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June 4, 2003

Mr. Chung Yee
Washington Department of Ecology
Central Region
15 West Yakima Avenue
Yakima, WA 98902-3387

RE: Transmittal of:
Remedial Activities Status Report - September 2001 through December 2002
Time Oil Co. Property 01-056; Jackpot Food Mart
500 George Washington Way; Richland, Washington

Dear Mr. Yee,

Please find enclosed herewith a copy of the above referenced report produced for Time Oil Co. by GeoEngineers, Inc. The following paragraphs present an update of recent site activities, a description of remedial actions conducted to date, an evaluation of changes in environmental conditions observed since remediation commenced, and our plans for future work. Please refer to the enclosed report for a more detailed description of the remediation project.

RECENT SITE ACTIVITIES:
A detailed site history has been presented in numerous previous reports and submittal letters, and will therefore not be reiterated here. Please refer to the "Site and Project History" section of the enclosed report for a complete site history and discussion of previous environmental work. No environmental work other than remediation system operation & maintenance and groundwater monitoring has been conducted at the site since the East Park Remedial System (EPRS) was decommissioned and relocated in November 2000.

REMEDIAL SYSTEM DESCRIPTION:
The remedial system at the site consists of three subsystems which operate in different areas of the site. The Subject Property Remedial System (SPRS) is located at the eastern boundary of the Time Oil Co. property. The West Park Remedial System (WPRS) is located between the Time Oil Co. property and the western edge of the adjacent community center parking lot. The New East Park Remedial System (EPRS-2) is located near the southeastern corner of the newly constructed Richland Community Center. Locations of the remedial subsystems are shown on Figure 2 of the enclosed Remedial Activities Report.

Each remedial system includes of a line of groundwater air sparging wells installed perpendicular to the axis of the groundwater plume. Vapor extraction wells are included in each remedial system to capture hydrocarbon vapors produced by air sparging activities, if necessary. The SPRS also includes a series of vapor extraction and passive sparging wells installed in the area of, and downgradient from, former gasoline dispensing facilities. Air sparging activities in the areas of the WPRS and EPRS-2 produce sufficiently low quantities of hydrocarbon vapors such that vapor extraction is not necessary in these areas. However, the WPRS and EPRS-2 include horizontal vapor extraction lines to be used, if necessary, as precautionary measures against the generation of hydrocarbon vapors.

The SPRS commenced operation in October 1996. The SPRS operated as an extended pilot test for the first six months of operation. A programmable controller was used during the extended pilot test to automatically alternate between three combinations of two vapor extraction and two air sparging wells every eight hours. The SPRS was reconfigured at the conclusion of the extended pilot test to operate all vapor extraction and air sparging wells on a continuous basis. The former EPRS operated four air sparging wells on a continuous basis between May 1998 and November 2000. The EPRS-2 currently operates five air sparging wells on a continuous basis. The WPRS operates five air sparging wells on a continuous basis. Vapor extraction is not currently being conducted from the WPRS or EPRS-2. Figure 3 of the enclosed Remedial Activities Report displays flow diagrams for each of the remedial subsystems.

Remedial effectiveness is evaluated by estimating the amount and rate of hydrocarbon removal from vapor extraction activities associated with operation of the SPRS and WPRS, and evaluating changes in groundwater contaminant concentrations throughout the site.

Petroleum Hydrocarbon Removal Rates:
Petroleum hydrocarbon removal rates for the SPRS and WPRS vapor extraction systems have been estimated by collecting influent vapor samples and performing analytical testing to determine the concentrations of gasoline range petroleum hydrocarbons (GRPH) and volatile hydrocarbons (BTEX) being removed. System air flow data were also collected such that hydrocarbon removal rates and the cumulative total amount of hydrocarbons removed could be calculated.

Vapor extraction has not been conducted from the WPRS since December 1999, and analytical results from the SPRS have been low to non-detectable since late 1998. Thus, hydrocarbon mass removal values discussed below primarily represent remedial progress achieved prior to 2000. A majority of current remedial progress is believed to occur through biodegradation enhanced by air sparging activities. The following section's evaluation of changes in groundwater quality is believed to be the best current method to gauge remedial progress.

Vapor analytical results from samples collected from the SPRS indicate that respective average daily removal rates for GRPH and BTEX have been 1.22 and 0.06 pounds per day since completion of the extended pilot test in April 1997. Vapor analytical results from samples collected from the WPRS indicate that respective average daily removal rates for GRPH and BTEX have been between 1.54 and 0.04 pounds per day since the WPRS commenced operation in January 1999.

Vapor analytical data indicates that approximately 2,768 pounds of hydrocarbons have been recovered from the SPRS since this subsystem commenced operation in October 1996. Vapor analytical data indicates that approximately 507 pounds of hydrocarbons have been recovered from the WPRS since this subsystem commenced operation in January 1999. SPRS and WPRS influent concentrations of GRPH and BTEX over time are presented as Figures 4 through 7 of the enclosed Remedial Activities Report. SPRS and WPRS cumulative hydrocarbon recovery curves for GRPH and BTEX are respectively presented as Figures 8 through 11 of the Remedial Activities Report.

Groundwater Quality Evaluation:
Groundwater analytical results from the remedial wells and monitoring wells were evaluated to assess changes in hydrocarbon impacted groundwater concentrations and assess the systems' effectiveness in reducing hydrocarbon concentrations in groundwater. The evaluation discussed below, and in the enclosed report, is based on the new well array following the community center construction project. Completion of the community center construction project required abandonment of wells MW-10, MW-12, MW-24, MW-26, SW-8, SW-9, and SW-10. Replacement wells MW-27, MW-28, MW-29, SW-16, SW-17, SW-18 and SW-19 were installed approximately 75 feet east of the former EPRS' location. Groundwater samples were tested for GRPH and BTEX.

The 48 wells at the site were divided into five categories for evaluation: Jackpot Property Wells, consisting of 19 wells located on or immediately adjacent to the Time Oil Co. property; WPRS and Vicinity Wells, consisting of the 11 wells located between the Time Oil Co. property and the adjacent community center parking lot; EPRS and Vicinity Wells, consisting of 9 wells located directly east of the adjacent baseball field; Downgradient Park Wells, consisting of the 6 wells located in the grassy area between the former EPRS and the Columbia River; and Upgradient Wells, consisting of 3 wells located upgradient (west) of the subject property. Average contaminant concentration trends in all 48 wells were also evaluated.

Average groundwater GRPH and BTEX concentrations for each group of wells were calculated from analytical results reported before remediation began, in July 1997 (approximately 10 months after remediation began), July 1998 (approximately 22 months after remediation began), July 1999 (approximately 34 months after remediation began), July 2000 (approximately 46 months after remediation began), July 2001 (approximately 58 months after remediation began), and July 2002 (approximately 70 months after remediation began). If a hydrocarbon constituent was not detected, the detection limit was used in calculating average constituent concentrations. Trends in average analyte concentrations for each well category are discussed below.

Jackpot Property Wells (19 total):
Groundwater analytical data from all Jackpot Property Wells indicates an average GRPH concentration of 10,036 µg/L prior to the commencement of remediation, 7,087 µg/L after 10 months of remediation (July 1997), 4,662 µg/L after 22 months of remediation (July 1998), 1,659 µg/L after 34 months of remediation (July 1999), 3,129 µg/L after 46 months of remediation (July 2000), and 782 µg/L after 58 months of remediation (July 2001), and 1,078.7 µg/L after 70 months of remediation (July 2002). The analytical data also indicates an average total BTEX concentration in these wells of 1,093 µg/L prior to the commencement of remediation, 363 µg/L after 10 months of remediation (July 1997), 329 µg/L after 22 months of remediation (July 1998), 174.1 µg/L after 34 months of remediation (July 1999), 418.2 µg/L after 46 months of remediation (July 2000), 35.5 µg/L after 58 months of remediation (July 2001), and 39.0 µg/L after 70 months of remediation (July 2002). These data indicate respective GRPH and BTEX reductions of 89 and 96 percent since the commencement of remediation.

WPRS and Vicinity Wells (11 total):
Groundwater analytical data from the WPRS and Vicinity Wells indicates an average GRPH concentration of 12,186 µg/L prior to the commencement of remediation, 10,120 µg/L after 10 months of remediation (July 1997), 7,929 µg/L after 22 months of remediation (July 1998), 2,678 µg/L after 34 months of remediation (July 1999), 2,593 µg/L after 46 months of remediation (July 2000), 1,764 µg/L after 58 months of remediation (July 2001), and 1,137.7 µg/L after 70 months of remediation (July 2002). The analytical data also indicates an average total BTEX concentration in these wells of 2,186 µg/L prior to the commencement of remediation, 975 µg/L after 10 months of remediation (July 1997), 526 µg/L after 22 months of remediation (July 1998), 168.3 µg/L after 34 months of remediation (July 1999), 125.8 µg/L after 46 months of remediation (July 2000), 111.4 µg/L after 58 months of remediation (July 2001), and 38.1 µg/L after 70 months of remediation (July 2002). These data indicate respective GRPH and BTEX reductions of 91 and 98 percent since the commencement of remediation.

EPRS and Vicinity Wells (9 total):
Groundwater analytical data from the EPRS and Vicinity Wells indicates an average GRPH concentration of 6,045 µg/L prior to the commencement of remediation, 7,764 µg/L after 10 months of remediation (July 1997), 852 µg/L after 22 months of remediation (July 1998), 328 µg/L after 34 months of remediation (July 1999), 185 µg/L after 46 months of remediation (July 2000), 502 µg/L after 58 months of remediation (July 2001 – new well array), and 106 µg/L after 70 months of remediation (July

2002). The analytical data also indicates an average total BTEX concentration in these wells of 408 µg/L prior to the commencement of remediation, 98.7 µg/L after 10 months of remediation (July 1997), 19.1 µg/L after 22 months of remediation (July 1998), 9.3 µg/L after 34 months of remediation (July 1999), 21.7 µg/L after 46 months of remediation (July 2000), 17.7 µg/L after 58 months of remediation (July 2001 – new well array), and 1.0 µg/L after 70 months of remediation (July 2002). These data indicate respective GRPH and BTEX reductions of 98 and 99 percent since the commencement of remediation.

Downgradient Park Wells (6 total):
Groundwater analytical data from the Downgradient Park Wells indicates an average GRPH concentration of 1,082 µg/L prior to the commencement of remediation, 1,667 µg/L after 10 months of remediation (July 1997), 137 µg/L after 22 months of remediation (July 1998), 117 µg/L after 34 months of remediation (July 1999), 57 µg/L after 46 months of remediation (July 2000), 48 µg/L after 58 months of remediation (July 2001), and 32.3 µg/L after 70 months of remediation (July 2002). The analytical data also indicates an average total BTEX concentration in these wells of 40.8 µg/L prior to the commencement of remediation, 58 µg/L after 10 months of remediation (July 1997), 7 µg/L after 22 months of remediation (July 1998), 5.1 µg/L after 34 months of remediation (July 1999), 5.5 µg/L after 46 months of remediation (July 2000), 3.5 µg/L after 58 months of remediation (July 2001), and 1.3 µg/L after 70 months of remediation (July 2002). These data indicate respective GRPH and BTEX reductions of 97 and 97 percent since the commencement of remediation.

Upgradient Wells (3 total):
Groundwater analytical data from the Upgradient Wells indicates an average GRPH concentration of 1,243 µg/L prior to the commencement of remediation, 110 µg/L after 10 months of remediation (July 1997), 54 µg/L after 22 months of remediation (July 1998), 85 µg/L after 34 months of remediation (July 1999), 36 µg/L after 46 months of remediation (July 2000), 25 µg/L after 58 months of remediation (July 2001), and 25 µg/L after 70 months of remediation (July 2002). The analytical data also indicates an average total BTEX concentration in these wells of 77.7 µg/L prior to the commencement of remediation, 4 µg/L after 10 months of remediation (July 1997), 2.5 µg/L after 22 months of remediation (July 1998), 2.8 µg/L after 34 months of remediation (July 1999), 3.0 µg/L after 46 months of remediation (July 2000), 3.0 µg/L after 58 months of remediation (July 2001), and 3.0 µg/L after 70 months of remediation (July 2002). These data indicate respective GRPH and BTEX reductions of 98 and 97 percent since the commencement of remediation

Site Average (all 48 wells):
Groundwater analytical data from all site wells indicates an average GRPH concentration of 7,730 µg/L prior to the commencement of remediation, 6,125 µg/L after 10 months of remediation (July 1997), 3,471 µg/L after 22 months of remediation (July 1998), 1,352 µg/L after 34 months of remediation (July 1999), 1,877 µg/L after 46 months of remediation (July 2000), 816 µg/L after 58 months of remediation (July 2001), and 478 µg/L after 70 months of remediation (July 2002). The analytical data also indicates an average total BTEX concentration of 913 µg/L prior to the commencement of remediation, 338.9 µg/L after 10 months of remediation (July 1997), 231 µg/L after 22 months of remediation (July 1998), and 110 µg/L after 34 months of remediation (July 1999), 199.3 µg/L after 46 months of remediation (July 2000), 43.8 µg/L after 58 months of remediation (July 2001), and 16.5 µg/L after 70 months of remediation (July 2002). These data indicate respective GRPH and BTEX reductions of 94 and 98 percent throughout the site since the commencement of remediation.

Graphs plotting average GRPH and BTEX analytical concentrations vs. time for each well category are presented as Figures 12 and 13 of the enclosed Remedial Activities Report.

CONCLUSIONS:
Significant reductions in average groundwater contaminant concentrations have been observed for each well category, and the site as a whole, since remediation began. The July 2002 groundwater monitoring data indicates that contaminant concentrations for individual wells are either similar to, or well below, contaminant concentrations observed in the same wells in July 2001. The widespread contaminant level reductions indicate that remedial efforts underway at the site appear effective in reducing groundwater impacts beneath the site.

