number(s): 4337911								
Naphthalene	74	78	11-142	6	30				
n-Hexane	74	70	23-142	5	30				
Batch number: D042441AB	Sample number(s): 4337913								
1,2-Dichloroethane	82	82	62-130	1	30				
1,2-Dibromoethane	71	72	62-116	1	30				
Batch number: Q042371AB	Sample number(s): 4337912								
1,2-Dichloroethane	92	95	62-130	2	30				
1,2-Dibromoethane	107	108	62-116	1	30				
Naphthalene	106	104	11-142	1	30				
n-Hexane	103	96	23-142	7	30				

### Surrogate Quality Control

 Analysis Name: WA- VPH soils  
 Batch number: 04236A01A

	Trifluorotoluene-P	Trifluorotoluene-F
4337911	77	77
Blank	108	109
LCS	97	97
LCSD	101	103

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

## Quality Control Summary

Client Name: ChevronTexaco  
Reported: 09/28/04 at 03:33 PM

Group Number: 909224

### Surrogate Quality Control

Limits: 60-140 60-140

Analysis Name: WA- VPH soils  
Batch number: 04236A01B

Trifluorotoluene-P Trifluorotoluene-F

4337912	63	108
Blank	106	108
LCS	97	97
LCSD	101	103

Limits: 60-140 60-140

Analysis Name: BTEX  
Batch number: 04237A56B

Trifluorotoluene-P Trifluorotoluene-F

4337914	116	96
4337915	114	97
4337916	115	97
Blank	115	97
LCS	115	94
LCSD	115	93
MS	115	94

Limits: 66-136 57-146

Analysis Name: TPH by NWTPH-Dx(water) w/SiGel  
Batch number: 042380015A

Orthoterphenyl

4337915	97
4337916	94
Blank	93
DUP	100
LCS	116

Limits: 50-150

Analysis Name: TPH by NWTPH-Dx(soils) w/SiGel  
Batch number: 042380016A

Orthoterphenyl

4337906	99
4337907	99
4337908	103
4337909	97
4337910	99
4337911	101
4337912	1006*
4337913	185*
Blank	82
DUP	97
LCS	119

Limits: 50-150

Analysis Name: WA EPH in Soil

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.



## Quality Control Summary

 Client Name: ChevronTexaco  
 Reported: 09/28/04 at 03:33 PM

Group Number: 909224

### Surrogate Quality Control

 Batch number: 042380017A  
 Orthoterphenyl

1-chlorooctadecane

4337911	89	32*
4337912	124	66
Blank	89	34*
DUP	90	28*
LCS	44*	96
MS	89	49*

Limits: 60-140 60-140

Analysis Name: TPH by NWTPH-Gx soils

Batch number: 04239A34A

Trifluorotoluene-F

Trifluorotoluene-P

4337906	79	88
4337907	83	90
4337908	79	89
4337909	86	92
4337910	84	85
4337911	83	88
4337912	1*	3*
4337913	11*	82
Blank	99	109
LCS	101	112
MS	82	87
MSD	80	91

Limits: 61-122 72-122

Analysis Name: Selected SVOA's in soil by SIM

Batch number: 04245SLB026

Nitrobenzene-d5

2-Fluorobiphenyl

Terphenyl-d14

4337912	2958*	125	126
4337913	148	107	130
Blank	129	123	111
LCS	134	128	110
LCS D	135	126	112

Limits: 41-150 41-148 36-152

Analysis Name: 8260 Special Cmpds for Soils

Batch number: A042392AA

Dibromofluoromethane

1,2-Dichloroethane-d4

Toluene-d8

4-Bromofluorobenzene

4337911	100	96	104	92
Blank	102	100	103	93
LCS	105	104	103	97
MS	103	97	106	94
MSD	101	97	106	94

Limits: 70-129 70-121 70-130 70-128

Analysis Name: BTEX+5 Oxygenates+EDC+EDB

Batch number: D042441AB

Dibromofluoromethane

1,2-Dichloroethane-d4

Toluene-d8

4-Bromofluorobenzene

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

## Quality Control Summary

Client Name: ChevronTexaco  
Reported: 09/28/04 at 03:33 PM

Group Number: 909224

### Surrogate Quality Control

4337913	80	72	85	85
Blank	81	72	85	81
LCS	81	80	82	83
MS	80	73	85	81
MSD	79	70	84	79
Limits:	70-129	70-121	70-130	70-128

Analysis Name: 8260 Special Cmpds for Soils  
Batch number: Q042371AB

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
4337912	100	104	101	100
Blank	105	109	104	100
LCS	106	106	104	101
MS	106	111	104	102
MSD	106	109	105	104
Limits:	70-129	70-121	70-130	70-128

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The background result was more than four times the spike added.

# Chevron Northwest Region Analysis Request/Chain of Custody



Facility #: 207407  
 Site Address: 612 SE Union St, Camas, WA  
 Chevron PM: Brett Hunter Lead Consultant: SALC  
 Consultant/Office: SALC - Boothell  
 Consultant Pri. Mgr.: Don Wyl CC: Jim Harms  
 Consultant Phone #: 425.982.3315 Fax #: \_\_\_\_\_  
 Sampler: Jim Harms  
 Service Order #: \_\_\_\_\_  Non SAR: \_\_\_\_\_

Acct. #: 11855 Sample #: 4337906-16 For Lancaster Laboratories use only  
 SCR#: 909224

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix			Total Number of Containers	Preservation Codes				Comments / Remarks
					Water	Oil <input type="checkbox"/> Air <input type="checkbox"/>	Soil		BTEX + <del>PAHs</del> 8021 <input checked="" type="checkbox"/> 8260 <input type="checkbox"/> Naphth <input type="checkbox"/>	8260 full scan	Oxygenates	TPH G <input checked="" type="checkbox"/>	
MW-8-24	8-20-04	1530	X	X			3	X	X	X	X	X	IF TPH-4 Detected run - Lead 7421 - MTBE 8021B w/8260B confirm -EDB/EDC by 5035 & 8260 IF TPH-D/O -Carcinogenic PAHs 8270M- SIM
MW-8-29	8-20-04	1600	X	X			3	X	X	X	X	X	
MW-11-19	8-21-04	1200	X	X			3	X	X	X	X	X	
MW-11-29	8-21-04	1315	X	X			3	X	X	X	X	X	
MW-1D-29	8-22-04	0830	X	X			3	X	X	X	X	X	
SB-3-14		1130	X	X			3	X	X	X	X	X	
SB-3-19		1140	X	X			3	X	X	X	X	X	
SB-3-24		1200	X	X			3	X	X	X	X	X	
SB-2-19		1450	X	X			3	X	X	X	X	X	
SB-2-24		1500	X	X			3	X	X	X	X	X	
TB-2			X	X			2	X	X	X	X	X	
FB-1		0900	X	X			5	X	X	X	X	X	
RB-1		0930	X	X			5	X	X	X	X	X	

Turnaround Time Requested (TAT) (please circle)

STD. TAT 24 hour 72 hour 48 hour 5 day

Relinquished by: \_\_\_\_\_ Date: 8/23/04 Time: 1300 Received by: FK-EX Date: 8/23 Time: 1300

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Data Package Options (please circle if required)

QC Summary Type I - Full  
 Type VI (Raw Data) Disk / EDD  
 WIP (RWOCB) Standard Format  
 Disk Other: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

UPS Fedex Other: \_\_\_\_\_  
 Temperature Upon Receipt: 3.5 C°

Received by: Kara Bialorek Date: 8/24/04 Time: 0855

Custody Seals intact?  Yes  No

# Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

<b>N.D.</b>	none detected	<b>BMQL</b>	Below Minimum Quantitation Level
<b>TNTC</b>	Too Numerous To Count	<b>MPN</b>	Most Probable Number
<b>IU</b>	International Units	<b>CP Units</b>	cobalt-chloroplatinate units
<b>umhos/cm</b>	micromhos/cm	<b>NTU</b>	nephelometric turbidity units
<b>C</b>	degrees Celsius	<b>F</b>	degrees Fahrenheit
<b>meq</b>	milliequivalents	<b>lb.</b>	pound(s)
<b>g</b>	gram(s)	<b>kg</b>	kilogram(s)
<b>ug</b>	microgram(s)	<b>mg</b>	milligram(s)
<b>ml</b>	milliliter(s)	<b>l</b>	liter(s)
<b>m3</b>	cubic meter(s)	<b>ul</b>	microliter(s)
<b>&lt;</b>	less than - The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
<b>&gt;</b>	greater than		
<b>J</b>	estimated value – The result is $\geq$ the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).		
<b>ppm</b>	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

## U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
<b>A</b>	TIC is a possible aldol-condensation product	<b>B</b>	Value is $<$ CRDL, but $\geq$ IDL
<b>B</b>	Analyte was also detected in the blank	<b>E</b>	Estimated due to interference
<b>C</b>	Pesticide result confirmed by GC/MS	<b>M</b>	Duplicate injection precision not met
<b>D</b>	Compound quantitated on a diluted sample	<b>N</b>	Spike sample not within control limits
<b>E</b>	Concentration exceeds the calibration range of the instrument	<b>S</b>	Method of standard additions (MSA) used for calculation
<b>N</b>	Presumptive evidence of a compound (TICs only)	<b>U</b>	Compound was not detected
<b>P</b>	Concentration difference between primary and confirmation columns $>25\%$	<b>W</b>	Post digestion spike out of control limits
<b>U</b>	Compound was not detected	<b>*</b>	Duplicate analysis not within control limits
<b>X,Y,Z</b>	Defined in case narrative	<b>+</b>	Correlation coefficient for MSA $<0.995$

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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## ANALYTICAL RESULTS

Prepared for:

Chevron  
6001 Bollinger Canyon Rd L4310  
San Ramon CA 94583

925-842-8582

Prepared by:

Lancaster Laboratories  
2425 New Holland Pike  
Lancaster, PA 17605-2425SAMPLE GROUP

The sample group for this submittal is 1103561. Samples arrived at the laboratory on Saturday, August 02, 2008. The PO# for this group is 0015026864 and the release number is HUNTER.

Client DescriptionLancaster Labs Number

MW-16-25 Grab Soil Sample	5431629
MW-16-30 Grab Soil Sample	5431630
MW-16-35 Grab Soil Sample	5431631
MW-16-40 Grab Soil Sample	5431632
MW-16-45 Grab Soil Sample	5431633
MW-16-50 Grab Soil Sample	5431634
MW-15-30 Grab Soil Sample	5431635
MW-15-35 Grab Soil Sample	5431636
MW-15-40 Grab Soil Sample	5431637
MW-15-45 Grab Soil Sample	5431638
MW-15-50 Grab Soil Sample	5431639

ELECTRONIC    SAIC  
COPY TO  
ELECTRONIC    SAIC  
COPY TO

Attn: Tina King

Attn: Jennifer Berry

Questions? Contact your Client Services Representative  
Megan A Moeller at (717) 656-2300

Respectfully Submitted,



Marla S. Lord  
Senior Specialist



**Lancaster Laboratories Sample No. SW5431629**
**Group No. 1103561**
**MW-16-25 Grab Soil Sample**
**Facility# 207407**
**612 SE Union Ave-Camas, WA**

Collected: 07/31/2008 09:40 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

16-25

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
06135	Lead	7439-92-1	4.88	0.164	mg/kg	10
00111	Moisture	n.a.	9.5	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02005	TPH by NWTTPH-Gx soils					
01659	TPH by NWTTPH-Gx soils	n.a.	N.D.	1.	mg/kg	21.93
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.3	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	11.	mg/kg	1
07361	BTEX+5 Oxygenates+EDC+EDB					
05460	Benzene	71-43-2	N.D.	0.0004	mg/kg	0.79
05466	Toluene	108-88-3	N.D.	0.0009	mg/kg	0.79
05474	Ethylbenzene	100-41-4	N.D.	0.0009	mg/kg	0.79
06301	Xylene (Total)	1330-20-7	N.D.	0.0009	mg/kg	0.79

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06135	Lead	SW-846 6020	1	08/13/2008 12:54	James R Williams II	10
00111	Moisture	SM20 2540 G	1	08/06/2008 15:35	Scott W Freisher	1
02005	TPH by NWTTPH-Gx soils	ECY 97-602 NWTTPH-Gx modified	1	08/07/2008 10:45	Linda C Pape	21.93
02214	TPH by NWTTPH-Dx(soils) w/SiGel	ECY 97-602 NWTTPH-Dx modified	1	08/07/2008 09:43	Glorines Suarez-Rivera	1
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/08/2008 09:01	Matthew S Woods	0.79
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	1	07/31/2008 09:40	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431629**

**Group No. 1103561**

**MW-16-25 Grab Soil Sample**

**Facility# 207407**

**612 SE Union Ave-Camas, WA**

Collected: 07/31/2008 09:40 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Reported: 08/27/2008 at 15:29

Discard: 09/27/2008

Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

16-25

02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	2	07/31/2008 09:40	Client Supplied	1
06150	ICP/MS SW-846 Solid digest	SW-846 3050B	1	08/07/2008 19:25	Annamaria Stipkovits	1
06647	GC Field Preserved MeOH	SW-846 5035	1	07/31/2008 09:40	Client Supplied	n.a.
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	08/06/2008 09:15	Kerrie A Freeburn	1
07579	GC/MS-Field PreservedMeOH- NC	SW-846 5035	1	07/31/2008 09:40	Client Supplied	1



**Lancaster Laboratories Sample No. SW5431630**
**Group No. 1103561**
**MW-16-30 Grab Soil Sample**
**Facility# 207407**
**612 SE Union Ave-Camas, WA**

Collected: 07/31/2008 10:00 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

1630-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
06135	Lead	7439-92-1	3.11	0.174	mg/kg	10
00111	Moisture	n.a.	14.6	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02005	TPH by NWTTPH-Gx soils					
01659	TPH by NWTTPH-Gx soils	n.a.	N.D.	1.0	mg/kg	22.23
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	4.1	3.5	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	12.	mg/kg	1
07361	BTEX+5 Oxygenates+EDC+EDB					
05460	Benzene	71-43-2	N.D.	0.0005	mg/kg	0.87
05466	Toluene	108-88-3	N.D.	0.001	mg/kg	0.87
05474	Ethylbenzene	100-41-4	N.D.	0.001	mg/kg	0.87
06301	Xylene (Total)	1330-20-7	N.D.	0.001	mg/kg	0.87

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06135	Lead	SW-846 6020	1	08/13/2008 12:57	James R Williams II	10
00111	Moisture	SM20 2540 G	1	08/06/2008 15:35	Scott W Freisher	1
02005	TPH by NWTTPH-Gx soils	ECY 97-602 NWTTPH-Gx modified	1	08/07/2008 11:22	Linda C Pape	22.23
02214	TPH by NWTTPH-Dx(soils) w/SiGel	ECY 97-602 NWTTPH-Dx modified	1	08/07/2008 18:30	Glorines Suarez-Rivera	1
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/08/2008 09:24	Matthew S Woods	0.87
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	1	07/31/2008 10:00	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431630**

**Group No. 1103561**

**MW-16-30 Grab Soil Sample**

**Facility# 207407**

**612 SE Union Ave-Camas, WA**

Collected: 07/31/2008 10:00 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

1630-

02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	2	07/31/2008 10:00	Client Supplied	1
06150	ICP/MS SW-846 Solid digest	SW-846 3050B	1	08/07/2008 19:25	Annamaria Stipkovits	1
06647	GC Field Preserved MeOH	SW-846 5035	1	07/31/2008 10:00	Client Supplied	n.a.
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	08/06/2008 09:15	Kerrie A Freeburn	1
07579	GC/MS-Field PreservedMeOH- NC	SW-846 5035	1	07/31/2008 10:00	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431631**
**Group No. 1103561**
**MW-16-35 Grab Soil Sample**
**Facility# 207407**
**612 SE Union Ave-Camas, WA**

Collected: 07/31/2008 10:10 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

1635-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
06135	Lead	7439-92-1	4.85	0.155	mg/kg	10
00111	Moisture	n.a.	6.8	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02005	TPH by NWTTPH-Gx soils					
01659	TPH by NWTTPH-Gx soils	n.a.	N.D.	1.2	mg/kg	26.85
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.2	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	11.	mg/kg	1
07361	BTEX+5 Oxygenates+EDC+EDB					
05460	Benzene	71-43-2	N.D.	0.0005	mg/kg	0.88
05466	Toluene	108-88-3	N.D.	0.0009	mg/kg	0.88
05474	Ethylbenzene	100-41-4	N.D.	0.0009	mg/kg	0.88
06301	Xylene (Total)	1330-20-7	N.D.	0.0009	mg/kg	0.88

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06135	Lead	SW-846 6020	1	08/13/2008 13:00	James R Williams II	10
00111	Moisture	SM20 2540 G	1	08/06/2008 15:35	Scott W Freisher	1
02005	TPH by NWTTPH-Gx soils	ECY 97-602 NWTTPH-Gx modified	1	08/07/2008 12:00	Linda C Pape	26.85
02214	TPH by NWTTPH-Dx(soils) w/SiGel	ECY 97-602 NWTTPH-Dx modified	1	08/07/2008 10:21	Glorines Suarez-Rivera	1
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/06/2008 20:16	Emiley A King	0.88
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	1	07/31/2008 10:10	Client Supplied	1

Lancaster Laboratories Sample No. SW5431631

Group No. 1103561

MW-16-35 Grab Soil Sample

Facility# 207407

612 SE Union Ave-Camas, WA

Collected: 07/31/2008 10:10 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Reported: 08/27/2008 at 15:29

Discard: 09/27/2008

Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

1635-

02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	2	07/31/2008 10:10	Client Supplied	1
06150	ICP/MS SW-846 Solid digest	SW-846 3050B	1	08/07/2008 19:25	Annamaria Stipkovits	1
06647	GC Field Preserved MeOH	SW-846 5035	1	07/31/2008 10:10	Client Supplied	n.a.
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	08/06/2008 09:15	Kerrie A Freeburn	1
07579	GC/MS-Field PreservedMeOH- NC	SW-846 5035	1	07/31/2008 10:10	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431632**
**Group No. 1103561**
**MW-16-40 Grab Soil Sample**
**Facility# 207407**
**612 SE Union Ave-Camas, WA**

Collected: 07/31/2008 10:40 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

1640-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
06135	Lead	7439-92-1	3.68	0.168	mg/kg	10
00111	Moisture	n.a.	11.5	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02005	TPH by NWTTPH-Gx soils					
01659	TPH by NWTTPH-Gx soils	n.a.	N.D.	1.2	mg/kg	25.53
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.4	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	11.	mg/kg	1
07361	BTEX+5 Oxygenates+EDC+EDB					
05460	Benzene	71-43-2	N.D.	0.0005	mg/kg	0.83
05466	Toluene	108-88-3	N.D.	0.0009	mg/kg	0.83
05474	Ethylbenzene	100-41-4	N.D.	0.0009	mg/kg	0.83
06301	Xylene (Total)	1330-20-7	N.D.	0.0009	mg/kg	0.83

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06135	Lead	SW-846 6020	1	08/13/2008 13:02	James R Williams II	10
00111	Moisture	SM20 2540 G	1	08/06/2008 15:35	Scott W Freisher	1
02005	TPH by NWTTPH-Gx soils	ECY 97-602 NWTTPH-Gx modified	1	08/07/2008 12:38	Linda C Pape	25.53
02214	TPH by NWTTPH-Dx(soils) w/SiGel	ECY 97-602 NWTTPH-Dx modified	1	08/07/2008 10:41	Glorines Suarez-Rivera	1
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/06/2008 20:39	Emiley A King	0.83
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	1	07/31/2008 10:40	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431632**

**Group No. 1103561**

**MW-16-40 Grab Soil Sample**

**Facility# 207407**

**612 SE Union Ave-Camas, WA**

Collected: 07/31/2008 10:40 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

1640-

02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	2	07/31/2008 10:40	Client Supplied	1
06150	ICP/MS SW-846 Solid digest	SW-846 3050B	1	08/07/2008 19:25	Annamaria Stipkovits	1
06647	GC Field Preserved MeOH	SW-846 5035	1	07/31/2008 10:40	Client Supplied	n.a.
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	08/06/2008 09:15	Kerrie A Freeburn	1
07579	GC/MS-Field PreservedMeOH- NC	SW-846 5035	1	07/31/2008 10:40	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431633**
**Group No. 1103561**
**MW-16-45 Grab Soil Sample**
**Facility# 207407**
**612 SE Union Ave-Camas, WA**

Collected: 07/31/2008 10:45 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

1645-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
06135	Lead	7439-92-1	3.20	0.160	mg/kg	10
00111	Moisture	n.a.	7.3	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02005	TPH by NWTTPH-Gx soils					
01659	TPH by NWTTPH-Gx soils	n.a.	N.D.	1.2	mg/kg	28.37
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.2	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	11.	mg/kg	1
07361	BTEX+5 Oxygenates+EDC+EDB					
05460	Benzene	71-43-2	N.D.	0.0005	mg/kg	0.88
05466	Toluene	108-88-3	N.D.	0.0009	mg/kg	0.88
05474	Ethylbenzene	100-41-4	N.D.	0.0009	mg/kg	0.88
06301	Xylene (Total)	1330-20-7	N.D.	0.0009	mg/kg	0.88

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06135	Lead	SW-846 6020	1	08/13/2008 13:05	James R Williams II	10
00111	Moisture	SM20 2540 G	1	08/06/2008 15:35	Scott W Freisher	1
02005	TPH by NWTTPH-Gx soils	ECY 97-602 NWTTPH-Gx modified	1	08/07/2008 13:15	Linda C Pape	28.37
02214	TPH by NWTTPH-Dx(soils) w/SiGel	ECY 97-602 NWTTPH-Dx modified	1	08/07/2008 11:40	Glorines Suarez-Rivera	1
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/06/2008 21:01	Emiley A King	0.88
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	1	07/31/2008 10:45	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431633**

**Group No. 1103561**

**MW-16-45 Grab Soil Sample**

**Facility# 207407**

**612 SE Union Ave-Camas, WA**

Collected: 07/31/2008 10:45 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Reported: 08/27/2008 at 15:29

Discard: 09/27/2008

Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

1645-

02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	2	07/31/2008 10:45	Client Supplied	1
06150	ICP/MS SW-846 Solid digest	SW-846 3050B	1	08/07/2008 19:25	Annamaria Stipkovits	1
06647	GC Field Preserved MeOH	SW-846 5035	1	07/31/2008 10:45	Client Supplied	n.a.
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	08/06/2008 09:15	Kerrie A Freeburn	1
07579	GC/MS-Field PreservedMeOH- NC	SW-846 5035	1	07/31/2008 10:45	Client Supplied	1



**Lancaster Laboratories Sample No. SW5431634**
**Group No. 1103561**
**MW-16-50 Grab Soil Sample**
**Facility# 207407**
**612 SE Union Ave-Camas, WA**

Collected: 07/31/2008 11:20 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Reported: 08/27/2008 at 15:29

Discard: 09/27/2008

Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

1650-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
06135	Lead	7439-92-1	3.52	0.167	mg/kg	10
00111	Moisture	n.a.	12.2	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02005	TPH by NWTTPH-Gx soils					
01659	TPH by NWTTPH-Gx soils	n.a.	N.D.	0.9	mg/kg	20.76
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.4	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	11.	mg/kg	1
07361	BTEX+5 Oxygenates+EDC+EDB					
05460	Benzene	71-43-2	N.D.	0.0006	mg/kg	1.05
05466	Toluene	108-88-3	N.D.	0.001	mg/kg	1.05
05474	Ethylbenzene	100-41-4	N.D.	0.001	mg/kg	1.05
06301	Xylene (Total)	1330-20-7	N.D.	0.001	mg/kg	1.05

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06135	Lead	SW-846 6020	1	08/13/2008 13:08	James R Williams II	10
00111	Moisture	SM20 2540 G	1	08/06/2008 15:35	Scott W Freisher	1
02005	TPH by NWTTPH-Gx soils	ECY 97-602 NWTTPH-Gx modified	1	08/07/2008 13:53	Linda C Pape	20.76
02214	TPH by NWTTPH-Dx(soils) w/SiGel	ECY 97-602 NWTTPH-Dx modified	1	08/07/2008 12:00	Glorines Suarez-Rivera	1
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/07/2008 07:49	Matthew S Woods	1.05
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	1	07/31/2008 11:20	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431634**

**Group No. 1103561**

**MW-16-50 Grab Soil Sample**

**Facility# 207407**

**612 SE Union Ave-Camas, WA**

Collected: 07/31/2008 11:20 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

1650-

02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	2	07/31/2008 11:20	Client Supplied	1
06150	ICP/MS SW-846 Solid digest	SW-846 3050B	1	08/07/2008 19:25	Annamaria Stipkovits	1
06647	GC Field Preserved MeOH	SW-846 5035	1	07/31/2008 11:20	Client Supplied	n.a.
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	08/06/2008 09:15	Kerrie A Freeburn	1
07579	GC/MS-Field PreservedMeOH- NC	SW-846 5035	1	07/31/2008 11:20	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431635**
**Group No. 1103561**
**MW-15-30 Grab Soil Sample**
**Facility# 207407**
**612 SE Union Ave-Camas, WA**

Collected: 07/30/2008 12:50 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Reported: 08/27/2008 at 15:29

Discard: 09/27/2008

Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

1530-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
06135	Lead	7439-92-1	3.94	0.164	mg/kg	10
00111	Moisture	n.a.	10.5	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02005	TPH by NWTTPH-Gx soils					
01659	TPH by NWTTPH-Gx soils	n.a.	N.D.	1.	mg/kg	21.28
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.4	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	11.	mg/kg	1
07361	BTEX+5 Oxygenates+EDC+EDB					
05460	Benzene	71-43-2	N.D.	0.0006	mg/kg	0.99
05466	Toluene	108-88-3	N.D.	0.001	mg/kg	0.99
05474	Ethylbenzene	100-41-4	N.D.	0.001	mg/kg	0.99
06301	Xylene (Total)	1330-20-7	N.D.	0.001	mg/kg	0.99

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06135	Lead	SW-846 6020	1	08/13/2008 13:17	James R Williams II	10
00111	Moisture	SM20 2540 G	1	08/06/2008 15:35	Scott W Freisher	1
02005	TPH by NWTTPH-Gx soils	ECY 97-602 NWTTPH-Gx modified	1	08/07/2008 14:30	Linda C Pape	21.28
02214	TPH by NWTTPH-Dx(soils) w/SiGel	ECY 97-602 NWTTPH-Dx modified	1	08/08/2008 00:21	Glorines Suarez-Rivera	1
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/07/2008 07:27	Matthew S Woods	0.99
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	1	07/30/2008 12:50	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431635**

**Group No. 1103561**

**MW-15-30 Grab Soil Sample**

**Facility# 207407**

**612 SE Union Ave-Camas, WA**

Collected: 07/30/2008 12:50 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Reported: 08/27/2008 at 15:29

Discard: 09/27/2008

Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

1530-

02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	2	07/30/2008 12:50	Client Supplied	1
06150	ICP/MS SW-846 Solid digest	SW-846 3050B	1	08/07/2008 19:25	Annamaria Stipkovits	1
06647	GC Field Preserved MeOH	SW-846 5035	1	07/30/2008 12:50	Client Supplied	n.a.
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	08/06/2008 09:15	Kerrie A Freeburn	1
07579	GC/MS-Field PreservedMeOH- NC	SW-846 5035	1	07/30/2008 12:50	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431636**
**Group No. 1103561**
**MW-15-35 Grab Soil Sample**
**Facility# 207407**
**612 SE Union Ave-Camas, WA**

Collected: 07/30/2008 13:10 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

1535-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
06135	Lead	7439-92-1	4.44	0.157	mg/kg	10
00111	Moisture	n.a.	7.2	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02005	TPH by NWTTPH-Gx soils					
01659	TPH by NWTTPH-Gx soils	n.a.	N.D.	0.9	mg/kg	21.54
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.2	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	11.	mg/kg	1
07361	BTEX+5 Oxygenates+EDC+EDB					
05460	Benzene	71-43-2	N.D.	0.0004	mg/kg	0.76
05466	Toluene	108-88-3	N.D.	0.0008	mg/kg	0.76
05474	Ethylbenzene	100-41-4	N.D.	0.0008	mg/kg	0.76
06301	Xylene (Total)	1330-20-7	N.D.	0.0008	mg/kg	0.76

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06135	Lead	SW-846 6020	1	08/13/2008 13:19	James R Williams II	10
00111	Moisture	SM20 2540 G	1	08/06/2008 15:35	Scott W Freisher	1
02005	TPH by NWTTPH-Gx soils	ECY 97-602 NWTTPH-Gx modified	1	08/07/2008 15:08	Linda C Pape	21.54
02214	TPH by NWTTPH-Dx(soils) w/SiGel	ECY 97-602 NWTTPH-Dx modified	1	08/08/2008 00:41	Glorines Suarez-Rivera	1
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/07/2008 08:12	Matthew S Woods	0.76
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	1	07/30/2008 13:10	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431636**

**Group No. 1103561**

**MW-15-35 Grab Soil Sample**

**Facility# 207407**

**612 SE Union Ave-Camas, WA**

Collected: 07/30/2008 13:10 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Reported: 08/27/2008 at 15:29

Discard: 09/27/2008

Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

1535-

02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	2	07/30/2008 13:10	Client Supplied	1
06150	ICP/MS SW-846 Solid digest	SW-846 3050B	1	08/07/2008 19:25	Annamaria Stipkovits	1
06647	GC Field Preserved MeOH	SW-846 5035	1	07/30/2008 13:10	Client Supplied	n.a.
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	08/06/2008 09:15	Kerrie A Freeburn	1
07579	GC/MS-Field PreservedMeOH- NC	SW-846 5035	1	07/30/2008 13:10	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431637**
**Group No. 1103561**
**MW-15-40 Grab Soil Sample**
**Facility# 207407**
**612 SE Union Ave-Camas, WA**

