# 1.0 INTRODUCTION

This ***Cleanup Action Work Plan*** has been completed for implementation of the final cleanup of the former Priceless Gas, a leaking underground storage tank (LUST) site, located at 1110 Morgan Street, in Davenport (Lincoln County), Washington. Refer to the vicinity and site maps provided as Figures 1 and 2. The final cleanup at this Site is to be conducted in accordance with the provisions of Washington State Department of Ecology (Ecology) Enforcement Order No. 03TCPER-5598; and the scope of this ***Work Plan*** is documented in the ***Final Cleanup Action Plan*** (CAP), prepared by Washington State Department of Ecology in June 2003. Previous investigative work is summarized and referenced as part of the CAP and includes the following:

- Remedial Investigation / Feasibility Study – Priceless Gas (2001)
- Remedial Investigation – Priceless Gas (2000)
- Site Investigation, UST Removal and Remedial Activities Report – Priceless Gas (1999)
- Remedial Investigation / Feasibility Study – Corner Express (2002)
- Final Cleanup Action Plan for the Former Corner Express (January 2003)

## 1.1 BACKGROUND INFORMATION

The following are provided in Appendix A of this ***Work Plan***, summarizing the nature and extent of soil and groundwater contamination and existing conditions at the Priceless Gas Site:

- Surface topography map
- Bedrock surface map
- Cross Sections
- Contaminated soil removal and concentration maps and summary tables
- Groundwater flow map dated 3/31/2004
- Summary table and hydrographs for all monitoring wells
- Groundwater monitoring summary tables
- Comparisons of groundwater concentrations (including 3/31/2004 sampling)
- Laboratory data sheets for 3/31/2004 sample collection (MW-1, MW-2, MW-3, and MW-4)
- Comparison of Chromatographic Data from Corner Express Texaco and Priceless Gas Sites (April 16, 2003)

Upgradient remedial activities at the former Corner Express Texaco Site included (refer to the Final Cleanup Action Plan, January 2003): tank and associated piping removal, contaminated soil excavation, groundwater air-sparge and soil vapor extraction systems within the UST excavation, and backfilling of excavated areas with appropriate materials.

Site maps and groundwater data summaries are also provided in Appendix A of this ***Work Plan***.

## 1.2 FINAL CLEANUP ACTION PLAN

The Final CAP (included in Appendix A of this ***Work Plan***) summarizes an historical review of Site activities and conditions, nature and extent of contamination, cleanup standards, and cleanup action alternatives screening and selection. In summary, the selected final cleanup action for the Priceless Gas Site consists of the following elements:

- Soil removal (associated with construction) and site grading/compaction;
- Product recovery at MW-3 on south property boundary (upgradient);
- Groundwater treatment within trench along the north property boundary (downgradient);
- Backfilling of excavated areas with appropriate materials;
- Quarterly sampling and analysis of groundwater monitoring wells designated as points of compliance or performance monitoring points;
- Institutional controls.

Applicable or relevant and appropriate requirements for the selected cleanup action are summarized in the following table:

| CLEANUP ACTION IMPLEMENTATION | |
|---|---|
| Ch. 18.104 RCW<br>Ch. 173-160 WAC | Water Well Construction; Minimum Standards for Construction and Maintenance of Water Wells |
| Ch. 173-162 WAC | Rules and Regulations Governing the Licensing of Well Contractors and Operators |
| Ch. 70.105D RCW;<br>Ch. 173-340 WAC | Model Toxics Control Act;<br>MTCA Cleanup Regulation |
| Ch. 43.21C RCW;<br>Ch. 197-11 WAC | State Environmental Policy Act<br>SEPA Rules |
| 29 CFR 1910 | Occupational Safety and Health Act |
| **GROUNDWATER** | |
| 33 USC 1251;<br>40 CFR 131 | Clean Water Act of 1977;<br>Water Quality Standards |
| Ch. 70.105D RCW;<br>Ch 173-340 WAC | Model Toxics Control Act<br>MTCA Cleanup Regulation |
| Ch. 173-200 WAC | Water Quality Standards for Ground Waters of the State of Washington |
| **AIR** | |
| 42 USC 7401;<br>40 CFR 50 | Clean Air Act of 1977<br>National Ambient Air Quality Standards |
| Ch. 70.94 RCW;<br>Ch. 43.21A RCW;<br>Ch. 173-400 WAC | Washington Clean Air Act;<br><br>General Regulations for Air Pollution |
| Ch. 173-460 WAC | Controls for New Sources of Air Pollution |
| Ch. 70.105D RCW;<br>Ch. 173-340 WAC | Model Toxics Control Act;<br>MTCA Cleanup Regulation |

## 1.3 SITE CLEANUP LEVELS

### 1.3.1 Site Cleanup Levels for Soil

The point of compliance for meeting soil cleanup levels at the Priceless Gas Site was selected on the basis of the provisions of WAC 173-340-740(6). The point of compliance for soils is the entire site.

Soil cleanup levels have been established for the site using MTCA Method A, as provided for in WAC 173-340-740(2). This method was determined to be consistent with WAC 173-340-704(1) which provides that MTCA Method A cleanup levels are appropriate for those sites with few hazardous substances, undergoing a routine cleanup action as defined in WAC 173-340-200.

| CONSTITUENT | SOIL CLEANUP LEVEL | SAMPLE RESULTS FROM RI |
|---|---|---|
| BENZENE | 0.03 mg/kg | ND – 7.08 mg/kg |
| TOLUENE | 7 mg/kg | ND – 52.7 mg/kg |
| ETHYLBENZENE | 6 mg/kg | ND – 36 mg/kg |
| XYLENES | 9 mg/kg | ND – 170 mg/kg |
| MTBE | 0.10 mg/kg | ND – 5.74 mg/kg |
| TPH (Gasoline) | 30 mg/kg | ND – 1,730 mg/kg |
| TPH (Diesel) | 2,000 mg/kg | ND – 111 mg/kg |

ND = less than laboratory method detection limit
mg/kg = ppm
TPH (G) = Total Petroleum Hydrocarbons (Gasoline range)
TPH (D) = Total Petroleum Hydrocarbons (Diesel range)

### 1.3.2 Site Cleanup Levels for Groundwater

The points of compliance for meeting groundwater cleanup levels at the Priceless Gas Site were selected on the basis of the criteria specified in WAC 173-340-720(8). The points of compliance are monitoring wells MW-1, MW-2, MW-3, and MW-6 (refer to Figure 2 for compliance well locations).

Groundwater cleanup levels have been established for the Site using MTCA Method A as provided for in WAC 173-340-720(3). Although the groundwater in this area is an unlikely source of potable groundwater, Ecology has chosen to apply the more conservative cleanup values defined under Method A. The conservative approach was selected out of consideration of the potential threat to Cottonwood Creek and historical problems with increased exposure risk due to the high groundwater conditions.

| CONSTITUENT | GROUNDWATER CLEANUP LEVEL | SAMPLE RESULTS FROM RI |
|---|---|---|
| BENZENE | 5 µg/l | 4.81 – 41,800 µg/l |
| TOLUENE | 1,000 µg/l | 0.624 – 3,730 µg/l |
| ETHYLBENZENE | 700 µg/l | ND – 2,040 µg/l |
| XYLENES | 1,000 µg/l | ND – 5,740 µg/l |
| MTBE | 20 µg/l | 154 – 2,750 µg/l |
| TPH (Gasoline) | 800 µg/l | ND – 41,800 µg/l |
| TPH (Diesel) | 500 µg/l | ND – 4,540 µg/l |

ND = less than laboratory method detection limit
µg/l = ppb
TPH (G) = Total Petroleum Hydrocarbons (Gasoline range)
TPH (D) = Total Petroleum Hydrocarbons (Diesel range)

### 1.3.3 System Performance Monitoring

Quarterly groundwater monitoring will include the sampling and analysis of previously identified points of compliance wells (MW-1, MW-2, MW-3, and MW-6) and system performance will be accomplished through the sampling of: MW-4, MW-5, MW-7, MW-8, MW-9, and MW-10 (refer to Figure 2 for system performance monitoring well locations). Groundwater monitoring will continue until compliance with the established cleanup levels is demonstrated for four (4) consecutive quarterly sampling events. Groundwater monitoring will be conducted in a manner consistent with the MTCA provisions for compliance monitoring described in WAC 173-340-720(9).

Sample collection and laboratory analyses will be conducted in accordance with the ***Sampling and Analysis Plan***, provided in Appendix B. Field sampling activities will be conducted in accordance with the ***Health and Safety Plan*** for the Site, provided as Appendix C.

## 1.4 SUPPLEMENTAL DOCUMENTS

This ***Cleanup Action Work Plan*** includes the following supplemental documents, provided as appendixes:

Appendix B: ***Sampling and Analysis Plan (SAP)*** including description of the quality assurance/quality control (QA/QC) measures
Appendix C: ***Health and Safety Plan (HSP)***
Appendix D: ***Public Participation Plan (PPP)***
Appendix E: Proposed Restrictive Covenant language

# 2.0 TECHNOLOGY SELECTION PROCESS

The Federal Remediation Technologies Roundtable website was researched for available technologies and level of success on field scale projects. All of the technologies were also subjected to the additional criteria and constraints:

- Success in treating BTEX and MTBE,
- In situ process,
- Maximum flexibility,
- No effluent (regardless of quality) discharge to sewer,
- Reliability,
- Simple operations,
- Minimal maintenance,
- Reasonable cleanup time, and
- Overall cost.

Based on this review, the following technologies were selected for potential implementation. Descriptions and limitations for each technology are summarized in the following (from the FRTR, Remediation Technologies Screening Matrix and Reference Guide, Version 4.0):

## 2.1 BIOVENTING

Oxygen is delivered to contaminated unsaturated soils by forced air (either extraction or injection of air) to increase oxygen concentration and stimulate biodegradation. Factors that may limit the applicability and effectiveness of the process include:

- The water table within several feet of the surface, saturated soil lenses, or low permeability soils reduce bioventing performance.
- Vapors can build up in basements within the radius of influence of air injection wells. Extracting air near the structure of concern can alleviate this problem.
- Extremely low soil moisture content may limit biodegradation and the effectiveness of bioventing.
- Monitoring of off-gases at the soil surface may be required.
- Aerobic biodegradation of many chlorinated compounds may not be effective unless there is a co-metabolite present, or an anaerobic cycle.
- Low temperatures may slow remediation, although successful remediation has been demonstrated in extremely cold weather climates.

## 2.2 ENHANCED BIOREMEDIATION

Increasing the concentration of electron acceptors and nutrients in water, surface water, and leachate enhances the rate of bioremediation of organic contaminants by microbes. Oxygen is the main electron acceptor under aerobic bioremediation. Nitrate serves as an

alternative electron acceptor under anoxic conditions. Oxygen enhancement can be achieved by either sparging air below the water table or circulating hydrogen peroxide ($H_2O_2$) throughout the contaminated groundwater zone. Under anaerobic conditions, nitrate is circulated throughout the groundwater contamination zone to enhance bioremediation. Additionally, solid-phase peroxide products [e.g., oxygen releasing compound (ORC)] can also be used for oxygen enhancement and to increase the rate of biodegradation. Factors that may limit the applicability and effectiveness of these processes include:

- Where the subsurface is heterogeneous, it is very difficult to deliver the nitrate or hydrogen peroxide solution throughout every portion of the contaminated zone. Higher permeability zones will be cleaned up much faster because groundwater flow rates are greater.
- Safety precautions must be used when handling hydrogen peroxide.
- Concentrations of hydrogen peroxide greater than 100 to 200 ppm in groundwater are inhibiting to microorganisms.
- Microbial enzymes and high iron content of subsurface materials can rapidly reduce concentrations of hydrogen peroxide and reduce zones of influence.
- A groundwater circulation system must be created so that contaminants do not escape from zones of active biodegradation.
- Because air sparging increases pressure in the vadose zone, vapors can build up in building basements, which are generally low-pressure areas.
- Many states prohibit nitrate injection into groundwater because nitrate is regulated through drinking water standards.
- A surface treatment system, such as air stripping or carbon adsorption, may be required to treat extracted groundwater prior to re-injection or disposal.

## 2.3 SOIL VAPOR EXTRACTION (SVE)

Vacuum is applied through extraction wells to create a pressure/concentration gradient that induces gas-phase volatiles to be removed from soil through the extraction wells. Also known as in situ soil venting, volatilization, enhanced volatilization, or soil vacuum extraction. Factors that may limit the applicability and effectiveness of the process include:

- Soil that has a high percentage of fines and a high degree of saturation will require higher vacuums (increasing costs) and/or hindering the operation of the in situ SVE system.
- Large screened intervals are required in extraction wells for soil with highly variable permeability or stratification, which otherwise may result in uneven delivery of gas flow from the contaminated regions.
- Soil that has high organic content or is extremely dry has a high sorption capacity of VOCs, which results in reduced removal rates.
- Exhaust air from in situ SVE system may require treatment to eliminate possible harm to the public and the environment.

- As a result of off-gas treatment, residual liquids may require treatment/disposal. Spent activated carbon will definitely require regeneration or disposal.
- SVE is not effective in the saturated zone; however, lowering the water table can expose more media to SVE (this may address concerns regarding LNAPLs).

## 2.4 AIR SPARGING

Air is injected into saturated soils to remove contaminants through volatilization. Factors that may limit the applicability and effectiveness of the process include:

- Airflow through the saturated zone may not be uniform, which implies that there can be uncontrolled movement of potentially dangerous vapors.
- Depth of contaminants and specific site geology must be considered.
- Air injection wells must be designed for site-specific conditions.
- Soil heterogeneity may cause some zones to be relatively unaffected.

## 2.5 BIOSLURPING

Bioslurping combines the two remedial approaches of bioventing and enhanced free-product recovery. Bioventing stimulates the aerobic bioremediation of hydrocarbon-contaminated soils. Vacuum-enhanced product recovery extracts LNAPLs from the capillary fringe and the water table. Factors that may limit the applicability and effectiveness of the bioslurping process include:

- Bioslurping is less effective in tight (low-permeability) soils.
- Low soil moisture content may limit biodegradation and the effectiveness of bioventing, which tends to dry out the soils.
- Aerobic biodegradation of many chlorinated compounds may not be effective unless there is a co-metabolite present.
- Low temperatures slow remediation.
- Frequently, the off-gas from the bioslurper system requires treatment before discharge. However, treatment of the off-gas may only be required shortly after the startup of the system as fuel rates decrease.
- At some sites, bioslurper systems can extract large volumes of water that may need to be treated prior to discharge depending on the concentration of contaminants in the process water.
- Since the fuel, water and air are removed from the subsurface in one stream, mixing of the phases occurs. These mixtures may require special oil/water separators or treatment before the process water can be discharged.

## 2.6 BIOFILTRATION

For air emissions/off-gas treatment, vapor-phase organic contaminants are pumped through a soil bed at the soil surface where they are degraded by microorganisms in the soil. The following factors may limit the applicability and effectiveness of the process:

- The rate of influent airflow is constrained by the size of the biofilter.
- Fugitive fungi may be a problem.
- Low temperatures may slow or stop removal unless the biofilter is climate-controlled.
- Compounds that are recalcitrant to biodegradation will not be converted to harmless products.

# 3.0 PRE-DESIGN DATA COLLECTION NEEDS

Prior to final design and construction, additional properties of the in situ soils, treatment trench backfill material, and groundwater need to be evaluated to optimize the proposed system designs and operational ranges, intrinsic attenuation capabilities through biodegradation, and baseline characterization (upgradient, impacted, and downgradient locations) for treatment performance.

| SOIL PROPERTIES | ANALYTICAL METHOD |
|---|---|
| Particle-size distribution | ASTM D421-58 and D422-63 |
| Bulk density (compaction) | ASTM D698-70 and D1557-70 |
| Moisture content | ASTM D2216-71 |
| Field capacity | Field Measurement |
| Permeability | ASTM D2434-68 and Field Measurement |
| pH | SW 9045B |
| Total organic carbon (TOC) | SW 9060 mod. |
| Ca, Mg, K, Na, Fe, Mn | SW 6010B |
| Ferrous Fe | SM 3500 Fe D |

| GROUNDWATER CONDITIONS | ANALYTICAL METHODS |
|---|---|
| **Field Parameters** | |
| Dissolved oxygen<br>Redox potential (Eh)<br>pH<br>Temperature<br>Specific conductance | Downhole measurement at multiple depths.<br>Before and after purging. |
| **Laboratory Parameters** | |
| Target compounds: gasoline, diesel, BTEX, MTBE | WTPH-G, WTPH-Dx, EPA 8260B |
| Alkalinity | EPA 310.1 |
| Nitrate, Nitrite | EPA 353.2 |
| Ammonia @ N | EPA 350.3 |
| Phosphate-ortho | EPA 365.1 |
| Total Mn, Fe, Ca, Mg, Na, K | SW 6010B |
| Dissolved Mn, Fe, Ca, Mg, Na, K | SW 6010B |
| Ferrous iron | SM 3500 Fe D |
| Sulfate | EPA 300.0 |
| Sulfide | EPA 376.1 |
| Total organic carbon (TOC) | EPA 415.1 |
| Chloride | EPA 300.0 |
| Chemical Oxygen Demand (COD) | EPA 410.4 |
| Biochemical Oxygen Demand (BOD) | EPA 405.1 |
| Total suspended solids | EPA 160.2 |
| Oil and grease | EPA 413.2 |
| Hydrocarbon degrading bacteria | MPN, Brown 7990 |

# 4.0 FREE-PHASE PRODUCT RECOVERY

Residual petroleum product (principally gasoline) is present in monitoring well MW-3, located on the south property boundary of the Site (Figure 2). Limited passive recovery has been ongoing, using downhole absorbent. The Cleanup Action Plan requires an initial purging of well MW-3, ongoing monitoring, free-phase product removal, and appropriate treatment and/or disposal.

## 4.1 OPTIONS AND SELECTION

Potential options for free-phase product recovery range from the current passive system to multiphase extraction (bioslurping) systems. The following summarizes alternatives and selection process:

| ALTERNATIVE | PROS | CONS |
|---|---|---|
| 1. Passive system using downhole absorbent | Uses existing MW-3, simple, inexpensive, low maintenance. | Limited area of influence, No treatment of soils. |
| 2. Downhole skimmer | Uses existing MW-3, extended vertical influence, limited construction, and effective product recovery. | Limited area of influence laterally, product recovery only (no opportunity for treatment of soils) |
| 3. Pumping to OWS for treatment and gravity discharge of effluent. | Uses existing MW-3, extended vertical and lateral influence, higher level of effluent treatment. | Higher equipment costs than Alternatives 1 and 2, More complex operations and maintenance, no vapor extraction. |
| 4. Multiphase extraction, OWS treatment, gravity discharge of effluent. | Uses existing MW-3, extended vertical and lateral influence, higher level of recovery and treatment of both phases than Alternative 3, vapor extraction. | Highest equipment costs, most complex operations and maintenance. |

Although the final design of the free-phase product recovery system will be based upon initial pumping of well MW-3 (to assess sustainable pumping rates, pumping impacts on free-phase product recovery, zone of influence, and sizing of the treatment system), the components selected for implementation include:

- Pumping system
- Effluent treatment vault
- Effluent discharge system

## 4.3 SYSTEM DESIGN AND CONSTRUCTION

The free-phase product recovery system consists of the following components, described in detail in the following, and shown in plan view (Figure 3) and cross-sectional schematic details (Figure 4). All construction and monitoring activities will follow the ***Health and Safety Plan*** requirements for the Site, provided in Appendix C.

A pump will be installed in well MW-3 (2-inch diameter) with a water level switch to maintain sufficient submergence. Water and free-phase product will be pumped to a 3-chamber treatment vault for product recovery and water treatment:

Chamber 1: baffle for sediment control and utilizes absorbent or a skimmer to recover free-phase product (gasoline).
Chamber 2: primary treatment of groundwater using absorbent, aeration, and nutrient injection (if needed).
Chamber 3: secondary treatment of groundwater using filters media (specific for MTBE removal).

Treated groundwater will be gravity discharged into a drainage gallery and laterals immediately downgradient of the treatment vault. A monitoring port will also be installed in the drainage gallery. Any electrical equipment used in the system will be intrinsically safe from potential fire/explosion, and the treatment vault will be vented (with air filtration) to treat vapors.

Excavated soils will be screened for contamination using visual observation and PID (photoionization detector) measurements. Contaminated soil will be temporarily stockpiled on visqueen and covered prior to transporting offsite to an appropriate disposal facility. Clean onsite soils will be segregated from contaminated soils and used for backfill onsite. Additional clean soil for backfill will be imported from an approved source.

## 4.4 SYSTEM OPERATIONS and MAINTENANCE

The pumping system will be operated at a rate to optimize product recovery and groundwater treatment and instrumented in a manner to minimize maintenance and operational oversight. The following components will be monitored at system startup and as required during operations:

- Pumping rate and duration
- Water level in MW-3
- Product thickness and recovery volume
- Benzene emissions from the vault (air filter performance)
- Dissolved oxygen, redox potential, pH, temperature, and specific conductance in vault chambers (field measurements)
- Laboratory analyses of effluent for BTEX and MTBE (system performance monitoring)

# 5.0 GROUNDWATER TREATMENT SYSTEM

## 5.1 OPTIONS AND SELECTION

Potential options for components of a groundwater treatment system along the northern boundary of the Priceless Gas Site were identified in Section 2.0 of this Work Plan. Elements of each of the identified technologies are included in the design of the groundwater treatment system to provide operational flexibility. The system components, constructed in an east-west trending trench, include:

- Engineered backfill in the treatment trench
- Horizontal air injection and extraction piping
- Vertical monitoring, extraction and/or injection piping
- Vapor and effluent treatment
- Bioenhancement delivery system
- Geomembrane cover
- Groundwater collection line on the west side of the trench

## 5.2 SYSTEM DESIGN AND CONSTRUCTION

The groundwater treatment system consists of the following components, described in detail in the following, and shown in plan view (Figure 3) and cross-sectional schematic details (Figure 5).

All construction and monitoring activities will follow the ***Health and Safety Plan*** requirements for the Site, provided in Appendix C.

### 5.2.1 Groundwater Treatment Trench

The groundwater treatment system will be constructed within a trench excavated south of the alleyway (and underground utility corridor) along the north boundary of the Site (refer to Figure 3). Although some subsurface information is available related to trench depth and length (based on the bedrock and topographic contour maps provided in Appendix A of this ***Work Plan***), the trench excavation will be guided by the following criteria and constraints:

- Sufficient lateral separation needs to be maintained between the alleyway utility corridor and the northern boundary of the trench.
- The treatment trench will be excavated to bedrock and follow (as much as feasible) the former location and lateral extent of the removed 12,000-gallon and 10,000-gallon tanks.
- Minimum trench width at the base will be approximately 10 feet.
- Excavation will likely encounter the old septic tank (approximate location shown on Figure 3), which will need to be removed or stabilized in place.

Excavated soils will be stockpiled for potential use as backfill (dependent upon suitability). Any stockpiled soils not used for backfill will be screened for the presence of contamination and disposed of in an appropriate manner.

Following excavation, the trench sidewalls and base will be lined with a geotextile prior to pipe installations (discussed in the following section). The trench will be backfilled with a specified soil media, having the appropriate characteristics (and subjected to pre-construction data collection). Backfill material needs to be homogeneous and isotropic and may incorporate ORC, if required.

A geomembrane cover will be installed over the top of the trench (refer to Figure 5) and covered with clean site soils to anchor in place. All pipe penetrations through the trench cover will be booted.

### 5.2.2 Trench Monitoring, Air Injection/Extraction, and Treatment Systems

The pipe installation within the trench includes three components to provide for flexibility in treatment options and operations (refer to Figure 5):

- Along the base of the trench horizontal perforated (and wrapped with geotextile) pipe for oxygen introduction via air injection;
- Running along the top of the trench (beneath the geomembrane cover), horizontal perforated pipe for vapor extraction;
- Manifolded vertical perforated pipe (diameter and spacing to be determined during pre-construction data collection) for monitoring groundwater levels within the trench as well as potential use as extraction and/or injection ports. Monitoring ports will be booted through the trench geomembrane cover and secured using utility vaults (meter boxes, or equivalent).

All horizontal pipe components will be capped (on the west end of the trench) and valved on the east end of the trench. Air injection, vapor/effluent treatment, and pumping system equipment will be housed on the east end of the trench (proximity to power) and south of the Site boundary to maintain access through the alleyway and to the utility corridor.

Vapors will be treated using activated carbon adsorption. Any extracted groundwater will be treated using activated carbon adsorption, biofiltration, or equivalent and re-injected. Groundwater and air treatment media (filtration) will consider impacts on both BTEX and MTBE attenuation characteristics.

### 5.2.3 Groundwater Collection System

The configuration and lateral extent of the treatment trench is intended to utilize existing subsurface drainage channels and groundwater pooling areas created during installation of the diesel and gasoline storage tanks for operation of the Priceless Gas facility.

Outside the treatment trench area to the west, groundwater will be collected in a drainage gallery and conveyed to the treatment trench (refer to Figure 6).

The drainage gallery will be constructed within a trench excavated south of the alleyway (and underground utility corridor) along the north boundary of the Site. Although some subsurface information is available related to gallery depth and length (based on the bedrock and topographic contour maps provided in Appendix A of this ***Work Plan***), the excavation will be guided by the following limitations and constraints:

- Sufficient lateral separation needs to be maintained between the alleyway utility corridor and the northern boundary of the trench.
- The drainage gallery will be excavated to bedrock and the base of the excavation needs to maintain a minimum slope of 1% towards the treatment trench for gravity conveyance.
- Minimum width at the base of the drainage gallery will be approximately 2 feet.
- Excavation will likely encounter the old septic tank (approximate location shown on Figure 3), which will need to be removed or stabilized in place.

Excavated soils will be screened for contamination using visual observation and PID (photoionization detector) measurements. Contaminated soil will be temporarily stockpiled on visqueen and covered prior to transporting offsite to an appropriate disposal facility. Clean onsite soils will be segregated from contaminated soils and used for backfill onsite. Additional clean soil for backfill will be imported from an approved source.

Following excavation, the trench sidewalls (including the interface with the treatment trench) and base will be lined with a geotextile prior to pipe installation. Horizontal perforated pipe, wrapped with geotextile, will be installed along the base of the gallery maintaining a minimum slope of 1% to ensure gravity drainage into the treatment trench along the southern edge and upgradient of the air injection pipe (refer to Figures 5 and 6). The trench will be backfilled with pea gravel and stockpiled clean site soils.

Following construction of the product recovery system and groundwater treatment trench, the Site will be graded to promote surface water runoff and compacted with small mechanical or vibratory compactors or wheel rolled in accordance with WSDOT Standard Specifications Method A [2-03.3(14)C]. The groundwater treatment and collection trenches as well as the area around the product recovery vault should be compacted using a small mechanical or vibratory compactor.

## 5.3 SYSTEM OPERATIONS and MAINTENANCE

The groundwater treatment system is designed to operate in several modes to provide operational flexibility and increasing levels of treatment:

Level I: Air injection and passive vapor movement and treatment.
Level II: Air injection, active vapor extraction and treatment, and re-injection of air.
Level III: Air and nutrient injection, active vapor extraction and treatment, and re-injection of air.
Level IV: Air and nutrient injection, groundwater extraction and treatment, and vapor extraction and treatment.

System operations will be initiated using Levels I and II and monitored for performance and potential adverse impacts. The following components will be monitored, as required:

- Air injection system
- Vapor extraction system
- Groundwater level and concentrations in trench
- Benzene vapor concentrations and groundwater seepage in Dehn residence (basement)
- Groundwater level, BTEX and MTBE concentrations, and vapor (benzene) monitoring in wells MW-1, MW-2, and MW-4

As needed, additional components can be activated to increase the level of treatment and/or mitigate any adverse impacts.

# 6.0 SYSTEM PERFORMANCE

**MTCA Method A Cleanup Levels for Soil and Groundwater**

| CONSTITUENT | SOIL CLEANUP LEVELS | GROUNDWATER CLEANUP LEVELS |
|---|---|---|
| BENZENE | 0.03 mg/kg | 5 µg/l |
| TOLUENE | 7 mg/kg | 1,000 µg/l |
| ETHYLBENZENE | 6 mg/kg | 700 µg/l |
| XYLENES | 9 mg/kg | 1,000 µg/l |
| MTBE | 0.10 mg/kg | 20 µg/l |
| TPH (Gasoline) | 30 mg/kg | 800 µg/l |
| TPH (Diesel) | 2,000 mg/kg | 500 µg/l |

TPH (G) = Total Petroleum Hydrocarbons (Gasoline range)
TPH (D) = Total Petroleum Hydrocarbons (Diesel range)
mg/kg = ppm
µg/l = ppb

## 6.1 POINTS OF COMPLIANCE

The point of compliance for meeting soil cleanup levels at the Priceless Gas Site was selected on the basis of the provisions of WAC 173-340-740(6). The point of compliance for soils is the entire site. Soil cleanup levels have been established for the site using MTCA Method A, as provided for in WAC 173-340-740(2). This method was determined to be consistent with WAC 173-340-704(1) which provides that MTCA Method A cleanup levels are appropriate for those sites with few hazardous substances, undergoing a routine cleanup action as defined in WAC 173-340-200.

The points of compliance for meeting groundwater cleanup levels at the Priceless Gas Site were selected on the basis of the criteria specified in WAC 173-340-720(8). The points of compliance are monitoring wells MW-1, MW-2, MW-3, and MW-6 (refer to Figure 2 for compliance well locations). Groundwater cleanup levels have been established for the Site using MTCA Method A, as provided for in WAC 173-340-720(3). Although the groundwater in this area is an unlikely source of potable groundwater, Ecology has chosen to apply the more conservative cleanup values defined under Method A. The conservative approach was selected out of consideration of the potential threat to Cottonwood Creek and historical problems with increased exposure risk due to the high groundwater conditions.

## 6.2 SYSTEM PERFORMANCE MONITORING

Quarterly groundwater monitoring will include the sampling and analysis of previously identified points of compliance wells (MW-1, MW-2, MW-3, and MW-6) and system performance will be accomplished through the sampling of: MW-4, MW-5, MW-7, MW-8, MW-9, and MW-10 (refer to Figure 2 for system performance monitoring well locations). Groundwater monitoring will continue until compliance with the established cleanup levels is demonstrated for four (4) consecutive quarterly sampling events. Groundwater monitoring will be conducted in a manner consistent with the MTCA provisions for compliance monitoring described in WAC 173-340-720(9).

Compliance with soil cleanup levels will be evaluated through quarterly groundwater monitoring. Once groundwater cleanup levels are reached through four consecutive quarters of monitoring, soil samples will be collected (as required) to verify in situ conditions prior to releasing the site.

Sample collection and laboratory analyses will be conducted in accordance with the ***Sampling and Analysis Plan***, provided in Appendix B. Field sampling activities will be conducted in accordance with the ***Health and Safety Plan*** for the Site, provided as Appendix C.

# 7.0 INSTITUTIONAL CONTROLS

Institutional controls are an additional component of the Site Cleanup. These consist of a restrictive covenant placed on the deed of the property to ensure that the potential exposure risk to contaminated soils is known and that site activities are considerate of these potential risks. The restrictive covenant will be removed when it has been demonstrated through sampling that soil and groundwater cleanup levels have been attained. The Restrictive Covenant has been recorded with Lincoln County; and a copy of this document is provided in Appendix E.

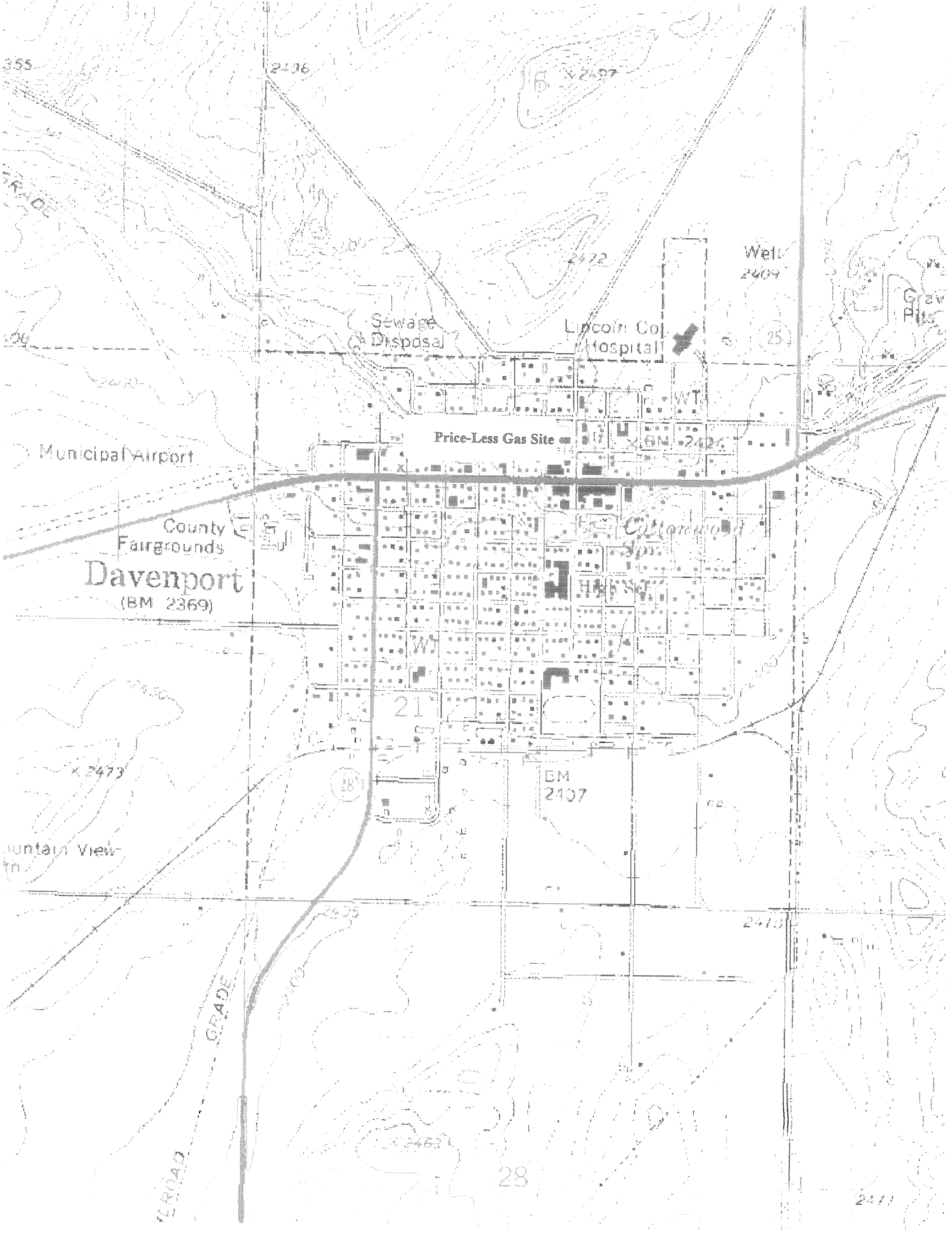
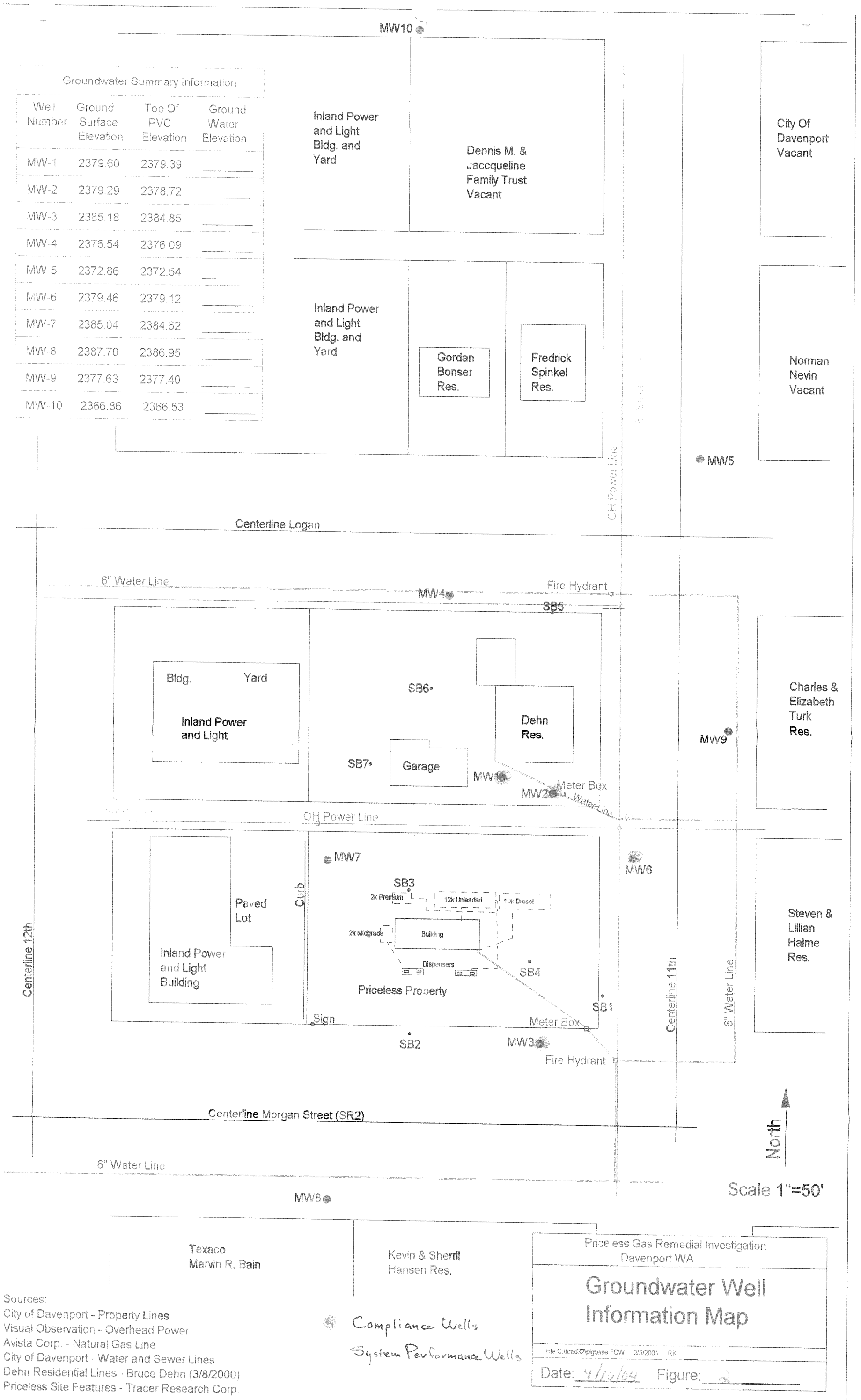



Figure 1

'Davenport, WA'; Scale: 1" = 0.164Mi 264Mt 866Ft, 1 Mi = 6.099", 1 cm = 104Mt

| Groundwater Summary Information | | | |
|---|---|---|---|
| Well Number | Ground Surface Elevation | Top Of PVC Elevation | Ground Water Elevation |
| MW-1 | 2379.60 | 2379.39 | |
| MW-2 | 2379.29 | 2378.72 | |
| MW-3 | 2385.18 | 2384.85 | |
| MW-4 | 2376.54 | 2376.09 | |
| MW-5 | 2372.86 | 2372.54 | |
| MW-6 | 2379.46 | 2379.12 | |
| MW-7 | 2385.04 | 2384.62 | |
| MW-8 | 2387.70 | 2386.95 | |
| MW-9 | 2377.63 | 2377.40 | |
| MW-10 | 2366.86 | 2366.53 | |




Sources:
City of Davenport - Property Lines
Visual Observation - Overhead Power
Avista Corp. - Natural Gas Line
City of Davenport - Water and Sewer Lines
Dehn Residential Lines - Bruce Dehn (3/8/2000)
Priceless Site Features - Tracer Research Corp.

● Compliance Wells
System Performance Wells

Priceless Gas Remedial Investigation
Davenport WA

# Groundwater Well Information Map

File C:\fcad32\plgbase.FCW 2/5/2001 RK

Date: 4/16/04 Figure: 3

Centerline Logan

6" Water Line

MW4

Fire Hydrant

Overhead Power

6" Sewer Line

2" NG Line

SB5

Powerline

Shop Bldg.

Fenced Storage

SB6

Dehn Res.

Conc. Curb

SB7

Garage

Meter

MW1

MW2

Meter Box

Water Line

North

Scale 1"=40'

6" Sewer Line

CL Alley

Powerpole

NG Line

Sewer Man Hole

Powerpole

2" NG Line

UG power to treatment systems

Groundwater Collection

Treatment Trench

Shed

MW7

MW6

Shop Bldg.

Paved Lot

Curb

Old Septic Tank ??

??

Appox. Edge of Roadway

Centerline 11th

6" Water Line

Discharge Lateral

Com. Bldg.

Product Recovery Tank

??

Sign

Meter Box

SB2

MW3

Pump System

Edge New Pavement

Fire Hydrant

Centerline Morgan Street (SR2)

Right of Way Widths:
City Streets - 80'
Alley - 15'
State Hwy - 100'
Lot Size - 50' * 100'

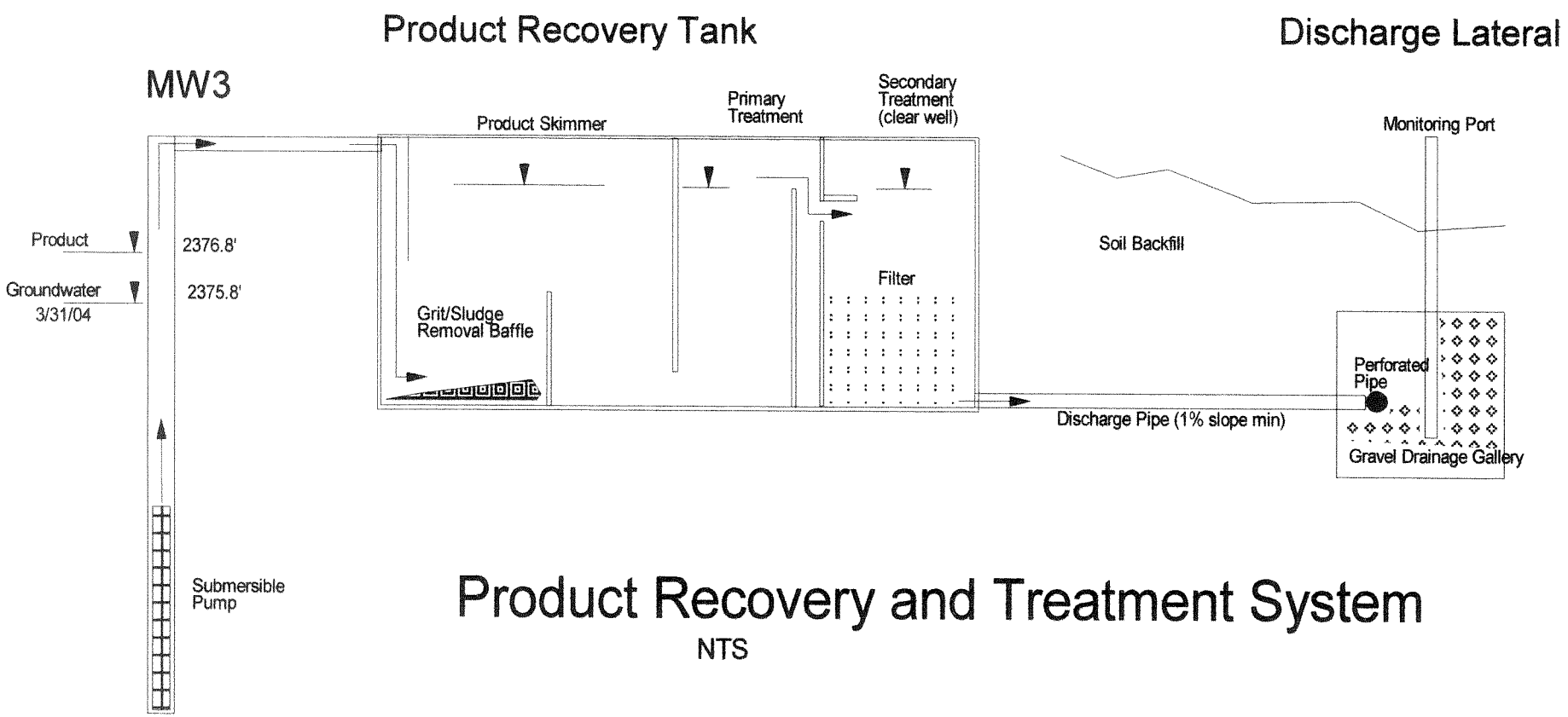
Sources:
City of Davenport - Property Lines
Visual Observation - Overhead Power
Avista Corp. - Natural Gas Line
City of Davenport - Water and Sewer Lines
Dehn Residential Lines - Bruce Dehn (3/8/2000)
Priceless Site Features - Tracer Research Corp.

Priceless Gas Cleanup Action Work Plan

# Work Plan View

File C:\fcad32\plgworkplan2004.FCW By: RK

Date: 4/14/2004 Figure: 3

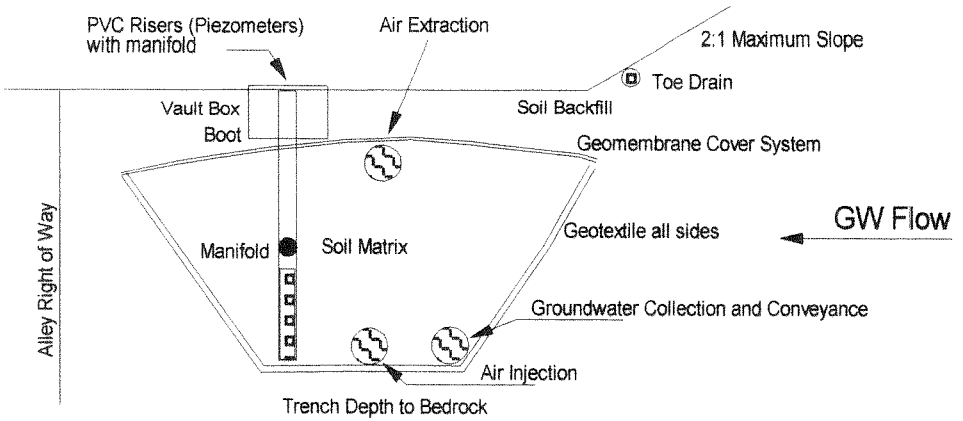



# Product Recovery and Treatment System

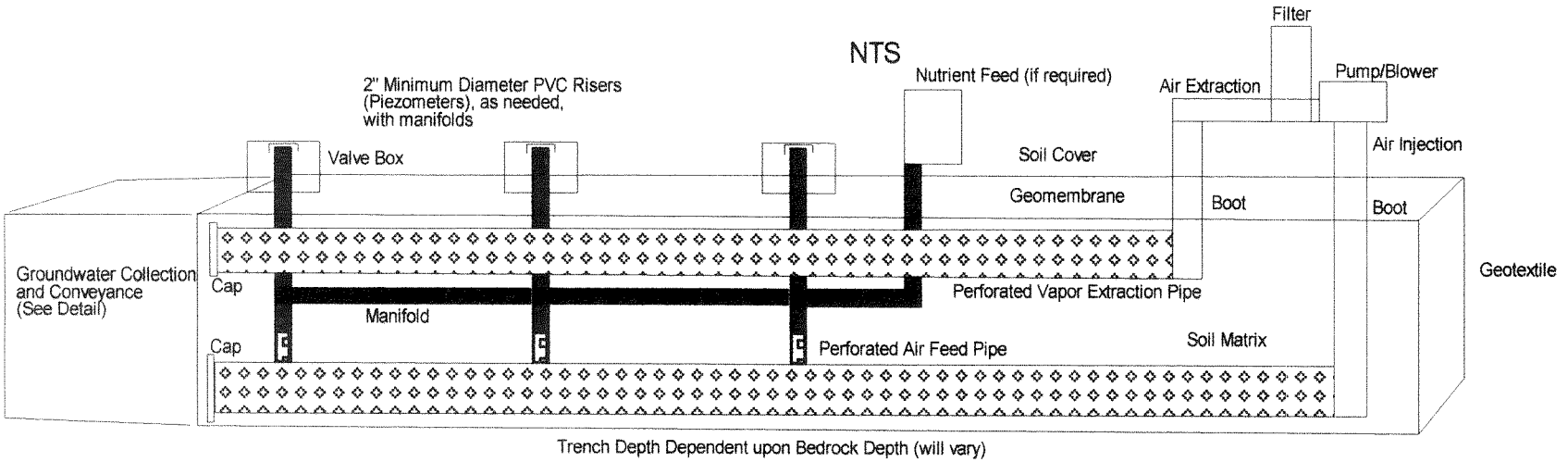
NTS

Priceless Gas Cleanup Action Work Plan
Date: 4/14/2004 Figure 4

File: priceless\plgproductrecovery2004.FCW




End View

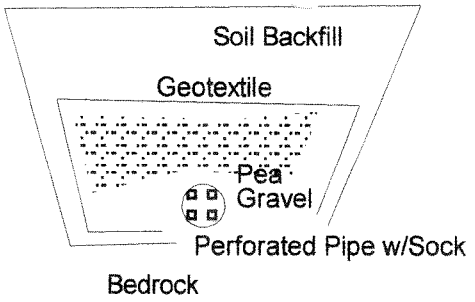



Cross Section (Perspective)

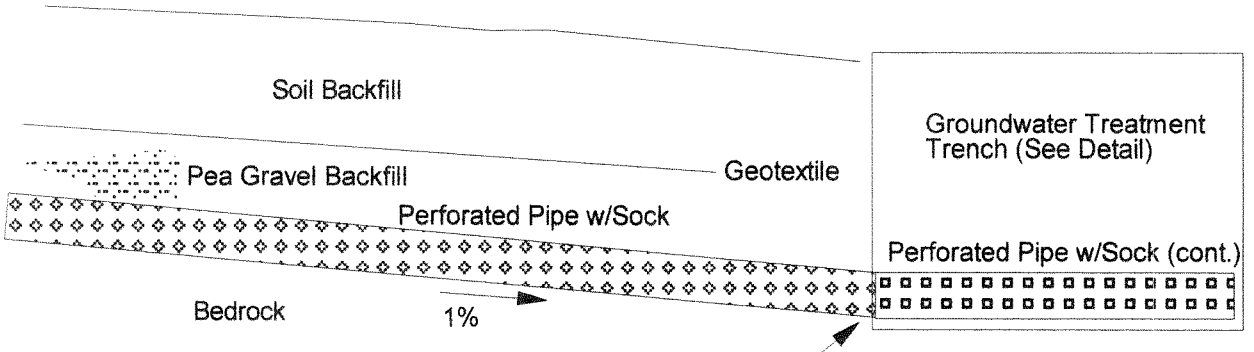
# Groundwater Treatment Trench

NTS

Priceless Gas Cleanup Action Work Plan
Date: 4/15/2004 Figure 5
File: priceless\plgtreatmenttrench2004.FCW




End View




Cross Section View

Collection pipe draining to Treatment Trench along north boundary from northeast property corner with placement location and depth based on bedrock depths

# Groundwater Collection and Conveyance

NTS

Priceless Gas Cleanup Action Work Plan
Date: 4/15/2004 Figure 6
File: priceless\plgtreatmenttrench2004.FCW

Centerline Logan

6" Water Line

MW4

Fire Hydrant

Overhead Power

6" Sewer Line

2" NG Line

SB5

Powerline

Shop Bldg.

Fenced Storage

SB6

Dehn Res.

Conc. Curb

SB7

Garage

Meter

MW1

MW2

Meter Box

Water Line

North

Scale 1"=40'

6" Sewer Line

CL Alley

Powerpole

NG Line

Sewer Man Hole

Powerpole

2" NG Line

UG power to treatment systems

Groundwater Collection

Treatment Trench

Shed

MW7

MW6

Shop Bldg.

Paved Lot

Curb

Old Septic Tank ??

??

Appox. Edge of Roadway

Centerline 11th

6" Water Line

Discharge Lateral

Com. Bldg.

Product Recovery Tank

??

Sign

Meter Box

SB2

MW3

Pump System

Edge New Pavement

Fire Hydrant

Centerline Morgan Street (SR2)

Right of Way Widths:
City Streets - 80'
Alley - 15'
State Hwy - 100'
Lot Size - 50' * 100'

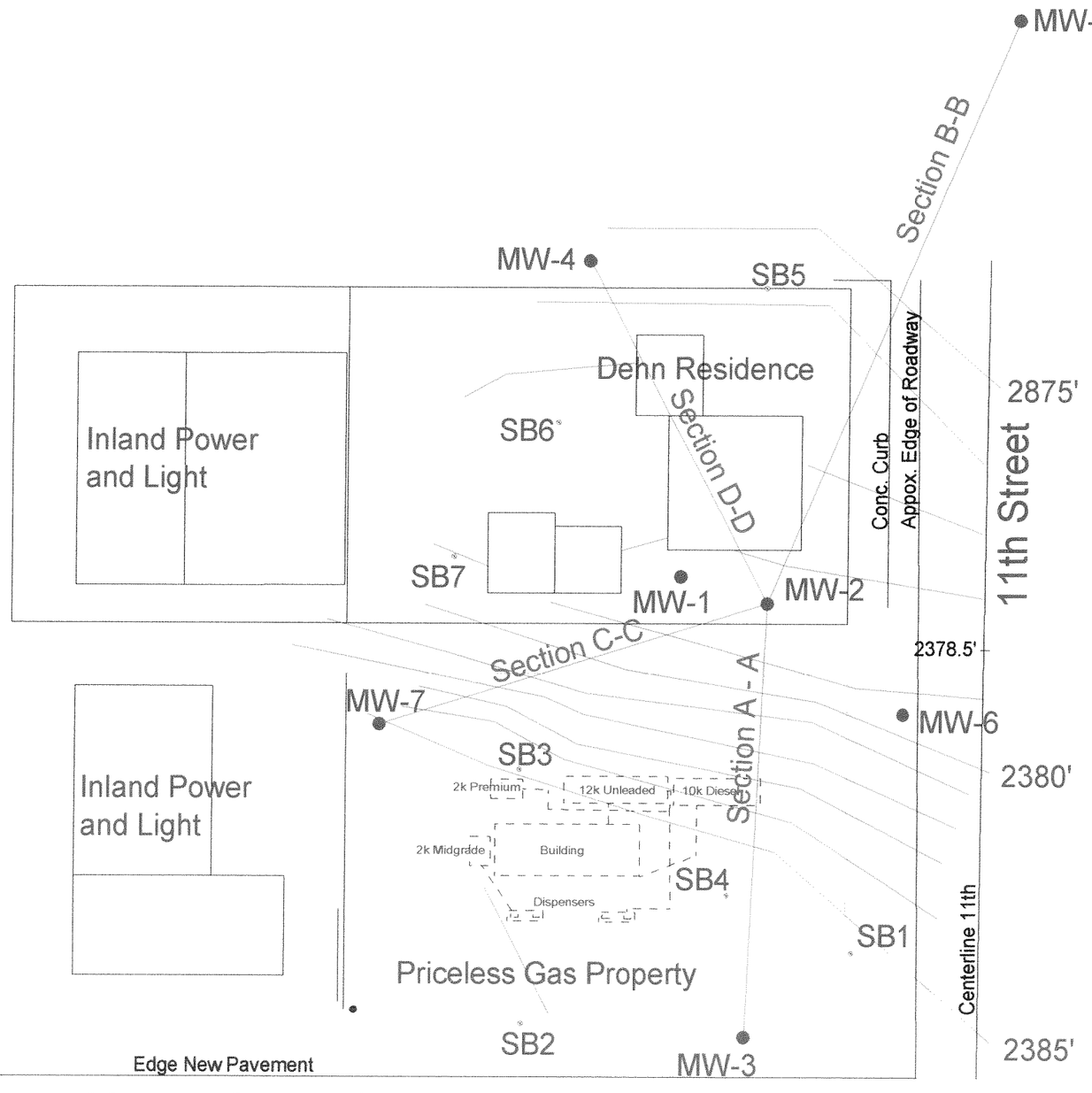
Sources:
City of Davenport - Property Lines
Visual Observation - Overhead Power
Avista Corp. - Natural Gas Line
City of Davenport - Water and Sewer Lines
Dehn Residential Lines - Bruce Dehn (3/8/2000)
Priceless Site Features - Tracer Research Corp.

Priceless Gas Cleanup Action Work Plan

# Work Plan View

File C:\fcad32\plgworkplan2004.FCW By: RK

Date: 4/14/2004 Figure: 3




Notes on Drawing Accuracy:
Illustrative map, not a scaled legal survey. Actual conditions may vary slightly. Features were sized and located using a rolotape (plus or minus two feet horizontal). Location of structures checked will trace of 1991 NAPP Aerial Photo. Site details for Priceless Gas Property from Tracer Research Corp. Map. Appoximate datum used from City of Davenport Water-Sewer Map with base elevation at centerline of alley and 11th at elevation 2378.5 feet.