Average BTEX concentrations for all well groupings, and the site as a whole, are below MTCA Method A Cleanup Levels - Groundwater. The July 2002 groundwater analytical data also indicates that none of the Downgradient Park Wells or EPRS Vicinity Wells contained any contaminant concentrations exceeding MTCA Method A Cleanup Levels - Groundwater.

FUTURE WORK:
The three remedial subsystems will continue to operate throughout 2003. Quarterly groundwater monitoring will continue on a January, April, July, and October schedule. Results of a groundwater monitoring event conducted in April 2003 will be presented in a forthcoming report.

Additional sampling and analyses for bioattenuation parameters was conducted during the April 2003 groundwater monitoring event. This work was conducted to provide a basis for future evaluation of potential methods which may be employed to accelerate remedial progress. We hope to conduct localized pilot studies at the site to evaluate the feasibility of enhanced biodegradation of groundwater contaminants in mid to late 2003. Our consultant is currently preparing a pilot testing work plan proposing the use of peroxide and/or nitrate injection as methods to stimulate further reductions in groundwater contaminant concentrations. This work plan will be submitted to Ecology for review and approval prior to implementation.

If you have any questions or comments concerning this letter, the enclosed report, or the information contained within either, please call me at (206) 286-6457.

Sincerely,
TIME OIL CO.

Scott B. Sloan, R.G.
Geologist

Encls: Remedial Activities Status Report

cc: Mr. Pete Rogalsky - City of Richland
Mr. Bruce Williams - GeoEngineers, Inc. (w/o enclosures)

GeoEngineers

May 20, 2003

Consulting Engineers and Geoscientists

Time Oil Co.
2737 West Commodore Way
Seattle, Washington 98199-1233

Attention: Scott Sloan

This letter transmits four copies of our "Report, Remedial Activities, September 2001 through October 2002, Time Oil Company Property 01-056, Richland, Washington." The scope of services for this study was presented in our July 24, 1997 proposal. Our services have been completed in general accordance with the contract between Time Oil and GeoEngineers dated August 22, 1997.

We appreciate the opportunity to be of continued service to Time Oil Company and look forward to assisting you in the future. Should you have any questions regarding the contents of the attached report, please call.

Respectfully submitted,

GeoEngineers, Inc.

Bruce D. Williams
Associate

BDW: GDP: tlm
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GeoEngineers, Inc.
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Spokane, WA 99202
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Report
Remedial Activities
September 2001 through December 2002
Time Oil Company Property 01-056
Richland, Washington

May 20, 2003

for
Time Oil Company

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APPENDICES

REMEDIAL PROGRESS REPORT
SEPTEMBER 2001 THROUGH DECEMBER 2002
TIME OIL CO. PROPERTY 01-056
RICHLAND, WASHINGTON

INTRODUCTION

This report provides a summary of remedial activities conducted from September 2001 through December 2002 and the status of remedial progress at the subject site, located at and near Time Oil Co. Property 01-056 in Richland, Washington. The site is located at 500 George Washington Way (subject property) and in the southern portion of Howard Amon Park, approximately as shown in the Vicinity Map, Figure 1. Site features, including well locations and numbers, are shown in Site Plan, Figure 2.

Activities included operating and maintaining three, independently operating remedial systems located both on the subject property and east of the subject property in Howard Amon Park. All three systems have the potential to incorporate air sparging (AS) and soil vapor extraction (SVE). One system is located at the subject property and two systems are located in Howard Amon Park: one located southeast of the new Richland Community Center and another located along the west portion of the parking lot for the community center. Additionally, the existing system located southeast of the community center was installed following the dismantling of the system formerly located east of the former baseball field. The purposes of these remedial systems are to remove petroleum hydrocarbons from subsurface soil and groundwater and to stimulate biological degradation of petroleum hydrocarbons.

SITE BACKGROUND AND PREVIOUS STUDIES

The subject property operated as a bus depot and gasoline service station before being purchased by Time Oil Co. in 1959. The bus depot was demolished and a Jackpot Food Mart convenience store constructed in the central area of the site. Four steel underground storage tanks (USTs) and associated product piping and dispenser islands were removed from the southwestern corner of the site by 1990. Analytical testing of soil samples collected during tank removal activities indicated gasoline concentrations that exceeded the former cleanup criteria, as set forth in Method A of the Model Toxics Control Act (MTCA), were present in soil within the former UST excavation. Three new USTs and two dispenser islands were installed north-northeast of the former UST locations.

A 1993 site assessment included: installing five groundwater monitoring wells (MW-1 through MW-5) and one vapor well (VW-1); collecting and analyzing soil and groundwater samples; and conducting SVE tests. It was concluded during this assessment that gasoline-impacted soil was present near the former USTs and dispenser islands; gasoline-impacted groundwater was present beneath the site; shallow groundwater flowed east; and SVE would be a viable remedial technology. The upgradient and downgradient extents of gasoline-impacted groundwater were not defined during this assessment.

A 1995 site assessment included: installing six groundwater monitoring wells (MW-6 through MW-11), one recovery well (RW-1), and one AS test well (SW-1); collecting and analyzing soil and groundwater samples; and conducting AS/SVE tests. Four wells (MW-6, MW-7, MW-8, and MW-10) were installed downgradient (east) of the subject property in Howard Amon Park and one well (MW-11) was installed upgradient of the subject property (west) across George Washington Way. It was concluded, during the 1995 assessment, that gasoline-impacted groundwater was present approximately 70 feet upgradient and 310 feet downgradient of the subject property; a zone of petroleum hydrocarbon-impacted soil was present between approximately five and ten feet below static groundwater levels in the vicinity of wells RW-1, MW-7 and MW-10; and AS and SVE radii of influence were observed to be approximately 24 feet and 40 feet, respectively. The upgradient and downgradient extents of gasoline-impacted groundwater were not defined during this assessment. However, the crossgradient extent of gasoline-impacted groundwater was defined with wells MW-6 and MW-8.

Additional activities conducted in 1995 included: sampling soil along the west bank of the Columbia River downgradient of the plume; performing a limited risk assessment targeted at users of the park; evaluating the regional hydrology; conducting a supplemental site assessment to define the upgradient and downgradient extent of gasoline-impacted groundwater; and, installing subsurface components of an AS/SVE remedial pilot system located on the subject property. Results of the soil sampling event along the bank of the Columbia River indicated petroleum hydrocarbons in the downgradient direction of the groundwater plume were not present at concentrations above the former MTCA Method A cleanup criteria. The risk assessment concluded there are no health-based exposure risks to recreational users of the park from petroleum hydrocarbons in groundwater. It was concluded during the regional hydrology study that installation of McNary Dam in the 1950s raised Columbia River levels in Richland approximately ten feet, which, in turn, raised groundwater levels at the site, submerged the gasoline-impacted soil, and redirected groundwater flow; operation of the municipal Wellsian Way well field approximately 3,000 feet west of the site might have reversed groundwater flow direction towards the west; Yakima River flows have minimal, if any, impact on groundwater flow at the site; and groundwater velocity was approximately 3.67 feet per day. Based upon the presence of the submerged soil plume and an evaluation of river levels since the 1953 construction of McNary Dam, it is likely that a large release of gasoline occurred before construction of the dam and the subsequent rise in groundwater elevations beneath the site.

The supplemental site assessment included installing fourteen additional groundwater monitoring wells in November 1995 and January 1996 (MW-12 through MW-20, MW-21A, MW-21B, and MW-22 through MW-24), and collecting and analyzing soil and groundwater samples. Results of the groundwater sampling event conducted during this assessment defined the upgradient and downgradient extent of the gasoline-impacted groundwater. Installation of the subsurface components of an AS/SVE remedial pilot system was completed in conjunction with the supplemental site assessment in November 1995 and included: installing five additional air

sparge wells (SW-2 through SW-6) and four additional SVE wells (VW-2 through VW-5); placing vaults around remedial wells, which included the nine wells installed during this event and previously installed wells SW-1, RW-1, VW-1, MW-1, MW-3, MW-4, and MW-5; connecting wells to a treatment compound with subsurface polyvinyl chloride (PVC) and steel piping; and constructing a treatment compound. The remedial pilot system was constructed as a "sparge fence," extending across the full width of, and perpendicular to, the submerged petroleum hydrocarbon-impacted soil along the downgradient side of the subject property.

Design of the remedial pilot system was completed by July 1996 and aboveground components of the system were installed in September 1996. A remedial pilot test was conducted from October 1, 1996 through April 1, 1997, and the system continues to operate. Remedial pilot test results concluded the system successfully removed petroleum hydrocarbons from the subsurface and decreased the concentrations of petroleum hydrocarbons in groundwater samples collected from the subject property.

Success of the remedial pilot test prompted an expansion of the remedial pilot test system to areas of Howard Amon Park near the former baseball field. In December 1997, GeoEngineers completed an AS/SVE pilot test along both the east and west sides of the former baseball field. An expansion of the original remedial system included AS along the east side of the former baseball field and AS with SVE along the west side of the former baseball field. Initial subsurface components of this expansion were installed in March 1998. Startup of the AS remedial system east of the former baseball field occurred in May 1998. Startup of the AS/SVE remedial system along the west side of the former baseball field occurred in January 1999 (following the January 1999 sampling event). Details of the December 1997 remedial testing and subsequent remedial design, and installation of the remedial system east of the former baseball field are presented in "Remedial Pilot Testing – Howard Amon Park" (May 1998). Details of the January 1999 installation of the remedial system west of the former baseball field are presented in "Remedial System Installation Report" (May 1999).

Following the October 2000 groundwater monitoring event, most of the remedial system that was located east of the former baseball field was dismantled and abandoned, and a new remedial system was located about 50 to 100 feet east to facilitate installation of the Richland Community Center. Seven new remedial and monitoring wells were installed (SW-16 through SW-19 and MW-27 through MW-29) and wells MW-10, MW-12, MW-24, MW-26, and SW-8 through SW-10 were abandoned. Sparge well SW-11, a component of the former system, was incorporated in the new system. The new system started operations in June 2001.

PROJECT DESCRIPTION

Activities described in this report consist of operating and monitoring (O&M) the remedial systems located on the subject property (referred to in this report as the Subject Property Remedial System or SPRS), west of the former baseball field and in the west portion of the community center parking lot (referred to in this report as the West Park Remedial System or

WPRS), and east of the former baseball field and southeast of the community center (referred to in this report as the East Park Remedial System-2 or EPRS-2). The former EPRS, as referred to in previous progress reports, was dismantled in October 2000. The WPRS and EPRS-2 are located in Howard Amon Park, east of the subject property.

Operation of the SPRS began on October 1, 1996. This system operates by injecting compressed air into six air sparge wells and withdrawing petroleum hydrocarbon vapors from ten subsurface extraction wells. These wells are located near the former USTs, and along the eastern property boundary.

The WPRS includes both AS and SVE. Compressed air is introduced into five air sparge wells and soil vapors are extracted from a shallow, horizontal, vapor extraction line oriented in an approximate north-south direction. Operation of both components of the WPRS began on January 21, 1999. However, the SVE component of the WPRS was shut off in December 1999 following several consecutive sampling events during which petroleum hydrocarbons were not detected in vapor samples.

Operation of the former EPRS began on May 15, 1998. During autumn of 2000, the former EPRS was dismantled and EPRS-2 was installed, as a result of the Richland Community Center being constructed near the east portion of Howard Amon Park. Installation of the EPRS-2 included: (1) installing seven new wells; (2) relocating the former EPRS remedial vault and remedial equipment; (3) constructing an SVE trench; (4) connecting the new sparge wells to the compressor in the remedial vault; and (5) extending piping from the new vault location to the treatment compound. The EPRS-2 air sparging systems began operation on June 6, 2001. This system operates by injecting compressed air into five air sparge wells. A shallow, horizontal, SVE trench is located approximately between sparge wells SW-16 through SW-19.

SCOPE OF SERVICES

The purpose of our services is to monitor the progress and effectiveness of the remedial systems. Our general scope of services for this project includes remedial systems O&M, vapor sampling, evaluation of remedial systems progress, groundwater monitoring and reporting, design and installation of remedial systems, and remedial systems progress reporting. Our specific scope of services related to monitoring the progress of the remedial systems includes the following:

1. Conduct O&M visits on a frequent basis. During this reporting period, O&M visits were conducted approximately monthly.
2. Conduct the following activities during O&M visits: measure organic vapors from individual vapor extraction lines and at various locations in the remedial systems using a photoionization detector (PID); measure air velocity (and calculate air flow from air velocity measurements) through vapor extraction lines using a handheld anemometer; record applied vacuums at vapor extraction lines and the moisture knockout tanks; record air flow and pressure from gauges mounted to the lines exiting the air compressors; adjust flow valves and

gauges as necessary to optimize system performance; measure dissolved oxygen (DO) levels in selected wells; and conduct routine equipment maintenance activities.

3. Collect vapor samples from the operating SVE systems into tedlar bags during scheduled sampling events. Samples were submitted to North Creek Analytical (NCA) of Bothell, Washington for analysis of gasoline-range petroleum hydrocarbons (GRPH) by Northwest Method NWTPH-Gx and the aromatic hydrocarbons benzene, toluene, ethylbenzene, and total xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8021B.
4. Evaluate groundwater quality data. In July of each year, all 48 site wells are sampled. A comprehensive report containing results of our July 2002 groundwater sampling event at the subject site was submitted under separate cover. Each year, the July groundwater quality data is compared to pre-remediation groundwater quality data to evaluate the progress of the remedial applications.
5. Prepare a remedial systems progress report with a summary of remedial activities, results of vapor sampling events, a comparison of groundwater quality data before and during remediation, and our conclusions.