Collected: 07/30/2008 13:20 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

1540-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
06135	Lead	7439-92-1	3.96	0.169	mg/kg	10
00111	Moisture	n.a.	11.9	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02005	TPH by NWTTPH-Gx soils					
01659	TPH by NWTTPH-Gx soils	n.a.	N.D.	1.2	mg/kg	26.38
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.4	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	11.	mg/kg	1
07361	BTEX+5 Oxygenates+EDC+EDB					
05460	Benzene	71-43-2	N.D.	0.0005	mg/kg	0.8
05466	Toluene	108-88-3	N.D.	0.0009	mg/kg	0.8
05474	Ethylbenzene	100-41-4	N.D.	0.0009	mg/kg	0.8
06301	Xylene (Total)	1330-20-7	N.D.	0.0009	mg/kg	0.8

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06135	Lead	SW-846 6020	1	08/13/2008 13:22	James R Williams II	10
00111	Moisture	SM20 2540 G	1	08/06/2008 15:35	Scott W Freisher	1
02005	TPH by NWTTPH-Gx soils	ECY 97-602 NWTTPH-Gx modified	1	08/07/2008 15:45	Linda C Pape	26.38
02214	TPH by NWTTPH-Dx(soils) w/SiGel	ECY 97-602 NWTTPH-Dx modified	1	08/08/2008 01:00	Glorines Suarez-Rivera	1
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/07/2008 08:35	Matthew S Woods	0.8
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	1	07/30/2008 13:20	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431637**

**Group No. 1103561**

**MW-15-40 Grab Soil Sample**

**Facility# 207407**

**612 SE Union Ave-Camas, WA**

Collected: 07/30/2008 13:20 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Reported: 08/27/2008 at 15:29

Discard: 09/27/2008

Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

1540-

02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	2	07/30/2008 13:20	Client Supplied	1
06150	ICP/MS SW-846 Solid digest	SW-846 3050B	1	08/07/2008 19:25	Annamaria Stipkovits	1
06647	GC Field Preserved MeOH	SW-846 5035	1	07/30/2008 13:20	Client Supplied	n.a.
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	08/06/2008 09:15	Kerrie A Freeburn	1
07579	GC/MS-Field PreservedMeOH- NC	SW-846 5035	1	07/30/2008 13:20	Client Supplied	1



**Lancaster Laboratories Sample No. SW5431638**
**Group No. 1103561**
**MW-15-45 Grab Soil Sample**
**Facility# 207407**
**612 SE Union Ave-Camas, WA**

Collected: 07/30/2008 13:30 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

1545-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
06135	Lead	7439-92-1	3.03	0.165	mg/kg	10
00111	Moisture	n.a.	10.2	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02005	TPH by NWTTPH-Gx soils					
01659	TPH by NWTTPH-Gx soils	n.a.	N.D.	1.1	mg/kg	24.07
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.3	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	11.	mg/kg	1
07361	BTEX+5 Oxygenates+EDC+EDB					
05460	Benzene	71-43-2	N.D.	0.0005	mg/kg	0.97
05466	Toluene	108-88-3	N.D.	0.001	mg/kg	0.97
05474	Ethylbenzene	100-41-4	N.D.	0.001	mg/kg	0.97
06301	Xylene (Total)	1330-20-7	N.D.	0.001	mg/kg	0.97

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06135	Lead	SW-846 6020	1	08/13/2008 16:23	James R Williams II	10
00111	Moisture	SM20 2540 G	1	08/06/2008 15:35	Scott W Freisher	1
02005	TPH by NWTTPH-Gx soils	ECY 97-602 NWTTPH-Gx modified	1	08/07/2008 16:23	Linda C Pape	24.07
02214	TPH by NWTTPH-Dx(soils) w/SiGel	ECY 97-602 NWTTPH-Dx modified	1	08/08/2008 01:19	Glorines Suarez-Rivera	1
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/07/2008 08:57	Matthew S Woods	0.97
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	1	07/30/2008 13:30	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431638**

**Group No. 1103561**

**MW-15-45 Grab Soil Sample**

**Facility# 207407**

**612 SE Union Ave-Camas, WA**

Collected: 07/30/2008 13:30 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

1545-

02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	2	07/30/2008 13:30	Client Supplied	1
06150	ICP/MS SW-846 Solid digest	SW-846 3050B	1	08/07/2008 19:25	Annamaria Stipkovits	1
06647	GC Field Preserved MeOH	SW-846 5035	1	07/30/2008 13:30	Client Supplied	n.a.
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	08/06/2008 09:15	Kerrie A Freeburn	1
07579	GC/MS-Field PreservedMeOH- NC	SW-846 5035	1	07/30/2008 13:30	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431639**
**Group No. 1103561**
**MW-15-50 Grab Soil Sample**
**Facility# 207407**
**612 SE Union Ave-Camas, WA**

Collected: 07/30/2008 13:45 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Chevron

Reported: 08/27/2008 at 15:29

6001 Bollinger Canyon Rd L4310

Discard: 09/27/2008

San Ramon CA 94583

1550-

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
06135	Lead	7439-92-1	3.34	0.172	mg/kg	10
00111	Moisture	n.a.	15.4	0.50	%	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.						
02005	TPH by NWTTPH-Gx soils					
01659	TPH by NWTTPH-Gx soils	n.a.	N.D.	1.4	mg/kg	29.35
02214	TPH by NWTTPH-Dx(soils) w/SiGel					
02097	Diesel Range Organics	n.a.	N.D.	3.5	mg/kg	1
02098	Heavy Range Organics	n.a.	N.D.	12.	mg/kg	1
07361	BTEX+5 Oxygenates+EDC+EDB					
05460	Benzene	71-43-2	N.D.	0.0005	mg/kg	0.92
05466	Toluene	108-88-3	N.D.	0.001	mg/kg	0.92
05474	Ethylbenzene	100-41-4	N.D.	0.001	mg/kg	0.92
06301	Xylene (Total)	1330-20-7	N.D.	0.001	mg/kg	0.92

State of Washington Lab Certification No. C259

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06135	Lead	SW-846 6020	1	08/13/2008 13:28	James R Williams II	10
00111	Moisture	SM20 2540 G	1	08/06/2008 15:35	Scott W Freisher	1
02005	TPH by NWTTPH-Gx soils	ECY 97-602 NWTTPH-Gx modified	1	08/07/2008 17:01	Linda C Pape	29.35
02214	TPH by NWTTPH-Dx(soils) w/SiGel	ECY 97-602 NWTTPH-Dx modified	1	08/08/2008 02:18	Glorines Suarez-Rivera	1
07361	BTEX+5 Oxygenates+EDC+EDB	SW-846 8260B	1	08/07/2008 09:20	Matthew S Woods	0.92
02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	1	07/30/2008 13:45	Client Supplied	1

**Lancaster Laboratories Sample No. SW5431639**

**Group No. 1103561**

**MW-15-50 Grab Soil Sample**

**Facility# 207407**

**612 SE Union Ave-Camas, WA**

Collected: 07/30/2008 13:45 by JB

Account Number: 11255

Submitted: 08/02/2008 10:00

Reported: 08/27/2008 at 15:29

Discard: 09/27/2008

Chevron

6001 Bollinger Canyon Rd L4310

San Ramon CA 94583

1550-

02392	GC/MS - Field Preserved NaHSO4	SW-846 5035	2	07/30/2008 13:45	Client Supplied	1
06150	ICP/MS SW-846 Solid digest	SW-846 3050B	1	08/07/2008 19:25	Annamaria Stipkovits	1
06647	GC Field Preserved MeOH	SW-846 5035	1	07/30/2008 13:45	Client Supplied	n.a.
07024	DRO Alternate Soil Extraction	ECY 97-602 NWTPH-Dx 06/97	1	08/06/2008 09:15	Kerrie A Freeburn	1
07579	GC/MS-Field PreservedMeOH- NC	SW-846 5035	1	07/30/2008 13:45	Client Supplied	1

## Quality Control Summary

 Client Name: Chevron  
 Reported: 08/27/08 at 03:29 PM

Group Number: 1103561

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

### Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 082180023A	Sample number(s): 5431635-5431639							
Diesel Range Organics	N.D.	3.0	mg/kg	82		60-120		
Heavy Range Organics	N.D.	10.	mg/kg					
Batch number: 082180024A	Sample number(s): 5431629-5431634							
Diesel Range Organics	N.D.	3.0	mg/kg	89	89	60-120	0	20
Heavy Range Organics	N.D.	10.	mg/kg					
Batch number: 08218A16B	Sample number(s): 5431629-5431639							
TPH by NWTPH-Gx soils	N.D.	1.0	mg/kg	84	96	67-119	13	30
Batch number: 08219820003A	Sample number(s): 5431629-5431639							
Moisture				100		99-101		
Batch number: 082206150001A	Sample number(s): 5431629-5431639							
Lead	N.D.	0.0150	mg/kg	99		82-118		
Batch number: X082191AA	Sample number(s): 5431631-5431633							
Benzene	N.D.	0.0005	mg/kg	103	97	84-115	6	30
Toluene	N.D.	0.001	mg/kg	103	98	81-116	5	30
Ethylbenzene	N.D.	0.001	mg/kg	101	96	82-115	5	30
Xylene (Total)	N.D.	0.001	mg/kg	95	91	82-117	4	30
Batch number: X082201AA	Sample number(s): 5431634-5431639							
Benzene	N.D.	0.0005	mg/kg	107	101	84-115	6	30
Toluene	N.D.	0.001	mg/kg	107	101	81-116	6	30
Ethylbenzene	N.D.	0.001	mg/kg	106	99	82-115	7	30
Xylene (Total)	N.D.	0.001	mg/kg	101	93	82-117	8	30
Batch number: X082211AA	Sample number(s): 5431629-5431630							
Benzene	N.D.	0.0005	mg/kg	101		84-115		
Toluene	N.D.	0.001	mg/kg	99		81-116		
Ethylbenzene	N.D.	0.001	mg/kg	96		82-115		
Xylene (Total)	N.D.	0.001	mg/kg	90		82-117		

### Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike  
 Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 082180023A	Sample number(s): 5431635-5431639 BKG: P431517								
Diesel Range Organics						N.D.	N.D.	0 (1)	20
Heavy Range Organics						N.D.	N.D.	0 (1)	20

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

 Client Name: Chevron  
 Reported: 08/27/08 at 03:29 PM

Group Number: 1103561

### Sample Matrix Quality Control

 Unspiked (UNSPK) = the sample used in conjunction with the matrix spike  
 Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u>	<u>RPD</u> <u>MAX</u>	<u>BKG</u> <u>Conc</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup RPD</u> <u>Max</u>
Batch number: 08219820003A Moisture	Sample number(s): 5431629-5431639				BKG: P428965	35.7	35.2	1	15
Batch number: 082206150001A Lead	Sample number(s): 5431629-5431639				UNSPK: P431517	BKG: P431517	4.78	22* (1)	20
Batch number: X082191AA Benzene	Sample number(s): 5431631-5431633				UNSPK: P425109				
Toluene	120*		66-112						
Ethylbenzene	118*		58-116						
Xylene (Total)	115		54-116						
Batch number: X082201AA Benzene	Sample number(s): 5431634-5431639				UNSPK: P426828				
Toluene	110		66-112						
Ethylbenzene	117*		58-116						
Xylene (Total)	111		54-116						
Batch number: X082211AA Benzene	Sample number(s): 5431629-5431630				UNSPK: P428946				
Toluene	107	106	66-112	6	30				
Ethylbenzene	107	106	58-116	6	30				
Xylene (Total)	104	103	54-116	6	30				
	97	95	52-117	7	30				

### Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

 Analysis Name: TPH by NWTPH-Dx(soils) w/SiGel  
 Batch number: 082180023A  
 Orthoterphenyl

---

5431635	97
5431636	97
5431637	97
5431638	92
5431639	98
Blank	98
DUP	83
LCS	100

---

Limits: 50-150

 Analysis Name: TPH by NWTPH-Dx(soils) w/SiGel  
 Batch number: 082180024A  
 Orthoterphenyl

---

5431629	93
---------	----

---

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

 Client Name: Chevron  
 Reported: 08/27/08 at 03:29 PM

Group Number: 1103561

### Surrogate Quality Control

5431630	98
5431631	99
5431632	94
5431633	98
5431634	90
Blank	101
LCS	107
LCSD	103

---

 Limits: 50-150

 Analysis Name: TPH by NWTPH-Gx soils  
 Batch number: 08218A16B  
 Trifluorotoluene-F

5431629	78
5431630	73
5431631	79
5431632	76
5431633	77
5431634	74
5431635	77
5431636	70
5431637	75
5431638	73
5431639	75
Blank	93
LCS	93
LCSD	92

---

 Limits: 61-122

 Analysis Name: BTEX+5 Oxygenates+EDC+EDB  
 Batch number: X082191AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5431631	87	85	85	82
5431632	85	82	87	81
5431633	86	81	85	81
Blank	85	83	86	81
LCS	85	81	89	82
LCSD	85	82	89	83
MS	87	82	89	84

---

 Limits: 71-114                      70-109                      70-123                      70-111

 Analysis Name: BTEX+5 Oxygenates+EDC+EDB  
 Batch number: X082201AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5431634	84	80	86	80
5431635	84	84	85	82
5431636	86	84	85	82
5431637	85	81	86	80
5431638	84	83	84	80
5431639	84	79	86	80
Blank	85	82	86	81
LCS	85	79	90	84

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

Client Name: Chevron

Group Number: 1103561

Reported: 08/27/08 at 03:29 PM

### Surrogate Quality Control

LCSD	84	80	89	83
MS	83	87	90	84
Limits:	71-114	70-109	70-123	70-111

Analysis Name: BTEX+5 Oxygenates+EDC+EDB

Batch number: X082211AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5431629	85	83	85	79
5431630	85	84	85	81
Blank	86	84	85	81
LCS	85	78	91	81
MS	84	81	90	85
MSD	84	82	89	83
Limits:	71-114	70-109	70-123	70-111

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.





## Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

<b>N.D.</b>	none detected	<b>BMQL</b>	Below Minimum Quantitation Level
<b>TNTC</b>	Too Numerous To Count	<b>MPN</b>	Most Probable Number
<b>IU</b>	International Units	<b>CP Units</b>	cobalt-chloroplatinate units
<b>umhos/cm</b>	micromhos/cm	<b>NTU</b>	nephelometric turbidity units
<b>C</b>	degrees Celsius	<b>F</b>	degrees Fahrenheit
<b>Cal</b>	(diet) calories	<b>lb.</b>	pound(s)
<b>meq</b>	milliequivalents	<b>kg</b>	kilogram(s)
<b>g</b>	gram(s)	<b>mg</b>	milligram(s)
<b>ug</b>	microgram(s)	<b>l</b>	liter(s)
<b>ml</b>	milliliter(s)	<b>ul</b>	microliter(s)
<b>m3</b>	cubic meter(s)	<b>fib &gt;5 um/ml</b>	fibers greater than 5 microns in length per ml
<b>&lt;</b>	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
<b>&gt;</b>	greater than		
<b>ppm</b>	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

### Organic Qualifiers

<b>A</b>	TIC is a possible aldol-condensation product
<b>B</b>	Analyte was also detected in the blank
<b>C</b>	Pesticide result confirmed by GC/MS
<b>D</b>	Compound quantitated on a diluted sample
<b>E</b>	Concentration exceeds the calibration range of the instrument
<b>J</b>	Estimated value
<b>N</b>	Presumptive evidence of a compound (TICs only)
<b>P</b>	Concentration difference between primary and confirmation columns >25%
<b>U</b>	Compound was not detected
<b>X,Y,Z</b>	Defined in case narrative

### Inorganic Qualifiers

<b>B</b>	Value is <CRDL, but ≥IDL
<b>E</b>	Estimated due to interference
<b>M</b>	Duplicate injection precision not met
<b>N</b>	Spike amount not within control limits
<b>S</b>	Method of standard additions (MSA) used for calculation
<b>U</b>	Compound was not detected
<b>W</b>	Post digestion spike out of control limits
<b>*</b>	Duplicate analysis not within control limits
<b>+</b>	Correlation coefficient for MSA <0.995

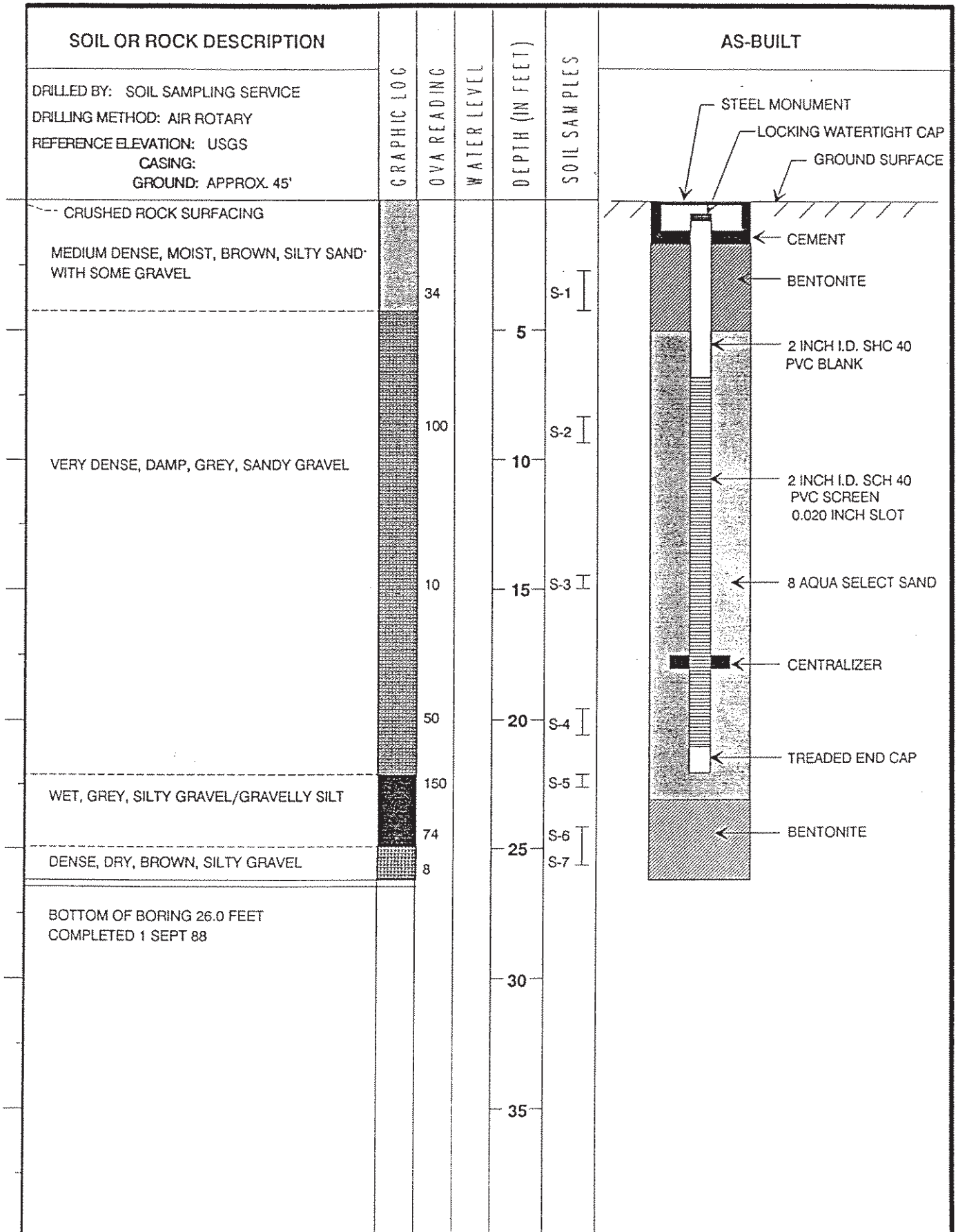
Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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**APPENDIX B**

**BORING/MONITORING WELL LOGS**









SOIL OR ROCK DESCRIPTION

DRILLED BY: SOIL SAMPLING SERVICE  
 DRILLING METHOD: AIR ROTARY  
 REFERENCE ELEVATION: USGS  
 CASING:  
 GROUND: APPROX. 45'

GRAPHIC LOG

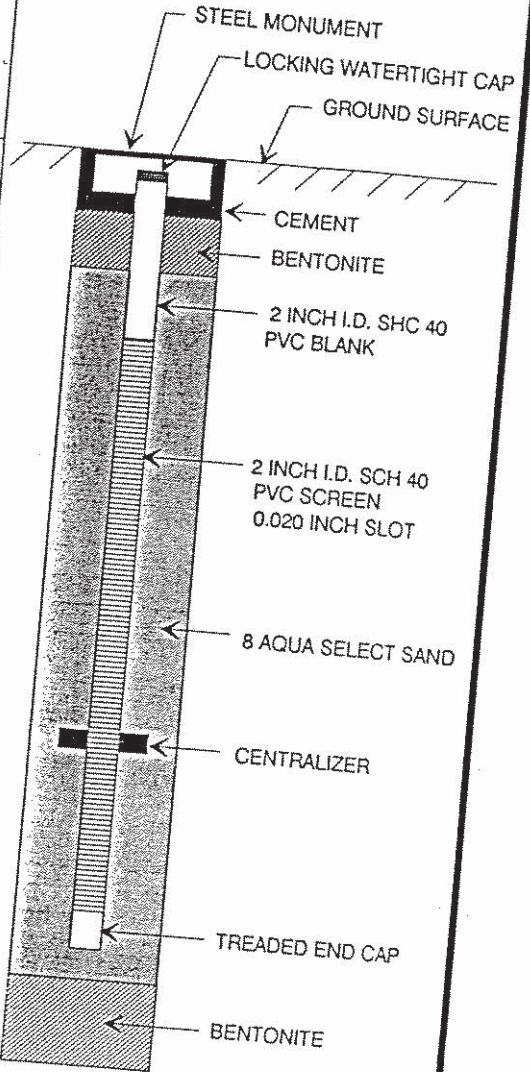
OVA READING

WATER LEVEL

DEPTH (IN FEET)

SOIL SAMPLES

AS-BUILT



CRUSHED ROCK SURFACING

VERY DENSE, WET BROWN, GRAVELLY, SILT

VERY DENSE, DAMP, GREY, SANDY GRAVEL

WET, GREY, SILTY GRAVEL/GRAVELLY SILT

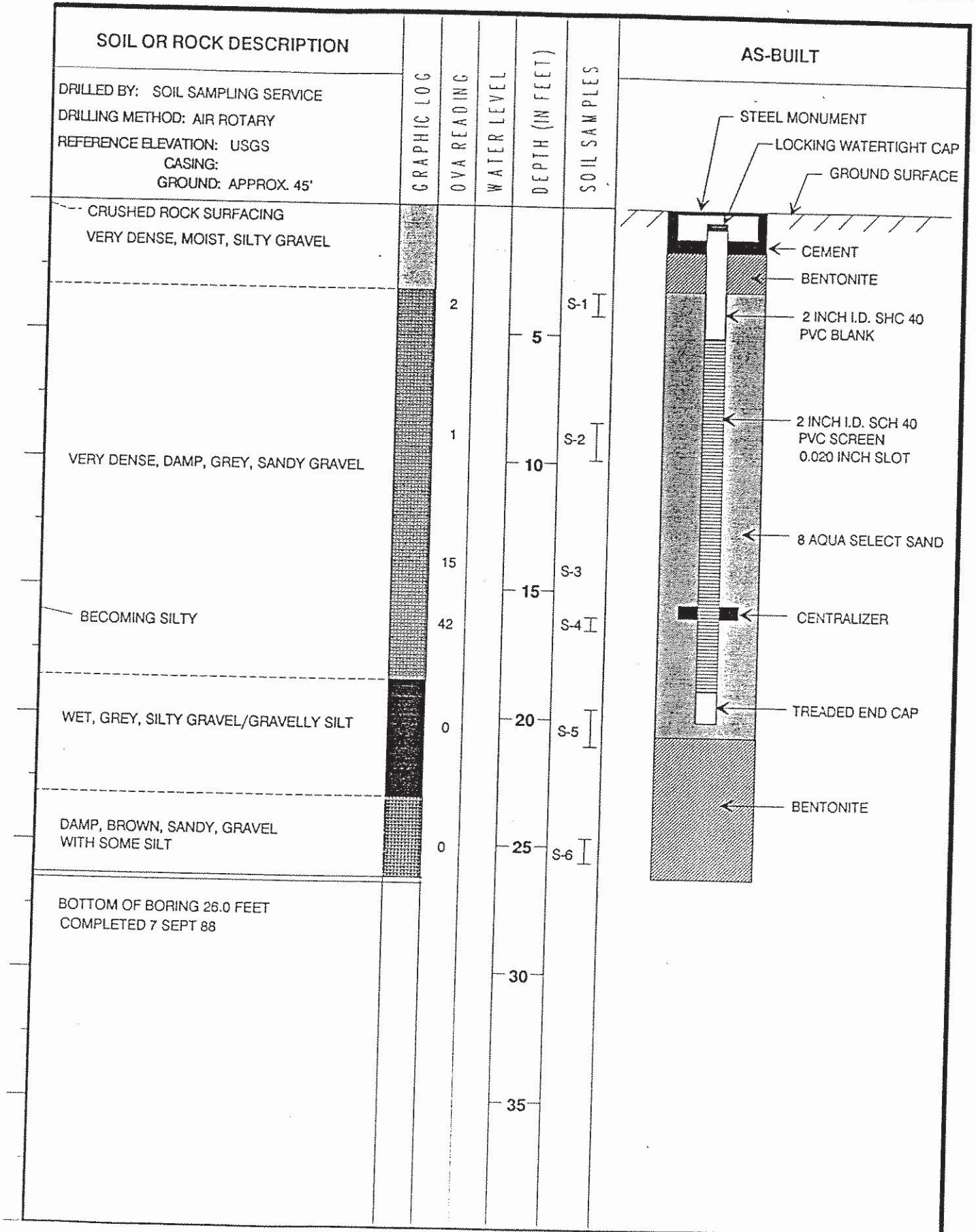
GRAVELLY SAND INTERBED

BOTTOM OF BORING 24.5 FEET  
 COMPLETED 6 SEPT 88

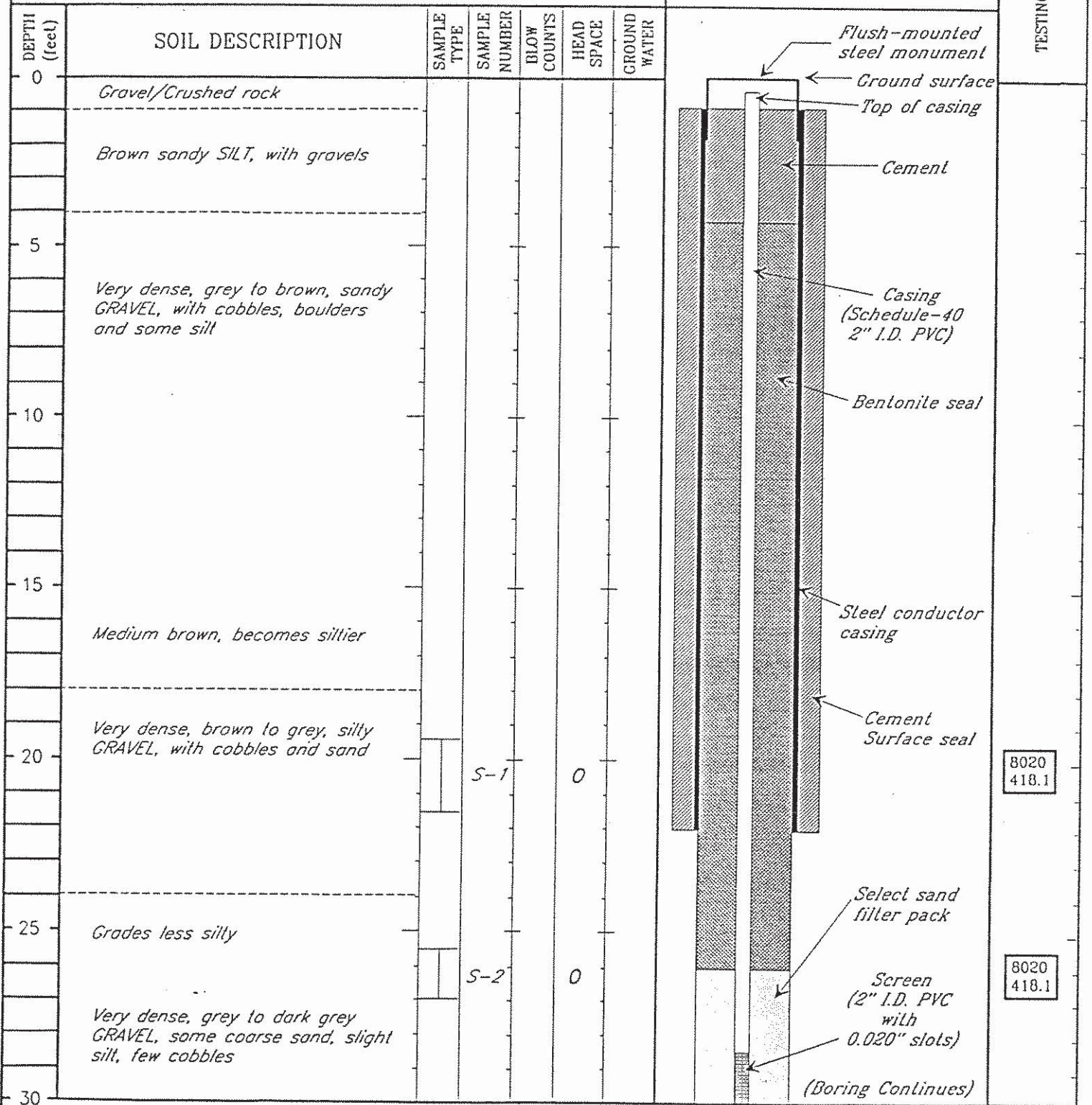
0  
5  
10  
15  
20  
25  
30  
35

S-1  
S-2  
S-3  
S-4  
S-5





Elevation reference: *Ground surface* Well completed: *6 February 1990*  
Ground surface elevation: *40.21 feet* Casing elevation: *39.96 feet*