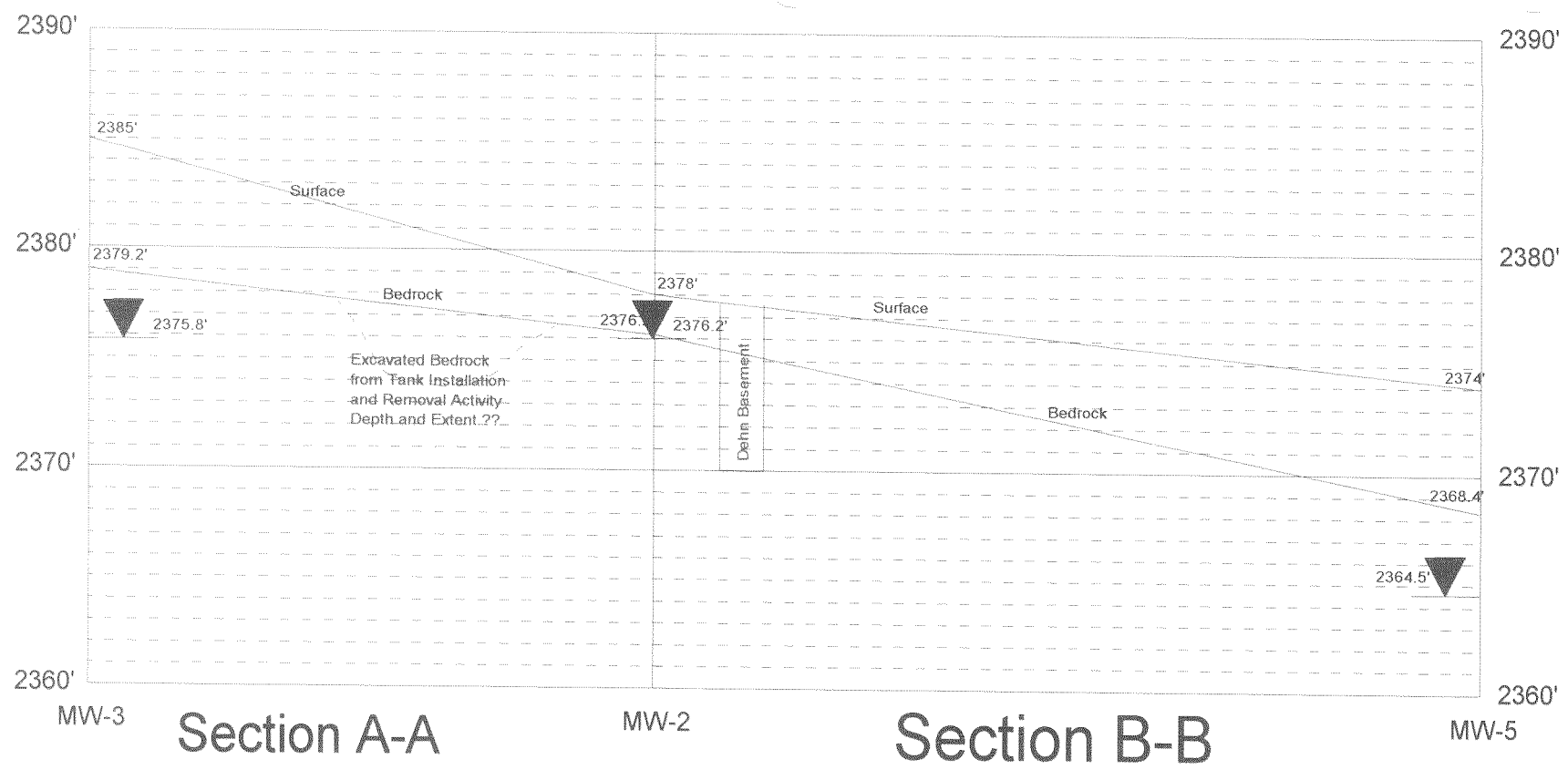
Scale 1"=40'

Priceless Gas Cleanup Action Work Plan

# Site Topography

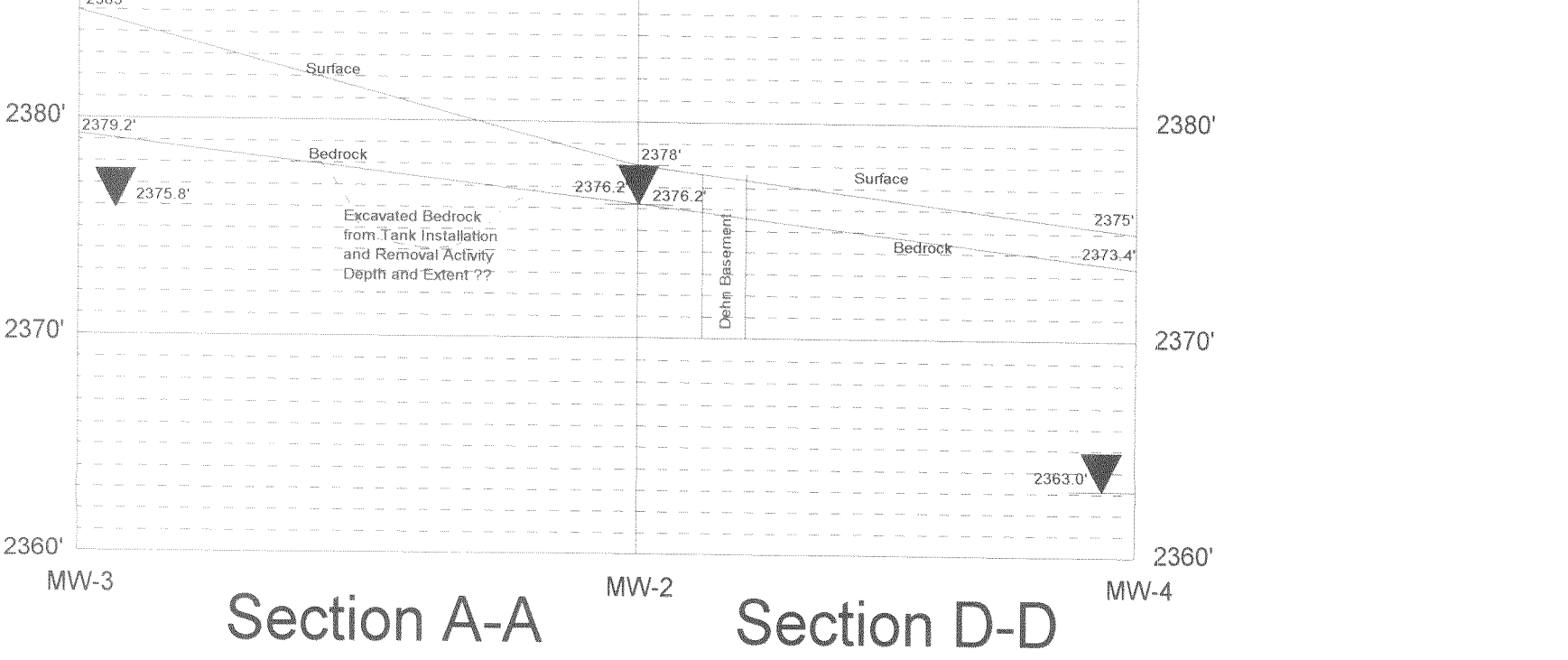
File C:\fcad32\plgsite2004.FCW RK

Date: 4/1/2004 Figure:_____




## Section A-A

## Section B-B




## Section C-C

## Section B-B




## Section A-A

## Section D-D

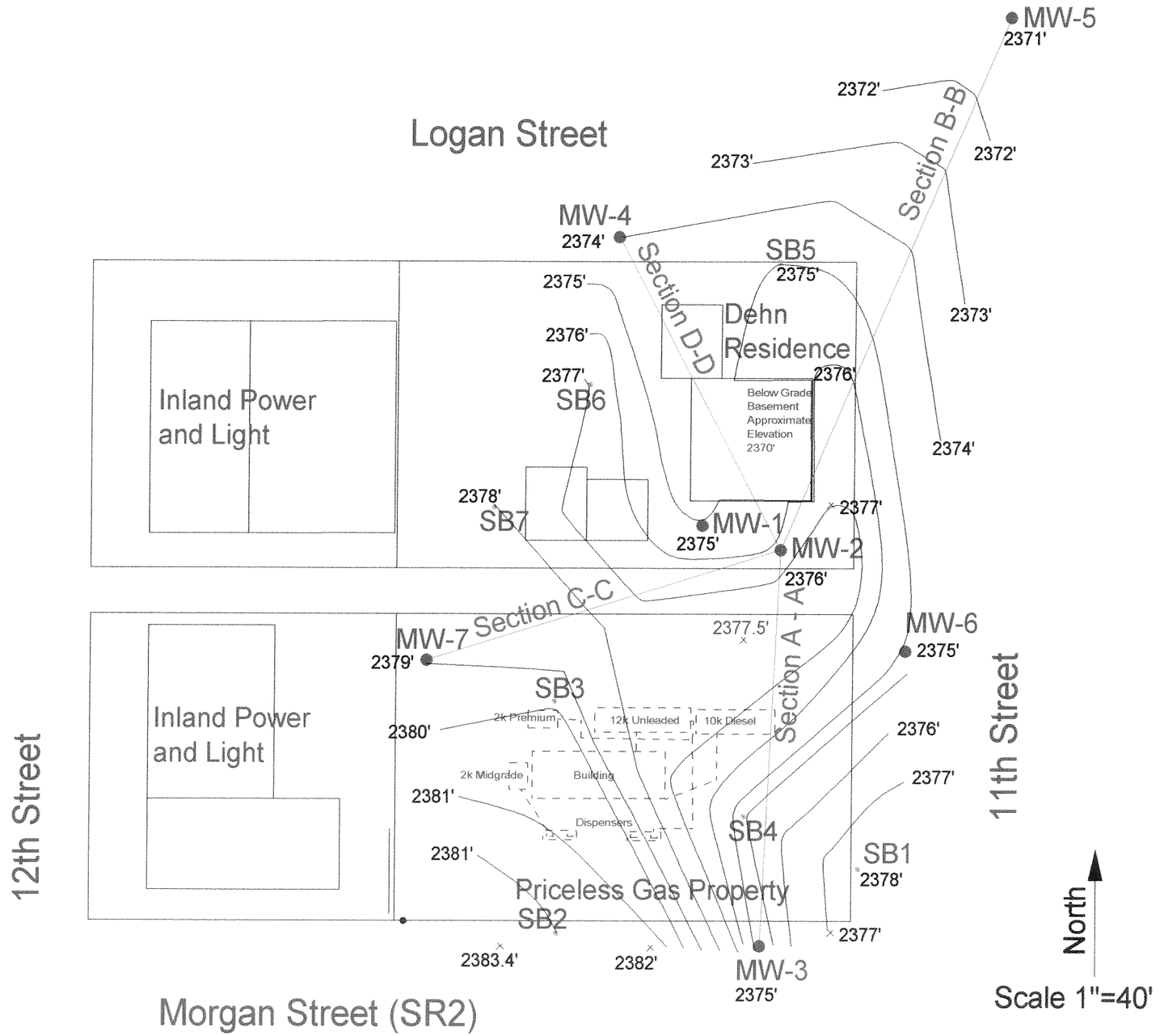
Horizontal Scale 1"=40'
Vertical Scale 1"=10'
Vertical Exageration=4X
Groundwater Depth on March 31, 2004

Priceless Gas Cleanup Action Work Plan

# Cross Sections

File C:\fcad32\plgsec2004.FCW RK

Date: 4/09/2004 Figure:_____




Bedrock Summary Information

| Well/ Boring Number | Ground Surface Elevation (FT) | Approx. Depth to Bedrock (FT) | Approx. Bedrock Elevation (FT) |
|---|---|---|---|
| MW-1 | 2379.60 | 4.5 | 2375 |
| MW-2 | 2379.29 | 3.0 | 2376 |
| MW-3 | 2385.18 | 10 | 2375 |
| MW-4 | 2376.54 | 2-3 | 2374 |
| MW-5 | 2372.86 | 2.0 | 2371 |
| MW-6 | 2379.46 | 4.0 | 2375 |
| MW-7 | 2385.04 | 6.0 | 2379 |
| SB-1 | 2383.98 | 6.0 | 2378 |
| SB-2 | 2386.15 | 4.0 | 2382 |
| SB-3 | 2385.46 | 5.5 | 2380 |
| SB-4 | 2385.39 | 10.5 | 2375 |
| SB-5 | 2377.40 | 2.0 | 2375 |
| SB-6 | 2379.43 | 2.0 | 2377 |
| SB-7 | 2378.0 | 0 | 2378 |

2377.5' × Pre-RI Data
(Approximate Bedrock Elevation)

Priceless Gas Cleanup Action Work Plan

**Bedrock Surface Map**

File C:\fcad32\plgbr2004.FCW RK

Date: 4/09/2004 Figure:_____

# Summary of Soil Concentrations - Preliminary RI Information

| Sample Identification | Sample Date | Depth Interval | TPH Gasoline Range WTPH-G [mg/kg dry] | Benzene EPA 8021 [mg/kg dry] | Toluene EPA 8021 [mg/kg dry] | Ethylbenzene EPA 8021 [mg/kg dry] | Xylenes (total) EPA 8021 [mg/kg dry] | TPH Diesel Range WTPH-D [mg/kg dry] | Lead EPA 6010A [mg/kg dry] |
|---|---|---|---|---|---|---|---|---|---|
| SB#1:2.5-3.5 | 10/5/99 | .5 - 3.5 f | < 5.00 | < 0.050 | < 0.050 | < 0.050 | < 0.100 | < 10.0 | 114 |
| SB#1:5-5.5 | 10/5/99 | 5 - 5.5 ft. | 6.02 | < 0.050 | < 0.050 | < 0.050 | < 0.100 | 14.2 | 37.5 |
| SB#1:5.5-6 | 10/5/99 | 5.5 - 6 ft. | 12.00 | < 0.050 | < 0.050 | < 0.050 | < 0.100 | 21.6 | 21.7 |
| SB#2:2-3 | 10/5/99 | 2 - 3 ft. | < 5.00 | < 0.050 | < 0.050 | < 0.050 | < 0.100 | < 10.0 | 17.6 |
| SB#2:3.5-4 | 10/5/99 | 3.5 - 4 ft. | < 5.00 | < 0.050 | < 0.050 | < 0.050 | < 0.100 | 20.6 | 7.25 |
| SB#3:4.5-5 | 10/5/99 | 4.5 - 5 ft. | < 5.00 | < 0.050 | 0.0823 | < 0.050 | 0.299 | 111 | 124 |
| SB#3:5-5.5 | 10/5/99 | 5 - 5.5 ft. | 6.89 | < 0.050 | < 0.050 | < 0.050 | 0.124 | 110 | 158 |
| | | | | | | | | | |
| SB#4:5-6 | 10/5/99 | 5 - 6 ft. | 1730 | 7.08 | 52.7 | 36 | 170 | 76.8 | 8.98 |
| SB#4:9-10 | 10/5/99 | 9 - 10 ft. | 849 | 5.3 | 23.1 | 19 | 90.3 | 46.4 | 10.8 |
| SB#5:0-1.5 | 10/5/99 | 0 - 1.5 ft. | < 5.00 | < 0.050 | < 0.050 | < 0.050 | < 0.100 | 11.5 | 55.6 |
| SB#6:1.5-2 | 10/5/99 | 1.5 - 2 ft. | < 5.00 | < 0.050 | < 0.050 | < 0.050 | < 0.100 | < 10.0 | 13.5 |
| | | | | | | | | | |
| MW-3:4-5 | 9/30/99 | 4 - 5 ft. | < 5.00 | < 0.050 | < 0.050 | < 0.050 | < 0.100 | 37.6 | 14.7 |
| MW-3:6 | 9/30/99 | 6 ft. | < 5.00 | < 0.050 | < 0.050 | < 0.050 | < 0.100 | < 10.0 | 8.34 |
| MW-4:2-2.5 | 10/1/99 | 2 - 2.5 ft. | < 5.00 | < 0.050 | < 0.050 | < 0.050 | < 0.100 | 25.2 | 83.4 |
| MW-5:1.5-2.5 | 10/1/99 | .5 - 2.5 f | < 5.00 | < 0.050 | < 0.050 | < 0.050 | < 0.100 | < 10.0 | 18.5 |
| MW-6:0-1.5 | 9/30/99 | 0 - 1.5 ft. | < 5.00 | < 0.050 | < 0.050 | < 0.050 | 0.244 | 18.5 | 41.3 |
| MW-7:4.1-4.5 | 10/1/99 | .1 - 4.5 f | < 5.00 | < 0.050 | < 0.050 | < 0.050 | < 0.100 | 102 | 29.4 |
| | | | | | | | | | |
| | MTCA Method A | | 100 mg/kg | 0.5 mg/kg | 40 mg/kg | 20 mg/kg | 20 mg/kg | 200 mg/kg | 250 mg/kg |

Table 1

## Summary of Stockpile Soil Concentrations

| Sample Identification | Gasoline WTPH-G mg/kg | Diesel WTPH-Dx mg/kg | Oil WTPH-Dx mg/kg | Benzene EPA 8021 mg/kg | Benzene EPA 8260B mg/kg | Toluene EPA 8021 mg/kg | Toluene EPA 8260B mg/kg |
|---|---|---|---|---|---|---|---|
| Stockpile-1-11/00 | 510 | 78.4 | < 25.0 | < 0.500 | < 0.100 | 2.2 | 0.536 |
| Stockpile-2-11/00 | 193 | 88.7 | < 25.0 | 0.109 | < 0.100 | 0.435 | 0.116 |
| Stockpile-3-11/00 | 30.2 | < 10.0 | < 25.0 | 0.0789 | < 0.100 | 0.113 | < 0.100 |
| Stockpile-4-11/00 | 50.9 | 44.4 | 36 | 0.053 | < 0.100 | 0.152 | < 0.100 |
| Stockpile-5-11/00 | 2430 | 1360 | 51.9 | 1.1 | < 0.500 | 9.81 | 17.7 |
| Stockpile-6-11/00 | 21.7 | 27.6 | < 25.0 | < 0.0500 | < 0.100 | 0.143 | < 0.100 |
| Stockpile-7-11/00 | 61.2 | 39.2 | < 25.0 | 0.0789 | < 0.100 | 0.0801 | < 0.100 |
| Stockpile-8-11/00 | 15.4 | < 10.0 | < 25.0 | < 0.0500 | < 0.100 | < 0.0500 | < 0.100 |
| Stockpile-9-11/00 | 22.2 | 13.9 | < 25.0 | < 0.0500 | < 0.100 | 0.0762 | < 0.100 |
| Stockpile-10-11/00 | 1300 | 4270 | 139 | < 0.250 | < 0.500 | 3.61 | 4.8 |
| **(1) MTCA Method A** | **30** | **2000** | **2000** | **0.03** | **0.03** | **7** | **7** |
| **(2) MTCA Method A** | **30** | **2000** | **2000** | **0.03** | **0.03** | **7** | **7** |
| **(3) MTCA Method A** | **100** | **200** | **200** | **0.5** | **0.5** | **40** | **40** |
| **Summary Statistics** | | | | | | | |
| Mean | 463.46 | 593.22 | 31.44 | 0.19 | 0.09 | 1.66 | 2.35 |
| Std. Dev. | 799.50 | 1357.36 | 40.17 | 0.33 | 0.08 | 3.10 | 5.59 |
| Variance | 639194.1 | 1842436.4 | 1613.29 | 0.11 | 0.01 | 9.63 | 31.29 |
| Coeff. of Variation | 1.73 | 2.29 | 1.28 | 1.75 | 0.94 | 1.86 | 2.39 |
| Median | 56.05 | 41.8 | 12.5 | 0.0789 | 0.05 | 0.1475 | 0.05 |
| Minimum | 15.4 | 5 | 12.5 | 0.025 | 0.05 | 0.025 | 0.05 |
| Maximum | 2430 | 4270 | 139 | 1.1 | 0.25 | 9.81 | 17.7 |

(1) Proposed Method A Cleanup Level for Unrestricted Land Use Soil Values
(2) Proposed Method A Cleanup Levels for Industrial Land Use Soil Values
(3) Current Method A Cleanup Levels

Table 2

fn: priceless-soils.xls
4/8/01

## Summary of Stockpile Soil Concentrations

| Sample Identification | Ethylbenzene EPA 8021 mg/kg | Ethylbenzene EPA 8260B mg/kg | Xylenes (total) EPA 8021 mg/kg | o-Xylene EPA 8260B mg/kg | m,p-Xylene EPA 8260B mg/kg | MTBE EPA 8260 mg/kg | Total Lead EPA 6010B mg/kg |
|---|---|---|---|---|---|---|---|
| Stockpile-1-11/00 | 4.08 | 2.69 | 27.4 | 7.74 | 14.7 | < 0.100 | 11.9 |
| Stockpile-2-11/00 | 0.75 | 0.279 | 4.92 | 1.27 | 2.06 | < 0.100 | 19.5 |
| Stockpile-3-11/00 | 0.103 | < 0.100 | 0.735 | 0.104 | 0.208 | < 0.100 | 21.1 |
| Stockpile-4-11/00 | 0.149 | < 0.100 | 1.05 | 0.376 | 0.7 | < 0.100 | 31 |
| Stockpile-5-11/00 | 12.5 | 17.7 | 83.7 | 43 | 93.5 | 0.5 | 15.1 |
| Stockpile-6-11/00 | 0.0673 | < 0.100 | 0.376 | < 0.100 | < 0.200 | < 0.100 | 15.6 |
| Stockpile-7-11/00 | 0.19 | < 0.100 | 0.331 | < 0.100 | < 0.200 | < 0.100 | 16.3 |
| Stockpile-8-11/00 | 0.0578 | < 0.100 | 0.158 | < 0.100 | < 0.200 | < 0.100 | 12.6 |
| Stockpile-9-11/00 | < 0.0500 | < 0.100 | 0.218 | < 0.100 | < 0.200 | < 0.100 | 12.4 |
| Stockpile-10-11/00 | 6.97 | 8.5 | 52.4 | 21.6 | 46.8 | < 0.500 | 13 |
| **(1) MTCA Method A** | **6** | **6** | **9** | **9 (total)** | **9 (total)** | **0.1** | **250** |
| **(2) MTCA Method A** | **6** | **6** | **9** | **9 (total)** | **9 (total)** | **0.1** | **1000** |
| **(3) MTCA Method A** | **20** | **20** | **20** | **20 (total)** | **20 (total)** | **NA** | **250** |
| **Summary Statistics** | | | | | | | |
| Mean | 2.49 | 2.95 | 17.13 | 7.43 | 15.84 | 0.12 | 16.85 |
| Std. Dev. | 4.22 | 5.83 | 29.05 | 14.24 | 30.99 | 0.15 | 5.84 |
| Variance | 17.80 | 34.00 | 843.82 | 202.82 | 960.59 | 0.02 | 34.16 |
| Coeff. of Variation | 1.69 | 1.98 | 1.70 | 1.92 | 1.96 | 1.30 | 0.35 |
| Median | 0.1695 | 0.05 | 0.8925 | 0.24 | 0.454 | 0.05 | 15.35 |
| Minimum | 0.025 | 0.05 | 0.158 | 0.05 | 0.1 | 0.05 | 11.9 |
| Maximum | 12.5 | 17.7 | 83.7 | 43 | 93.5 | 0.5 | 31 |

(1) Proposed Method A Cleanup Level for Unrestricted Land Use Soil Values
(2) Proposed Method A Cleanup Levels for Industrial Land Use Soil Values
(3) Current Method A Cleanup Levels

Table 2

fn: priceless-soils.xls
4/8/01

## Summary of Soil Concentrations Remaining Onsite

| Sample Identification | Gasoline WTPH-G mg/kg | Diesel WTPH-Dx mg/kg | Oil WTPH-Dx mg/kg | Benzene EPA 8021 mg/kg | Benzene EPA 8260B mg/kg | Toluene EPA 8021 mg/kg | Toluene EPA 8260B mg/kg |
|---|---|---|---|---|---|---|---|
| South Wall-1 | < 5.00 | < 10.0 | < 25.0 | < 0.0500 | < 0.100 | 0.077 | < 0.100 |
| South Wall-2 | 11.7 | 23.4 | < 25.0 | < 0.0500 | < 0.100 | 0.0835 | < 0.100 |
| South Wall-3 | < 5.00 | < 10.0 | < 25.0 | < 0.0500 | < 0.100 | 0.0547 | < 0.100 |
| North Wall #1 | 16.8 | < 10.0 | < 25.0 | < 0.0500 | < 0.100 | 0.146 | 0.426 |
| North Wall #2 | **30.9** | < 10.0 | < 25.0 | **0.364** | < 0.100 | 3.54 | 0.178 |
| South Wall Trench #3 | < 5.00 | < 10.0 | < 25.0 | < 0.0500 | < 0.100 | 0.0675 | < 0.100 |
| East Trench #4 | < 5.00 | < 10.0 | < 25.0 | < 0.0500 | < 0.100 | 0.0933 | < 0.100 |
| North Trench #5 | **773** | 49.1 | < 25.0 | **0.894** | < 0.100 | 2.5 | 0.567 |
| **(1) MTCA Method A** | **30** | **2000** | **2000** | **0.03** | **0.03** | **7** | **7** |
| **(2) MTCA Method A** | **30** | **2000** | **2000** | **0.03** | **0.03** | **7** | **7** |
| **(3) MTCA Method A** | **100** | **200** | **200** | **0.5** | **0.5** | **40** | **40** |

(1) Proposed Method A Cleanup Level for Unrestricted Land Use Soil Values
(2) Proposed Method A Cleanup Levels for Industrial Land Use Soil Values
(3) Current Method A Cleanup Levels

Table 3

fn: priceless-soils.xls
4/8/01

## Summary of Soil Concentrations Remaining Onsite

| Sample Identification | Ethylbenzene EPA 8021 mg/kg | Ethylbenzene EPA 8260B mg/kg | Xylenes (total) EPA 8021 mg/kg | o-Xylene EPA 8260B mg/kg | m,p-Xylene EPA 8260B mg/kg | MTBE EPA 8260 mg/kg |
|---|---|---|---|---|---|---|
| South Wall-1 | < 0.0500 | < 0.100 | < 0.100 | < 0.100 | < 0.200 | < 0.100 |
| South Wall-2 | < 0.0500 | < 0.100 | 0.168 | < 0.100 | < 0.200 | < 0.100 |
| South Wall-3 | < 0.0500 | < 0.100 | < 0.100 | < 0.100 | < 0.200 | < 0.100 |
| North Wall #1 | < 0.0500 | 0.127 | 0.312 | 1.3 | 1.28 | < 5.00 |
| North Wall #2 | 0.634 | 0.141 | 4.48 | 0.849 | 1.15 | < 5.00 |
| South Wall Trench #3 | < 0.0500 | < 0.100 | 0.131 | < 0.100 | < 0.200 | < 5.00 |
| East Trench #4 | < 0.0500 | < 0.100 | 0.106 | < 0.100 | < 0.200 | **5.74** |
| North Trench #5 | 4.16 | 3.84 | **22.7** | **8.22** | **21.4** | < 5.00 |
| **(1) MTCA Method A** | **6** | **6** | **9** | | | **0.1** |
| **(2) MTCA Method A** | **6** | **6** | **9** | | | **0.1** |
| **(3) MTCA Method A** | **20** | **20** | **20** | | | **NA** |

(1) Proposed Method A Cleanup Level for Unrestricted Land Use Soil Values
(2) Proposed Method A Cleanup Levels for Industrial Land Use Soil Values
(3) Current Method A Cleanup Levels

Table 3

fn: priceless-soils.xls
4/8/01

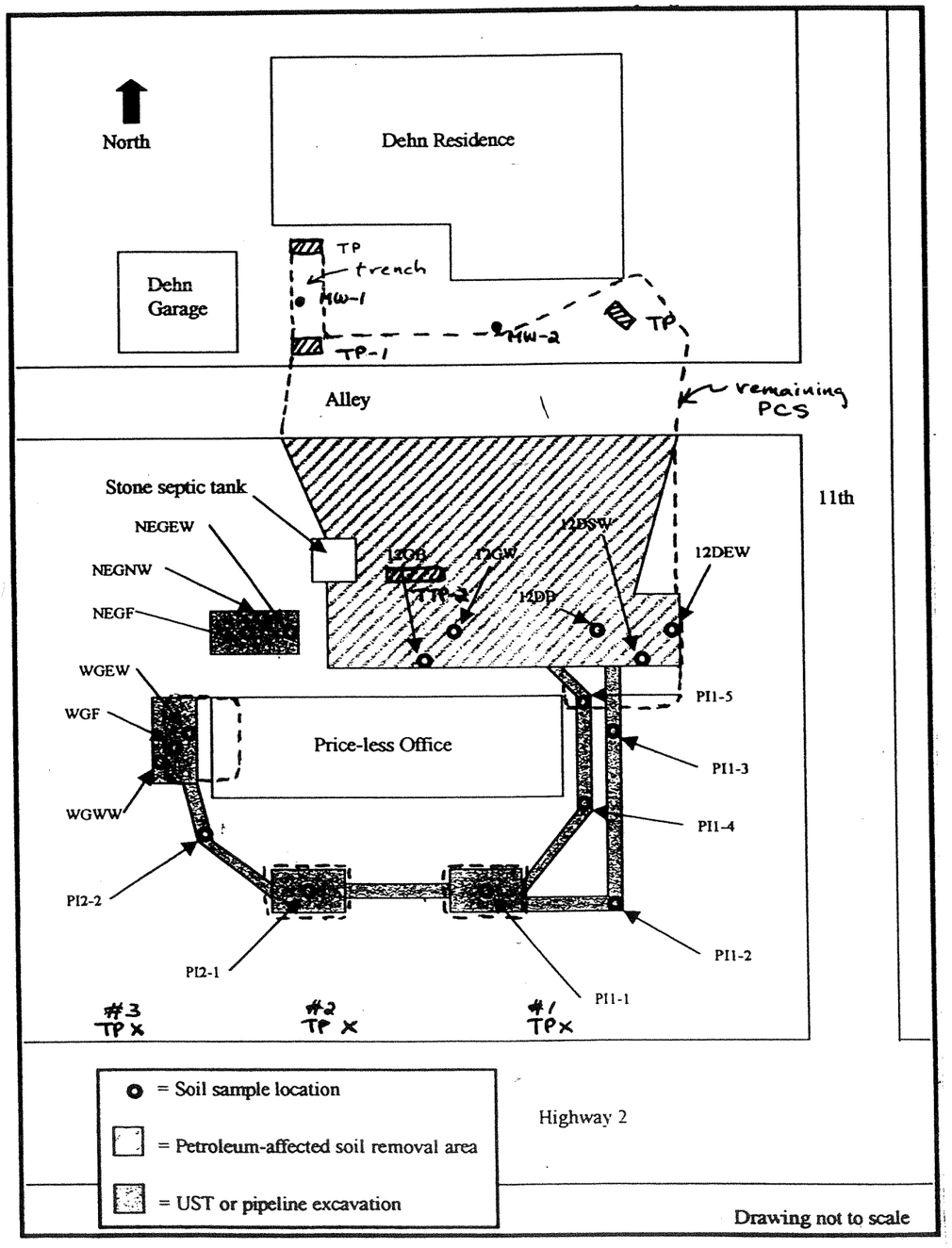


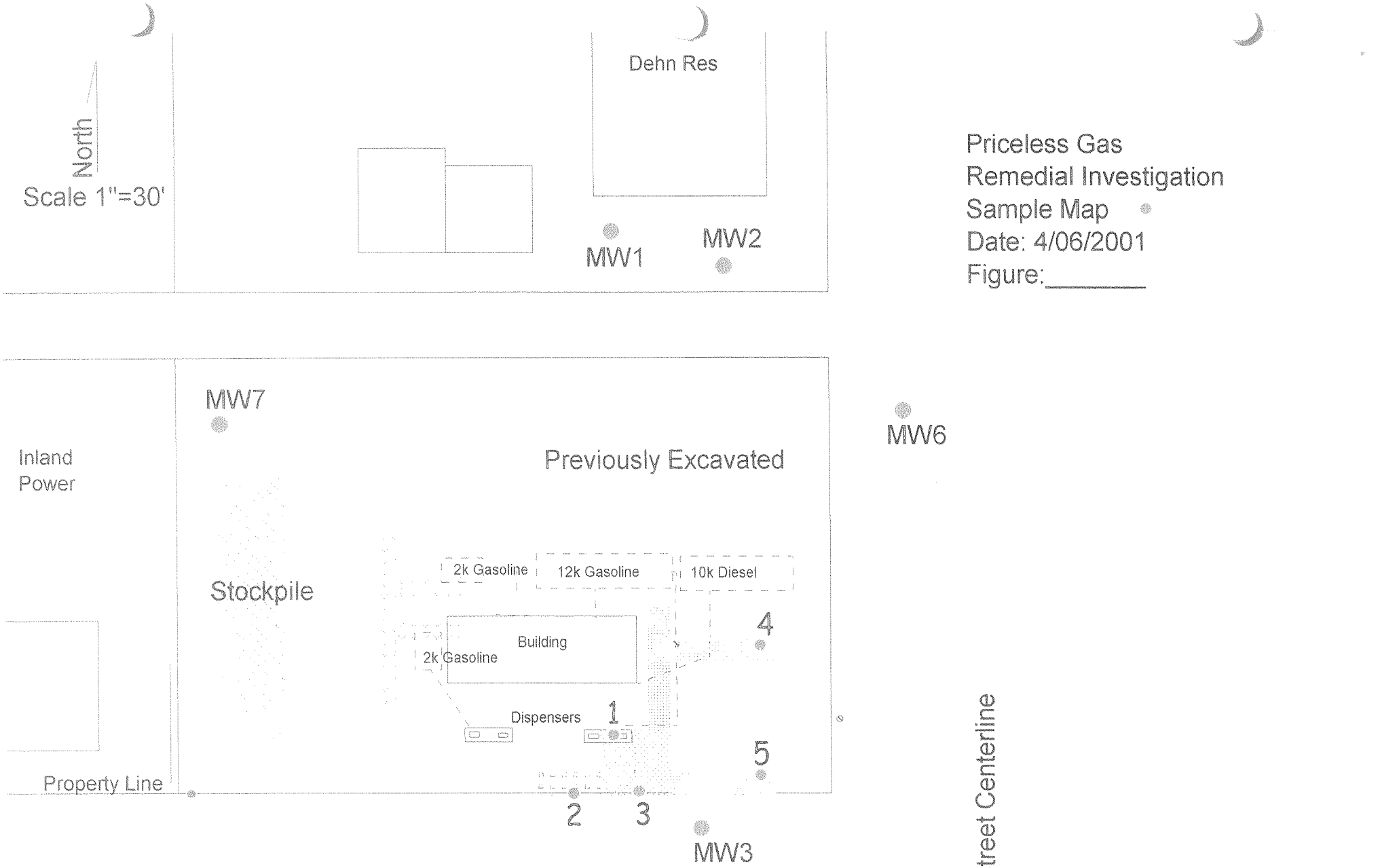

**Table 1**
**Summary of Analytical Results**

| Sample Identification | Date | Location | Depth | Analyses | Sample Type | Benzene | Toluene | Ethylbenzene | Xylenes (total) | Gasoline Range Hydrocarbons | Diesel Range Hydrocarbons |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TP-1 | 11/13/98 | See Figure 2 | 4' bgs | WTPH-G/BTEX | Soil | ND | 0.768 | 0.963 | 41.4 | 1,200 | N/A |
| TTP-2 | 11/13/98 | See Figure 2 | 8' bgs | WTPH-G/BTEX | Soil | 9.51 | 74.4 | 36.0 | 188.0 | 2,520 | N/A |
| WGF | 12/14/98 | See Figure 3 | 9' bgs | WTPH-G/BTEX | Soil | 50.9 | 315.0 | 191.0 | 980.0 | 20,100 | N/A |
| WGWW | 12/14/98 | See Figure 3 | 7' bgs | WTPH-G/BTEX | Soil | ND | ND | ND | ND | 4.48 | N/A |
| WGEW | 12/14/98 | See Figure 3 | 6' bgs | WTPH-G/BTEX | Soil | 1.08 | 31.1 | 40.5 | 208.0 | 4,240 | N/A |
| 12GB | 12/14/98 | See Figure 3 | 11' bgs | WTPH-G/BTEX | Soil | 0.303 | 1.12 | 0.304 | 2.91 | 54.5 | N/A |
| 12GW | 12/14/98 | See Figure 3 | 8' bgs | WTPH-G/BTEX | Soil | ND | ND | ND | ND | ND | N/A |
| NEGF | 12/14/98 | See Figure 3 | 8' bgs | WTPH-G/BTEX | Soil | ND | ND | ND | ND | ND | N/A |
| NEGEW | 12/14/98 | See Figure 3 | 6' bgs | WTPH-G/BTEX | Soil | ND | ND | ND | ND | ND | N/A |
| NEGNW | 12/14/98 | See Figure 3 | 6' bgs | WTPH-G/BTEX | Soil | ND | ND | ND | ND | ND | N/A |
| 12DB | 12/14/98 | See Figure 3 | 11' bgs | WTPH-HCID | Soil | N/A | N/A | N/A | N/A | 1,880 | 467 |
| 12DEW | 12/14/98 | See Figure 3 | 7' bgs | WTPH-HCID | Soil | N/A | N/A | N/A | N/A | ND | ND |
| 12DSW | 12/14/98 | See Figure 3 | 7' bgs | WTPH-HCID | Soil | N/A | N/A | N/A | N/A | 1,590 | 467 |
| MW-1 | 12/3/98 | See Figure 2 | Well | WTPH-G/BTEX | Groundwater | 967.0 | 18.6 | 17.4 | 39.2 | 514 | N/A |
| MW-2 | 12/3/98 | See Figure 2 | Well | WTPH-G/BTEX | Groundwater | 5,260 | 5,990 | 952 | 5,810 | 89,100 | N/A |
| 1 | 1/22/98 | Dehn Basement | N/A | WTPH-HCID | Groundwater | N/A | N/A | N/A | N/A | 255 | 642 |
| 2 | 1/22/98 | Dehn Basement | N/A | WTPH-HCID | Groundwater | N/A | N/A | N/A | N/A | 868 | 2,390 |
| 3 | 1/22/98 | Dehn Basement | N/A | WTPH-HCID | Groundwater | N/A | N/A | N/A | N/A | ND | ND |
| Composite | 12/14/98 | Soil Composite | N/A | WTPH-G | Soil | N/A | N/A | N/A | N/A | 1,340 | N/A |
| MTCA Method A Compliance Levels | | | | | Soil | 0.5 mg/kg | 40.0 mg/kg | 20.0 mg/kg | 20.0 mg/kg | 100.0 mg/kg | 200.0 mg/kg |
| | | | | | Groundwater | 5.0 µg/l | 40.0 µg/l | 30.0 µg/l | 20.0 µg/l | 1,000.0 µg/l | |

All contaminant concentrations in soil are in milligrams/kilogram (mg/kg).
All contaminant concentrations in groundwater are in micrograms/liter (µg/l).
Underlined values indicate concentrations exceeding MTCA Method A Compliance Levels.

| Sample ID | Date | Sample Type | Benzene [mg/kg] | Toluene [mg/kg] | Ethylbenzene [mg/kg] | Xylenes (total) [mg/kg] | Gasoline [mg/kg] | Diesel [mg/kg] | Oil [mg/kg] |
|---|---|---|---|---|---|---|---|---|---|
| PI-1 | 1/14/99 | soil | NA | NA | NA | NA | 7110 | 942 | < 100 |
| PI-2 | 1/14/99 | soil | NA | NA | NA | NA | 21.4 | 65.9 | < 100 |
| PI-3 | 1/14/99 | soil | NA | NA | NA | NA | < 20 | < 50 | < 100 |
| PI-4 | 1/14/99 | soil | < 0.05 | < 0.05 | < 0.05 | < 0.1 | < 1.00 | NA | NA |
| PI-5 | 1/14/99 | soil | < 0.05 | < 0.05 | < 0.05 | < 0.1 | < 1.00 | NA | NA |
| PI2-1 | 1/22/99 | soil | NA | NA | NA | NA | < 20 | 239 | < 100 |
| PI2-2 | 1/22/99 | soil | < 0.05 | < 0.05 | < 0.05 | < 0.100 | < 1.00 | NA | NA |

**Figure 2**
**PREVIOUS INVESTIGATIONS SUMMARY**




Priceless Gas
Remedial Investigation
Sample Map
Date: 4/06/2001
Figure:_____

RK file c:\fcad32\plgsample.fcw

| Groundwater Summary Information | | | |
|---|---|---|---|
| Well Number | Ground Surface Elevation | Top Of PVC Elevation | Ground Water Elevation |
| MW-1 | 2379.60 | 2379.39 | 2376.15 |
| MW-2 | 2379.29 | 2378.72 | 2376.19 |
| MW-3 | 2385.18 | 2384.85 | 2375.85 |
| MW-4 | 2376.54 | 2376.09 | 2363.05 |
| MW-5 | 2372.86 | 2372.54 | 2364.55 |
| MW-6 | 2379.46 | 2379.12 | 2375.90 |
| MW-7 | 2385.04 | 2384.62 | 2376.94 |
| MW-8 | 2387.70 | 2386.95 | 2377.78 |
| MW-9 | 2377.63 | 2377.40 | 2365.14 |
| MW-10 | 2366.86 | 2366.53 | 2358.48 |

MW10 2358.48

Inland Power and Light Bldg. and Yard

Dennis M. & Jaccqueline Family Trust Vacant

City Of Davenport Vacant

Inland Power and Light Bldg. and Yard

Gordan Bonser Res.

Fredrick Spinkel Res.

Norman Nevin Vacant

MW5 2364.55

OH Power Line

6" Sewer Line

2" NG Line

Centerline Logan

6" Water Line

Fire Hydrant

MW4 2363.05

SB5

Bldg. Yard

Inland Power and Light

SB6

Dehn Res.

Charles & Elizabeth Turk Res.

MW9 2365.14

SB7

Garage

MW1

MW2 2376.18

Meter Box

Water Line

6" Sewer Line

OH Power Line

2" NG Line

MW7 2376.94

MW6 2375.90

SB3

2k Premium

12k Unleaded

10k Diesel

2k Midgrade

Building

Dispensers

Paved Lot

Curb

Inland Power and Light Building

Priceless Property

SB4

SB1

Sign

Meter Box

Steven & Lillian Haime Res.

Centerline 12th

Centerline 11th

6" Water Line

SB2

MW3 2376.85

Fire Hydrant

Centerline Morgan Street (SR2)

North

6" Water Line

MW8 2377.78

Scale 1"=50'

Texaco
Marvin R. Bain

Kevin & Sherril
Hansen Res.

Sources:
City of Davenport - Property Lines
Visual Observation - Overhead Power
Avista Corp. - Natural Gas Line
City of Davenport - Water and Sewer Lines
Dehn Residential Lines - Bruce Dehn (3/8/2000)
Priceless Site Features - Tracer Research Corp.

Priceless Gas Remedial Investigation
Davenport WA

# Groundwater Well Information Map

File C:\fcad32\pigbase.FCW 2/5/2001 RK

Date: 3/31/04 Figure:

# APPENDIX A

# BACKGROUND INFORMATION

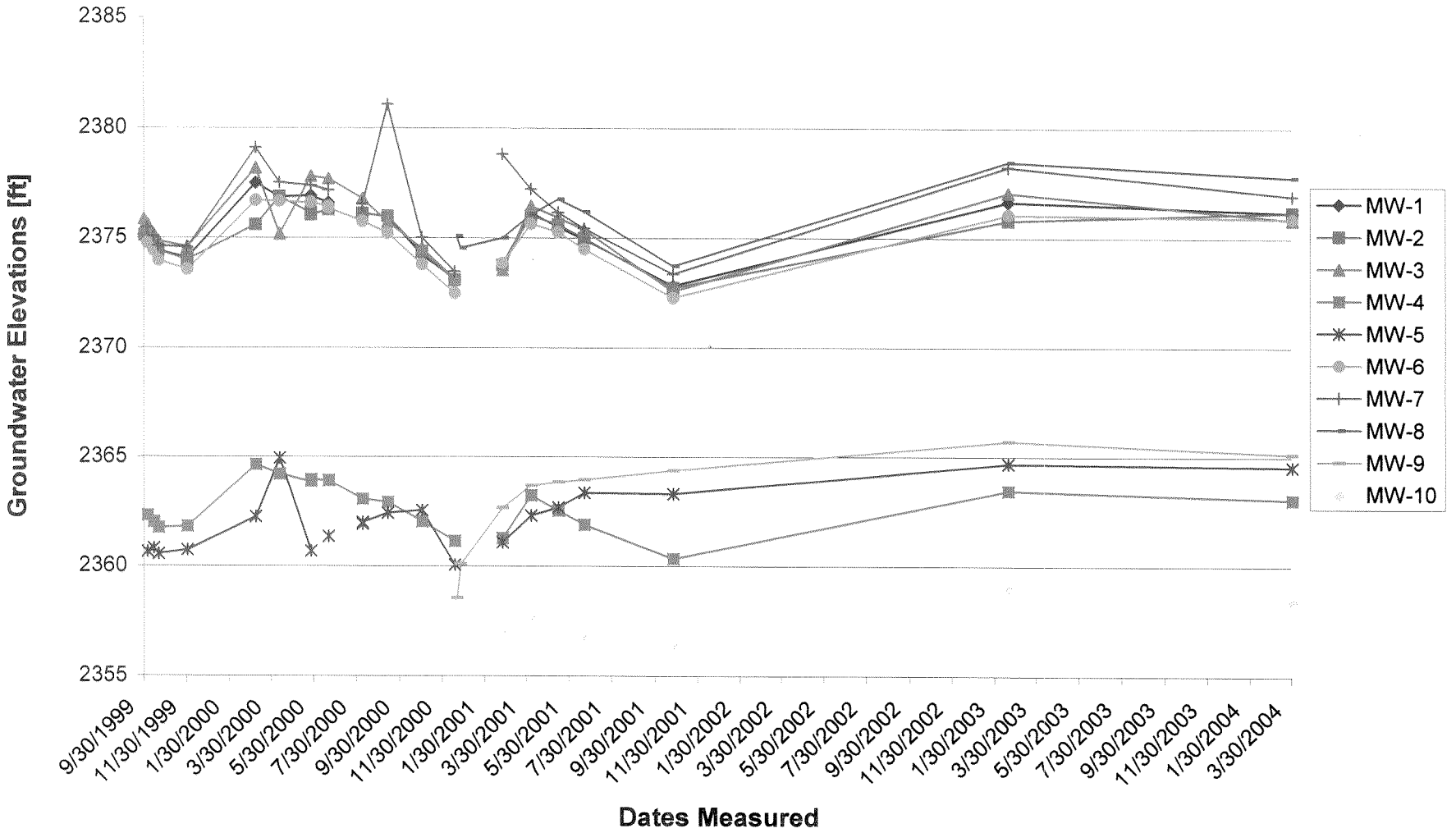
# Summary of Groundwater Level Measurements
## Priceless Gas

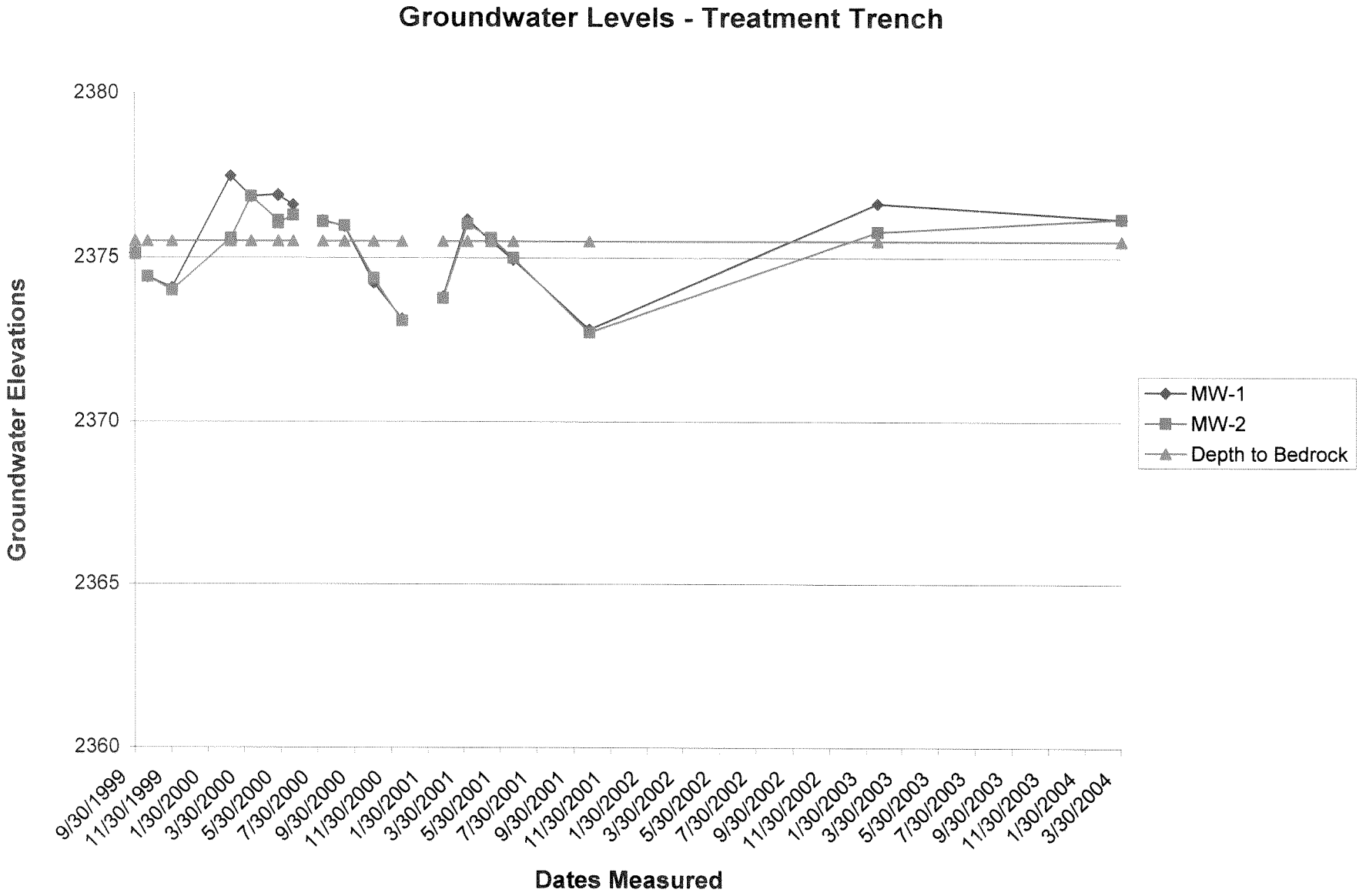
| Dates Measured | | Monitoring Wells - Groundwater Level Elevations [ft] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MW-1 | MW-2 | MW-3 | MW-4 | MW-5 | MW-6 | MW-7 | MW-8 | MW-9 | MW-10 |
| | **Ref. Elevation** | **2379.39** | **2378.72** | **2384.85** | **2376.09** | **2372.54** | **2379.12** | **2384.62** | **2386.95** | **2377.40** | **2366.53** |
| | **Bedrock Elevation** | **2375** | **2376** | **2375** | **2374** | **2371** | **2375** | **2379** | **2385** | **2377** | **2366** |
| 9/30/1999 | | 2375.13 | 2375.10 | 2375.85 | | | | | | | |
| 10/1/1999 | | 2375.13 | 2375.10 | 2375.53 | | | | | | | |
| 10/5/1999 | | | | 2375.63 | 2362.32 | 2360.66 | 2374.77 | 2375.44 | | | |
| 10/14/1999 | | | | 2375.16 | 2362.01 | 2360.82 | 2374.42 | 2375.04 | | | |
| 10/21/1999 | | 2374.41 | 2374.42 | 2374.85 | 2361.75 | 2360.56 | 2373.97 | 2374.62 | | | |
| 12/1/1999 | | 2374.08 | 2374.00 | 2374.58 | 2361.81 | 2360.73 | 2373.55 | 2374.55 | | | |
| 3/8/2000 | | 2377.49 | 2375.59 | 2378.18 | 2364.64 | 2362.24 | 2376.70 | 2379.10 | | | |
| 4/11/2000 | | 2376.86 | 2376.87 | 2375.17 | 2364.21 | 2364.94 | 2376.67 | 2377.52 | | | |
| 5/26/2000 | sounder | 2376.92 | 2376.13 | 2377.80 | 2363.86 | 2360.69 | 2376.60 | 2377.38 | | | |
| 5/26/2000 | paste | 2376.89 | 2376.05 | 2377.80 | 2363.95 | NM | 2376.62 | 2377.37 | | | |
| 6/20/2000 | sounder | 2376.61 | 2376.29 | 2377.70 | 2363.92 | 2361.36 | 2376.42 | 2377.17 | | | |
| 6/20/2000 | paste | NM | NM | 2377.70 | 2363.89 | NM | 2376.35 | NM | | | |
| 8/8/2000 | sounder | 2376.13 | 2376.11 | 2376.80 | 2363.06 | 2361.92 | 2375.77 | 2376.52 | | | |
| 8/8/2000 | paste | 2376.12 | 2376.09 | 2376.79 | 2363.06 | 2361.99 | 2375.75 | 2376.54 | | | |
| 9/13/2000 | | 2375.96 | 2375.98 | 2375.72 | 2362.91 | 2362.41 | 2375.22 | 2381.07 | | | |
| 11/1/2000 | | 2374.23 | 2374.37 | 2374.53 | 2362.04 | 2362.54 | 2373.79 | 2375.01 | | | |
| 12/18/2000 | | 2373.14 | 2373.08 | 2373.15 | 2361.15 | 2360.06 | 2372.49 | 2373.47 | | | |
| 12/21/2000 | | | | | | | | | 2375.09 | 2358.56 | 2356.57 |
| 12/26/2000 | | | | | | | | | 2374.54 | 2360.10 | 2356.42 |
| 2/24/2001 | | 2373.81 | 2373.77 | 2373.56 | 2361.28 | 2361.09 | 2373.85 | 2378.82 | 2375.00 | 2362.67 | 2357.14 |
| 4/6/2001 | | 2376.17 | 2376.03 | 2376.46 | 2363.23 | 2362.30 | 2375.65 | 2377.23 | 2376.07 | 2363.69 | 2357.83 |
| 5/15/2001 | | 2375.50 | 2375.60 | 2375.92 | 2362.53 | 2362.67 | 2375.27 | 2376.17 | 2376.78 | 2363.86 | 2357.48 |
| 6/21/2001 | | 2374.94 | 2374.99 | 2375.37 | 2361.89 | 2363.34 | 2374.50 | 2375.43 | 2376.20 | 2363.97 | 2356.85 |
| 10/26/2001 | | 2372.82 | 2372.73 | 2372.57 | 2360.35 | 2363.30 | 2372.29 | 2373.36 | 2373.73 | 2364.38 | 2356.50 |
| 2/18/2003 | | 2376.65 | 2375.79 | 2377.06 | 2363.44 | 2364.69 | 2376.07 | 2378.22 | 2378.46 | 2365.72 | 2359.10 |
| 3/31/2004 | sounder | 2376.18 | 2376.19 | 2375.85(1) | 2363.05 | 2364.55 | 2375.90 | 2376.94 | 2377.78 | 2365.14 | 2358.48 |

Note (1): approx. 1' floating product in bailer during sample collection.

fn: pricegwl
2/1/01

## Summary of Groundwater Level Measurements
## Price-Less Gas Site




Groundwater Levels - Treatment Trench
Groundwater Elevations
2380
2375
2370
2365
2360
9/30/1999
11/30/1999
1/30/2000
3/30/2000
5/30/2000
7/30/2000
9/30/2000
11/30/2000
1/30/2001
3/30/2001
5/30/2001
7/30/2001
9/30/2001
11/30/2001
1/30/2002
3/30/2002
5/30/2002
7/30/2002
9/30/2002
11/30/2002
1/30/2003
3/30/2003
5/30/2003
7/30/2003
9/30/2003
11/30/2003
1/30/2004
3/30/2004
Dates Measured
MW-1
MW-2
Depth to Bedrock