REMEDIAL SYSTEMS DESCRIPTION AND OPERATIONS

GENERAL

Subsurface components of the SPRS were installed in November 1995 and the SPRS operated as a pilot study from October 1996 through April 1997. Details of this pilot study are provided in the "Pilot Study Report" (AGRA Earth and Environmental, April 1997). Since September 1997, the system has been operating continuously, with the exception of a few short-term shutdowns.

Subsurface components of the two remedial systems located in Howard Amon Park were installed in March 1998. Operation of the former EPRS began in May 1998. The former EPRS generally was operational from May 1998 through October 2000. The EPRS-2 was installed in November 2000, started in June 2001, and operated full-time since then with the exception of a 2-month shut down in 2002.

Operation of the WPRS began in January 1999 and has operated continuously through November 2000. The WPRS was turned off from November 2000 to February 2001 during construction of the community center and replacement of the sparge compressor. The SVE portion of the WPRS was turned off on December 17, 1999, because of non-detectable levels of TPH in the influent vapor samples.

Previous progress reports have provided details of the remedial systems. This report provides a summary of the remedial system components. (Please refer to the Remedial Activities Report dated January 10, 2001, for further details about remedial system components.)

A schematic illustration of the current configuration of the remedial system on the subject site and in Howard Amon Park is presented in Remedial System Flow Diagram, Figure 3.

SOIL VAPOR EXTRACTION SYSTEM

Currently, SVE is conducted only on seven of the ten wells within the SPRS. The SPRS SVE system operates by inducing a vacuum into vadose zone soils and soils located within the zone of groundwater fluctuation, and removing vapors containing volatile organic compounds from within the interstitial pore spaces in the soil. Ten subsurface SVE wells (MW-1, MW-3 through MW-5, VW-1 through VW-5, and RW-1) are located either near the former UST system or aligned in a roughly north-south direction along the eastern property boundary. Extracted vapors are discharged to the atmosphere through a 10-foot-tall effluent stack located within the treatment compound (located outside the building). Currently, wells VW-1, MW-1 and MW-4 are not utilized in the SVE system.

In March 1998, a horizontal SVE line was placed between the subject property and the former baseball field (within the WPRS). This SVE line is approximately 133 feet long, oriented approximately parallel to the orientation of the sparge fence (roughly north-south), and extends south from the vault located near well MW-8. This SVE line is connected to the treatment compound via subsurface PVC piping. In January 1999, a Rotron Model EN707 regenerative blower located in the treatment compound building began applying a vacuum to this horizontal SVE line. Air discharged from the blower was directed to the vapor treatment equipment located within the treatment compound (located outside the building). The SVE portion of this system was shut down in December 1999.

The EPRS-2 includes an approximate 100-foot-long SVE trench oriented parallel to four air sparge wells (SW-16 through SW-19). This SVE line located within this trench is connected, via subsurface piping, to the treatment compound. Soil vapors were extracted intermittently from this line upon startup, although analytical results of samples collected consistently were non-detect for GRPH and related BTEX compounds. Currently, the SVE line at the EPRS-2 is not activated.

VAPOR TREATMENT SYSTEM

From October 1996 through November 1997, extracted soil vapors were treated through a catalytic oxidizer. The catalytic oxidizer was replaced by two, vapor-phase carbon scrub units in December 1997. In January 1999, following authorization from the Barton County Clean Air Authority (BCCAA), the effluent line from the SPRS was modified to discharge directly to the atmosphere, and the effluent line from the WPRS was connected to the carbon scrub units.

AIR SPARGING SYSTEMS

Air sparge compressors are located in the treatment compound building and in the two vaults located in Howard Amon Park. The compressor located in the treatment compound, is connected to six sparge wells (SW-1 through SW-6) and two passive sparge/SVE wells (MW-1 and MW-4). The compressor located in the vault near well MW-8 is connected to five sparge wells (SW-7 and SW-12 through SW-15). The compressor located in the vault near well SW-19 also is connected to five sparge wells (SW-11 and SW-16 through SW-19).

All three air sparge systems introduce compressed air into saturated zone soil approximately 10 to 15 feet below static water levels (and below the petroleum hydrocarbon smear zone). The SPRS operates using a Sutorbuilt® Model 3MP-sparge compressor; airflow ranges from 5 to 11 cubic feet per minute (cfm) per line and pressures range from 8 to 11 pounds per square inch (psi). The WPRS and EPRS-2 systems operate using Gast® Model 6066T339 sparge compressors. The WPRS air flow ranges from 3 to 6 cfm per line and pressures range from 10 to 15 psi. EPRS-2 airflow ranges from 4 to 6 cfm per line and pressures range from 8 to 12 psi. In general, the alignment of the sparge wells at each system is perpendicular to groundwater flow direction.

REMEDIAL SYSTEM OPERATION AND MAINTENANCE

Operation and maintenance of the remedial system is conducted on a frequent basis (at least once per month) throughout the remedial process. The purposes of O&M activities are to record system operating parameters, collect influent vapor samples, and provide routine equipment maintenance.

VAPOR SAMPLING RESULTS

Vapor samples generally are collected during O&M visits to monitor the progress of remedial operations, and conform to the conditions listed in the air discharge permit authorized by BCCAA.

Thirteen vapor samples were collected from the discharge stack during this reporting period. Vapor samples were collected into a one-liter-capacity tedlar bag and submitted to NCA for analysis of GRPH by Northwest Method NWTPH-Gx and BTEX by EPA Method 8021B. The effluent GRPH and BTEX concentrations generally have been near or below method detection limits during this reporting period with the exception of the February 2002 sample, which was collected following a temporary system shutdown. The influent GRPH concentrations from the SPRS were below the discharge criteria in all samples.

Summary of Analytical Results: Vapor –Subject Property Remedial System, Table 1 presents analytical results of the vapor samples collected from the SPRS since system startup. These samples are considered representative of vapor concentrations before treatment. Total BTEX Vapor Concentrations Vs. Time – Subject Property Remedial System, Figure 4 and Total GRPH Vapor Concentrations vs. Time – Subject Property Remedial System, Figure 5 present total BTEX concentrations and GRPH concentrations, respectively, in influent samples collected from the SPRS since the start of remediation.

Summary of Analytical Results: Vapor - West Park Remedial System, Table 2 presents analytical results of pre-treatment vapor samples collected from the WPRS since system startup. Total BTEX Vapor Concentrations Vs. Time – West Park Remedial System, Figure 6 and GRPH Vapor Concentrations vs. Time – West Park Remedial System, Figure 7 present total BTEX concentrations and GRPH concentrations, respectively, in samples collected from the WPRS

since the start of remediation. Note that vapor samples have not been collected from the WPRS since SVE component shutdown in December 1999.

Appendix A includes copies of original analytical laboratory certificates for samples collected during this reporting period.

REMEDIAL SYSTEM EVALUATION

GENERAL

The remedial system evaluation is based primarily on two criteria: the daily petroleum hydrocarbon removal rates and long-term changes in groundwater quality. The daily petroleum hydrocarbon removal rates are based upon influent vapor concentrations and measured air flow rates. The groundwater data from July 2002 is compared to previous July sampling results, and average concentrations before remediation.

PETROLEUM HYDROCARBONS REMOVAL RATES

Several vapor-sampling events have occurred since remedial system startup of the SPRS in October 1996. During sampling events, an influent vapor sample was collected and total system airflow was measured. Petroleum hydrocarbon concentrations and airflow measurements that were utilized to estimate daily petroleum hydrocarbon removal rates generally were reported in milligrams per cubic meter (mg/m^3) and cfm, respectively.

Since the completion of the remedial pilot test on April 1, 1997, daily petroleum hydrocarbon removal rates at the SPRS (reported as gasoline-range petroleum hydrocarbons) have ranged from approximately 0.11 to 26.29 pounds per day and averaged approximately 1.22 pounds per day. The daily total BTEX removal rates since April 1, 1997 have ranged from approximately 0.01 to 2.91 pounds per day and averaged approximately 0.06 pounds per day.

During operation of the SVE component of the WPRS from January to December 1999, daily petroleum hydrocarbon removal rates at the WPRS (reported as gasoline-range petroleum hydrocarbons) ranged from approximately 0.04 to 10.75 pounds per day, and averaged approximately 1.54 pounds per day. The daily total BTEX removal rates at the WPRS ranged from approximately 0.00 to 0.27 pounds per day, and averaged approximately 0.04 pounds per day.

The total number of operating days for the SPRS since remedial pilot test startup is unknown. On occasion, the remedial system shuts down because of power or equipment failure. Based on a continuous operational period of 2,226 days and a petroleum hydrocarbon removal rate of about 1.24 pounds per day, roughly 2,768 pounds of petroleum hydrocarbons have been removed by the SPRS. Based on an operational period of 330 days and a daily petroleum hydrocarbon removal rate of about 1.54 pounds per day, approximately 507 pounds of petroleum hydrocarbons were removed by the WPRS. Therefore, the weight of total petroleum hydrocarbons removed by both systems is approximately 3,275 pounds.

Total BTEX and GRPH concentrations in vapor samples, measured air flows, daily BTEX and GRPH removal rates and cumulative weight of BTEX and GRPH removed by the SVE systems in the SPRS and WPRS are presented in Tables 3 and 4, respectively. Cumulative total BTEX and GRPH removed from the SPRS versus time are graphically presented in Cumulative Total BTEX Removed vs. Time – Subject Property Remedial System, Figure 8 and Cumulative GRPH Removed vs. Time – Subject Property Remedial System, Figure 9, respectively. Cumulative total BTEX and GRPH removed versus time from the WPRS are graphically presented in Cumulative Total BTEX Removed vs. Time – West Park Remedial System, Figure 10, and Cumulative GRPH Removed vs. Time – West Park Remedial System, Figure 11.

CHANGES IN GROUNDWATER QUALITY

Groundwater quality is monitored on a quarterly basis in selected wells and on an annual basis in all 48-site wells. The annual groundwater sampling event is conducted in July of each year. In order to evaluate remedial progress, July 2002 groundwater sample concentrations were compared to previous July (1997 to 2001) concentrations, and to average sample concentrations measured before the start of remedial activities.

The 48 wells are grouped into one of five groups based upon regional location at the site. Group 1 (Jackpot Property Wells) includes 19 wells located on or immediately adjacent to the Jackpot Property (wells MW-1 through MW-5, MW-9, MW-20, SW-1 through SW-6, VW-1 through VW-5, and RW-1). Group 2 (West Park Remedial System and Vicinity Wells) includes the 11 wells located between the Jackpot property and the former baseball field (wells MW-6 through MW-8, MW-18, MW-19, MW-25, SW-7, and SW-12 through SW-15). Group 3 (East Park Remedial System and Vicinity Wells) includes the 9 wells located southeast of the community center (wells MW-13, MW-27 through MW-29, SW-11, and SW-16 through SW-19). Group 4 (Downgradient Park Wells) includes 6 wells in the grassy area located between the East Park Remedial System and the Columbia River (MW-14 through MW-17, MW-22, and MW-23). Group 5 (Upgradient Wells) includes 3 wells located upgradient (east) of the subject property (MW-11, MW-21A, and MW-21B).

The GRPH and BTEX concentrations in groundwater samples collected from individual wells within each group were averaged to estimate the average groundwater concentration of each group. In July 2002, the average GRPH concentrations were lower than average GRPH concentrations in July 2001, in four of the five groups. Group 1 GRPH concentrations were higher than those observed in July 2001.

The average GRPH and total BTEX concentrations in July 2002 were lower than pre-remediation concentrations. The average GRPH concentration across the site, as measured in site wells, before remedial activities began was approximately 7,730 micrograms per liter (µg/l); average GRPH concentration in July 2002 was approximately 467 µg/l. The average total BTEX concentration across the site before remedial activities began was approximately 914 µg/l; the average total BTEX concentration in July 2002 was approximately 16.5 µg/l.

Eighteen wells were not installed before remedial actions began (MW-25 through MW-29 and SW-7 through SW-19). Therefore, these wells were not included in the average pre-remediation or the July 1997 calculations. Data from wells MW-25, MW-26, and SW-7 through SW-11 were first used in the July 1998 calculations. Data from wells SW-12 through SW-15 were first used in the July 1999 calculations. Data from the seven new EPRS-2 wells were first used in the July 2001 calculations. The average pre-remediation concentrations per well were based upon a varied number of sampling points ranging from 1 to 9 sampling events. In general, the more sampling events, the more accurate the pre-remediation averages.

Comparison of Groundwater Analytical Results, Table 5 presents the average GRPH, BTEX, and total BTEX concentrations in groundwater samples collected before remediation and the concentrations in groundwater samples collected in July for each well, for each group, and for the total site. GRPH Concentrations in Groundwater vs. Time, Figure 12, presents average GRPH concentrations before remediation and in July (1997 – 2002) for all five groups. Total BTEX Concentrations in Groundwater vs. Time, Figure 13, presents average total BTEX concentrations before remediation and in July (1997 – 2002) for all five groups.

CONCLUSIONS

The remedial systems operating at the subject site continue to reduce the petroleum hydrocarbon concentrations in groundwater. The average GRPH concentration in groundwater samples collected in site wells before remedial activities was approximately 7,730 µg/l; the average GRPH concentration in groundwater samples collected in July 2002 was approximately 467 µg/l. This marks the second consecutive annual event that the average GRPH concentration in site wells was below 1,000 µg/l. Similarly, reductions in average total BTEX concentrations have occurred since remedial activities began. About one-half of the samples did not contain detectable levels of BTEX compounds. Reductions in petroleum hydrocarbon concentrations are attributed to operation of the SVE systems, the air stripping effects of AS, and the resulting introduction of oxygen, which promotes bioremediation, to the subsurface environment.