LEGEND

I 2-inch O.D. split-spoon sample

8020 418.1 Chemical analysis (analyses performed)



RITTENHOUSE-ZEMAN & ASSOCIATES, INC.  
Geotechnical & Environmental Consultants  
1400 140th Ave NE  
Bellevue, Washington 98005

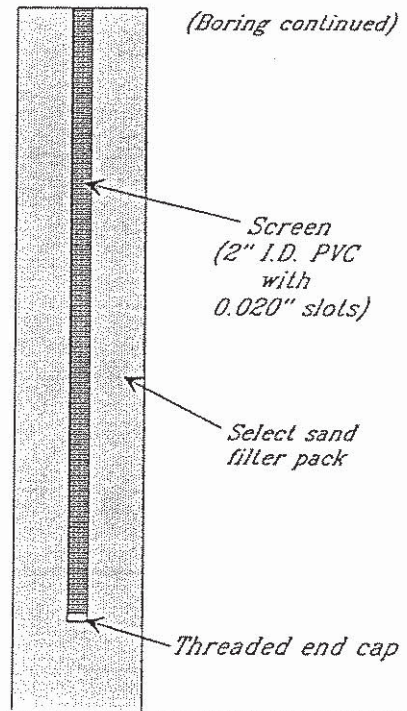


Elevation reference: *Ground surface* Well completed: *6 February 1990*  
Ground surface elevation: *40.21 feet* Casing elevation: *39.96 feet*

AS-BUILT DESIGN

TESTING

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	HEAD SPACE	GROUND WATER
30	<i>Very dense, grey to dark grey GRAVEL, some coarse sand, slight silt, few cobbles</i>					
35	<i>Grades sillier</i>					
40	<i>Very dense, wet, grey to brown silty GRAVEL, with some coarse sand</i>		<i>S-3</i>		<i>0</i>	
45	<i>Boring terminated at approximately 45 feet below ground surface</i>					
50						
55						
60						



8020  
418.1

LEGEND

I 2-inch O.D. split-spoon sample

8020 418.1 Chemical analysis (analyses performed)

▽ ATD Observed groundwater level (ATD = at time of drilling)



RITTENHOUSE-ZEMAN & ASSOCIATES, INC.  
Geotechnical & Environmental Consultants  
1400 140th Ave NE  
Bellevue, Washington 98005

Elevation reference: *Ground surface* Well completed: *9 February 1990*  
Ground surface elevation: *39.98 feet* Casing elevation: *39.71 feet*

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	HEAD SPACE	GROUND WATER	AS-BUILT DESIGN		TESTING
0	<i>Crushed rock</i>						Flush-mounted steel monument		
	<i>Brown sandy SILT, with gravels</i>						Ground surface		
	<i>Very dense, grey to brown, sandy GRAVEL, with cobbles, boulders and some silt</i>						Top of casing		
5	<i>Becomes less silty</i>						Cement		
							Casing (Schedule-40 2" I.D. PVC)		
10							Bentonite seal		
15	<i>Becomes sillier</i>						Steel conductor casing		
	<i>Very dense, grey to brown, silty GRAVEL, with sand and cobbles</i>						Cement Surface seal		
20			S-1		0				8020 418.1
25	<i>Very dense, grey to brown sandy coarse GRAVEL, with some silt, sand and cobbles</i>								
	<i>Increasing cobbles</i>		S-2		0				8020 418.1
30	<i>Dense, grey to brown, sandy GRAVEL, some silt (few to no cobbles)</i>						Select sand filler pack		
							(Boring Continues)		

LEGEND

I 2-inch O.D. split-spoon sample

8020 418.1 Chemical analysis (analyses performed)




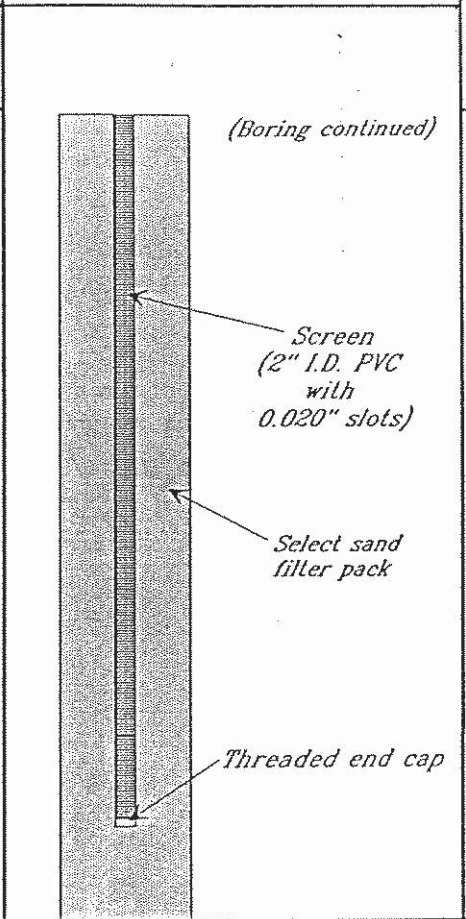
RITTENHOUSE-ZEMAN & ASSOCIATES, INC.  
Geotechnical & Environmental Consultants  
1400 140th Ave NE  
Bellevue, Washington 98005



Elevation reference: *Ground surface* Well completed: *9 February 1990*  
Ground surface elevation: *39.98 feet* Casing elevation: *39.71 feet*

AS-BUILT DESIGN


DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	HEAD SPACE	GROUND WATER
30	<i>Dense, grey to brown, sandy GRAVEL, some silt (few to no cobbles)</i>  <i>Becomes very dense</i>					
35	<i>Grades sandier</i>		<i>S-3</i>		<i>0</i>	
40	<i>Medium dense, grey to brown, gravelly SAND, some silt</i>					
45	<i>Very dense, grey to brown, sandy GRAVEL, some silt</i> <i>Medium dense, grey to brown, gravelly SAND, some silt</i> <i>Very dense, grey to brown, sandy GRAVEL, some silt</i>					
50	<i>Boring terminated at approximately 47 feet below ground surface</i>					
55						
60						





TESTING

8020  
418.1

LEGEND

 2-inch O.D. split-spoon sample

 8020 418.1 Chemical analysis (analyses performed)

 Observed groundwater level (ATD = at time of drilling)

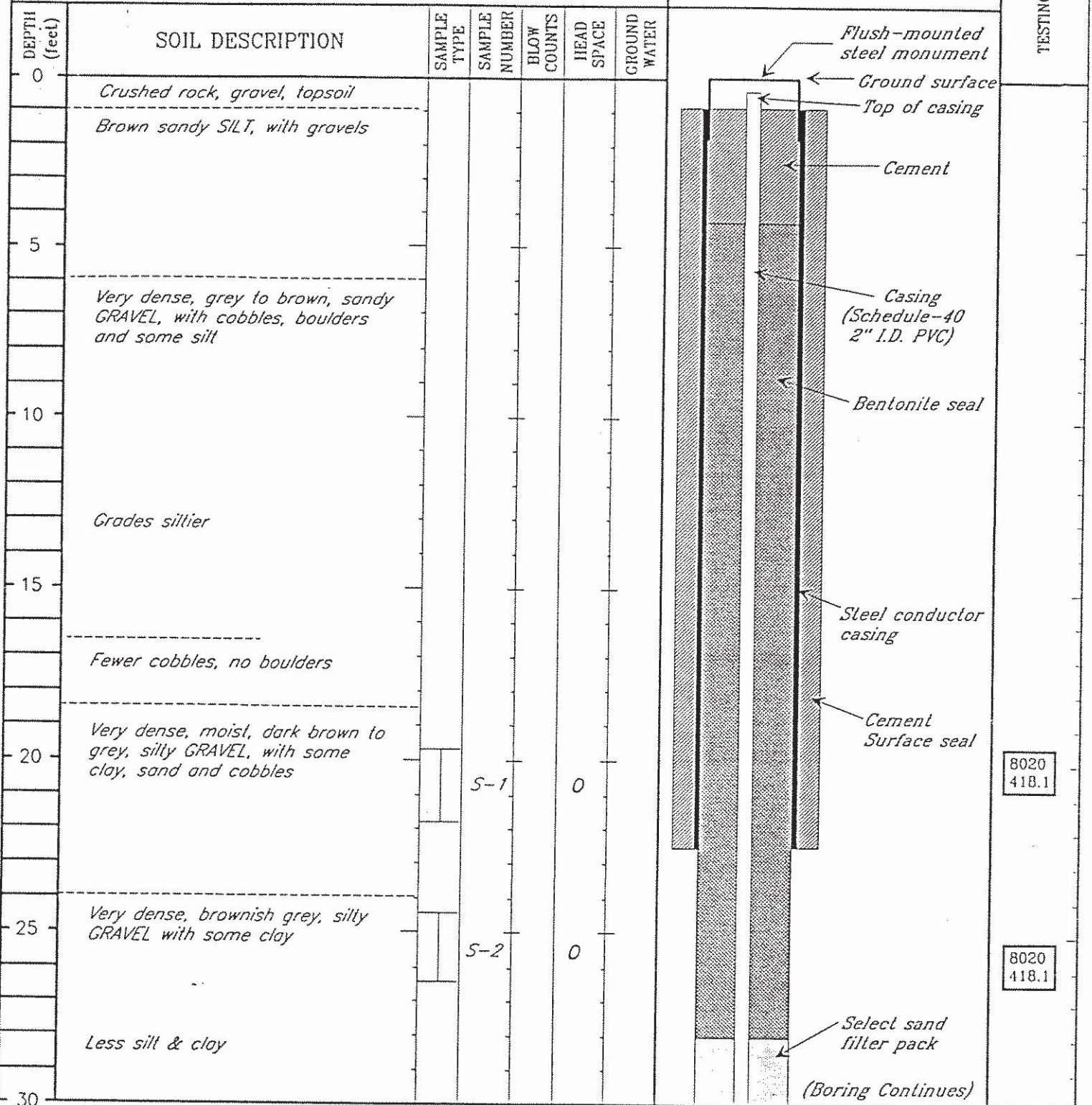


**RITENHOUSE-ZEMAN & ASSOCIATES, INC.**  
Geotechnical & Environmental Consultants  
1400 140th Ave NE  
Bellevue, Washington 98005

Elevation reference: *Arbitrary Datum* Well completed: *21 February 1990*  
Ground surface elevation: *40.99 feet* Casing elevation: *40.73 feet*

AS-BUILT DESIGN

TESTING



8020  
418.1

8020  
418.1

LEGEND

I 2-inch O.D. split-spoon sample

8020 418.1 Chemical analysis (analyses performed)



RITTENHOUSE-ZEMAN & ASSOCIATES, INC.  
Geotechnical & Environmental Consultants  
1400 140th Ave NE  
Bellevue, Washington 98005



Elevation reference: <i>Ground surface</i> Well completed: <i>21 February 1990</i> Ground surface elevation: <i>40.99 feet</i> Casing elevation: <i>40.73 feet</i>							AS-BUILT DESIGN		TESTING	
DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	HEAD SPACE	GROUND WATER	AS-BUILT DESIGN			
30	<i>Very dense, brownish grey, slightly silty GRAVEL, with some coarse sand and cobbles</i>								<div style="border: 1px solid black; padding: 2px; display: inline-block;">8020 418.1</div>	
35		S-3		0	▽ ATD					
40	<i>Few to no cobbles. "pea gravel"</i>									
45										
50	<i>Boring terminated at approximately 47 feet below ground surface</i>									
55										
60										

**LEGEND**

2-inch O.D. split-spoon sample

8020  
418.1

 Chemical analysis (analyses performed)

Observed groundwater level (ATD = at time of drilling)



**RITTENHOUSE-ZEMAN & ASSOCIATES, INC.**  
*Geotechnical & Environmental Consultants*  
1400 140th Ave NE  
Bellevue, Washington 98005



**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-8**

PAGE 1 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 8/20/04  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 49.7'

WELL DIAMETER: 2"  
 WELL DEPTH: 49.5'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
						1	Asphalt		
						2	Fill	Reddish brown silty Gravel	
						3			
						4		(air knife refusal - boulders)	
						5			
						6			
	dry	0.2				7	GM	GRAVEL: Brown silty Gravel, coarse gravel 80%, 30% cobbles, 10% silt, hard, no odor.	
						8			
						9			
						10			
						11			
						12			
						13			
						14			
						15		(grayish brown, slight odor)	
						16			
						17			
						18			
	dry	10.5	50-6"			19	GM	GRAVEL: Brown gravel, coarse gravel 40%, fine gravel 20%, 20% cobbles, 20% fine sand and silt, no odor.	
						20			
						21			
						22			

NOTES: Start Card # RE 00938  
 Ecology Well ID# AKT 893





**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-8**

PAGE 2 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 8/20/04  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 49.7'

WELL DIAMETER: 2"  
 WELL DEPTH: 49.5'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
	damp	85.9	13 30 50-6"			23 24 25 26 27 28	GM	GRAVEL: Brown gravel with sand and silt, 40% fine to coarse gravel, 40% fine to coarse sand, 15% cobbles, 5% silt, hard, dense, no odor.	
	damp	29.0	13 50-6"			29 30 31 32 33			
	damp	2.8				34 35 36 37 38 39		(increase in cobbles)	
	damp					40 41 42 43 44	GP	GRAVEL: Poorly graded fine to coarse gravel 70%, 20% cobbles, 10% fine sand, trace silt, no odor.	

NOTES:



# MONITORING WELL/ BORING LOG

BORING/WELL No: **MW-8**

PAGE 3 of 3

PROJECT: 207407 Remedial Invest.  
LOCATION: Camas, WA  
CLIENT: ChevronTexaco  
DATE: 8/20/04  
LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
DRILL METHOD: Hollow-Stem Auger  
SAMPLE METHOD: Split Spoon  
HOLE DIAMETER: 7"  
HOLE DEPTH: 49.7'

WELL DIAMETER: 2"  
WELL DEPTH: 49.5'  
WELL CASING: Schedule 40 PVC  
WELL SCREEN: 0.010" Slot  
FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
	moist	4.0				45			
						46			
						47			
						48			
						49			
						50			
						51			
						52			
						53			
						54			
						55			
						56			
						57			
						58			
						59			
						60			
						61			
						62			
						63			
						64			
						65			
						66			

NOTES:





**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-9**

PAGE 1 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 7/16 to 7/17/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 50.5'

WELL DIAMETER: 2"  
 WELL DEPTH: 49.5'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
								Asphalt	
						1	Fill	Red-brown silty Gravel	
						2			
						3			
						4		(air knife refusal - boulders)	
						5	GM	GRAVEL: Light brown gravel with some sand and silt, large cobbles, very hard, no odor.	
						6			
						7			
	dry					8			
						9			
						10			
						11			
						12		No Recovery - Cobbles	
			50-1"			13			
						14			
			50-2"			15			
						16			
						17			
						18			
						19	GM	GRAVEL: Brown fine gravel 60%, 20% fine to medium grained sand, 15% silt, 15% coarse gravel and cobbles, no odor.	
	dry	0.4	15			20			
			30			21			
			48			22			

NOTES: Start Card # RE 00938  
 Ecology Well ID# AFB 242



**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-9**

PAGE 2 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 7/16 to 7/17/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 50.5'

WELL DIAMETER: 2"  
 WELL DEPTH: 49.5'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
	dry	0.3	17 32 46			23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	GP	GRAVEL: Brown sandy gravel, fine gravel 60%, 20% coarse sand, 20% medium sand, trace silt and cobbles, no odor.	
			50-0" 50-6"					No Recovery	
	damp							(increase in cobbles)	
	moist								

NOTES:





**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-9**

PAGE 3 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 7/16 to 7/17/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 50.5'

WELL DIAMETER: 2"  
 WELL DEPTH: 49.5'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
	moist					45			
						46			
						47			
						48			
	wet					49			
						50	GP	GRAVEL: 60% fine gravel angular to subrounded, 20% coarse sand, 20% cobbles, no odor.	
						51			
						52			
						53			
						54			
						55			
						56			
						57			
						58			
						59			
						60			
						61			
						62			
						63			
						64			
						65			
						66			

NOTES:



**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-10**

PAGE 1 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 8/21 to 8/22/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 50'

WELL DIAMETER: 2"  
 WELL DEPTH: 50'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
						1		Asphalt	
						2		Reddish-brown silty gravel	
						3			
						4		(gravel/cobbles >12" diameter) (air knife refusal - boulders)	
						5			
						6			
						7			
						8			
	dry		50-2"			9	GM	GRAVEL: Silty Gravel with cobbles, coarse gravel and cobbles 60%, fine gravel 20%, 20% silt, no odor.	Perforated Chips
						10			
						11			
						12			
						13			
						14			
						15		(increase in cobbles - very hard drilling, no odor.)	
						16			
						17			
	dry		50-6"			19	No Recovery		
						20			
						21			
						22			

NOTES: Start Card # RE 00938  
 Ecology Well ID# AKT 893





**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-10**

PAGE 2 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 8/21 to 8/22/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 50'

WELL DIAMETER: 2"  
 WELL DEPTH: 50'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material	
				Recovery	Interval					
	dry		50-6"			23		(cobbles decreasing)		
						24		GRAVEL: Cobble stuck in sampler - not enough recovery to sample)		
						25				
						26				
						27				
						28				
			50-4"			29		No Recovery		
			50-6"			30				
						31				
						32				
						33				
						34				
						35				
						36				
						37				
						38				
						39				
						40				
						41				
	moist					42				
						43				
						44				

NOTES:



# MONITORING WELL/ BORING LOG

BORING/WELL No: **MW-10**

PAGE 3 of 3

PROJECT: 207407 Remedial Invest.  
LOCATION: Camas, WA  
CLIENT: ChevronTexaco  
DATE: 8/21 to 8/22/2004  
LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
DRILL METHOD: Hollow-Stem Auger  
SAMPLE METHOD: Split Spoon  
HOLE DIAMETER: 7"  
HOLE DEPTH: 50'

WELL DIAMETER: 2"  
WELL DEPTH: 50'  
WELL CASING: Schedule 40 PVC  
WELL SCREEN: 0.010" Slot  
FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
	moist					45			
						46			
						47			
						48			
	wet					49			
						50			
						51			
						52			
						53			
						54			
						55			
						56			
						57			
						58			
						59			
						60			
						61			
						62			
						63			
						64			
						65			
						66			

NOTES:





**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-11**

PAGE 1 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 7/16 & 8/21/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 50'

WELL DIAMETER: 2"  
 WELL DEPTH: 50'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
						1		Asphalt	
						2		Reddish-brown silty gravel	
						3			
						4		(gravel/cobbles >12" diameter) (air knife refusal - boulders)	
						5			
						6			
						7			
						8			
	dry	0	50-2"			9	GM	GRAVEL: Brown silty coarse gravel 40%, 40% cobbles, 20% silt and fine sand, very hard, no odor.	Bentonite Chips
						10			
						11			
						12			
						13			
						14			
	dry	0				15	GM	GRAVEL: Brown fine to coarse gravel 60%, 10% cobbles, 20% fine to coarse sand, 10% silt, no odor.	
						16			
						17			
						18			
	dry	0	17			19		(sand increasing and cobbles decreasing)	
			17			20			
			20			21			
						22			

NOTES: Start Card # RE 00938  
 Ecology Well ID# AKT 895





**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-11**

PAGE 2 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 7/16 & 8/21/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 50'

WELL DIAMETER: 2"  
 WELL DEPTH: 50'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material		
				Recovery	Interval						
	dry					23					
						24					
						25					
						26					
						27					
						28					
	damp	0.0	17			29	GP	GRAVEL: Poorly graded gravel, fine to coarse gravel 50%, 10% cobbles, 40% fine to coarse sand, no odor.			
			25			30					
			25			31					
						32					
						33					
	camp	0.2				34					
						35					
						36					
						37					
						38					
	damp	0.0				39					
						40		(decreasing cobbles and coarse gravel)			
						41					
	moist					42					
						43					
						44					

NOTES:







**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-12**

PAGE 1 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 7/16 & 7/18/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 53'

WELL DIAMETER: 2"  
 WELL DEPTH: 49'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
						1		Asphalt	
						2		Reddish-brown silty gravel	
						3			
						4			
						5			
						6		(air knife refusal - boulders)	
						7			
						8			
	damp	2.1				9	GM	Silty GRAVEL: Brown gravel 50%, 30 % cobbles, 20% silt and fine sand, trace coarse to medium sand, hard, dense, no odor.	Bentonite Chips
						10			
						11			
						12			
						13			
						14			
	dry		50-0"			15		No Recovery - large cobble, dense.	
						16			
						17			
						18			
	dry	1.2	38 50			19	GM	Sandy GRAVEL: Brown fine to coarse gravel 60%, cobbles 20%, medium to coarse sand 20%, trace silt, hard, no odor.	
						20			
						21			
						22			

NOTES: Start Card # RE 00938  
 Ecology Well ID# AHG 697





**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-12**

PAGE 2 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 7/16 & 7/18/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 53'

WELL DIAMETER: 2"  
 WELL DEPTH: 49'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material	
				Recovery	Interval					
	damp	1.5	32 35 50			23 24 25 26 27 28 29 30 31 32 33		(gravel and cobbles increasing)		
	damp	1.4				34 35 36 37 38 39 40 41 42	GP	Sandy GRAVEL: Brown, gravel fine to coarse 60%, 20% cobbles, 20% coarse sand, very dense, no odor.		
	damp	0				43 44		(more fine gravel and coarse sand)		

NOTES:



# MONITORING WELL/ BORING LOG

BORING/WELL No: **MW-12**

PAGE 3 of 3

PROJECT: 207407 Remedial Invest.  
LOCATION: Camas, WA  
CLIENT: ChevronTexaco  
DATE: 7/16 & 7/18/2004  
LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
DRILL METHOD: Hollow-Stem Auger  
SAMPLE METHOD: Split Spoon  
HOLE DIAMETER: 7"  
HOLE DEPTH: 53'

WELL DIAMETER: 2"  
WELL DEPTH: 49'  
WELL CASING: Schedule 40 PVC  
WELL SCREEN: 0.010" Slot  
FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
▽	wet					45		(no odor)	
						46			
						47		(drilling easier - less cobbles)	
						48			
						49			
						50			
						51			
						52			
						53			
						54			
						55			
						56			
						57			
						58			
						59			
						60			
						61			
						62			
						63			
						64			
						65			
						66			

NOTES:





**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-13**

PAGE 1 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 7/16 & 7/17/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 53'

WELL DIAMETER: 2"  
 WELL DEPTH: 50'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
	dry					1		Asphalt	
						2			
						3	GM	GRAVEL: Red/brown silt and sand 20%, with coarse gravel and cobbles 80%, hard, no odor.	
						4			
						5			
						6		(air knife refusal - large cobbles)	
						7			
						8			
						9			
						10			
						11			
						12			
						13			
	dry	34	50-1"			14	GM	GRAVEL: Brown gravel with a trace of fine sand, no recovery.	
						15			
						16			
						17			
						18			
						19			
	damp	1.8	50-6"			20	GM	GRAVEL: Brown gravel with sand and silt, gravel coarse to fine 60%, 20% fine to coarse sand, 15% cobbles, 5% silt, no odor, hard drilling.	
						21			
						22			

NOTES: Start Card # RE 00938  
 Ecology Well ID# AFB 243





**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-13**

PAGE 2 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 7/16 & 7/17/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 53'

WELL DIAMETER: 2"  
 WELL DEPTH: 50'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material	
				Recovery	Interval					
	damp	0.3	24 48			23 24 25 26 27 28 29 30 31 32 33				
	dry	0	15 48 49			34 35 36 37 38 39 40 41 42	GM	GRAVEL: Grayish brown silty gravel, fine to coarse angular gravel 50%, 20% fine to coarse sand, 20% silt, 10% cobbles, hard, no odor.		
	damp					43 44				
▽	wet	2.0	18 34				GP	GRAVEL: Poorly-graded fine to coarse gravel with cobbles 80%, 20% fine to medium sand, hard,		

NOTES:





# MONITORING WELL/ BORING LOG

BORING/WELL No: MW-13

PAGE 3 of 3

PROJECT: 207407 Remedial Invest.  
LOCATION: Camas, WA  
CLIENT: ChevronTexaco  
DATE: 7/16 & 7/17/2004  
LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
DRILL METHOD: Hollow-Stem Auger  
SAMPLE METHOD: Split Spoon  
HOLE DIAMETER: 7"  
HOLE DEPTH: 53'

WELL DIAMETER: 2"  
WELL DEPTH: 50'  
WELL CASING: Schedule 40 PVC  
WELL SCREEN: 0.010" Slot  
FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
	wet		39			45		no odor.	
						46		(no odor)	
						47			
						48		(increasing cobbles from 48 to 50 feet)	
						49			
						50			
						51			
						52			
						53			
						54			
						55			
						56			
						57			
						58			
						59			
						60			
						61			
						62			
						63			
						64			
						65			
						66			

NOTES:



**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-14**

PAGE 1 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 7/18 & 7/19/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 52'

WELL DIAMETER: 2"  
 WELL DEPTH: 50'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material	
				Recovery	Interval					
						1	Fill	Asphalt		
						2		Coarse gravel and silt		
						3				
						4				
	dry					5	GM	GRAVEL: Reddish brown silt and fine sand 20%, coarse gravel and cobbles 80%, hard, no odor.		
						6				
						7				
						8				
						9				
						10				
						11				
						12				
						13				
	damp	0.8	50-1"			14		(cobbles decreasing and sand increasing)		
						15				
						16				
						17				
						18				
	dry	0.5	38 49 50			19	GP	Sandy GRAVEL: Brown coarse gravel 60%, cobbles 20%, 20% fine to coarse sand, trace silt, dense, no odor.		
						20				
						21				
						22				

NOTES: Start Card # RE 00938  
 Ecology Well ID# AKT 882





**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-14**

PAGE 2 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 7/18 & 7/19/2004  
 LOGGED BY: Jim Harms

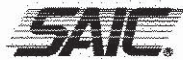
DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 52'

WELL DIAMETER: 2"  
 WELL DEPTH: 50'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material	
				Recovery	Interval					
	moist	0	19 31 50			23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	GP	Sandy GRAVEL: Fine to coarse gravel 40%, 20% cobbles, 30% coarse sand, 10% fine sand, dense, no odor.		
	damp	1.1						(decreasing cobbles)		
	damp	0					GP	Sandy GRAVEL: Fine gravel 40%, coarse sand 20%, 20% coarse gravel, 20% cobbles, dense, no odor.		

NOTES:



**MONITORING WELL/ BORING LOG**

BORING/WELL No: **MW-14**

PAGE 3 of 3

PROJECT: 207407 Remedial Invest.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 7/18 & 7/19/2004  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Hollow-Stem Auger  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 52'

WELL DIAMETER: 2"  
 WELL DEPTH: 50'  
 WELL CASING: Schedule 40 PVC  
 WELL SCREEN: 0.010" Slot  
 FILTER PACK: 10-20 Silica Sand

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
▽	wet	3.8				45			
						46			
						47			
						48			
						49			
						50		(increasing cobbles)	
						51			
						52			
						53			
						54			
						55			
						56			
						57			
						58			
						59			
						60			
						61			
						62			
						63			
						64			
						65			
						66			

NOTES:



<b>PROJECT: Chevron Facility # 207407</b>		<b>Log of Boring No.: MW-15</b>	
<b>BORING LOCATION: 612 SE Union Street, Camas Washington</b>		<b>ELEVATION AND DATUM: Ground Surface</b>	
<b>DRILLING CONTRACTOR: Boart Longyear</b>		<b>STARTED - DATE:</b> 07/31/08	<b>COMPLETED - DATE:</b> 07/31/08
<b>LOGGED BY: J. Berry</b>		<b>TOTAL DEPTH (ft):</b> 50'	<b>WELL DEPTH(ft):</b> 49.2'
<b>DRILLING METHOD: Sonic</b>		<b>DEPTH TO WATER (ft):</b> 41.2'	<b>WELL SCREEN: 0.010" slot</b>
<b>DRILLING EQUIPMENT: unknown</b>		<b>HOLE DIAMETER: 6"</b>	<b>FILTER PACK: 10-20 Silica Sand</b>
<b>SAMPLING METHOD: Continous</b>		<b>GEOLOGIST: J. Berry</b>	
		<b>REVIEWED BY: -</b>	

Well Construction Detail	PID (ppm)	SAMPLES		DEPTH (feet)	GRAPHIC	CLASS	DESCRIPTION
		Blows Per Foot	Sample ID and Time				
				1			ASPHALT
				2		GM	Silty GRAVEL with Cobbles, Brown, Dense, No Odor, No Sheen
				3			
				4			
				5			
				6			
				7			
				8			
				9			
	0			10		GM	
				11			Silty GRAVEL with Cobbles, Brown, Moist, Dense, No Odor, No Sheen
	1.0			12			
				13			
				14			
				15			
				16			Silty GRAVEL with Cobbles to Boulders, Brown to Gray, Moist, Dense, No Odor, No Sheen
				17			
	1-2			18			
				19			
				20			
				21		GM	
	0.6			22			Silty GRAVEL with Cobbles and Boulders, Brown, Moist to Wet, Dense, No Odor
				23			
				24			
				25			

**Well Construction Legend:**

	Neat Cement: 1-3.0' bgs.		Filter Sand: 29-49.2' bgs.
	Hydrated Bentonite: 3-29' bgs.		
	0.010" Slot Well Screen: 35-49.2' bgs.		