# Summary of Groundwater Concentrations

| Sample Identification | Sample Date | | Hydrocarbons Gasoline Range EPA 8015 NWTPH-Gx [ug/l] | Benzene EPA 8021B [ug/l] | Benzene EPA 8260B [ug/l] | Toluene EPA 8021B [ug/l] | Toluene EPA 8260B [ug/l] | Ethylbenzene EPA 8021B [ug/l] | Ethylbenzene EPA 8260B [ug/l] | Xylenes (total) EPA 8021B [ug/l] | m,p,o-Xylene EPA 8260B [ug/l] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MTCA A Cleanup Levels | | | 800 | 5 | 5 | 1,000 | 1,000 | 700 | 700 | 1,000 | 1,000 (total) |
| MW-1-12/98 | 12/3/1998 | | 514 | 967 | NA | 18.6 | NA | 17.4 | NA | 39.2 | NA |
| MW-1-10/99 | 10/1/1999 | | 71 | 204 | NA | 0.653 | NA | 0.957 | NA | < 1.00 | NA |
| MW-D-10/99 | 10/1/1999 | | 76.5 | 202 | NA | 0.624 | NA | 1 | NA | < 1.00 | NA |
| MW-1-4/00 | 4/11/2000 | | 471 | 584 | NA | 7.44 | NA | 33.6 | NA | 10.5 | NA |
| MW-1-10/00 | 11/1/2000 | | < 2500 | 4910 | 4540 | 79.3 | 17.7 | 58.4 | 35.7 | 100 | 21.3 |
| MW-10-10/00 | 11/1/2000 | | < 2500 | 5810 | 4680 | 91 | 17.7 | 70.4 | 36.5 | 119 | 22.3 |
| MW-1-3/04 | 3/31/2004 | 5-100X dilution | | | 1780 | | 17.3 | | 87.9 | | 27.9 |
| | | | | | | | | | | | |
| MW-2-12/98 | 12/3/1998 | | 89100 | 5260 | NA | 5990 | NA | 952 | NA | 5810 | NA |
| MW-2-10/99 | 10/1/1999 | | < 50.0 | 4.81 | NA | 2.98 | NA | 1.3 | NA | 4.6 | NA |
| MW-2-4/00 | 4/11/2000 | | 4930 | 507 | NA | 283 | NA | 54 | NA | 420 | NA |
| MW-2-10/00 | 11/1/2000 | | < 2500 | 1500 | 1120 | 154 | 70.2 | 57.4 | 31.4 | 232 | 110.4 |
| MW-2-3/04 | 3/31/2004 | 100X dilution | | | 1630 | | 107 | | 332 | | 1659 |
| | | | | | | | | | | | |
| MW-3-10/99 | 10/21/1999 | | 36200 | 9240 | NA | 875 | NA | 1710 | NA | 4830 | NA |
| MW-13-10/99 | 10/21/1999 | | 28000 | 7850 | NA | 692 | NA | 1390 | NA | 3780 | NA |
| MW-3-4/00 | 4/11/2000 | | 41800 | 10600 | NA | 1240 | NA | 1860 | NA | 5740 | NA |
| MW-3-10/00 | 11/1/2000 | | 25300 | 14500 | 17600 | 3150 | 3730 | 1890 | 2040 | 5310 | 5390 |
| MW-3-3/04 | 3/31/2004 | 1000X dilution | | | 13400 | | < 1000 | | 2240 | | 4840 |
| | | | | | | | | | | | |
| MW-4-10/99 | 10/21/1999 | | 345 | 586 | NA | 6.79 | NA | 12.1 | NA | 19.7 | NA |
| MW-14-10/99 | 10/21/1999 | 10X dilution | < 500 | 500 | NA | 6.56 | NA | 10.2 | NA | 17.3 | NA |
| MW-4-4/00 | 4/11/2000 | | 1540 | 1250 | NA | 24.4 | NA | 80.9 | NA | 18.7 | NA |
| MW-14-4/00 | 4/11/2000 | | 1330 | 1240 | NA | 20.2 | NA | 77.2 | NA | 22.4 | NA |
| MW-4-10/00 | 11/1/2000 | | < 2500 | 3400 | 2310 | 110 | 29.5 | 119 | 74.6 | 113 | 10.4 |
| MW-4-3/04 | 3/31/2004 | 10X dilution | | | 142 | | < 10.0 | | < 10.0 | | < 20.0 |
| | | | | | | | | | | | |
| MW-5-10/99 | 10/21/1999 | | < 50.0 | < 0.500 | NA | < 0.500 | NA | < 0.500 | NA | < 1.00 | NA |
| MW-5-4/00 | 4/11/2000 | | < 50.0 | 0.617 | NA | < 0.500 | NA | < 0.500 | NA | < 1.00 | NA |
| MW-5-10/00 | 10/31/2000 | | < 50.0 | 1.67 | < 1.00 | 0.829 | < 1.00 | 0.67 | < 1.00 | 2.6 | < 1.00 |
| | | | | | | | | | | | |
| MW-6-10/99 | 10/21/1999 | | < 50.0 | 64.2 | NA | < 0.500 | NA | < 0.500 | NA | 1.53 | NA |
| MW-6-4/00 | 4/11/2000 | | < 2500 | 3170 | NA | 33.1 | NA | < 25.0 | NA | < 50.0 | NA |
| MW-6-10/00 | 10/31/2000 | | 101 | 28.2 | 20.6 | 1.00 | < 1.00 | 0.688 | < 1.00 | 5.12 | < 1.00 |
| | | | | | | | | | | | |
| MW-7-10/99 | 10/21/1999 | 10X dil. | 1250 | 577 | NA | 217 | NA | 10.3 | NA | 93.2 | NA |
| MW-7-4/00 | 4/11/2000 | | 337 | 128 | NA | 45 | NA | 2.73 | NA | 30.1 | NA |
| MW-7-10/00 | 10/31/2000 | | 1330 | 813 | 1130 | 137 | 155 | 21.6 | 23.1 | 150 | 158.5 |
| | | | | | | | | | | | |
| MW-8-12/00 | 12/26/2000 | | 179 | 2.02 | < 1.00 | 0.721 | < 1.00 | 0.77 | < 1.00 | 2.86 | < 1.00 |
| | | | | | | | | | | | |
| MW-9-12/00 | 12/26/2000 | | 54.9 | < 0.500 | < 1.00 | < 0.500 | < 1.00 | < 0.500 | < 1.00 | 1.45 | < 1.00 |
| | | | | | | | | | | | |
| MW-10-12/00 | 12/26/2000 | | < 50.0 | < 0.500 | < 1.00 | 0.63 | < 1.00 | < 0.500 | < 1.00 | 1.39 | < 1.00 |
| | | | | | | | | | | | |
| Dehn #1 | 1/22/1998 | | 255 | NA | NA | NA | NA | NA | NA | NA | NA |
| Dehn #2 | 1/22/1998 | | 868 | NA | NA | NA | NA | NA | NA | NA | NA |
| Dehn #3 | 1/22/1998 | | ND | NA | NA | NA | NA | NA | NA | NA | NA |

fn: PricelessCHEM.xls
4/14/2004

# Summary of Groundwater Concentrations

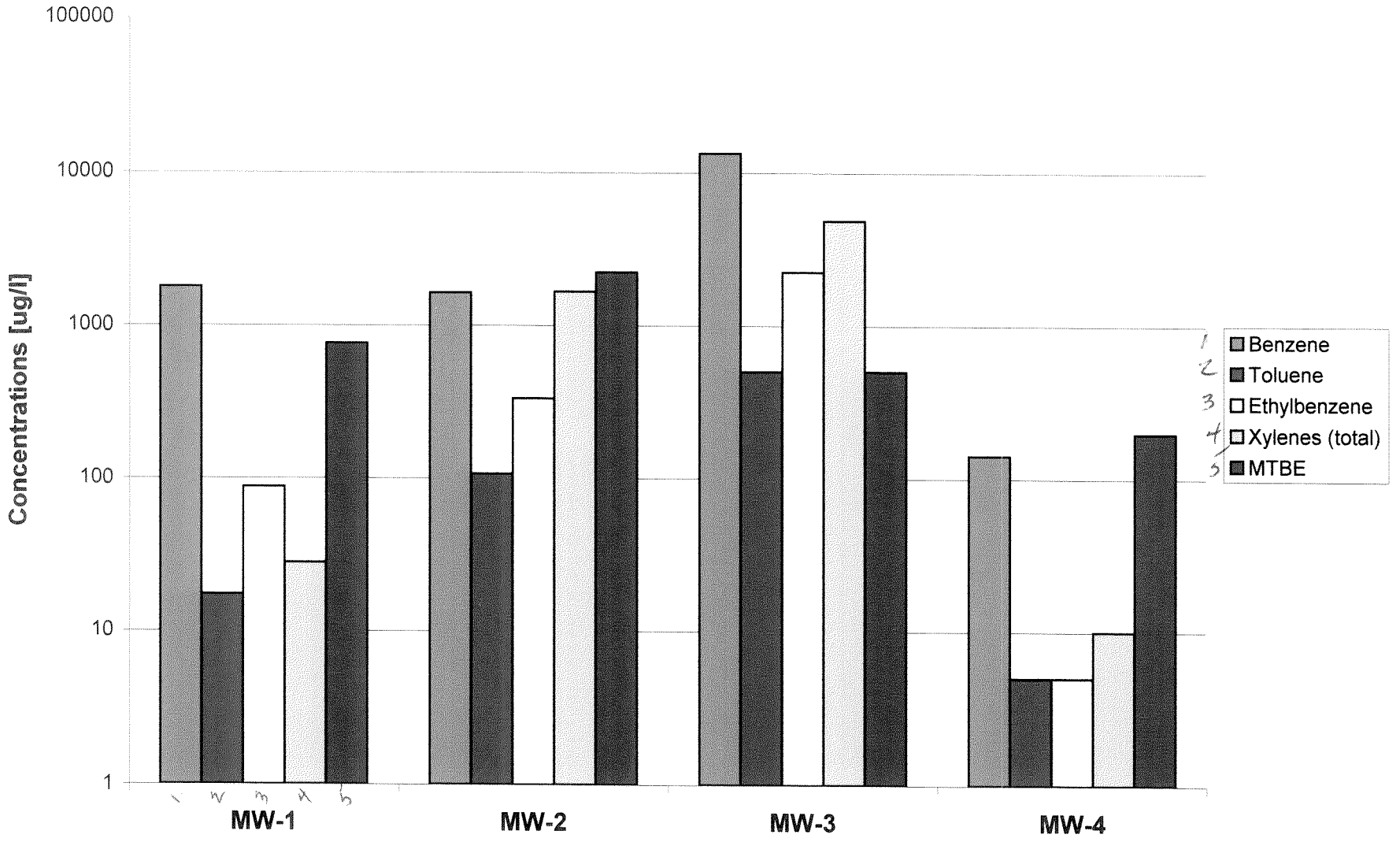
| Sample Identification | Sample Date | | MTBE EPA 8021B [ug/l] | MTBE EPA 8260B [ug/l] | Naphthalene EPA 8021/8260B [ug/l] | Hydrocarbons Diesel Range NWTPH-Dx [ug/l] | Hydrocarbons Heavy Oil Range NWTPH-Dx [ug/l] | Total Lead EPA 239.2 [ug/l] | Dissolved Lead EPA 239.2 [ug/l] |
|---|---|---|---|---|---|---|---|---|---|
| MTCA A Cleanup Levels | | | 20 | 20 | 160 | 500 | 500 | 15 | 15 |
| MW-1-12/98 | 12/3/1998 | | NA | NA | NA | NA | NA | NA | NA |
| MW-1-10/99 | 10/1/1999 | | NA | NA | NA | < 250 | NA | < 2.00 | NA |
| MW-D-10/99 | 10/1/1999 | | NA | NA | NA | 353 | NA | < 2.00 | NA |
| MW-1-4/00 | 4/11/2000 | | 497 | NA | 21.0 | < 250 | < 750 | NA | NA |
| MW-1-10/00 | 11/1/2000 | | NA | 3820 | NA | 341 | < 750 | NA | NA |
| MW-10-10/00 | 11/1/2000 | | NA | 3850 | NA | 329 | < 750 | NA | NA |
| MW-1-3/04 | 3/31/2004 | 5-100X dilution | | 764 | 12.0 | | | | |
| | | | | | | | | | |
| MW-2-12/98 | 12/3/1998 | | NA | NA | NA | NA | NA | NA | NA |
| MW-2-10/99 | 10/1/1999 | | NA | NA | NA | < 250 | NA | < 2.00 | NA |
| MW-2-4/00 | 4/11/2000 | | 194 | NA | 71.8 | 452 | < 750 | NA | NA |
| MW-2-10/00 | 11/1/2000 | | NA | 2930 | NA | < 250 | < 750 | NA | NA |
| MW-2-3/04 | 3/31/2004 | 100X dilution | | 2230 | < 100 | | | | |
| | | | | | | | | | |
| MW-3-10/99 | 10/21/1999 | | NA | NA | NA | 4540 | < 750 | < 2.00 | < 2.00 |
| MW-13-10/99 | 10/21/1999 | | NA | NA | NA | NA | NA | NA | NA |
| MW-3-4/00 | 4/11/2000 | | 2750 | NA | < 1000 | 15800 | < 750 | NA | NA |
| MW-3-10/00 | 11/1/2000 | | NA | 2690 | NA | 9860 | < 750 | NA | NA |
| MW-3-3/04 | 3/31/2004 | 1000X dilution | | < 1000 | < 1000 | | | | |
| | | | | | | | | | |
| MW-4-10/99 | 10/21/1999 | | NA | NA | NA | 354 | < 750 | < 2.00 | NA |
| MW-14-10/99 | 10/21/1999 | 10X dil. | NA | NA | NA | 373 | < 750 | < 2.00 | NA |
| MW-4-4/00 | 4/11/2000 | | 1740 | NA | 58.8 | 367 | < 750 | NA | NA |
| MW-14-4/00 | 4/11/2000 | | 1610 | NA | 60.8 | 370 | < 750 | NA | NA |
| MW-4-10/00 | 11/1/2000 | | NA | 2860 | NA | 361 | < 750 | NA | NA |
| MW-4-3/04 | 3/31/2004 | 10X dil. | | 198 | < 10.0 | | | | |
| | | | | | | | | | |
| MW-5-10/99 | 10/21/1999 | | NA | NA | NA | < 250 | < 750 | < 2.00 | < 2.00 |
| MW-5-4/00 | 4/11/2000 | | 8.02 | NA | < 10.0 | < 250 | < 750 | NA | NA |
| MW-5-10/00 | 10/31/2000 | | NA | < 5.00 | NA | < 250 | < 750 | NA | NA |
| | | | | | | | | | |
| MW-6-10/99 | 10/21/1999 | | NA | NA | NA | 418 | < 750 | NA | < 2.00 |
| MW-6-4/00 | 4/11/2000 | | 7150 | NA | < 500 | 410 | < 750 | NA | NA |
| MW-6-10/00 | 10/31/2000 | | NA | 3500 | NA | 253 | < 750 | NA | NA |
| | | | | | | | | | |
| MW-7-10/99 | 10/21/1999 | 10X dil. | NA | NA | NA | 587 | < 750 | < 2.00 | NA |
| MW-7-4/00 | 4/11/2000 | | 154 | NA | < 10.0 | < 250 | < 750 | NA | NA |
| MW-7-10/00 | 10/31/2000 | | NA | < 500 | NA | < 250 | < 750 | NA | NA |
| | | | | | | | | | |
| MW-8-12/00 | 12/26/2000 | | 5.24 | < 5.00 | 12 | < 250 | < 750 | NA | NA |
| | | | | | | | | | |
| MW-9-12/00 | 12/26/2000 | | 3.91 | < 5.00 | < 5.00 | < 833 | < 2500 | NA | NA |
| | | | | | | | | | |
| MW-10-12/00 | 12/26/2000 | | 3.64 | < 5.00 | < 5.00 | < 250 | < 750 | NA | NA |
| | | | | | | | | | |
| Dehn #1 | 1/22/1998 | | NA | NA | NA | 642 | NA | NA | NA |
| Dehn #2 | 1/22/1998 | | NA | NA | NA | 2390 | NA | NA | NA |
| Dehn #3 | 1/22/1998 | | NA | NA | NA | NA | NA | NA | NA |

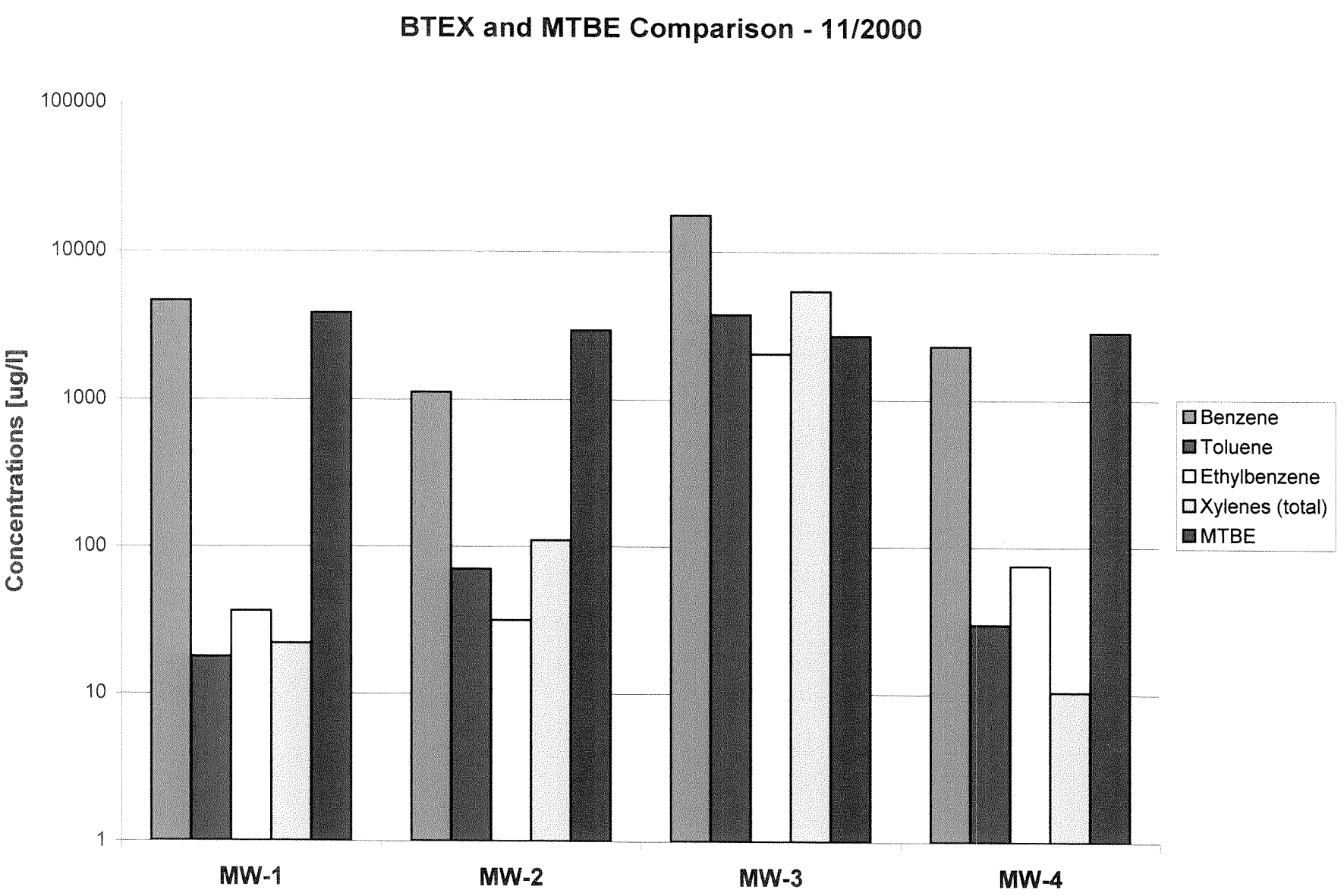
fn: PricelessCHEM.xls
4/14/2004

# Summary of Groundwater Concentrations

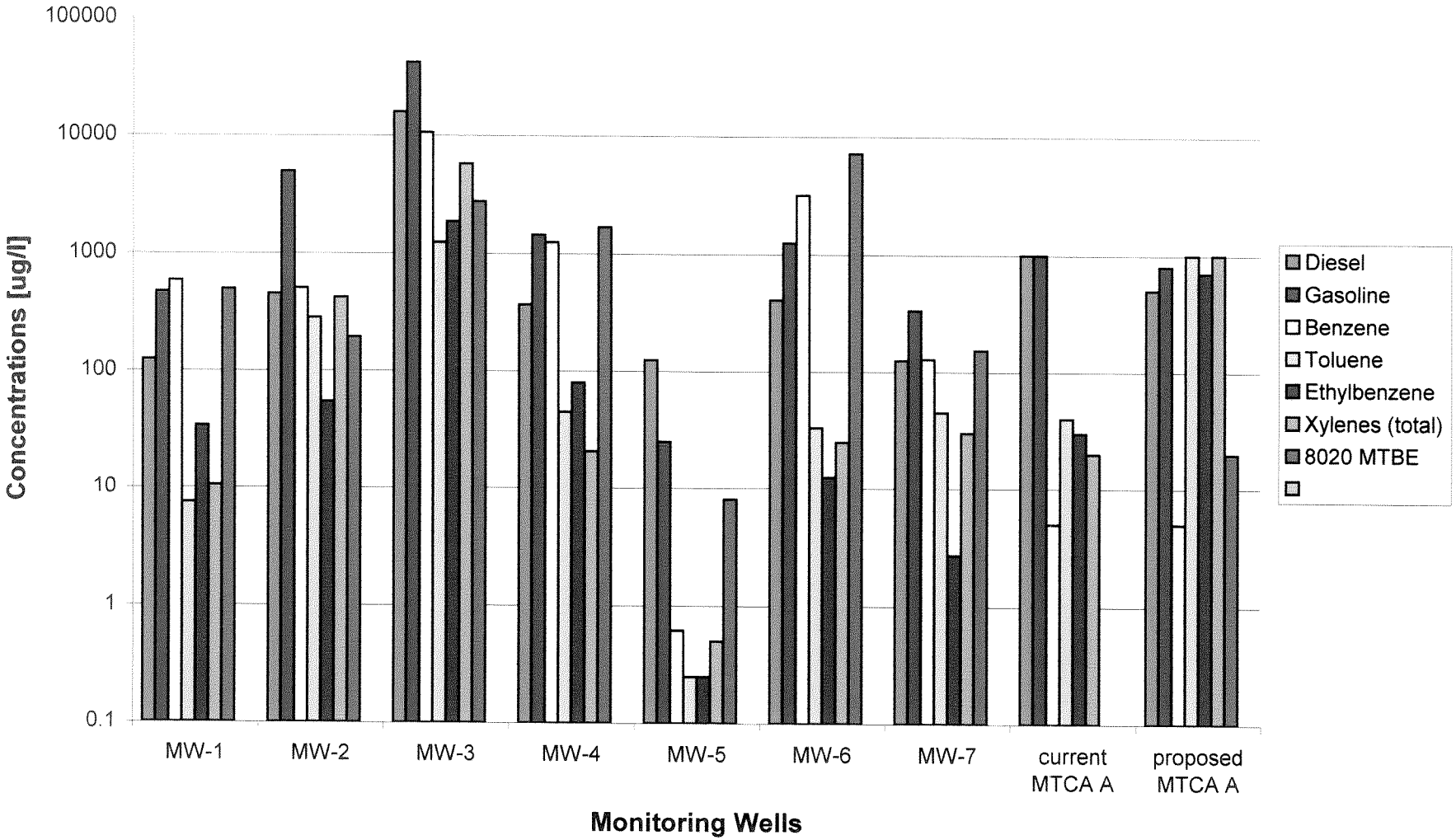
| | Field Measurements (Horiba U22) - Sampled 10/31/2000 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | Depth | Salinity | TDS | ORP | pH | Conductivity | Turbidity | DO | Temperature | | |
| | [meters] | [%] | [mg/l] | [mV] | [SU] | [mS/cm] | [NTU] | [mg/l] | [deg C] | | |
| MW-1-10/00 | 0.2 | 0.06 | 800 | -85 | 7.53 | 1.24 | 7.7 | 1.31 | 12.2 | | |
| MW-10-10/00 | | | | | | | | | | | |
| MW-2-10/00 | 0.9 | 0.06 | 800 | -125 | 7.58 | 1.26 | 2.8 | 0 | 14 | | |
| MW-3-10/00 | NM | NM | NM | NM | NM | NM | NM | NM | NM | | |
| MW-4-10/00 | 0.6 | 0.05 | 800 | -124 | 7.47 | 1.19 | 4.3 | 1.8 | 11.3 | | |
| MW-5-10/00 | 1.3 | 0.02 | 330 | 253 | 7.38 | 0.511 | 133 | 0.05 | 11.1 | | |
| MW-6-10/00 | 1.2 - 1.3 | 0.07 | 900 | -83 | 7.3 | 1.37 | 13.5 | 4.4 | 14.1 | | |
| MW-7-10/00 | 0.4 | 0.02 | 370 | -35 | 7.33 | 0.58 | off scale | 2.41 | 13.2 | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Laboratory Analyses - North Creek Analytical | | | | | | | | | | |
| Sample ID | Diss. Iron | Nitrate-Nitrite | Total Organic Carbon | Petroleum Degrading Bacteria | | | | | | | |
| | EPA 6010 | EPA 353.2 | EPA 415.1 | APHA Standard Method | | | | | | | |
| | [mg/l] | [mg/l @ N] | [mg/l] | [CFU/ml] | | | | | | | |
| MW-1-10/00 | 0.791 | < 0.01 | 76.9 | 500 | | | | | | | |
| MW-10-10/00 | 0.781 | < 0.01 | 103 | 1100 | | | | | | | |
| MW-2-10/00 | 2.35 | < 0.01 | 76.4 | < 20.0 | | | | | | | |
| MW-3-10/00 | 15.8 | < 0.01 | 98.2 | < 20.0 | | | | | | | |
| MW-4-10/00 | 2.36 | < 0.01 | 69.9 | < 20.0 | | | | | | | |
| MW-5-10/00 | < 0.108 | 0.98 | 29 | < 20.0 | | | | | | | |
| MW-6-10/00 | 0.238 | 0.0128 | 95.1 | < 20.0 | | | | | | | |
| MW-7-10/00 | 0.305 | 0.119 | 66.4 | 20 | | | | | | | |

## BTEX and MTBE Comparison - 3/31/2004

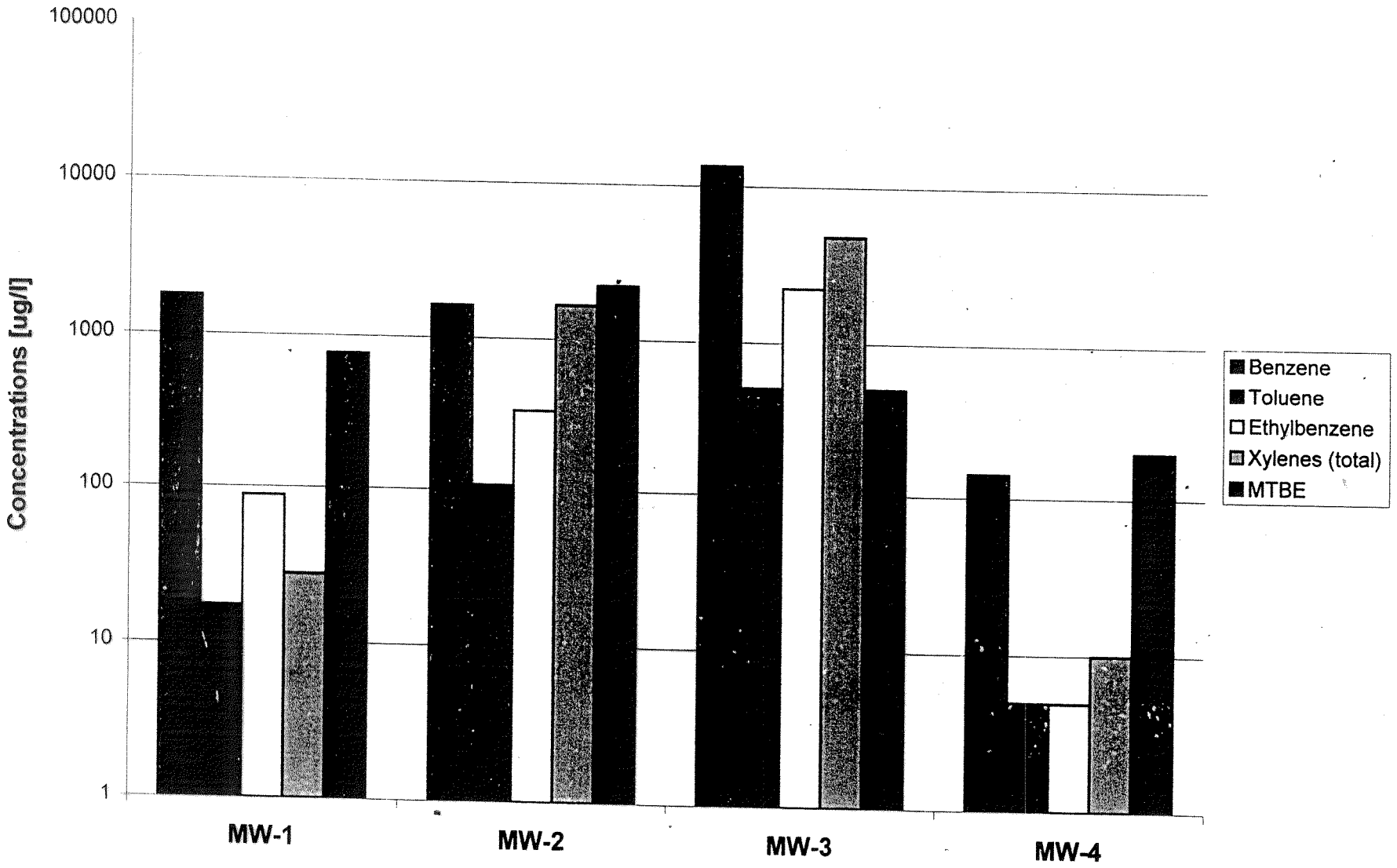



BTEX and MTBE Comparison - 11/2000
Concentrations [ug/l]
100000
10000
1000
100
10
1
MW-1
MW-2
MW-3
MW-4
Benzene
Toluene
Ethylbenzene
Xylenes (total)
MTBE

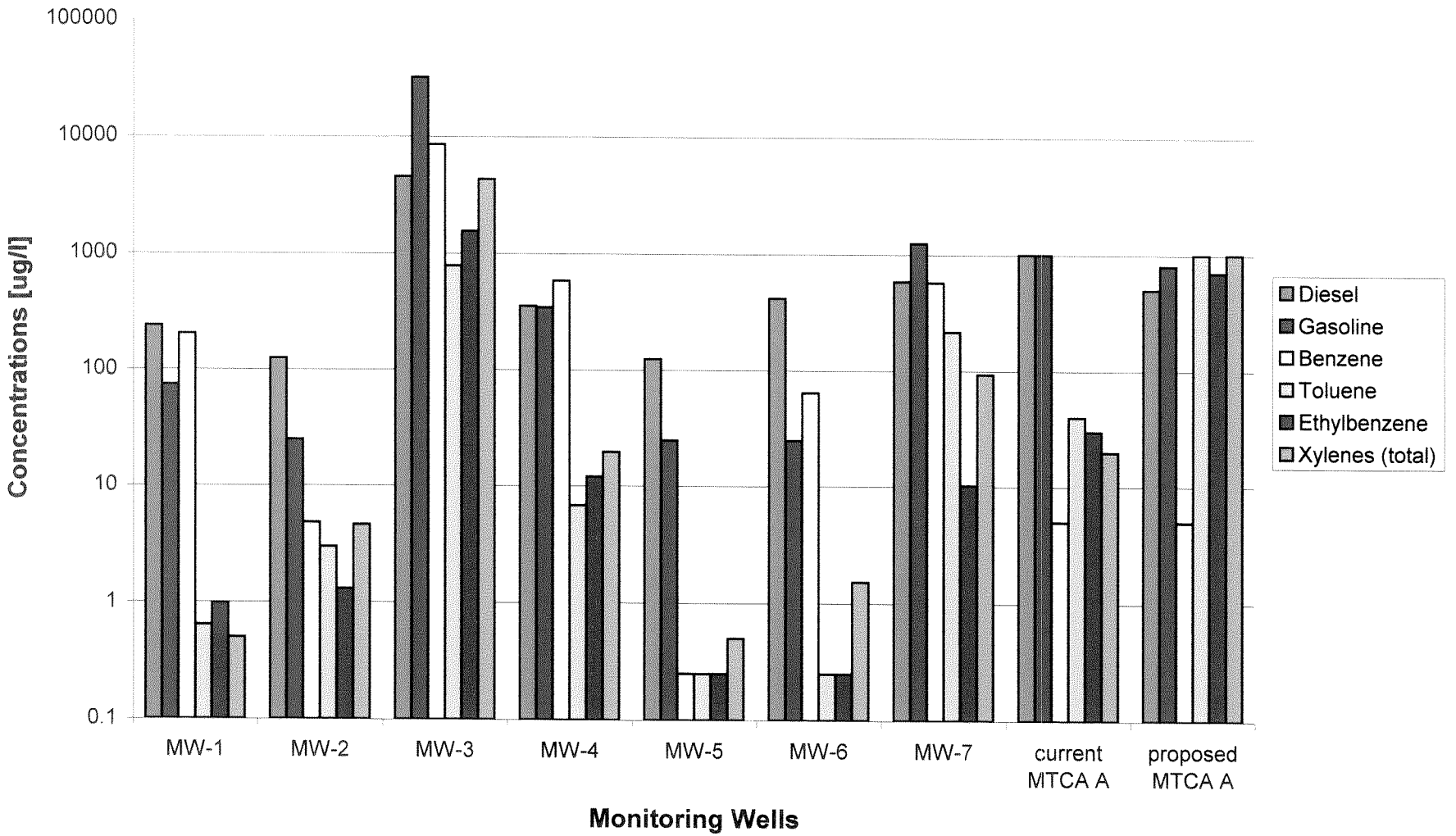
## Comparison of Groundwater Concentrations
## April 2000 Sampling Event



## BTEX and MTBE Comparison - 3/31/2004



## Comparison of Groundwater Concentrations
## October 1999 Sampling Event



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541.383.9310 fax 541.382.7588
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK
99502-1119

| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| MW-1-3/04 | S4C0142-01 | Water | 03/31/04 11:30 | 03/31/04 15:25 |
| MW-2-3/04 | S4C0142-02 | Water | 03/31/04 11:00 | 03/31/04 15:25 |
| MW-3-3/04 | S4C0142-03 | Water | 03/31/04 12:30 | 03/31/04 15:25 |
| MW-4-3/04 | S4C0142-04 | Water | 03/31/04 12:00 | 03/31/04 15:25 |

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| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Volatile Organic Compounds by EPA Method 8260B

## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **MW-1-3/04 (S4C0142-01) Water Sampled: 03/31/04 11:30 Received: 03/31/04 15:25** | | | | | | | | | |
| Acetone | ND | 125 | ug/l | 5 | 4040067 | 04/08/04 | 04/08/04 | EPA 8260A | |
| **Benzene** | **1780** | 100 | " | 100 | " | " | 04/09/04 | " | |
| Bromobenzene | ND | 5.00 | " | 5 | " | " | 04/08/04 | " | |
| Bromochloromethane | ND | 5.00 | " | " | " | " | " | " | |
| Bromodichloromethane | ND | 5.00 | " | " | " | " | " | " | |
| Bromoform | ND | 5.00 | " | " | " | " | " | " | |
| Bromomethane | ND | 10.0 | " | " | " | " | " | " | |
| 2-Butanone | ND | 50.0 | " | " | " | " | " | " | |
| n-Butylbenzene | ND | 5.00 | " | " | " | " | " | " | |
| sec-Butylbenzene | ND | 5.00 | " | " | " | " | " | " | |
| tert-Butylbenzene | ND | 5.00 | " | " | " | " | " | " | |
| Carbon disulfide | ND | 5.00 | " | " | " | " | " | " | |
| Carbon tetrachloride | ND | 5.00 | " | " | " | " | " | " | |
| Chlorobenzene | ND | 5.00 | " | " | " | " | " | " | |
| Chloroethane | ND | 5.00 | " | " | " | " | " | " | |
| Chloroform | ND | 5.00 | " | " | " | " | " | " | |
| Chloromethane | ND | 25.0 | " | " | " | " | " | " | |
| 2-Chlorotoluene | ND | 5.00 | " | " | " | " | " | " | |
| 4-Chlorotoluene | ND | 5.00 | " | " | " | " | " | " | |
| Dibromochloromethane | ND | 5.00 | " | " | " | " | " | " | |
| 1,2-Dibromo-3-chloropropane | ND | 25.0 | " | " | " | " | " | " | |
| 1,2-Dibromoethane | ND | 5.00 | " | " | " | " | " | " | |
| Dibromomethane | ND | 5.00 | " | " | " | " | " | " | |
| 1,2-Dichlorobenzene | ND | 5.00 | " | " | " | " | " | " | |
| 1,3-Dichlorobenzene | ND | 5.00 | " | " | " | " | " | " | |
| 1,4-Dichlorobenzene | ND | 5.00 | " | " | " | " | " | " | |
| Dichlorodifluoromethane | ND | 5.00 | " | " | " | " | " | " | |
| 1,1-Dichloroethane | ND | 5.00 | " | " | " | " | " | " | |
| 1,2-Dichloroethane (EDC) | ND | 5.00 | " | " | " | " | " | " | |
| 1,1-Dichloroethene | ND | 5.00 | " | " | " | " | " | " | |
| cis-1,2-Dichloroethene | ND | 5.00 | " | " | " | " | " | " | |
| trans-1,2-Dichloroethene | ND | 5.00 | " | " | " | " | " | " | |
| 1,2-Dichloropropane | ND | 5.00 | " | " | " | " | " | " | |
| 1,3-Dichloropropane | ND | 5.00 | " | " | " | " | " | " | |
| 2,2-Dichloropropane | ND | 5.00 | " | " | " | " | " | " | |
| 1,1-Dichloropropene | ND | 5.00 | " | " | " | " | " | " | |
| cis-1,3-Dichloropropene | ND | 5.00 | " | " | " | " | " | " | |
| trans-1,3-Dichloropropene | ND | 5.00 | " | " | " | " | " | " | |

North Creek Analytical - Spokane

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK
99502-1119

| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Volatile Organic Compounds by EPA Method 8260B

## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **MW-1-3/04 (S4C0142-01) Water Sampled: 03/31/04 11:30 Received: 03/31/04 15:25** | | | | | | | | | |
| **Ethylbenzene** | **87.9** | 5.00 | ug/l | 5 | 4040067 | 04/08/04 | 04/08/04 | EPA 8260A | |
| Hexachlorobutadiene | ND | 5.00 | " | " | " | " | " | " | |
| 2-Hexanone | ND | 50.0 | " | " | " | " | " | " | |
| **Isopropylbenzene** | **8.96** | 5.00 | " | " | " | " | " | " | |
| p-Isopropyltoluene | ND | 5.00 | " | " | " | " | " | " | |
| Methylene chloride | ND | 25.0 | " | " | " | " | " | " | |
| 4-Methyl-2-pentanone | ND | 50.0 | " | " | " | " | " | " | |
| **Methyl tert-butyl ether** | **764** | 100 | " | 100 | " | " | 04/09/04 | " | |
| **Naphthalene** | **12.0** | 5.00 | " | 5 | " | " | 04/08/04 | " | |
| **n-Propylbenzene** | **10.5** | 5.00 | " | " | " | " | " | " | |
| Styrene | ND | 5.00 | " | " | " | " | " | " | |
| 1,1,1,2-Tetrachloroethane | ND | 5.00 | " | " | " | " | " | " | |
| 1,1,2,2-Tetrachloroethane | ND | 5.00 | " | " | " | " | " | " | |
| Tetrachloroethene | ND | 5.00 | " | " | " | " | " | " | |
| **Toluene** | **17.3** | 5.00 | " | " | " | " | " | " | |
| 1,2,3-Trichlorobenzene | ND | 5.00 | " | " | " | " | " | " | |
| 1,2,4-Trichlorobenzene | ND | 5.00 | " | " | " | " | " | " | |
| 1,1,1-Trichloroethane | ND | 5.00 | " | " | " | " | " | " | |
| 1,1,2-Trichloroethane | ND | 5.00 | " | " | " | " | " | " | |
| Trichloroethene | ND | 5.00 | " | " | " | " | " | " | |
| Trichlorofluoromethane | ND | 5.00 | " | " | " | " | " | " | |
| 1,2,3-Trichloropropane | ND | 5.00 | " | " | " | " | " | " | |
| **1,2,4-Trimethylbenzene** | **5.89** | 5.00 | " | " | " | " | " | " | |
| 1,3,5-Trimethylbenzene | ND | 5.00 | " | " | " | " | " | " | |
| Vinyl chloride | ND | 5.00 | " | " | " | " | " | " | |
| **o-Xylene** | **27.9** | 5.00 | " | " | " | " | " | " | |
| m,p-Xylene | ND | 10.0 | " | " | " | " | " | " | |
| *Surrogate: Dibromofluoromethane* | *105 %* | *70-130* | | | " | " | " | " | |
| *Surrogate: Toluene-d8* | *96.7 %* | *70-130* | | | " | " | " | " | |
| *Surrogate: 4-bromofluorobenzene* | *98.3 %* | *70-130* | | | " | " | " | " | |

North Creek Analytical - Spokane

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| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Volatile Organic Compounds by EPA Method 8260B

## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **MW-2-3/04 (S4C0142-02) Water Sampled: 03/31/04 11:00 Received: 03/31/04 15:25** | | | | | | | | | |
| Acetone | ND | 2500 | ug/l | 100 | 4040067 | 04/08/04 | 04/08/04 | EPA 8260A | |
| **Benzene** | **1630** | 100 | " | " | " | " | " | " | |
| Bromobenzene | ND | 100 | " | " | " | " | " | " | |
| Bromochloromethane | ND | 100 | " | " | " | " | " | " | |
| Bromodichloromethane | ND | 100 | " | " | " | " | " | " | |
| Bromoform | ND | 100 | " | " | " | " | " | " | |
| Bromomethane | ND | 200 | " | " | " | " | " | " | |
| 2-Butanone | ND | 1000 | " | " | " | " | " | " | |
| n-Butylbenzene | ND | 100 | " | " | " | " | " | " | |
| sec-Butylbenzene | ND | 100 | " | " | " | " | " | " | |
| tert-Butylbenzene | ND | 100 | " | " | " | " | " | " | |
| Carbon disulfide | ND | 100 | " | " | " | " | " | " | |
| Carbon tetrachloride | ND | 100 | " | " | " | " | " | " | |
| Chlorobenzene | ND | 100 | " | " | " | " | " | " | |
| Chloroethane | ND | 100 | " | " | " | " | " | " | |
| Chloroform | ND | 100 | " | " | " | " | " | " | |
| Chloromethane | ND | 500 | " | " | " | " | " | " | |
| 2-Chlorotoluene | ND | 100 | " | " | " | " | " | " | |
| 4-Chlorotoluene | ND | 100 | " | " | " | " | " | " | |
| Dibromochloromethane | ND | 100 | " | " | " | " | " | " | |
| 1,2-Dibromo-3-chloropropane | ND | 500 | " | " | " | " | " | " | |
| 1,2-Dibromoethane | ND | 100 | " | " | " | " | " | " | |
| Dibromomethane | ND | 100 | " | " | " | " | " | " | |
| 1,2-Dichlorobenzene | ND | 100 | " | " | " | " | " | " | |
| 1,3-Dichlorobenzene | ND | 100 | " | " | " | " | " | " | |
| 1,4-Dichlorobenzene | ND | 100 | " | " | " | " | " | " | |
| Dichlorodifluoromethane | ND | 100 | " | " | " | " | " | " | |
| 1,1-Dichloroethane | ND | 100 | " | " | " | " | " | " | |
| 1,2-Dichloroethane (EDC) | ND | 100 | " | " | " | " | " | " | |
| 1,1-Dichloroethene | ND | 100 | " | " | " | " | " | " | |
| cis-1,2-Dichloroethene | ND | 100 | " | " | " | " | " | " | |
| trans-1,2-Dichloroethene | ND | 100 | " | " | " | " | " | " | |
| 1,2-Dichloropropane | ND | 100 | " | " | " | " | " | " | |
| 1,3-Dichloropropane | ND | 100 | " | " | " | " | " | " | |
| 2,2-Dichloropropane | ND | 100 | " | " | " | " | " | " | |
| 1,1-Dichloropropene | ND | 100 | " | " | " | " | " | " | |
| cis-1,3-Dichloropropene | ND | 100 | " | " | " | " | " | " | |
| trans-1,3-Dichloropropene | ND | 100 | " | " | " | " | " | " | |

North Creek Analytical - Spokane

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99502-1119

| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Volatile Organic Compounds by EPA Method 8260B

## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **MW-2-3/04 (S4C0142-02) Water Sampled: 03/31/04 11:00 Received: 03/31/04 15:25** | | | | | | | | | |
| **Ethylbenzene** | **332** | 100 | ug/l | 100 | 4040067 | 04/08/04 | 04/08/04 | EPA 8260A | |
| Hexachlorobutadiene | ND | 100 | " | " | " | " | " | " | |
| 2-Hexanone | ND | 1000 | " | " | " | " | " | " | |
| Isopropylbenzene | ND | 100 | " | " | " | " | " | " | |
| p-Isopropyltoluene | ND | 100 | " | " | " | " | " | " | |
| Methylene chloride | ND | 500 | " | " | " | " | " | " | |
| 4-Methyl-2-pentanone | ND | 1000 | " | " | " | " | " | " | |
| **Methyl tert-butyl ether** | **2230** | 100 | " | " | " | " | " | " | |
| Naphthalene | ND | 100 | " | " | " | " | " | " | |
| n-Propylbenzene | ND | 100 | " | " | " | " | " | " | |
| Styrene | ND | 100 | " | " | " | " | " | " | |
| 1,1,1,2-Tetrachloroethane | ND | 100 | " | " | " | " | " | " | |
| 1,1,2,2-Tetrachloroethane | ND | 100 | " | " | " | " | " | " | |
| Tetrachloroethene | ND | 100 | " | " | " | " | " | " | |
| **Toluene** | **107** | 100 | " | " | " | " | " | " | |
| 1,2,3-Trichlorobenzene | ND | 100 | " | " | " | " | " | " | |
| 1,2,4-Trichlorobenzene | ND | 100 | " | " | " | " | " | " | |
| 1,1,1-Trichloroethane | ND | 100 | " | " | " | " | " | " | |
| 1,1,2-Trichloroethane | ND | 100 | " | " | " | " | " | " | |
| Trichloroethene | ND | 100 | " | " | " | " | " | " | |
| Trichlorofluoromethane | ND | 100 | " | " | " | " | " | " | |
| 1,2,3-Trichloropropane | ND | 100 | " | " | " | " | " | " | |
| **1,2,4-Trimethylbenzene** | **462** | 100 | " | " | " | " | " | " | |
| **1,3,5-Trimethylbenzene** | **112** | 100 | " | " | " | " | " | " | |
| Vinyl chloride | ND | 100 | " | " | " | " | " | " | |
| **o-Xylene** | **379** | 100 | " | " | " | " | " | " | |
| **m,p-Xylene** | **1280** | 200 | " | " | " | " | " | " | |
| *Surrogate: Dibromofluoromethane* | *105 %* | *70-130* | | | " | " | " | " | |
| *Surrogate: Toluene-d8* | *94.4 %* | *70-130* | | | " | " | " | " | |
| *Surrogate: 4-bromofluorobenzene* | *99.4 %* | *70-130* | | | " | " | " | " | |





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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119

| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Volatile Organic Compounds by EPA Method 8260B

## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **MW-3-3/04 (S4C0142-03) Water Sampled: 03/31/04 12:30 Received: 03/31/04 15:25** | | | | | | | | | |
| Acetone | ND | 25000 | ug/l | 1000 | 4040067 | 04/08/04 | 04/08/04 | EPA 8260A | |
| **Benzene** | **13400** | 1000 | " | " | " | " | " | " | |
| Bromobenzene | ND | 1000 | " | " | " | " | " | " | |
| Bromochloromethane | ND | 1000 | " | " | " | " | " | " | |
| Bromodichloromethane | ND | 1000 | " | " | " | " | " | " | |
| Bromoform | ND | 1000 | " | " | " | " | " | " | |
| Bromomethane | ND | 2000 | " | " | " | " | " | " | |
| 2-Butanone | ND | 10000 | " | " | " | " | " | " | |
| n-Butylbenzene | ND | 1000 | " | " | " | " | " | " | |
| sec-Butylbenzene | ND | 1000 | " | " | " | " | " | " | |
| tert-Butylbenzene | ND | 1000 | " | " | " | " | " | " | |
| Carbon disulfide | ND | 1000 | " | " | " | " | " | " | |
| Carbon tetrachloride | ND | 1000 | " | " | " | " | " | " | |
| Chlorobenzene | ND | 1000 | " | " | " | " | " | " | |
| Chloroethane | ND | 1000 | " | " | " | " | " | " | |
| Chloroform | ND | 1000 | " | " | " | " | " | " | |
| Chloromethane | ND | 5000 | " | " | " | " | " | " | |
| 2-Chlorotoluene | ND | 1000 | " | " | " | " | " | " | |
| 4-Chlorotoluene | ND | 1000 | " | " | " | " | " | " | |
| Dibromochloromethane | ND | 1000 | " | " | " | " | " | " | |
| 1,2-Dibromo-3-chloropropane | ND | 5000 | " | " | " | " | " | " | |
| 1,2-Dibromoethane | ND | 1000 | " | " | " | " | " | " | |
| Dibromomethane | ND | 1000 | " | " | " | " | " | " | |
| 1,2-Dichlorobenzene | ND | 1000 | " | " | " | " | " | " | |
| 1,3-Dichlorobenzene | ND | 1000 | " | " | " | " | " | " | |
| 1,4-Dichlorobenzene | ND | 1000 | " | " | " | " | " | " | |
| Dichlorodifluoromethane | ND | 1000 | " | " | " | " | " | " | |
| 1,1-Dichloroethane | ND | 1000 | " | " | " | " | " | " | |
| 1,2-Dichloroethane (EDC) | ND | 1000 | " | " | " | " | " | " | |
| 1,1-Dichloroethene | ND | 1000 | " | " | " | " | " | " | |
| cis-1,2-Dichloroethene | ND | 1000 | " | " | " | " | " | " | |
| trans-1,2-Dichloroethene | ND | 1000 | " | " | " | " | " | " | |
| 1,2-Dichloropropane | ND | 1000 | " | " | " | " | " | " | |
| 1,3-Dichloropropane | ND | 1000 | " | " | " | " | " | " | |
| 2,2-Dichloropropane | ND | 1000 | " | " | " | " | " | " | |
| 1,1-Dichloropropene | ND | 1000 | " | " | " | " | " | " | |
| cis-1,3-Dichloropropene | ND | 1000 | " | " | " | " | " | " | |
| trans-1,3-Dichloropropene | ND | 1000 | " | " | " | " | " | " | |

North Creek Analytical - Spokane

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99502-1119

| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Volatile Organic Compounds by EPA Method 8260B

## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **MW-3-3/04 (S4C0142-03) Water Sampled: 03/31/04 12:30 Received: 03/31/04 15:25** | | | | | | | | | |
| **Ethylbenzene** | **2240** | 1000 | ug/l | 1000 | 4040067 | 04/08/04 | 04/08/04 | EPA 8260A | |
| Hexachlorobutadiene | ND | 1000 | " | " | " | " | " | " | |
| 2-Hexanone | ND | 10000 | " | " | " | " | " | " | |
| Isopropylbenzene | ND | 1000 | " | " | " | " | " | " | |
| p-Isopropyltoluene | ND | 1000 | " | " | " | " | " | " | |
| Methylene chloride | ND | 5000 | " | " | " | " | " | " | |
| 4-Methyl-2-pentanone | ND | 10000 | " | " | " | " | " | " | |
| Methyl tert-butyl ether | ND | 1000 | " | " | " | " | " | " | |
| Naphthalene | ND | 1000 | " | " | " | " | " | " | |
| n-Propylbenzene | ND | 1000 | " | " | " | " | " | " | |
| Styrene | ND | 1000 | " | " | " | " | " | " | |
| 1,1,1,2-Tetrachloroethane | ND | 1000 | " | " | " | " | " | " | |
| 1,1,2,2-Tetrachloroethane | ND | 1000 | " | " | " | " | " | " | |
| Tetrachloroethene | ND | 1000 | " | " | " | " | " | " | |
| Toluene | ND | 1000 | " | " | " | " | " | " | |
| 1,2,3-Trichlorobenzene | ND | 1000 | " | " | " | " | " | " | |
| 1,2,4-Trichlorobenzene | ND | 1000 | " | " | " | " | " | " | |
| 1,1,1-Trichloroethane | ND | 1000 | " | " | " | " | " | " | |
| 1,1,2-Trichloroethane | ND | 1000 | " | " | " | " | " | " | |
| Trichloroethene | ND | 1000 | " | " | " | " | " | " | |
| Trichlorofluoromethane | ND | 1000 | " | " | " | " | " | " | |
| 1,2,3-Trichloropropane | ND | 1000 | " | " | " | " | " | " | |
| **1,2,4-Trimethylbenzene** | **1650** | 1000 | " | " | " | " | " | " | |
| 1,3,5-Trimethylbenzene | ND | 1000 | " | " | " | " | " | " | |
| Vinyl chloride | ND | 1000 | " | " | " | " | " | " | |
| o-Xylene | ND | 1000 | " | " | " | " | " | " | |
| **m,p-Xylene** | **4840** | 2000 | " | " | " | " | " | " | |
| *Surrogate: Dibromofluoromethane* | *101 %* | *70-130* | | | " | " | " | " | |
| *Surrogate: Toluene-d8* | *93.2 %* | *70-130* | | | " | " | " | " | |
| *Surrogate: 4-bromofluorobenzene* | *97.6 %* | *70-130* | | | " | " | " | " | |

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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119

| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Volatile Organic Compounds by EPA Method 8260B

## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **MW-4-3/04 (S4C0142-04) Water Sampled: 03/31/04 12:00 Received: 03/31/04 15:25** | | | | | | | | | |
| Acetone | ND | 250 | ug/l | 10 | 4040067 | 04/08/04 | 04/08/04 | EPA 8260A | |
| **Benzene** | **142** | 10.0 | " | " | " | " | " | " | |
| Bromobenzene | ND | 10.0 | " | " | " | " | " | " | |
| Bromochloromethane | ND | 10.0 | " | " | " | " | " | " | |
| Bromodichloromethane | ND | 10.0 | " | " | " | " | " | " | |
| Bromoform | ND | 10.0 | " | " | " | " | " | " | |
| Bromomethane | ND | 20.0 | " | " | " | " | " | " | |
| 2-Butanone | ND | 100 | " | " | " | " | " | " | |
| n-Butylbenzene | ND | 10.0 | " | " | " | " | " | " | |
| sec-Butylbenzene | ND | 10.0 | " | " | " | " | " | " | |
| tert-Butylbenzene | ND | 10.0 | " | " | " | " | " | " | |
| Carbon disulfide | ND | 10.0 | " | " | " | " | " | " | |
| Carbon tetrachloride | ND | 10.0 | " | " | " | " | " | " | |
| Chlorobenzene | ND | 10.0 | " | " | " | " | " | " | |
| Chloroethane | ND | 10.0 | " | " | " | " | " | " | |
| Chloroform | ND | 10.0 | " | " | " | " | " | " | |
| Chloromethane | ND | 50.0 | " | " | " | " | " | " | |
| 2-Chlorotoluene | ND | 10.0 | " | " | " | " | " | " | |
| 4-Chlorotoluene | ND | 10.0 | " | " | " | " | " | " | |
| Dibromochloromethane | ND | 10.0 | " | " | " | " | " | " | |
| 1,2-Dibromo-3-chloropropane | ND | 50.0 | " | " | " | " | " | " | |
| 1,2-Dibromoethane | ND | 10.0 | " | " | " | " | " | " | |
| Dibromomethane | ND | 10.0 | " | " | " | " | " | " | |
| 1,2-Dichlorobenzene | ND | 10.0 | " | " | " | " | " | " | |
| 1,3-Dichlorobenzene | ND | 10.0 | " | " | " | " | " | " | |
| 1,4-Dichlorobenzene | ND | 10.0 | " | " | " | " | " | " | |
| Dichlorodifluoromethane | ND | 10.0 | " | " | " | " | " | " | |
| 1,1-Dichloroethane | ND | 10.0 | " | " | " | " | " | " | |
| 1,2-Dichloroethane (EDC) | ND | 10.0 | " | " | " | " | " | " | |
| 1,1-Dichloroethene | ND | 10.0 | " | " | " | " | " | " | |
| cis-1,2-Dichloroethene | ND | 10.0 | " | " | " | " | " | " | |
| trans-1,2-Dichloroethene | ND | 10.0 | " | " | " | " | " | " | |
| 1,2-Dichloropropane | ND | 10.0 | " | " | " | " | " | " | |
| 1,3-Dichloropropane | ND | 10.0 | " | " | " | " | " | " | |
| 2,2-Dichloropropane | ND | 10.0 | " | " | " | " | " | " | |
| 1,1-Dichloropropene | ND | 10.0 | " | " | " | " | " | " | |
| cis-1,3-Dichloropropene | ND | 10.0 | " | " | " | " | " | " | |
| trans-1,3-Dichloropropene | ND | 10.0 | " | " | " | " | " | " | |