Two figures illustrate the change in petroleum hydrocarbon concentrations in groundwater since remedial activities began. Pre-Remediation GRPH Concentrations in Groundwater, Figure 14, indicates two large areas contained GRPH concentrations above 1,000 µg/l. One area was located near wells MW-22 and MW-23, and was interpreted to measure about 180-feet-long by 60-feet-wide. A larger area extended from about well MW-11 to current well MW-27, and was interpreted to measure about 630-feet-long by 140-feet-long. July 2002 GRPH Concentrations in Groundwater, Figure 15, presents three areas that contain GRPH concentrations of over 1,000 µg/l. One area is near the dispenser island (MW-2 and VW-5), one area is east of the dispenser island (VW-2 and VW-3), and the third area is located near the WPRS well MW-7. The size of these areas has reduced since 2001. In addition, the area shown near the EPRS-2 in 2001 was below cleanup criteria in 2002. Based on our interpretation, the area where GRPH

concentrations were greater than 1,000 µg/l measured about 80,000 ft^2 before remedial activities began and less than 10,000 ft^2 in July 2002.

Results of influent vapor samples collected from the SPRS continue to indicate that asymptotic conditions exist in terms of petroleum hydrocarbon removal through vapor extraction. Petroleum hydrocarbon removal rates continue to be low. Although some petroleum hydrocarbons might continue to be removed via vapor extraction, most of the petroleum hydrocarbon removal at the site appears to be a result of sparging and enhanced biodegradation.

Petroleum hydrocarbon concentrations in groundwater samples collected from wells located near the existing pump island (VW-5, MW-2) and in the center of the WPRS (MW-7) continue to remain higher than in other parts of the site. Modifications to the remedial systems in these areas could decrease petroleum hydrocarbon concentrations in groundwater. Continued operation of the remedial systems supplies oxygen to the subsurface environment, promoting bioremediation, and ultimately, reducing petroleum hydrocarbon concentrations throughout the site. Currently, consideration of natural alternative enhancement technologies (hydrogen peroxide and/or nitrate introduction) is being evaluated. Pilot tests are planned for 2003 to accelerate the biodegradation activities.

LIMITATIONS

We prepared this report for use by Time Oil Co. The report is not intended for use by others and the information contained herein is not applicable to other sites.

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

We appreciate the opportunity to provide these continued services to Time Oil Company. Please call if you have questions about this report.

Respectfully submitted,

GeoEngineers, Inc.

Gary D. Panther
Staff Environmental Scientist

Bruce D. Williams
Associate

BDW: GDP: tlm
Docid: P:\01\1957033\2002 progress report\1957033pr6.doc

LIST OF ACRONYMS

AS	Air sparging
SVE	Soil vapor extraction
UST	Underground storage tank
MTCA	Model Toxics Control Act
PVC	Polyvinyl chloride
O & M	Operating and monitoring
SPRS	Subject Property Remedial System
WPRS	West Park Remedial System
EPRS	East Park Remedial System
PID	Photoionization detector
DO	Dissolved oxygen
NCA	North Creek Analytical
GRPH	Gasoline-range petroleum hydrocarbons
BTEX	Benzene, toluene, ethylbenzene and total xylenes
EPA	Environmental Protection Agency
BCCAA	Benton County Clean Air Authority
LEL	Lower explosive level
Cfm	Cubic feet per minute
Psi	Pounds per square inch

TABLE 1
SUMMARY OF ANALYTICAL RESULTS: VAPOR[1]
SUBJECT PROPERTY REMEDIAL SYSTEM
RICHLAND JACKPOT (TIME OIL PROPERTY 01-056)
RICHLAND, WASHINGTON

Date Sampled	Days Since Startup	GRPH[3] $(mg/m^3)^2$	Benzene[4] $(mg/m^3)^2$	Toluene[4] $(mg/m^3)^2$	Ethyl-Benzene[4] $(mg/m^3)^2$	Total Xylenes[4] $(mg/m^3)^2$	DRPH[5] $(mg/m^3)^2$
10/01/96[6]	0	960	51.0	31.5	6.77	27.8	NT
10/01/96[7]	0	293	0.396	1.55	0.400	16.4	NT
10/09/96[8]	8	488	6.28	5.36	2.62	3.96	NT
10/09/96[7]	8	201	<0.050	0.542	0.416	13.9	NT
10/16/96[8]	15	135	<0.100	0.309	0.475	1.04	NT
10/16/96[7]	15	393	<0.100	1.08	1.73	30.1	NT
10/24/96[8]	23	91.7	<0.250	0.515	0.630	1.16	NT
10/24/96[7]	23	656	<0.250	0.734	2.20	45.2	NT
10/31/96[9]	30	<4.00	<0.100	<0.100	<0.100	<0.200	NT
10/31/96[7]	30	538	<0.250	<0.100	1.30	<0.200	NT
11/14/96[9]	44	7.18	<0.100	<0.100	<0.100	<0.200	NT
11/14/96[7]	44	153	<0.100	<0.100	0.252	7.57	NT
11/26/96[8]	56	62.3	<0.100	0.169	0.215	0.59	NT
11/26/96[10]	56	86.9	<0.100	0.307	0.295	8.21	NT
11/26/96[9]	56	23.9	<0.100	<0.100	<0.100	0.238	NT
11/26/96[7]	56	204	<0.100	0.858	0.402	10.3	NT
12/11/96[8]	71	35.7	<0.100	0.185	0.221	0.334	NT
12/11/96[7]	71	181	<0.100	0.199	0.195	5.91	NT
12/29/96[8]	89	20.1	<0.100	<0.100	<0.100	<0.200	NT
12/29/96[7]	89	96.6	<0.100	<0.100	<0.100	4.70	NT
01/20/97[8]	101	33.6	<0.100	<0.100	0.257	0.583	NT
01/20/97[7]	101	89.3	<0.100	<0.100	0.119	2.10	NT
01/28/97[9]	119	<5.00	<0.100	<0.100	<0.100	<0.200	NT
01/28/97[7]	119	82.8	<0.100	0.275	0.184	4.06	NT
02/24/97[8]	146	22.1	<0.100	0.122	0.171	0.462	NT
02/24/97[7]	146	33.1	<0.100	0.124	0.152	2.10	NT
03/13/97[8]	163	9.63	0.174	0.104	<0.100	<0.200	NT
03/13/97[7]	163	76.3	<0.100	0.208	0.195	4.78	NT
03/25/97[8]	175	5.10	0.119	0.121	<0.100	<0.200	NT
03/25/97[7]	175	53.6	<0.100	0.213	0.172	4.15	NT
25-Sep-11	359	20.0	<0.100	<0.100	<0.100	5.73	NT
10/22/97[11]	386	34.7	<0.100	0.114	0.164	1.90	NT
12/10/97[11]	435	58.2	0.206	0.280	0.179	2.55	NT
12/10/97[11,12]	435	58[13]	0.026[14]	1.324[14]	0.081[14]	0.433[14]	65[15]
01/22/98[11]	478	99.1	0.141	0.384	0.505	6.66	NT
02/12/98[11]	599	88.8	<0.100	0.114	0.289	6.47	NT
04/08/98[11]	554	30.5	<0.100	<0.100	<0.100	2.25	NT
05/15/98[11]	591	14.1	<0.100	<0.100	<0.100	<0.800	NT
08/12/98[11]	680	<10.0	<0.100	<0.100	<0.100	0.366	NT
06-Oct-11	733	11.7	<0.100	<0.100	<0.100	0.801	NT
11/10/98[11]	770	<10.0	<0.100	<0.100	<0.100	0.382	NT
09-Dec-11	799	<10.0	<0.100	<0.100	<0.100	<0.200	NT
20-Apr-11	931	<10.0	<0.100	<0.100	<0.100	<0.200	NT
23-Jun-11	995	<10.0	<0.100	<0.100	<0.100	<0.200	NT
23-Jul-11	1,025	<10.0	<0.100	<0.100	<0.100	<0.200	NT
20-Aug-11	1,053	<10.0	<0.100	<0.100	<0.100	<0.200	NT
23-Sep-11	1,087	<10.0	<0.100	<0.100	<0.100	<0.200	NT
10/22/99[11]	1,116	<10.0	<0.100	<0.100	<0.100	<0.200	NT

TABLE 1

Date Sampled	Days Since Startup	GRPH[3]	Benzene[4]	Toluene[4]	Ethyl-Benzene[4]	Total Xylenes[4]	DRPH[5]
11/11/99[11]	1,136	<10.0	<0.100	<0.100	<0.100	<0.200	NT
12/17/99[11]	1,172	<10.0	<0.100	<0.100	<0.100	<0.200	NT
01/28/00[11]	1,214	<10.0	<0.100	<0.100	<0.100	<0.200	NT
02/16/00[11]	1,233	<10.0	<0.100	<0.100	<0.100	<0.200	NT
03/24/00[11]	1,270	<10.0	<0.100	<0.100	<0.100	<0.200	NT
04/18/00[11]	1,295	<10.0	<0.100	<0.100	<0.100	<0.200	NT
04/20/00[11]	1,297	<10.0	<0.100	<0.100	<0.100	<0.200	NT
06/16/00[11]	1,354	<10.0	<0.100	<0.100	<0.100	<0.200	NT
07/14/00[11]	1,382	<10.0	<0.100	<0.100	<0.100	<0.200	NT
08/25/00[11]	1,424	<10.0	<0.100	<0.100	<0.100	<0.200	NT
09/15/00[11]	1,445	<10.0	<0.100	<0.100	<0.100	<0.200	NT
10/12/00[11]	1,472	<10.0	<0.100	<0.100	<0.100	<0.200	NT
01/25/01[11]	1516	<10.0	<0.100	<0.100	<0.100	<0.200	NT
02/28/01[11]	1,550	<10.0	<0.100	<0.100	<0.100	<0.200	NT
03/28/01[11]	1,578	<10.0	<0.100	<0.100	<0.100	<0.200	NT
04/18/01[11]	1,599	<10.0	<0.100	<0.100	<0.100	<0.200	NT
05/17/01[11]	1,628	13.3	0.129	0.231	0.116	1.94	NT
060/6/01[11]	1,648	26.7	0.191	<0.100	0.138	0.248	NT
07/27/01[11]	1,699	<10.0	<0.100	<0.100	<0.100	<0.200	NT
08/16/01[11]	1,718	102	0.807	<0.100	0.126	0.211	NT
09/13/01[11]	1,746	<10.0	<0.100	<0.100	<0.100	<0.200	NT
12/28/01[11]	1,852	120	0.745	0.580	0.325	1.06	NT
02/22/02[11]	1,908	733	3.54	2.40	0.854	1.20	NT
03/13/02[11]	1,927	33.2	0.121	<0.100	0.120	0.826	NT
04/23/02[11]	1,968	24.7	0.124	0.111	<0.100	0.993	NT
05/23/02[11]	1,998	16.7	<0.100	<0.100	<0.100	0.577	NT
06/27/02[11]	2,033	<10.0	<0.100	<0.100	<0.100	<0.200	NT
07/31/02[11]	2,074	38.5	0.574	<0.100	<0.100	<0.200	NT
08/22/02[11]	2,096	<20.0	<0.180	<0.180	<0.180	<0.360	NT
09/12/02[11]	2,117	<10.0	<0.100	<0.100	<0.100	<0.200	NT
10/30/02[11]	2,165	84.0	0.489	<0.100	0.186	0.423	NT
11/26/02	2,191	69.4	0.856	<0.100	0.107	0.208	NT
12/31/02	2,226	<10.0	<0.100	<0.100	<0.100	<0.100	NT

Notes:

1. Analysis by North Creek Analytical (NCA).
2. Milligrams per cubic meter.
3. Gasoline range-petroleum hydrocarbons (GRPH) analyzed by NCA using Ecology Method WTPH-G, or Northwest Methd NWTPH-Gx.
4. Benzene, toluene, etheylbenzene, and total xylenes (BTEX) analyzed by NCA using EPA Method 8020A or 8021B.
5. Diesel range-petroleum hydrocarbons.
6. Sample collected from lines manifolding wells RW-1, MW-3, MW-5, VW-2, VW-3, and VW-4.
7. Sample collected from lines manifolding wells MW-1, MW-4, VW-1, and VW-5.
8. Sample collected from lines manifolding wells RW-1 and VW-3.
9. Sample collected from lines manifolding wells MW-3 and VW-2.
10. Sample collected from lines manifolding wells MW-5 and VW-4.
11. Sample collected from lines manifolding all 10 SVE wells.
12. Duplicate sample submitted to Performance Analytical, Inc. of Canoga Park, California.
13. Total petroleum hydrocarbons as gasoline using GC/FID.
14. BTEX results were converted from parts per billion by volume (ppbv) to mg/m3.
15. DRPH results were listed as 1,300 micrograms per tube. Approximately 20 liters of air passed through the tube. Thus, concentration is listed at 1,300 mg/20 liters or 65 mg/m3.

Samples collected since January 1999 are considered both influent and effluent samples, because vapors generated by the URS are discharged directly to ambient air without treatment.