**Notes:**  
2" PVC

<b>PROJECT: Chevron Facility # 207407</b>		Log of Boring No.: MW-15	
BORING LOCATION: 612 SE Union Street, Camas Washington		ELEVATION AND DATUM: Ground Surface	
DRILLING CONTRACTOR: Boart Longyear		STARTED - DATE: 07/31/08	COMPLETED - DATE: 07/31/08
LOGGED BY: J. Berry		TOTAL DEPTH (ft): 50'	WELL DEPTH(ft): 49.2'
DRILLING METHOD: Sonic		MEASURING POINT: Ground Surface	
DRILLING EQUIPMENT: unknown		DEPTH TO WATER (ft): 41.2'	WELL SCREEN: 0.010" slot
SAMPLING METHOD: Continous		HOLE DIAMETER: 6"	FILTER PACK: 10-20 Silica Sand
		GEOLOGIST: J. Berry	
		REVIEWED BY: -	

Well Construction Detail	PID (ppm)	SAMPLES		DEPTH (feet)	GRAPHIC	CLASS	DESCRIPTION
		Blows Per Foot	Sample ID and Time				
				26			Silty GRAVEL with Cobbles and Boulders, Brown, Moist to Wet, Dense, No Odor, No Sheen
				27			
				28			
				29			
	1.1			30		GM	Silty GRAVEL with Cobbles, Brown, Wet
				31			
				32			
				33			
				34			
				35			
	0			36			
				37			
				38			
				39			
				40			
				41		▽	Silty GRAVEL with Cobbles, Dark Brown, Wet, No Odor, No Sheen
	1.8			42			
				43			
				44			
				45			
				46			
				47			
	0			48			
				49			
				50			

**Well Construction Legend:**

- Neat Cement: 1-3.0' bgs.
- Hydrated Bentonite: 3-29' bgs.
- 0.010" Slot Well Screen: 35-49.2' bgs.








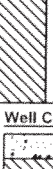



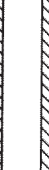


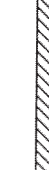

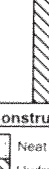








Filter Sand: 29-49.2' bgs.

**Notes:**





- 2" PVC
- Water table @ 41.2'



<b>PROJECT: Chevron Facility # 207407</b>		Log of Boring No.: MW-16	
BORING LOCATION: 612 SE Union Street, Camas Washington		ELEVATION AND DATUM: Ground Surface	
DRILLING CONTRACTOR: Boart Longyear		STARTED - DATE: 07/30/08	COMPLETED - DATE: 07/30/08
LOGGED BY: J. Berry		TOTAL DEPTH (ft): 50'	WELL DEPTH(ft): 48.4'
DRILLING METHOD: Sonic		MEASURING POINT: Ground Surface	
DRILLING EQUIPMENT: unknown		DEPTH TO WATER (ft): 40.4'	WELL SCREEN: 0.010" slot
SAMPLING METHOD: Continous		HOLE DIAMETER: 6"	FILTER PACK: 10-20 Silica Sand
		GEOLOGIST: J. Berry	
		REVIEWED BY: -	

Well Construction Detail	PID (ppm)	SAMPLES		DEPTH (feet)	GRAPHIC	CLASS	DESCRIPTION
		Blows Per Foot	Sample ID and Time				
				1			ASPHALT
				2		GM	Silty GRAVEL with Cobbles, Brown, Dense, No Odor, No Sheen
	0			3			
				4			
				5			
				6			
				7			
				8			
				9			
				10		GM	Silty GRAVEL with Cobbles, Brown to Gray, Moist, Dense, No Odor
	.5			11			
				12			
				13			
				14			
				15			
				16			
	1.5			17			
				18			
				19			Silty GRAVEL with Cobbles, Brown, Moist to Wet, Dense, No Odor
				20			
				21			
				22			
				23			
				24			
	3.8			25			Silty GRAVEL with Cobbles and Boulders, Brown, Moist to Wet, Dense, No Odor

**Well Construction Legend:**

	Neat Cement: 1-3.0' bgs.		Filter Sand: 29-48.4' bgs.
	Hydrated Bentonite: 3-29' bgs.		
	0.010" Slot Well Screen: 33-48.4' bgs.		

**Notes:**  
2" PVC

<b>PROJECT: Chevron Facility # 207407</b>		Log of Boring No.: MW-16	
<b>BORING LOCATION: 612 SE Union Street, Camas Washington</b>		ELEVATION AND DATUM: Ground Surface	
DRILLING CONTRACTOR: Boart Longyear		STARTED - DATE: 07/30/08	COMPLETED - DATE: 07/30/08
LOGGED BY: J. Berry		TOTAL DEPTH (ft): 50'	WELL DEPTH(ft): 48.4'
DRILLING METHOD: Sonic		DEPTH TO WATER (ft): 40.4'	MEASURING POINT: Ground Surface
DRILLING EQUIPMENT: unknown		HOLE DIAMETER: 6"	FILTER PACK: 10-20 Silica Sand
SAMPLING METHOD: Continuous		GEOLOGIST: J. Berry	
		REVIEWED BY: -	

Well Construction Detail	PID (ppm)	SAMPLES		DEPTH (feet)	GRAPHIC	CLASS	DESCRIPTION
		Blows Per Foot	Sample ID and Time				
	1.9			26		GM	Silty GRAVEL with Cobbles and Boulders, Brown, Moist to Wet, Dense, No Odor
	0.6			30			
	0.7			33			Silty GRAVEL with Cobbles, Brown, Wet, Dense
	1.8			40			Silty GRAVEL with Cobbles, Brown, Wet, Dense, Slight Odor
	0			42		GM	Silty GRAVEL with Cobbles, Brown, Wet, Dense, No Odor, No Sheen

**Well Construction Legend:**

- Neat Cement: 1-3.0' bgs.
- Hydrated Bentonite: 3-29' bgs.
- 0.010" Slot Well Screen: 33-48.4' bgs.

Filter Sand: 29-48.4' bgs.

**Notes:**

- 2" PVC
- Water table @ 40.4'

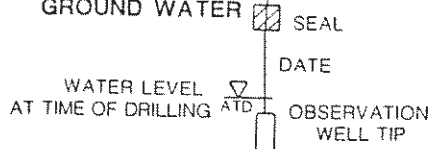


SOIL DESCRIPTION	DEPTH (FEET)	LAB TESTS	SAMPLING	GROUND WATER	STANDARD PENETRATION RESISTANCE ▲ BLOWS PER FOOT (140 lb. hammer, 30 inch drop)																
					0	10	20	30	40	50	60	70	80	90	100						
Ground Surface Elevation Approximately _____ Feet	0																				
Gravel base, crushed rock																					
Dry, light brown, sandy SILT, silty SAND																					
Damp, grey-brown, sandy GRAVEL, with some silt	5		B																		
Damp, gray-brown, sandy GRAVEL, with some silt	10		B																		
Moist, gray-brown, sandy GRAVEL	15																				
becomes silty			B																		
Loose gravel, boulders	20																				
Total depth 23 feet Completed 12 October 1987	25																				
	30																				
	35																				
	40																				

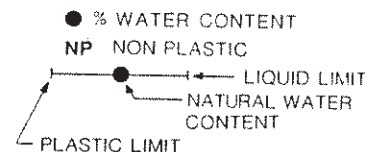
**SAMPLING**

- I 2' OD SPLIT SPOON SAMPLE
- II 3' OD SHELBY SAMPLE
- ☒ 2.5' ID RING SAMPLE
- B BULK SAMPLE
- \* SAMPLE NOT RECOVERED

**GROUND WATER**



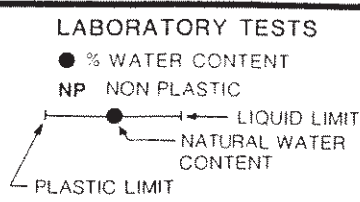
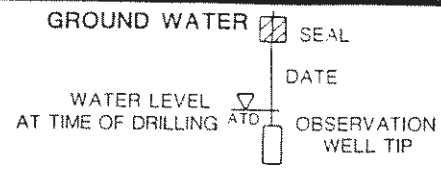
**LABORATORY TESTS**





SOIL DESCRIPTION	DEPTH (FEET)	LAB TESTS	SAMPLING	GROUND WATER	STANDARD PENETRATION RESISTANCE ▲ BLOWS PER FOOT (140 lb. hammer, 30 inch drop)															
					0	10	20	30	40	50	60	70	80	90	100					
Ground Surface Elevation Approximately _____ Feet	0																			
Gravel base - crushed rock																				
Dry, light brown, sandy SILT																				
Damp, gray-brown, sandy GRAVEL, with trace silt			B																	
	5																			
			B																	
	10																			
Damp, gray-brown, GRAVEL with some sand			B																	
	15																			
Damp to moist, gray-brown, sandy GRAVEL			B																	
becomes silty, cemented																				
	20																			
Loose gravel, boulders																				
Total depth 23 feet Completed 12 October 1987	25																			
	30																			
	35																			
	40																			

- SAMPLING**
- I 2' OD SPLIT SPOON SAMPLE
  - II 3' OD SHELBY SAMPLE
  - ☒ 2.5' ID RING SAMPLE
  - B BULK SAMPLE
  - \* SAMPLE NOT RECOVERED







**MONITORING WELL/ BORING LOG**

BORING/WELL No: **SB-1**

PAGE 1 of 2

PROJECT: 207407 Remedial Investig. DRILLER: Geotech Explorations Inc.  
 LOCATION: Camas, WA DRILL METHOD: Air Rotary  
 CLIENT: ChevronTexaco SAMPLE METHOD: Split Spoon  
 DATE: 7/19/04 HOLE DIAMETER: 7"  
 LOGGED BY: Jim Harms HOLE DEPTH: 25'

WELL DIAMETER: NA  
 WELL DEPTH: NA  
 WELL CASING: NA  
 WELL SCREEN: NA  
 FILTER PACK: NA

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
						1	Asphalt		
	damp	48.5				2	Fill	Silt and Gravel.	
						3			
						4	GM	GRAVEL: Gray Gravel with silt and sand	
						5		20% silt, 20% medium to coarse grained sand, slight odor.	
						6			
						7			
						8			
	dry	56.8	50-0"			9	GM	GRAVEL: Gray fine to coarse gravel 60%, 40% cobbles, trace silt and sand, slight odor.	
						10			
						11			
						12			
	dry	32.4	38 50-6"			14			
						15			
						16			
						17			
						18			
	damp	1.9	48			19			
						20			
						21			
						22			

Bentonite Chips

NOTES:





# MONITORING WELL/ BORING LOG


BORING/WELL No: SB-1

PAGE 2 of 2

PROJECT: 207407 Remedial Investig. DRILLER: Geotech Explorations Inc.  
 LOCATION: Camas, WA DRILL METHOD: Air Rotary  
 CLIENT: ChevronTexaco SAMPLE METHOD: Split Spoon  
 DATE: 7/19/04 HOLE DIAMETER: 7"  
 LOGGED BY: Jim Harms HOLE DEPTH: 25'

WELL DIAMETER: NA  
 WELL DEPTH: NA  
 WELL CASING: NA  
 WELL SCREEN: NA  
 FILTER PACK: NA

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
	damp	0	38 31 48			23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	GM	Silt and Sand in GRAVEL: Brown fine to coarse Gravel 50%, coarse sand 20%, 20% cobbles, 10% fine sand and silt, dense, no odor.	

NOTES:



**MONITORING WELL/ BORING LOG**

BORING/WELL No: **SB-2**

PAGE 1 of 2

PROJECT: 207407 Remedial Investig.  
 LOCATION: Camas, WA  
 CLIENT: ChevronTexaco  
 DATE: 8/22/04  
 LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
 DRILL METHOD: Air Rotary  
 SAMPLE METHOD: Split Spoon  
 HOLE DIAMETER: 7"  
 HOLE DEPTH: 25'

WELL DIAMETER: NA  
 WELL DEPTH: NA  
 WELL CASING: NA  
 WELL SCREEN: NA  
 FILTER PACK: NA

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
						1		Asphalt	
	dry	1.5				2	Fill	Gravel: Brown coarse gravel with some silt.	
						3			
						4			
						5		(air knife refusal - large cobbles)	
						6			
	dry	2.7				7			
						8	GP	GRAVEL: Grayish brown Gravel, 60% fine to coarse gravel with fine to medium grained sand 40%, slight odor.	
						9			
						10			
						11			
						12			
						13			
	damp	8.1	20			14		(gray, very little recovery, gravel becoming coarser, some odor)	
			50-3"			15			
						16			
						17			
						18			
	damp		17			19	GP	GRAVEL: Grayish brown gravel 60%, medium to coarse sand 30%, fine sand 10%, strong odor.	
			22			20			
			26			21			
						22			

Bentonite Chips

NOTES: PID fouled by moisture, samples chosen based on odor.





# MONITORING WELL/ BORING LOG

BORING/WELL No: SB-2

PAGE 2 of 2

PROJECT: 207407 Remedial Investig.  
LOCATION: Camas, WA  
CLIENT: ChevronTexaco  
DATE: 8/22/04  
LOGGED BY: Jim Harms

DRILLER: Geotech Explorations Inc.  
DRILL METHOD: Air Rotary  
SAMPLE METHOD: Split Spoon  
HOLE DIAMETER: 7"  
HOLE DEPTH: 25'

WELL DIAMETER: NA  
WELL DEPTH: NA  
WELL CASING: NA  
WELL SCREEN: NA  
FILTER PACK: NA

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
	damp		25 50-6"			23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44	GM	GRAVEL: Reddish brown GRAVEL, fine to coars gravel 80%, 20% fine to coarse sand, no odor.	

NOTES:



**MONITORING WELL/ BORING LOG**

BORING/WELL No: **SB-3**

PAGE 1 of 2

PROJECT: 207407 Remedial Investig. DRILLER: Geotech Explorations Inc.  
 LOCATION: Camas, WA DRILL METHOD: Air Rotary  
 CLIENT: ChevronTexaco SAMPLE METHOD: Split Spoon  
 DATE: 8/22/04 HOLE DIAMETER: 7"  
 LOGGED BY: Jim Harms HOLE DEPTH: 25'

WELL DIAMETER: NA  
 WELL DEPTH: NA  
 WELL CASING: NA  
 WELL SCREEN: NA  
 FILTER PACK: NA

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
						1		Asphalt	Bentonite Chips
						2	Fill	Red Brown Silty-Gravel	
						3			
						4			
						5			
						6			
						7			
	dry					8	GM	Silty GRAVEL: Brown coarse Gravel and cobble	
			50-0"			9		60%, fine gravel 20%, fine sand and silt 20%,	
						10		hard, no odor.	
						11			
						12			
						13		(cobbles and coarse gravel decreasing)	
	dry		19			14			
			50-6"			15			
						16			
						17			
						18			
	damp		17			19	GM	Sandy GRAVEL: Brown to reddish brown Gravel	
			20			20		fine to coarse 80%, 10% cobbles, 10% fine to	
			22			21		medium grained sand and silt, no odor.	
						22			

NOTES: PID fouled by moisture, samples chosen based on odor.





# MONITORING WELL/ BORING LOG

BORING/WELL No: **SB-3**

PAGE 2 of 2

PROJECT: 207407 Remedial Investig. DRILLER: Geotech Explorations Inc.  
 LOCATION: Camas, WA DRILL METHOD: Air Rotary  
 CLIENT: ChevronTexaco SAMPLE METHOD: Split Spoon  
 DATE: 8/22/04 HOLE DIAMETER: 7"  
 LOGGED BY: Jim Harms HOLE DEPTH: 25'

WELL DIAMETER: NA  
 WELL DEPTH: NA  
 WELL CASING: NA  
 WELL SCREEN: NA  
 FILTER PACK: NA

CASING ELEVATION:

Water Level	Moisture Content	PID (ppm)	BLOWS/6"	Sample		DEPTH (ft.)	SOIL TYPE	LITHOLOGY / DESCRIPTION	Well Completion/ Backfill Material
				Recovery	Interval				
	damp		12 20 22			23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44			

NOTES:



**APPENDIX C**

**WATER WELL LOGS**

#6

# WATER WELL REPORT

STATE OF WASHINGTON

Application No: 9325

Permit No: 8544

(1) **OWNER:** Name City of Camas Address 616 N.E. 4th Avenue

(2) **LOCATION OF WELL:** County Clark David G Parker D.L.C. #49 1/4 Sec 12 T 1 N R 3E WM  
 Bearing and distance from section or subdivision corner

(3) **PROPOSED USE:** Domestic  Industrial  Municipal   
 Irrigation  Test Well  Other

(4) **TYPE OF WORK:** Owner's number of well #6  
 (if more than one)  
 New well  Method Dug Bored   
 Deepened  Cable  Driven   
 Reconditioned  Rotary  Jetted

(5) **DIMENSIONS:** Diameter of well 16 inches  
 Drilled 85 ft Depth of completed well 85 ft

(6) **CONSTRUCTION DETAILS:**  
 Casing installed. 16" OD Diam from 0 ft to 85 ft  
 Threaded  Diam from     ft to     ft  
 Welded  Diam from     ft to     ft  
 Perforations: Yes  No   
 Type of perforator used Mill knife  
 SIZE of perforations 5/16 in by 3-1/2 in.  
552 perforations from 56 ft to 80 ft.  
 perforations from     ft to     ft

Screens: Yes  No   
 Manufacturer's Name     Model No      
 Type      
 Diam Slot size from ft. to ft.  
 Diam Slot size from ft. to ft.

Gravel packed: Yes  No  Size of gravel     ft  
 Gravel placed from     ft to     ft

Surface seal: Yes  No  To what depth? 22 ft  
 Material used in seal concrete crouf  
 Did any strata contain unusable water? Yes  No   
 Type of water?     Depth of strata 27  
 Method of sealing strata off    

(7) **PUMP:** Manufacturer's Name      
 Type     HP    

(8) **WATER LEVELS:** Land-surface elevation 48 ft  
 State level 45 ft below top of well Date 6-29-68  
 Artesian pressure     lbs per square inch Date      
 Artesian water is controlled by     (Cap, valve, etc)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level.  
 Was a pump test made? Yes  No  If yes, by whom? City  
 Yield 1600 gal/min with 5 ft drawdown after 12 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)  

Time	Water Level	Time	Water Level	Time	Water Level

 Date of test June 29, 1968  
 Baier test     gal/min with     ft drawdown after     hrs  
 Artesian flow     gpm Date      
 Temperature of water 53° Was a chemical analysis made? Yes  No

(10) **WELL LOG:**  
 Formation Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation

MATERIAL	FROM	TO
Surface Soil	0	2
Gravel & Small Boulders	2	6
Gravel & Boulders	6	10
Gravel & Small Boulders	10	14
Boulders	14	15
Pen Gravel	15	17
Boulders	17	19
Boulders	19	21
Large to Medium gravel	21	26
Medium to fine gravel, some sand	26	30
Medium to fine gravel with a few boulders	30	40
Med. to fine gravel with fine sand	40	48'6"
Med to fine gravel with some sand	48'6"	53
Water bearing gravel and sand	53	55
Med to fine gravel, water bearing	55	59
Med to fine gravel, water bearing	59	69
Med to fine gravel, some black sand water bearing	69	76
Med to large gravel	76	80
Gravel & small boulders, very tight formation	80	83'9"
Med hard gray rock	83'9"	85

Work started June 5, 1968 Completed 6-27-68, 19

**WELL DRILLER'S STATEMENT:**  
 This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.  
**O. J. NORRIS-WATER WELL DRILLING**  
 NAME (Person, firm, or corporation) (Type or print)  
4111 N.E. 59th Avenue  
 Address Vancouver, Washington  
 [Signed] O. J. Norris (Well Driller)  
 License No 223.02.4069 Date Sept. 9 1968

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

G 546116 CERTIFICATE RECORD No. 14, PAGE No. 6635-A

STATE OF WASHINGTON, COUNTY OF Clark

CERTIFICATE OF GROUND WATER RIGHT

(Issued in accordance with the provisions of Chapter 262 Laws of Washington for 1966 and amendments thereto and the rules and regulations of the Department of Water Resources thereunder)

THIS IS TO CERTIFY That CITY OF CAMAS Camas, Washington, has made proof to the satisfaction of the Department of Water Resources of a right to the use of the public ground waters of the State of Washington from a well located within David C. Parker D.L.C. No. 48 Sec 12, Twp 1 N, R 3 E, W.M., for the purpose(s) of Municipal supply under and specifically subject to provisions contained in Ground Water Permit No 8544 #6 issued by the Department of Water Resources and that said right to the use of said ground waters has been perfected in accordance with the laws of Washington, and is hereby confirmed by the Department of Water Resources and entered of record in Volume 14 at page 6635-A, that the priority of the right hereby confirmed dates from March 22, 1968, that the quantity of ground water under the right hereby confirmed for the aforesaid purposes, is limited to an amount actually beneficially used for said purposes, and shall not exceed 1500 gallons per minute, 2400 acre-feet per year for municipal supply to supply a population of 8500 by 1970 continuously during entire year.

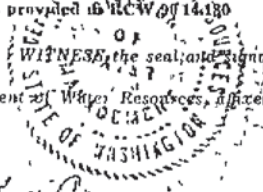
A description of the lands to which such ground water right is appurtenant is as follows

City of Camas

The right to use of water aforesaid hereby confirmed is restricted to the lands or place of use herein described, except as provided in RCW 90 03 380, 90 03 390 and 90 44 020

This certificate of ground water right is specifically subject to relinquishment for nonuse of water as provided in RCW 90 14 180

WITNESSE, the seal and signature of the Assistant Director, Division of Water Management, Department of Water Resources, affixed this 17th day of November, 1969



Assistant Director Division of Water Management Department of Water Resources

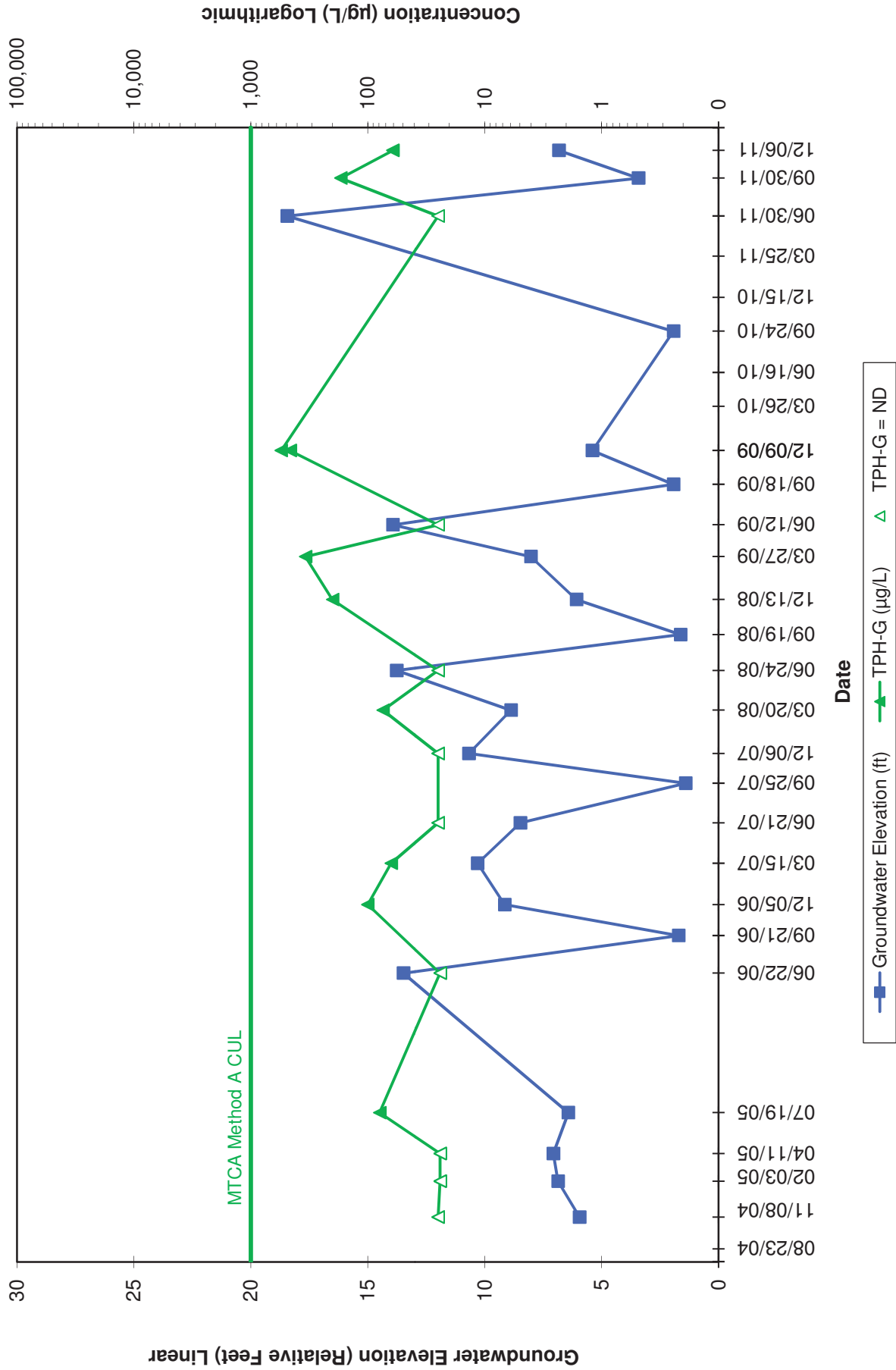
FILED FOR RECORD CLERK OF WASH State of Wash Nov 17 12 06 PM '69 AUDITOR DON BONKER

City of Camas 616 M & 4th Ave Engineering Dept Camas, OR 98607 OK' L Alvin Leaven Angel