North Creek Analytical - Spokane

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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119

| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Volatile Organic Compounds by EPA Method 8260B

## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Method | Notes |
|---|---|---|---|---|---|---|---|---|---|
| **MW-4-3/04 (S4C0142-04) Water Sampled: 03/31/04 12:00 Received: 03/31/04 15:25** | | | | | | | | | |
| Ethylbenzene | ND | 10.0 | ug/l | 10 | 4040067 | 04/08/04 | 04/08/04 | EPA 8260A | |
| Hexachlorobutadiene | ND | 10.0 | " | " | " | " | " | " | |
| 2-Hexanone | ND | 100 | " | " | " | " | " | " | |
| Isopropylbenzene | ND | 10.0 | " | " | " | " | " | " | |
| p-Isopropyltoluene | ND | 10.0 | " | " | " | " | " | " | |
| Methylene chloride | ND | 50.0 | " | " | " | " | " | " | |
| 4-Methyl-2-pentanone | ND | 100 | " | " | " | " | " | " | |
| **Methyl tert-butyl ether** | **198** | 10.0 | " | " | " | " | " | " | |
| Naphthalene | ND | 10.0 | " | " | " | " | " | " | |
| n-Propylbenzene | ND | 10.0 | " | " | " | " | " | " | |
| Styrene | ND | 10.0 | " | " | " | " | " | " | |
| 1,1,1,2-Tetrachloroethane | ND | 10.0 | " | " | " | " | " | " | |
| 1,1,2,2-Tetrachloroethane | ND | 10.0 | " | " | " | " | " | " | |
| Tetrachloroethene | ND | 10.0 | " | " | " | " | " | " | |
| Toluene | ND | 10.0 | " | " | " | " | " | " | |
| 1,2,3-Trichlorobenzene | ND | 10.0 | " | " | " | " | " | " | |
| 1,2,4-Trichlorobenzene | ND | 10.0 | " | " | " | " | " | " | |
| 1,1,1-Trichloroethane | ND | 10.0 | " | " | " | " | " | " | |
| 1,1,2-Trichloroethane | ND | 10.0 | " | " | " | " | " | " | |
| Trichloroethene | ND | 10.0 | " | " | " | " | " | " | |
| Trichlorofluoromethane | ND | 10.0 | " | " | " | " | " | " | |
| 1,2,3-Trichloropropane | ND | 10.0 | " | " | " | " | " | " | |
| 1,2,4-Trimethylbenzene | ND | 10.0 | " | " | " | " | " | " | |
| 1,3,5-Trimethylbenzene | ND | 10.0 | " | " | " | " | " | " | |
| Vinyl chloride | ND | 10.0 | " | " | " | " | " | " | |
| o-Xylene | ND | 10.0 | " | " | " | " | " | " | |
| m,p-Xylene | ND | 20.0 | " | " | " | " | " | " | |
| *Surrogate: Dibromofluoromethane* | *106 %* | *70-130* | | | " | " | " | " | |
| *Surrogate: Toluene-d8* | *98.5 %* | *70-130* | | | " | " | " | " | |
| *Surrogate: 4-bromofluorobenzene* | *100 %* | *70-130* | | | " | " | " | " | |

North Creek Analytical - Spokane

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541.383.9310 fax 541.382.7588
**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119

| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Volatile Organic Compounds by EPA Method 8260B - Quality Control
## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 4040067: Prepared 04/08/04 Using GC/MS Volatiles** | | | | | | | | | | |
| **Blank (4040067-BLK1)** | | | | | | | | | | |
| Acetone | ND | 25.0 | ug/l | | | | | | | |
| Benzene | ND | 1.00 | " | | | | | | | |
| Bromobenzene | ND | 1.00 | " | | | | | | | |
| Bromochloromethane | ND | 1.00 | " | | | | | | | |
| Bromodichloromethane | ND | 1.00 | " | | | | | | | |
| Bromoform | ND | 1.00 | " | | | | | | | |
| Bromomethane | ND | 2.00 | " | | | | | | | |
| 2-Butanone | ND | 10.0 | " | | | | | | | |
| n-Butylbenzene | ND | 1.00 | " | | | | | | | |
| sec-Butylbenzene | ND | 1.00 | " | | | | | | | |
| tert-Butylbenzene | ND | 1.00 | " | | | | | | | |
| Carbon disulfide | ND | 1.00 | " | | | | | | | |
| Carbon tetrachloride | ND | 1.00 | " | | | | | | | |
| Chlorobenzene | ND | 1.00 | " | | | | | | | |
| Chloroethane | ND | 1.00 | " | | | | | | | |
| Chloroform | ND | 1.00 | " | | | | | | | |
| Chloromethane | ND | 5.00 | " | | | | | | | |
| 2-Chlorotoluene | ND | 1.00 | " | | | | | | | |
| 4-Chlorotoluene | ND | 1.00 | " | | | | | | | |
| Dibromochloromethane | ND | 1.00 | " | | | | | | | |
| 1,2-Dibromo-3-chloropropane | ND | 5.00 | " | | | | | | | |
| 1,2-Dibromoethane | ND | 1.00 | " | | | | | | | |
| Dibromomethane | ND | 1.00 | " | | | | | | | |
| 1,2-Dichlorobenzene | ND | 1.00 | " | | | | | | | |
| 1,3-Dichlorobenzene | ND | 1.00 | " | | | | | | | |
| 1,4-Dichlorobenzene | ND | 1.00 | " | | | | | | | |
| Dichlorodifluoromethane | ND | 1.00 | " | | | | | | | |
| 1,1-Dichloroethane | ND | 1.00 | " | | | | | | | |
| 1,2-Dichloroethane (EDC) | ND | 1.00 | " | | | | | | | |
| 1,1-Dichloroethene | ND | 1.00 | " | | | | | | | |
| cis-1,2-Dichloroethene | ND | 1.00 | " | | | | | | | |
| trans-1,2-Dichloroethene | ND | 1.00 | " | | | | | | | |
| 1,2-Dichloropropane | ND | 1.00 | " | | | | | | | |
| 1,3-Dichloropropane | ND | 1.00 | " | | | | | | | |





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| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Volatile Organic Compounds by EPA Method 8260B - Quality Control
## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 4040067: Prepared 04/08/04 Using GC/MS Volatiles** | | | | | | | | | | |
| **Blank (4040067-BLK1)** | | | | | | | | | | |
| 2,2-Dichloropropane | ND | 1.00 | ug l | | | | | | | |
| 1,1-Dichloropropene | ND | 1.00 | " | | | | | | | |
| cis-1,3-Dichloropropene | ND | 1.00 | " | | | | | | | |
| trans-1,3-Dichloropropene | ND | 1.00 | " | | | | | | | |
| Ethylbenzene | ND | 1.00 | " | | | | | | | |
| Hexachlorobutadiene | ND | 1.00 | " | | | | | | | |
| 2-Hexanone | ND | 10.0 | " | | | | | | | |
| Isopropylbenzene | ND | 1.00 | " | | | | | | | |
| p-Isopropyltoluene | ND | 1.00 | " | | | | | | | |
| Methylene chloride | ND | 5.00 | " | | | | | | | |
| 4-Methyl-2-pentanone | ND | 10.0 | " | | | | | | | |
| Methyl tert-butyl ether | ND | 1.00 | " | | | | | | | |
| Naphthalene | ND | 1.00 | " | | | | | | | |
| n-Propylbenzene | ND | 1.00 | " | | | | | | | |
| Styrene | ND | 1.00 | " | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | 1.00 | " | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 1.00 | " | | | | | | | |
| Tetrachloroethene | ND | 1.00 | " | | | | | | | |
| Toluene | ND | 1.00 | " | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | 1.00 | " | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 1.00 | " | | | | | | | |
| 1,1,1-Trichloroethane | ND | 1.00 | " | | | | | | | |
| 1,1,2-Trichloroethane | ND | 1.00 | " | | | | | | | |
| Trichloroethene | ND | 1.00 | " | | | | | | | |
| Trichlorofluoromethane | ND | 1.00 | " | | | | | | | |
| 1,2,3-Trichloropropane | ND | 1.00 | " | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 1.00 | " | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 1.00 | " | | | | | | | |
| Vinyl chloride | ND | 1.00 | " | | | | | | | |
| o-Xylene | ND | 1.00 | " | | | | | | | |
| m,p-Xylene | ND | 2.00 | " | | | | | | | |
| *Surrogate: Dibromofluoromethane* | *10.2* | | " | *10.0* | | *102* | *70-130* | | | |
| *Surrogate: Toluene-d8* | *9.74* | | " | *10.0* | | *97.4* | *70-130* | | | |
| *Surrogate: 4-bromofluorobenzene* | *13.9* | | " | *10.0* | | *139* | *70-130* | | | *S-05* |

North Creek Analytical - Spokane

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99502-1119

| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Volatile Organic Compounds by EPA Method 8260B - Quality Control
## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 4040067: Prepared 04/08/04 Using GC/MS Volatiles** | | | | | | | | | | |
| **LCS (4040067-BS1)** | | | | | | | | | | |
| Benzene | 9.48 | 1.00 | ug/l | 10.0 | | 94.8 | 70-130 | | | |
| Chlorobenzene | 9.96 | 1.00 | " | 10.0 | | 99.6 | 70-130 | | | |
| 1,1-Dichloroethene | 9.22 | 1.00 | " | 10.0 | | 92.2 | 70-130 | | | |
| Toluene | 8.82 | 1.00 | " | 10.0 | | 88.2 | 70-130 | | | |
| Trichloroethene | 9.58 | 1.00 | " | 10.0 | | 95.8 | 70-130 | | | |
| *Surrogate: Dibromofluoromethane* | *10.9* | | " | *10.0* | | *109* | *70-130* | | | |
| *Surrogate: Toluene-d8* | *9.42* | | " | *10.0* | | *94.2* | *70-130* | | | |
| *Surrogate: 4-bromofluorobenzene* | *11.6* | | " | *10.0* | | *116* | *70-130* | | | |
| **Duplicate (4040067-DUP1)** | | | | | **Source: S4D0011-07** | | | | | |
| Acetone | ND | 25.0 | ug/l | | ND | | | | 20 | |
| Benzene | ND | 1.00 | " | | ND | | | | 20 | |
| Bromobenzene | ND | 1.00 | " | | ND | | | | 20 | |
| Bromochloromethane | ND | 1.00 | " | | ND | | | | 20 | |
| romodichloromethane | ND | 1.00 | " | | ND | | | | 20 | |
| Bromoform | ND | 1.00 | " | | ND | | | | 20 | |
| Bromomethane | ND | 2.00 | " | | ND | | | | 20 | |
| 2-Butanone | ND | 10.0 | " | | ND | | | | 20 | |
| n-Butylbenzene | ND | 1.00 | " | | ND | | | | 20 | |
| sec-Butylbenzene | ND | 1.00 | " | | ND | | | | 20 | |
| tert-Butylbenzene | ND | 1.00 | " | | ND | | | | 20 | |
| Carbon disulfide | ND | 1.00 | " | | ND | | | | 20 | |
| Carbon tetrachloride | ND | 1.00 | " | | ND | | | | 20 | |
| Chlorobenzene | ND | 1.00 | " | | ND | | | | 20 | |
| Chloroethane | ND | 1.00 | " | | ND | | | | 20 | |
| Chloroform | ND | 1.00 | " | | ND | | | | 20 | |
| Chloromethane | ND | 5.00 | " | | ND | | | | 20 | |
| 2-Chlorotoluene | ND | 1.00 | " | | ND | | | | 20 | |
| 4-Chlorotoluene | ND | 1.00 | " | | ND | | | | 20 | |
| Dibromochloromethane | ND | 1.00 | " | | ND | | | | 20 | |
| 1,2-Dibromo-3-chloropropane | ND | 5.00 | " | | ND | | | | 20 | |
| 1,2-Dibromoethane | ND | 1.00 | " | | ND | | | | 20 | |
| Dibromomethane | ND | 1.00 | " | | ND | | | | 20 | |
| 1,2-Dichlorobenzene | ND | 1.00 | " | | ND | | | | 20 | |
| 1,3-Dichlorobenzene | ND | 1.00 | " | | ND | | | | 20 | |

North Creek Analytical - Spokane

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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK
99502-1119

| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Volatile Organic Compounds by EPA Method 8260B - Quality Control
## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 4040067: Prepared 04/08/04 Using GC/MS Volatiles** | | | | | | | | | | |
| **Duplicate (4040067-DUP1)** | | | | | **Source: S4D0011-07** | | | | | |
| 1,4-Dichlorobenzene | ND | 1.00 | ug/l | | ND | | | | 20 | |
| Dichlorodifluoromethane | ND | 1.00 | " | | ND | | | | 20 | |
| 1,1-Dichloroethane | ND | 1.00 | " | | ND | | | | 20 | |
| 1,2-Dichloroethane (EDC) | ND | 1.00 | " | | ND | | | | 20 | |
| 1,1-Dichloroethene | ND | 1.00 | " | | ND | | | | 20 | |
| cis-1,2-Dichloroethene | ND | 1.00 | " | | ND | | | | 20 | |
| trans-1,2-Dichloroethene | ND | 1.00 | " | | ND | | | | 20 | |
| 1,2-Dichloropropane | ND | 1.00 | " | | ND | | | | 20 | |
| 1,3-Dichloropropane | ND | 1.00 | " | | ND | | | | 20 | |
| 2,2-Dichloropropane | ND | 1.00 | " | | ND | | | | 20 | |
| 1,1-Dichloropropene | ND | 1.00 | " | | ND | | | | 20 | |
| cis-1,3-Dichloropropene | ND | 1.00 | " | | ND | | | | 20 | |
| trans-1,3-Dichloropropene | ND | 1.00 | " | | ND | | | | 20 | |
| thylbenzene | ND | 1.00 | " | | ND | | | | 20 | |
| Hexachlorobutadiene | ND | 1.00 | " | | ND | | | | 20 | |
| 2-Hexanone | ND | 10.0 | " | | ND | | | | 20 | |
| Isopropylbenzene | ND | 1.00 | " | | ND | | | | 20 | |
| p-Isopropyltoluene | ND | 1.00 | " | | ND | | | | 20 | |
| Methylene chloride | ND | 5.00 | " | | ND | | | | 20 | |
| 4-Methyl-2-pentanone | ND | 10.0 | " | | ND | | | | 20 | |
| Methyl tert-butyl ether | 4.97 | 1.00 | " | | 4.93 | | | 0.808 | 20 | |
| Naphthalene | ND | 1.00 | " | | ND | | | | 20 | |
| n-Propylbenzene | ND | 1.00 | " | | ND | | | | 20 | |
| Styrene | ND | 1.00 | " | | ND | | | | 20 | |
| 1,1,1,2-Tetrachloroethane | ND | 1.00 | " | | ND | | | | 20 | |
| 1,1,2,2-Tetrachloroethane | ND | 1.00 | " | | ND | | | | 20 | |
| Tetrachloroethene | ND | 1.00 | " | | ND | | | | 20 | |
| Toluene | ND | 1.00 | " | | ND | | | | 20 | |
| 1,2,3-Trichlorobenzene | ND | 1.00 | " | | ND | | | | 20 | |
| 1,2,4-Trichlorobenzene | ND | 1.00 | " | | ND | | | | 20 | |
| 1,1,1-Trichloroethane | ND | 1.00 | " | | ND | | | | 20 | |
| 1,1,2-Trichloroethane | ND | 1.00 | " | | ND | | | | 20 | |
| Trichloroethene | ND | 1.00 | " | | ND | | | | 20 | |
| Trichlorofluoromethane | ND | 1.00 | " | | ND | | | | 20 | |
| 1,2,3-Trichloropropane | ND | 1.00 | " | | ND | | | | 20 | |

North Creek Analytical - Spokane

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**Anchorage** 2000 W International Airport Road, Suite A-10, Anchorage, AK
99502-1119

| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

# Volatile Organic Compounds by EPA Method 8260B - Quality Control
## North Creek Analytical - Spokane

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 4040067: Prepared 04/08/04 Using GC/MS Volatiles** | | | | | | | | | | |
| **Duplicate (4040067-DUP1)** | | | | | **Source: S4D0011-07** | | | | | |
| 1,2,4-Trimethylbenzene | ND | 1.00 | ug/l | | ND | | | | 20 | |
| 1,3,5-Trimethylbenzene | ND | 1.00 | " | | ND | | | | 20 | |
| Vinyl chloride | ND | 1.00 | " | | ND | | | | 20 | |
| o-Xylene | ND | 1.00 | " | | ND | | | | 20 | |
| m,p-Xylene | ND | 2.00 | " | | ND | | | | 20 | |
| *Surrogate: Dibromofluoromethane* | *10.1* | | " | *10.0* | | *101* | *70-130* | | | |
| *Surrogate: Toluene-d8* | *9.40* | | " | *10.0* | | *94.0* | *70-130* | | | |
| *Surrogate: 4-bromofluorobenzene* | *10.4* | | " | *10.0* | | *104* | *70-130* | | | |
| **Matrix Spike (4040067-MS1)** | | | | | **Source: S4D0011-07** | | | | | |
| Benzene | 10.1 | 1.00 | ug/l | 10.0 | ND | 101 | 70-130 | | | |
| Chlorobenzene | 10.5 | 1.00 | " | 10.0 | ND | 105 | 70-130 | | | |
| 1,1-Dichloroethene | 9.56 | 1.00 | " | 10.0 | ND | 95.6 | 70-130 | | | |
| Toluene | 9.69 | 1.00 | " | 10.0 | ND | 96.9 | 70-130 | | | |
| richloroethene | 10.3 | 1.00 | " | 10.0 | ND | 103 | 70-130 | | | |
| *Surrogate: Dibromofluoromethane* | *10.4* | | " | *10.0* | | *104* | *70-130* | | | |
| *Surrogate: Toluene-d8* | *10.1* | | " | *10.0* | | *101* | *70-130* | | | |
| *Surrogate: 4-bromofluorobenzene* | *10.2* | | " | *10.0* | | *102* | *70-130* | | | |

North Creek Analytical - Spokane

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99502-1119

| | | |
|---|---|---|
| Pachernegg, Sheila | Project: Priceless Gas | |
| PO Box 128 | Project Number: N/A | **Reported:** |
| Spokane WA, 99210 | Project Manager: Sheila Pachernegg | 04/09/04 16:23 |

## Notes and Definitions

| | |
|---|---|
| S-05 | The surrogate recovery for this sample is outside of NCA established control limits. The alternate surrogate has been used to validate the sample result. |
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |

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# Comparison of Chromatographic Data from Corner Express Texaco and Priceless Gas Sites

## April 16, 2003

Prepared by North Creek Analytical for Sheila Pachernegg

*North Creek Analytical, Inc.*
*Environmental Laboratory Network*

April 15, 2003

# Comparison of Chromatographic Data for Product and Groundwater Samples at the Priceless Gas Site

**The Basis for Comparison were as Follows:**

1) Overall Chromatographic pattern. All samples were analyzed using Agilent GCs equipped with high performance capillary columns and combination FID/PID detectors. The patterns from both detectors were examined and used for comparison. Copies of the PID chromatograms that have been scaled to the highest peak have been provided.

2) Presence or absence of MTBE and relative concentrations.

3) Ratios of key aromatic compounds. Concentrations of Benzene to Toluene (B/T), Toluene to Xylenes (T/X) and Benzene plus Toluene to Ethylbenzene plus Xylenes were used to develop the ratios.

**Discussion of Relevant Factors Related to Basis for Comparison:**

1) a. Pattern Analysis

The presence or absence of characteristic peaks and their relationship to one another form the basis for pattern analysis. GC chromatograms are essentially "snap shots" of the hydocarbons present. Comparison of these "pictures" attempt to answer the question whether A and B are similar to each other or not similar to each other and if they are similar are they exact matches.

1) b. Weathering Characteristics

Weathering of Gasoline products in nature occurs mostly through loss of the most volatile compounds preferentially to less volatile compounds due to evaporation or dissolution. An absence of or decrease in area counts for compounds occurring in the chromatographic pattern before Toluene when compared to a "fresh" Gasoline standard is the best indication that weathering has occurred.

Judgements vary from "slight" to "severe" weathering depending upon whether the most volatile compounds have moderate decreases in area count or are lost from the pattern.

2) MTBE

MTBE was confirmed at very high concentrations in water samples from the Priceless Gas site. This compound can be used as a "marker" when comparing results from different sources.

3) Ratios of Key Aromatic Compounds

Overall pattern analysis is a subjective measure. In order to create a basis for a more objective comparison of Gasoline chromatograms the ratios of the concentrations of key Aromatic compounds were calculated and compared. The BTEX ratio results have been summarized in the attached "Table of Relevant Factors for Comparison".

a. Benzene plusToluene to Ethylbenzene plus Xylene (B+T/E+X) Ratio

This composite ratio has been used in the current literature as an indicator of weathering. The ratio decreases with increased aging due to the preferential loss of the more volatile and dissolvable Benzene and Toluene compounds. It is useful for purposes of this report to differentiate sources of hydrocarbon contamination through comparison of the ratios of products from various sources to each other. A general statement related to aging of the source is also possible.

b. Benzene to Toluene (B/T) Ratio

This ratio is relatively constant within the grade of gasoline from source to source. That is, the ratio for unleaded gasoline is typically 1 to 3. The ratio can change dramatically, however, from grade to grade because of the blending of aromatic fractions containing high concentrations of Toluene or Benzene that occurs at the refinery or blending facility. Premium gasoline and aviation gasoline for instance contains relatively higher concentrations of Toluene than would be found in Unleaded regular gasoline. This ratio then is most useful when differentiating sources that are impacted by different grades or types of gasoline.

b. Toluene to Xylenes (T/X)

The (T/X) ratio is not as vulnerable to changes due to weathering as the (B/T) ratio since Toluene is more environmentally stable than Benzene. The ratio is also useful in differentiating sources by grade since the relative concentration of Toluene varies by grade.

# Evaluation of Gasoline Sources

Dissolved Gasoline/BTEX, MTBE results were examined for three reference gasoline product samples and seven well samples taken in February 2003.
The following is a discussion of the various sources as they relate to each other and to the reference gasoline products using gas pattern and BTEX ratio analysis.

## Priceless MW-1

1) The chromatographic pattern was not characteristic of a typical gasoline. In fact the pattern was more characteristic of a gasoline additive than a finished gasoline. The hydrocarbon present is predominantly a mixture of Benzene and MTBE along with a minor amount of typical gasoline compounds. I have called this the "Priceless" pattern in the comparison table.

2) There was a very high concentration of MTBE present in the sample (44% when compared to total gasoline range components).

3) The (B/T) ratio was 55.2 meaning there was 55 times more Benzene present than Toluene.

4) The (T/X) ratio was 0.4 or 1:3 which is consistent with the free product samples of unleaded gasoline. One possibility for these ratios is that the product in the water may be an octane booster package of Benzene, MTBE and other oxygenates or light-end components in association with a small amount of unleaded gasoline.

## Priceless MW-2

1) The overall pattern was very similar to that found in MW-1, however, there is more of the typical gasoline components present in this well than in MW-1. The pattern is best described as a mixture of Priceless with unleaded gasoline.

2) There was a very high concentration of MTBE present in the sample (8.2% when compared to total gasoline range components).

3) The (B/T) ratio was 6.5 meaning there was 6.5 times more Benzene present than Toluene.

4) The (T/X) ratio was 0.14 or 1:7 which is consistent with the free product samples of unleaded gasoline. One possibility for these ratios is that the product in the water may be an octane booster package of Benzene, MTBE and other oxygenates or light-end components in association with a small amount of unleaded gasoline.
The T/X ratio is also consistent with the product taken from well MW-3a.

**Texaco MW-5**

1) The overall pattern was a strong match with a typical unleaded gasoline pattern. The pattern was a closer match to that for the product from well MW-3a than either of the unleaded dispenser products. It was not a match for either the Premium grade or the Priceless patterns.

2) MTBE was not present in significant concentration in the sample (1.5% of total gasoline range components, unconfirmed).

3) The (B+T/E+X) was 0.2 which indicates possible aging when compared to the product samples which were 0.8 to 0.9.

4) The (B/T) ratio at 3.1 was consistent with the unleaded gasoline product samples at 2-3.5.
The (T/X) ratio was also typical of an unleaded gasoline that had been aged and therefore lost Toluene preferentially to Xylenes. The ratio was a very good match with the product sample taken from the sorbant material in MW-3a.

**Texaco MW-30**

1) The overall pattern is the same as that found in well MW-5.

2) MTBE was not present in significant concentration in the sample (1.43% of total gasoline range components, unconfirmed.

3) The (B+T/E+X) ratio is 0.4 which is consistent with an unleaded gasoline that has been aged. The ratio was a match with the product in well MW-3a and similar to the ratio for MW-5.

4) The (B/T) ratio at 3.2 was consistent with the unleaded gasoline product samples and a match to the ratio for MW-5.
The (T/X) ratio was also typical of an unleaded gasoline that had been aged and therefore lost Toluene preferentially to Xylenes.

**Product Samples from MW-3a**

1) The overall patterns for both samples are consistent with an unleaded gasoline. Both patterns show signs of slight weathering (aging) when compared to patterns of fresh product. The pattern for the sorbant material shows slightly more signs of aging than the product sample. The pattern is not consistent with the Priceless pattern. The pattern is similar to but not identical with the pattern for the dispenser products.

2) MTBE was not present in significant concentrations in either sample.

3) The BTEX ratios for both products were consistent with an unleaded gasoline product that had been slightly weathered. The ratios indicate that the Sorbant material was more weathered than the product sample.

**Product Samples from the East and West Dispensers**

1) The overall patterns for both samples are consistent with unleaded gasoline. The patterns are identical to each other indicating that they are the same product.

2) MTBE was not present in significant concentrations in either sample.

3) The BTEX ratios for both products were consistent with unleaded gasoline. Neither pattern was remotely similar to the Priceless pattern.

**Premium Gas Sample**

1) The overall pattern for the sample is similar to the unleaded gas patterns but dominated by Toluene. Toluene is the single largest component in the pattern.

2) MTBE was not present in significant concentrations in either sample.

3) The BTEX ratios are different than all others because of the high Toluene concentration.

## Conclusions

1) The chromatographic patterns for Gasoline contamination found in groundwater from wells on the Priceless Gas site is significantly different from that found in wells on the Corner Texaco site.

2) The product in well MW-3a is a weathered unleaded gasoline and a very close match with the contamination in Texaco wells MW-5 and MW-30.

3) The Pattern for the Premium gas is significantly different from the unleaded pattern and is not repeated in any of the monitoring wells.

4) Because of the lack of MTBE in significant concentrations, the groundwater in the Corner Texaco site does not seem to have been impacted by contamination from the Priceless Gas site.

5) The gasoline range contaminant in Priceless well MW-1 is a mixture of Benzene, MTBE and perhaps another oxygenate. Its pattern is more consistent with a fuel additive than a finished fuel. Priceless Well MW-2 has a more complicated pattern of contamination than well MW-1.

It should be noted that the above comparisons were performed using GC chromatographic equipment and conditions designed for hydrocarbon screening analysis and by no means represent a definitive study of hydrocarbon contamination on either site.

North Creek Analytical Inc.

Dennis D. Wells, Lab Manager

# TABLE OF RELEVEANT FACTORS FOR COMPARISON

| Sample ID | (B+T)/(E+X) Ratio [5] | | B/T Ratio [1] | | T/X Ratio [2] | | Pattern Profile [3] | % MTBE [4] |
|---|---|---|---|---|---|---|---|---|
| **Priceless Gas** | | | | | | | | |
| MW-1 | 15.7 | 1:0.06 | 55.2 | 1:0.02 | 0.4 | 1:3 | Priceless | 44.0% |
| MW-2 | 1.0 | 1:1 | 6.5 | 1:0.13 | 0.14 | 1:7 | Mixture | 8.2% |
| MW-3a Product | 0.4 | 1:2 | 2.2 | 1:0.4 | 0.2 | 1:6 | Texaco | 1.45% |
| MW-3a Sorbant | 0.1 | 1:12 | 1.6 | 1:0.6 | 0.04 | 1:23 | Texaco | 1.31% |
| **Corner Texaco** | | | | | | | | |
| MW-30 | 0.4 | 1:3 | 3.2 | 1:0.3 | 0.13 | 1:8 | Texaco | 1.43% |
| MW-5 | 0.2 | 1:5 | 3.1 | 1:0.3 | 0.07 | 1:15 | Texaco | 1.50% |
| Unleaded East | 0.8 | 1:1 | 2.3 | 1:0.4 | 0.3 | 1:4 | Texaco | 0.48% |
| Unleaded West | 0.9 | 1:1 | 3.4 | 1:0.3 | 0.2 | 1:4 | Texaco | 0.67% |
| Premium Gas | 0.9 | 1:1 | 0.3 | 1:4 | 0.9 | 1:1 | Texaco | 1.56% |

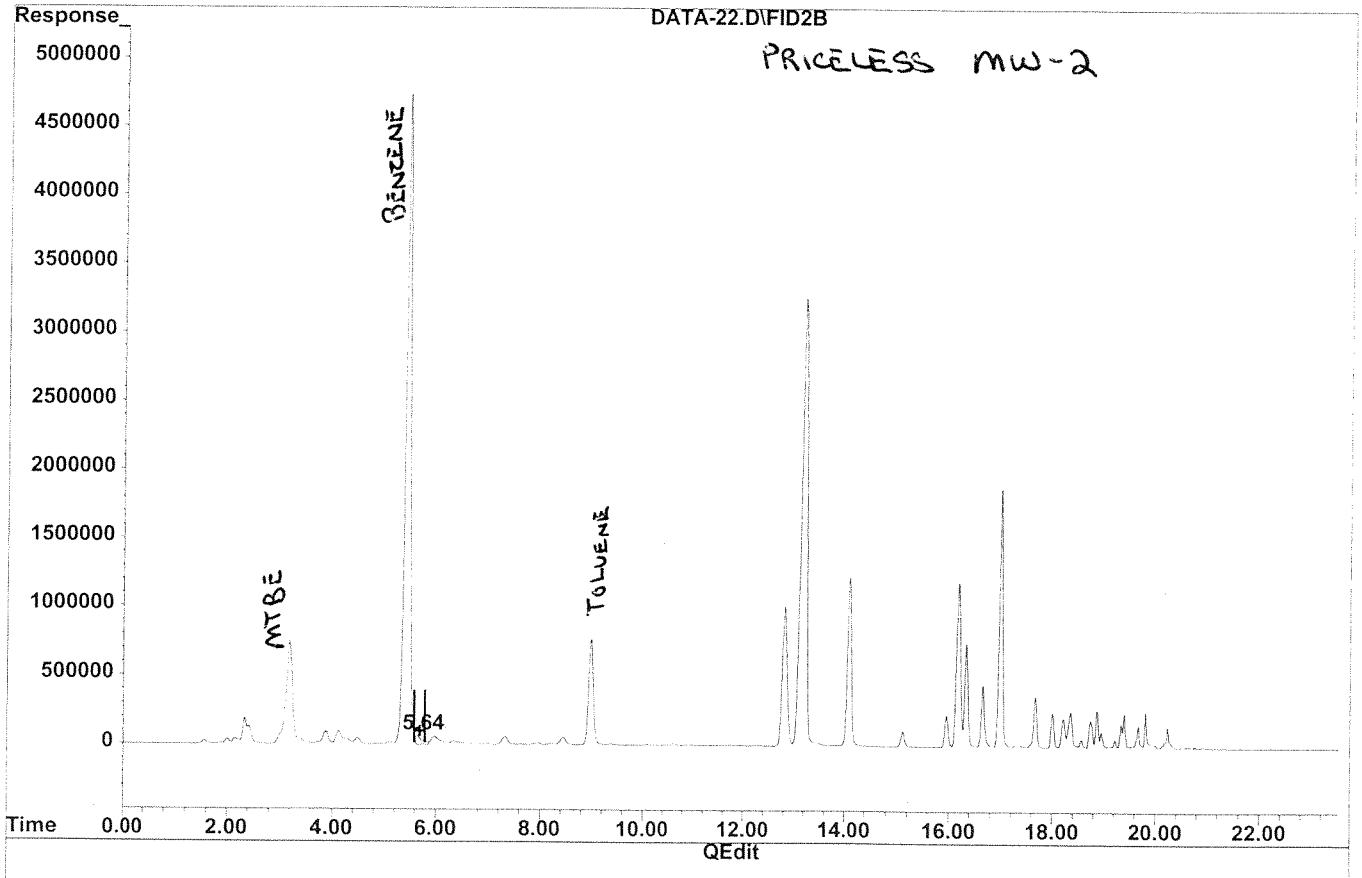
1 **Benzene/Toluene**
2 **Toluene/total Xylenes**
3 **(Priceless = High Benzene, High MTBE) (Texaco = Unleaded Gasoline w/cycloalkanes prominent, low MTBE)**
4 **Ratio of MTBE to Total Petroleum Hydrocarbons**
5 **Benzene plus Toluene divided by Ethylbenzene plus total Xylenes**

Quantitation Report

Data File : C:\HPCHEM\1\DATA\041503\DATA-22.D\FID1A.CH Vial: 22
Acq On : 16 Apr 20103 2:27 am Operator: Michelle H
Sample : ~~BLANK~~ S380122-01 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\041503\DATA-22.D\FID2B.CH Vial: 22
Acq On : 16 Apr 103 2:27 am Operator: Michelle H
Sample : BLANK Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 16 9:59 19103 Quant Results File: TPHG1.RES

Method : C:\HPCHEM\1\METHODS\TPHG1.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 12:31:58 2003
Response via : Multiple Level Calibration



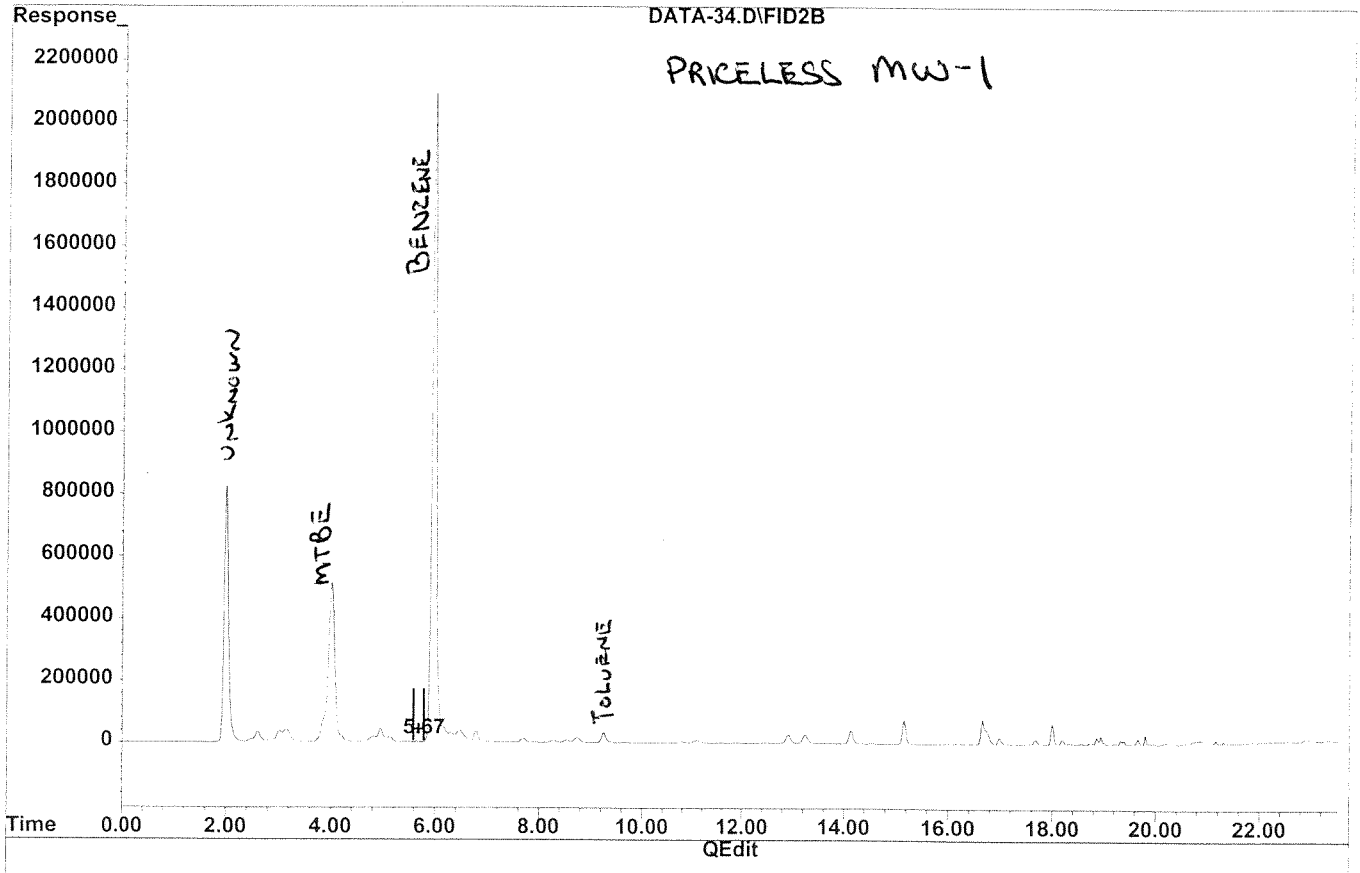

(+) = Expected Retention Time

Quantitation Report

Data File : C:\HPCHEM\1\DATA\022803\DATA-34.D\FID1A.CH Vial: 3
Acq On : 3 Mar 20103 2:34 pm Operator: Michelle
Sample : S3B0122-02 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\022803\DATA-34.D\FID2B.CH Vial: 3
Acq On : 3 Mar 103 2:34 pm Operator: Michelle
Sample : S3B0122-02 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 16 10:02 19103 Quant Results File: TPHG1.RES

Method : C:\HPCHEM\1\METHODS\TPHG1.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 12:31:58 2003
Response via : Multiple Level Calibration




(2) Benzene (PID)

5.68min 1.529ng

response 487969

(+) = Expected Retention Time

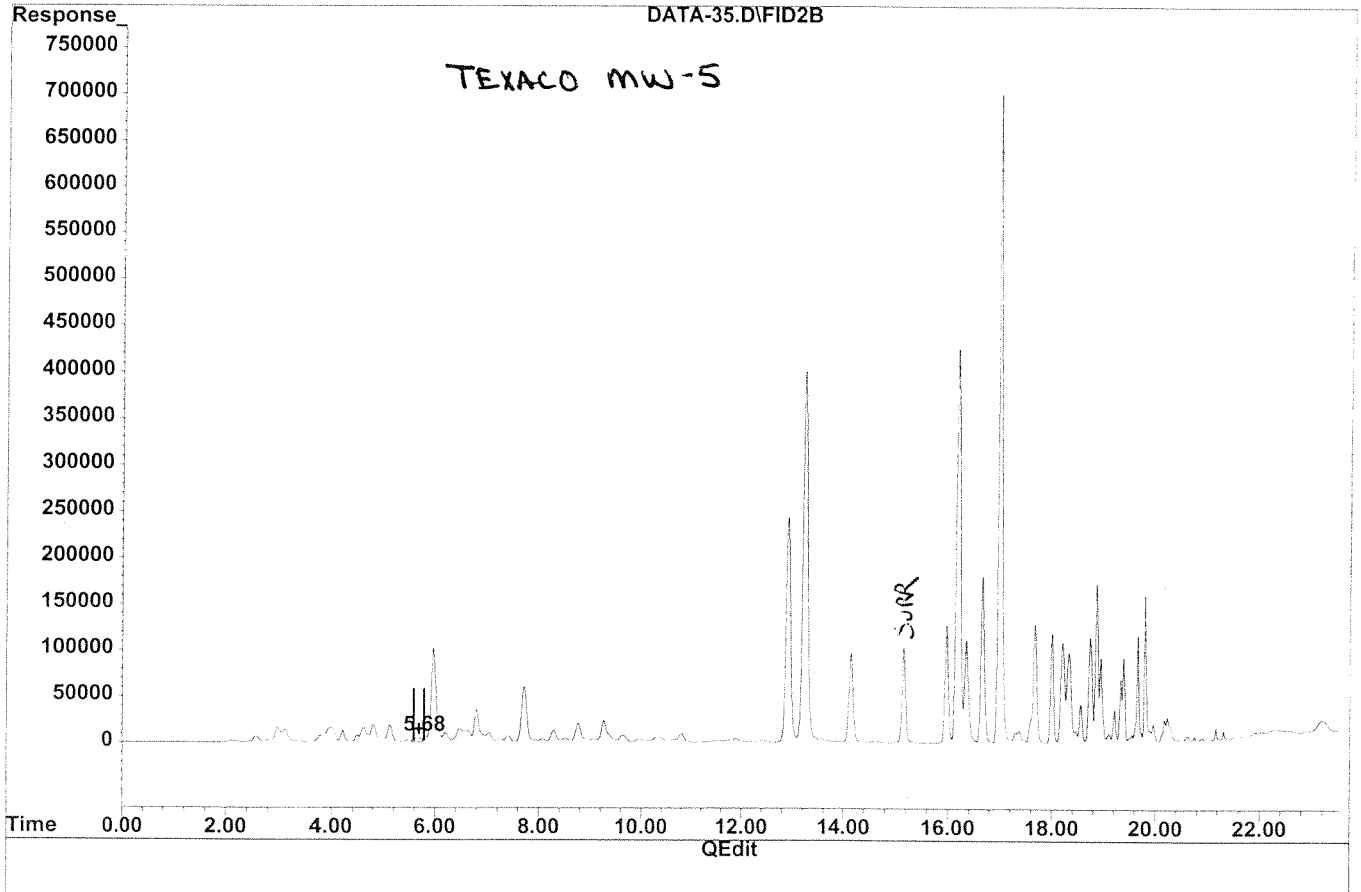
DATA-34.D TPHG1.M Wed Apr 16 10:03:08 2003 AROMAGAS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\022803\DATA-35.D\FID1A.CH Vial: 4
Acq On : 3 Mar 20103 3:04 pm Operator: Michelle
Sample : S3B0122-03 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\022803\DATA-35.D\FID2B.CH Vial: 4
Acq On : 3 Mar 103 3:04 pm Operator: Michelle
Sample : S3B0122-03 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 16 10:03 19103 Quant Results File: TPHG1.RES

Method : C:\HPCHEM\1\METHODS\TPHG1.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 12:31:58 2003
Response via : Multiple Level Calibration




(2) Benzene (PID)
5.68min 1.376ng
response 462691

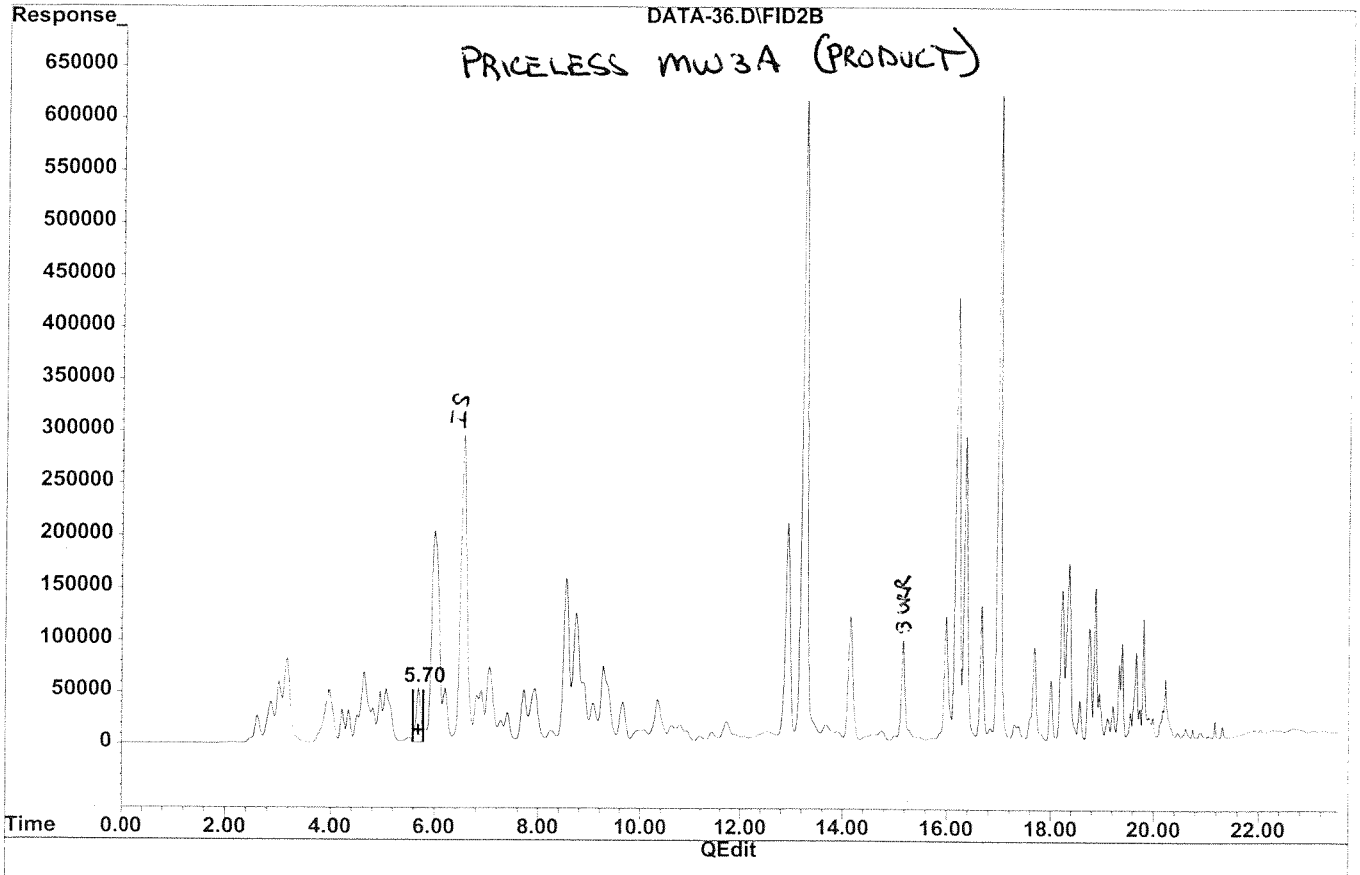
(+) = Expected Retention Time

Quantitation Report

Data File : C:\HPCHEM\1\DATA\022803\DATA-36.D\FID1A.CH Vial: 5
Acq On : 3 Mar 20103 3:34 pm Operator: Michelle H
Sample : S3B0122-04 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\022803\DATA-36.D\FID2B.CH Vial: 5
Acq On : 3 Mar 103 3:34 pm Operator: Michelle H
Sample : S3B0122-04 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 16 10:04 19103 Quant Results File: TPHG1.RES

Method : C:\HPCHEM\1\METHODS\TPHG1.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 12:31:58 2003
Response via : Multiple Level Calibration




(2) Benzene (PID)
5.70min 18.604ng
response 3309589

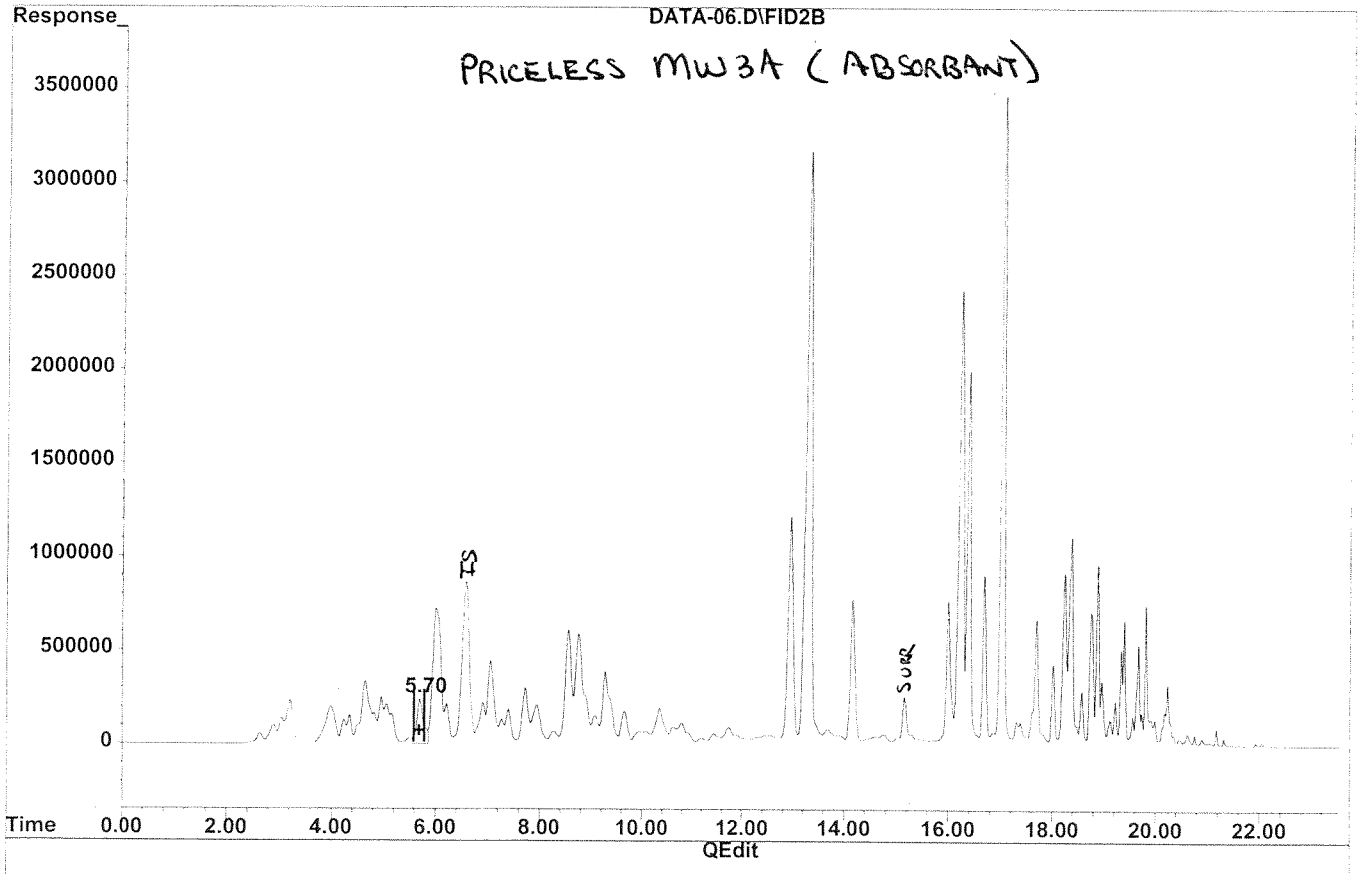
(+) = Expected Retention Time
DATA-36.D TPHG1.M Wed Apr 16 10:04:32 2003 AROMAGAS

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031203\DATA-06.D\FID1A.CH Vial: 6
Acq On : 12 Mar 20103 3:02 pm Operator: Michelle H
Sample : S3B0122-07 10,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\031203\DATA-06.D\FID2B.CH Vial: 6
Acq On : 12 Mar 103 3:02 pm Operator: Michelle H
Sample : S3B0122-07 10,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 15 14:58 19103 Quant Results File: TPHG1.RES

Method : C:\HPCHEM\1\METHODS\TPHG1.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 12:31:58 2003
Response via : Multiple Level Calibration




(2) Benzene (PID)
5.70min 124.943ng
response 20882214

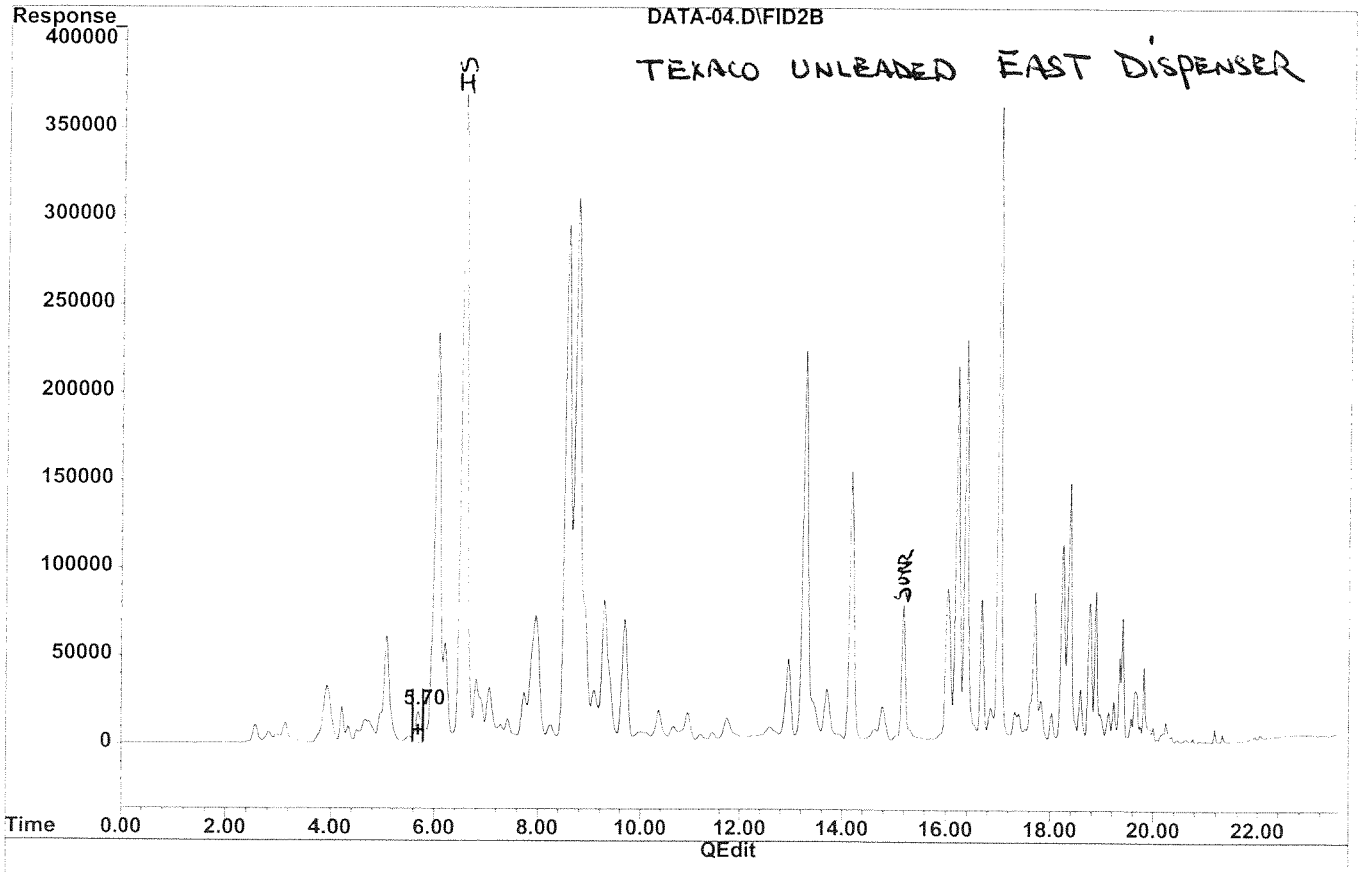
(+) = Expected Retention Time
DATA-06.D TPHG1.M Tue Apr 15 15:04:12 2003

Quantitation Report

Data File : C:\HPCHEM\1\DATA\030403\DATA-04.D\FID1A.CH Vial: 4
Acq On : 4 Mar 20103 7:35 pm Operator: Michelle H
Sample : S3B0122-05 100,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\030403\DATA-04.D\FID2B.CH Vial: 4
Acq On : 4 Mar 103 7:35 pm Operator: Michelle H
Sample : S3B0122-05 100,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 15 15:06 19103 Quant Results File: TPHG1.RES

Method : C:\HPCHEM\1\METHODS\TPHG1.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 12:31:58 2003
Response via : Multiple Level Calibration




(2) Benzene (PID)