NT = not tested

TABLE 2

SUMMARY OF ANALYTICAL RESULTS: VAPOR[1]
WEST PARK REMEDIAL SYSTEM
RICHLAND JACKPOT (TIME OIL PROPERTY 01-056)
RICHLAND, WASHINGTON

Date Sampled	Days Since Startup	GRPH[3] (mg/m^3)[2]	Benzene[4] (mg/m^3)[2]	Toluene[4] (mg/m^3)[2]	Ethyl-Benzene[4] (mg/m^3)[2]	Total Xylenes[4] (mg/m^3)[2]
1/21/99	0	797	0.565	6.01	3.15	9.95
1/21/99	0	20.1	<0.100	0.217	0.158	0.587
2/22/99	32	250	1.59	1.21	1.59	2.11
3/22/99	60	<10.0	<0.100	<0.100	<0.100	<0.200
4/20/99	89	<10.0	<0.100	<0.100	<0.100	<0.200
5/14/99	113	18.9	0.178	<0.100	<0.100	<0.200
6/23/99	153	<10.0	<0.100	<0.100	<0.100	<0.200
7/23/99	183	60.3	<0.950	<0.210	0.389	0.473
8/20/99	211	<10.0	<0.100	<0.100	<0.100	<0.200
9/23/99	245	<10.0	<0.100	<0.100	<0.100	<0.200
10/22/99	274	<10.0	<0.100	<0.100	<0.100	<0.200
11/11/99	294	<10.0	<0.100	<0.100	<0.100	<0.200
12/17/99	330	55.6	<0.620	<0.330	<0.250	<0.300
01/28/00	372[5]	33.3	<0.310	<0.130	<0.220	0.348
04/20/00	455[5]	<10.0	<0.100	<0.100	<0.100	<0.200

Notes:

1. Analysis by North Creek Analytical (NCA).
2. Milligrams per cubic meter.
3. Gasoline range-petroleum hydrocarbons (GRPH) analyzed by NCA using Ecology Method WTPH-G, or Northwest Method NWTPH-GX.
4. Benzene, toluene, etheylbenzene, and total xylenes (BTEX) analyzed by NCA using EPA Method 8021B.
5. The SVE portion of the WPRS was turned off on 12/17/99. Subsequent samples were collected following temporary restart of the system to evaluate vapor concentrations.

NT = not tested

TABLE 3

PETROLEUM HYDROCARBON REMOVAL RATES
UPPER REMEDIAL SYSTEM
RICHLAND JACKPOT (TIME OIL PROPERTY 01-056)
RICHLAND, WASHINGTON

Date Sampled	Days Since Startup (Days)	Total BTEX Concentrations (mg/m^3)[1]	GRPH Concentrations (mg/m^3)[1]	Air Flow (cfm)[2]	Conversion Factor (unitless)	Daily BTEX Removal Rates (lbs/day)[3]	Daily GRPH Removal Rates (lbs/day)[3]	Cumulative Weight of BTEX Removed (pounds)	Cumulative Weight of GRPH Removed (pounds)
10/1/96	0	NC[4]	NC[4]	NC[4]	NC[4]	2.91	26.29	0.0	0
10/9/96	8	NC[4]	NC[4]	NC[4]	NC[4]	0.60	12.39	23.3	210
10/16/96	15	NC[4]	NC[4]	NC[4]	NC[4]	0.62	9.61	27.5	297
10/24/96	23	NC[4]	NC[4]	NC[4]	NC[4]	0.94	13.76	32.5	374
10/31/96	30	NC[4]	NC[4]	NC[4]	NC[4]	0.04	10.39	39.0	470
11/14/96	44	NC[4]	NC[4]	NC[4]	NC[4]	0.15	3.01	39.5	616
11/26/96	56	NC[4]	NC[4]	NC[4]	NC[4]	0.29	5.08	41.3	652
12/11/96	71	NC[4]	NC[4]	NC[4]	NC[4]	0.13	4.06	45.7	728
12/29/96	89	NC[4]	NC[4]	NC[4]	NC[4]	0.10	2.35	48.1	801
1/20/97	101	NC[4]	NC[4]	NC[4]	NC[4]	0.06	2.27	49.3	829
1/28/97	119	NC[4]	NC[4]	NC[4]	NC[4]	0.09	1.65	50.4	870
2/24/97	146	NC[4]	NC[4]	NC[4]	NC[4]	0.07	1.14	53.0	915
3/13/97	163	NC[4]	NC[4]	NC[4]	NC[4]	0.11	1.74	54.1	934
3/25/97	175	NC[4]	NC[4]	NC[4]	NC[4]	0.11	1.25	55.4	955
9/25/97	359	5.88	20	423	0.00008989	0.22	0.76	76.5	1,184
10/22/97	386	2.228	34.7	349	0.00008989	0.07	1.09	82.6	1,205
12/10/97	435	2.535	58.1	413	0.00008989	0.09	2.16	86.0	1,258
1/22/98	478	7.69	99.1	423	0.00008989	0.29	3.77	90.0	1,351
2/12/98	499	6.923	88.8	349	0.00008989	0.22	2.79	96.2	1,430
4/8/98	554	2.4	30.5	336	0.00008989	0.07	0.92	108.1	1,583
5/15/98	591	0.55	14.1	336	0.00008989	0.02	0.43	110.8	1,617
8/12/98[5]	680	0.516	5	261	0.00008989	0.01	0.12	112.3	1,655
10/4/98	733	0.951	11.7	349	0.00008989	0.03	0.37	112.9	1,661
11/10/98[5]	770	0.532	5	340	0.00008989	0.02	0.15	114.0	1,675
12/9/98[5]	799	0.25	5	370	0.00008989	0.01	0.17	114.5	1,679
4/20/99[5]	931	0.25	5	349	0.00008989	0.01	0.16	115.6	1,701
6/23/99[5]	995	0.25	5	392	0.00008989	0.01	0.18	116.1	1,711
7/23/99[5]	1025	0.25	5	350	0.00008989	0.01	0.16	116.4	1,717
8/20/99[5]	1053	0.25	5	350	0.00008989	0.01	0.16	116.6	1,721
9/23/99[5]	1087	0.25	5	236	0.00008989	0.01	0.11	116.8	1,726
10/22/99[5]	1116	0.25	5	253	0.00008989	0.01	0.11	117.0	1,729
11/11/99[5]	1136	0.25	5	336	0.00008989	0.01	0.15	117.1	1,732
12/17/99[5]	1172	0.25	5	270	0.00008989	0.01	0.12	117.4	1,737
01/28/00[5]	1214	0.25	5	262	0.00008989	0.01	0.12	117.6	1,742
02/16/00[5]	1233	0.25	5	270	0.00008989	0.01	0.12	117.7	1,744
03/24/00[5]	1270	0.25	5	262	0.00008989	0.01	0.12	118.0	1,749
04/18/00[5]	1295	0.25	5	262	0.00008989	0.01	0.12	118.1	1,752
04/20/00[5]	1297	0.25	5	262	0.00008989	0.01	0.12	118.1	1,752
06/16/00[5]	1354	0.25	5	270	0.00008989	0.01	0.12	118.5	1,759
07/14/00[5]	1382	0.25	5	270	0.00008989	0.01	0.12	118.6	1,762
08/25/00[5]	1424	0.25	5	279	0.00008989	0.01	0.13	118.9	1,767
09/15/00[5]	1455	0.25	5	279	0.00008989	0.01	0.13	119.1	1,771
10/12/00	1472	0.25	5	279	0.00008989	0.01	0.13	119.2	1,773
01/25/01	1516	0.25	5	279	0.00008989	0.01	0.13	119.5	1,779
02/28/01	1550	0.25	5	279	0.00008989	0.01	0.13	119.7	1,783
03/28/01	1578	0.25	5	279	0.00008989	0.01	0.13	119.9	1,787
04/18/01	1599	0.25	5	279	0.00008989	0.01	0.13	120.0	1,789
05/17/01	1628	0.25	13.3	279	0.00008989	0.01	0.33	120.2	1,793
06/06/01	1648	0.25	26.7	279	0.00008989	0.01	0.67	120.3	1,800
07/27/01	1699	0.25	5	279	0.00008989	0.01	0.13	120.6	1,834
08/16/01	1718	0.25	102	279	0.00008989	0.01	2.56	120.7	1,836
09/13/01	1746	0.25	5	262	0.00008989	0.01	0.12	120.9	1,908
12/28/01	1852	2.71	120	262	0.00008989	0.06	2.83	121.5	1,920
01/16/02	1871	4.55	278	262	0.00008989	0.11	6.55	121.5	1,974
02/22/02	1908	7.99	733	262	0.00008989	0.19	17.26	125.1	2,216
03/13/02	1927	1.12	33.2	270	0.00008989	0.03	0.81	128.7	2,544
04/23/02	1968	1.28	24.7	270	0.00008989	0.03	0.60	129.8	2,577
05/23/02	1998	0.71	16.7	279	0.00008989	0.02	0.42	130.7	2,595
06/27/02	2033	0.45	5	279	0.00008989	0.01	0.13	131.4	2,610
07/31/02	2074	0.774	38.5	279	0.00008989	0.02	0.97	131.8	2,615
08/22/02	2096	0.45	10	279	0.00008989	0.01	0.25	132.2	2,636
09/12/02	2117	0.25	5	290	0.00008989	0.01	0.13	132.5	2,641
10/30/02	2165	0.489	84.0	290	0.00008989	0.01	2.19	132.8	2,648
11/26/02	2191	0.856	69.4	290	0.00008989	0.02	1.81	133.1	2,705
12/31/02	2226	0.1	10	290	0.00008989	0.00	0.26	133.9	2,768

NORTH BLOWER

Date Sampled	Days Since Startup (Days)	Total BTEX Concentrations (mg/m^3)[1]	GRPH Concentrations (mg/m^3)[1]	Air Flow (cfm)[2]	Conversion Factor (unitless)	Daily BTEX Removal Rates (lbs/day)[3]	Daily GRPH Removal Rates (lbs/day)[3]
10/1/96	0	117.07	960	246	0.00008989	2.59	21.23
10/9/96	8	18.22	488	196	0.00008989	0.32	8.60
10/16/96	15	1.874	135	221	0.00008989	0.04	2.68
10/24/96	23	2.43	91.7	196	0.00008989	0.04	1.62
10/31/96[5]	30	0.25	2.0	211	0.00008989	0.00	0.04
11/14/96[5]	44	0.25	7.18	167	0.00008989	0.00	0.11
11/26/96	56	3.425	57.7	198	0.00008989	0.06	1.03
12/11/96	71	0.79	35.7	245	0.00008989	0.02	0.79
12/29/96[5]	89	0.25	20.1	241	0.00008989	0.01	0.44
1/20/97	101	1.04	33.6	231	0.00008989	0.02	0.70
1/28/97[5]	119	0.25	2.5	187	0.00008989	0.00	0.04
2/24/97	146	0.805	22.1	255	0.00008989	0.02	0.51
3/13/97	163	0.428	9.63	255	0.00008989	0.01	0.22
3/25/97	175	0.818	5.1	238	0.00008989	0.02	0.11

SOUTH BLOWER

Date Sampled	Days Since Startup (Days)	Total BTEX Concentrations (mg/m^3)[1]	GRPH Concentrations (mg/m^3)[1]	Air Flow (cfm)[2]	Conversion Factor (unitless)	Daily BTEX Removal Rates (lbs/day)[3]	Daily GRPH Removal Rates (lbs/day)[3]
10/1/96	0	18.746	293	192	0.00008989	0.32	5.06
10/9/96	8	14.883	201	210	0.00008989	0.28	3.79
10/16/96	15	32.96	393	196	0.00008989	0.58	6.92
10/24/96	23	48.259	656	206	0.00008989	0.89	12.15
10/31/96	30	1.575	538	214	0.00008989	0.03	10.35
11/14/96	44	7.922	153	211	0.00008989	0.15	2.90
11/26/96	56	11.61	204	221	0.00008989	0.23	4.05
12/11/96	71	6.354	181	201	0.00008989	0.11	3.27
12/29/96	89	4.85	96.6	221	0.00008989	0.10	1.92
1/20/97	101	2.319	89.3	196	0.00008989	0.04	1.57
1/28/97	119	4.569	82.8	216	0.00008989	0.09	1.61
2/24/97	146	2.426	33.1	214	0.00008989	0.05	0.64
3/13/97	163	5.233	76.3	221	0.00008989	0.10	1.52
3/25/97	175	4.585	53.6	236	0.00008989	0.10	1.14

Notes:
1. mg/m^3 - milligrams per cubic meter
2. cfm - cubic feet per minute
3. lbs/day - pounds per day
4. NC - Not calculated. Daily BTEX and GRPH removal rates are based upon the sum of the removal rates from samples collected from both blowers.
5. Samples with total BTEX concentrations of 0.25 mg/m^3 and/or GRPH concentrations of 2.0, 2.5 and 5 mg/m^3 indicate that petroleum hydrocarbons were not detected. Listed concentrations are one-half of the reported detection limits.

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TABLE 4

PETROLEUM HYDROCARBON REMOVAL RATES
WEST PARK REMEDIAL SYSTEM
RICHLAND JACKPOT (TIME OIL PROPERTY 01-056)
RICHLAND, WASHINGTON

Date Sampled	Days Since Startup (Days)	Total BTEX Concentrations (mg/m^3)[1]	GRPH Concentrations (mg/m^3)[1]	Air Flow (cfm)[2]	Conversion Factor (unitless)	Daily BTEX Removal Rates (lbs/day)[3]	Daily GRPH Removal Rates (lbs/day)[3]	Cumulative Weight of BTEX Removed (pounds)	Cumulative Weight of GRPH Removed (pounds)
1/21/1999	0	19.68	797	150	0.00008989	0.27	10.75	0.0	0
2/22/1999	32	6.5	250	152	0.00008989	0.09	3.42	8.5	344
3/22/99[4]	60	0.25	5	131	0.00008989	0.00	0.06	11.0	440
4/20/99[4]	89	0.25	5	148	0.00008989	0.00	0.07	11.1	441
5/14/1999	113	0.378	18.9	153	0.00008989	0.01	0.26	11.1	443
6/23/99[4]	153	0.25	5	166	0.00008989	0.00	0.07	11.4	453
7/23/1999	183	1.442	60.3	174	0.00008989	0.02	0.94	11.5	455
8/20/99[4]	211	0.25	5	157	0.00008989	0.00	0.07	12.1	482
9/23/99[4]	245	0.25	5	96	0.00008989	0.00	0.04	12.2	484
10/22/99[4]	274	0.25	5	157	0.00008989	0.00	0.07	12.3	486
11/11/99[4]	294	0.25	5	155	0.00008989	0.00	0.07	12.3	487
12/17/99[5]	330	0.75	56	113	0.00008989	0.01	0.56	12.5	507

Notes:

1. mg/m^3 - milligrams per cubic meter
2. cfm - cubic feet per minute
3. lbs/day - pounds per day
4. Samples with total BTEX concentrations of 0.25 mg/m^3 and/or GRPH concentrations of 5 mg/m^3 indicate that petroleum hydrocarbons were not detected. Listed concentrations are one-half of the reported detection limits.
5. System was shut down on 12/17/99.