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

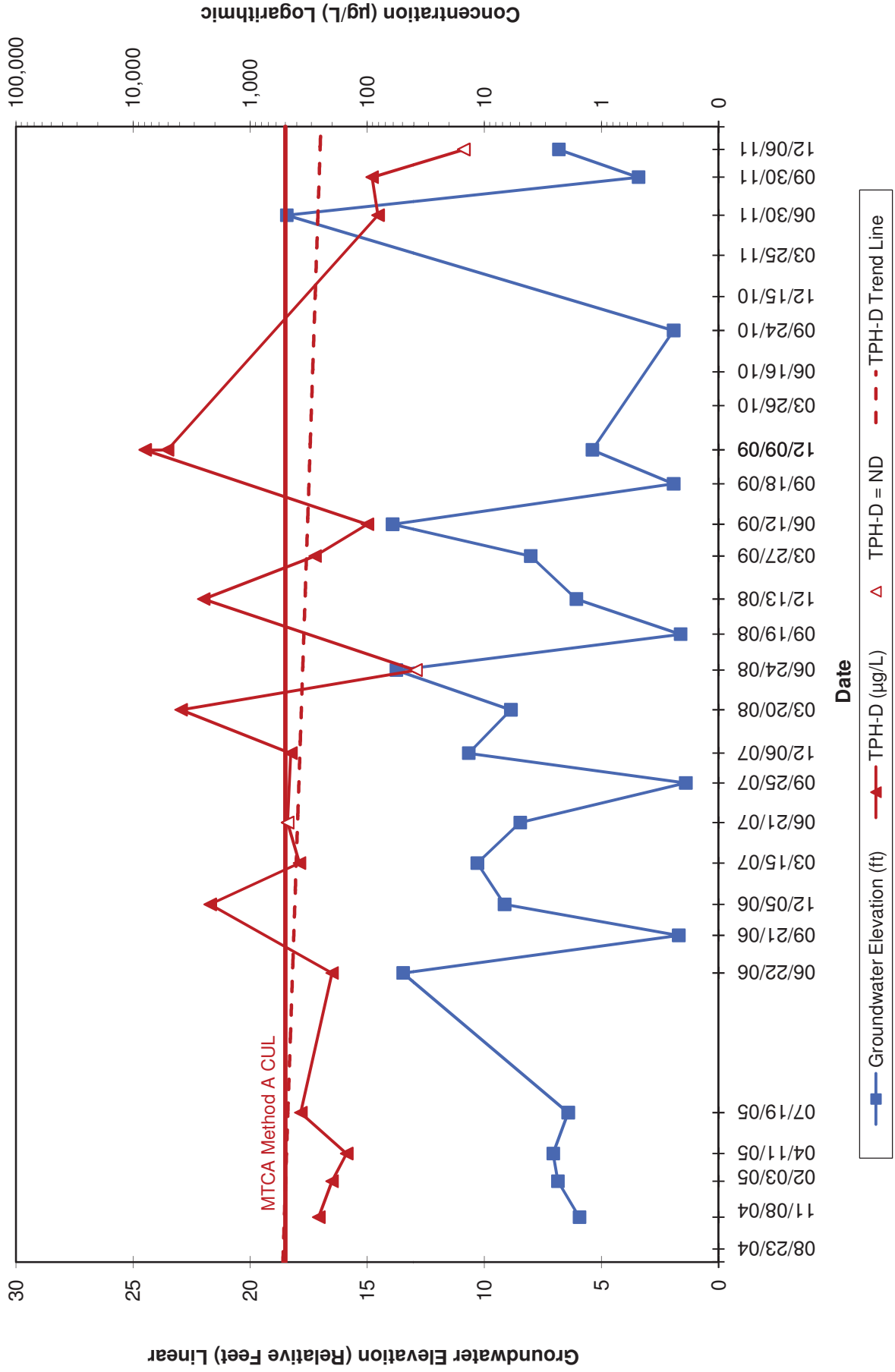
**APPENDIX D**  
**HYDROGRAPHS**

**Well MW-5**  
**Hydrograph - Gasoline-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**

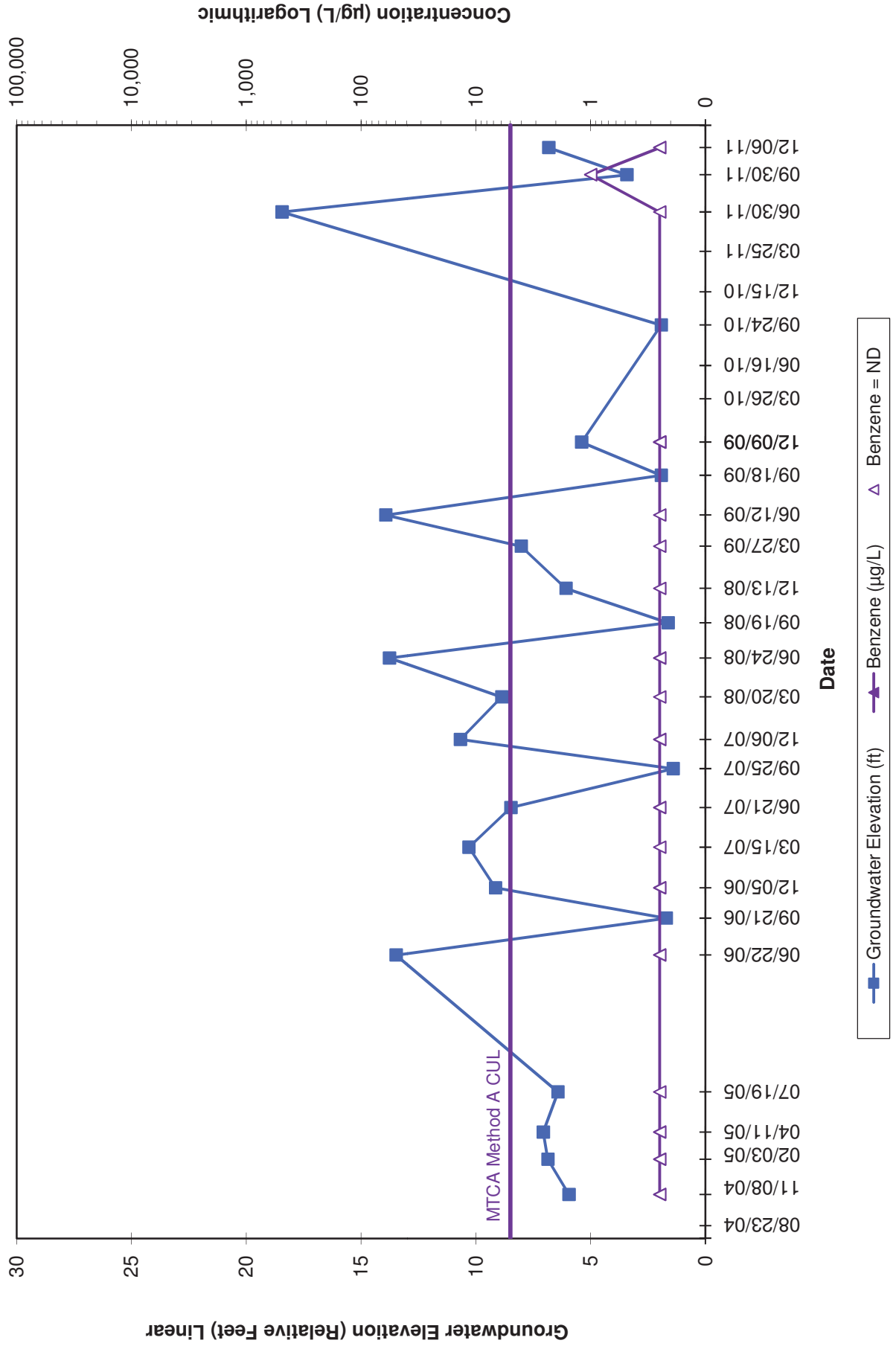




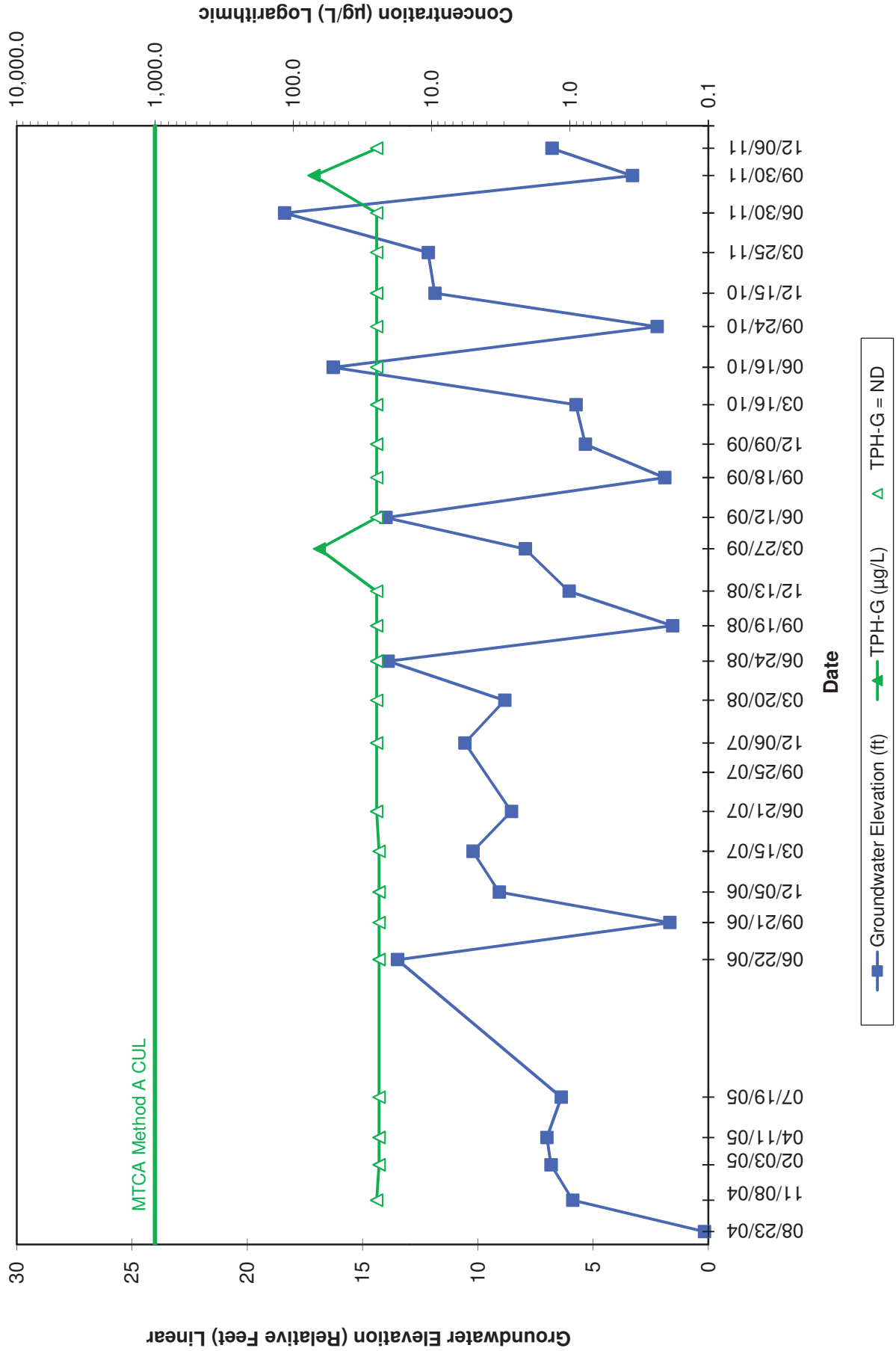
**Well MW-5**  
**Hydrograph - Diesel-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**



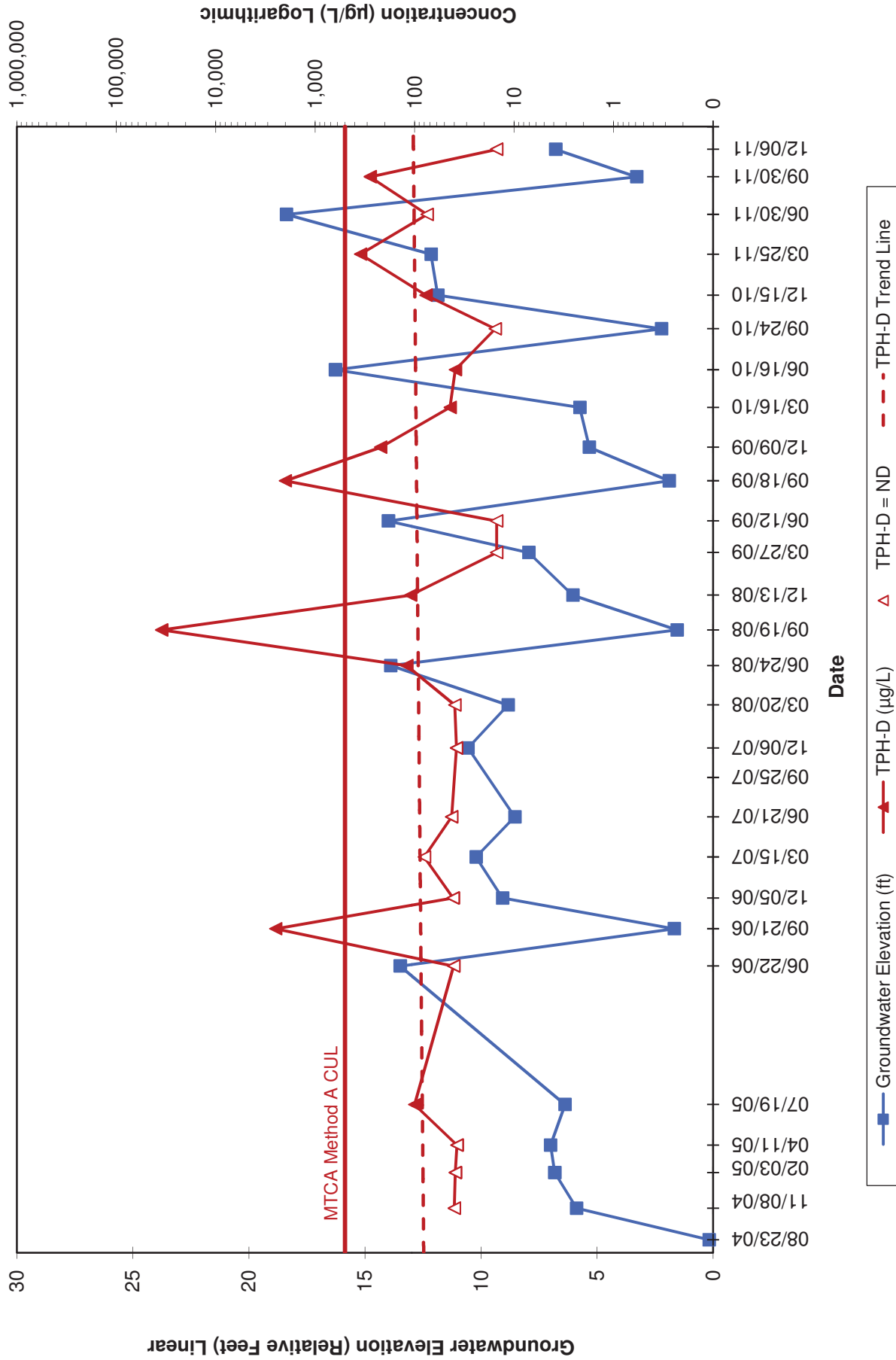
**Well MW-5**  
**Hydrograph - Benzene Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**



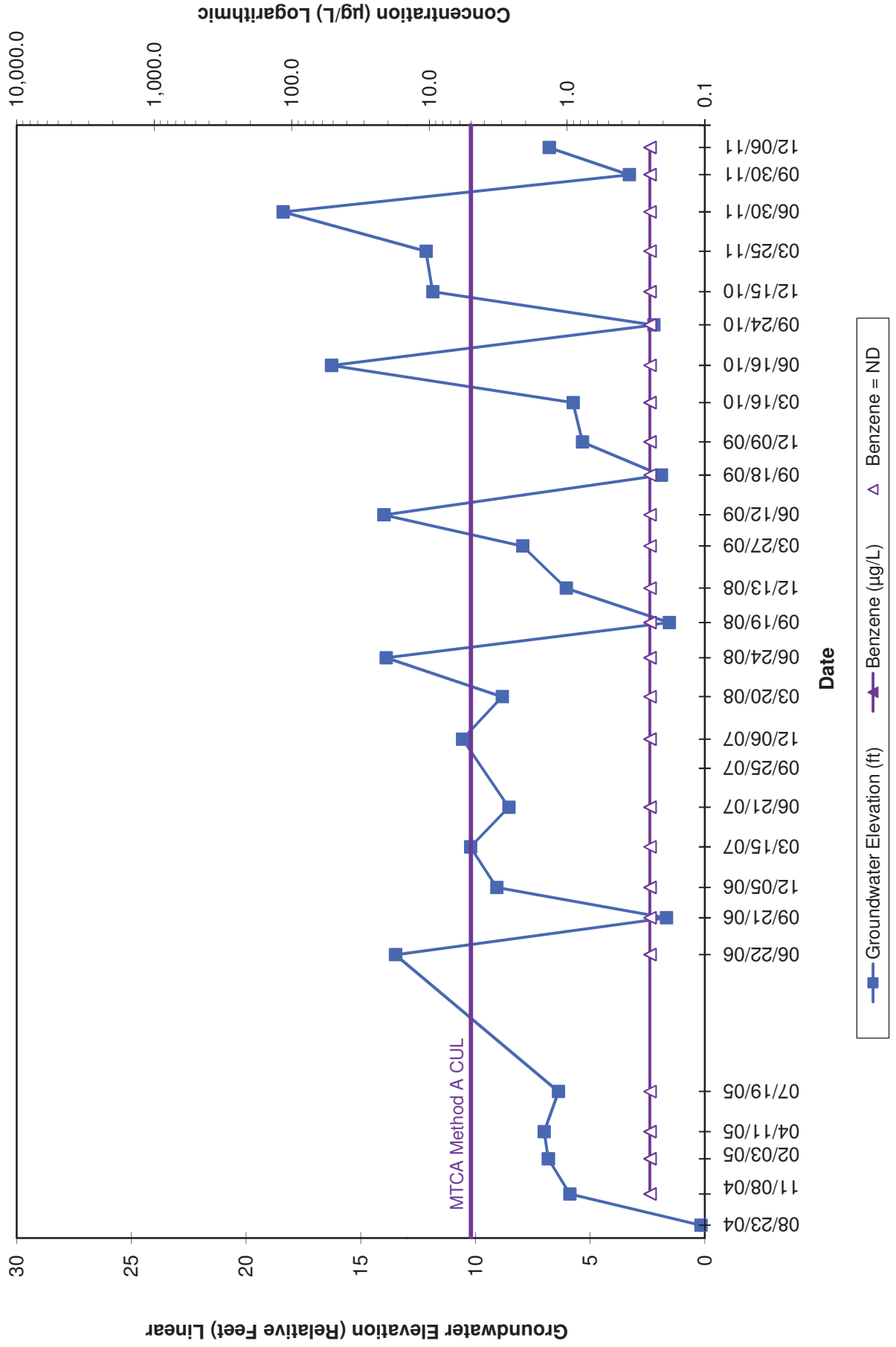
**Well MW-6**  
**Hydrograph - Gasoline-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**



**Well MWV-6**  
**Hydrograph - Diesel-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**

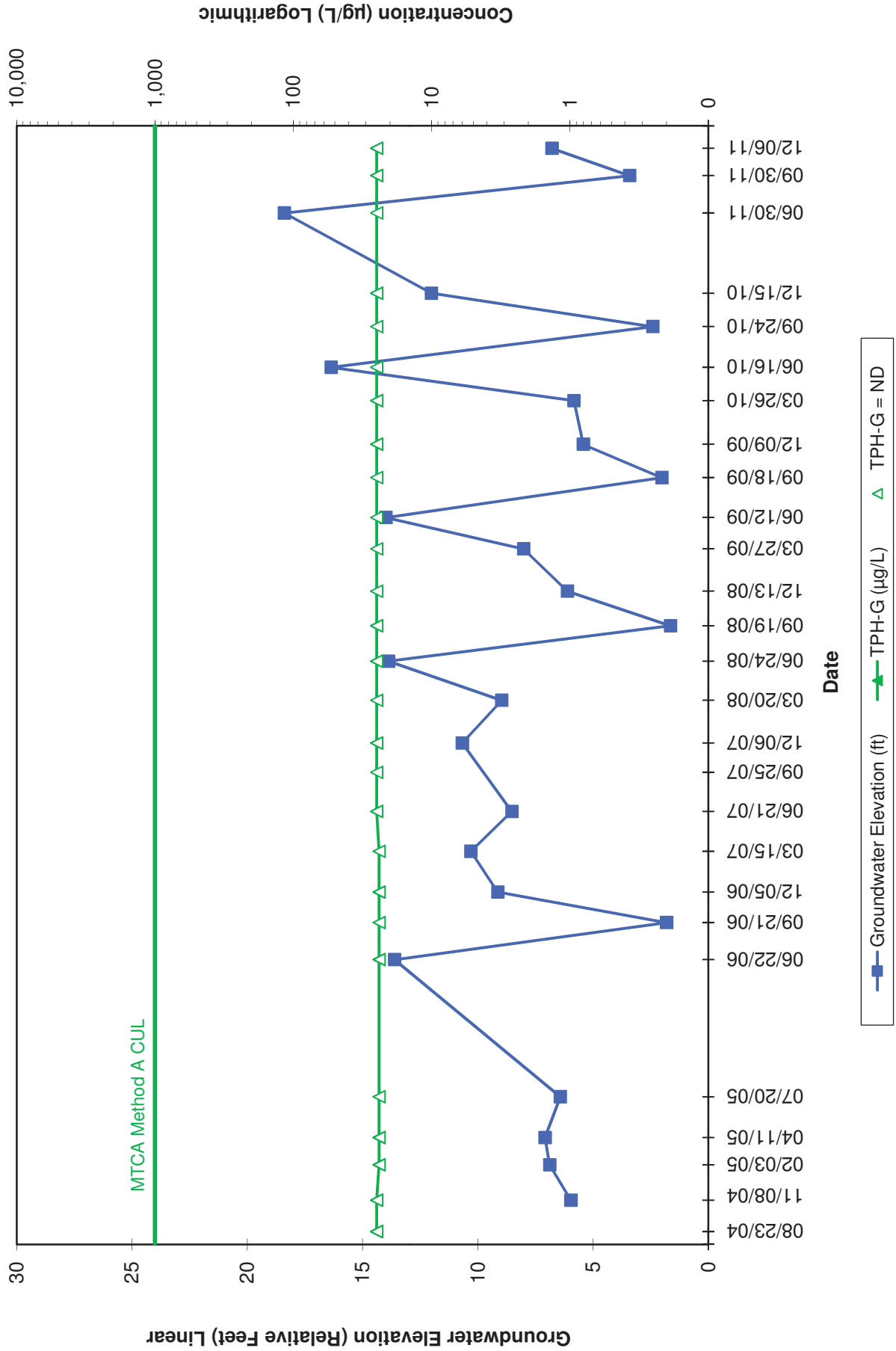


Well MW-6  
 Hydrograph - Benzene  
 Former Chevron Bulk Terminal No. 207407  
 612 SE Union Street, Camas, WA

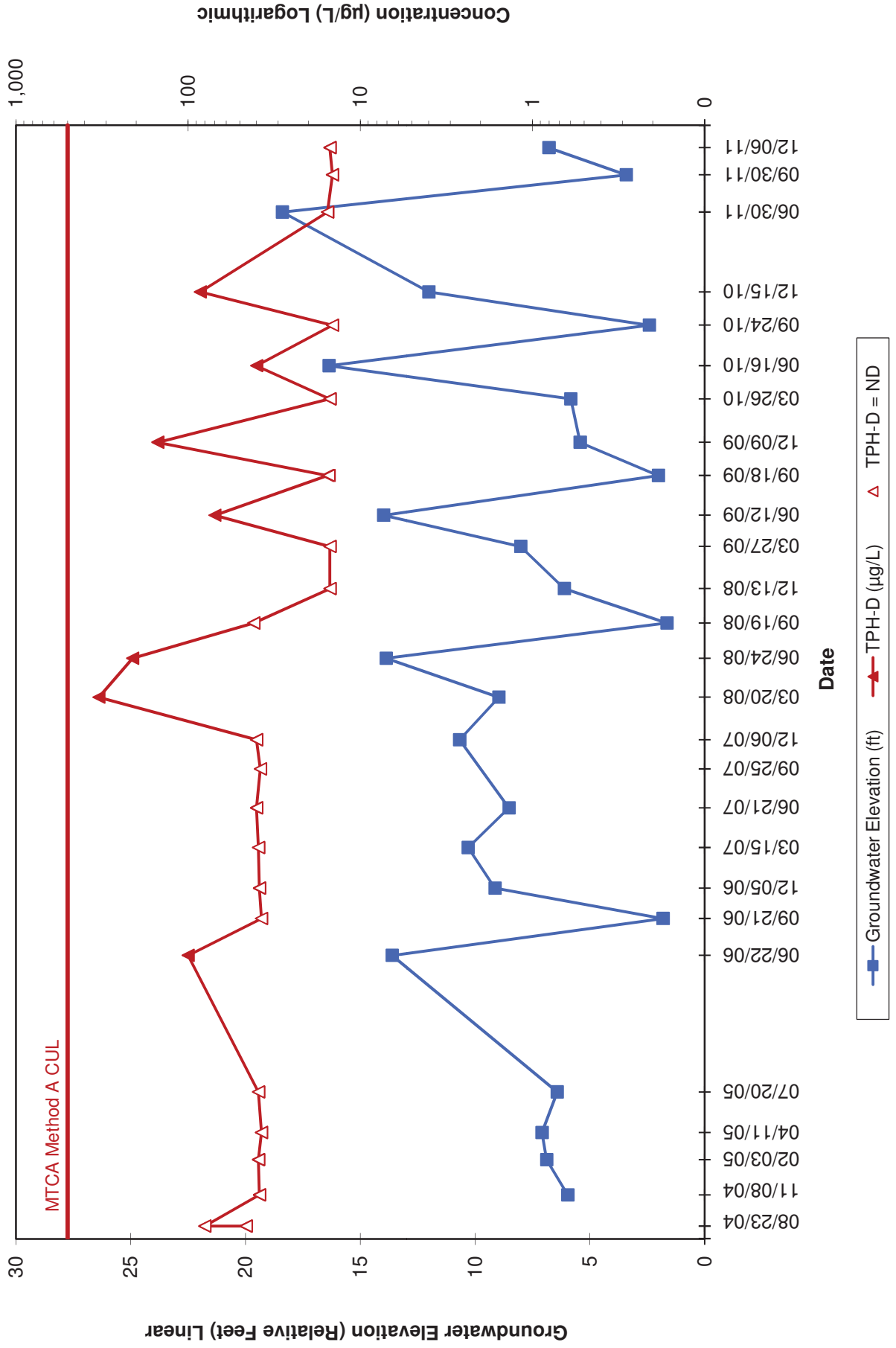




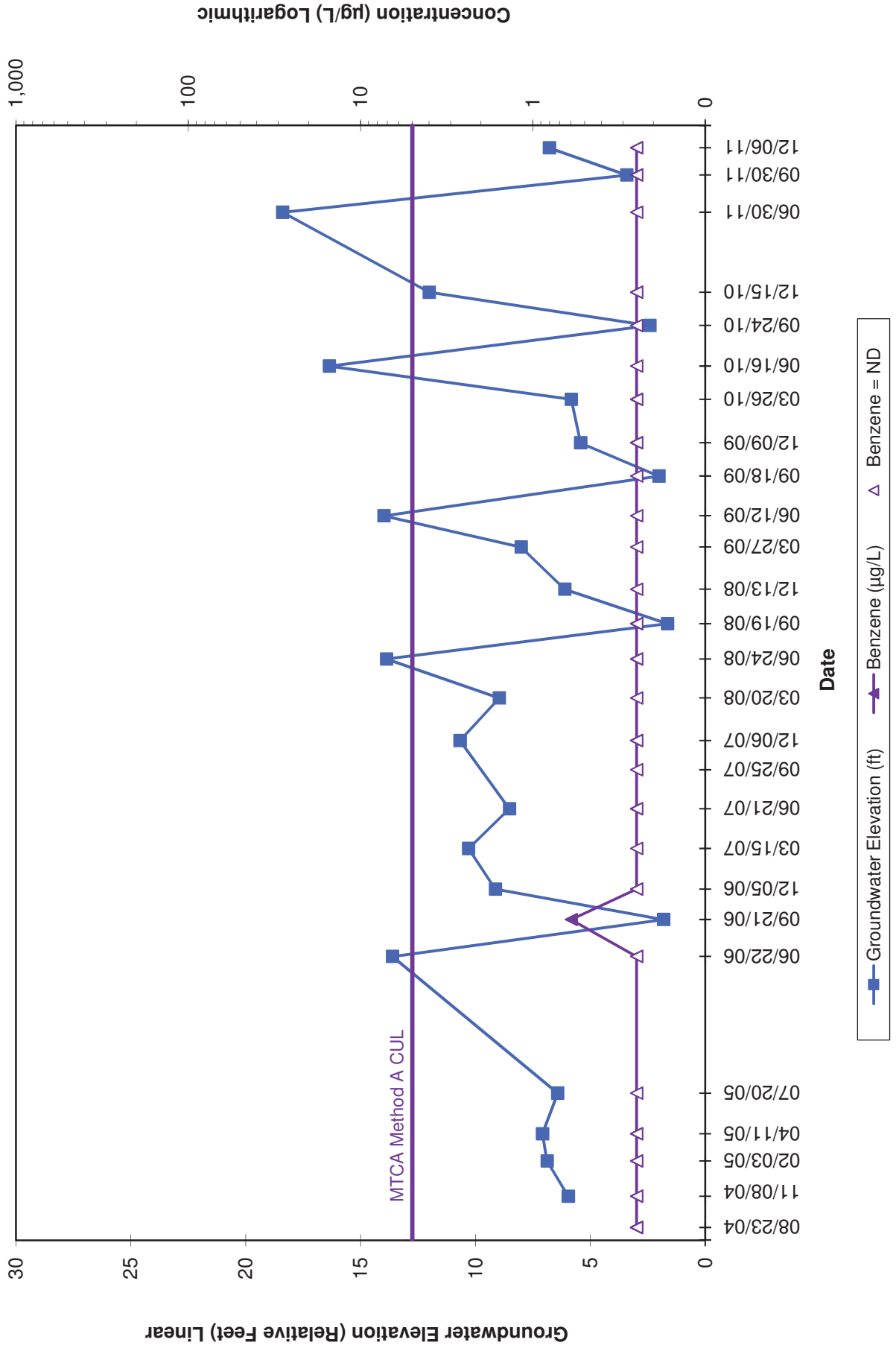
**Well MW-8**  
**Hydrograph - Gasoline-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**