5.70min 6.483ng

response 1306608

(+) = Expected Retention Time

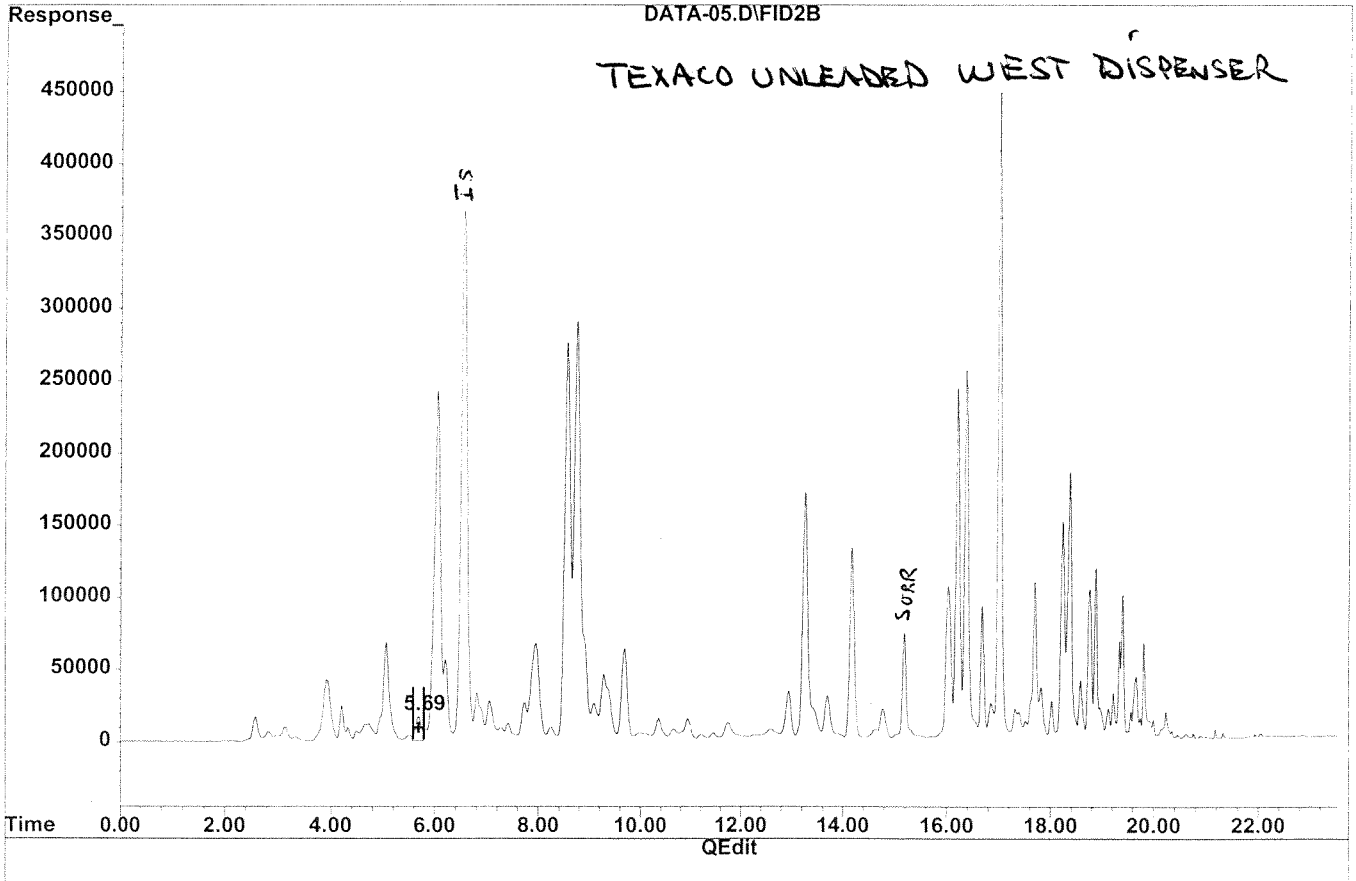
DATA-04.D TPHG1.M Tue Apr 15 15:07:29 2003

Quantitation Report

Data File : C:\HPCHEM\1\DATA\030403\DATA-05.D\FID1A.CH Vial: 5
Acq On : 4 Mar 20103 8:04 pm Operator: Michelle H
Sample : S3B0122-06 100,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\030403\DATA-05.D\FID2B.CH Vial: 5
Acq On : 4 Mar 103 8:04 pm Operator: Michelle H
Sample : S3B0122-06 100,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 15 15:07 19103 Quant Results File: TPHG1.RES

Method : C:\HPCHEM\1\METHODS\TPHG1.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 12:31:58 2003
Response via : Multiple Level Calibration




(2) Benzene (PID)

5.70min 6.178ng

response 1256278

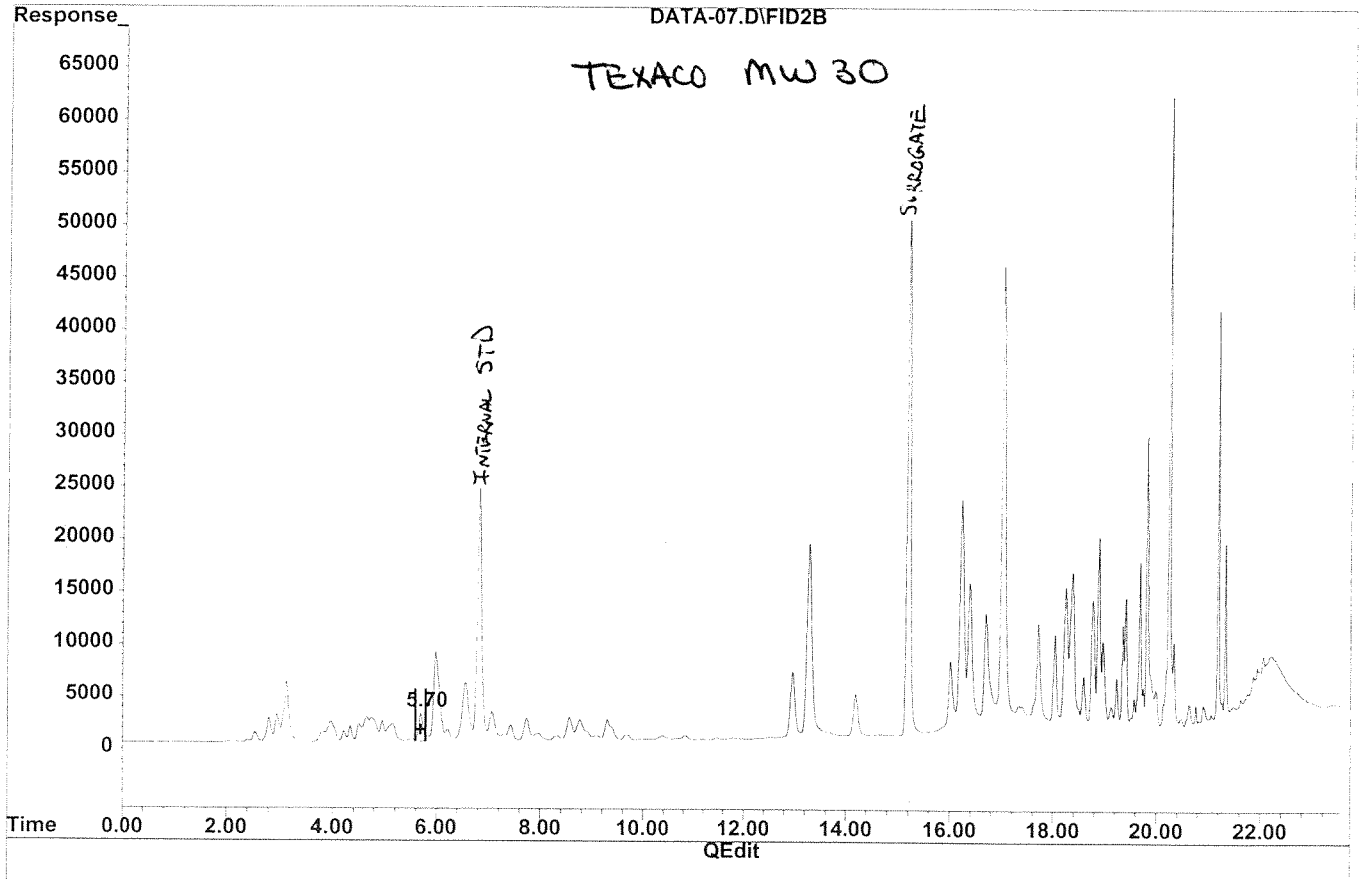
(+) = Expected Retention Time
DATA-05.D TPHG1.M Tue Apr 15 15:08:08 2003

Quantitation Report

Data File : C:\HPCHEM\1\DATA\030403\DATA-07.D\FID1A.CH Vial: 7
Acq On : 4 Mar 20103 9:03 pm Operator: Michelle H
Sample : S3B0122-08 100X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\030403\DATA-07.D\FID2B.CH Vial: 7
Acq On : 4 Mar 103 9:03 pm Operator: Michelle H
Sample : S3B0122-08 100X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 15 15:08 19103 Quant Results File: TPHG1.RES

Method : C:\HPCHEM\1\METHODS\TPHG1.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 12:31:58 2003
Response via : Multiple Level Calibration




(2) Benzene (PID)
5.70min -0.454ng
response 160268

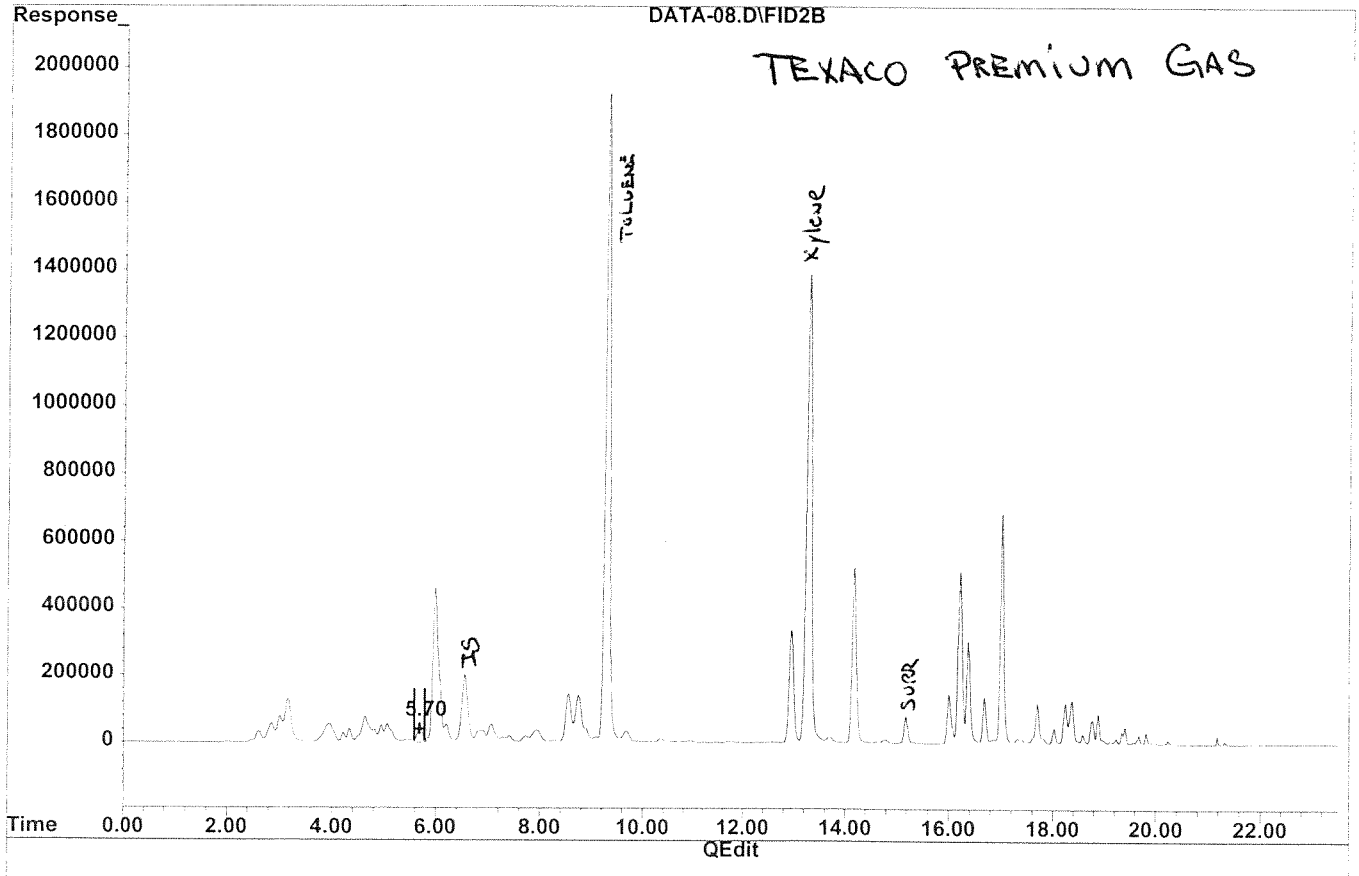
(+) = Expected Retention Time
DATA-07.D TPHG1.M Tue Apr 15 15:08:47 2003

Quantitation Report

Data File : C:\HPCHEM\1\DATA\030403\DATA-08.D\FID1A.CH Vial: 8
Acq On : 4 Mar 20103 9:33 pm Operator: Michelle
Sample : S3B0124-01 100,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\030403\DATA-08.D\FID2B.CH Vial: 8
Acq On : 4 Mar 103 9:33 pm Operator: Michelle
Sample : S3B0124-01 100,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 15 15:09 19103 Quant Results File: TPHG1.RES

Method : C:\HPCHEM\1\METHODS\TPHG1.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 12:31:58 2003
Response via : Multiple Level Calibration




(2) Benzene (PID)

5.70min 21.996ng

response 3870275

(+) = Expected Retention Time

DATA-08.D TPHG1.M Tue Apr 15 15:09:31 2003

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\041503\DATA-22.D\FID1A.CH Vial: 22
Acq On : 16 Apr 20103 2:27 am Operator: Michelle H
Sample : ~~BLANK~~ S360122-01 . Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e PRICELESS - MW2

Data File : C:\HPCHEM\1\DATA\041503\DATA-22.D\FID2B.CH Vial: 22
Acq On : 16 Apr 103 2:27 am Operator: Michelle H
Sample : BLANK Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 16 2:51 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 13:25:53 2003
Response via : Initial Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | | Compound | R.T. | Response | Conc Units |
|---|---|---|---|---|---|
| | | Internal Standards | | | |
| 6) | I | 1,2,3-TFB (PID) | 6.33 | 1784202 | 25.000 ng |
| | | System Monitoring Compounds | | | |
| ) | S | 4-BFB (FID) | 15.12 | 5234705 | 111.753 ng |
| 14) | S | 4-BFB (PID) | 15.13 | 6435094 | 38.885 ng |
| | | Target Compounds | | | |
| 1) | H | NWTPH-G | 14.00 | 1119904733 | 17456.466 ng |
| 3) | H | Washington TPH-G | 15.00 | 724234027 | 14251.615 ng |
| 5) | | Napthalene #2 | 20.24 | 7669168 | 178.460 ug/L |
| 7) | | Benzene (PID) | 5.44 | 332273977 | 1561.675 ng |
| 8) | | Toluene (PID) | 8.99 | 49830851 | 239.246 ng |
| 9) | | Ethylbenzene (PID) | 12.84 | 71520807 | 412.084 ng |
| 10) | | m,p-Xylene (PID) | 13.22 | 257646316 | 1235.824 ng |
| 11) | | o-Xylene (PID) | 14.11 | 74260668 | 429.516 ng |
| 12) | | MTBE (PID) | 3.20 | 66183210 | 1445.173 ng |
| 13) | | Naphthalene (PID) | 20.47f | 318051 | 4.768 ng |

(f)=RT Delta > 1/2 Window (m)=manual int.

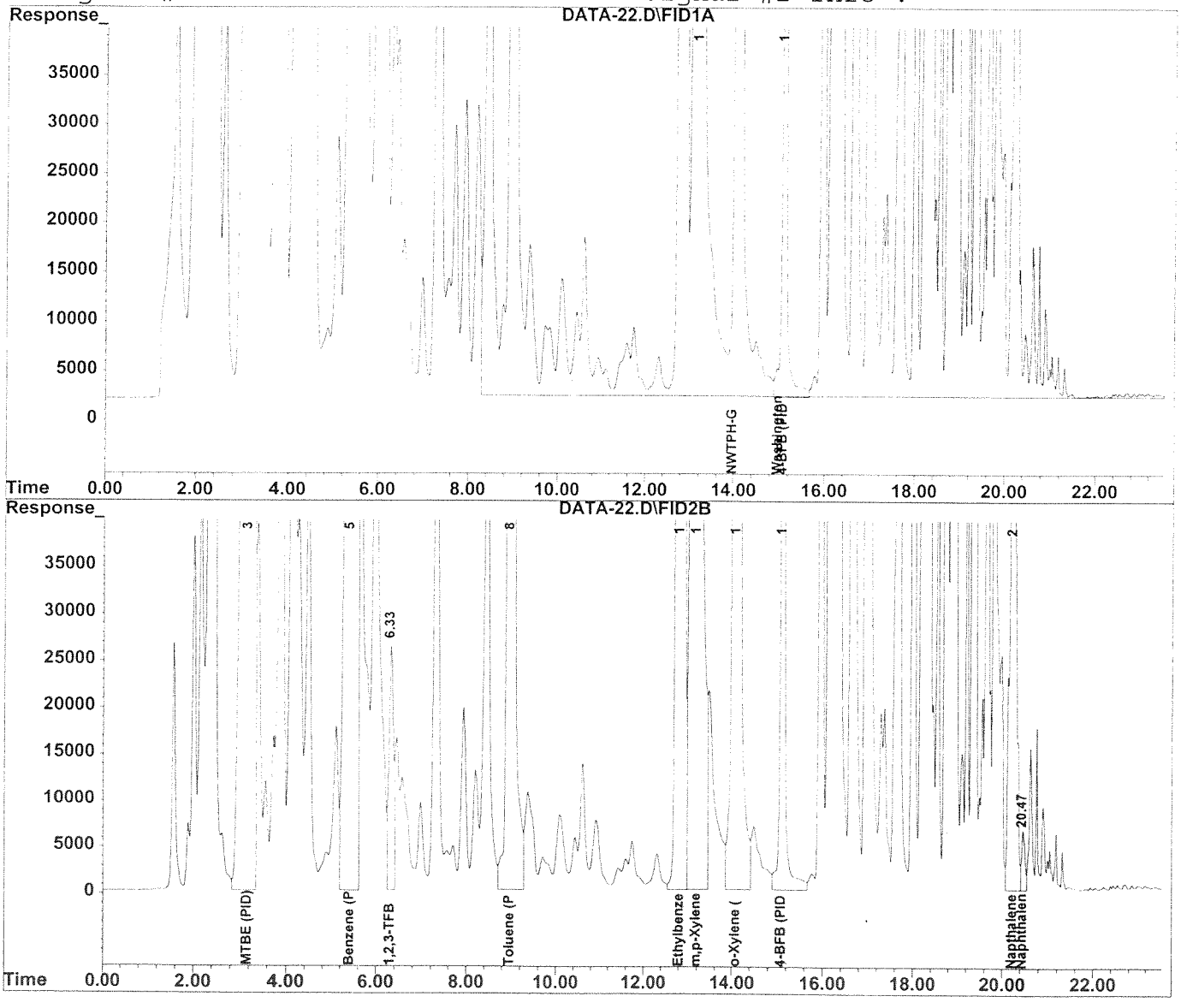
Quantitation Report

Data File : C:\HPCHEM\1\DATA\041503\DATA-22.D\FID1A.CH Vial: 22
Acq On : 16 Apr 20103 2:27 am Operator: Michelle H
Sample : ~~BLANK~~ S3801220 1 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e PRICELESS mw-2

Data File : C:\HPCHEM\1\DATA\041503\DATA-22.D\FID2B.CH Vial: 22
Acq On : 16 Apr 103 2:27 am Operator: Michelle H
Sample : BLANK Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 16 2:51 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 13:25:53 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\022803\DATA-34.D\FID1A.CH Vial: 3
Acq On : 3 Mar 20103 2:34 pm Operator: Michelle
Sample : S3B0122-02 Inst : Aromagas
Misc : PRICELESS - MW-1 Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\022803\DATA-34.D\FID2B.CH Vial: 3
Acq On : 3 Mar 103 2:34 pm Operator: Michelle
Sample : S3B0122-02 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Mar 3 14:58 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Thu Feb 27 12:02:59 2003
Response via : Initial Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| | | **Internal Standards** | | | | |
| 6) | I | 1,2,3-TFB (PID) | 6.79 | 2396164 | 25.000 | ng |
| | | **System Monitoring Compounds** | | | | |
| 2) | S | 4-BFB (FID) | 15.17 | 1232712 | 29.609 | ng |
| 14) | S | 4-BFB (PID) | 15.17 | 3704573 | 26.349 | ng |
| | | **Target Compounds** | | | | |
| 1) | H | NWTPH-G | 14.00 | 133168150 | 2075.753 | ng |
| 3) | H | Washington TPH-G | 15.00 | 37207933 | 730.989 | ng |
| 5) | | Napthalene #2 | 20.24 | 763889 | 51.121 | ug/L |
| 7) | | Benzene (PID) | 5.97f | 125059048 | 585.002 | ng |
| 8) | | Toluene (PID) | 9.26 | 2151593 | 10.648 | ng |
| 9) | | Ethylbenzene (PID) | 12.92 | 1779964 | 11.268 | ng |
| 10) | | m,p-Xylene (PID) | 13.25 | 1962571 | 12.038 | ng |
| 11) | | o-Xylene (PID) | 14.16 | 2539168 | 15.308 | ng |
| 12) | | MTBE (PID) | 4.01f | 48700703 | 912.815 | ng |
| 13) | | Naphthalene (PID) | 0.00 | 0 | N.D. | ng |

(f)=RT Delta > 1/2 Window (m)=manual int.

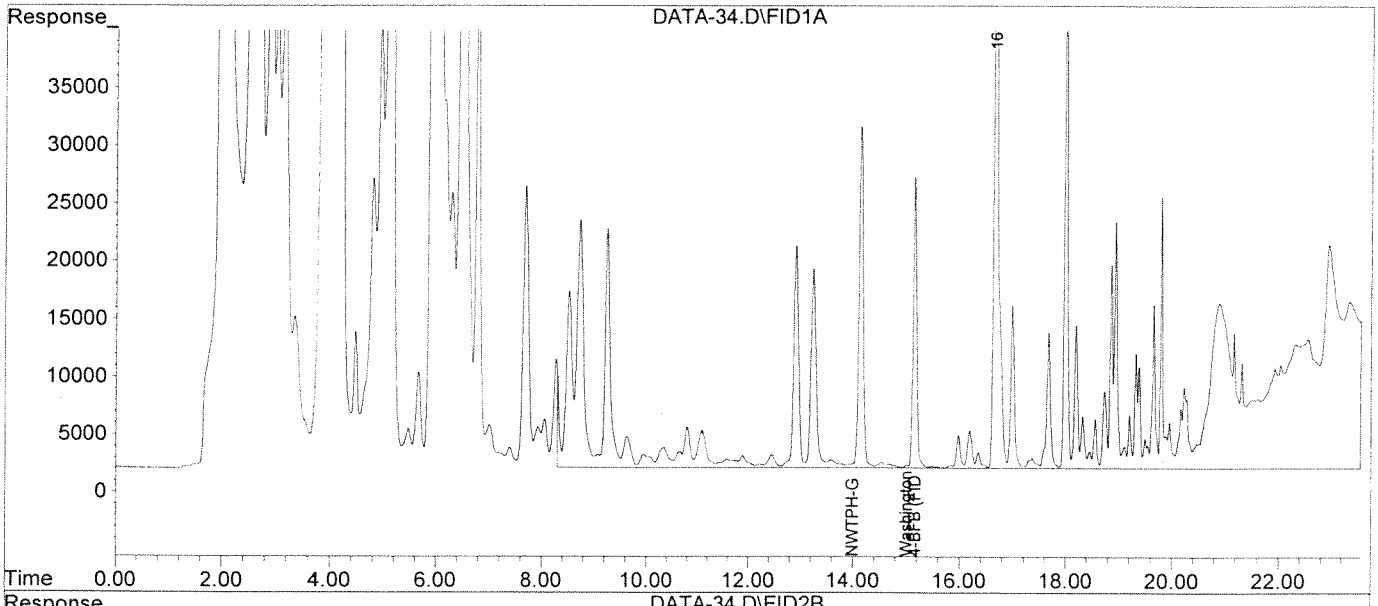
Quantitation Report

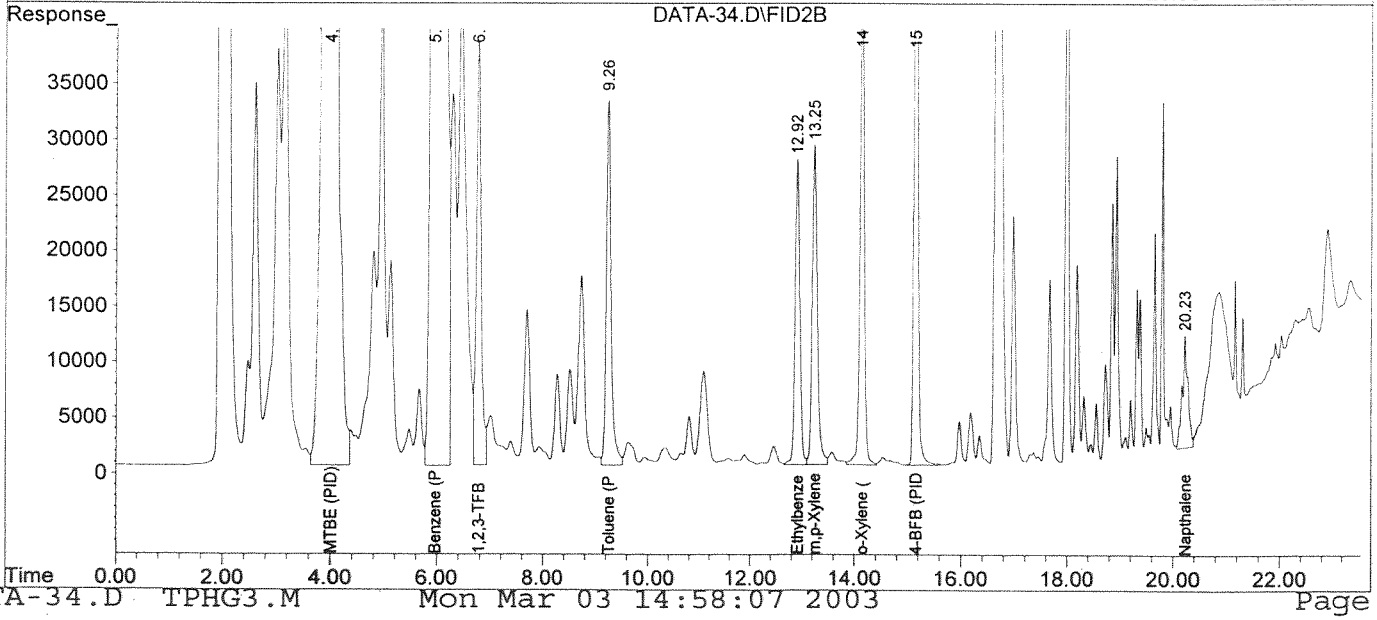
Data File : C:\HPCHEM\1\DATA\022803\DATA-34.D\FID1A.CH Vial: 3
Acq On : 3 Mar 20103 2:34 pm Operator: Michelle H
Sample : S3B0122-02 PRICELESS MW-1 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\022803\DATA-34.D\FID2B.CH Vial: 3
Acq On : 3 Mar 103 2:34 pm Operator: Michelle H
Sample : S3B0122-02 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Mar 3 14:58 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Thu Feb 27 12:02:59 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\022803\DATA-35.D\FID1A.CH Vial: 4
Acq On : 3 Mar 20103 3:04 pm Operator: Michelle H
Sample : S3B0122-03 Inst : Aromagas
Misc : 5X TEXACO - MW-5 Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\022803\DATA-35.D\FID2B.CH Vial: 4
Acq On : 3 Mar 103 3:04 pm Operator: Michelle H
Sample : S3B0122-03 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Mar 3 15:28 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Thu Feb 27 12:02:59 2003
Response via : Initial Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| | | **Internal Standards** | | | | |
| 6) | I | 1,2,3-TFB (PID) | 6.80f | 2482191 | 25.000 | ng |
| | | **System Monitoring Compounds** | | | | |
| 2) | S | 4-BFB (FID) | 15.16 | 2463481 | 59.901 | ng |
| 14) | S | 4-BFB (PID) | 15.17 | 5212833 | 36.252 | ng |
| | | **Target Compounds** | | | | |
| 1) | H | NWTPH-G | 14.00 | 184299414 | 2872.759 | ng |
| 3) | H | Washington TPH-G | 15.00 | 147333710 | 2898.256 | ng |
| 5) | | Napthalene #2 | 20.24 | 2187816 | 148.589 | ug/L |
| 7) | | Benzene (PID) | 5.97f | 7131450 | 32.203 | ng |
| 8) | | Toluene (PID) | 9.27 | 2138750 | 10.218 | ng |
| 9) | | Ethylbenzene (PID) | 12.93 | 15732569 | 81.876 | ng |
| 10) | | m,p-Xylene (PID) | 13.26 | 26741397 | 116.739 | ng |
| 11) | | o-Xylene (PID) | 14.16 | 5740306 | 31.281 | ng |
| 12) | | MTBE (PID) | 3.98f | 2373319 | 42.995 | ng |
| 13) | | Naphthalene (PID) | 20.47f | 61383 | N.D. | ng |

(f)=RT Delta > 1/2 Window (m)=manual int.

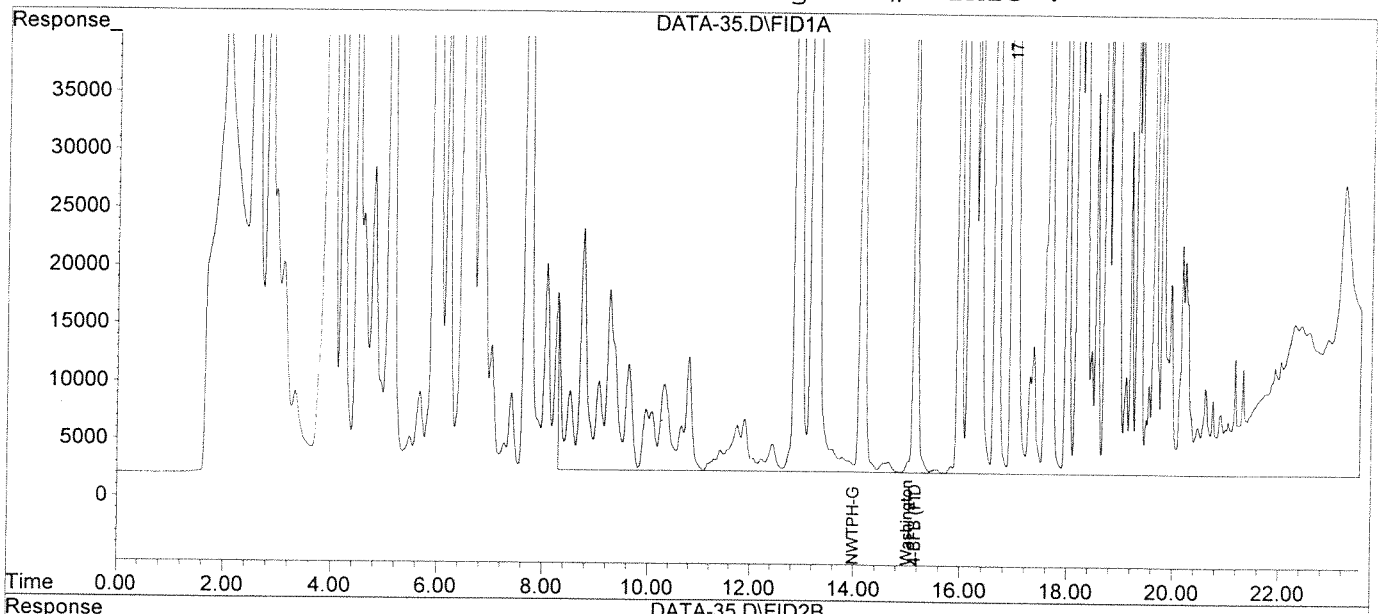
# Quantitation Report

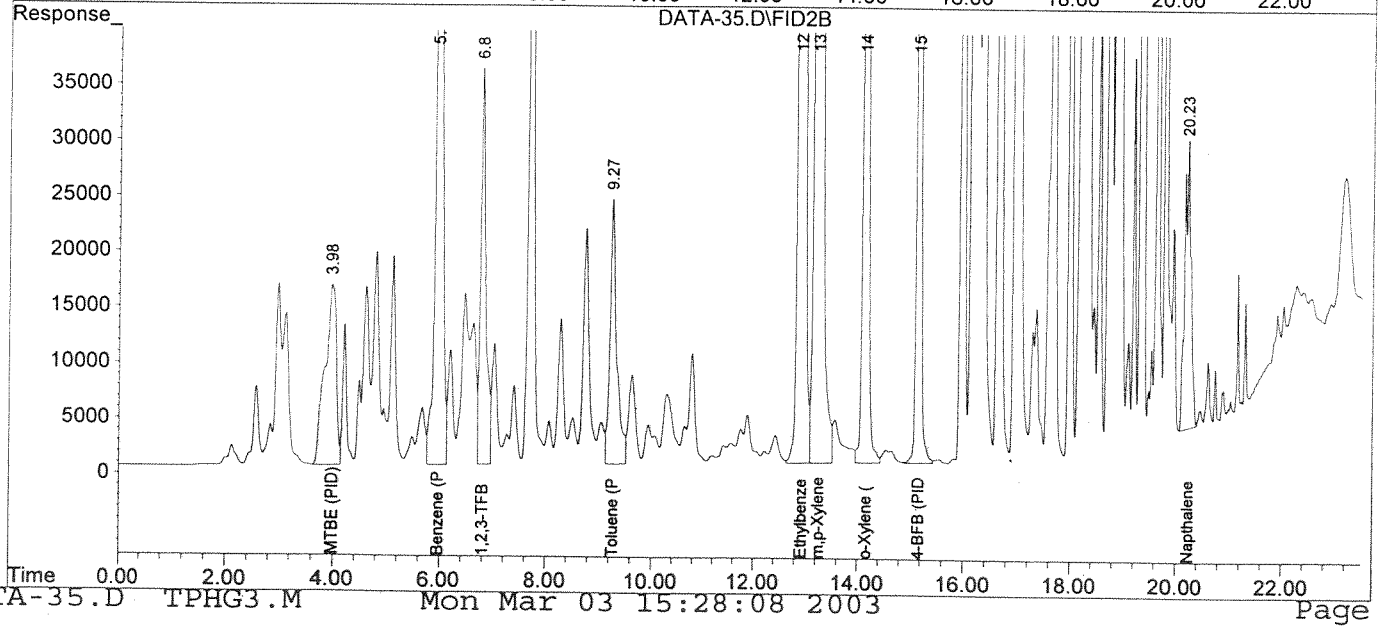
Data File : C:\HPCHEM\1\DATA\022803\DATA-35.D\FID1A.CH  Vial: 4
Acq On : 3 Mar 20103 3:04 pm  Operator: Michelle H
Sample : S3B0122-03  Inst : Aromagas
Misc : 5X TEXACO MW-5  Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\022803\DATA-35.D\FID2B.CH  Vial: 4
Acq On : 3 Mar 103 3:04 pm  Operator: Michelle H
Sample : S3B0122-03  Inst : Aromagas
Misc :  Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Mar 3 15:28 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Thu Feb 27 12:02:59 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\022803\DATA-36.D\FID1A.CH Vial: 5
Acq On : 3 Mar 20103 3:34 pm Operator: Michelle H
Sample : S3B0122-04 100,000 X PRICELESS MW3A Inst : Aromagas
Misc : (PRODUCT) Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\022803\DATA-36.D\FID2B.CH Vial: 5
Acq On : 3 Mar 103 3:34 pm Operator: Michelle H
Sample : S3B0122-04 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 14 15:19 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Thu Feb 27 12:02:59 2003
Response via : Initial Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| | | **Internal Standards** | | | | | |
| 6) | I | 1,2,3-TFB (PID) | 6.82f | 2373282 | 25.000 | ng | |
| | | **System Monitoring Compounds** | | | | | |
| ) | S | 4-BFB (FID) | 15.17 | 2687113 | 65.404 | ng | |
| 14) | S | 4-BFB (PID) | 15.46f | 339776 | 1.273 | ng | |
| | | **Target Compounds** | | | | | |
| 1) | H | NWTPH-G | 14.00 | 497261366 | 7751.040 | ng | |
| 3) | H | Washington TPH-G | 15.00 | 276246941 | 5435.260 | ng | |
| 5) | | Napthalene #2 | 20.24 | 3759490 | 256.171 | ug/L | |
| 7) | | Benzene (PID) | 6.00f | 20004588 | 94.480 | ng | |
| 8) | | Toluene (PID) | 9.28 | 8375610 | 41.850 | ng | |
| 9) | | Ethylbenzene (PID) | 12.93 | 13878311 | 75.687 | ng | m |
| 10) | | m,p-Xylene (PID) | 13.26 | 43137776 | 194.607 | ng | |
| 11) | | o-Xylene (PID) | 14.17 | 7816527 | 43.786 | ng | |
| 12) | | MTBE (PID) | 3.97f | 5974882 | 113.117 | ng | |
| 13) | | Naphthalene (PID) | 20.46f | 244662 | 3.455 | ng | |

(f)=RT Delta > 1/2 Window (m)=manual int.

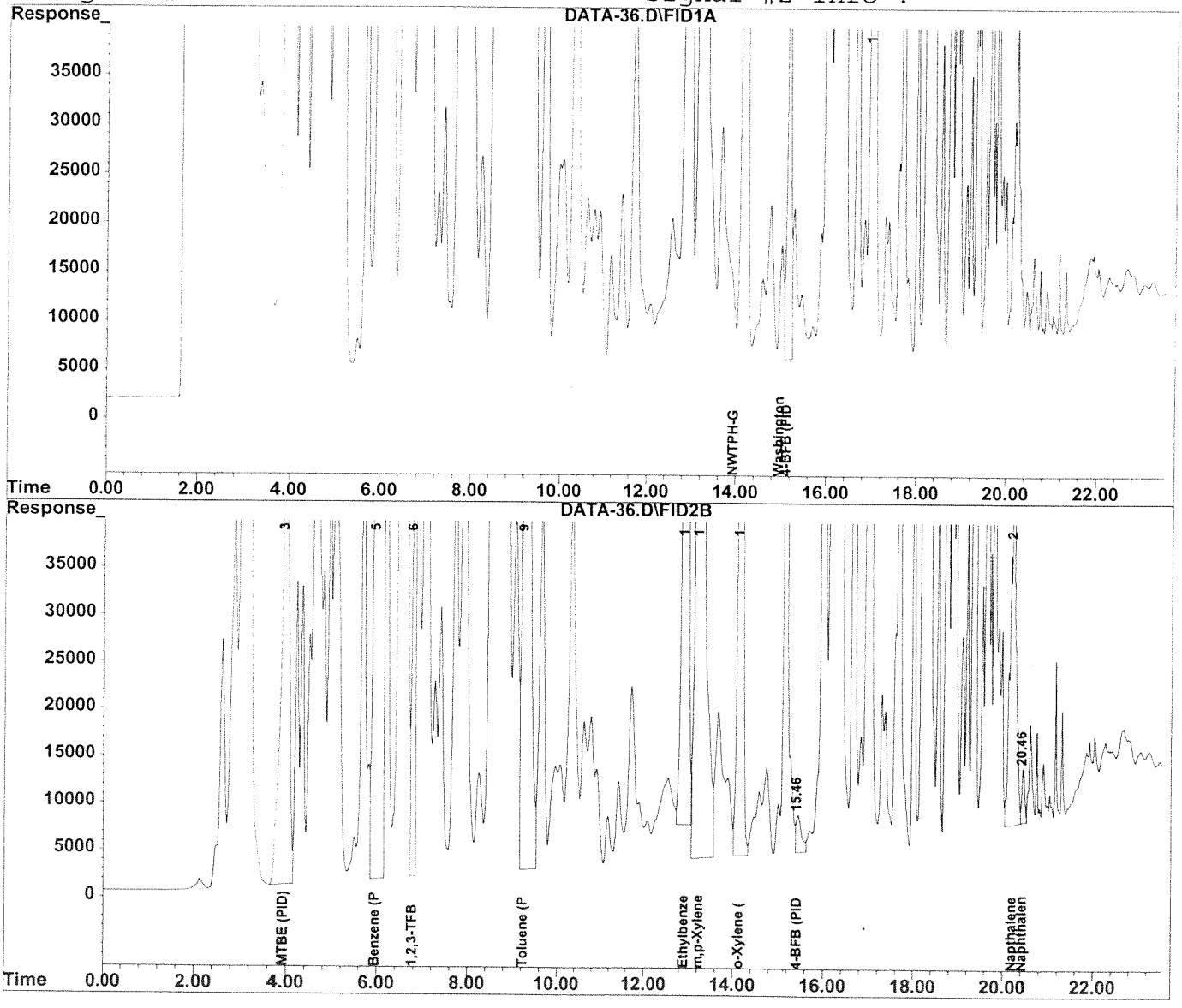
Quantitation Report

Data File : C:\HPCHEM\1\DATA\022803\DATA-36.D\FID1A.CH Vial: 5
Acq On : 3 Mar 20103 3:34 pm Operator: Michelle H
Sample : S3B0122-04 PRICELESS MW 3A Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\022803\DATA-36.D\FID2B.CH Vial: 5
Acq On : 3 Mar 103 3:34 pm Operator: Michelle H
Sample : S3B0122-04 Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 14 15:19 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Thu Feb 27 12:02:59 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\030403\DATA-04.D\FID1A.CH Vial: 4
Acq On : 4 Mar 20103 7:35 pm Operator: Michelle
Sample : S3B0122-05 100,000X Inst : Aromagas
Misc : TEXACO EAST DISPENSER Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\030403\DATA-04.D\FID2B.CH Vial: 4
Acq On : 4 Mar 103 7:35 pm Operator: Michelle
Sample : S3B0122-05 100,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Mar 5 13:48 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Mar 05 13:44:33 2003
Response via : Initial Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| | | **Internal Standards** | | | | |
| 6) | I | 1,2,3-TFB (PID) | 6.82f | 3409245 | 25.000 | ng |
| | | **System Monitoring Compounds** | | | | |
| 2) | S | 4-BFB (FID) | 15.19 | 3478572 | 84.883 | ng |
| 14) | S | 4-BFB (PID) | 15.47f | 289206 | 0.178 | ng |
| | | **Target Compounds** | | | | |
| 1) | H | NWTPH-G | 14.00 | 626262141 | 9761.834 | ng |
| 3) | H | Washington TPH-G | 15.00 | 321318027 | 6322.256 | ng |
| 5) | | Napthalene #2 | 20.25 | 789079 | 52.845 | ug/L |
| 7) | | Benzene (PID) | 6.06f | 19589063 | 64.404 | ng |
| 8) | | Toluene (PID) | 9.29f | 8144596 | 28.330 | ng |
| 9) | | Ethylbenzene (PID) | 12.96 | 3726271 | 15.773 | ng |
| 10) | | m,p-Xylene (PID) | 13.28 | 17439603 | 62.107 | ng |
| 11) | | o-Xylene (PID) | 14.19 | 9642543 | 39.740 | ng |
| 12) | | MTBE (PID) | 3.94 | 3563486 | 46.996 | ng |
| 13) | | Naphthalene (PID) | 20.47f | 66134 | N.D. | ng |

(f)=RT Delta > 1/2 Window (m)=manual int.

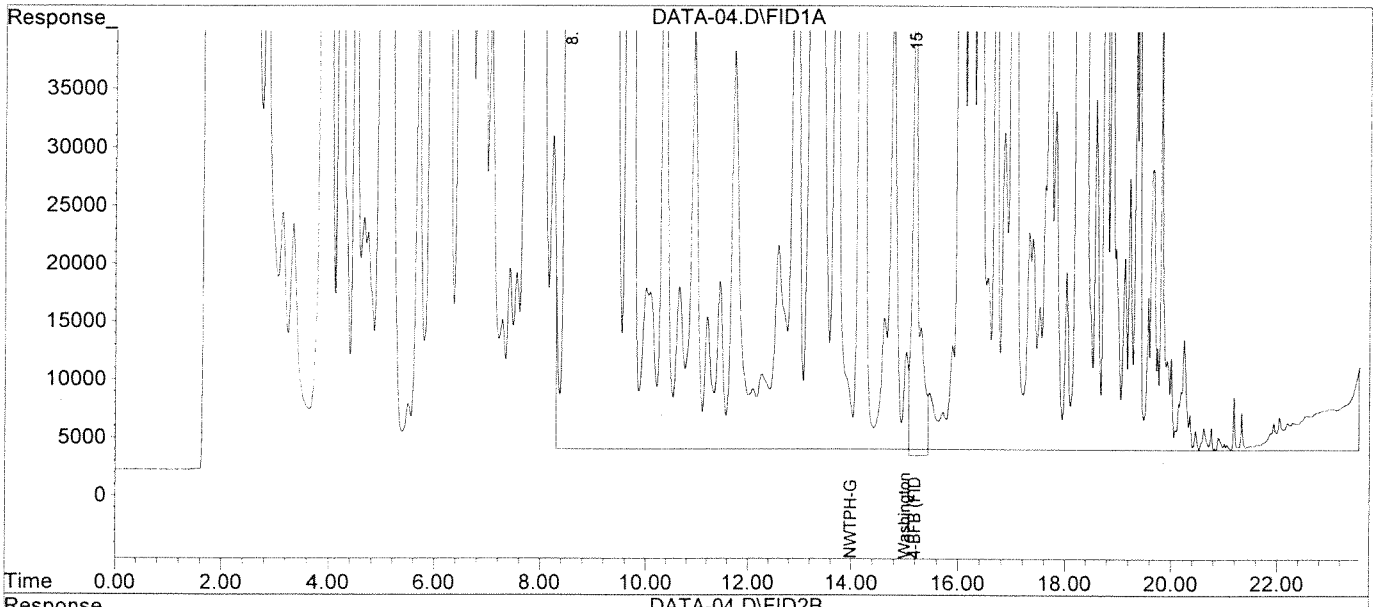
# Quantitation Report

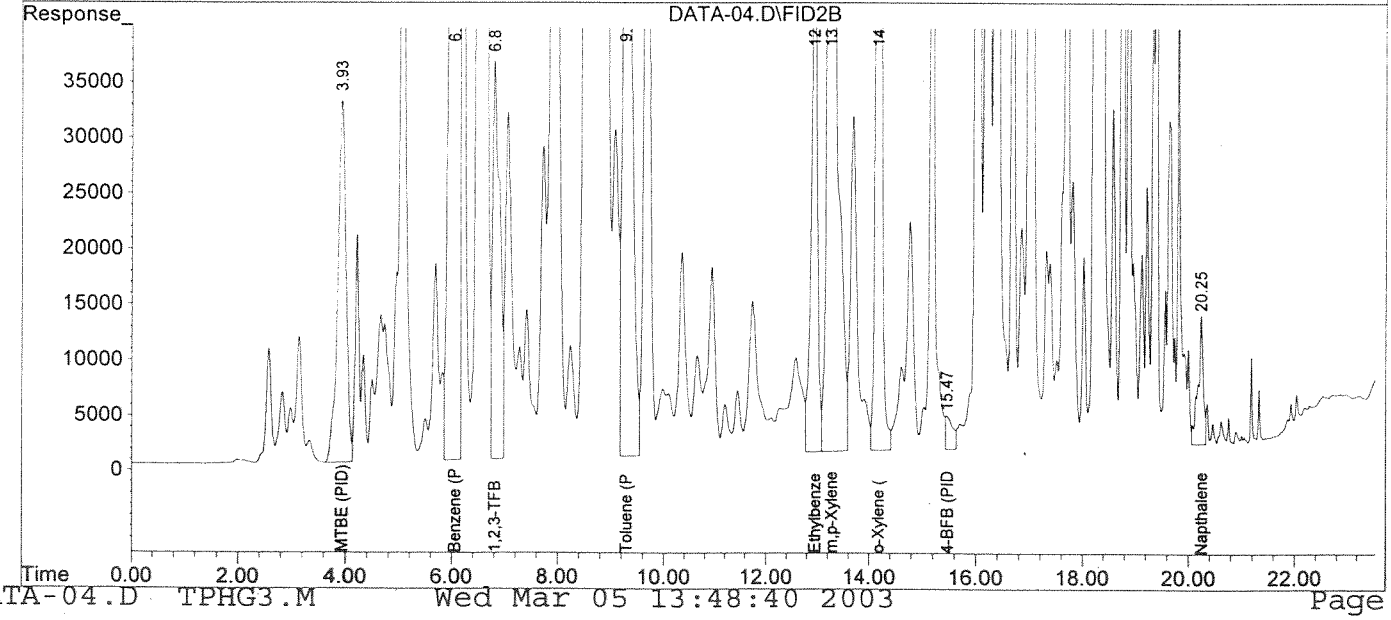
Data File : C:\HPCHEM\1\DATA\030403\DATA-04.D\FID1A.CH Vial: 4
Acq On : 4 Mar 20103 7:35 pm Operator: Michelle H
Sample : S3B0122-05 100,000X Inst : Aromagas
Misc : TEXACO EAST DISPENSER Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\030403\DATA-04.D\FID2B.CH Vial: 4
Acq On : 4 Mar 103 7:35 pm Operator: Michelle H
Sample : S3B0122-05 100,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Mar 5 13:48 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Mar 05 13:44:33 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\030403\DATA-05.D\FID1A.CH Vial: 5
Acq On : 4 Mar 20103 8:04 pm Operator: Michelle H
Sample : S3B0122-06 100,000X Inst : Aromagas
Misc : TEXACO WEST DISPENSER Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\030403\DATA-05.D\FID2B.CH Vial: 5
Acq On : 4 Mar 103 8:04 pm Operator: Michelle H
Sample : S3B0122-06 100,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Mar 5 13:48 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Mar 05 13:44:33 2003
Response via : Initial Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| | | **Internal Standards** | | | | |
| 6) | I | 1,2,3-TFB (PID) | 6.82f | 3090543 | 25.000 | ng |
| | | **System Monitoring Compounds** | | | | |
| 2) | S | 4-BFB (FID) | 15.19 | 2642304 | 64.302 | ng |
| 14) | S | 4-BFB (PID) | 15.20 | 4386998 | 25.493 | ng |
| | | **Target Compounds** | | | | |
| 1) | H | NWTPH-G | 14.00 | 634542758 | 9890.907 | ng |
| 3) | H | Washington TPH-G | 15.00 | 325552217 | 6405.584 | ng |
| 5) | | Napthalene #2 | 20.25 | 1114196 | 75.100 | ug/L |
| 7) | | Benzene (PID) | 6.06f | 20039001 | 72.678 | ng |
| 8) | | Toluene (PID) | 9.29f | 5586295 | 21.435 | ng |
| 9) | | Ethylbenzene (PID) | 12.96 | 2724280 | 12.609 | ng |
| 10) | | m,p-Xylene (PID) | 13.28 | 13812610 | 54.050 | ng |
| 11) | | o-Xylene (PID) | 14.19 | 8256017 | 37.529 | ng |
| 12) | | MTBE (PID) | 3.93 | 4591695 | 66.778 | ng |
| 13) | | Naphthalene (PID) | 20.47f | 104817 | 0.290 | ng |

(f)=RT Delta > 1/2 Window (m)=manual int.

# Quantitation Report

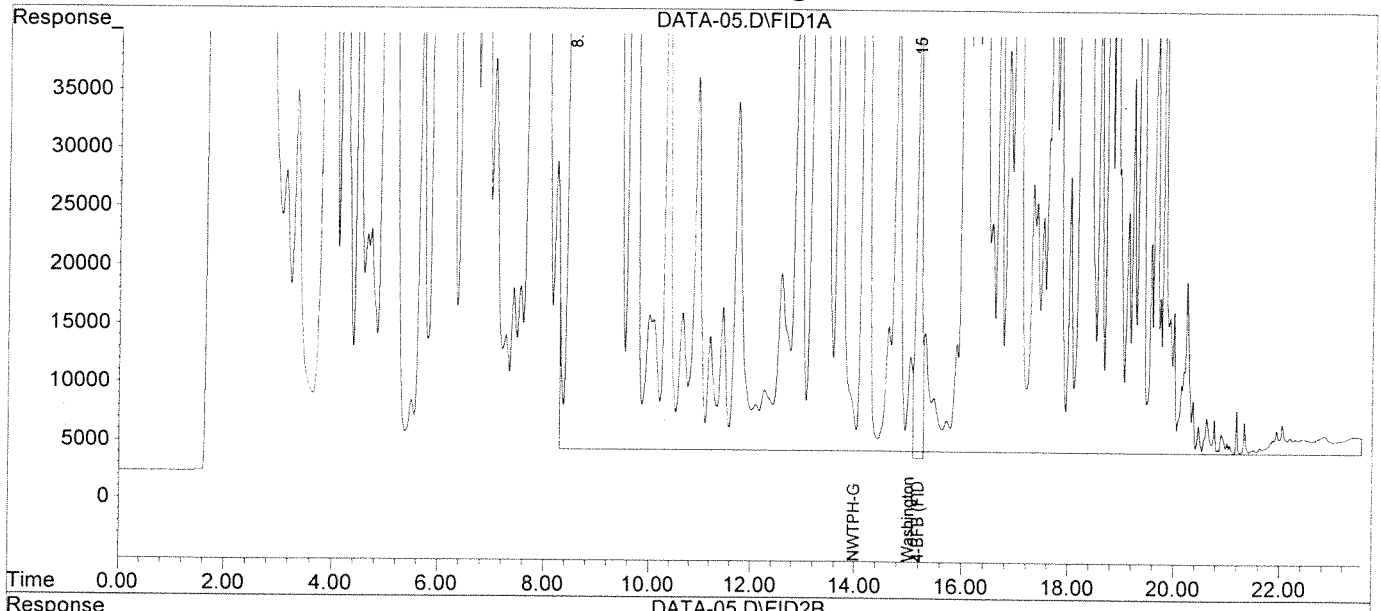
Data File : C:\HPCHEM\1\DATA\030403\DATA-05.D\FID1A.CH  Vial: 5
Acq On : 4 Mar 20103 8:04 pm  Operator: Michelle H
Sample : S3B0122-06 100,000X  Inst : Aromagas
Misc :  Multiplr: 1.00
IntFile : autoint1.e

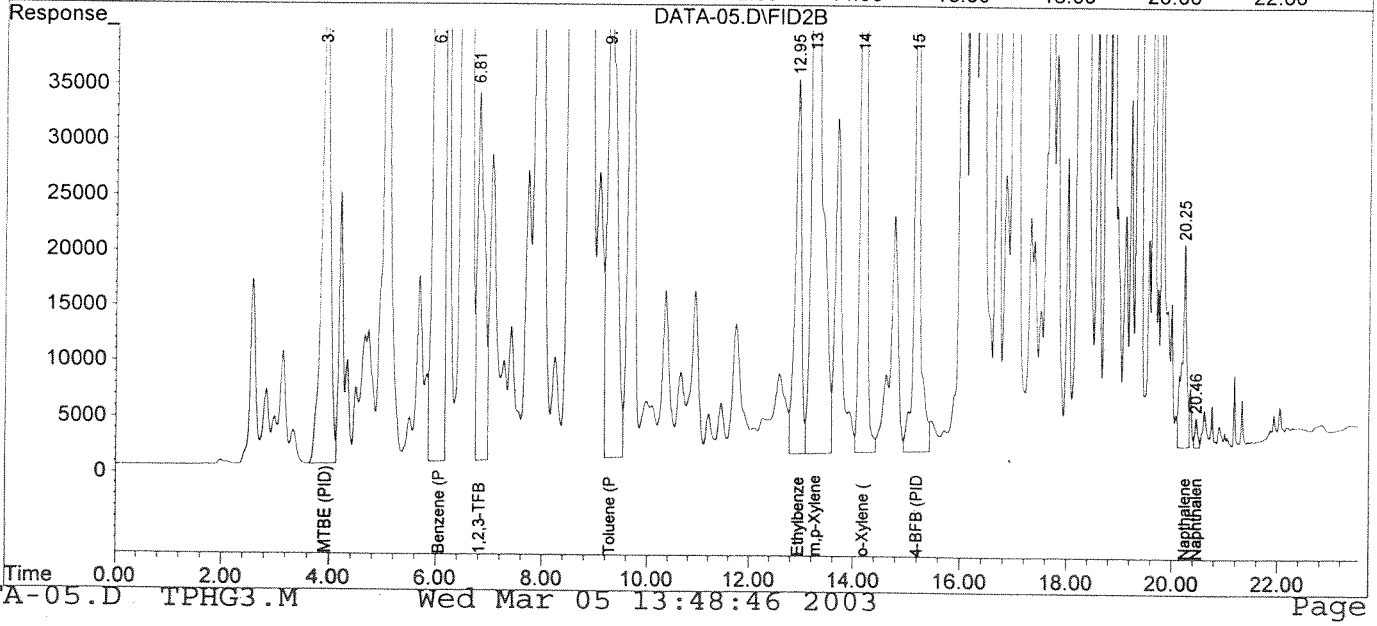
TEXACO WEST DISPATCH

Data File : C:\HPCHEM\1\DATA\030403\DATA-05.D\FID2B.CH  Vial: 5
Acq On : 4 Mar 103 8:04 pm  Operator: Michelle H
Sample : S3B0122-06 100,000X  Inst : Aromagas
Misc :  Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Mar 5 13:48 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Mar 05 13:44:33 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase :  Signal #2 Phase:
Signal #1 Info :  Signal #2 Info :



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031203\DATA-06.D\FID1A.CH Vial: 6
Acq On : 12 Mar 20103 3:02 pm Operator: Michelle H
Sample : S3B0122-07 10,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e MW3A (ABSORBANT)

Data File : C:\HPCHEM\1\DATA\031203\DATA-06.D\FID2B.CH Vial: 6
Acq On : 12 Mar 103 3:02 pm Operator: Michelle H
Sample : S3B0122-07 10,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 16 9:45 19103 Quant Results File: TPHG2.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG2.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 12:31:58 2003
Response via : Initial Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | | Compound | R.T. | Response | Conc | Units | |
|---|---|---|---|---|---|---|---|
| | | System Monitoring Compounds | | | | | |
| 2) | S | 4-BFB (FID) | 15.17 | 14182438 | 303.176 | ng | |
| 12) | S | 4-BFB (PID) | 15.17 | 15610799 | 140.873 | ng | |
| | | Target Compounds | | | | | |
| 1) | H | NWTPH-G | 14.00 | 2794289603 | 35573.988 | ng | |
| 3) | H | Washington TPH-G | 15.00 | 1555605509 | 26869.419 | ng | |
| 5) | | Benzene (PID) | 5.70 | 20882214 | 124.943 | ng | |
| 6) | | Toluene (PID) | 9.08f | 13188686 | 80.053 | ng | |
| 7) | | Ethylbenzene (PID) | 12.96 | 91655028 | 673.627 | ng | |
| 8) | | m,p-Xylene (PID) | 13.32 | 248769723 | 1521.643 | ng | |
| 9) | | o-Xylene (PID) | 14.18 | 50503825 | 371.943 | ng | |
| 10) | | MTBE (PID) | 3.21f | 20685343 | 466.112 | ng | m |
| 11) | | Naphthalene (PID) | 20.24 | 23920604 | 499.640 | ng | |

(f)=RT Delta > 1/2 Window (m)=manual int.