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TABLE 5 (Page 1 of 2)
COMPARISON OF GROUNDWATER ANALYTICAL RESULTS
RICHLAND JACKPOT (TIME OIL PROPERTY 01056)
RICHLAND, WASHINGTON

GROUP 1, JACKPOT PROPERTY WELLS (19 TOTAL)

Well Number	Pre-Remediation Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 1997 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 1998 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-1[1]	18,686	31.1	525.3	272.0	2,229.6	3,058.0	1,180	1.0	4.1	23.0	63.0	91.1	2,090	0.5	0.5	37.5	47.7	86.2
MW-2[2]	11,140	5.0	249.4	193.2	1,917.2	2,364.8	11,900	6.5	100.0	130.0	1,800.0	2,038.5	6,140	5.0	106.0	88.9	722.0	921.9
MW-3[2]	417	3.2	2.4	33.5	1.9	41.0	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
MW-4[3]	14,922	28.9	51.7	331.2	1,145.9	1,557.7	4,580	2.5	2.5	13.0	28.0	46.0	2,440	0.5	0.5	14.4	9.5	24.9
MW-5[2]	25	0.3	0.5	0.3	0.3	1.3	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
MW-9[4]	25	0.3	0.3	0.3	0.3	1.0	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
MW-20[5]	25	0.3	0.3	0.3	0.3	1.0	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
SW-1[6]	289	0.8	0.5	3.8	6.4	11.3	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.6	0.5	1.0	2.5
SW-2[7]	25	0.5	0.5	0.5	1.0	2.5	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
SW-3[7]	25	0.5	0.5	0.5	1.0	2.5	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
SW-4[7]	1,350	0.5	34.0	3.1	1.0	38.6	298	1.0	1.0	9.1	3.0	14.1	1,190	0.5	0.5	38.7	2.4	40.1
SW-5[7]	8,610	5.0	5.0	83.1	43.0	136.1	5,450	3.4	3.4	34.0	15.0	55.7	4,020	1.0	1.0	42.5	10.6	55.1
SW-6[7]	118	0.5	0.6	2.7	1.0	4.7	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
VW-1[5]	15,600	8.5	7.5	418.0	884.8	1,318.8	17,000	8.5	8.5	290.0	610.0	917.0	11,400	5.0	5.0	354.0	576.0	940.0
VW-2[7]	9,470	2.0	4.7	65.9	40.2	112.8	7,430	5.0	5.0	45.0	21.0	76.0	5,370	0.5	2.3	41.7	10.5	55.0
VW-3[7]	12,700	5.0	5.0	173.0	247.4	430.4	6,260	1.0	1.0	15.0	20.0	37.0	6,760	0.5	0.5	58.4	71.6	131.0
VW-4[7]	20,600	5.0	41.9	656.0	3,147.0	3,849.9	25,300	14.5	14.5	270.0	2,900.0	3,199.0	16,500	5.0	5.0	296.0	1,806.0	2,112.0
VW-5[7]	48,100	50.0	50.0	448.0	3,920.0	4,468.0	47,100	2.0	2.0	2.0	300.0	306.0	31,400	5.0	34.6	213.0	1,570.0	1,822.6
RW-1[8]	30,550	40.5	51.3	630.0	2,649.9	3,371.7	5,960	2.5	2.5	32.0	57.0	94.0	2,070	0.5	0.5	24.4	22.0	47.4
Average	10035.5	9.9	54.3	174.5	854.6	1093.3	7067.3	3.0	8.0	45.8	306.6	363.5	4662.1	1.5	8.4	83.8	255.6	329.3

Well Number	July 1999 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 2000 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 2001 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-1[1]	1,070	8.5	1.9	28.7	10.9	50.0	187	0.5	0.5	12.3	1.5	14.8	488	0.5	0.5	0.5	1.5	3
MW-2[2]	6,730	7.6	162.0	136.0	1,060.0	1,365.6	3,280	0.5	83.0	94.4	714	891.9	420	0.5	3.7	2.8	2	8.5
MW-3[2]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
MW-4[3]	272	2.1	1.8	4.7	9.9	18.5	120	0.5	0.5	0.5	1.5	3.0	104	0.5	0.5	0.5	1.5	3
MW-5[2]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.6	0.5	1.5	3
MW-9[4]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
MW-20[5]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
SW-1[6]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
SW-2[7]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
SW-3[7]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.6	0.5	1.5	3
SW-4[7]	25	0.3	0.3	0.3	0.5	1.3	707	0.5	0.5	0.5	1.5	3.0	25	0.6	0.5	0.5	1.5	3
SW-5[7]	562	2.0	0.3	9.3	5.0	16.5	937	0.5	0.5	19.8	1.5	22.3	25	0.5	0.5	19.8	1.5	22.3
SW-6[7]	25	0.5	0.5	0.5	1.0	2.5	25	0.5	0.5	11.8	4.8	17.6	25	0.5	0.5	11.8	4.8	17.6
VW-1[5]	4,860	15.2	4.0	152.0	175.0	346.2	5,170	0.5	5.2	166.0	117.2	288.9	NT	NT	NT	NT	NT	NT
VW-2[7]	602	9.4	0.6	11.8	1.7	23.6	2,650	0.5	1.2	42.2	5.4	49.2	944	0.5	0.5	0.5	1.5	3
VW-3[7]	676	7.6	0.5	13.3	8.2	29.6	2,910	0.5	0.5	27.4	20.0	48.4	435	0.5	0.5	0.5	1.5	3
VW-4[7]	1,990	3.3	0.3	83.8	186.0	273.3	5,800	0.5	0.5	220	965	1,186.0	375	0.5	0.5	0.5	1.5	3
VW-5[7]	14,400	19.3	5.5	89.6	1,050.0	1,164.4	37,400	0.5	0.5	531	4,860	5,392.0	11,000	10	10	94.3	439	553.3
RW-1[8]	135	1.1	0.3	4.0	2.1	7.4	97	0.5	0.5	5.7	1.5	8.2	57	0.5	0.5	0.6	1.5	3
Average	1659.1	4.1	9.5	28.2	102.3	174.1	3129.4	0.5	6.1	59.7	352.9	418.2	782.0	1.0	1.2	7.5	28.9	35.8

Well Number	July 2002 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-1[1]	468	4.82	0.025	3.75	0.5	9.1
MW-2[2]	2020	3.87	32.4	58	436	530.3
MW-3[2]	25	0.25	0.25	0.25	0.5	1.3
MW-4[3]	145	1.19	0.25	0.25	1.04	2.7
MW-5[2]	25	0.25	0.25	0.25	0.5	1.3
MW-9[4]	25	0.25	0.25	0.25	0.5	1.3
MW-20[5]	25	0.25	0.25	0.25	0.5	1.3
SW-1[6]	25	0.25	0.25	0.25	0.5	1.3
SW-2[7]	25	0.25	0.25	0.25	0.5	1.3
SW-3[7]	25	0.25	0.25	0.25	0.5	1.3
SW-4[7]	25	0.25	0.25	0.25	0.5	1.3
SW-5[7]	25	0.25	0.25	0.25	0.5	1.3
SW-6[7]	25	0.25	0.25	0.25	0.5	1.3
VW-1[5]	0	0	0	0	0	0.0
VW-2[7]	1660	8.57	0.573	5.5	5.07	19.7
VW-3[7]	1220	5.58	0.25	4.47	2.7	13.0
VW-4[7]	488	4.08	0.26	1.08	1.45	6.9
VW-5[7]	14,200	9.09	1.25	33.6	101	144.9
RW-1[8]	25	0.25	0.25	0.25	0.5	1.3
Average	1078.7	2.1	2.0	5.8	29.1	39.0

GROUP 2, WEST PARK REMEDIAL SYSTEM AND VICINITY WELLS (11 TOTAL)

Well Number	Pre-Remediation Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 1997 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 1998 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-6[5]	25	0.3	0.3	0.3	0.3	1.0	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
MW-7[5]	41,500	66.0	345.0	987.9	6,422.6	7,821.5	44,300	20.0	66.0	930.0	3,200.0	4,216.0	32,300	5.0	16.8	654.0	1,748.3	2,424.1
MW-8[5]	25	0.3	0.3	0.3	0.3	1.0	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
MW-18[5]	14,780	20.6	461.0	390.6	1,995.7	2,887.8	3,150	2.0	44.0	140.0	440.0	626.0	3,930	5.0	60.5	145.0	464.0	674.5
MW-19[5]	4,600	17.0	5.8	101.7	95.5	220.0	3,100	1.3	1.3	18.0	8.0	28.5	1,050	0.5	0.5	19.4	3.9	24.3
MW-25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12,500	5.0	5.0	154.0	185.4	349.4
SW-7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,670	0.5	1.3	97.7	107.2	206.7
SW-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Average	12,186	20.8	166.5	296.1	1,702.9	2,186.3	10,120	6.1	22.7	218.0	730.0	975.7	7,829	2.4	12.2	153.0	358.7	526.3

Well Number	July 1999 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 2000 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 2001 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-6[5]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.6	1.5	3
MW-7[5]	16,800	14.5	8.8	279.0	782.0	1,084.3	14,800	5.0	5.0	145	311.4	466.4	7,520	2.5	2.5	61	160.1	226.5
MW-8[5]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
MW-18[5]	2,710	1.3	43.3	138.0	377.0	559.8	4,370	2.5	18.9	175	595	791.4	4,050	10	10	202	591	813
MW-19[5]	134	0.3	3.6	3.2	0.5	7.4	1,470	0.5	0.5	31.7	3.7	36.4	1,420	0.5	0.5	2.8	1.5	5.3
MW-25	4,010	0.4	7.1	34.2	23.6	65.4	4,490	0.5	0.5	0.5	1.5	3.0	3,960	1	1	71.4	38.3	111.7
SW-7	25	0.3	0.3	0.3	0.5	1.3	399	0.5	0.5	0.5	1.5	3.0	1,250	0.5	0.5	14.9	9.7	25.6
SW-12	5,170	7.5	1.5	49.4	39.4	97.8	2,480	0.5	0.5	47.9	17.3	66.2	752	0.5	0.5	20.6	5.7	27.5
SW-13	320	0.5	0.7	14.7	11.9	27.6	69	0.5	0.5	2.9	2.1	6.0	97	0.5	0.5	1.3	1.5	3.8
SW-14	213	3.0	0.4	0.3	1.0	4.6	374	0.5	0.5	0.5	1.5	3.0	260	0.5	0.6	0.5	1.5	3
SW-15	25	0.3	0.3	0.3	0.3	1.0	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.6	1.5	3
Average	2,678	2.6	8.0	47.2	112.5	168.3	2,593	1.1	2.6	36.9	85.3	125.8	1,764.0	1.8	1.8	34.2	74.0	111.4

Well Number	July 2002 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-6[5]	25	0.25	0.25	0.25	0.6	1.3
MW-7[5]	10,000	18.5	2.5	129	188	338.0
MW-8[5]	25	0.25	0.25	0.25	0.5	1.3
MW-18[5]	885	2.65	2.19	22.2	12.58	39.6
MW-19[5]	130	1.47	0.25	0.25	0.5	2.5
MW-25	747	6.79	1.47	1.89	0.5	10.7
SW-7	25	0.56	0.25	0.25	0.5	1.6
SW-12	603	5.22	0.25	9.92	3.18	18.6
SW-13	25	0.25	0.25	0.25	0.5	1.3
SW-14	25	2.59	0.25	0.25	0.5	3.6
SW-15	25	0.26	0.25	0.25	0.5	1.3
Average	1,137.7	3.5	0.7	15.0	18.9	38.1

GROUP 3, EAST PARK REMEDIAL SYSTEM AND VICINITY WELLS (9 TOTAL)

Well Number	Pre-Remediation Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 1997 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 1998 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-10[1]	18,100	33.3	18.3	408.4	854.1	1,310.1	20,100	6.0	6.0	230.0	120.0	362.0	1,900	0.5	0.5	22.6	18.6	40.3
MW-12[4]	7,960	11.9	4.8	149.0	156.3	322.0	10,600	1.0	1.0	20.0	1.0	23.0	4,190	0.5	1.7	60.1	11.6	73.9
MW-13[2]	25	0.3	0.3	0.3	0.3	1.0	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
MW-24[1]	98	0.5	0.5	0.6	0.3	1.9	329	1.0	1.0	2.7	1.0	5.7	25	0.5	0.5	0.5	1.0	2.5
MW-26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,360	0.5	0.5	11.9	27.7	40.6
MW-27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25	0.5	0.5	0.5	1.0	2.5
SW-9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25	0.5	0.6	0.5	1.0	2.5
SW-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25	0.5	0.6	0.5	1.0	2.5
SW-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	90	0.6	0.5	3.0	1.0	5.0
SW-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Average	6,045	11.5	5.5	139.1	252.7	408.8	7,764	2.3	2.3	63.4	30.8	98.7	852	0.5	0.6	11.1	8.9	19.1