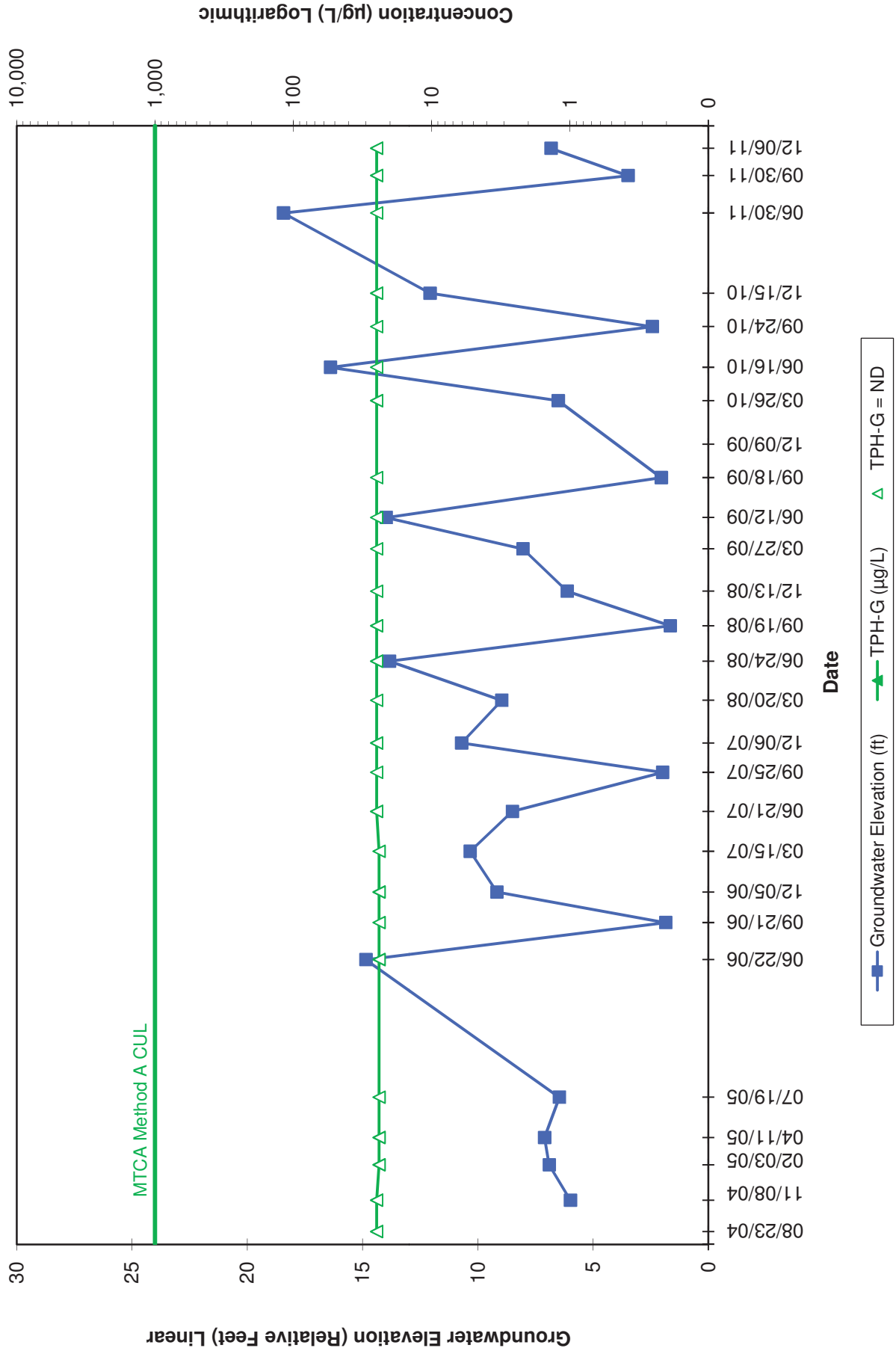
**Well MW-8  
 Hydrograph - Diesel-Range Hydrocarbons  
 Former Chevron Bulk Terminal No. 207407  
 612 SE Union Street, Camas, WA**



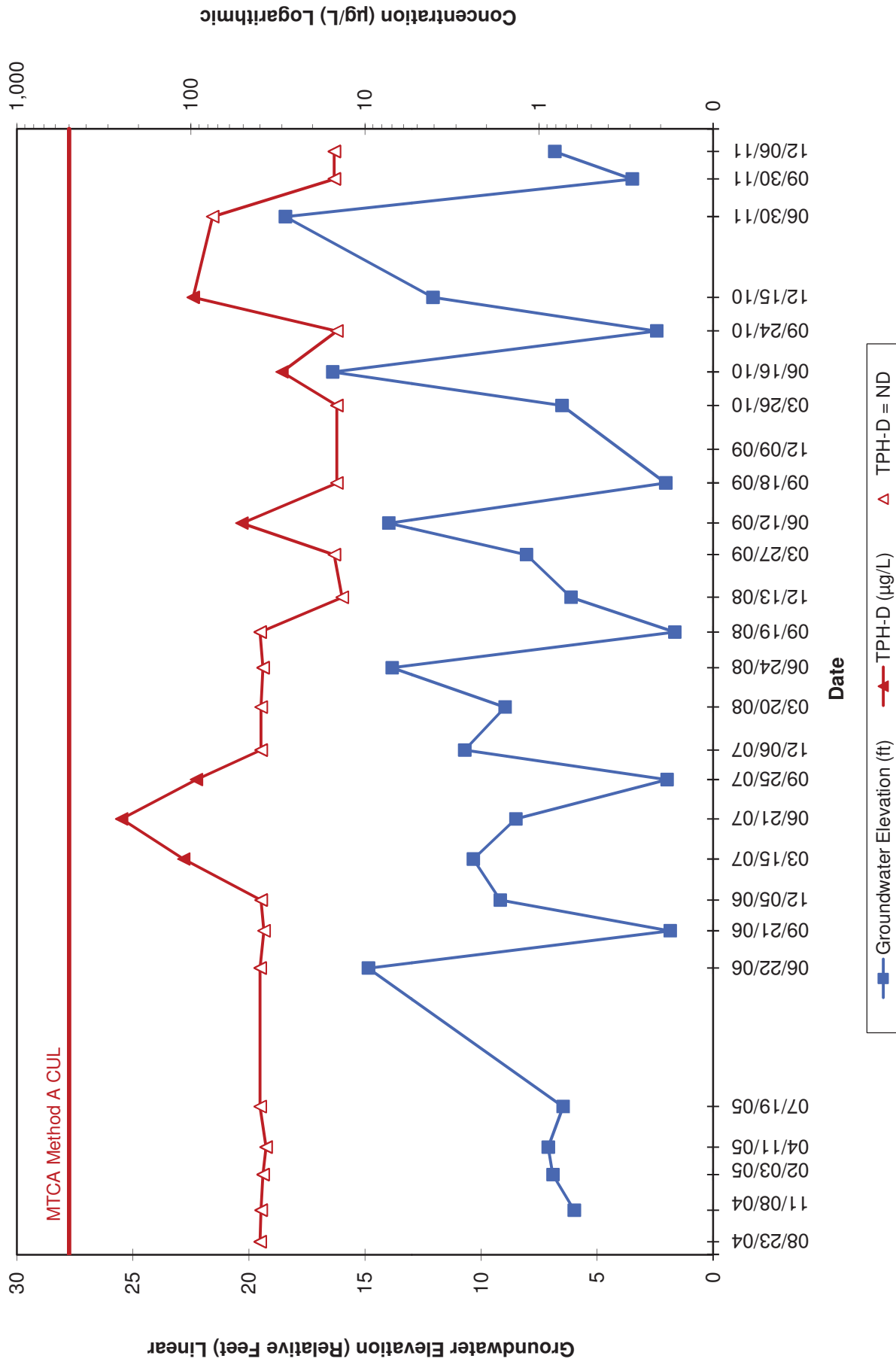
Well MW-8  
 Hydrograph - Benzene  
 Former Chevron Bulk Terminal No. 207407  
 612 SE Union Street, Camas, WA



**Well MW-9**  
**Hydrograph - Gasoline-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**

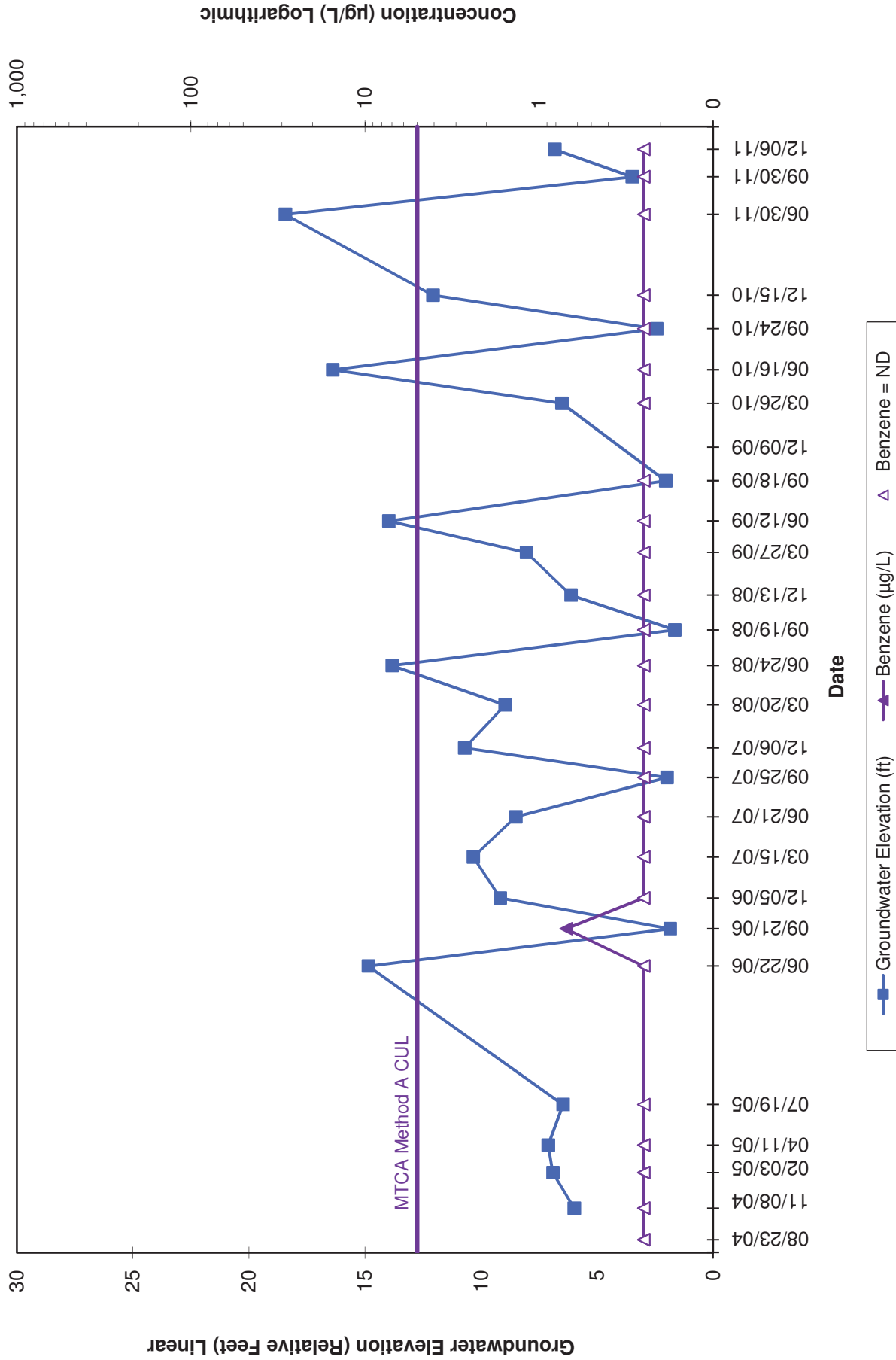


**Well MW-9  
Hydrograph - Diesel-Range Hydrocarbons  
Former Chevron Bulk Terminal No. 207407  
612 SE Union Street, Camas, WA**

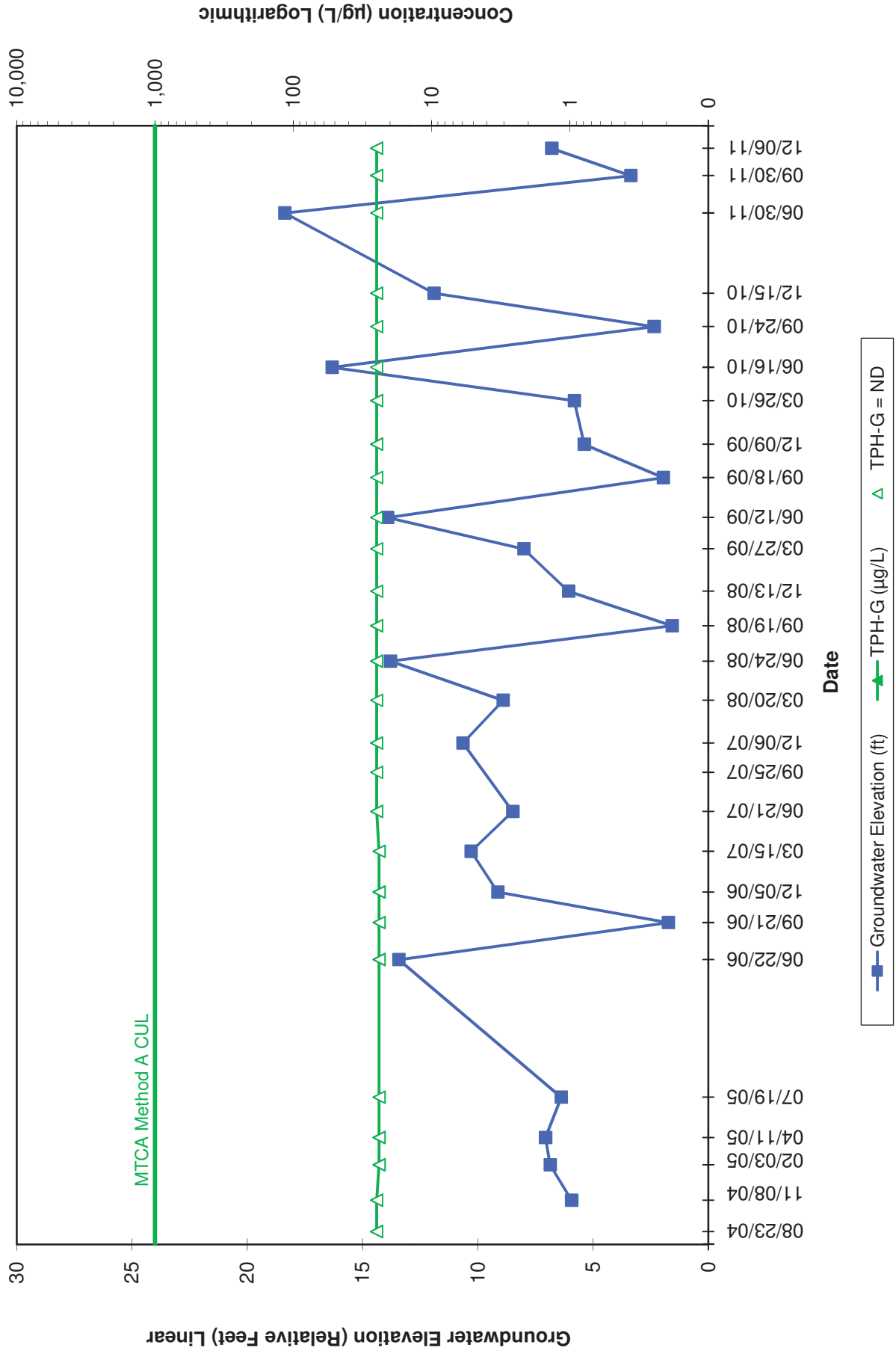




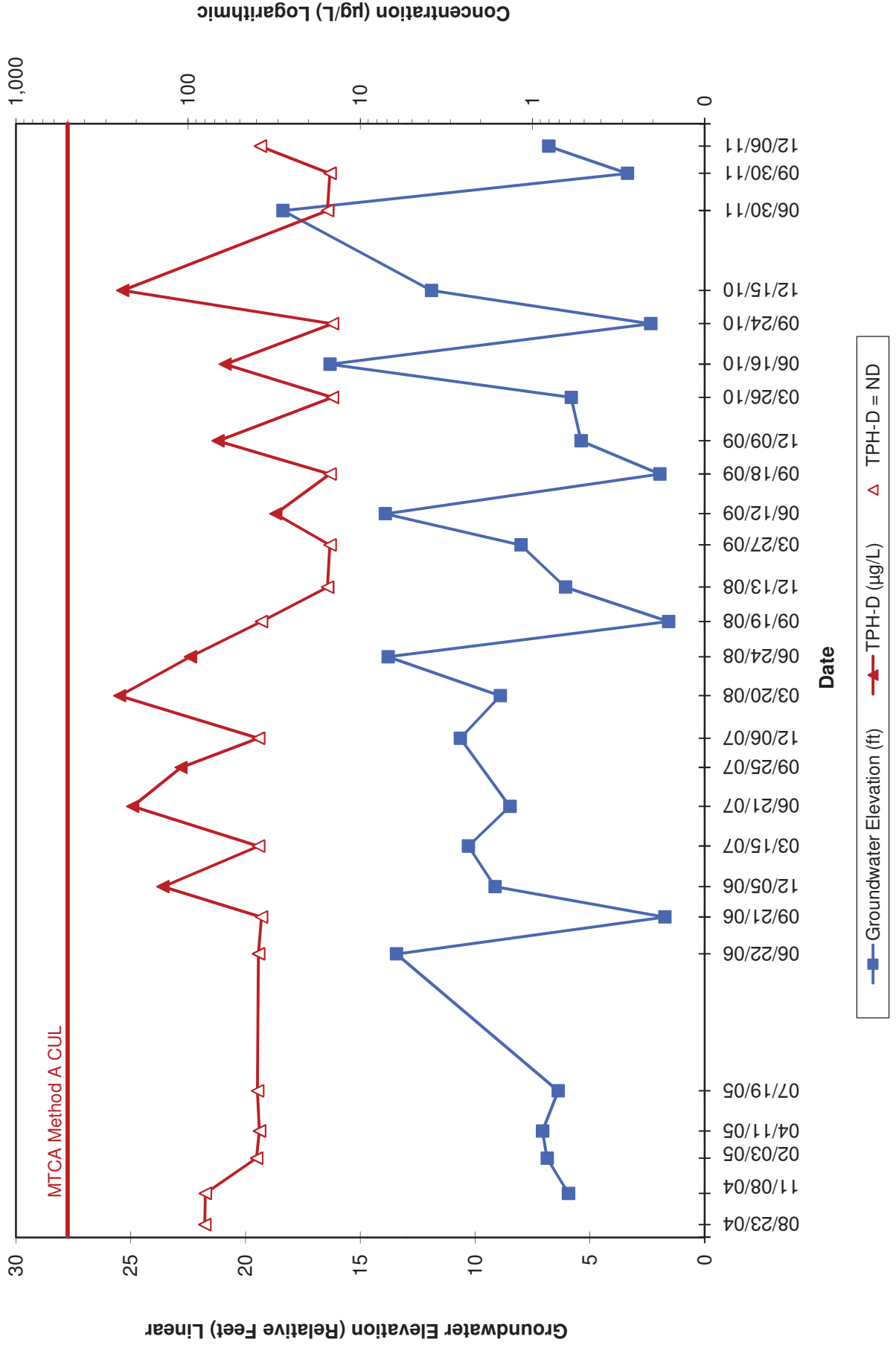
Well MW-9  
 Hydrograph - Benzene  
 Former Chevron Bulk Terminal No. 207407  
 612 SE Union Street, Camas, WA



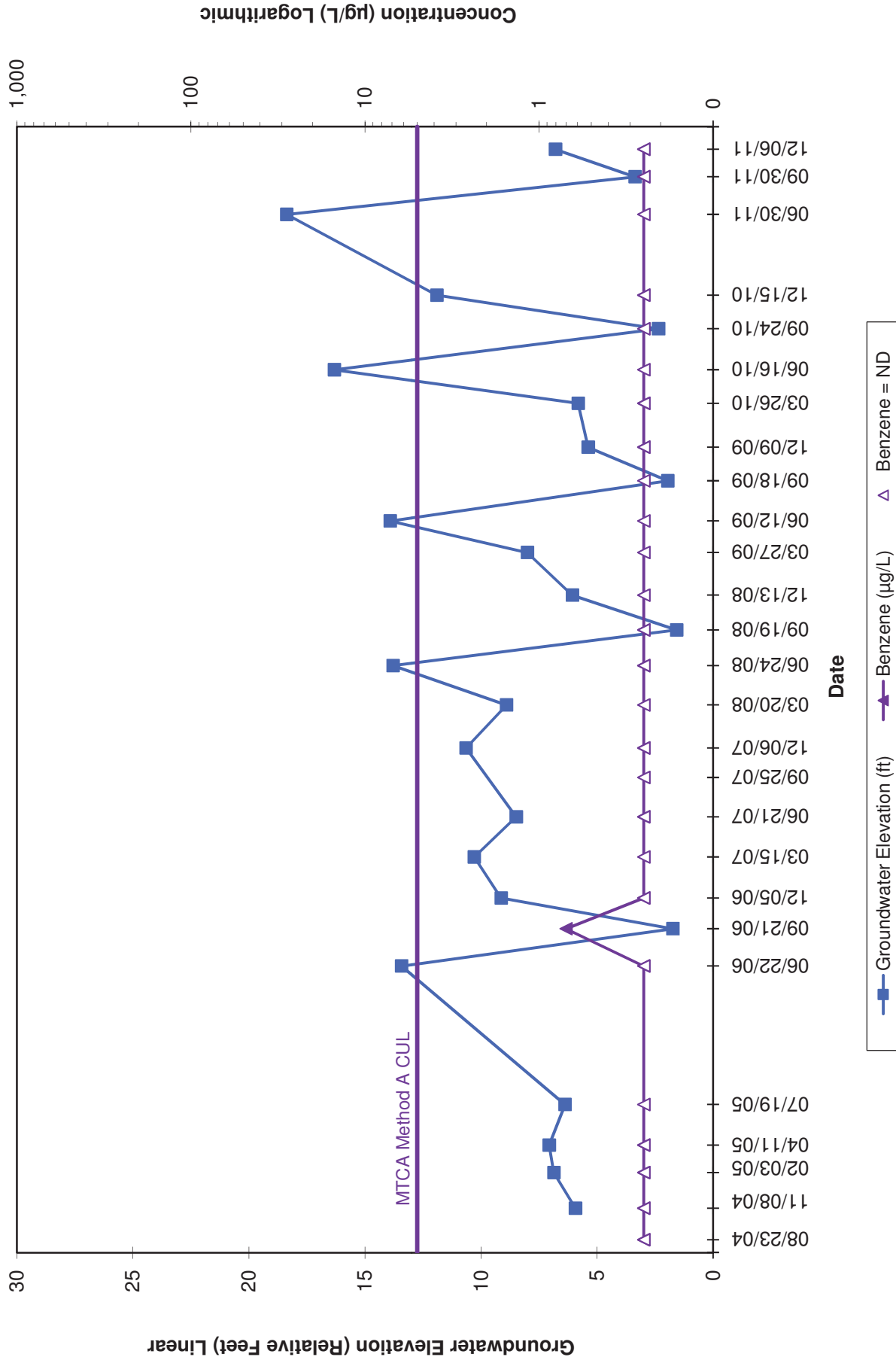
**Well MW-10**  
**Hydrograph - Gasoline-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**



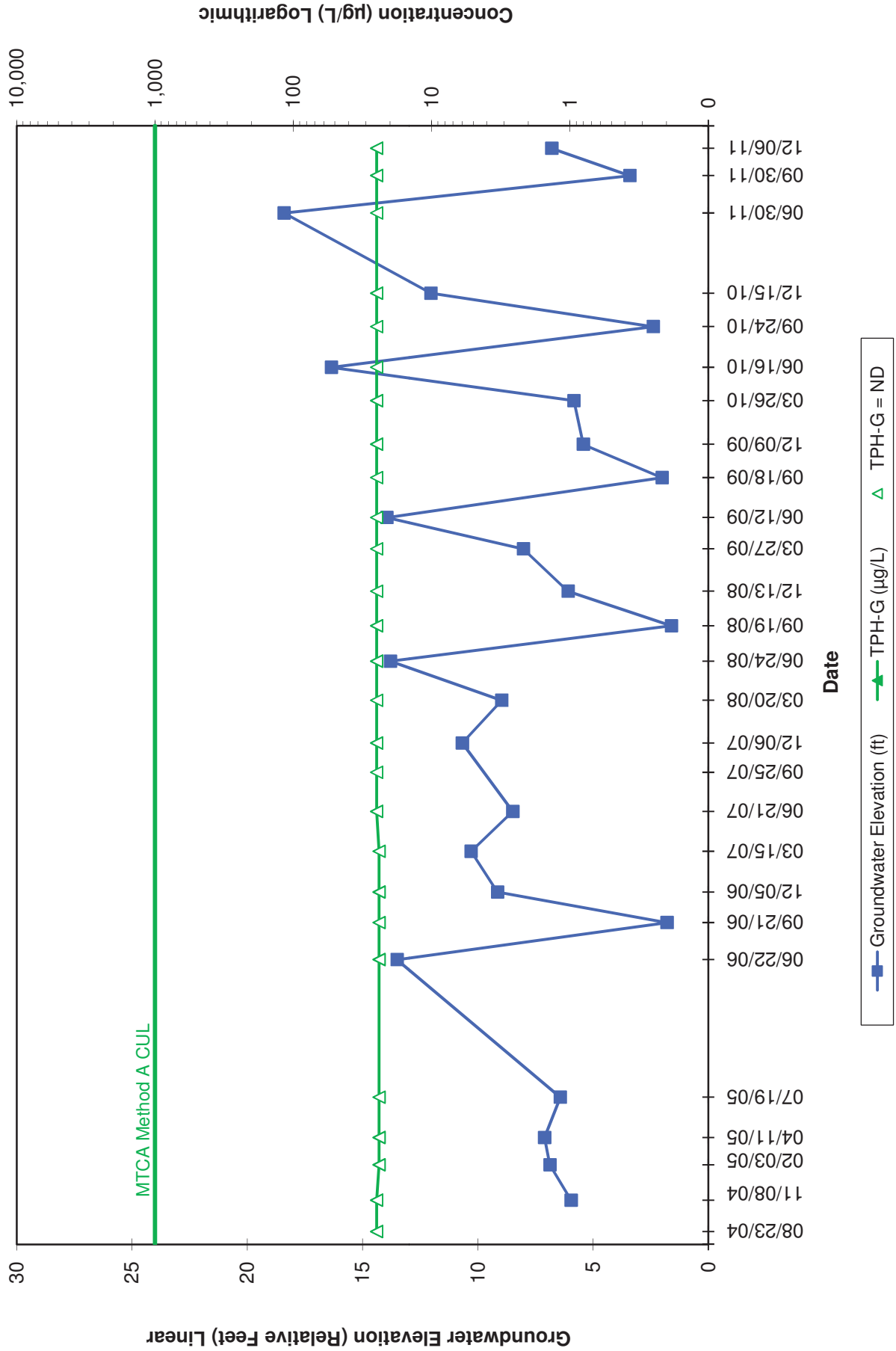
**Well MW-10**  
**Hydrograph - Diesel-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**



Well MW-10  
 Hydrograph - Benzene  
 Former Chevron Bulk Terminal No. 207407  
 612 SE Union Street, Camas, WA