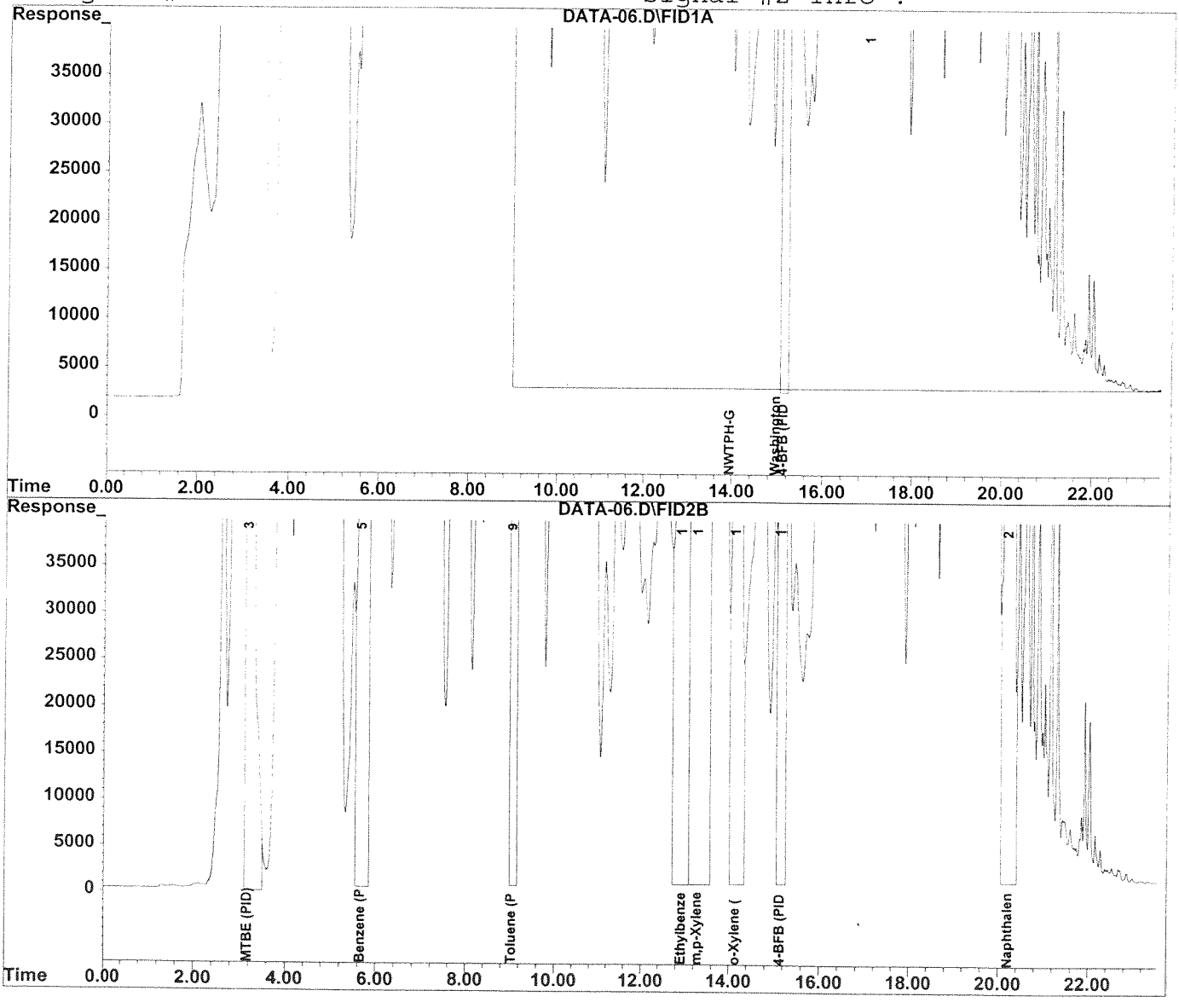
Quantitation Report

Data File : C:\HPCHEM\1\DATA\031203\DATA-06.D\FID1A.CH Vial: 6
Acq On : 12 Mar 20103 3:02 pm Operator: Michelle H
Sample : S3B0122-07 10,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e MW 3A (Absorbamt)

Data File : C:\HPCHEM\1\DATA\031203\DATA-06.D\FID2B.CH Vial: 6
Acq On : 12 Mar 103 3:02 pm Operator: Michelle H
Sample : S3B0122-07 10,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Apr 16 9:45 19103 Quant Results File: TPHG2.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG2.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Apr 11 12:31:58 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\030403\DATA-07.D\FID1A.CH Vial: 7
Acq On : 4 Mar 20103 9:03 pm Operator: Michelle H
Sample : S3B0122-08 100X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e TEXACO MW 30

Data File : C:\HPCHEM\1\DATA\030403\DATA-07.D\FID2B.CH Vial: 7
Acq On : 4 Mar 103 9:03 pm Operator: Michelle H
Sample : S3B0122-08 100X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Mar 5 13:48 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Mar 05 13:44:33 2003
Response via : Initial Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| | | **Internal Standards** | | | | |
| 6) | I | 1,2,3-TFB (PID) | 6.82f | 1406592 | 25.000 | ng |
| | | **System Monitoring Compounds** | | | | |
| 2) | S | 4-BFB (FID) | 15.21 | 1121579 | 26.874 | ng |
| 14) | S | 4-BFB (PID) | 15.21 | 2381765 | 30.686 | ng |
| | | **Target Compounds** | | | | |
| 1) | H | NWTPH-G | 14.00 | 26746385 | 416.908 | ng |
| 3) | H | Washington TPH-G | 15.00 | 25905129 | 508.550 | ng |
| 5) | | Napthalene #2 | 20.25 | 1735188 | 117.607 | ug/L |
| 7) | | Benzene (PID) | 5.99f | 689705 | 5.496 | ng |
| 8) | | Toluene (PID) | 9.30f | 203436 | 1.715 | ng |
| 9) | | Ethylbenzene (PID) | 12.97f | 453673 | 4.247 | ng |
| 10) | | m,p-Xylene (PID) | 13.29 | 1437422 | 11.058 | ng |
| 11) | | o-Xylene (PID) | 14.20 | 265513 | 2.557 | ng |
| 12) | | MTBE (PID) | 3.96f | 197001 | 6.345 | ng |
| 13) | | Naphthalene (PID) | 20.47f | 31880 | N.D. | ng |

(f)=RT Delta > 1/2 Window (m)=manual int.

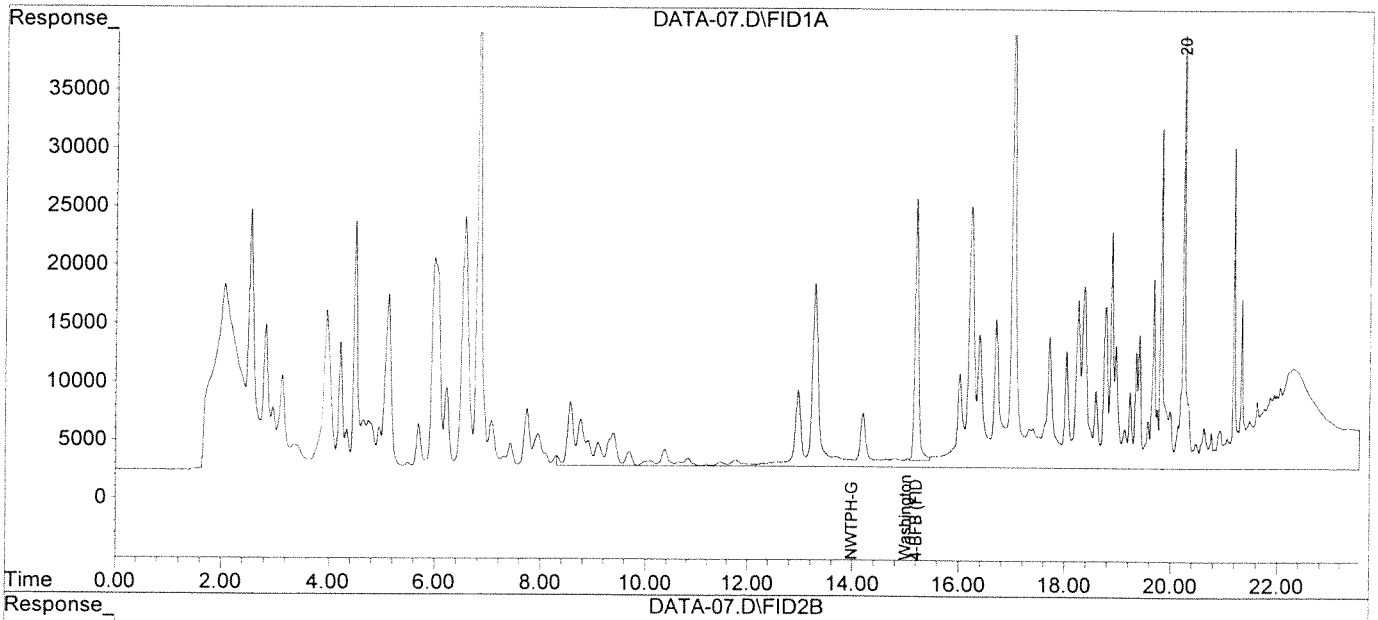
Quantitation Report

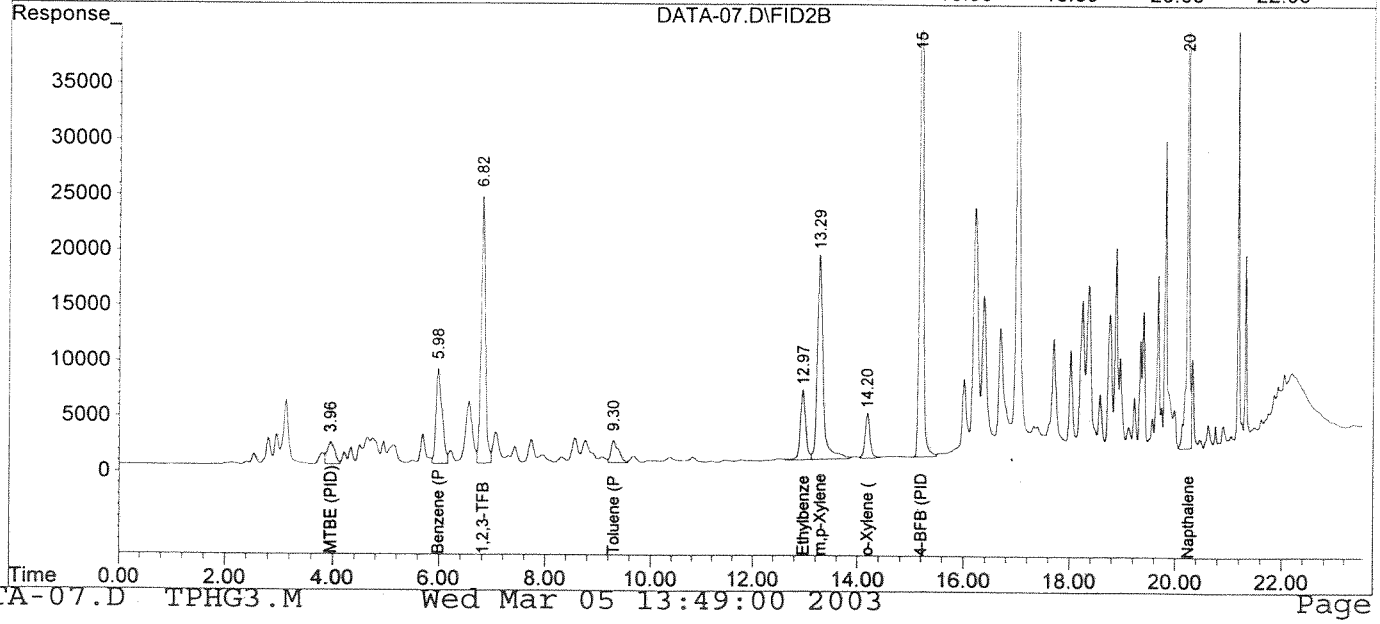
Data File : C:\HPCHEM\1\DATA\030403\DATA-07.D\FID1A.CH Vial: 7
Acq On : 4 Mar 20103 9:03 pm Operator: Michelle H
Sample : S3B0122-08 100X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e TEXACO - MW 30

Data File : C:\HPCHEM\1\DATA\030403\DATA-07.D\FID2B.CH Vial: 7
Acq On : 4 Mar 103 9:03 pm Operator: Michelle H
Sample : S3B0122-08 100X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Mar 5 13:48 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Mar 05 13:44:33 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\030403\DATA-08.D\FID1A.CH Vial: 8
Acq On : 4 Mar 20103 9:33 pm Operator: Michelle H
Sample : S3B0124-01 100,000X Inst : Aromagas
Misc : TEXACO PREMIUM GAS Multiplr: 1.00
IntFile : autoint1.e

Data File : C:\HPCHEM\1\DATA\030403\DATA-08.D\FID2B.CH Vial: 8
Acq On : 4 Mar 103 9:33 pm Operator: Michelle H
Sample : S3B0124-01 100,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Mar 5 13:49 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Mar 05 13:44:33 2003
Response via : Initial Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

| | | Compound | R.T. | Response | Conc | Units |
|---|---|---|---|---|---|---|
| | | **Internal Standards** | | | | |
| 6) | I | 1,2,3-TFB (PID) | 6.82f | 1973340 | 25.000 | ng |
| | | **System Monitoring Compounds** | | | | |
| 2) | S | 4-BFB (FID) | 15.19 | 3327715 | 81.171 | ng |
| 14) | S | 4-BFB (PID) | 15.19 | 4721252 | 43.949 | ng |
| | | **Target Compounds** | | | | |
| 1) | H | NWTPH-G | 14.00 | 683828198 | 10659.142 | ng |
| 3) | H | Washington TPH-G | 15.00 | 438318556 | 8624.818 | ng |
| 5) | | Napthalene #2 | 20.24 | 509859 | 33.733 | ug/L |
| 7) | | Benzene (PID) | 5.99f | 36958456 | 209.928 | ng |
| 8) | | Toluene (PID) | 9.31f | 120848786 | 726.222 | ng |
| 9) | | Ethylbenzene (PID) | 12.96f | 22087702 | 166.866 | ng |
| 10) | | m,p-Xylene (PID) | 13.29 | 96161164 | 606.021 | ng |
| 11) | | o-Xylene (PID) | 14.19 | 30823238 | 219.931 | ng |
| 12) | | MTBE (PID) | 3.95f | 7356927 | 167.485 | ng |
| 13) | | Naphthalene (PID) | 20.46f | 23185 | N.D. | ng |

(f)=RT Delta > 1/2 Window (m)=manual int.

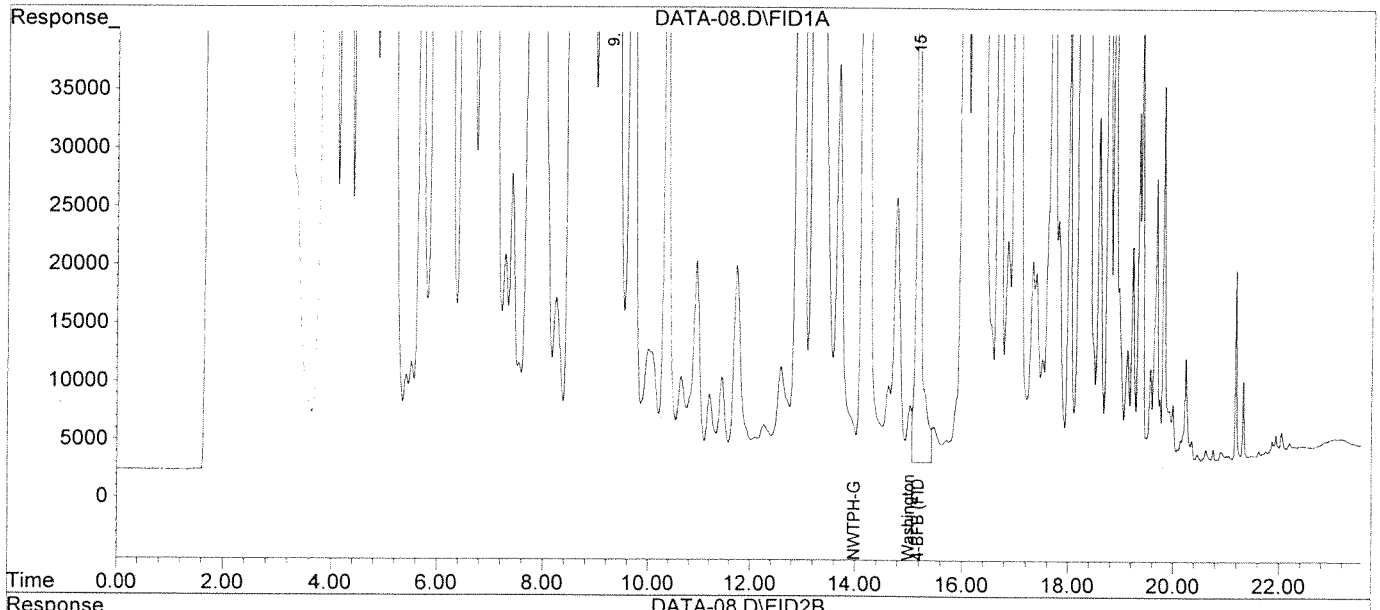
# Quantitation Report

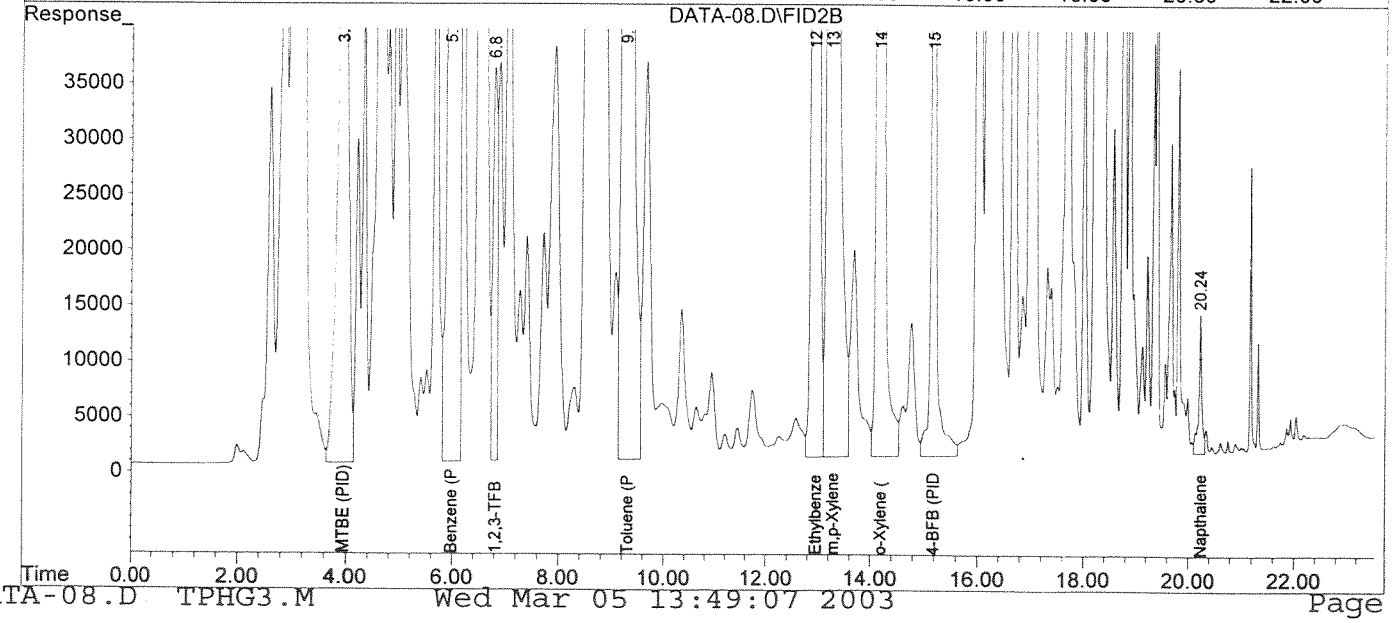
Data File : C:\HPCHEM\1\DATA\030403\DATA-08.D\FID1A.CH Vial: 8
Acq On : 4 Mar 20103 9:33 pm Operator: Michelle H.
Sample : S3B0124-01 100,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint1.e TEXACO PREMIUM GAS

Data File : C:\HPCHEM\1\DATA\030403\DATA-08.D\FID2B.CH Vial: 8
Acq On : 4 Mar 103 9:33 pm Operator: Michelle H
Sample : S3B0124-01 100,000X Inst : Aromagas
Misc : Multiplr: 1.00
IntFile : autoint2.e
Quant Time: Mar 5 13:49 19103 Quant Results File: TPHG3.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG3.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Mar 05 13:44:33 2003
Response via : Multiple Level Calibration
DataAcq Meth : TPHG3.M

Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Northwest Analytical, Inc.
Environmental Laboratory Network
www.nwlabs.com

East 11115 Montgomery, Suite B, Spokane, WA 99206-4776 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 906-9200 FAX 906-9210
20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 (541) 383-9310 382-7588

# CHAIN OF CUSTODY REPORT

**Work Order #:** 5330122

CLIENT: Lanz Firm
REPORT TO: Sheila Pachernegg
ADDRESS: P.O. Box 128, Spokane, WA 99210
PHONE: 487-4399 FAX: 487-4399

INVOICE TO:
P.O. NUMBER:

PROJECT NAME: Priceless Gas
PROJECT NUMBER:
SAMPLED BY: S. Pachernegg

**TURNAROUND REQUEST in Business Days***

Organic & Inorganic Analyses: 10 | 7 | 5 | 4 | 3 | 2 | 1 | <1 (STD.)

Petroleum Hydrocarbon Analyses: X (STD.) | 4 | 3 | 2 | 1 | <1

OTHER — Please Specify

*Turnaround Requests less than standard may incur Rush Charges

| CLIENT SAMPLE IDENTIFICATION | SAMPLING DATE/TIME | Fuel Fingerprint | MATRIX (W, S, O) | # OF CONT. | COMMENTS | NCA WO ID |
|---|---|---|---|---|---|---|
| 1. Priceless-MW2 | 2/18/03 1034 | X | W | 3 | 2 VOAs – pres. 1 amber – unpres | |
| 2. Priceless - MW1 | 2/18/03 1100 | X | W | 3 | 2 VOAs – pres 1 amber – unpres. | |
| 3. Texaco - MW5 | 2/18/03 1000 | X | W | 3 | 1 amber – unpres. 2 VOAs – pres | |
| 4. Priceless - MW3A | 2/18/03 1027 | X | Product | 2 | VOA – preserv. | |
| 5. Texaco unleaded gas east dispenser | 2/18/03 1240 | X | Product | 1 | VOA – unpres. | |
| 6. Texaco unleaded gas west dispenser | 2/18/03 1240 | X | Product | 1 | VOA – unpres. | |
| 7. Priceless - MW-3A | 2/18/03 1000 | X | Product | 1 | absorbent | |
| 8. Texaco-MW3D | 2/18/03 12:00 | X | | | | |
| 9. | | | | | | |
| 10. | | | | | | |
| 11. | | | | | | |
| 12. | | | | | | |
| 13. | | | | | | |
| 14. | | | | | | |
| 15. | | | | | | |

RELINQUISHED BY: Sheila Pachernegg — DATE: 2/18/03
PRINT NAME: Sheila Pachernegg — FIRM: — TIME: 2:40

RECEIVED BY: Dana Gibson
PRINT NAME: DANA GIBSON — FIRM: NCA — DATE: 2/18/03 — TIME: 2:40

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

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

ADDITIONAL REMARKS:

TEMP: 12.5°C

North Creek Analytical, Inc.
Environmental Laboratory Network
www.ncalabs.com

11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244 (425) 420-9200 FAX 420-9210
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 906-9200 FAX 906-9210
20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 (541) 383-9310 FAX 382-7588

# CHAIN OF CUSTODY REPORT

**Work Order #:** 53B0124

CLIENT: Lanz Firm
INVOICE TO: Same
REPORT TO: Sheila Pachernegg
ADDRESS: PO Box 128, Spokane, WA 99210
PHONE: 487-4399 FAX: 487-4399
P.O. NUMBER:
PROJECT NAME: Priceless Gas
PROJECT NUMBER:
SAMPLED BY: S. Pachernegg

**TURNAROUND REQUEST in Business Days***
Organic & Inorganic Analyses: 10 | 7 | 5 | 4 | 3 | 2 | 1 | <1
STD. Petroleum Hydrocarbon Analyses: X | 4 | 3 | 2 | 1 | <1
STD. OTHER Please Specify
*Turnaround Requests less than standard may incur Rush Charges.

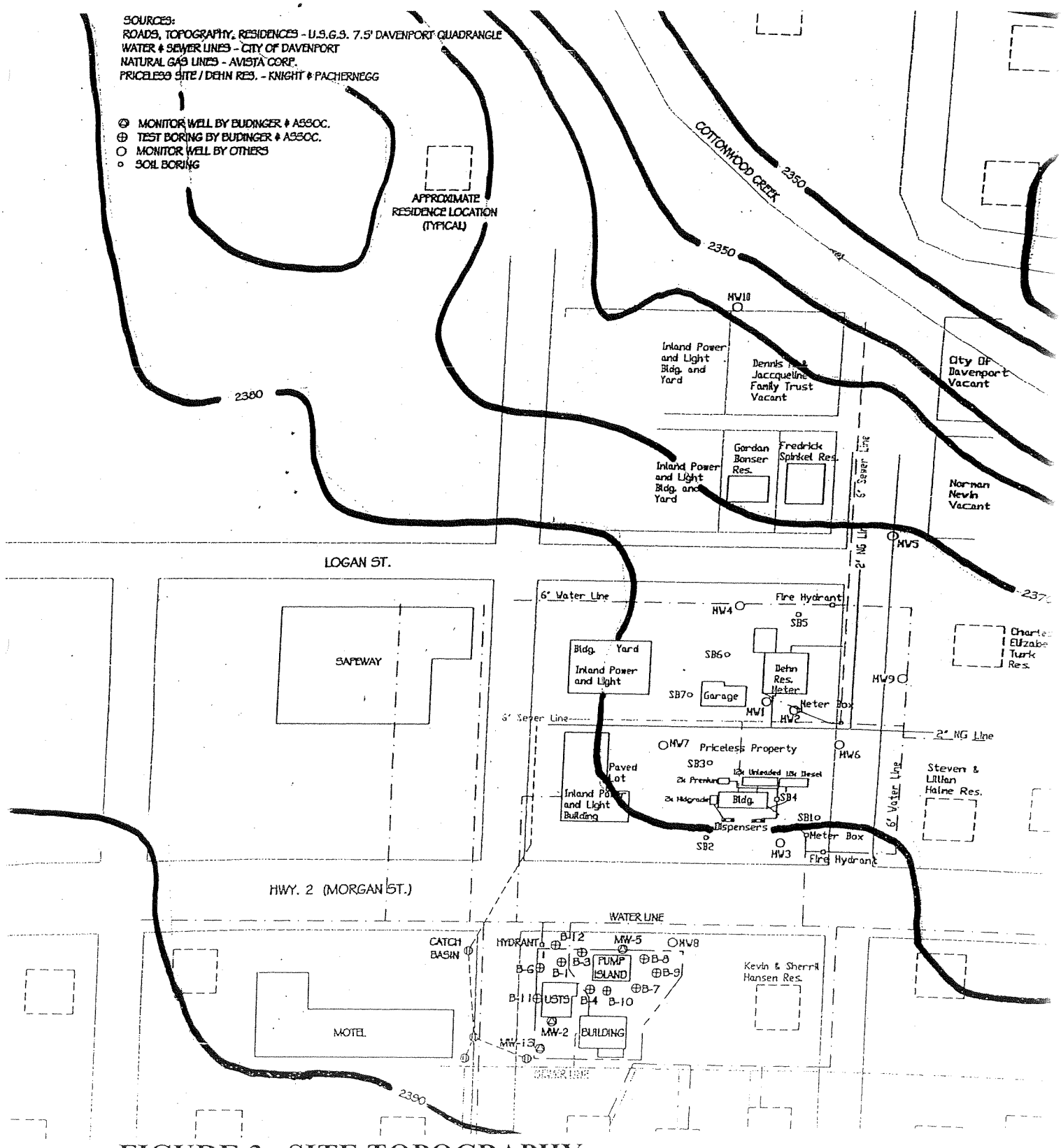
| CLIENT SAMPLE IDENTIFICATION | SAMPLING DATE/TIME | REQUESTED ANALYSES: Fuel fingerprint | MATRIX (W, S, O) | # OF CONT. | COMMENTS | NCA WO ID |
|---|---|---|---|---|---|---|
| 1. E. dispenser Texaco-prem. gas | 2/18/03 1300 | X | O | 2 | product | |
| 2. | | | | | | |
| 3. | | | | | | |
| 4. | | | | | | |
| 5. | | | | | | |
| 6. | | | | | | |
| 7. | | | | | | |
| 8. | | | | | | |
| 9. | | | | | | |
| 10. | | | | | | |
| 11. | | | | | | |
| 12. | | | | | | |
| 13. | | | | | | |
| 14. | | | | | | |
| 15. | | | | | | |

RELINQUISHED BY: Sheila Pachernegg DATE: 2/19/03
PRINT NAME: Sheila Pachernegg FIRM: TIME: 09.30
RECEIVED BY: Jana Olson
PRINT NAME: JANA OLSON FIRM: NCA DATE: 2/19/03 TIME: 0930

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

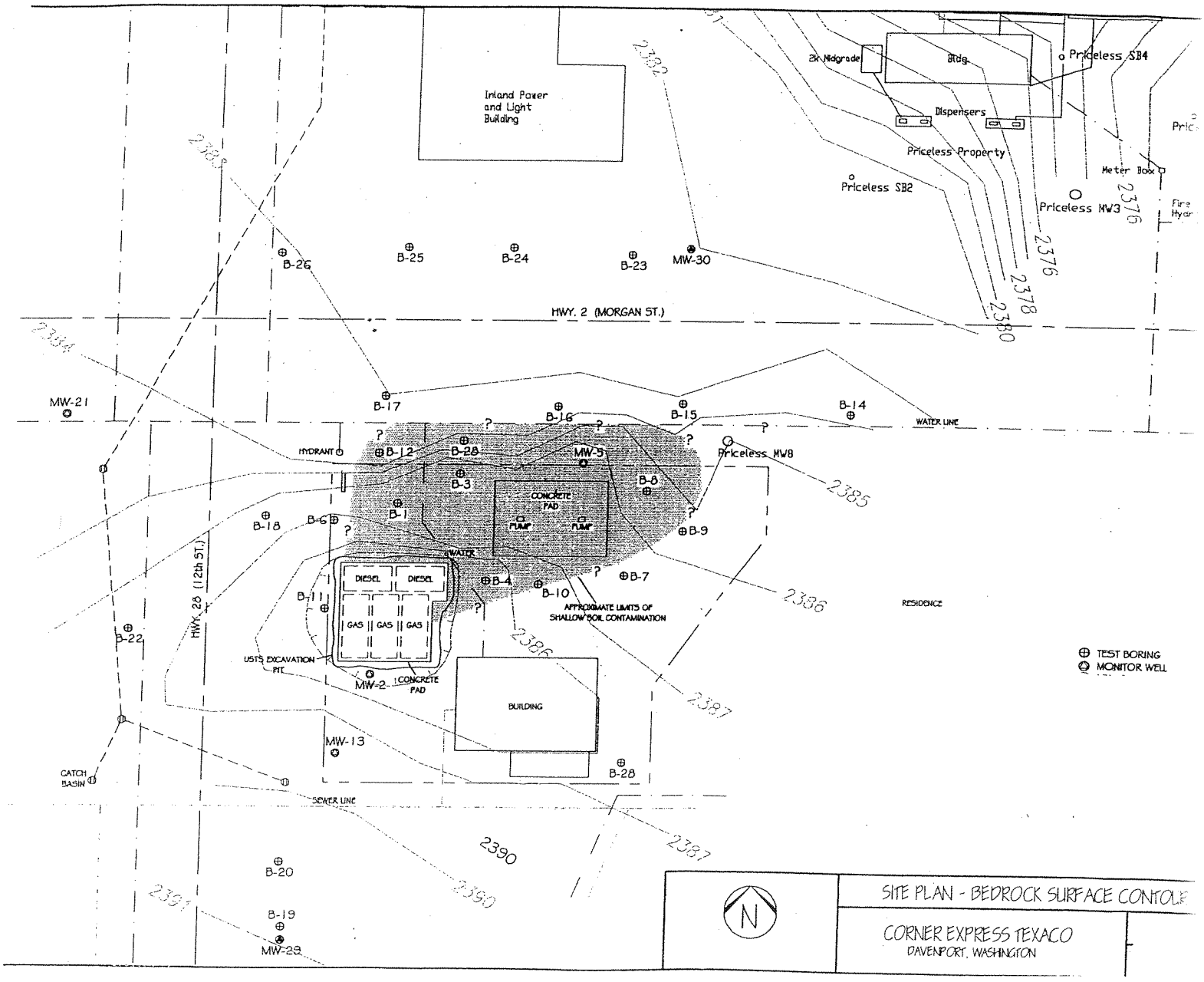
ADDITIONAL REMARKS:

TEMP: 3.5°C




# FIGURE 3. SITE TOPOGRAPHY

Washington State Department of Ecology




# FIGURE 4. BEDROCK SURFACE TOPOGRAPHY

Washington State Department of Ecology

X03390 Corner Express Texaco - GW Table -All Samples-1

**Table 2:**
**Laboratory Summary**
**Chemical Analysis - Water**

| Sample I.D. TOC Elev. | Sample Date | Benzene (ppb) | Toluene (ppb) | Ethyl-benzene (ppb) | Total Xylenes (ppb) | TPH-Gasoline (ppb) | MTBE (ppb) | Diesel (ppb) | WTE (feet) |
|---|---|---|---|---|---|---|---|---|---|
| MW-2 | 6/21/01 | 212 | 73.2 | 538 | 1,410 | 18,400 | 126 | | |
| 2389.5 | 6/24/01 | 133 | 55.8 | 791 | 1,570 | 19,500 | 93.9 | <250 | 2,377.3 |
| | 6/24/01 | | | | | | 62.6 | | |
| | 6/24/01 | | | | | | 73.2 | | |
| | 10/17/01 | 349 | 165 | 1,680 | 2,540 | 26,300 | 434 | 3,460 | 2,378.1 |
| | 02/18/03 | 55 | 40 | 250 | 1,580 | 13,000 | 14 | | |
| | 02/18/03 | 73 | 42 | 300 | 1,470 | | 19 | | |
| | 07/07/03 | 80 | 39 | 500 | 663 | 8,200 | 19 | | 2,379.0 |
| | 08/23/03 | 100 | 32 | 170 | 394 | 2,700 | <1 | | 2,377.0 |
| | 11/17/03 | 92 | 46 | 820 | 2,090 | 11,000 | 16 | | 2,375.6 |
| | 03/31/04 | 44 | 29 | 430 | 1,080 | 15,000 | 5 | | 2,380.1 |
| MW-5 | 06/24/01 | 226 | 83.2 | 570 | 1,460 | 20,900 | 69.2 | 1260 | 2,385.1 |
| 2388.2 | 10/17/01 | 513 | 124 | 719 | 1,340 | 15,700 | 241 | | 2,383.3 |
| | 02/18/03 | 72 | 41 | 410 | 1,110 | 7,100 | 2 | | |
| | 02/18/03 | 140 | 57 | 350 | 1,310 | | <20 | | |
| | 07/08/03 | 220 | 57 | 390 | 770 | 9,400 | 16 | | 2,383.5 |
| | 11/17/03 | 110 | 29 | 160 | 353 | 8,600 | 6 | | 2,383.7 |
| | 03/31/04 | 270 | 1,300 | 410 | 1,610 | 8,600 | 2 | | 2,385.3 |
| **MTCA Method A Cleanup Levels:** | | 5 | 1000 | 700 | 1000 | 800 | 20 | 500 | |

X03390 Corner Express Texaco - GW Table -All Samples-1

**Table 2:**
**Laboratory Summary**
**Chemical Analysis - Water**

| Sample I.D. TOC Elev. | Sample Date | Benzene (ppb) | Toluene (ppb) | Ethyl-benzene (ppb) | Total Xylenes (ppb) | TPH-Gasoline (ppb) | MTBE (ppb) | Diesel (ppb) | WTE (feet) |
|---|---|---|---|---|---|---|---|---|---|
| MW-8 | 06/21/01 | 588 | 27.4 | 30.9 | 33.1 | 4,180 | 65.2 | 640 | 2,376.2 |
| 2387.0 | 06/21/01 | | | | | | <10 | | |
| | 10/17/01 | 431 | 27.3 | 20.3 | 41.8 | 2,550 | 55.8 | 447 | 2,373.9 |
| | 02/18/03 | 440 | 9 | 5 | 9 | 1,900 | 15 | | |
| | 07/08/03 | 710 | 24 | 28 | 22 | 3,800 | 24 | | 2,374.2 |
| | 07/08/03 | 710 | 24 | 25 | 18 | | 31 | | |
| | 11/17/03 | 410 | 7 | 4 | 2 | 3,000 | 16 | | 2,373.9 |
| | 03/31/04 | 680 | 11 | 12 | 8 | 2,700 | 15 | | 2,377.5 |
| MW-13 | 06/24/01 | 163 | 82.9 | 321 | 1,240 | 12,200 | 58.8 | 675 | 2,379.6 |
| 2390.1 | 06/24/01 | 185 | 98.0 | 372 | 1,430 | 14,000 | 74.6 | | 2,379.6 |
| | 10/17/01 | 116 | 72.1 | 371 | 2,050 | 20,700 | 93.5 | 3630 | 2,375.0 |
| | 11/02/01 | 206 | 148 | 826 | 4,240 | 44,500 | | | 2,374.8 |
| | 07/07/03 | 86 | 27 | 160 | 286 | 3,100 | 2 | | 2,378.5 |
| | 11/17/03 | 52 | 8 | 63 | 60 | 2,300 | <1 | | 2,375.6 |
| | 03/31/04 | 120 | 37 | 100 | 710 | 3,600 | <1 | | 2,380.1 |
| **MTCA Method A Cleanup Levels:** | | **5** | **1000** | **700** | **1000** | **800** | **20** | **500** | |

**Table 2:**
**Laboratory Summary**
**Chemical Analysis - Water**

| Sample I.D. TOC Elev. | Sample Date | Benzene (ppb) | Toluene (ppb) | Ethyl-benzene (ppb) | Total Xylenes (ppb) | TPH-Gasoline (ppb) | MTBE (ppb) | Diesel (ppb) | WTE (feet) |
|---|---|---|---|---|---|---|---|---|---|
| MW-21 | 10/17/01 | 0.687 | <1.0 | <1.0 | 1.61 | <100 | <5 | <250 | 2,375.7 |
| 2390.0 | 11/02/01 | 0.532 | <0.5 | <0.5 | 2.14 | <50 | | | 2,375.5 |
| MW-29 | 10/17/01 | <0.5 | <1.0 | <1.0 | <1.5 | <100 | <10 | NT | 2,380.3 |
| 2394.0 | | | | | | | | | |
| **MTCA Method A Cleanup Levels:** | | 5 | 1000 | 700 | 1000 | 800 | 20 | 500 | |

X03390 Corner Express Texaco - GW Table -All Samples-1

**Table 2:**
**Laboratory Summary**
**Chemical Analysis - Water**

| Sample I.D. TOC Elev. | Sample Date | Benzene (ppb) | Toluene (ppb) | Ethyl-benzene (ppb) | Total Xylenes (ppb) | TPH-Gasoline (ppb) | MTBE (ppb) | Diesel (ppb) | WTE (feet) |
|---|---|---|---|---|---|---|---|---|---|
| MW-30 | 10/17/01 | 335 | 117 | 204 | 957 | 10,000 | 100.0 | 1,780 | 2,372.6 |
| 2385.0 | 02/18/03 | 130 | 19 | 44 | 112 | 6,400 | <1 | | |
| | 07/09/03 | 130 | 17 | 64 | 59 | 4,600 | <1 | | 2,383.3 |
| | 11/17/03 | 180 | 35 | 93 | 184 | 5,000 | <1 | | 2,372.6 |
| | 03/31/04 | 380 | 26 | 45 | 58 | 2,400 | 4 | | 2,374.2 |
| | | | | | | | | | **DTW (feet)** |
| Excavation | 08/23/03 | 110 | 45 | 590 | 625 | 4,500 | 30 | | 11.5 |
| | 11/17/03 | <1 | <1 | <1 | <1 | 240 | <1 | | 10.8 |
| | 03/31/04 | | | | | | | | 6.5 |
| **MTCA Method A Cleanup Levels:** | | **5** | **1000** | **700** | **1000** | **800** | **20** | **500** | |

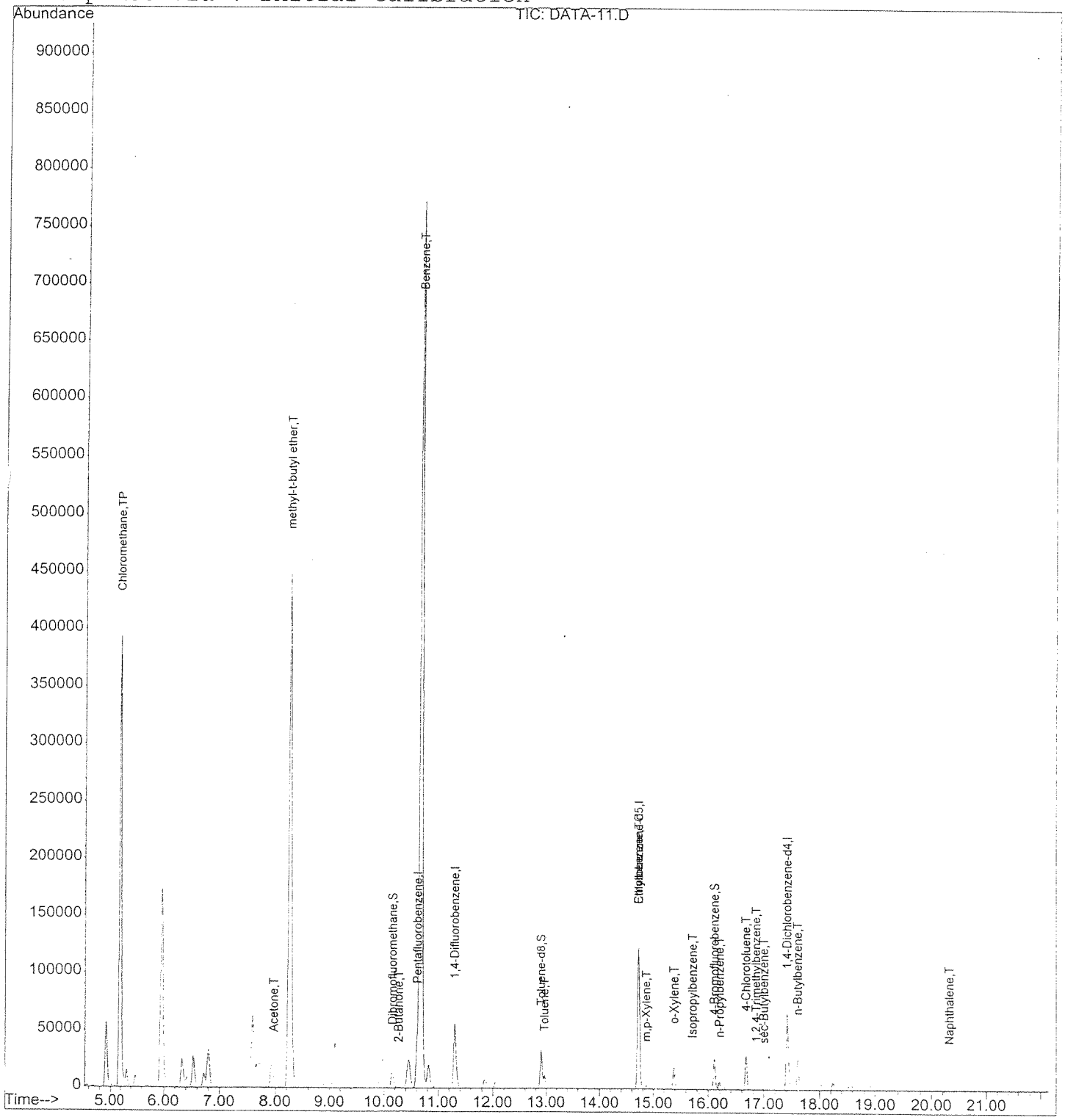
Quantitation Report

Data File : C:\HPCHEM\1\DATA\5-040804\DATA-11.D
Acq On : 8 Apr 2004 4:09 pm
Sample : S4C0142-01
Misc : 5X / 2ml
MS Integration Params: rteint.p
Quant Time: Apr 9 8:13 2004

Vial: 11
Operator: Chris Willia
Inst : GCMS-2
Multiplr: 1.00

Quant Results File: 122203.RES

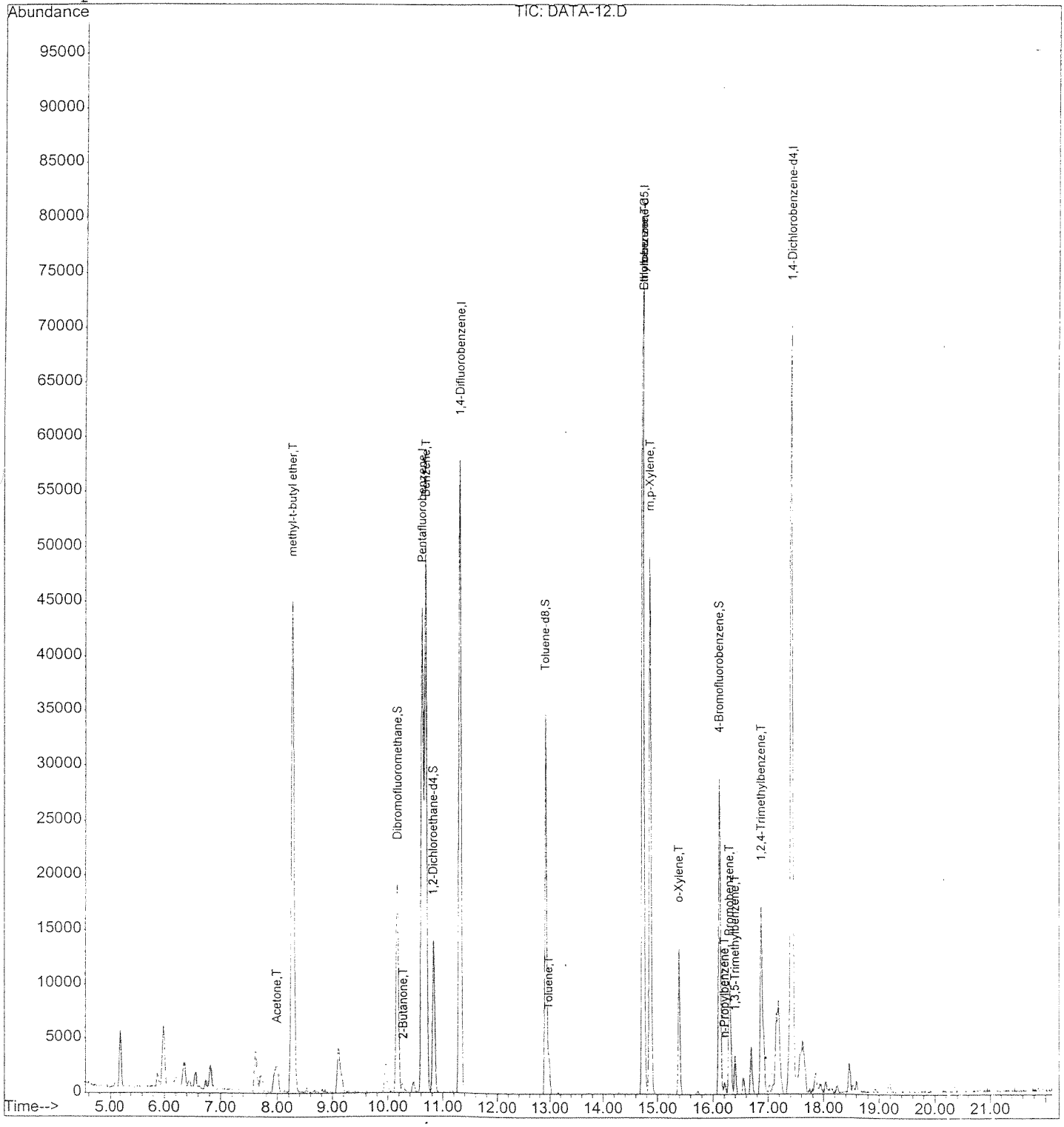
Method : C:\HPCHEM\1\METHODS\122203.M (RTE Integrator)
Title : 8260B
Last Update : Fri Apr 09 08:13:09 2004
Response via : Initial Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\5-040804\DATA-12.D Vial: 12
Acq On : 8 Apr 2004 4:40 pm Operator: Chris Willia
Sample : S4C0142-02 Inst : GCMS-2
Misc : 100X / .1ml Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 9 8:13 2004 Quant Results File: 122203.RES

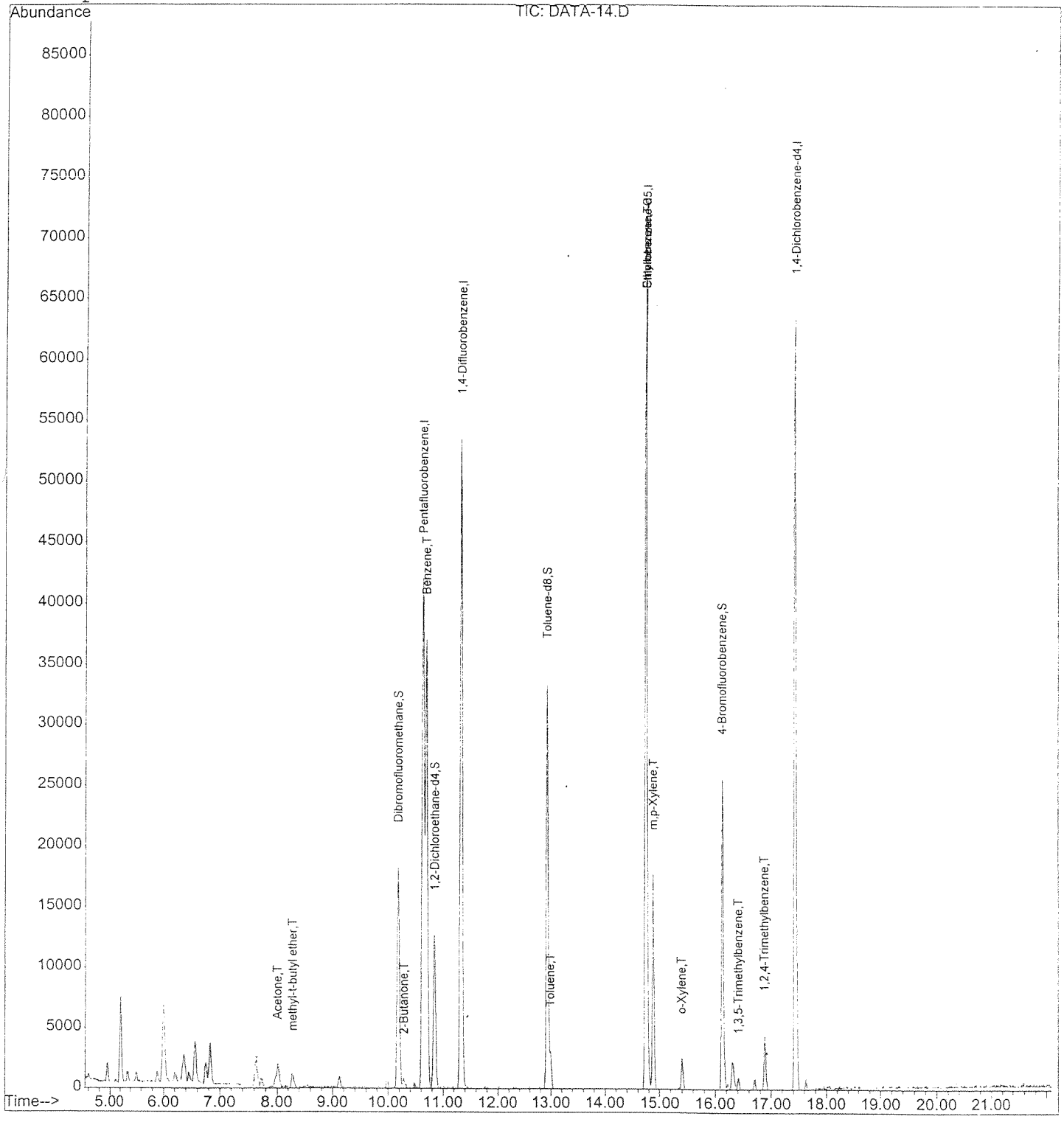
Method : C:\HPCHEM\1\METHODS\122203.M (RTE Integrator)
Title : 8260B
Last Update : Fri Apr 09 08:13:09 2004
Response via : Initial Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\5-040804\DATA-14.D Vial: 14
Acq On : 8 Apr 2004 5:41 pm Operator: Chris Willia
Sample : S4C0142-03 Inst : GCMS-2
Misc : 1000X / .01ml Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 9 8:13 2004 Quant Results File: 122203.RES

Method : C:\HPCHEM\1\METHODS\122203.M (RTE Integrator)
Title : 8260B
Last Update : Fri Apr 09 08:13:09 2004
Response via : Initial Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA\5-040804\DATA-15.D Vial: 15
Acq On : 8 Apr 2004 6:11 pm Operator: Chris Willi
Sample : S4C0142-04 Inst : GCMS-2
Misc : 10X / 1ml Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Apr 9 8:13 2004 Quant Results File: 122203.RES

Method : C:\HPCHEM\1\METHODS\122203.M (RTE Integrator)
Title : 8260B
Last Update : Fri Apr 09 08:13:09 2004
Response via : Initial Calibration

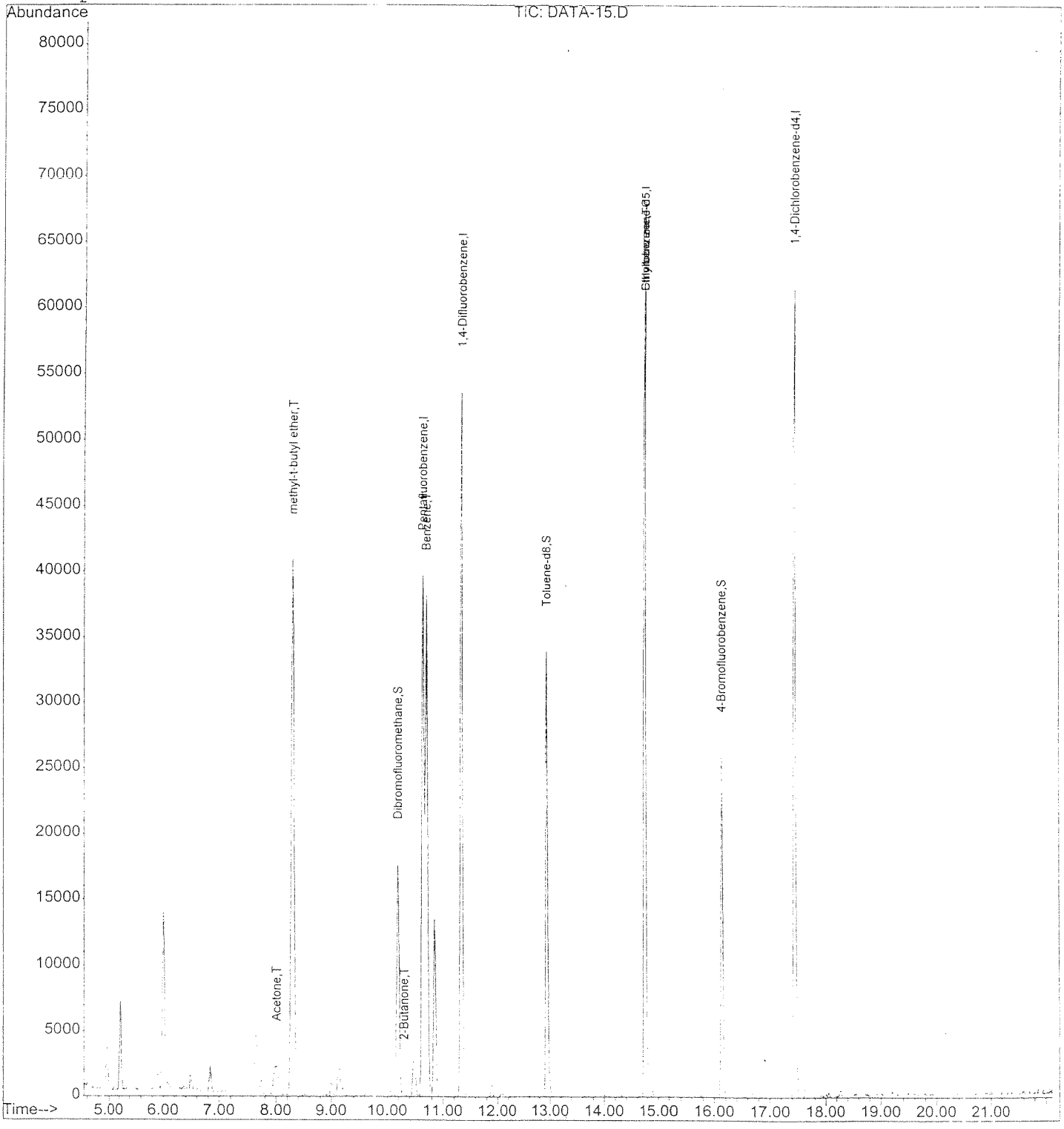


Exhibit A

# FINAL
# CLEANUP ACTION PLAN
# (CAP)

**For the Former**

## PRICELESS GAS

**1110 Morgan Street**
**Davenport, Washington**

JUNE 2003

Washington State Department of Ecology

# Table of Contents

FINAL CLEANUP ACTION PLAN
PRICELESS GAS SITE

# 1.0 INTRODUCTION

This Final Cleanup Action Plan (CAP) has been prepared for the former Priceless Gas, a leaking underground storage tank (LUST) site, located at 1110 Morgan Street, Davenport, Washington. (See Site Map, Figures 1 and 2)

The CAP is a required element of the site cleanup process as provided for under the Model Toxics Control Act Cleanup Regulation (MTCA), Chapter 173-340 WAC. This CAP describes the selected cleanup action for the site and provides an opportunity for public review and comment. The specific requirements of the CAP are described in WAC 173-340-380(1) and (2). An outline of these requirements is provided in Table 1.