Well Number	July 1999 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 2000 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 2001 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-10[1]	25	0.3	0.3	0.3	0.5	1.3	116	0.6	0.5	4.8	1.5	7.3	NA	NA	NA	NA	NA	NA
MW-12[4]	2,750	0.7	6.5	37.0	27.0	71.1	1,180	0.5	0.5	31.9	12.6	45.5	NA	NA	NA	NA	NA	NA
MW-13[2]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.6	1.5	3
MW-24[1]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	NA	NA	NA	NA	NA	NA
MW-26	25	0.3	0.6	0.3	0.5	1.6	180	0.5	1.8	70.2	39.8	112.1	NA	NA	NA	NA	NA	NA
MW-27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,280	0.5	0.5	40.2	15.6	57
MW-28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	225	0.5	0.5	5.3	1.5	7.8
MW-29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	937	0.5	0.5	32.4	1.5	34.9
SW-8	25	0.3	0.3	0.3	1.1	1.9	25	0.5	0.5	0.5	1.5	3.0	NA	NA	NA	NA	NA	NA
SW-9	25	0.3	0.3	0.3	0.5	1.3	87	0.5	0.5	9.0	3.3	13.3	NA	NA	NA	NA	NA	NA
SW-10	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.6	0.5	1.6	3.0	NA	NA	NA	NA	NA	NA
SW-11	25	0.3	0.7	0.6	1.6	3.2	25	0.5	0.5	2.2	1.5	4.7	25	0.5	0.5	0.5	1.5	3
SW-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25	0.5	0.5	0.5	1.5	3
SW-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	949	0.5	0.5	37	6.2	44.2
SW-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25	0.5	0.5	0.6	1.5	3
SW-19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25	0.5	0.5	0.5	1.5	3
Average	328	0.3	1.0	4.4	3.6	9.3	185	0.5	0.8	13.3	7.2	21.7	502	0.5	0.5	13.0	3.6	17.7

Well Number	July 2002 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-10[1]	NA	NA	NA	NA	NA	0.0
MW-12[4]	NA	NA	NA	NA	NA	0.0
MW-13[2]	25	0.25	0.25	0.25	1.43	2.2
MW-24[1]	NA	NA	NA	NA	NA	0.0
MW-26	NA	NA	NA	NA	NA	0.0
MW-27	506	5.12	1.16	1.34	0.5	8.1
MW-28	25	0.25	0.25	0.25	0.5	1.3
MW-29	211	1.96	0.25	0.945	0.5	3.7
SW-8	NA	NA	NA	NA	NA	0.0
SW-9	NA	NA	NA	NA	NA	0.0
SW-10	NA	NA	NA	NA	NA	0.0
SW-11	25	0.25	0.25	0.25	0.5	1.3
SW-16	87.6	0.25	0.25	0.25	0.5	1.3
SW-17	25	0.25	0.25	0.25	0.5	1.3
SW-18	25	0.25	0.25	0.25	0.5	1.3
SW-19	25	0.25	0.25	0.25	0.5	1.3
Average	106	1	0	0	1	1

GROUP 4, DOWNGRADIENT PARK WELLS (6 TOTAL)

Well Number	Pre-Remediation Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 1997 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 1998 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-14[1]	25	0.3	0.3	0.3	0.3	1.0	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
MW-15[2]	43	0.3	0.3	1.0	2.2	3.7	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
MW-16[2]	25	0.3	0.3	0.3	0.3	1.0	25	1.0	1.0	1.0	1.0	4.0	25	0.5	0.5	0.5	1.0	2.5
MW-17[4]	290	1.5	0.7	11.2	3.5	16.9	1,670	1.0	1.0	54.0	2.8	58.8	696	0.5	0.5	25.6	3.0	29.6
MW-22[5]	3,704	5.3	2.8	112.3	41.1	161.5	8,000	5.0	5.0	210.0	53.0	273.0	25	0.5	0.5	0.6	1.0	2.5
MW-23[1]	2,404	0.9	2.5	35.0	22.0	60.4	255	1.0	1.0	1.0	1.0	4.0	25	0.5	0.6	0.5	1.0	2.6
Average	1,082	1.4	1.1	26.7	11.6	40.8	1,667	1.7	1.7	44.7	10.0	58.0	137	0.5	0.5	4.7	1.3	7.0

Well Number	July 1999 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 2000 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 2001 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-14[1]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.6	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
MW-15[2]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
MW-16[2]	25	0.3	0.3	0.3	0.5	1.3	25	0.6	0.5	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
MW-17[4]	331	0.3	4.4	10.3	1.6	16.5	217	0.5	0.5	15.5	1.5	18.0	133	0.5	0.5	3.4	1.5	5.9
MW-22[5]	269	0.3	4.5	4.1	0.5	9.3	25	0.5	0.5	0.5	1.5	3.0	55	0.5	0.5	0.6	1.5	3
MW-23[1]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
Average	117	0.3	1.6	2.6	0.7	5.1	57	0.5	0.5	3.0	1.5	5.5	48	0.5	0.5	1	1.5	3.5

Well Number	July 2002 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-14[1]	25	0.25	0.25	0.25	0.5	1.3
MW-15[2]	25	0.25	0.25	0.25	0.5	1.3
MW-16[2]	25	0.25	0.26	0.25	0.5	1.3
MW-17[4]	25	0.26	0.25	0.25	0.5	1.3
MW-22[5]	68.8	0.562	0.25	0.25	0.5	1.6
MW-23[1]	25	0.25	0.25	0.25	0.6	1.3
Average	32.3	0.302	0.25	0.25	0.5	1.302

GROUP 5, UPGRADIENT WELLS (3 TOTAL)

Well Number	Pre-Remediation Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 1997 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 1998 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-11[4]	2,935	4.8	1.6	1.7	4.6	12.7	281	1.0	1.0	1.0	1.0	4.0	112	0.6	0.6	0.5	1.0	2.5
MW-21A[4]	74	0.5	0.5	4.3	8.4	13.7	25	1.0	1.0	1.0	1.0	4.0	25	0.6	0.6	0.5	1.0	2.6
MW-21B[4]	719	37.6	160.5	1.5	6.9	206.7	25	1.0	1.0	1.0	1.0	4.0	25	0.6	0.5	0.5	1.0	2.5
Average	1,243	14.4	54.2	2.5	6.6	77.7	110	1.0	1.0	1.0	1.0	4.0	54	0.6	0.5	0.5	1.0	2.5
Site Average	7729.9	10.5	55.5	149.2	698.7	913.9	6125.5	2.8	7.8	67.2	261.1	338.9	3471.1	1.2	5.8	54.8	169.1	231.0

Well Number	July 1999 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 2000 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)	July 2001 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-11[4]	204	0.3	4.8	0.3	0.5	5.8	58	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
MW-21A[4]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
MW-21B[4]	25	0.3	0.3	0.3	0.5	1.3	25	0.5	0.5	0.6	1.5	3.0	25	0.5	0.5	0.6	1.5	3
Average	85	0.3	1.8	0.3	0.5	2.8	36	0.5	0.5	0.5	1.5	3.0	25	0.5	0.5	0.5	1.5	3
Site Average	1351.7	2.3	5.6	23.1	78.9	110.0	1877.1	0.6	2.8	35.0	160.9	199.3	616.0	1.8	1.0	13.6	28.2	43.8

Well Number	July 2002 Groundwater Concentrations GRPH (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-Benzene (µg/l)	Total Xylenes (µg/l)	Total BTEX (µg/l)
MW-11[4]	207	2.33	0.583	0.5	1.18	3.0
MW-21A[4]	25	0.5	0.5	0.5	1.6	3.0
MW-21B[4]	25	0.5	0.5	0.5	1.5	3.0
Average	25	0.5	0.5	0.5	1.5	3.0
Site Average	478.0	1.5	0.8	4.4	10.1	16.5

Notes:

1. Pre-remediation groundwater concentration based upon average of 7 sampling events.
2. Pre-remediation groundwater concentration based upon average of 5 sampling events.
3. Pre-remediation groundwater concentration based upon average of 9 sampling events.
4. Pre-remediation groundwater concentration based upon average of 4 sampling events.
5. Pre-remediation groundwater concentration based upon average of 2 sampling events.
6. Pre-remediation groundwater concentration based upon average of 6 sampling events.
7. Pre-remediation groundwater concentration based upon 1 sampling event.
8. Pre-remediation groundwater concentration based upon average of 8 sampling events.
9. Pre-remediation groundwater concentration based upon average of 3 sampling events.

Bold for emphasis and clarity.

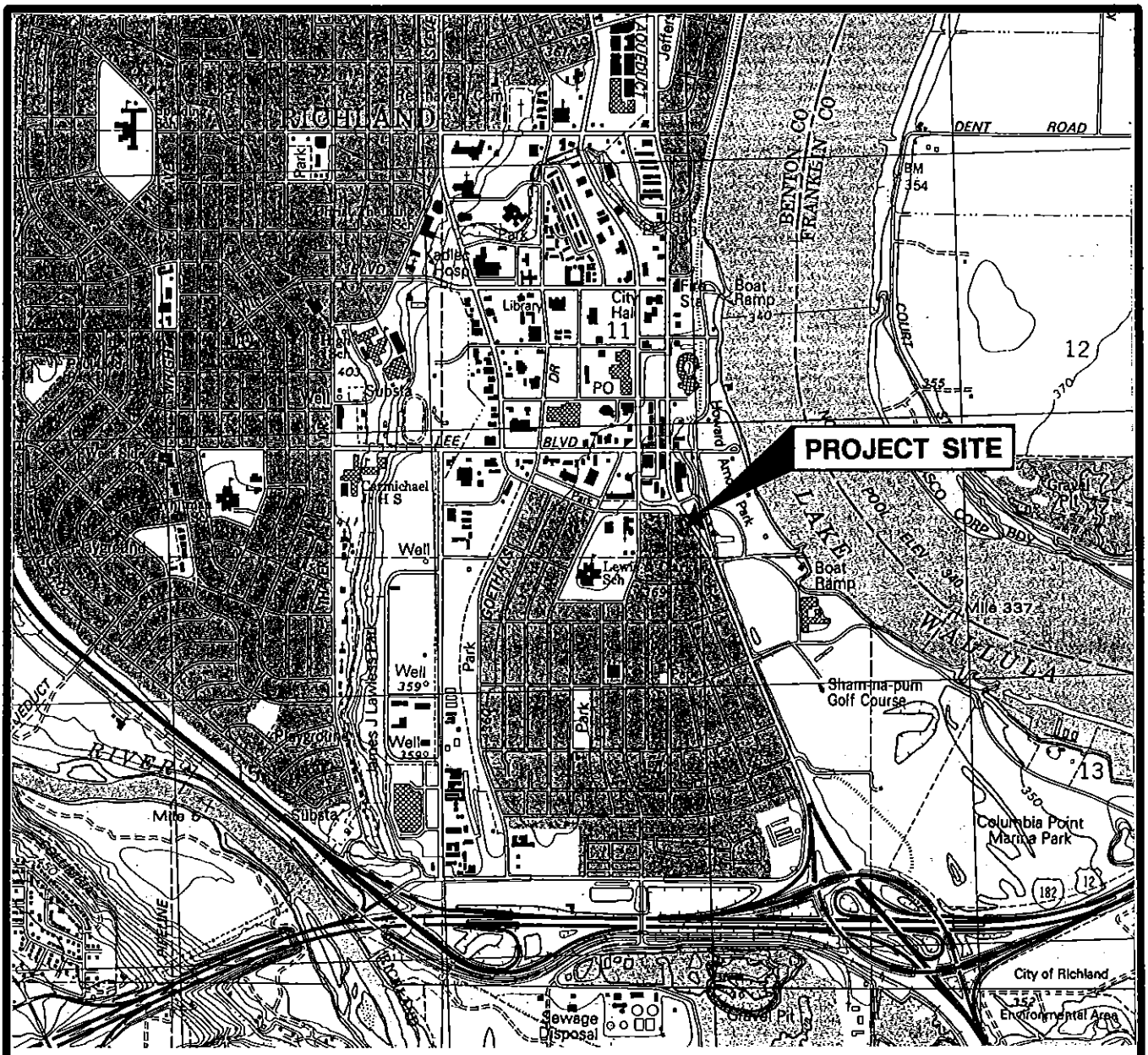
Posted concentrations represent one-half the detection limit when non detect results were observed.

Site average based upon average concentrations of 37 wells for pre-remediation and July 1997 concentrations, 44 wells for July 1998 concentrations, and 48 wells for July 1999 and July 2000 concentrations.