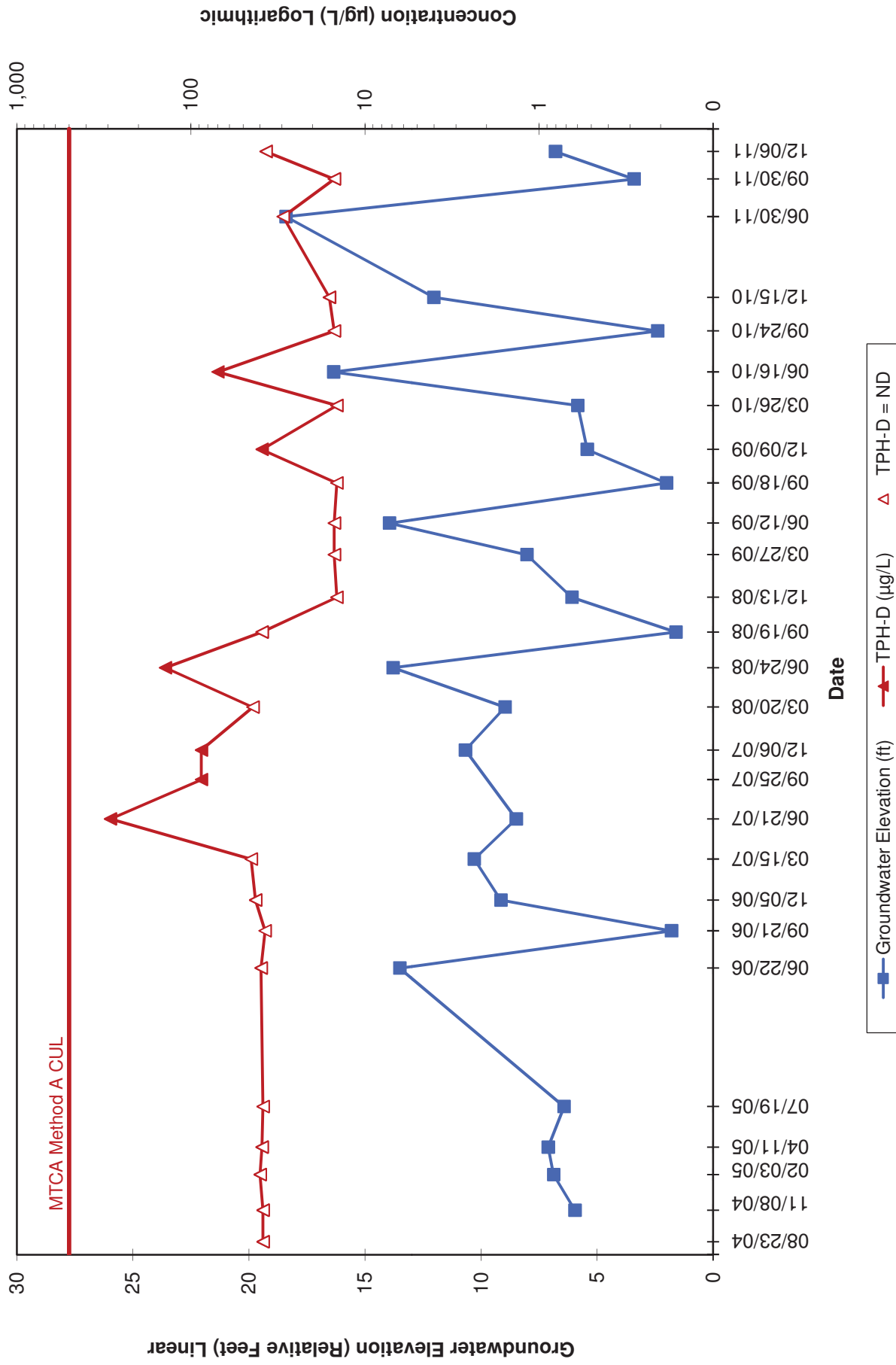


**Well MW-11**  
**Hydrograph - Gasoline-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**

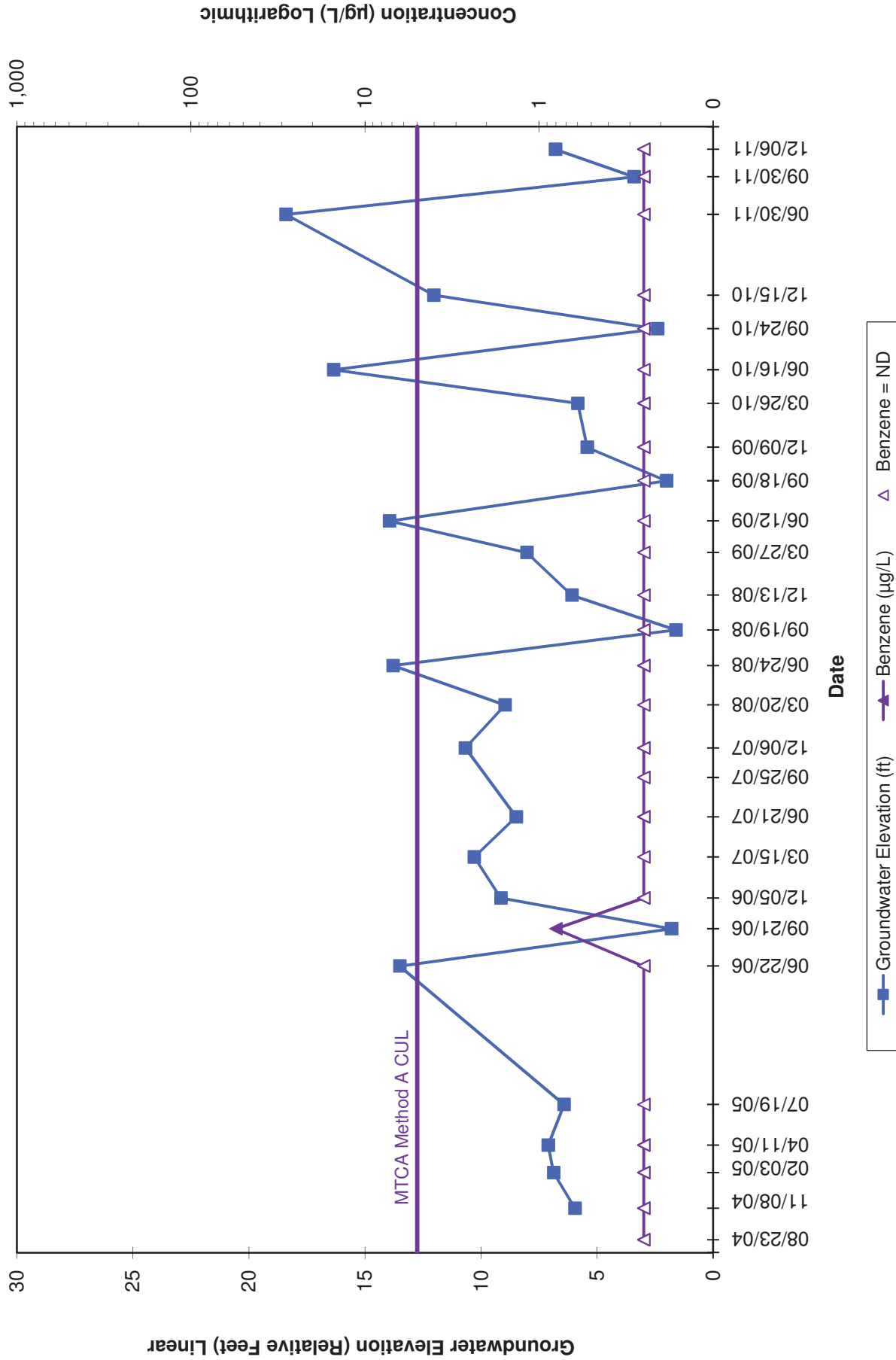




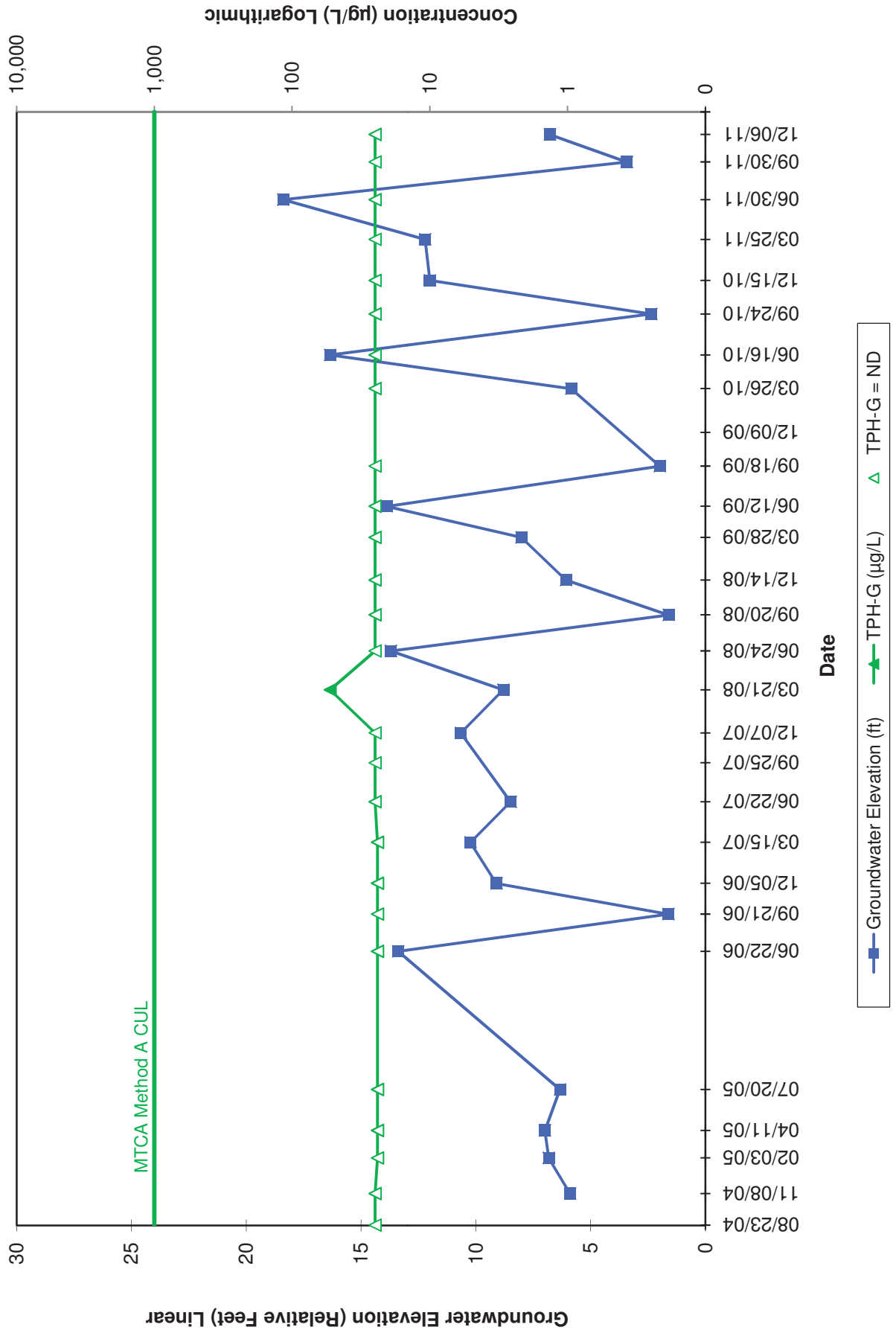
**Well MW-11**  
**Hydrograph - Diesel-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**



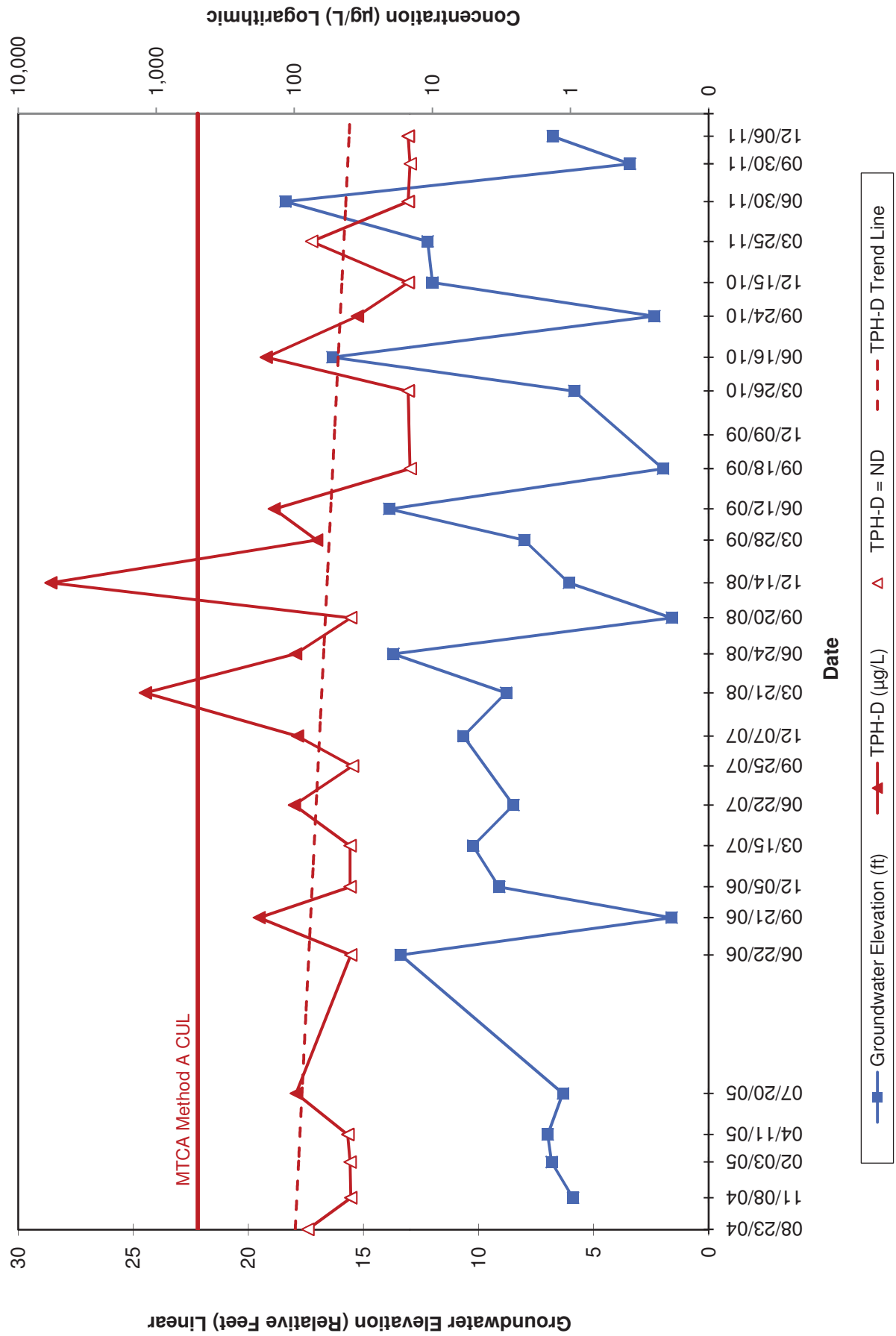
Well MW-11  
 Hydrograph - Benzene  
 Former Chevron Bulk Terminal No. 207407  
 612 SE Union Street, Camas, WA



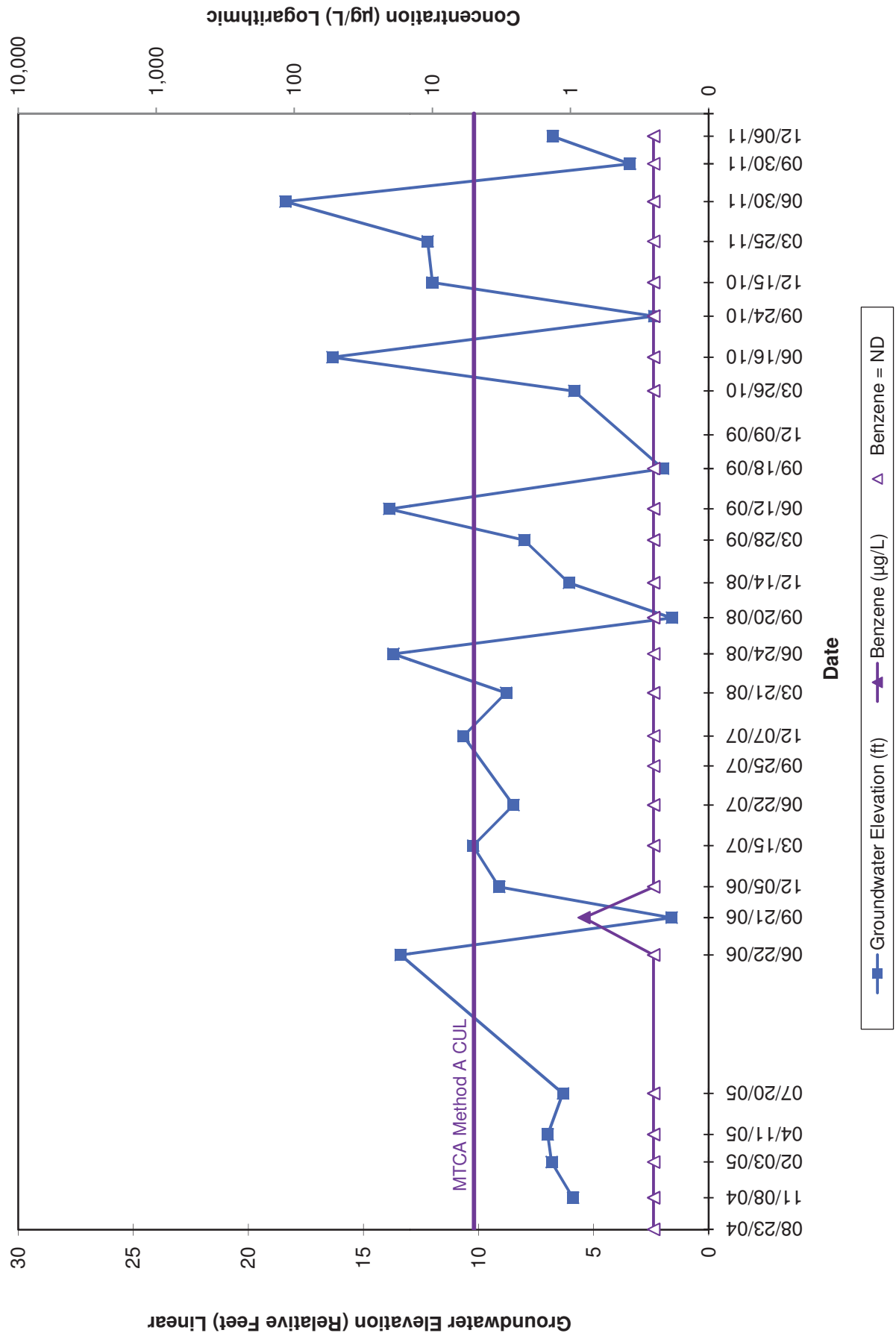
**Well MW-12**  
**Hydrograph - Gasoline-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**



**Well MW-12**  
**Hydrograph - Diesel-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**

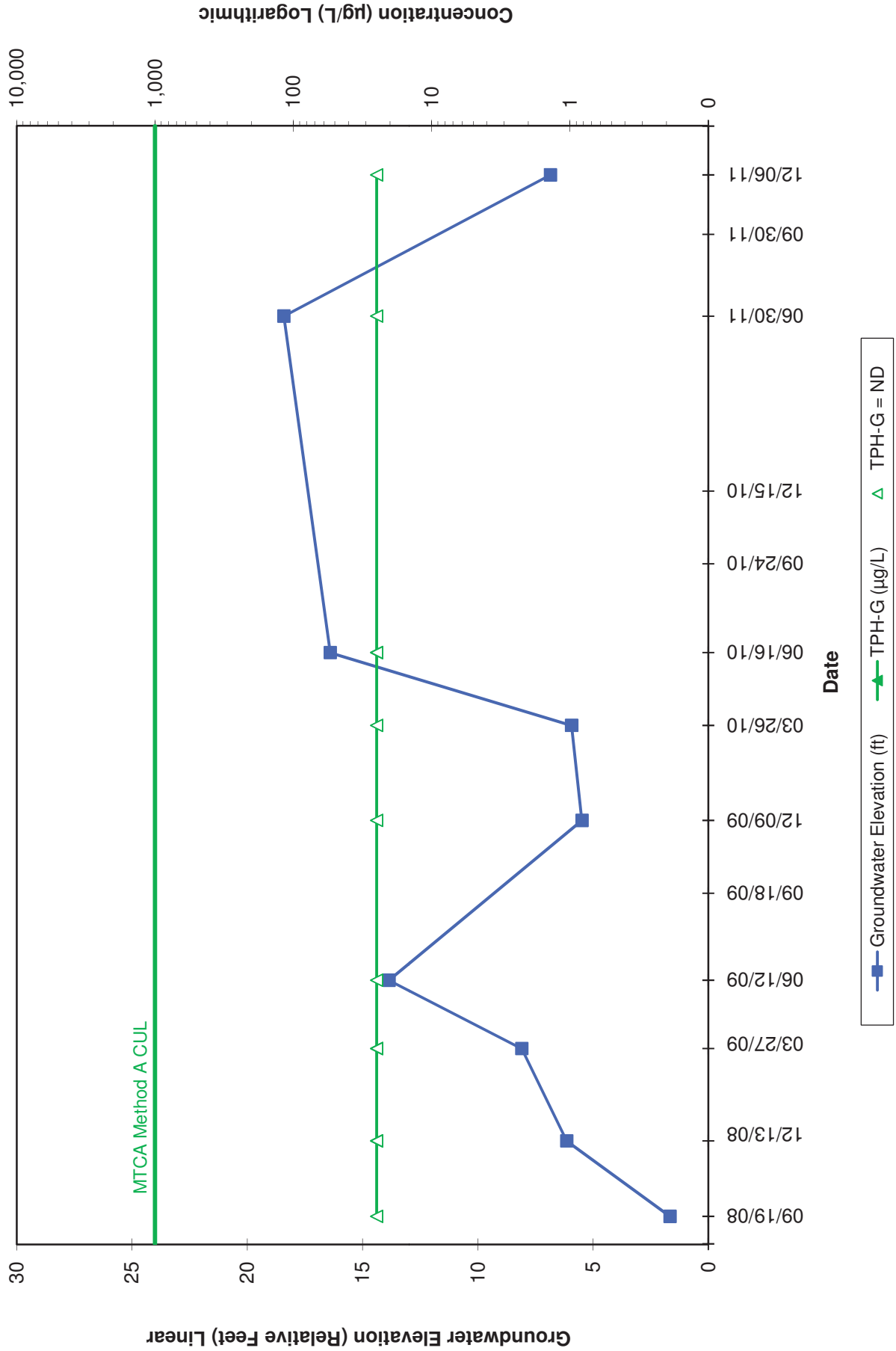


Well MW-12  
 Hydrograph - Benzene  
 Former Chevron Bulk Terminal No. 207407  
 612 SE Union Street, Camas, WA

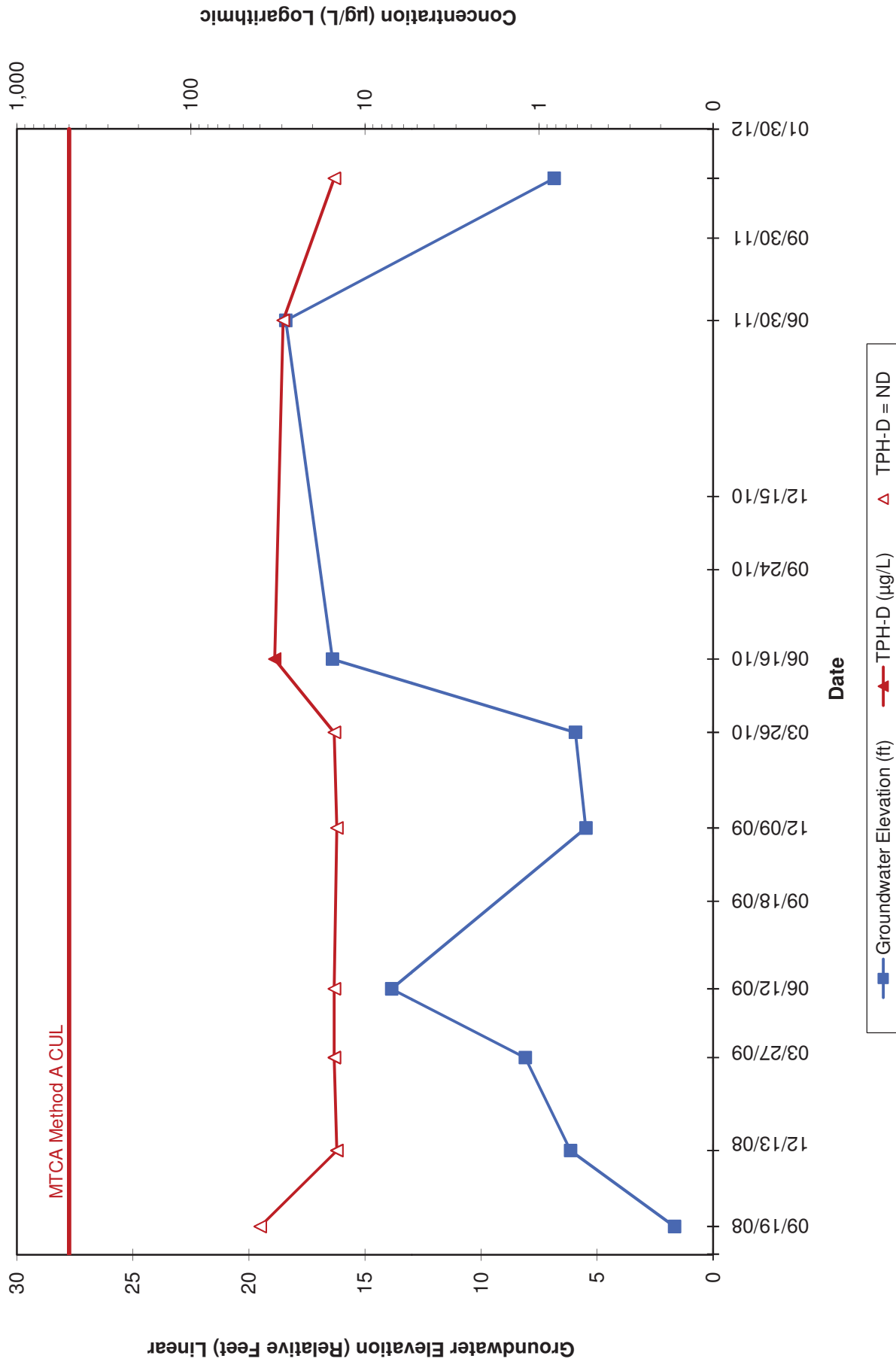




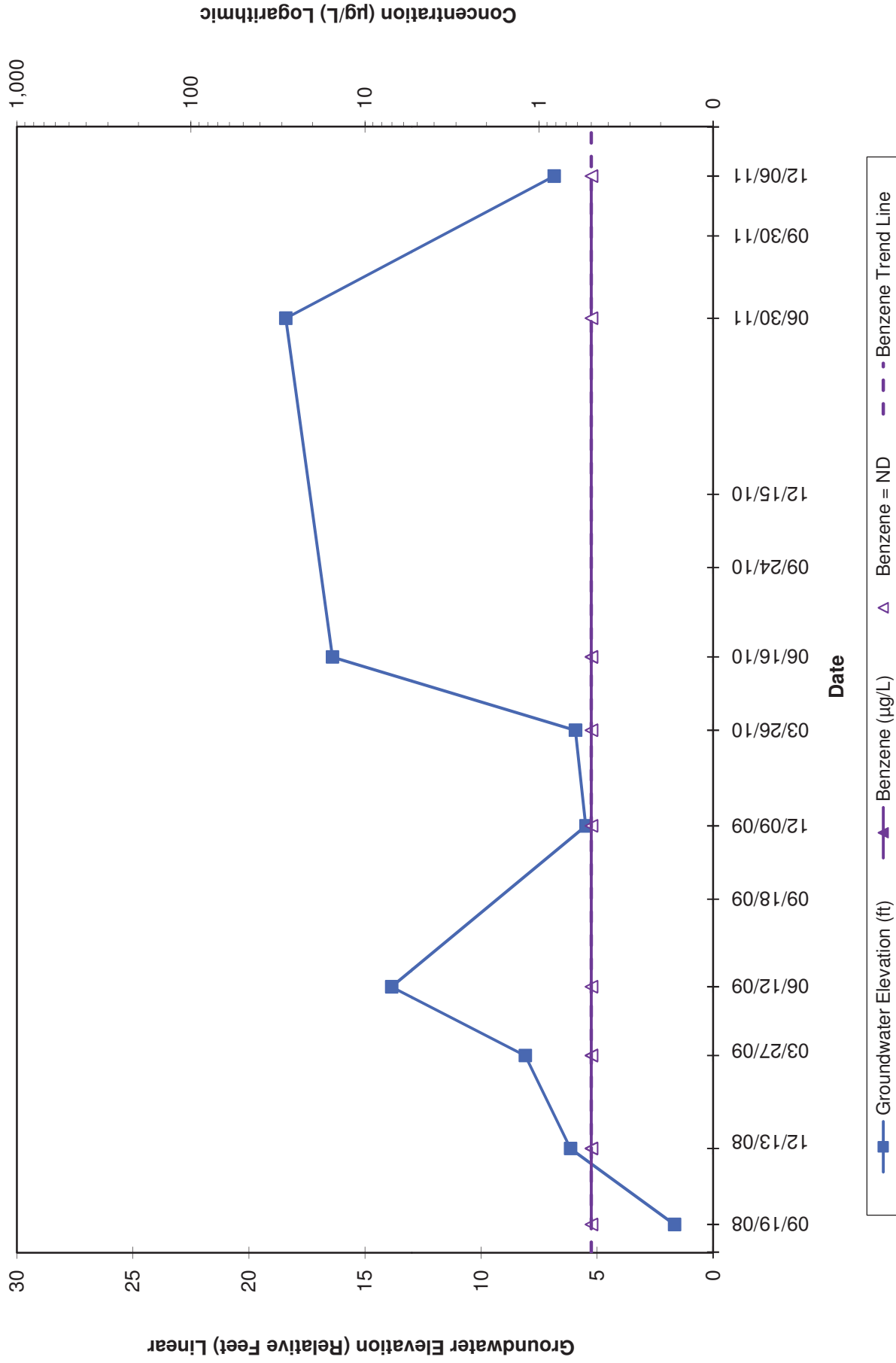
**Well MW-15**  
**Hydrograph - Gasoline-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**



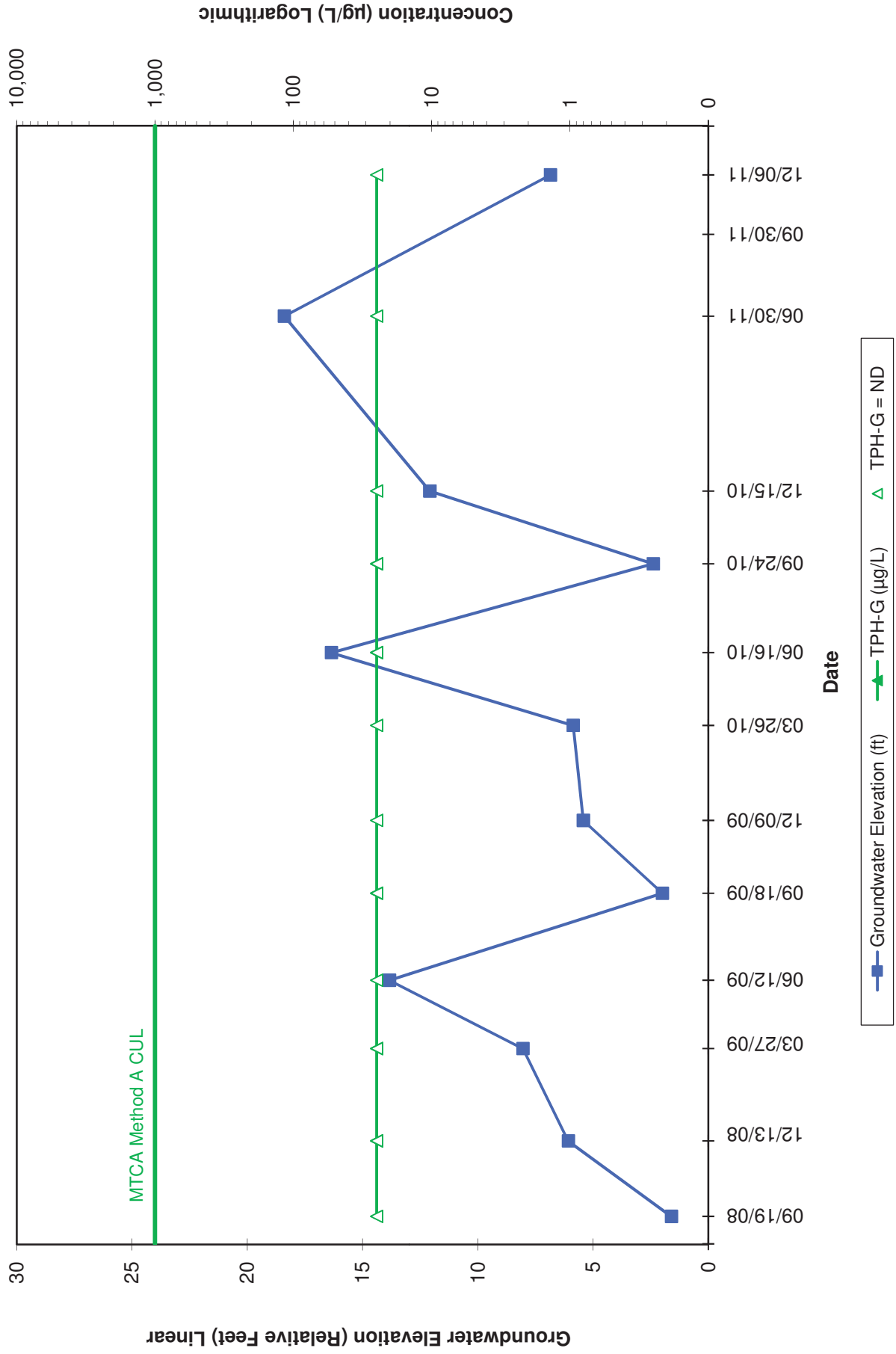
**Well MW-15**  
**Hydrograph - Diesel-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**