The preparation of the CAP is one step in a process that documents the progress of a site investigation and cleanup. The cleanup actions selected are based upon a review of site investigation reports and the regulatory requirements of MTCA.

## 1.1 DECLARATION

Ecology has determined that the selected final cleanup action will be protective of human health and the environment. As provided for under RCW 70.105D.030(1)(b), Ecology has given preference to those remedial actions that provide a permanent solution.

## 1.2 APPLICABILITY

The cleanup levels described in this cleanup action plan were developed specifically for the Priceless Gas Site. The cleanup levels were developed as an integral part of the selected remedial actions for this site and should not be considered to be applicable to other sites.

## 1.3 ADMINISTRATIVE RECORD

Reports and documents that were considered in the development of this cleanup action plan are on file in the administrative record for the Site. Specific investigative reports and other significant documents are identified in the reference section. The complete administrative record for the Site is available for public review by appointment at Ecology's Eastern Regional Office, located at 4601 N. Monroe Street, Spokane, WA 99205-1295.

### 1.4 PREVIOUS WORK

The CAP provides a description of the Priceless Gas facility and an historical review of activities at the Site. Also, previous investigative work is summarized and referenced as part of the CAP. Investigative and interim action reports reviewed in the preparation of this document include the following:

- Remedial Investigation / Feasibility Study - Priceless Gas (Sheila Pachernegg, 2001)
- Remedial Investigation – Priceless Gas (Sheila Pachernegg, 2000)
- Site Investigation, UST Removal and Remedial Activities Report – Priceless Gas (Olympus Environmental, 1999)
- Remedial Investigation / Feasibility Study – Corner Express (Budinger and Associates, 2002)

## 2.0 SITE BACKGROUND

### 2.1 SITE HISTORY

The site of the former Priceless Gas is located at 1110 Morgan Street in Davenport, Washington, within Lincoln County, approximately 30 miles west of Spokane. The site is located on the northwest corner of Morgan Street (Highway 2) and 11$^{th}$ Street. It is bounded by Morgan Street on the south and 11$^{th}$ Street on the east. (See Site Map, Figure 1).

The facility was most recently operated as a retail service station and convenience store by Merit Truck Stop, Inc. (Merit) / F.O.F. Inc. Merit is represented by Mr. Peter Hirschburg. The facility was closed in June 1998 with the operational closure of the four underground storage tanks (UST). The four USTs consisted of: one 12,000-gallon capacity unleaded gasoline tank; one 10,000-gallon diesel tank; one 3,000-gallon premium gasoline tank; and one 3,000-gallon regular gasoline tank.

On November 13, 1998, Ecology's Emergency Spill Response Team personnel responded to a call from Bruce Dehn, the owner of a residence located directly north of the Priceless Gas facility. Mr. Dehn was concerned with an apparent gasoline odor in his home and stated that gasoline product was seeping through the rock wall of his basement.

Subsequent investigations confirmed that there had been a release(s) from the UST system at the Priceless Gas site. It was also determined that the Priceless Gas site was a source of the gasoline-contaminated groundwater infiltrating the basement of the Dehn residence.

As part of an independent action in December 1998, Merit provided for the decommissioning and removal of all of the USTs. In January 1999, all of the pumps and associated product piping were removed. Along with the UST system removal, several hundred cubic yards of petroleum-contaminated soil was removed from the site.

By a letter dated January 22, 1999, Ecology issued a proposed finding of potential liability status to Merit Truck Stop, Inc. as provided for under MTCA. A letter of response to this proposed finding was submitted to Ecology by Peter Hirschburg on behalf of Merit.

In a letter dated March 30, 1999, Ecology acknowledged Mr. Hirschburg's response and notified Merit of their final status as a "potentially liable person" (PLP) as provided for under RCW 70.105D.040.

Ecology issued Enforcement Order No. DE 99-TC-E102, effective June 29, 1999, directing Merit to conduct specific remedial actions in response to the release at the Priceless Gas site. The Order directed Merit to provide for a Remedial Investigation/Feasibility Study (RI/FS) regarding the confirmed release.

The RI, along with earlier interim actions, included: the installation of seventeen (17) soil borings, ten (10) of which were developed into monitoring wells; four (4) separate tank excavations; approximately ten (10) backhoe trenches; soil sampling from each of the trenches, soil borings and tank excavations; groundwater sampling from the tank excavations and each of the monitoring wells; and the removal of approximately 700 cubic yards of petroleum-contaminated soil.

The Final RI/FS Report was received by Ecology on April 9, 2001. The RI/FS identified petroleum contaminated soils and contaminated groundwater associated with a release(s) from the Priceless Gas Site. It also suggested that there may be off-site, hydraulically upgradient, sources that have contributed to the groundwater contamination.

## 2.2 SITE INVESTIGATIONS

There have been two formal investigations at this site related to the suspected, and later confirmed, release(s) of petroleum product (gasoline). The initial investigation was in response to the emergency represented by the report of gasoline vapors and gasoline-contaminated groundwater seeping into the basement of a private residence. This initial investigation included Ecology's first response and subsequent remedial actions taken prior to the RI/FS. This phase of work is documented in a report titled " Site Investigation, UST Removal and Remedial Activities Report – Priceless Gas" (Olympus Environmental, 1999).

The RI/FS was conducted in response to an Ecology enforcement order issued under the authority of MTCA. The investigation served to characterize the nature and extent of soil and groundwater contamination originating from release(s) at the site and to identify and

evaluate appropriate cleanup strategies. The RI/FS Report provides a comprehensive documentation of the work completed at the site, including the initial response.

### 2.2.1 Site Investigation, UST Removal and Remedial Activities Report

On November 13, 1998, Ecology's Emergency Spill Response Team personnel responded to a call from the homeowner (Bruce Dehn) adjacent to the Priceless Gas property regarding gasoline vapors in his home and possible gasoline product seeping through the rock wall in his basement. Ecology initiated an emergency investigation to determine the source of the petroleum. Four USTs at the Priceless Gas site were inspected and all remaining product was pumped out by Ecology's contractor.

During the emergency response, a test pit was dug on the Priceless Gas property just north of a 10,000-gallon diesel UST and a 12,000-gallon unleaded gasoline UST. Another test pit was excavated directly north of the Priceless Gas site at the south edge of the resident's property. Analytical results of the soil samples obtained from each of the excavations confirmed diesel and gasoline contamination above MTCA Method A Cleanup levels for total petroleum hydrocarbons (TPH) and gasoline constituents benzene, toluene, ethylbenzene and xylenes (BTEX).

On November 25, 1998, Olympus Environmental installed two monitoring wells at the residential property. Groundwater samples obtained from the monitoring wells identified TPH and BTEX contamination above MTCA Method A Cleanup levels.

The decommissioning and removal of the USTs was completed in December 1998. The pumps and piping were removed in January 1999. Soil samples obtained from each of the UST excavations identified TPH and BTEX contamination above MTCA Method A Cleanup levels, confirming a release(s) from the UST system.

In a letter dated March 30, 1999, after considering Mr. Hirschburg's response to Ecology's proposed finding of PLP status, Ecology notified Merit of their final status as a "potentially liable person" (PLP) as provided for under RCW 70.105D.040.

### 2.2.2 Remedial Investigation / Feasibility Study

In June 1999 Ecology issued Enforcement Order No. DE 99-TC-E102 directing Merit Truck Stop, Inc. to complete an RI/FS.

The purpose of the RI/FS was to define and characterize the contamination associated with the site and to develop and evaluate cleanup options. The completed RI/FS report dated April 9, 2001 documents the investigation and findings.

The RI concludes, in part, that petroleum contamination as gasoline and to a lesser extent, diesel, impacts the soil and groundwater at this site. The petroleum contamination is the

result of a release(s) from the UST system. The investigation also indicates that contamination from this site is responsible for the gasoline-contaminated groundwater that impacted the adjacent residence in 1998.

The RI also found that groundwater contamination has migrated off-site as evidenced by dissolved gasoline constituents in two hydraulically downgradient monitoring wells (MW-4 and MW-6). Cottonwood Creek, located approximately 500 feet north and downgradient of the site has apparently not been impacted as evidenced by groundwater samples taken from MW-10 located adjacent to the creek (See Figure 2).

Gasoline, as free-phase product, was found in an upgradient monitoring well (MW-3), suggesting an off-site source may be a significant contributor to the groundwater contamination. The former Corner Express (Texaco), located immediately to the south and apparently upgradient seemed a likely source. However, a subsequent analysis of the gasoline found in MW-3 identified characteristics significantly different than what was found at either the Corner Express or the Priceless Gas site. It is possible that the product in this well may have originated from an as yet unidentified source. Utility lines, including water and sewer lines are located within 20 feet of this well and represent a potential transport pathway for an as yet unidentified source of contamination. There is a recent history of leaks and repairs of these lines. Regardless, the gasoline found in this well apparently affects a very limited area and does not appear to be the result of an active source.

### 2.2.3 Other Investigations

The former Corner Express, referenced above, was the subject of an Ecology emergency enforcement order in December 2000. This order was issued, in part, due to the discovery of free-phase gasoline in MW-3 and concerns with the status of the USTs at the Corner Express site. The order directed Marvin Bain, the owner of the site, to provide for the emptying of the UST system; a complete inspection and testing of each UST system component and a site assessment.

## 2.3 PHYSICAL SITE CHARACTERISTICS

### 2.3.1 Topography and Climate

The surface topography of the Site itself is nearly flat, in part due to historical backfilling and leveling of the property associated with the commercial development. However, the general area is characterized by a gentle but obvious slope towards Cottonwood Creek, approximately 500 feet to the north. The surface topography indicates a north trending drainage pattern towards the creek with a drop in surface elevation of approximately 18 feet from the Priceless Gas site to Cottonwood Creek (See Figure 2).

A storm water drainage system directs discharge waters to the north of the site, where they eventually flow into the creek. Excess storm water, not captured by the drainage system, flows towards the creek. As a result, the flow of the creek responds quickly to individual storm events and seasonal weather patterns.

This area receives approximately 15 inches of precipitation annually. Approximately 12 inches of precipitation falls between October and March, with nearly half of that falling as snow. Winters are cool and damp, and summers are generally warm and dry.

### 2.3.2 Regional Geology and Soils

The bedrock in this region consists predominantly of a sequence of basalt flows known as the Columbia River Group. The upper part of this basalt group is known as the Wanapum Formation. Basalt bedrock extends to a depth of several hundred feet to several thousand feet in this region. The shallow basalt is predominantly weathered and fractured, becoming more dense and competent with depth. Basalt across this site is encountered from the near surface to approximately 12 feet below ground surface (bgs).

The soil horizon at this Site is thin, typically 2 to 12 feet in depth, and comprised of native and non-native materials primarily sand, gravel and silt. Site development activities have disturbed most of the soils in the immediate area. The former tank beds extend to a depth of 8-12 feet bgs. The deepest soils on-site are in the area along the northern perimeter of the property where the two largest USTs were located. The petroleum-contaminated soil from each of the tank beds has been removed, treated off-site and replaced with clean backfill material.

### 2.3.3 Hydrogeology

There are several significant, hydraulically distinct, aquifers within the Columbia River Basalt. Aquifers are typically found at or near the interface of individual basalt flows where soil deposition, weathering and fracturing of the basalt has occurred. The density and thickness of individual basalt flows has resulted in generally low vertical hydraulic conductivity values, characteristic of confined aquifer systems. However, there is evidence of localized occurrences where vertical fracturing within individual basalt units significantly increases the vertical conductivity resulting in unconfined aquifer conditions.

At this site and the near vicinity, the basalt bedrock surface dips generally to the north. The basalt surface is weathered and irregularly fractured. Features within the fractured basalt are a controlling mechanism on the behavior of the shallow unconfined aquifer.

During times of high groundwater, typically late fall and spring, the water table rises above the basalt surface and into the shallow soils. At these times groundwater flow patterns are influenced by the inherent characteristics of the shallow soils. The soils

throughout the area of concern are a heterogeneous mix of silt, sand and gravel, mostly disturbed native soils, and backfill material. There were ten monitoring wells installed as part of the RI. Static water levels measured in these monitoring wells range from approximately 3 feet to 15 feet bgs. Seasonal fluctuation in the water levels has been measured at up to 15'.

Groundwater flow direction at this site is generally to the north-northeast, towards Cottonwood Creek. However, the groundwater flow characteristics and contaminant transport mechanisms are significantly affected by the seasonal changes in the water table elevation.

### 2.3.4 Surface Water

Cottonwood Creek is approximately 500 feet north, hydraulically downgradient of the Site. This is the nearest potential surface water receptor. There is clear evidence of hydraulic continuity between the creek and the shallow groundwater table with the groundwater likely contributing to the flow of the creek in this area.

# 3.0 NATURE AND EXTENT OF CONTAMINATION

## 3.1 SOIL

The contamination of the soils in the area of this site is in part a direct result of releases from the UST system. Contact with contaminated groundwater represents a secondary source of contamination for some of the shallow soils. In this case the soils have been impacted by direct contact with contaminated groundwater as it rises into the soil column during seasonal and storm related fluctuations of the water table. As the water table falls, some of the petroleum constituents have adhered to the soil, in effect contaminating soils above the saturated zone.

Remedial actions at the site have included the removal of over 725 cubic yards of petroleum-contaminated soil. The RI demonstrates that most of the petroleum contaminated soil at the site has been removed with the remaining contamination limited to those soils that are impacted by fluctuations in the water table.

As a result of the site work associated with the UST removals, building demolition and the excavation of contaminated soils, the ground surface is mostly compacted backfill material.

## 3.2 GROUNDWATER

Petroleum-contaminated groundwater extends across this site and to the north towards Cottonwood Creek. The groundwater contamination is primarily the result of the release of petroleum products, both gasoline and diesel, from the former UST system.

Priceless Gas is located northeast and hydraulically downgradient from the former Corner Express facility. There have been confirmed releases/leaks from the UST system at Corner Express site and the facility is a documented source of groundwater contamination as gasoline. An RI/FS for this site has been conducted pursuant to Ecology enforcement orders issued under the authority of MTCA. An enforcement order was issued in January 2003 directing the implementation of a final cleanup action plan for the Corner Express site.

The RI for the Corner Express site indicates that it has been a contributing source of groundwater contamination, as gasoline, in this area. The RI confirms that gasoline contaminated groundwater has, in fact, migrated off-site and is now co-mingled with the southern portion of the contaminant plume at the Priceless Gas site.

Analysis of the chromatograms was performed for groundwater samples taken from the wells at the Corner Express Site and the Priceless Gas Site. The analyses identify distinctive contaminant characteristics in each of the monitoring wells. This information assists in differentiating between the likely sources of groundwater contamination in each of the monitoring wells. Groundwater contaminant signatures associated with the Corner Express site are identified in monitoring wells, specifically Corner Express MW-30 and Priceless Gas MW-8. Groundwater in monitoring wells further downgradient from the Corner Express site does not exhibit contaminant signatures readily attributable to the Corner Express site. This suggests that contamination from the Corner Express site has impacted the southernmost portion of the Priceless Gas site. It is not clear that this offsite source has had impacts much further north than Corner Express MW-30.

## 3.3 SURFACE WATER

The surface water of Cottonwood Creek has not been sampled. The RI included the installation of a monitoring well immediately upgradient of the Creek. Sampling of that monitoring well, MW-10, has demonstrated that groundwater immediately upgradient and tributary to the Creek has not been impacted.

## 3.4 RISKS TO HUMAN HEALTH AND THE ENVIRONMENT

Concerns associated with the contamination originating at this Site are generally a function of the shallow depth of the impacted groundwater and contaminated soils. Sensitive potential receptors include Cottonwood Creek. Potential human exposure scenarios include dermal exposure through direct contact with affected media and inhalation hazards associated with vapor pathway migration of volatile organics.

There are no domestic water wells located hydraulically downgradient between this site and Cottonwood Creek. The only known water well in the immediate area is a shallow hand-dug irrigation well located approximately 400 feet southwest and upgradient of the site. This well has not been impacted.

The Dehn family occupies a residence located approximately 50 feet north, and generally downgradient, of the Site. In November 1998 the Dehn residence was affected by gasoline vapors in the basement. Gasoline vapors infiltrated into the basement along with gasoline contaminated groundwater. The cause of the incident has since been determined to be a release(s) from the UST system at the Priceless Gas site. This was the only residence affected. Emergency interim actions served to resolve the situation.

Emergency interim actions have included the removal of all the USTs at the Priceless Gas site and the removal of over 725 cubic yards of gasoline-contaminated soils.

The incident at the Dehn residence coincided with a time of high groundwater levels. Ecology has not received any recent reports of gasoline vapors at the residence, even though there have been recurring high groundwater events.

Although there have been no reports of recurring problems at the residence, it is clear that the potential for contaminated groundwater to significantly impact this residence needs to be considered. The potential impacts include the risk associated with the inhalation of volatile organics as well as an explosion hazard.

Ecology anticipates that the proposed cleanup actions will ultimately resolve any remaining concerns with the contamination originating at this Site. Relevant considerations in evaluating the remaining concerns at this Site include the following:

- Contaminated soils associated with the Priceless Gas site continue to be a source, albeit minor source, of groundwater contamination.

- Residual groundwater contamination does not pose a threat to any known domestic water source. There are no known appropriative uses of the shallow aquifer in the near vicinity.

- There is a reduced but still notable potential of a vapor inhalation hazard. This risk has been substantially mitigated by interim cleanup actions completed shortly after the initial reports of vapors at the nearby residence.

- Exposure through direct contact is a concern due to the lack of any cover over the affected area, and the shallow contaminated soils and groundwater. Any future plans for site activities will need to be considerate of the potential for exposure.

# 4.0 CLEANUP STANDARDS

MTCA requires the establishment of site-specific cleanup standards. Two primary components of these cleanup standards are cleanup levels and points-of-compliance. Cleanup levels establish the concentration at which a contaminant of concern does not pose a threat to human health or the environment. Contaminated media that exceed the established cleanup level are the subject of selected remedies that serve to prevent exposure to the contaminant. Points of compliance are strategically selected locations within the affected or potentially affected area where cleanup levels must be met.

## 4.1 OVERVIEW

The process for establishing cleanup levels includes the following:

- Determining the appropriate method for establishing cleanup levels;
- Developing cleanup levels for individual contaminants of concern for each affected media;
- Determining which contaminants are most significant in terms of potential risk in each media;
- Selecting appropriate cleanup levels based on the evaluated risks

The MTCA Cleanup Regulation provides three options for determining appropriate cleanup levels: Methods A, B, and C. These options are to be evaluated with regard to the following considerations:

- Method A may be used to establish cleanup levels at routine sites with relatively few contaminants of concern.
- Method B is the standard method for determining appropriate cleanup levels and may be applied at any site.
- Method C is a conditional method used when a cleanup under Method A or B is technically impossible to achieve or when the application of those cleanup levels does not adequately address the environmental concerns. Method C may also be applied at qualifying industrial sites.

The MTCA Cleanup Regulation describes the factors to be considered in determining whether a particular substance should be used as an indicator for a site. Ecology may eliminate from consideration those substances that are deminimis contributors to the overall threat to human health and the environment. WAC 173-340-703(2) provides that a substance may be eliminated from further consideration based on the following:

- The toxicological characteristics of the substance, which determine the likelihood that it will have significant adverse affects on human health or the environment;
- The chemical and physical characteristics of the substance which determine how persistent it may be under the known environmental conditions;

- The natural background concentration level of the substance;
- The frequency of detection.

## 4.2 SITE CLEANUP LEVELS

The RI has documented soil and groundwater contamination associated with a release from the UST system at this site. Cleanup levels have been developed for each of these affected media.

### 4.2.1 Soil Cleanup Levels

Soil cleanup levels have been established for the site using MTCA Method A as provided for in WAC 173-340-740(2). This method was determined to be consistent with WAC 173-340-704 (1) which provides that MTCA Method A cleanup levels are appropriate for those sites with few hazardous substances, undergoing a routine cleanup action as defined in WAC 173-340-200.

Cleanup levels have been defined for the gasoline constituents Benzene, Toluene, Ethylbenzene, Xylenes and MTBE. Method A cleanup levels will also be applied to total petroleum hydrocarbons(TPH) occurring as gasoline and diesel.

| CONSTITUENT | CLEANUP LEVEL SOIL | SAMPLE RESULTS FROM RI |
|---|---|---|
| BENZENE | 0.03 | ND – 7.08 |
| TOLUENE | 7 | ND – 52.7 |
| ETHYLBENZENE | 6 | ND – 36 |
| XYLENES | 9 | ND – 170 |
| MTBE | 0.10 | ND – 5.74 |
| TPH(G) | 30 | ND - 1,730 |
| TPH(D) | 2,000 | ND – 111 |

*NOTE:* **All values in mg/kg (ppm)**

#### *4.2.1.1 Points of Compliance - Soil*

The point of compliance for meeting soil cleanup levels at this site was selected on the basis of the provisions of WAC 173-340-740(6). The point of compliance for soils is the entire site.

### 4.2.2 Groundwater Cleanup Levels

Groundwater cleanup levels have been established for the site using MTCA Method A as provided for in WAC 173-340-720(3). Although the groundwater in this area is an unlikely source of potable groundwater, Ecology has chosen to apply the more conservative cleanup values defined under Method A. The conservative approach was selected out of consideration of the potential threat to Cottonwood Creek and historical problems with increased exposure risk due to the high groundwater conditions.

| CONSTITUENT | CLEANUP LEVEL GROUNDWATER | SAMPLE RESULTS FROM RI |
|---|---|---|
| BENZENE | 5 | 4.81 – 41,800 |
| TOLUENE | 1,000 | .624 – 3,730 |
| ETHYLBENZENE | 700 | ND - 2,040 |
| XYLENES | 1,000 | ND - 5,740 |
| MTBE | 20 | 154 – 2,750 |
| TPH(G) | 800 | ND - 41,800 |
| TPH(D) | 500 | ND - 4,540 |

***NOTE:*** **All values in ug/liter (ppb)**

#### *4.2.2.1 Points of Compliance – Groundwater*

The points of compliance for meeting groundwater cleanup levels at this site were selected on the basis of the criteria specified in WAC 173-340-720(8). The points of compliance are MW-1, MW-2, MW-3, and MW-6.

# 5.0 CLEANUP ACTION SELECTION

## 5.1 REMEDIAL ACTION OBJECTIVES

The remedial action objectives describe the actions necessary to protect human health and the environment through eliminating, reducing, or otherwise controlling risks posed through each exposure pathway and migration route. These objectives are developed by evaluating the characteristics of the contaminated medium, the characteristics of the hazardous substances present, migration and exposure pathways, and potential receptor points.

Shallow soils and groundwater have been contaminated as a result of past releases at the site. People are typically exposed to contaminated soils and groundwater by ingestion, inhalation of volatile constituents, or dermal contact. Potential populations include on-

site workers, trespassers, residents of nearby neighborhoods, passersby, and off-site workers.

Recent interim actions have served to mitigate the potential risks at this site. Primary to this mitigation has been the closure of the UST system, the removal of all stored petroleum products and the removal of over 725 cubic yards of petroleum-contaminated soil. The remaining potential risks and exposure pathways are reflected in the remaining remedial action objectives for the Site:

- Institute and maintain institutional controls to prevent human contact with petroleum-impacted soils or remove these soils for off-site treatment if adequate controls cannot be maintained;
- Prevent further contamination of groundwater;
- Prevent further off-site migration of petroleum contaminated groundwater;
- Prevent human contact with contaminated groundwater by maintaining appropriate controls.

## 5.2 CLEANUP ACTION ALTERNATIVES

There were five cleanup action alternatives considered in the Feasibility Study for this Site. Each of the alternatives was scored and ranked. Each of the alternatives considered a combination of remedial actions consisting of the following elements:

- Site grading/compaction
- Product recovery at MW-3
- Institutional controls
- Long-term groundwater monitoring
- Soil removal and off-site treatment
- Groundwater treatment trench along north property boundary
- Elimination of the basement at the nearby residence
- Subsurface drainage controls from the area of MW-3 – to treatment trench

## Cleanup Alternative Strategies

| Cleanup Strategy Elements | Alternatives 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Site Grading /Compaction | X | X | X | X | X |
| Product Recovery at MW-3 | X | X | X | X | X |
| Institutional Controls | X | X | X | X | X |
| Long-Term G/W Monitoring | X | X | X | X | X |
| Soil Removal / Off-Site Treatment | | X | X | X | X |
| G/W Treatment Trench Along North Property Boundary | | | X | X | X |
| Elimination of Residential Basement | | X | | X | |
| Subsurface Drainage Controls - MW-3 to Treatment Trench | | | | | X |

Alternative 1: Site grading/compaction; product recovery at MW-3; institutional controls; groundwater monitoring

Alternative 2: Soil removal (associated with construction); site grading/compaction; product recovery sump at MW-3; institutional controls; groundwater monitoring; elimination of the residential basement

Alternative 3: Soil removal (associated with construction); site grading/compaction; product recovery sump at MW-3; institutional controls; groundwater monitoring; groundwater treatment (within trench along north property boundary)

Alternative 4: Soil removal (associated with construction); site grading/compaction; product recovery sump at MW-3; institutional controls; groundwater monitoring; groundwater treatment (within trench along north property boundary); elimination of the residential basement

Alternative 5: Soil removal (associated with construction); site grading/compaction; product recovery system at MW-3; institutional controls; groundwater monitoring; subsurface drainage controls (extending from MW-3 to trench at north property boundary); groundwater treatment (within trench along north property boundary)

### 5.3 REGULATORY REQUIREMENTS

The MTCA Cleanup Regulation sets forth the minimum requirements and procedures for selecting a cleanup action. A cleanup action must meet each of the minimum

requirements specified in WAC 173-340-360(2), including certain threshold and other requirements. These requirements are outlined below.

### 5.3.1 Threshold Requirements

WAC 173-340-360(2)(a) requires that the cleanup action shall:

- Protect human health and the environment;
- Comply with cleanup standards (*see Section 4.0)*;
- Comply with applicable state and federal laws *(see Table 3 and Section5.4.1.3)*
- Provide for compliance monitoring.

### 5.3.2 Other Requirements

In addition, WAC 173-340-360(2)(b) states that the cleanup action shall:

- Use permanent solutions to the maximum extent practicable;
- Provide for a reasonable restoration time frame; and
- Consider public concerns

WAC 173-340-360(3) describes the specific requirements and procedures for determining whether a cleanup action uses permanent solutions to the maximum extent practicable. A permanent solution is defined as one where cleanup levels can be met without further action being required at the Site other than the disposal of residue from the treatment of hazardous substances.

To determine whether a cleanup action uses permanent solutions to the maximum extent practicable, a disproportionate cost analysis is conducted. This analysis compares the costs and benefits of the cleanup action alternatives and involves the consideration of several factors, including:

- Protectiveness of human health and the environment;
- Permanent reduction of toxicity, mobility and volume of contaminants(s);
- Cost of implementation;
- Long-term effectiveness;
- Management of short-term risks;
- Technical and administrative implementability; and
- Consideration of public concerns.

The comparison of benefits and costs may not always be easily quantified and will often require the use of best professional judgment.

WAC 173-340-360(4) describes the specific requirements and procedures for determining whether a cleanup action provides for a reasonable restoration time frame. This evaluation requires some very site specific considerations.

### 5.3.3 Groundwater Cleanup Action Requirements

At sites with contaminated groundwater, WAC 173-340-360(2)(c)(i) provides that a permanent cleanup action shall be used to achieve the cleanup levels wherever practicable.

### 5.3.4 Cleanup Action Expectations

WAC 173-340-370 sets forth the following expectations for the development of cleanup action alternatives and the selection of cleanup actions. However, Ecology recognizes that there may be some sites where cleanup actions conforming to these expectations are not appropriate.

- Treatment technologies will be emphasized at sites with liquid wastes, areas with high concentrations of hazardous substances, or with highly mobile and/or highly treatable contaminants;

- To minimize the need for long-term management of contaminated materials, hazardous substances will be destroyed, detoxified, and/or removed to concentrations below cleanup levels throughout sites with small volumes of hazardous substances;

- Engineering controls, such as containment, may need to be used at sites with large volumes of materials with relatively low levels of hazardous substances where treatment is impracticable;

- To minimize the potential for migration of hazardous substances, active measures will be taken to prevent precipitation and runoff from coming into contact with contaminated soils or waste materials;

- When hazardous substances remain on-site at concentrations which exceed cleanup levels, they will be consolidated to the maximum extent practicable where needed to minimize the potential for direct contact and migration of hazardous substances;

- For sites adjacent to surface water, active measures will be taken to prevent/minimize releases to that water; dilution will not be the sole method for demonstrating compliance;

- Natural attenuation of hazardous substances may be appropriate at sites under certain specified conditions [see WAC 173-340-370(7)]; and

- Cleanup actions will not result in a significantly greater overall threat to human health and the environment than other alternatives.

As provided under WAC 173-340-370(7), natural attenuation of hazardous substances may be appropriate at sites where:

- Source control (including the removal and/or treatment of hazardous substances) has been conducted to the maximum extent practicable;
- Leaving contaminants on-site during restoration time does not pose an unacceptable threat to human health or the environment;
- There is evidence that natural biodegradation or chemical degradation is occurring and will continue to occur at a reasonable rate at the site; and
- Appropriate monitoring requirements are conducted to ensure that the natural attenuation process is taking place and human health and the environment are protected.

### 5.3.5 Applicable or Relevant and Appropriate Requirements

WAC 173-340-710(1) requires that all cleanup actions comply with all applicable state and federal law. It further states that the term "applicable state and federal laws" shall include legally applicable requirements and those requirements that the department determines "...are relevant and appropriate requirements." In addition, local permitting requirements are to be considered in selecting cleanup requirements. If other requirements are identified at a later date, they will be applied to the cleanup actions at that time.

MTCA provides an exemption from the procedural requirements of several state laws and from any laws authorizing local government permits or approvals for remedial actions [RCW 70.105D.090]. In some cases, however, the substantive requirements of a permit must be met. The procedural requirements of the following state laws are exempted:

- Ch. 70.94 RCW, Washington Clean Air Act;
- Ch. 70.95 RCW, Solid Waste Management, Reduction, and Recycling;
- Ch. 70.105 RCW, Hazardous Waste Management;
- Ch. 75.20 RCW, Construction Projects in State Waters;
- Ch. 90.48 RCW, Water Pollution Control; and
- Ch. 90.58 RCW, Shoreline Management Act of 1971.

WAC 173-340-710(4) sets forth the criteria that Ecology evaluates when determining whether certain requirements are relevant and appropriate for a cleanup action. Table 3 lists state and federal laws that contain the applicable or relevant and appropriate requirements that may apply to the cleanup action at Priceless Gas. Local laws, which may be more stringent than specified state and federal laws, will govern where applicable.

### 5.3.6 Terrestrial Ecological Evaluation

The Terrestrial Ecological Evaluation (TEE) process defined in the MTCA Cleanup Regulation may be used to determine whether the cleanup action is protective of the environment. The requirements and procedures for conducting a TEE are set forth in WAC 173-340-7490 through WAC 173-340-7494. Some sites are excluded from conducting a TEE under the provisions of WAC 173-340-7491. The Priceless Gas site is excluded from this evaluation process as there is"...less than one-and-a-half acres of contiguous undeveloped land on or within 500 feet of any area of the site" [WAC 173-340-7491 (1) (c)].

## 5.4 EVALUATION OF CLEANUP ACTION ALTERNATIVES

Ecology has applied the regulatory requirements and guidelines outlined in Section 5.3 to conduct a comparative evaluation of the cleanup alternatives and to select the most appropriate cleanup action.

### 5.4.1 Threshold Requirements

#### *5.4.1.1 Protection of Human Health and the Environment*

Direct contact with or ingestion of contaminated water or soils and the inhalation of fugitive volatile organic vapors are the major potential routes of exposure. The potential for exposure to impacted shallow soils and groundwater has been mitigated by the excavation of most of the shallow contaminated soils.

**Each of the five considered alternatives includes these additional mitigation measures:**

- **Institutional Controls** - A restrictive covenant will become appurtenant to the property. The restrictive covenant will, in part, provide for the maintenance of institutional controls that will minimize the potential for incidental exposure to contaminated soils and groundwater. The institutional controls will include restricting site activities. The restrictive covenant will remain in place until it is demonstrated, through sampling, that the soils and groundwater at this site have met established cleanup levels.

- **Site grading and compaction of surface soils;**

- **Recovery of free phase product at MW-3;**

- **Groundwater Monitoring** – Quarterly groundwater monitoring will include the sampling and analysis of previously identified points-of-compliance as well as

additional performance monitoring points. Performance monitoring will be accomplished through the sampling of MW- 4, MW-5, MW-7, MW-8, MW-9 and MW-10. Groundwater monitoring will continue until compliance with the established cleanup levels is demonstrated for four (4) consecutive quarterly sampling events. Groundwater monitoring will be conducted in a manner consistent with the MTCA provisions for compliance monitoring described in WAC 173-340-720 (9).

Each of these remedial actions is considered essential elements to an effective cleanup of the site. In addition:

- **Periodic Review** - WAC 173-340-420 states that at sites where a cleanup action requires an institutional control, a periodic review shall be completed no less frequently than every five years after the initiation of a cleanup action. Since institutional controls will be required, five-year reviews shall take place at this Site. Groundwater monitoring data shall be reviewed to continue to assess the effectiveness of the cleanup actions. If concentrations of contaminants in groundwater are not decreasing, then further remedial action will be considered.

**Alternatives 2, 3, 4 and 5 include:**

- Removal of additional contaminated soils associated with construction activities;

The removal and off-site treatment of contaminated soils is cost effective and provides immediate environmental benefits.

**Alternatives 2 and 4 include:**

- Eliminating the basement in the adjacent residence (the Dehn residence);

Eliminating the basement may provide a measure of protectiveness to the single residence. However, it is not clear that this action would provide any meaningful benefit beyond that provided by the other proposed cleanup strategies. The elimination of the basement would add a disproportionate cost to the project relative to any additional environmental benefit.

**In addition, Alternatives 3, 4 and 5 include:**

- The installation of a groundwater treatment trench at the north end of the Site. Treatment would include air sparging of the groundwater and soil vapor extraction of the soils within the unsaturated (vadose) zone. The effectiveness of this groundwater treatment trench may be enhanced by an east/west oriented groundwater collection system extending out from the trench.

This treatment system would greatly enhance the protectiveness of the cleanup at this site. It would establish a hydraulic control mechanism, provide a means to treat groundwater, enhance bioremediation and would serve to inhibit the off-site migration of contaminants.

**In addition, Alternative 5 includes:**

- The installation of a subsurface drainage system extending from the south site boundary, in the area of MW-3, to the proposed groundwater treatment trench along the north property boundary.

There does not appear to be a significant benefit in adding this feature to the cleanup strategy. It would also introduce a disproportionate cost element as this drainage system would frequently overwhelm the proposed groundwater treatment trench and necessitate the pumping, treatment and discharge of the excess water flowing into the system. A similar but more practical feature is a subsurface drainage pipe extending westward from the treatment trench. This would serve to complete the interception and treatment of groundwater before it leaves the site. It would introduce a more manageable quantity of additional water to the proposed treatment trench and add minimally to the cost of the implementation, operation and maintenance of the system.

Alternatives 3, 4 and 5 are the most protective of human health and the environment.

#### *5.4.1.2 Compliance with Cleanup Standards*

Alternative 3, 4, and 5 achieve soil and groundwater cleanup standards through soil removal, on-site treatment and enhanced natural attenuation. The cleanup actions described by these cleanup alternatives are more aggressive than those proposed under Alternatives 1 and 2. Alternatives 3, 4 and 5 are far more likely to achieve compliance with the regulatory compliance standards described under WAC 173-340-700 through 173-340-760.

#### *5.4.1.3 Compliance with State and Federal Laws*

Each of the proposed cleanup alternatives will comply with the substantive requirements of all applicable state and federal laws as provided for under WAC 173-340-710 (9).

#### *5.4.1.4 Provision for Compliance Monitoring*

Compliance monitoring is an element of each of the proposed cleanup action alternatives. A detailed sampling and analysis plan will be prepared and implemented for this purpose.

### 5.4.2 Other Requirements

#### *5.4.2.1 The Use of Permanent Solutions to the Maximum Extent Practicable*

Alternatives 3, 4 and 5 describe permanent groundwater cleanup actions. The actions proposed under each of these alternatives represent the maximum practicable use of available technologies and are most likely to constitute a permanent cleanup action as described under WAC 173-340-360.

Alternatives 1 and 2 are significantly less likely to constitute a permanent solution to the cleanup issues associated with this site.

**Use of Permanent Solutions to the Maximum Extent Practicable**

As discussed previously, to determine whether a cleanup action uses permanent solutions to the maximum extent practicable, the disproportionate cost analysis specified in the regulation is used. The analysis compares the costs and benefits of the cleanup action alternatives and involves the consideration of several factors. The comparison of costs and benefits may be quantitative, but will often be qualitative and require the use of best professional judgment.

Costs are disproportionate to the benefits if the incremental costs are disproportionate to the incremental benefits. Based on the analysis described below, it has been determined that Alternatives 3, 4 and 5 use permanent solutions to the maximum extent practicable.

The costs associated with the elimination of the residential basement described in Alternatives 2 and 4 are disproportionate to the incremental benefits of that action. The cost of Alternative 5 is less than Alternative 4 and provides a similar level of protection for human health and the environment.

- ***Protectiveness***

  Overall protectiveness addresses:

  - The degree to which existing risks are reduced;
  - Time required to reduce risk at the facility and attain cleanup standards;
  - On-site and off-site risks resulting from implementing the alternative, and
  - Improvement of the overall environmental quality.

  Alternatives 3, 4 and 5 will achieve groundwater cleanup standards within a reasonable restoration time frame. Each of the alternatives involve similar and acceptable levels of on-site and off-site risk during the implementation phase. Alternatives 3, 4 and 5 offer equivalent improvements in overall environmental quality.

- *Permanent Reduction of Toxicity, Mobility and Volume*

Each of the proposed cleanup alternatives would likely provide a permanent reduction in toxicity, mobility and volume of hazardous substances. Each of the alternatives, excepting Alternative 1, provide for the removal of impacted soils. This action will accomplish an immediate reduction in the volume of contaminants affecting groundwater at the Site.

Each of Alternatives 3 through 5 proposes an in-situ groundwater treatment system and hydraulic controls. The cleanup alternatives incorporating this groundwater treatment system provide the greatest degree of permanence and overall protectiveness to human health and the environment.

- ***Cost of Implementation***

The costs of Alternatives 3 through 5 are highest primarily due to the added costs of installing and maintaining the groundwater treatment system. Alternative 4 includes the costs for eliminating the residential basement while Alternative 5 includes the added costs associated with a subsurface drainage control system extending from MW-3 to the treatment trench at the north property boundary.

- ***Long-Term Effectiveness***

Long-term effectiveness addresses the following:

- degree of certainty that the alternative will be successful;
- long-term reliability, magnitude of residual risk and
- effectiveness of management controls.

Alternatives 3, 4 and 5 offer the highest degree of confidence for success. These alternatives most effectively manage the remaining risks associated with the site and provide important controls by the installation of a groundwater treatment system.

- *Management of Short-Term Risks*

Short -term risks are those concerns associated with the protection of human health and the environment during construction and implementation activities. The short-term risks can be adequately addressed for each of the cleanup alternatives.

- *Technical and Administrative Implementability*

Each of the cleanup alternatives could be implemented quickly and effectively. However, the task of eliminating the residential basement as proposed by Alternatives

2 and 4 could be problematic in that it would involve a substantial remodeling of the house, the relocation of essential utilities and mechanicals and potentially significant engineering challenges.

#### *5.4.2.2 Provide for a Reasonable Restoration Time Frame*

The restoration time frame for the each of the cleanup action alternatives will likely extend for several years. Alternatives 3, 4 and 5 present the most effective cleanup actions in terms of a reaching the cleanup goals in a timely manner. It is not clear that any additional technology, or strategy, short of a complete excavation to bedrock across the affected area, would provide an appreciably quicker cleanup.

Throughout the restoration time frame, cleanup action Alternatives 3, 4 and 5 effectively limit the potential for any additional environmental impacts and provide safeguards to prevent direct human exposure.

Alternatives 1 and 2 would significantly extend the time required to reach cleanup levels. The restoration time frames associated with Alternatives 1 and 2 would likely not be reasonable, particularly since these alternatives exclude readily available and practicable remedial actions.

#### *5.4.2.3 Consideration of Public Concerns*

A public comment period for this document provided the opportunity for interested parties to consider and comment on the proposed Cleanup Action Plan. No substantitive comments were received. One letter of encouragement was received and acknowledged by Ecology.

### 5.5 DECISION

Based on the above analysis, Alternative 3 has been selected as the appropriate final cleanup action for the former Corner Express Site. This proposed cleanup action meets each of the requirements for cleanup action selection as provided for under MTCA.

Alternative 3 meets each of the threshold requirements. This alternative uses permanent solutions to the maximum extent practicable. The cost of Alternative 3 is less than Alternatives 4 or 5 and provides a similar level of protection for human health and the environment.

In summary the selected final cleanup action for this Site consists of the following elements:

- Soil removal (associated with construction); site grading/compaction;
- Product recovery sump at MW-3;
- Groundwater treatment (within trench along north property boundary)
- Backfilling of excavated areas with appropriate materials;
- Quarterly sampling and analysis of groundwater monitoring wells designated as points of compliance or performance monitoring points;
- Institutional controls - a restrictive covenant will be placed on the deed of this property to ensure that the potential exposure risk to contaminated soils is known and that site activities are considerate of these potential risks. The restrictive covenant will be removed when it has been demonstrated through sampling that soil and groundwater cleanup levels have been attained.

## 6.0 SELECTED REFERENCES

Budinger and Associates, 2002, Remedial Investigation /Feasibility Study – Corner Express

Budinger and Associates, 2001, UST Site Assessment and Preliminary Site Characterization – Corner Express

TechCon, 2001, UST Site Check, Product Line Draining and Tank Cleaning Report – Corner Express

Sheila Pachernegg, 2001, Remedial Investigation /Feasibility Study – Priceless Gas

| Required Element | Location |
|---|---|
| (i) A general description of the proposed cleanup action developed in accordance with WAC 173-340-350 through -390. | Section 5.0 |
| (ii) A summary of the rationale for selecting the proposed alternative. | Section 5.5 |
| (iii) A brief summary of other cleanup action alternatives evaluated in the remedial investigation/feasibility study. | Section 5.2 |
| (iv) Cleanup standards and, where applicable, remediation levels for each hazardous substance and for each medium of concern at the site. | Section 4.2 |
| (v) The schedule for implementation of the cleanup action plan including, if known, restoration time frame. | Section 5.4.2 |
| (vi) Institutional controls, if any, required as a part of the proposed cleanup action. | Section 5.5 |
| (vii) Applicable state and federal laws, if any, for the proposed cleanup action when these are known at this step in the cleanup process. (This does not preclude subsequent identification of applicable state and federal laws). | Section 5.4.1 |
| (viii) A preliminary determination by the department that the proposed cleanup action will comply with WAC 173-340-360. | Section 5.4.2 |
| (ix) Where the cleanup action involves on-site containment, specification of the types, levels, and amounts of hazardous substances remaining on-site and the measures that will be used to prevent migration and contact with those substances. | Section 5.4 |

## TABLE 1. Index of Required Elements of Cleanup Action Plan

| CONSTITUENT | GROUNDWATER | SOILS |
|---|---|---|
| | | |
| Benzene | 5 ug/l | .03 mg/kg |
| Toluene | 1,000 ug/l | 7 mg/kg |
| Ethylbenzene | 700 ug/l | 6 mg/kg |
| Xylenes | 1,000 ug/l | 9 mg/kg |
| MTBE | 20 ug/l | .10 mg/kg |
| TPH(G) | 800 | 30 mg/kg |
| TPH(D) | 500 ug/l | 2,000 mg/kg |

TPH (G): Total Petroleum Hydrocarbons (Gasoline range)
TPH (D): Total Petroleum Hydrocarbons (Diesel range)

Note: Selected cleanup levels are MTCA Method A.

## TABLE 2: SELECTED CLEANUP LEVELS

| | |
|---|---|
| **Cleanup Action Implementation** | |
| Ch. 18.104 RCW;<br>Ch. 173-160 WAC | Water Well Construction; Minimum Standards for Construction and Maintenance of Water Wells |
| Ch. 173-162 WAC | Rules and Regulations Governing the Licensing of Well Contractors and Operators |
| Ch. 70.105D RCW;<br>Ch. 173-340 WAC | Model Toxics Control Act;<br>MTCA Cleanup Regulation |
| Ch. 43.21C RCW;<br>Ch. 197-11 WAC | State Environmental Policy Act;<br>SEPA Rules |
| 29 CFR 1910 | Occupational Safety and Health Act |
| **Groundwater** | |
| 33 USC 1251;<br>40 CFR 131 | Clean Water Act of 1977;<br>Water Quality Standards |
| Ch. 70.105D RCW;<br>Ch. 173-340 WAC | Model Toxics Control Act;<br>MTCA Cleanup Regulation |
| Ch. 173-200 WAC | Water Quality Standards for Ground Waters of the State of WA |
| **Air** | |
| 42 USC 7401;<br>40 CFR 50 | Clean Air Act of 1977;<br>National Ambient Air Quality Standards |
| Ch. 70.94 RCW;<br>Ch. 43.21A RCW;<br>Ch. 173-400 WAC | Washington Clean Air Act;<br><br>General Regulations for Air Pollution |
| Ch. 173-460 WAC | Controls for New Sources of Air Pollution |
| Ch. 70.105D RCW;<br>Ch. 173-340 WAC | Model Toxics Control Act;<br>MTCA Cleanup Regulation |

## TABLE 3: Applicable or Relevant and Appropriate Requirements for the Selected Cleanup Action

# APPENDIX B

# SAMPLING & ANALYSIS PLAN

# SAMPLING AND ANALYSIS PLAN

## GROUNDWATER COMPLIANCE MONITORING

The points of compliance for meeting groundwater cleanup levels at the Priceless Gas Site were selected on the basis of the criteria specified in WAC 173-340-720(8). The points of compliance are monitoring wells MW-1, MW-2, MW-3, and MW-6 (refer to Figure 1 for compliance well locations).

Groundwater cleanup levels have been established for the Site using MTCA Method A, as provided for in WAC 173-340-720(3). Although the groundwater in this area is an unlikely source of potable groundwater, Ecology has chosen to apply the more conservative cleanup values defined under Method A. The conservative approach was selected out of consideration of the potential threat to Cottonwood Creek and historical problems with increased exposure risk due to the high groundwater conditions.

| CONSTITUENT | GROUNDWATER CLEANUP LEVEL | SAMPLE RESULTS FROM RI |
|---|---|---|
| BENZENE | 5 µg/l | 4.81 – 41,800 µg/l |
| TOLUENE | 1,000 µg/l | 0.624 – 3,730 µg/l |
| ETHYLBENZENE | 700 µg/l | ND – 2,040 µg/l |
| XYLENES | 1,000 µg/l | ND – 5,740 µg/l |
| MTBE | 20 µg/l | 154 – 2,750 µg/l |
| TPH (Gasoline) | 800 µg/l | ND – 41,800 µg/l |
| TPH (Diesel) | 500 µg/l | ND – 4,540 µg/l |

ND = less than laboratory method detection limit
µ/l = ppb

Quarterly groundwater monitoring will include the sampling and analysis of previously identified points of compliance wells (MW-1, MW-2, MW-3, and MW-6) and system performance will be accomplished through the sampling of: MW-4, MW-5, MW-7, MW-8, MW-9, and MW-10 (refer to Figure 1 for system performance monitoring well locations). Groundwater monitoring will continue until compliance with the established cleanup levels is demonstrated for four (4) consecutive quarterly sampling events. Groundwater monitoring will be conducted in a manner consistent with the MTCA provisions for compliance monitoring described in WAC 173-340-720(9).

## GROUNDWATER SAMPLE COLLECTION

Samples will be collected from the groundwater monitoring wells using disposable bailers or a peristaltic pump. Groundwater sampling for compliance monitoring will be conducted using the following protocol:

- Depth to water will be measured in each monitoring well prior to sampling.
- Order of sampling wells will be from least to most observed contamination.
- The well will be purged using a pump or disposable bailer and field parameters (temperature, pH, and specific conductance) will be measured after each well volume is purged.
- A minimum of three (3) well volumes will be purged.
- Samples will be collected in the order of decreasing volatility of the analytical parameters.
- Depth to water will be measured following purging and sample collection.

## Laboratory Analyses

Samples will be submitted to North Creek Analytical (Spokane, Washington), or equivalent accredited laboratory for the following analyses (minimum required for compliance monitoring). Additional field and laboratory parameters will be included for treatment system evaluation, as required:

| Parameters | Methods |
|---|---|
| Volatile petroleum hydrocarbons (gasoline range): | NWTPH-Gx |
| Semivolatile petroleum hydrocarbons (diesel range): | NWTPH-Dx |
| BTEX (benzene, toluene, ethylbenzene, xylene) and MTBE | SW 8260B |

## Decontamination

No decontamination is needed if disposable bailers are used. The water level indicator probe (and any other downhole equipment) will be decontaminated between wells by detergent washing and rinsing with deionized water. Pump equipment will be purged with detergent water followed by tap water.

## Residuals Management

All extracted groundwater and decontamination water will be containerized onsite for appropriate treatment and/or disposal.

# REPORTING

Groundwater compliance monitoring reports will be provided to Ecology on a quarterly basis and documentation will include the following:

- map showing monitoring well locations and status
- summary table and laboratory analytical results
- field sampling sheets
- table of groundwater elevations, updated hydrographs, and groundwater flow map
- data summary related to treatment system performance

## FIELD QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

### Instrument Calibration

Instruments used in the field such as: photoionization detector (PID), pH meter, and/or conductivity meter will be calibrated prior to use in accordance with standard practices and manufacturer instructions. Instrument drift will also be evaluated periodically during the period of use dependent upon changing ambient conditions.

### Duplicates

Field duplicate samples will be collected for groundwater at a minimum frequency of 10% of the total number of samples submitted for laboratory analyses.

### Sample Identification and Chain-of-Custody

All groundwater samples will identified, using the following:

- Site name
- Monitoring Well number
- Date of sample collection

All samples will be logged on a chain-of-custody form provided by the laboratory and remain in the custody of the individual collecting the sample until released (signature on chain-of-custody form) upon shipment or delivery to the laboratory. The laboratory will acknowledge receipt of the samples and provide a copy of the chain-of-custody form for the project files.

## LABORATORY QA/QC

### Analytical Methods and Target Detection Limits

| Parameters | Methods | Detection Limits |
|---|---|---|
| Volatile hydrocarbons (gasoline range): | NWTPH-Gx | 250 µg/l |
| Semivolatile hydrocarbons (diesel range): | NWTPH-Dx | 250 µg/l |
| Benzene: | SW 8260B | 1.0 µg/l |
| Toluene: | SW 8260B | 1.0 µg/l |
| Ethylbenzene: | SW 8260B | 1.0 µg/l |
| m,p-Xylene: | SW 8260B | 2.0 µg/l |
| o-Xylene: | SW 8260B | 1.0 µg/l |
| Methyl tert-butyl ether (MTBE): | SW 8260B | 5.0 µg/l |

## Laboratory Quality Control Protocols

**METHOD BLANKS**

Preparation blanks are analyzed a a minimum of once for every batch of samples, or twenty (20) samples, or matrix type, whichever is more frequent. A preparation blank consists of laboratory pure water that is processed through all procedures, materials, and labware used for sample preparation and analysis. In cases of non-aqueous samples, reagent blanks serve as preparation blanks. Sample batches that contain contaminated blanks are routinely re-prepared.

**LABORATORY CONTROL SAMPLE**

A laboratory control sample (LCS) is a sample of known value used to validate the analytical procedure. One LCS is used for every batch of samples, or twenty (20) samples, or matrix type, whichever is more frequent. Sample batches containing LCS's that are out of control limits are re-prepared. Control limits for solid LCS's are set by the supplier (typically $\pm$3%). Water or other aqueous LCS's have control limits of $\pm$20%.

For organics analysis, the LCS is prepared from different reference materials than those used in the preparation of the instrument calibration standards. Control limits specified by the method are used to monitor system performance.

**DUPLICATE SAMPLE**

Aliquots are made in the laboratory of the same sample, and each aliquot is treated exactly the same throughout the analytical method. The relative percent difference (RPD) between the values of the duplicates, as calculated below, is taken as a measure of the **precision** of the analytical method.

$$RPD = \frac{|S - D|}{(S + D) / 2} \times 100$$

Where, RPD = Relative Percent Difference
S = First Sample Value (original)
D= Second Sample Value (duplicate)

One duplicate sample is used for every batch of samples, or twenty (20) samples, or matrix type, whichever is more frequent. The tolerance limit for percent difference typically should not exceed $\pm$ 20 RPD. The duplicate is also a measure of the homogeneity of the sample matrix. It can also measure the effectiveness of any grinding, sieving, and mixing preparation.