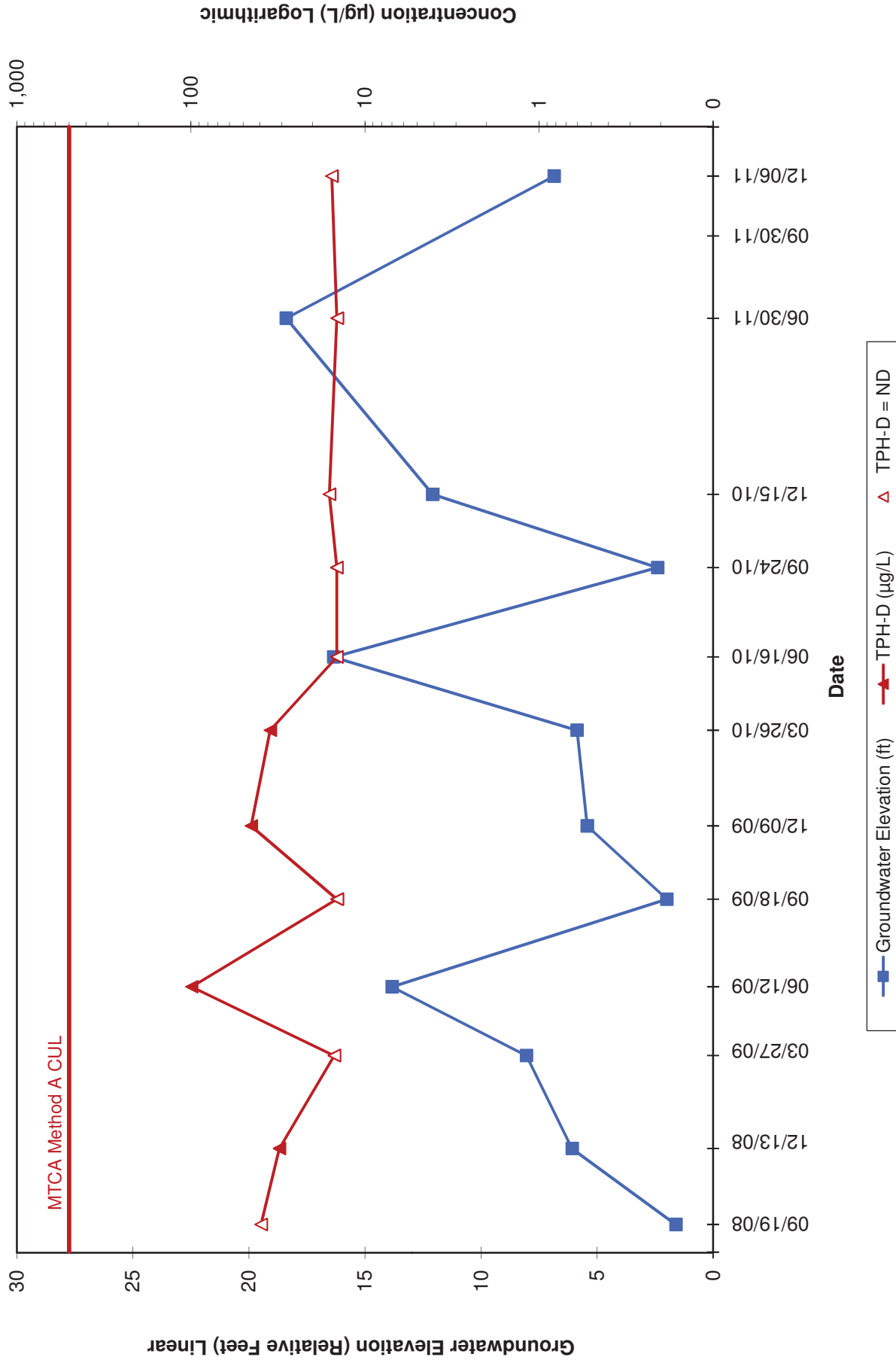
Well MW-15  
 Hydrograph - Benzene  
 Former Chevron Bulk Terminal No. 207407  
 612 SE Union Street, Camas, WA



**Well MW-16**  
**Hydrograph - Gasoline-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**

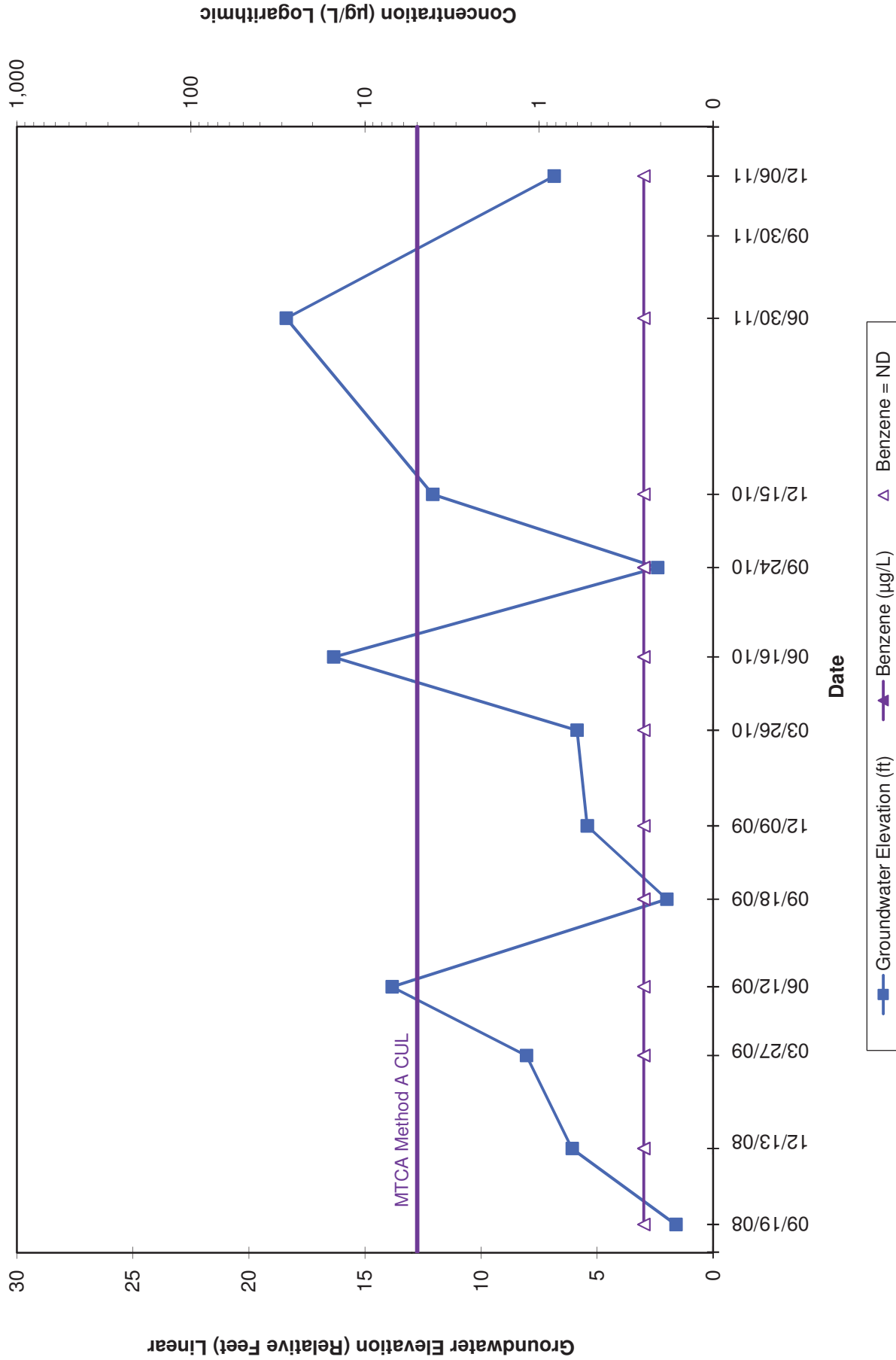


**Well MW-16**  
**Hydrograph - Diesel-Range Hydrocarbons**  
**Former Chevron Bulk Terminal No. 207407**  
**612 SE Union Street, Camas, WA**





Well MW-16  
 Hydrograph - Benzene  
 Former Chevron Bulk Terminal No. 207407  
 612 SE Union Street, Camas, WA



**APPENDIX E**  
**TERRESTRIAL ECOLOGICAL EVALUATION**

## Terrestrial Ecological Evaluation Process- Simplified Evaluation

### Documentation Form

Criteria # (Concern)	Criteria	Response (Circle One)
1 (exposure)	Is the total area of soil contamination at the site less than or equal to 350 square feet	<b>Yes (End TEE) / No</b>
2 (exposure)	Does land use at the site and surrounding area make substantial wildlife exposure unlikely based on completion of <a href="#">Table 749-1</a> ?	<b>Yes (End TEE) / No</b>
3 (pathway)	Is there a potential exposure pathway from soil contamination to soil biota, plants, or wildlife?	<b>Yes / No (End TEE)</b>
4 (contaminant)	Are the hazardous substances at your site listed in <a href="#">Table 749-2</a> and is (or will) their location in the soil at your site be at a depth not exceeding the point of compliance, and at concentrations that do not exceed the values provided in <a href="#">Table 749-2</a> .	<b>Yes (End TEE) / No</b>  <b>Note: You must perform bioassays for contaminants at your site if no table value is provided.</b>
5 (contaminant)	Will hazardous substances listed in <a href="#">Table 749-2</a> be present in the soil at your site within 6 feet of the ground surface at concentrations likely to be toxic, or with the potential to bioaccumulate, based on bioassays using methods approved by the department.	<b>Yes / No (End TEE)</b>

[\[Exclusions Main\]](#) [\[TEE Definitions\]](#) [\[Simplified or Site-Specific?\]](#) [\[Simplified Ecological Evaluation\]](#)  
[\[Site-Specific Ecological Evaluation\]](#) [\[WAC 173-340-7493\]](#) [\[Index of Tables\]](#)

[\[TEE Home\]](#)

**Table 749-1**

**Simplified Terrestrial Ecological Evaluation-Exposure Analysis Procedure**

Estimate the area of contiguous (connected) <u>undeveloped land</u> on the site or within 500 feet of any area of the site to the nearest 1/2 acre (1/4 acre if the area is less than 0.5 acre).																						
1) From the table below, find the number of points corresponding to the area and enter this number in the field to the right.																						
	<table border="1"> <thead> <tr> <th style="text-align: center;">Area (acres)</th> <th style="text-align: center;">Points</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">0.25 or less</td><td style="text-align: center;">4</td></tr> <tr><td style="text-align: center;">0.5</td><td style="text-align: center;">5</td></tr> <tr><td style="text-align: center;">1.0</td><td style="text-align: center;">6</td></tr> <tr><td style="text-align: center;">1.5</td><td style="text-align: center;">7</td></tr> <tr><td style="text-align: center;">2.0</td><td style="text-align: center;">8</td></tr> <tr><td style="text-align: center;">2.5</td><td style="text-align: center;">9</td></tr> <tr><td style="text-align: center;">3.0</td><td style="text-align: center;">10</td></tr> <tr><td style="text-align: center;">3.5</td><td style="text-align: center;">11</td></tr> <tr><td style="text-align: center;">4.0 or more</td><td style="text-align: center;">12</td></tr> </tbody> </table>	Area (acres)	Points	0.25 or less	4	0.5	5	1.0	6	1.5	7	2.0	8	2.5	9	3.0	10	3.5	11	4.0 or more	12	12
Area (acres)	Points																					
0.25 or less	4																					
0.5	5																					
1.0	6																					
1.5	7																					
2.0	8																					
2.5	9																					
3.0	10																					
3.5	11																					
4.0 or more	12																					
2) Is this an <u>industrial</u> or <u>commercial</u> property? If yes, enter a score of 3. If no, enter a score of 1		3																				
3) <sup>a</sup> Enter a score in the box to the right for the habitat quality of the site, using the following rating system <sup>b</sup> . High=1, Intermediate=2, Low=3		3																				
4) Is the undeveloped land likely to attract wildlife? If yes, enter a score of 1 in the box to the right. If no, enter a score of 2. <sup>c</sup>		1																				
5) Are there any of the following soil contaminants present: Chlorinated dioxins/furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, pentachlorobenzene? If yes, enter a score of 1 in the box to the right. If no, enter a score of 4.		4																				
6) Add the numbers in the boxes on lines 2-5 and enter this number in the box to the right. If this number is larger than the number in the box on line 1, the simplified evaluation may be ended.		11																				

**Notes for Table 749-1**

<sup>a</sup> It is expected that this habitat evaluation will be undertaken by an experienced field biologist. If this is not the case, enter a conservative score of (1) for questions 3 and 4.

<sup>b</sup> **Habitat rating system.** Rate the quality of the habitat as high, intermediate or low based on your professional judgment as a field biologist. The following are suggested factors to consider in making this evaluation:

**Low:** Early successional vegetative stands; vegetation predominantly noxious, nonnative, exotic plant species or weeds. Areas severely disturbed by human activity, including intensively cultivated croplands. Areas isolated from other habitat used by wildlife.

**High:** Area is ecologically significant for one or more of the following reasons: Late-[successional](#) native plant communities present; relatively high species diversity; used by an uncommon or rare species; [priority habitat](#) (as defined by the Washington Department of fish and Wildlife); part of a larger area of habitat where size or fragmentation may be important for the retention of some species.

**Intermediate:** Area does not rate as either high or low.

<sup>c</sup> Indicate "yes" if the area attracts wildlife or is likely to do so. Examples: Birds frequently visit the area to feed; evidence of high use b mammals (tracks, scat, etc.); habitat "island" in an industrial area; unusual features of an area that make it important for feeding animals; heavy use during seasonal migrations.

[\[Area Calculation Aid\]](#) [\[Aerial Photo with Area Designations\]](#) [\[TEE Table 749-1\]](#) [\[Index of Tables\]](#)

[\[Exclusions Main\]](#) [\[TEE Definitions\]](#) [\[Simplified or Site-Specific?\]](#) [\[Simplified Ecological Evaluation\]](#) [\[Site-Specific Ecological Evaluation\]](#) [\[WAC 173-340-7493\]](#)

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**APPENDIX F**

**MTCA METHOD B CLENUP LEVEL CALCULATION**

**A1 Soil Cleanup Levels: Worksheet for Soil Data Entry: Refer to WAC 173-340-720, 740,745, 747, 750**

**1. Enter Site Information**

Date: 12/30/11

Site Name: Former Chevron Bulk Terminal No. 20-7407

Sample Name: SB-2-19

**2. Enter Soil Concentration Measured**

Chemical of Concern or Equivalent Carbon Group	Measured Soil Conc	Composition
	dry basis mg/kg	Ratio %
<b><u>Petroleum EC Fraction</u></b>		
AL_EC >5-6		0.00%
AL_EC >6-8	70.4	1.78%
AL_EC >8-10	488	12.31%
AL_EC >10-12	400	10.09%
AL_EC >12-16	1400	35.33%
AL_EC >16-21	760	19.18%
AL_EC >21-34	77	1.94%
AR_EC >8-10	423.9	10.70%
AR_EC >10-12		0.00%
AR_EC >12-16	96	2.42%
AR_EC >16-21	220	5.55%
AR_EC >21-34	21.9445	0.55%
Benzene	0.05	0.00%
Toluene		0.00%
Ethylbenzene	0.2	0.01%
Total Xylenes	4.9	0.12%
Naphthalene	0.19	0.00%
1-Methyl Naphthalene		0.00%
2-Methyl Naphthalene		0.00%
n-Hexane		0.00%
MTBE	0.05	0.00%
Ethylene Dibromide (EDB)		0.00%
1,2 Dichloroethane (EDC)		0.00%
Benzo(a)anthracene	0.004	0.00%
Benzo(b)fluoranthene	0.0015	0.00%
Benzo(k)fluoranthene	0.0015	0.00%
Benzo(a)pyrene	0.0015	0.00%
Chrysene	0.009	0.00%
Dibenz(a,h)anthracene	0.0015	0.00%
Indeno(1,2,3-cd)pyrene	0.0015	0.00%
<b>Sum</b>	<b>3962.655</b>	<b>100.00%</b>

Notes for Data Entry      Set Default Hydrogeology  
 Clear All Soil Concentration Data Entry Cells  
 Restore All Soil Concentration Data cleared

REMARK:

- 1) Half detection limits used for benzene, ethylbenzene, MTBE, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.
- 2) AL\_EC>5-6, AR\_EC>10-12, toluene, 1-Methyl Naphthalene, 2-Methyl Naphthalene, EDB, EDC, and n-hexane, have never been detected on the site so a value of zero was entered.
- 3) Double counting was avoided for E-C fractions.
- 4) Default values were used for total porosity, soil bulk density, and fraction organic carbon.
- 5) A dilution factor of 20 was entered for unsaturated soil zones.

**3. Enter Site-Specific Hydrogeological Data**

Total soil porosity:	0.43	Unitless
Volumetric water content:	0.3	Unitless
Volumetric air content:	0.13	Unitless
Soil bulk density measured:	1.5	kg/L
Fraction Organic Carbon:	0.003	Unitless
Dilution Factor:	20	Unitless

**4. Target TPH Ground Water Concentration (if adjusted)**

If you adjusted the target TPH ground water concentration, enter adjusted value here:  ug/L

**A2 Soil Cleanup Levels: Calculation and Summary of Results.** Refer to WAC 173-340-720, 740, 745, 747, 750

**Site Information**

Date: 12/30/2011
Site Name: Former Chevron Bulk Terminal No. 20-7407
Sample Name: SB-2-19
Measured Soil TPH Concentration, mg/kg: 3,962.655

**1. Summary of Calculation Results**

Exposure Pathway	Method/Goal	Protective Soil TPH Conc, mg/kg	With Measured Soil Conc		Does Measured Soil Conc Pass or Fail?
			RISK @	HI @	
Protection of Soil Direct Contact: Human Health	Method B	2,671	2.77E-08	1.48E+00	Fail
	Method C	36,477	6.57E-09	1.09E-01	Pass
Protection of Method B Ground Water Quality (Leaching)	Potable GW: Human Health Protection	10,798	2.28E-06	6.82E-01	Pass
	Target TPH GW Conc. @ 355 ug/L	655	NA	NA	Fail

Warning! Check to determine if a simplified or site-specific Terrestrial Ecological Evaluation may be required (Refer to WAC 173-340-7490 through -7494).

Warning! Check Residual Saturation (WAC340-747(10)).

**2. Results for Protection of Soil Direct Contact Pathway: Human Health**

	Method B: Unrestricted Land Use	Method C: Industrial Land Use
Protective Soil Concentration, TPH mg/kg	2,670.67	36,477.26
Most Stringent Criterion	HI =1	HI =1

Soil Criteria	Protective Soil Concentration @Method B				Protective Soil Concentration @Method C			
	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @	Most Stringent?	TPH Conc, mg/kg	RISK @	HI @
HI=1	YES	2.67E+03	1.87E-08	1.00E+00	YES	3.65E+04	6.05E-08	1.00E+00
Total Risk=1E-5	NO	1.43E+06	1.00E-05	5.35E+02	NO	6.03E+06	1.00E-05	1.65E+02
Risk of Benzene= 1E-6	NO	1.44E+06	1.01E-05	5.39E+02	NA			
Risk of cPAHs mixture= 1E-6	NO	1.59E+05	1.11E-06	5.94E+01				
EDB	NA	NA	NA	NA				
EDC	NA	NA	NA	NA				

**3. Results for Protection of Ground Water Quality (Leaching Pathway)**

**3.1. Protection of Potable Ground Water Quality (Method B): Human Health Protection**

Most Stringent Criterion	MTBE = 20 ug/L
Protective Ground Water Concentration, ug/L	556.66
Protective Soil Concentration, mg/kg	10798.45

Ground Water Criteria	Protective Potable Ground Water Concentration @Method B				Protective Soil Conc, mg/kg
	Most Stringent?	TPH Conc, ug/L	RISK @	HI @	
HI=1	NO	5.99E+02	3.08E-06	7.55E-01	100% NAPL
Total Risk = 1E-5	NO	5.99E+02	3.08E-06	7.55E-01	100% NAPL
Total Risk = 1E-6	YES	3.66E+02	1.00E-06	4.75E-01	7.14E+02
Risk of cPAHs mixture= 1E-5	NO	5.99E+02	3.08E-06	7.55E-01	100% NAPL
Benzene MCL = 5 ug/L	NO	5.99E+02	3.08E-06	7.55E-01	100% NAPL
MTBE = 20 ug/L	YES	5.57E+02	2.76E-06	7.29E-01	1.08E+04

Note: 100% NAPL is 68000 mg/kg TPH.

**3.2. Protection of Ground Water Quality for TPH Ground Water Concentration previously adjusted and entered**

Ground Water Criteria	Protective Ground Water Concentration			Protective Soil Conc, mg/kg
	TPH Conc, ug/L	Risk @	HI @	
Target TPH GW Conc = 355 ug/L	3.55E+02	9.41E-07	4.60E-01	6.55E+02

**APPENDIX G**

**CAPITAL COSTS AND OPERATION AND MAINTENANCE (O&M) COSTS FOR  
EACH ALTERNATIVE**

**TABLE G-1**  
***Estimated Costs for Groundwater Monitoring - Alternative 1***  
***Former Chevron Facility 207407***  
***Camas, Washington***

<b>GROUNDWATER MONITORING</b>	<b>COST/UNIT</b>	<b>UNITS</b>	<b>COST</b>
Quarterly ground water monitoring - cost includes water level measurement, well evacuation and sampling of 10 monitoring wells, and equipment;	\$2,500	4 events	\$10,000
Laboratory analysis for 10 samples - includes NWTPH-Gx/NWTPH-Dx and BTEX	\$2,500	4 events	\$10,000
Reporting - cost includes four letter reports per year	\$2,000	4 events	\$8,000
<b>SUBTOTAL:</b>			<b>\$28,000</b>
Project Management (10% of above)			\$2,800
Contingency (15% of total)			\$4,620
<b>TOTAL ESTIMATED ANNUAL MONITORING COST:</b>			<b>\$35,420</b>

**TABLE G-2**  
**Estimated Costs for Alternative 2 - Source Removal, Onsite Treatment, and Natural Attenuation**  
**Former Chevron Facility 207407**  
**Camas, Washington**

<b>CAPITAL COSTS</b>	COST/UNIT	UNITS	COST
Removal/Excavation of 1,000 cubic yards of soil	\$45	1000 yards	\$45,000
Re-grading of 1,000 cubic yard	\$45	1000 yards	\$45,000
Asphalt Repair	\$30	2,500	\$75,000
Equipment for soil treatment (thermal treatment)	\$50,000	1	\$50,000
Sampling, Oversight of thermal treatment operation	\$20,000	1	\$20,000
Permitting, Reporting and Agency interaction	\$25,000	1 event	\$25,000
<b>ESTIMATED CAPITAL COST SUBTOTAL:</b>			<b>\$260,000</b>
Engineering, design, and construction oversight - (20% of above)			\$52,000
Project Management (10% of above)			\$26,000
<b>ESTIMATED OVERALL PROJECT CAPITAL COST SUBTOTAL:</b>			<b>\$338,000</b>
Contingency (30% of total)			\$101,400
<b>TOTAL ESTIMATED CAPITAL COST:</b>			<b>\$439,400</b>
<b>MONITORING COSTS</b>	COST/UNIT	UNITS	COST
Quarterly Groundwater Sampling/Reporting (from Table F-1)	\$28,000	2 years	\$56,000
<b>ESTIMATED MONITORING COST SUBTOTAL:</b>			<b>\$56,000</b>
Project Management (10% of above)			\$5,600
<b>ESTIMATED OVERALL MONITORING COST SUBTOTAL:</b>			<b>\$61,600</b>
Contingency (25% of total)			\$15,400
<b>TOTAL ESTIMATED MONITORING COST:</b>			<b>\$77,000</b>
<b>TOTAL ESTIMATED COST FOR ALTERNATIVE 2:</b>			<b>\$516,400</b>



**TABLE G-3**  
**Estimated Costs for Alternative 3 - Source Removal, Off-site Disposal, and Natural Attenuation**  
**Former Chevron Facility 207407**  
**Camas, Washington**

<b>CAPITAL COSTS</b>	COST/UNIT	UNITS	COST
Removal/Excavation of 1,000 cubic yards of soil	\$45	1000 yards	\$45,000
Re-grading of 1,000 cubic yard	\$45	1000 yards	\$45,000
Disposal of excavated soils	\$75	1000 yards	\$75,000
Asphalt Repair	\$30	2,500	\$75,000
Permitting, Reporting and Agency Interaction	\$25,000	1 event	\$25,000
<b>ESTIMATED CAPITAL COST SUBTOTAL:</b>			<b>\$265,000</b>
			\$53,000
Engineering, design, and construction oversight - (20% of above)			
Project Management (10% of above)			\$26,500
<b>ESTIMATED OVERALL PROJECT CAPITAL COST SUBTOTAL:</b>			<b>\$344,500</b>
Contingency (30% of total)			\$103,350
<b>TOTAL ESTIMATED CAPITAL COST:</b>			<b>\$447,850</b>
<hr/>			
<b>MONITORING COSTS</b>	COST/UNIT	UNITS	COST
Quarterly Groundwater Sampling/Reporting (from Table F-1)	\$28,000	2 years	\$56,000
<b>ESTIMATED MONITORING COST SUBTOTAL:</b>			<b>\$56,000</b>
Project Management (10% of above)			\$5,600
<b>ESTIMATED OVERALL MONITORING COST SUBTOTAL:</b>			<b>\$61,600</b>
Contingency (25% of total)			\$15,400
<b>TOTAL ESTIMATED MONITORING COST:</b>			<b>\$77,000</b>
<b>TOTAL ESTIMATED COST FOR ALTERNATIVE 3:</b>			<b>\$524,850</b>

**TABLE G-4**  
**Estimated Costs for Alternative 4 Soil Vapor Extraction**  
**Former Chevron Facility 207407**  
**Camas, Washington**

<b>CAPITAL COSTS</b>	<b>COST/UNIT</b>	<b>UNITS</b>	<b>COST</b>
Installation of 2 SVE wells - includes drilling of approximately 25 feet, mobe fees and start card	\$40,000	1	\$40,000
SVE equipment (Catox, blower, sound enclosure, controls)	\$150,000	1	\$150,000
SVE equipment Installation	\$10,000	1	\$10,000
Trenching, piping	\$50	200	\$10,000
Installation of asphalt cover (Assume 1,200 square yards)	\$64	1,200	\$76,800
<b>ESTIMATED CAPITAL COST SUBTOTAL:</b>			<b>\$286,800</b>
Engineering, design, and construction oversight - (25% of above)			\$71,700
Project Management (10% of above)			\$28,680
<b>ESTIMATED OVERALL PROJECT CAPITAL COST SUBTOTAL:</b>			<b>\$387,180</b>
Contingency (25% of total)			\$96,800
<b>TOTAL ESTIMATED CAPITAL COST:</b>			<b>\$483,980</b>
<b>ESTIMATED ANNUAL OPERATION &amp; MAINTENANCE (O&amp;M) COSTS</b>	<b>COST/UNIT</b>	<b>UNITS</b>	<b>COST</b>
Site O&M - includes weekly visits, minor repairs when necessary, utilities, and sampling - Assume 2 years	\$60,000	2	\$120,000
<b>ESTIMATED O&amp;M COST SUBTOTAL:</b>			<b>\$120,000</b>
Project Management (10% of above)			\$12,000
<b>ESTIMATED OVERALL O&amp;M COST SUBTOTAL:</b>			<b>\$132,000</b>
Contingency (25% of total)			\$33,000
<b>TOTAL ESTIMATED O&amp;M COST:</b>			<b>\$165,000</b>
<b>ESTIMATED MONITORING COSTS</b>	<b>COST/UNIT</b>	<b>UNITS</b>	<b>COST</b>
Quarterly Groundwater Sampling/Reporting (from Table F-1)	\$28,000	2 years	\$56,000