**MATRIX SPIKE, DUPLICATE, AND SURROGATES**

A sample matrix spike is prepared by adding a known amount of a pure compound to the environmental sample befor digestion or extraction, and the compound is the same as that being assayed for in the environmental sample. An analytical spike is prepared by adding a known amount of analyte(s) to a known amount of sample digestate or extract. These spikes simulate the background and interferences found in the actual samples. The

calculated percent recovery of the matrix spike is considered to be a measure of the relative **accuracy** of the total analytical method, i.e., sample preparation and analysis. The calculated percent recovery of the analytical spike is considered to be a measure of the relative accuracy of the sample analysis procedure only. Both the matrix spike and the analytical spike are also a measure of the effect of the sample matrix on the ability of the methodology to detect the specific analyte. When there is no change in volume due to the spike, it is calculated as follows:

$$\%\text{Recovery} = \frac{(SSR - SR)}{SA} \times 100$$

Where: SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added

Tolerance limits for acceptable percent recoveries are normally $\pm$ 20-25%.

For organics analysis, the same spiking solution used to prepare the LCS is used to prepare the matrix spike and matrix spike duplicate samples. Matrix spike samples are prepared for every batch of samples (20 sample max.). The results obtained from the analysis of these matrix spike samples must meet the same control limits that apply to the LCS.

Surrogates are similar to spikes, except they are a compound not normally found in nature, nor expected in a particular set of samples. Surrogate compounds are added to every sample during the preparation stage. The results for these surrogate compounds must meet the control limits specified by the method.

**INTERFERENCE CHECK SAMPLES**

For analytes determined by ICP spectroscopy, an interference check sample is run at the beginning and at the end of an analysis sequence. This sample consists of interfering elements at elevated levels to check, and allow the instrument operator to make corrections for, interelement interferences. In cases where the sample matrix is known, and other interelement interferences occur (i.e. As on Cd), the laboratory will make a custom ICS sample if requested. In cases where no analyte is present in the ICS, instrumental values should be $\pm$ 5x the IDL, otherwise the instrumental value should be $\pm$20% of the true value.

## Reporting

Laboratory reports will include previously described QA/QC information, as well as chromatograms for the TPH analyses.

| Groundwater Summary Information | | | |
|---|---|---|---|
| Well Number | Ground Surface Elevation | Top Of PVC Elevation | Ground Water Elevation |
| MW-1 | 2379.60 | 2379.39 | |
| MW-2 | 2379.29 | 2378.72 | |
| MW-3 | 2385.18 | 2384.85 | |
| MW-4 | 2376.54 | 2376.09 | |
| MW-5 | 2372.86 | 2372.54 | |
| MW-6 | 2379.46 | 2379.12 | |
| MW-7 | 2385.04 | 2384.62 | |
| MW-8 | 2387.70 | 2386.95 | |
| MW-9 | 2377.63 | 2377.40 | |
| MW-10 | 2366.86 | 2366.53 | |


Sources:
City of Davenport - Property Lines
Visual Observation - Overhead Power
Avista Corp. - Natural Gas Line
City of Davenport - Water and Sewer Lines
Dehn Residential Lines - Bruce Dehn (3/8/2000)
Priceless Site Features - Tracer Research Corp.

● compliance wells

system performance wells

Priceless Gas Remedial Investigation
Davenport WA

# Groundwater Well Information Map

File C:\fcad32\plgbase.FCW 2/5/2001 RK

Date: 4/15/04 Figure: SAP-1

# APPENDIX C

# HEALTH AND SAFETY PLAN

# WORK LOCATION PERSONNEL PROTECTION AND SAFETY EVALUATION FORM

Prepared by Sheila Pachernegg

Date April 9, 2004

## A. WORK LOCATION DESCRIPTION

1. **Name:** Former Priceless Gas (Merit Truck Stop, Inc. - F.O.F. Inc.)

2. **Location:** 1110 Morgan Street, Davenport, Washington

3. **Anticipated activities:** Soil and groundwater sampling, air quality measurement, construction activities (excavation and remedial action equipment installation).

4. **Size:** Approximately 0.4 acre

5. **Surrounding Population:** Urban

6. **Buildings/Homes/Industry:** Light industrial and residential.

7. **Topography:** Relatively flat.

8. **Anticipated Weather:** Dry, 75-90 deg. F

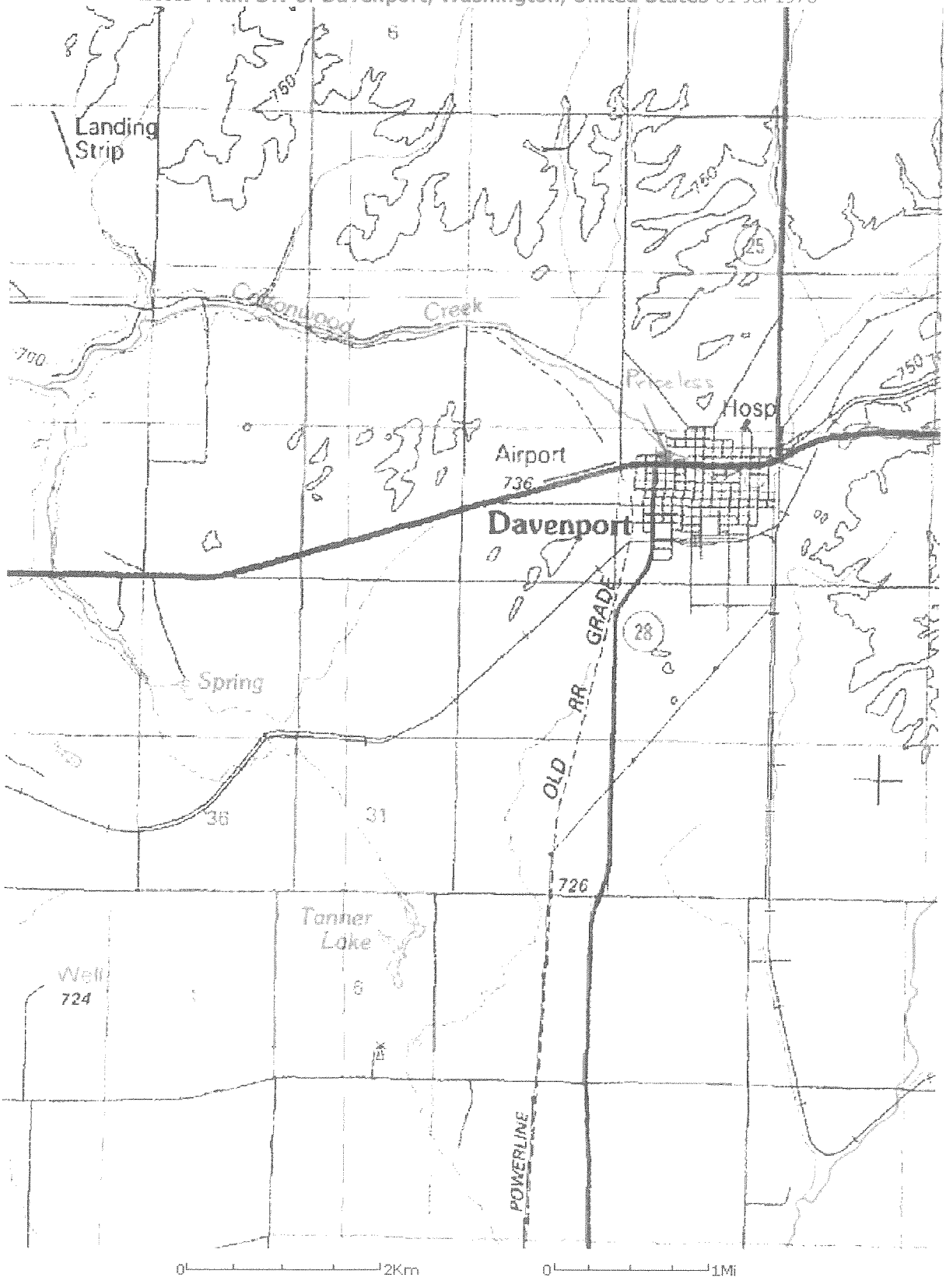
9. **Unusual Features:** None.

10. **Site History:** The former Priceless Gas property (Site) is owned by Merit Truck Stop, Inc. - F.O.F. Inc. (Boise, Idaho) and is located in Davenport, Washington. The site was operated as a retail gas station until June 1998 when the four onsite underground storage tanks (one 12,000-gallon unleaded gasoline tank, one 10,000-gallon diesel tank, one 3,000-gallon regular gasoline tank, and one 3,000-gallon premium gasoline tank) were temporarily closed. On November 13, 1998, the owner of the residence immediately north of the site reported to Ecology Spill Response that gasoline was seeping through the rock wall of his basement. The owner of the site was notified by Ecology and gave access permission for Ecology to perform some investigative activities at the site.

    Previous work completed at the site is documented in the following:

    - ***Site Investigation, UST Removal and Remedial Activities Report*** prepared by Olympus Environmental (dated April 12, 1999).
    - *Remedial Investigation Report*, prepared by Sheila Pachernegg, May 2000.
    - *Remedial Investigation/Feasibility Study (RI/FS) Supplemental Report*, prepared by Sheila Pachernegg, April 2001.

USGS **4 km SW of Davenport, Washington, United States** 01 Jul 1978



## B. HAZARD DESCRIPTION

1. **Background Review:** Complete ( ) Partial (X)
   If partial, why? All utilities will be located (below ground and overhead) prior to initiation of subsurface investigations.

2. **Hazard Level:** B ( ) C ( ) D (X) Unknown ( )

   **Justification:**

   **Types of Hazards**: (Attach additional sheets as necessary)

| | | | | | | |
|---|---|---|---|---|---|---|
| A. | Chemical | (X) | Inhalation | (X) | Explosive | (X) |
| | Biological | ( ) | Ingestion | (X) | $O_2$ Def. | (X) |
| | | | Skin Contact | (X) | | |

   Describe: Direct contact with contaminated soil or inhalation of vapors. Confined space issues in basement of residence, remediation trench, and vault. Natural gas line at residence and alley.

| | | | | | | |
|---|---|---|---|---|---|---|
| B. | Physical | (X) | Cold Stress | ( ) | Noise | ( ) |
| | | | Heat Stress | (X) | Other | ( ) |

   Describe: Hazard associated with work around heavy equipment.

   C. Radiation ( )

   Describe: N/A

4. **Nature of Hazards:**

   Air (X) Describe: Vapors and confined space entry in residence basement, remediation trench, and vault

   Soil (X) Describe: Dermal contact with or ingestion of contaminated soil

   Surface Water ( ) Describe: N/A

   Groundwater (X) Describe: Dermal contact with or ingestion of contaminated groundwater.

   Other ( ) Describe: N/A.

5. **Chemical Contaminants of Concern** ( ) N/A

| Contaminant | TWA (ppm) | I.D.L.H. (ppm) | Source/Quantity Characteristics | Route of Exposure | Symptoms of Acute Exposure | Instruments Used to Monitor Contaminant |
|---|---|---|---|---|---|---|
| Benzene | 1 | 500 | petroleum contaminated soils and groundwater | Dermal, ingestion, inhalation | Irrit.(eyes,**skin**,nose), resp sys; gidd; head, nau, staggered gait; ftg, anor, lass; derm; bone marrow depres; (carc.) | PID or equiv. method |
| Lead | 0.050 mg/m3 | 100 mg/m3 (as Pb) | petroleum contaminated soils | Inhalation, ingestion, contact | Weak lass, insom; facial pallor; pal eye, anor, low-wht, malnut; constip, abdom pain, colic; anemia; gingival lead line; tremor; para writs, ankles; encephalopathy; **kidney disease**; irrit eyes; hypotension | No lead monitoring. PID or equiv. method (for benzene) Employ dust control measures |

6. **Physical Hazards of Concern** ( ) N/A

| Hazard | Description | Location | Procedures Used to Monitor Hazard |
|---|---|---|---|

Hazards associated with work around heavy equipment. High level of safety consciousness will be employed to minimize hazards.
Heat stress. Work breaks, water available, revised work schedule if excessive heat.

7. **Work Location Instrument Readings** (X) N/A

8. **Hazards expected in preparation for work assignment** (X) N/A

Describe:

## C. PERSONAL PROTECTIVE EQUIPMENT

### 1. Level of Protection

A ( ) B ( ) C (X) D (X)

Location/Activity: All activities.

### 2. Protective Equipment (specify probable quantity required)

Respirator ( ) N/A

( ) SCBA, Airline

(X) Full-Face Respirator

(X) Half-Face Respirator (Cart. organic vapor) (Only if upgrade to Level C)

( ) Escape Mask

(X) None

( ) Other _____

( ) Other _____

Clothing ( ) N/A

( ) Fully Encapsulating Suit

( ) Chemically Resistant Splash Suit

( ) Apron, Specify _____

(X) Tyvek Coverall (optional)

( ) Saranex Coverall

( ) Coverall, Specify

(X) Other cotton coverall

_____

Head & Eye ( ) N/A

(X) Hard Hat during construction.

( ) Goggles

( ) Face Shield

(X) Safety Eyeglasses during construction and groundwater monitoring.

( ) Other _____

_____

Hand Protection ( ) N/A

(X) Undergloves Vinyl
Type

( ) Gloves _____
Type

(X) Overgloves neoprene/nitrile
Type

( ) None

( ) Other _____

_____

Foot Protection ( ) N/A

( ) Neoprene Safety Boots with steel toe/shank

( ) Disposable Overboots

(X) Other sturdy sole work boots

_____

3. **Monitoring Equipment** ( X) N/A

(X) CGI

(X) $O^2$ Meter

( ) Rad Survey

(X) Detector Tubes (optional)

Type: Benzene

(X) PID (optional)

( ) FID

(X )Other - Petroleum Vapor Meter (optional)

## D. PERSONNEL DECONTAMINATION

Required (X) Not Required ( )

### EQUIPMENT DECONTAMINATION

Required (X) Not Required ( )

Decontamination procedures will be reviewed with site personnel prior to commencing construction activities. Decontamination procedures will address personnel, heavy equipment, and sampling devices.

## E. PERSONNEL

| Name | Work Location Title/Task | Medical Current | Fit Test Current |
|---|---|---|---|
| 1. | | ( ) | ( ) |
| 2. | | ( ) | ( ) |
| 3. | | ( ) | ( ) |
| 4. | | ( ) | ( ) |
| 5. | | ( ) | ( ) |
| 6. | | ( ) | ( ) |
| 7. | | ( ) | ( ) |
| 8. | | ( ) | ( ) |
| 9. | | ( ) | ( ) |
| 10. | | ( ) | ( ) |

Site Safety Coordinator _____

## F. ACTIVITIES COVERED UNDER THIS PLAN

| Task No. | Description | Preliminary Schedule |
|---|---|---|
| 1 | Sampling of groundwater monitoring wells and soils. | to be determined |
| 2 | Construction activities. | to be determined |

G. **SUBCONTRACTOR'S HEALTH AND SAFETY PROGRAM EVALUATION** (X) N/A

**Name and Address of Subcontractor:**

**Activities to be Conducted by Subcontractor:**

| | EVALUATION CRITERIA | | |
|---|---|---|---|
| Item | Adequate | Inadequate | Comments |
| Medical Surveillance Program | ( ) | ( ) | _____ |
| Personal Protective Equipment Availability | ( ) | ( ) | _____ |
| Onsite Monitoring Equipment Availability | ( ) | ( ) | _____ |
| Safe Working Procedures Specification | ( ) | ( ) | _____ |
| Training Protocols | ( ) | ( ) | _____ |
| Ancillary Support Procedures (if any) | ( ) | ( ) | _____ |
| Emergency Procedures | ( ) | ( ) | _____ |
| Evacuation Procedures Contingency Plan | ( ) | ( ) | _____ |
| Decontamination Procedures Equipment | ( ) | ( ) | _____ |
| Decontamination Procedures Personnel | ( ) | ( ) | _____ |

GENERAL HEALTH AND SAFETY PROGRAM EVALUATION: ADEQUATE ( ) INADEQUATE ( )

Additional Comments:

Evaluation Conducted By: _____ Date:

**EMERGENCY FACILITIES AND NUMBERS**

HOSPITAL Lincoln County Hospital

DIRECTIONS East on Morgan St. (US Hwy 2) towards 12th Street

TELEPHONE 725-7101

EMERGENCY TRANSPORTATION SYSTEMS:

EMERGENCY ROUTES - Map attached.

EMERGENCY CONTACTS

| BMA | |
|---|---|
| Mike Boatsman (Ecology project manager) | (509) 329-3492 |
| Peter Hirschburg (owner representative) | (208) 377-0024 |
| Hospital | (509) 725-7101 |
| Fire Department | (509) 725-3636 |
| Police Department | (509) 725-2255 |
| Lincoln Co. Environ. Health | (509) 725-2501 |

In the event of an emergency, do the following:

1. Call for help as soon as possible. Call 911. Give the following information:

    - WHERE the emergency is - use cross streets or landmarks
    - PHONE NUMBER you are calling from
    - WHAT HAPPENED - type of injury
    - HOW MANY persons need help
    - WHAT is being done for the victim(s)
    - YOU HANG UP LAST - let the person you called hang up first.

2. If the victim can be moved, paramedics will transport to the hospital. If the injury or exposure is not life threatening, decontaminate the individual first. If decontamination is not feasible, wrap the individual in a blanket or sheet of plastic prior to transport.
3. Notify the Ecology project manager.

**HEALTH AND SAFETY PLAN**
**APPROVAL/SIGN OFF FORMAT**

I have read, understood, and agreed with the information set forth in this Health and Safety Plan (and attachments) and discussed in the Personnel Health and Safety briefing.

| Name | Signature | Date |
|---|---|---|
| Name | Signature | Date |
| Name | Signature | Date |
| Name | Signature | Date |
| Name | Signature | Date |
| Site Safety Coordinator | | |
| Project Manager | Signature | Date |

Personnel Health and Safety Briefing Conducted By:

| Name | Signature | Date |
|---|---|---|

# APPENDIX D

# PUBLIC PARTICIPATION PLAN

# PUBLIC PARTICIPATION PLAN

## INTRODUCTION

### Overview of The Public Participation Plan

This ***Public Participation Plan*** (Plan), developed by Washington State Department of Ecology (Ecology), is for the Priceless Gas Site (Site) located at 1110 Morgan Street in the City of Davenport, Lincoln County, Washington. Petroleum contaminants have been found in the soil and groundwater at the Site resulting in necessary investigative and cleanup actions.

The Plan complies with the Washington State Model Toxics Act (MTCA) regulations (Chapter 173-340-600 WAC) and outlines proposed public participation for the Priceless Gas Site through the final stages of Site cleanup. The purpose of the Plan is to promote public understanding of the Washington Department of Ecology's responsibilities, planning activities, and cleanup activities at hazardous waste sites. It also serves as a way of gathering information from the public that will help Ecology implement cleanup activities at the Site that are protective of human health and the environment. The Plan will help the community of Davenport to be informed regarding Site cleanup activities and contribute to the decision making process.

Documents relating to the cleanup may be reviewed at the repositories listed on page 8 of this Plan. If individuals are interested in knowing more about the Site or have comments regarding the ***Public Participation Plan***, please contact one of the individuals listed below:

Mike Boatsman, Site Manager
Washington State Department of Ecology
Toxics Cleanup Program
4601 North Monroe Street
Spokane, WA 99205
(509) 329-3492
E-mail: mboa461@ecy.wa.gov

Carol Bergin
Public Involvement
Washington State Department of Ecology
Toxics Cleanup Program
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## Public Participation and the Model Toxics Control Act

The Model Toxics Control Act (MTCA) is a "citizen-mandated" law that became effective in 1989 (and recently amended in 2001) to provide guidelines for the clean up of contaminated sites in Washington State. This law sets up strict standards to make sure the clean up of sites is protective of human health and the environment. The Department of Ecology's Toxic Cleanup Program investigates reports of contamination that may threaten human health or the environment. If an investigation confirms the presence of contaminants, the site is ranked and placed on a Hazardous Sites List. Current or former owner(s) or operator(s), as well as any other potentially liable persons (PLPs), of a site may be held responsible for cleanup of contamination according to the standards set under MTCA. The PLPs are notified by Ecology that their site has contaminants and the process of cleanup begins with Ecology implementing and overseeing the project.

Public participation is an important part of the MTCA process during cleanup of sites. A ***Public Participation Plan*** is required to encourage community awareness and public involvement from the beginning to the final stages of cleanup. The participation needs are assessed at each site, with regard to the level of interest by the public and degree of risk posed by contaminants. Individuals who live near the site, community groups, businesses, organizations and other interested parties are provided an opportunity to become involved in commenting on the cleanup process. The ***Public Participation Plan*** includes requirements for public notice such as: identifying reports on the site and repositories where they may be read; providing public comment periods; and holding public meetings or hearings. Other forms of participation may be interviews, citizen advisory groups, questionnaires, or workshops. Additionally, citizen groups living near contaminated sites may apply for public participation grants to receive technical assistance in understanding the cleanup process and to create additional public participation avenues.

Washington State Department of Ecology (Ecology) prepared this ***Public Participation Plan*** for the Priceless Gas Site and maintains responsibility for public participation at the Site.

# SITE BACKGROUND

## Site Description and History

The Priceless Gas Site is located at 1110 Morgan Street in the City of Davenport, Lincoln County, Washington. The Site's southern boundary is Morgan Street (Highway 2) and 11th Street forms the eastern boundary (See Site Map on Page 3). Priceless Gas was operated as a retail gas station until June 1998 when four underground storage tanks (UST) on Site were temporarily closed.

Figure 1
Priceless Gas Site Map

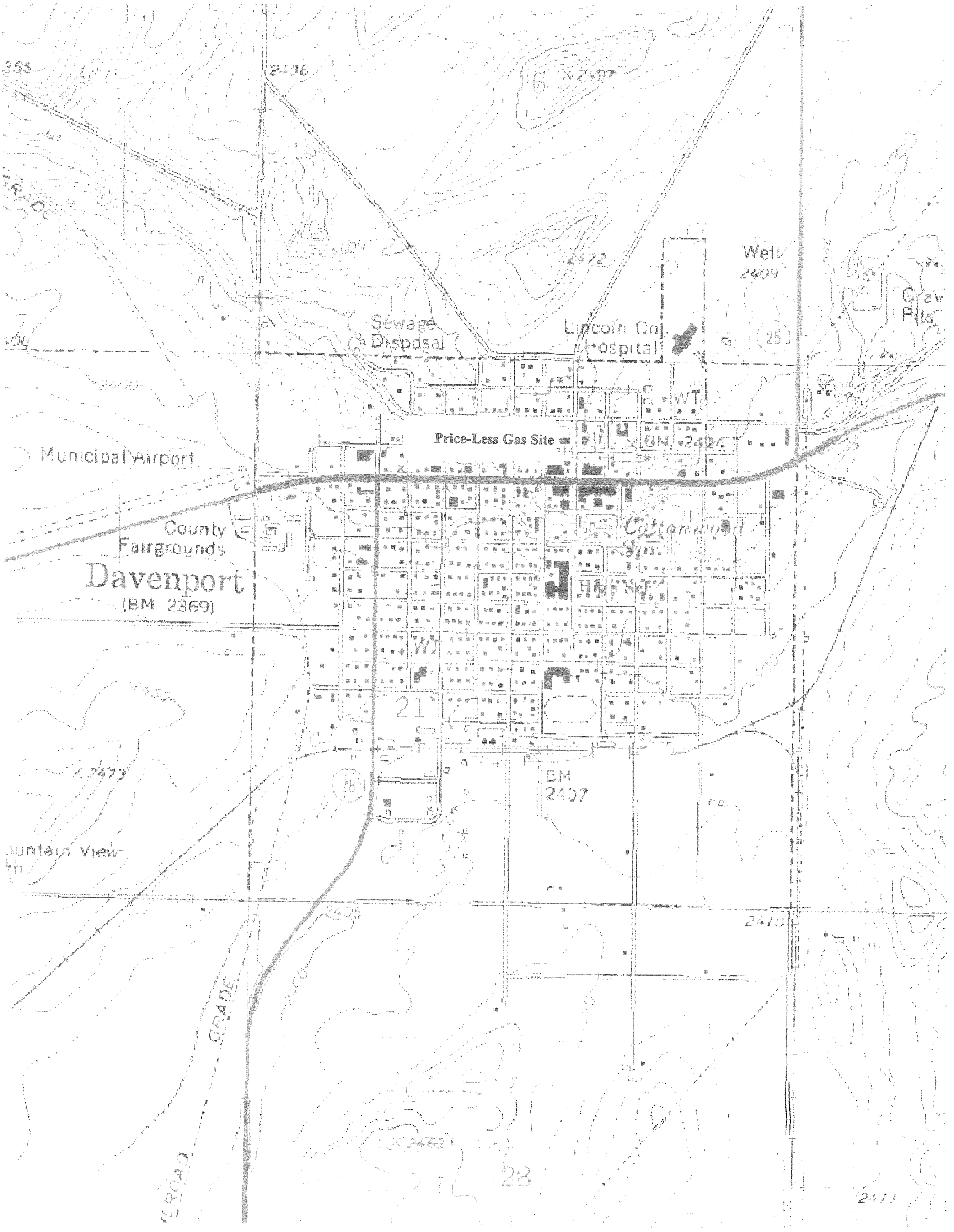
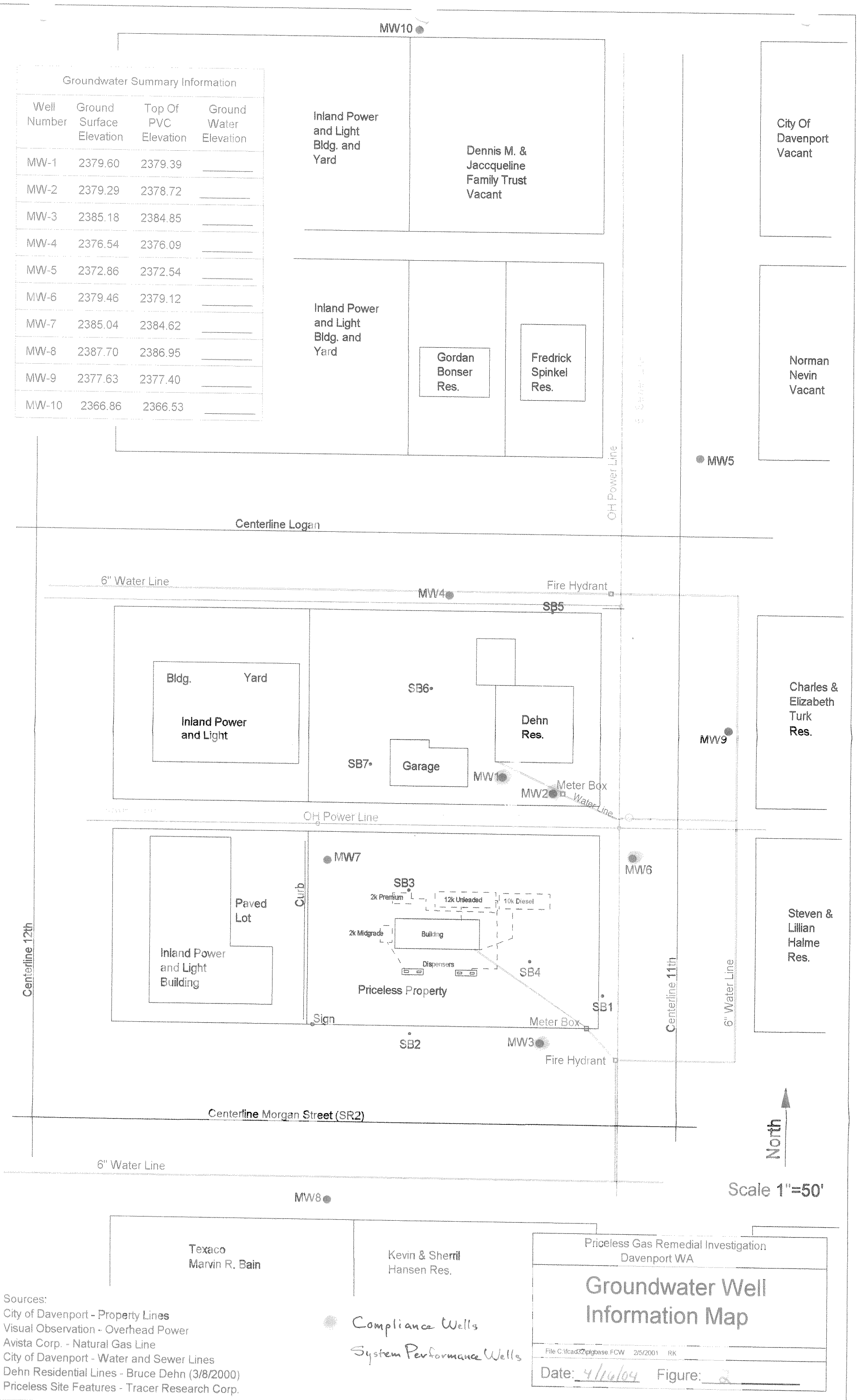



Figure 1

'Davenport, WA', Scale: 1" = 0.164Mi 264Mt 866Ft, 1 Mi = 6.099" , 1 cm = 104Mt

| Groundwater Summary Information | | | |
|---|---|---|---|
| Well Number | Ground Surface Elevation | Top Of PVC Elevation | Ground Water Elevation |
| MW-1 | 2379.60 | 2379.39 | |
| MW-2 | 2379.29 | 2378.72 | |
| MW-3 | 2385.18 | 2384.85 | |
| MW-4 | 2376.54 | 2376.09 | |
| MW-5 | 2372.86 | 2372.54 | |
| MW-6 | 2379.46 | 2379.12 | |
| MW-7 | 2385.04 | 2384.62 | |
| MW-8 | 2387.70 | 2386.95 | |
| MW-9 | 2377.63 | 2377.40 | |
| MW-10 | 2366.86 | 2366.53 | |




Sources:
City of Davenport - Property Lines
Visual Observation - Overhead Power
Avista Corp. - Natural Gas Line
City of Davenport - Water and Sewer Lines
Dehn Residential Lines - Bruce Dehn (3/8/2000)
Priceless Site Features - Tracer Research Corp.

● Compliance Wells
System Performance Wells

Priceless Gas Remedial Investigation
Davenport WA

# Groundwater Well Information Map

File C:\fcad32\plgbase.FCW 2/5/2001 RK

Date: 4/16/04 Figure: 3

On November 13, 1998, Ecology's Spill Response Team personnel responded to a call from the homeowner adjacent to the Site regarding gasoline vapors in his home and possible gasoline product seeping through the rock wall in his basement. Ecology initiated an emergency investigation to determine the source of the petroleum. The four USTs were checked for residual product, which was pumped out by an Ecology contractor.

During the emergency response, a test pit was dug at the Site just north of the 10,000-gallon diesel UST and the 12,000-gallon unleaded gasoline UST. Another test pit was excavated directly north of the Priceless Gas pit at the south edge of the resident's property.

### CONTAMINANTS OF CONCERN

Analytical results of the soil samples obtained from each of the excavations confirmed diesel and gasoline contamination above MTCA Method A Cleanup levels for total petroleum hydrocarbons (TPH) and gasoline constituents benzene, toluene, ethylbenzene and xylenes (BTEX).

Following the emergency response the UST system was decommissioned and contaminated soil was excavated. Soil samples obtained from each of the excavations during the decommissioning identified TPH and BTEX contamination above MTCA Method A Cleanup levels, confirming a release(s) from the UST system. Petroleum contaminated soil removed during these actions was disposed of at an off-site facility.

Two monitoring wells were installed at the residential property. Ground water samples obtained from the monitoring wells identified TPH and BTEX contamination above MTCA Method A Cleanup levels.

The site is located within a commercial development corridor along Highway 2, which forms the southern boundary of the site. Adjacent property owners include residential development to the north and east of the site and Inland Power and Light office and yard along the west boundary of the site.

Actions have been taken to clean up the Site and are outlined in Section II, Statement of Facts in the Enforcement Order No. DE-99-TC-E102 located in Appendix B of this Public Participation Plan.

## SITE CLEANUP PROCESS

### Enforcement Order

The cleanup process for the Priceless Gas Site began in June of 1999. An Enforcement Order was issued by the Department of Ecology to assist the Potentially Liable Parties

(PLPs) in focusing on a specific cleanup action. The Order required the PLPs to conduct a Remedial Investigation along with a Feasibility Study.

## Remedial Investigation/Feasibility Study (RI/FS)

The purpose of the ***Remedial Investigation/Feasibility Study*** (RI/FS) is to collect, develop and evaluate information regarding petroleum contamination in affected areas on and off site. The RI defines the type, extent and degree of soil and ground water contamination and the impacts to the affected areas. The FS identifies, evaluates and proposes alternative cleanup actions. The completed RI/FS report, dated April 9, 2001, documents the investigation and findings.

The RI concludes, in part, that petroleum contamination as gasoline and to a lesser extent, diesel, impacts the soil and groundwater at this Site. The petroleum contamination is the result of a release(s) from the UST system. The investigation also indicates that contamination from this site is responsible for the gasoline-contaminated groundwater that impacted the adjacent residence in 1998.

The RI also found that groundwater contamination has migrated off-site as evidenced by dissolved gasoline constituents in two hydraulically downgradient monitoring wells (MW-4 and MW-6). Cottonwood Creek, located approximately 500 feet north and downgradient of the site has apparently not been impacted as evidenced by groundwater samples taken from MW-10 located adjacent to the creek (refer to the Site Map on page 3).

Gasoline, as free-phase product, was found in an upgradient monitoring well (MW-3), suggesting an off-site source may be a contributor to the groundwater contamination. The former Corner Express (Texaco), located immediately to the south and apparently upgradient seemed a likely source. However, a subsequent analysis of the gasoline found in MW-3 identified characteristics significantly different than what was found at either the Corner Express of the Priceless Gas site. It is possible that the product in this well may have originated from an as yet unidentified source. Utility lines (including water and sewer lines) are located within 20 feet of this well. These represent a potential transport pathway for an as yet unidentified source of contamination, and there has been a history of leaks and repairs of these lines. Regardless, the gasoline found in monitoring well MW-3 apparently affects a very limited area and does not appear to be the result of an active source.

## Final Cleanup Action Plan

A Final Cleanup Action Plan (FCAP) was completed in June 2003 as part of the process that documents the progress of a site investigation and cleanup. The cleanup actions selected by Ecology for implementation are based upon a review of the site investigation reports and the regulatory requirements of MTCA. Cleanup standards for contaminated soil and groundwater are also established at points of compliance, which are strategically

selected locations within the affected or potentially affected area where cleanup levels must be met.
In summary, the selected final cleanup action for the Priceless Gas Site consists of the following elements. Final Cleanup Action is scheduled for completion in 2004:

- Soil removal (associated with construction); site grading/compaction;
- Product recovery sump at MW-3;
- Groundwater treatment (within trench along north property boundary);
- Backfilling of excavated areas with appropriate materials;
- Quarterly sampling and analysis of groundwater monitoring wells designated as points of compliance or performance monitoring points;
- Institutional controls – a restrictive covenant will be placed on the deed of this property to ensure that the potential exposure risk to contaminated soils is known and that site activities are considerate of these potential risks. The restrictive covenant will be removed when it has been demonstrated through sampling that soil and groundwater cleanup levels have been attained.

### Other Investigations and Remedial Actions

The former Corner Express (Texaco) site, located southwest of the former Priceless Gas, was the subject of an Ecology emergency enforcement order in December 2000. This order was issued, in part, due to the discovery of free-phase gasoline in MW-3 and concerns with the status of the USTs at the Corner Express site. The order directed the owner of the site to provide for the emptying of the UST system; a complete inspection and testing of each UST system component and a site assessment. The Remedial Investigation / Feasibility Study was completed in 2002 and resulted in UST removal and a Final Cleanup Action was completed in 2003.

## COMMUNITY BACKGROUND

### Community Profile

The county seat for Lincoln County is located in the city of Davenport. Of some 3,500 persons employed in Lincoln County, one-third is employed in agriculture, while the remainder is employed by governmental agencies or in consumer services. Hunting, fishing, boating and sightseeing attract thousands of persons to this area annually. The major recreational feature is Coulee Dam National Recreation Area, which encompasses F.D. Roosevelt Lake, the reservoir behind Grand Coulee Dam. The incorporated population of Lincoln County has remained fairly stable over the past 60 or 70 years while the farm population has declined sharply accompanied by an increase in average farm size. Existing total Lincoln County population density is 4.1 persons per square mile with the unincorporated density at 1.6 persons per square mile. There are

approximately 3,360 households in Lincoln County and the average household size is 2.8 persons.

# COMMUNITY INTERVIEWS

Community interviews are informal interviews held with selected individuals or small groups representing local residents, government officials, local businesses, the media, community groups and potentially liable persons. The purpose of the interview is to gather pertinent information that may be used during development of an effective public participation plan. An effective plan encourages citizen involvement and meets the special concerns of the community in relation to the Site. This process will also allow assessment of the scope of concern in the community.

During Remedial Investigation (RI) field activities, informal interviews and ongoing interactions have occurred with the Dehn family, Lincoln County Environmental Health, Ecology, and City of Davenport Public Works. A very small number of individuals have also passed by the site during field activities and asked questions about the work. Additionally, newspaper articles related to the site were obtained from the Davenport Times for review.

## Community Concerns

Prior public notices for the Enforcement Order, RI/FS, and Cleanup Action resulted in limited comments. Responsiveness summaries were prepared and are provided in Appendix B. The community, in general, is apparently most concerned about the direct impacts the site release has had on the Dehn family and the length of time it has taken to conduct cleanup activities and return the area to normal conditions. Pre-RI remediation activities, related to excavation and decommissioning of the USTs, created some safety concerns about the condition of the site at the time (unsecured, water-filled excavation and vapors from excavated contaminated soils); however, there does not appear to be significant community interest (with the exception of the Dehn family) in the site remediation process, or potential risks to human health and the environment. The site surface is currently stabilized (all excavations filled and graded), which has also reduced the level of community concerns about the site. Final Cleanup Action construction activities during 2004 will likely generate some community interest and increased interaction and coordination with the Dehn family will be required for monitoring components.

# PUBLIC PARTICIPATION ACTIVITIES AND TIMELINE

The following are public participation efforts, which have been made and will continue until the cleanup actions are completed:

A mailing list was developed of all individuals who reside within the potentially affected area of the Site. The potentially affected vicinity covers the Priceless Gas Site located at 1110 Morgan Street in the City of Davenport, Lincoln County, Washington. Homes and/or businesses within a few blocks radius of the Site were added to the mailing list. These persons will receive copies of all fact sheets developed regarding the cleanup process of the Site via first class mail. (Note: Addresses were taken directly from the exterior of the homes for the mailing of the fact sheet describing the Enforcement Order and initial cleanup process, however, several were returned due to a post office box only system of mailing. Post office boxes were identified for as many homes as possible and mailings resent. Some mailings were hand delivered.) Additionally, individuals, organizations, local, state and federal governments, and any other interested parties have been added to the mailing list. Other interested persons may request to be on the mailing list at any time by contacting Mike Boatsman or Carol Bergin at the Department of Ecology (see page 1 for addresses/phone and e-mail). Public Repositories have been established and documents may be reviewed at the following offices:

Davenport Public Library
411 Morgan
Davenport, WA
(509) 725-4355

Washington State Department of Ecology
Eastern Regional Office
4601 North Monroe Street
Spokane, WA 99205-1295
(509) 329-3400

During each stage of cleanup fact sheets are created by Ecology and distributed to individuals on the mailing list. These fact sheets explain the stage of cleanup, the Site background, what happens next in the cleanup process and ask for comments from the public. A 30-day comment period allows interested parties time to comment on the process. The information from these fact sheets is also published in a Site Register, which is distributed to the public. Persons interested in receiving the Site Register should contact Sherrie Minnick of Ecology at (360) 407-7200 or email: shan461@ecy.wa.gov.

Display ads or legal notices are published in the Davenport Times to inform the general public. These notices correlate with the 30-day comment period and associated stage of cleanup. They are also used to announce public meetings and workshops or public hearings.

Public meetings, workshops, open houses and public hearings are held based upon the level of community interest. If ten or more persons request a public meeting based on the subject of the public notice, Ecology will hold a meeting and gather comments. The following facilities are located near the site where public meetings, open houses and/or hearings may be held:

- Cottonwood Inn
- Avista Utilities
- US Bank Building
- Memorial Hall

Written comments, which are received during the 30-day comment period will be responded to in a Responsiveness Summary. The Responsiveness Summary will be sent to those who make the written comments and will be available for public review at the Repositories.

## Answering Questions From The Public

Individuals in the community may have questions they want to discuss to clarify the cleanup process. Page 1 lists the various contacts for the Priceless Gas Site. Interested persons are encouraged to contact these persons by phone or e-mail to obtain information about the Site, the process and potential decisions.

## Public Notice and Comment Periods

Ecology conducted a public comment period for thirty days (June 25, 1999 through July 26, 1999) to collect input regarding the Enforcement Order. Only one comment was received and no responsiveness summary was prepared.

## TIME LINE

DATE ACTION TAKEN: June 24, 1999

Enforcement Order Issued: June 25, 1999 - Fact Sheet mailed re: Enforcement Order Thirty day comment period (6/25 – 7/26/99).

July 1, 1999: Legal Notice published in Davenport Times re: Enforcement Order & comment period.

July 30, 1999: Draft Work Plan submitted to Ecology describing work to be performed and schedule for Remedial Investigation.

September 15, 1999: Final RI Work Plan submitted to Ecology for approval.

September 30, 1999 through December 1, 1999: Remedial Investigation Field Activities.

January 21, 2000: Draft RI Report submitted to Ecology for review.

February 28, 2000: Ecology comments on Draft RI Report.

March 20, 2000: Final RI Report submitted Ecology for approval.

April 9, 2000:

# APPENDIX A

## CURRENT MAILING LIST – PRICELESS GAS

ENVIRONMENTAL LAW CAUCUS
G' 'ZAGA LAW SCHOOL
60 SHARP AVENUE
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SEATTLE WA 98102-3699

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SPOKANE WA 99040

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KHQ TV
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ASSIGNMENT EDITOR
KREM TV NEWS
P ' BOX 8037
S ANE WA 99203-0037

ASSIGNMENT EDITOR
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SPOKANE WA 99201-2497

ASSIGNMENT EDITOR
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SPOKANE WA 99201-2497

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SPOKANE WA 99210-2173

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MS DONNA BATCH
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HON DERAL BOLENEUS
COUNTY COMMISSIONER
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REARDAN WA 99029-0149

MR GORDON BONSER
P O BOX 96
DAVENPORT WA 99122

MR LLOYD BOURNE
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SPRAGUE WA 99032-9717

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OLYMPIA WA 98504-0482

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19931 ROAD 6 SE
WARDEN WA 98857-9608

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P O BOX 356
DAVENPORT WA 99122

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DAVENPORT WA 99122

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BUSINESS OWNER
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DAVENPORT WA 99122

EDITOR
DAVENPORT TIMES
504 MORGAN
DAVENPORT WA 99122

MS FLORANGELA DAVILA
SEATTLE TIMES
P O BOX 70
SEATTLE WA 98111

BRUCE & DAWN DEHN mailing:
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D ENPORT WA 99122

MS ANNE DUFFY
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OLYMPIA WA 98504-7825

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27234 STATE ROUTE 25 NORTH
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RESIDENT
P O BOX 1229
DAVENPORT WA 99122

RESIDENT
P O BOX 1247
DAVENPORT WA 99122

RESIDENT
P O BOX 613
DAVENPORT WA 99122

RESIDENT
P O BOX 196
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RESIDENT
P O BOX 136
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RESIDENT
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HON ALEX WOOD
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P O BOX 40600
O MPIA WA 98504-0600

# APPENDIX B

## ENFORCEMENT ORDER
## NO. DE 99-TC-E102

## FACT SHEETS
## AND
## LEGAL NOTICES

# APPENDIX C
## GLOSSARY

**Agreed Order**: A legal document issued by Ecology, which formalizes an agreement between the department and potentially liable persons (PLPs) for the actions needed at a site. An agreed order is subject to public comment. If an order is substantially changed, an additional comment period is provided.

**Applicable State and Federal Law**: All legally applicable requirements and those requirements that Ecology determines are relevant and appropriate requirements.

**Area Background**: The concentrations of hazardous substances that are consistently present in the environment in the vicinity of a site which are the result of human activities unrelated to releases from that site.

**Carcinogen**: Any substance or agent that produces or tends to produce cancer in humans.

**Chronic Toxicity**: The ability of a hazardous substance to cause injury or death to an organism resulting from repeated or constant exposure to the hazardous substance over an extended period of time.

**Cleanup**: The implementation of a cleanup action or interim action.

**Cleanup Action**: Any remedial action, except interim actions, taken at a site to eliminate, render less toxic, stabilize, contain, immobilize, isolate, treat, destroy, or remove a hazardous substance that complies with cleanup levels; utilizes permanent solutions to the maximum extent practicable; and includes adequate monitoring to ensure the effectiveness of the cleanup action.

**Cleanup Action Plan**: A document, which identifies the cleanup action and specifies cleanup standards and other requirements for a particular site. After completion of a comment period on a Draft Cleanup Action Plan, Ecology will issue a final Cleanup Action Plan.

**Cleanup Level**: The concentration of a hazardous substance in soil, water, air or sediment that is determined to be protective of human health and the environment under specified exposure conditions.

**Cleanup Process**: The process for identifying, investigating, and cleaning up hazardous waste sites.

**Consent Decree**: A legal document approved and issued by a court, which formalizes an agreement reached between the state and potentially liable persons (PLPs) on the actions

needed at a site. A decree is subject to public comment. If a decree is substantially changed, an additional comment period is provided.

**Containment**: A container, vessel, barrier, or structure, whether natural or constructed, which confines a hazardous substance within a defined boundary and prevents or minimizes its release into the environment.

**Contaminant**: Any hazardous substance that does not occur naturally or occurs at greater than natural background levels.

**Enforcement Order**: A legal document, issued by Ecology, requiring remedial action. Failure to comply with an enforcement order may result in substantial liability for costs and penalties. An enforcement order is subject to public comment. If an enforcement order is substantially changed, an additional comment period is provided.

**Environment**: Any plant, animal, natural resource, surface water (including underlying sediments), ground water, drinking water supply, land surface (including tidelands and shorelands) or subsurface strata, or ambient air within the state of Washington.

**Exposure**: Subjection of an organism to the action, influence or effect of a hazardous substance (chemical agent) or physical agent.

**Exposure Pathways**: The path a hazardous substance takes or could take form a source to an exposed organism. An exposure pathway describes the mechanism by which an individual or population is exposed or has the potential to be exposed to hazardous substances at or originating from the site. Each exposure pathway includes an actual or potential source or release from a source, an exposure point, and an exposure route. If the source exposure point differs from the source of the hazardous substance, exposure pathway also includes a transport/exposure medium.

**Facility**: Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly-owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, vessel, or aircraft; or any site or area where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed or, placed, or otherwise come to be located.

**Feasibility Study (FS):** A study to evaluate alternative cleanup actions for a site. A comment period on the draft report is required. Ecology selects the preferred alternative after reviewing those documents.

**Free Product**: A hazardous substance that is present as a nonaqueous phase liquid (that is, liquid not dissolved in water).

**Groundwater**: Water found beneath the earth's surface that fills pores between materials such as sand, soil, or gravel. In aquifers, groundwater occurs in sufficient quantities that it can be used for drinking water, irrigation, and other purposes.

**Hazardous Sites List**: A list of sites identified by Ecology that requires further remedial action. The sites are ranked from 1 to 5 to indicate their relative priority for further action.

**Hazardous Substance**: Any dangerous or extremely hazardous waste as defined in RCW 70.105.010 (5) (any discarded, useless, unwanted, or abandoned substances including, but not limited to, certain pesticides, or any residues or containers of such substances which are disposed of in such quantity or concentration as to pose a substantial present or potential hazard to human health, wildlife, or the environment because such wastes or constituents or combinations of such wastes; (a) have short-lived, toxic properties that may cause death, injury, or illness or have mutagenic, teratogenic, or carcinogenic properties; or (b) are corrosive, explosive, flammable, or may generate pressure through decomposition or other means,) and (6) (any dangerous waste which (a) will persist in a hazardous form for several years or more at a disposal site and which in its persistent form presents a significant environmental hazard and may affect the genetic makeup of man or wildlife; and is highly toxic to man or wildlife; (b) if disposed of at a disposal site in such quantities as would present an extreme hazard to man or the environment), or any dangerous or extremely dangerous waste as designated by rule under Chapter 70.105 RCW: any hazardous substance as defined in RCW 70.105.010 (14) (any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the characteristics or criteria of hazardous waste as described in rules adopted under this chapter,) or any hazardous substance as defined by rule under Chapter 70.105 RCW; petroleum products.

**Hazardous Waste Site**: Any facility where there has been a confirmation of a release or threatened release of a hazardous substance that requires remedial action.

**Independent Cleanup Action**: Any remedial action conducted without Ecology oversight or approval, and not under an order or decree.

**Initial Investigation**: An investigation to determine that a release or threatened release may have occurred that warrants further action.

**Interim Action**: Any remedial action that partially addresses the cleanup of a site.

**Mixed Funding**: Any funding, either in the form of a loan or a contribution, provided to potentially liable persons from the state toxics control account.

**Model Toxics Control Act (MTCA)**: Washington State's law that governs the investigation, evaluation and cleanup of hazardous waste sites. Refers to RCW 70.105D.

It was approved by voters at the November 1988 general election and known is as Initiative 97. The implementing regulation is WAC 173-340.

**Monitoring Wells**: Special wells drilled at specific locations on or off a hazardous waste site where groundwater can be sampled at selected depths and studied to determine the direction of groundwater flow and the types and amounts of contaminants present.

**Natural Background**: The concentration of hazardous substance consistently present in the environment, which has not been influenced by localized human activities.

**National Priorities List (NPL)**: EPA's list of hazardous waste sites identified for possible long-term remedial response with funding from the federal Superfund trust fund.

**Owner or Operator**: Any person with any ownership interest in the facility or who exercises any control over the facility; or in the case of an abandoned facility, any person who had owned or operated or exercised control over the facility any time before its abandonment.

**Polynuclear Aromatic Hydrocarbon (PAH)**: A class of organic compounds, some of which are long lasting and carcinogenic. These compounds are formed from the combustion of organic material and are ubiquitous in the environment. PAHs are commonly formed by forest fires and by the combustion of fossil fuels.

**Potentially Liable Person (PLP)**: Any person whom Ecology finds, based on credible evidence, to be liable under authority of RCW 70.105D.040.

**Public Notice**: At a minimum, adequate notice mailed to all persons who have made a timely request of Ecology and to persons residing in the potentially affected vicinity of the proposed action; mailed to appropriate news media; published in the local (city or county) newspaper of largest circulation; and opportunity for interested persons to comment.

**Public Participation Plan**: A plan prepared under the authority of WAC 173-340-600 to encourage coordinated and effective public involvement tailored to the public's needs at a particular site.

**Recovery By-Products**: Any hazardous substance, water, sludge, or other materials collected in the free product removal process in response to a release from an underground storage tank.

**Release**: Any intentional or unintentional entry of any hazardous substance into the environment, including, but not limited to, the abandonment or disposal of containers of hazardous substances.

**Remedial Action**: Any action to identify, eliminate, or minimize any threat posed by hazardous substances to human health or the environment, including any investigative and monitoring activities of any release or threatened release of a hazardous substance and any health assessments or health effects studies.

**Remedial Investigation**: A study to define the extent of problems at a site. When combined with a study to evaluate alternative cleanup actions it is referred to as a Remedial Investigation/Feasibility Study (RI/FS). In both cases, a comment period on the draft report is required.

**Responsiveness Summary**: A compilation of all questions and comments to a document open for public comment and their respective answers/replies by Ecology. The Responsiveness Summary is mailed, at a minimum, to those who provided comments and its availability is published in the Site Register.

**Risk Assessment**: The determination of the probability that a hazardous substance, when released into the environment, will cause an adverse effect in exposed humans or other living organisms.

**Sensitive Environment**: An area of particular environmental value, where a release could pose a greater threat than in other areas including: wetlands; critical habitat for endangered or threatened species; national or state wildlife refuge; critical habitat, breeding or feeding area for fish or shellfish; wild or scenic river; rookery; riparian area; big game winter range.

**Site**: See Facility.

**Site Characterization Report**: A written report describing the site and nature of a release from an underground storage tank, as described in WAC 173-340-450 (4) (b).

**Site Hazard Assessment (SHA)**: An assessment to gather information about a site to confirm whether a release has occurred and to enable Ecology to evaluate the relative potential hazard posed by the release. If further action is needed, an RI/FS is undertaken.

**Site Register**: Publication issued every two weeks of major activities conducted statewide related to the study and cleanup of hazardous waste sites under the Model Toxics Control Act. To receive this publication, please call (360) 407-7200.

**Surface Water**: Lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the state of Washington or under the jurisdiction of the state of Washington.

**TCP**: Toxics Cleanup Program at Ecology

**Total Petroleum Hydrocarbons (TPH)**: A scientific measure of the sum of all petroleum hydrocarbons in a sample (without distinguishing one hydrocarbon from another). The "petroleum hydrocarbons" include compounds of carbon and hydrogen that are derived from naturally occurring petroleum sources or from manufactured petroleum products (such as refined oil, coal, and asphalt).

**Toxicity**: The degree to which a substance at a particular concentration is capable of causing harm to living organisms, including people, plants and animals.

**Underground Storage Tank (UST)**: An underground storage tank and connected underground piping as defined in the rules adopted under Chapter 90.76 RCW.

**Washington Ranking Method (WARM)**: Method used to rank sites placed on the hazardous sites list. A report describing this method is available from Ecology.

# APPENDIX E

# RESTRICTIVE COVENANT

**Exhibit C**

**RESTRICTIVE COVENANT**

**MERIT TRUCK STOP, INC. AND THE FORMER PRICELESS GAS**

This Declaration of Restrictive Covenant is made pursuant to RCW70.105D.030(1)(f) and (g) and WAC 173-340-440 by Merit Truck Stop, Inc., its successors and assigns, and the State of Washington, Department of Ecology, its successors and assigns (hereafter "Ecology").

A remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Restrictive Covenant. The Remedial Action conducted at the property is described in the following document:. Remedial Investigation and Feasibility Study – Supplemental Report (Sheila Pachernegg, April 9, 2001). This document is on file at Ecology's Eastern Regional Office.

This Restrictive Covenant is required because the Remedial Action resulted in residual concentrations of petroleum contamination which exceed the Model Toxics Control Act Method, Method A Residential Cleanup Levels for soil and groundwater established under WAC 173-340-740(2).

This Restrictive Covenant is required because the Remedial Action resulted in residual concentrations of petroleum contamination which exceed the Model Toxics Control Act Method, Method A Residential Cleanup Levels for soil and groundwater established under WAC 173-340-740(2).

The undersigned, Peter Hirschburg, is the representative of Merit Truck Stop, Inc./F.O.F., Inc., the fee owner of real property (hereafter "Property") in the County of Lincoln, State of Washington, that is subject to this Restrictive Covenant. The Property is legally described as follows:

Lots Six (6), Seven (7) and Eight (8) in block Thirty (30) of TIMMONS SECOND ADDITION to the Town (now City) of Davenport, in the County of Lincoln and State of Washington

SUBJECT TO: Reservation of minerals and the use of such surface ground as may be necessary for mining operation, and the right of access to the same, as contained in Deed from Northern Pacific Railroad Company and the Farmers' Loan and Trust Company, Trustee, to Hallie A. Timmons, dated August 1, 1883, recorded in Book "E" of Deeds, Page 96, records of Lincoln County, Washington

Merit Truck Stop, Inc/F.O.F., Inc., makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Section 1.

1. "No groundwater may be taken for any beneficial use from the Property."

2. "A portion of the Property contains petroleum contaminated soil. The Owner shall not conduct any activities at the Property that may result in the release of exposure to the environment of that contaminated soil or create a new exposure pathway without prior written approval from "Ecology". Some examples of these activities that are include drilling or digging.

Section 2. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the Property must give thirty (30) days advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5. The Owner must restrict leases to uses and activities consistent with the Restrictive Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Restrictive Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the Property, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Restrictive Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

Peter Hirschburg, President, Merit Truck Stop, Inc.,/ F.O.F., Inc.

Constance M. Wilson, Secretary, Merit Truck Stop, Inc./F.O.F., Inc.

Date Sept 29, 2003

State of Idaho )
S.S.
County of Ada )

On this 29th day of Sept, in the year of 2003, before me Linda R. Keaton, a notary public, personally appeared Peter Hirschburg & Constance M. Wilson, personally known to me to be the person(s) whose name(s) is (are) subscribed to the within instrument, and acknowledged to me that he (she) (they) executed the same.

SEAL

Linda R. Keaton
Notary Public

My Commission Expires on 1/12/07

LINDA R. KEATON NOTARY PUBLIC STATE OF IDAHO