GRPH - gasoline range petroleum hydrocarbons

NA - Not applicable

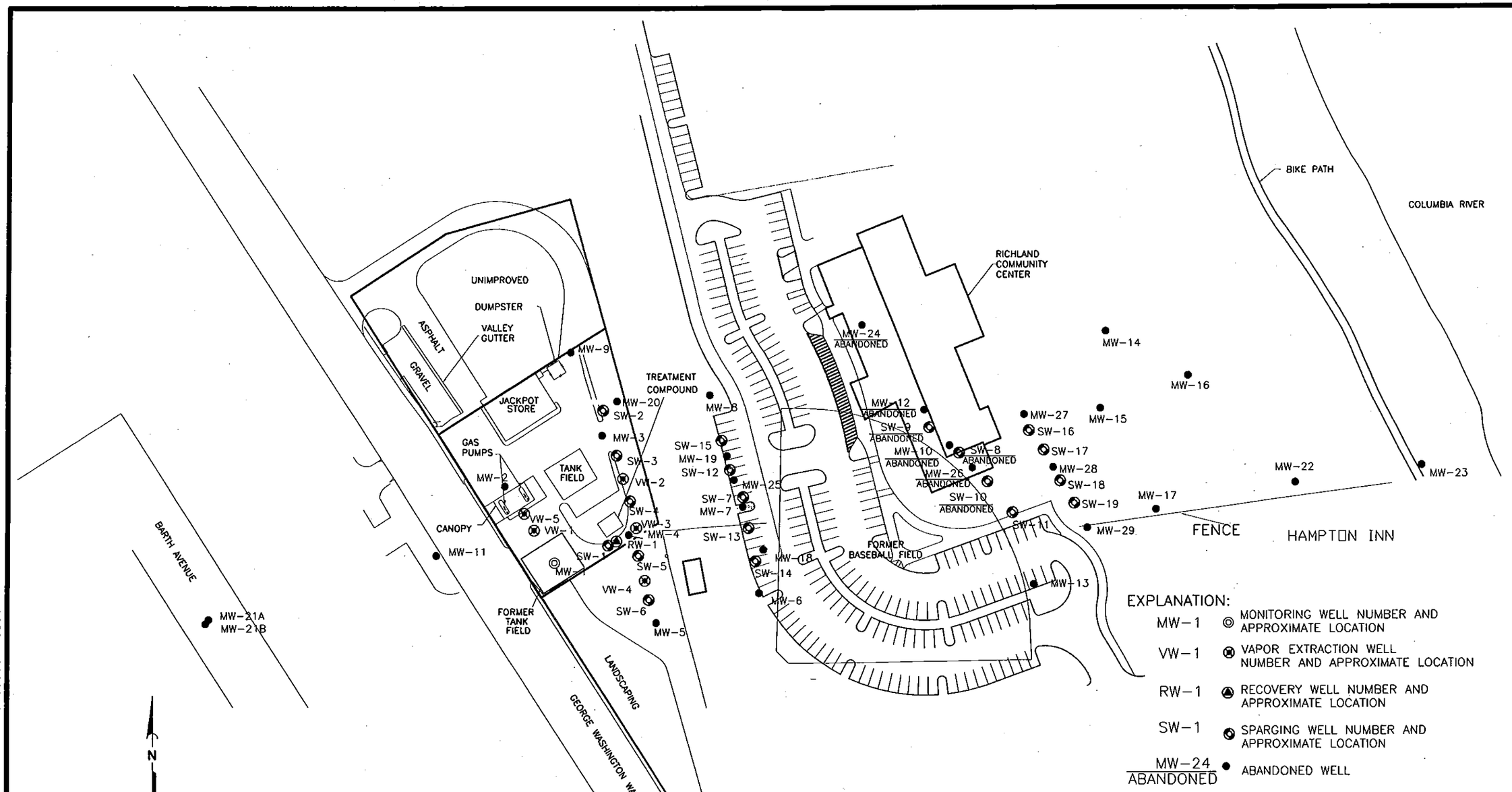
(µg/l) = micrograms per liter



Reference:
USGS 7.5' topographic quadrangle map "Richland, WA." 1992.

Geo Engineers	VICINITY MAP
	FIGURE 1

BDW:DKR 8X11USGS.DWG 195703300:110399



EXPLANATION:

MW-1 ◎	MONITORING WELL NUMBER AND APPROXIMATE LOCATION
VW-1 ⊗	VAPOR EXTRACTION WELL NUMBER AND APPROXIMATE LOCATION
RW-1 ◬	RECOVERY WELL NUMBER AND APPROXIMATE LOCATION
SW-1 ⊗	SPARGING WELL NUMBER AND APPROXIMATE LOCATION
MW-24 ABANDONED ●	ABANDONED WELL

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: The features of the Jackpot Gas Station are based on a map completed by Stratton Surveying & Mapping in April of 1994. The new features include groundwater monitoring wells and ground features to the east and west of the Jackpot site.

GeoEngineers

SITE PLAN

FIGURE 2

BDW:EAM 1957033B2B11-08-01.DWG 195703300:110801

EAST PARK REMEDIAL SYSTEM-2

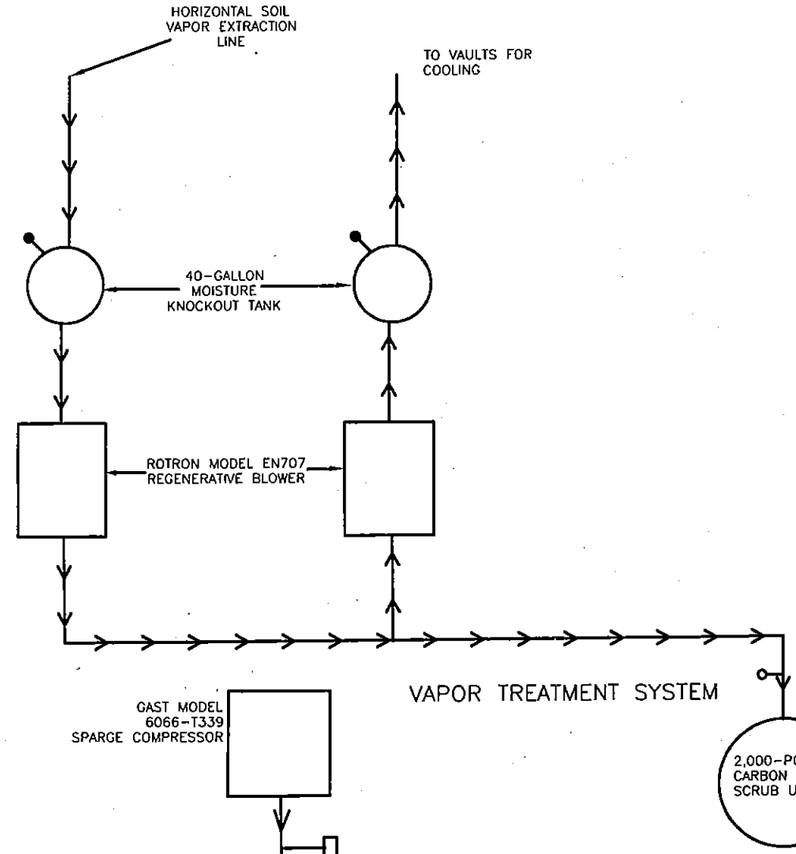
WEST PARK REMEDIAL SYSTEM

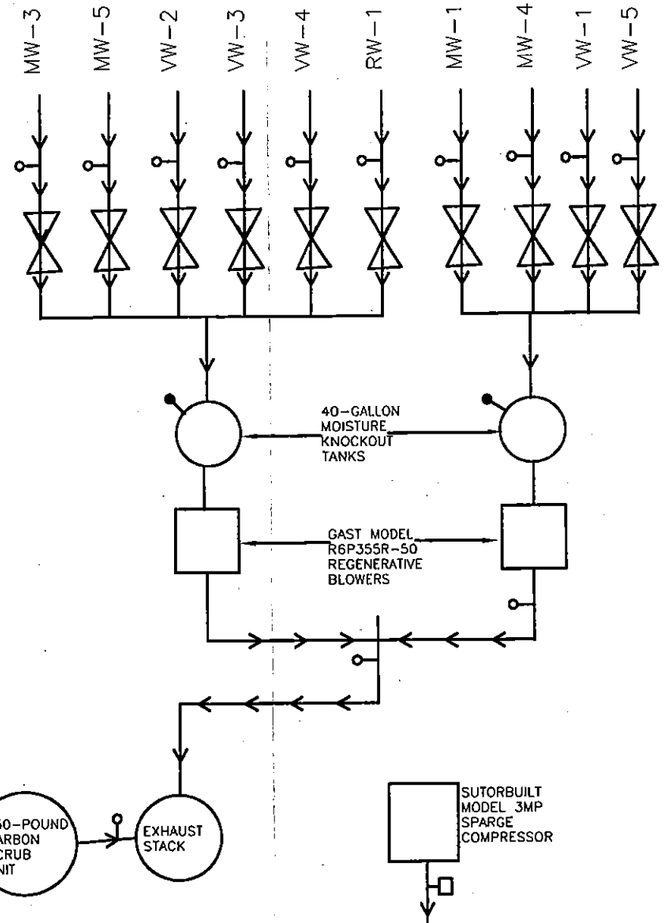
SUBJECT PROPERTY REMEDIAL SYSTEM

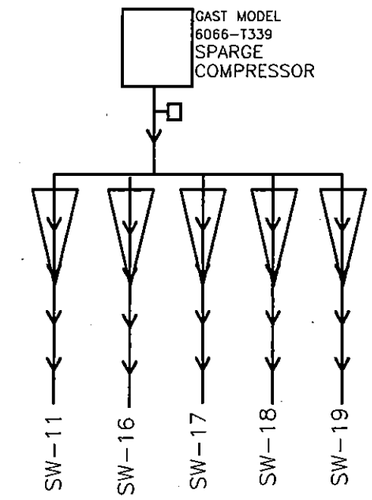
EXPLANATION:

- DIRECTION OF AIR FLOW
- AIR FLOW METER
- SVE SAMPLE PORT
- BALL VALVE
- AIR PRESSURE GAUGE
- VACUUM GAUGE
- PERCENT LEL METER

NOT TO SCALE







WEST PARK REMEDIAL SYSTEM

Geo Engineers

REMEDIAL SYSTEM FLOW DIAGRAM

FIGURE 3

BDW:FAM REMEDIALDE2.DWG 195703300:111501

FIGURE 4
TOTAL BTEX VAPOR CONCENTRATIONS VS. TIME
SUBJECT PROPERTY REMEDIAL SYSTEM
RICHLAND JACKPOT - RICHLAND, WASHINGTON

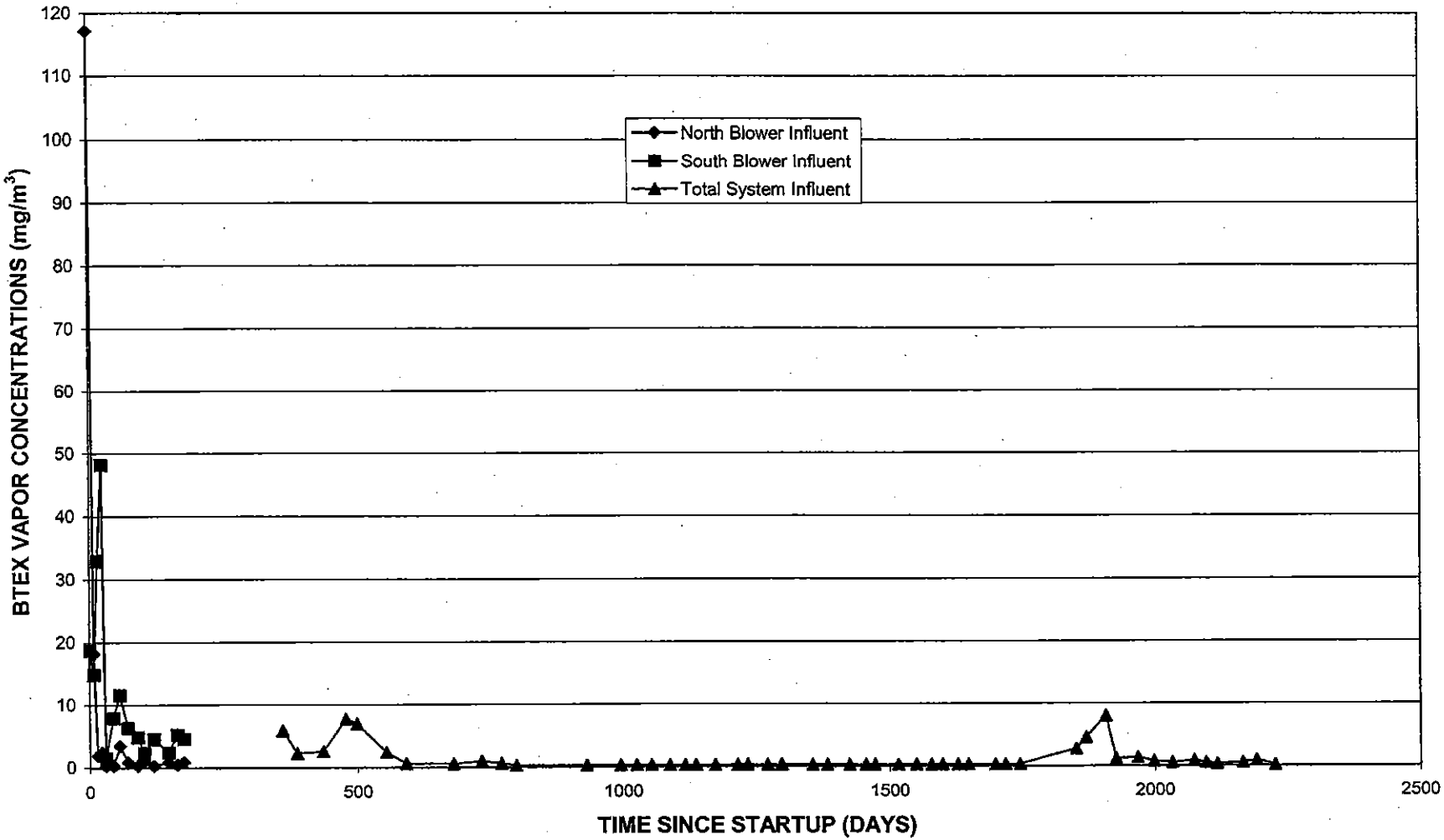


FIGURE 5
TOTAL GRPH VAPOR CONCENTRATIONS VS. TIME
SUBJECT PROPOERTY REMEDIAL SYSTEM
RICHLAND JACKPOT - RICHLAND, WASHINGTON

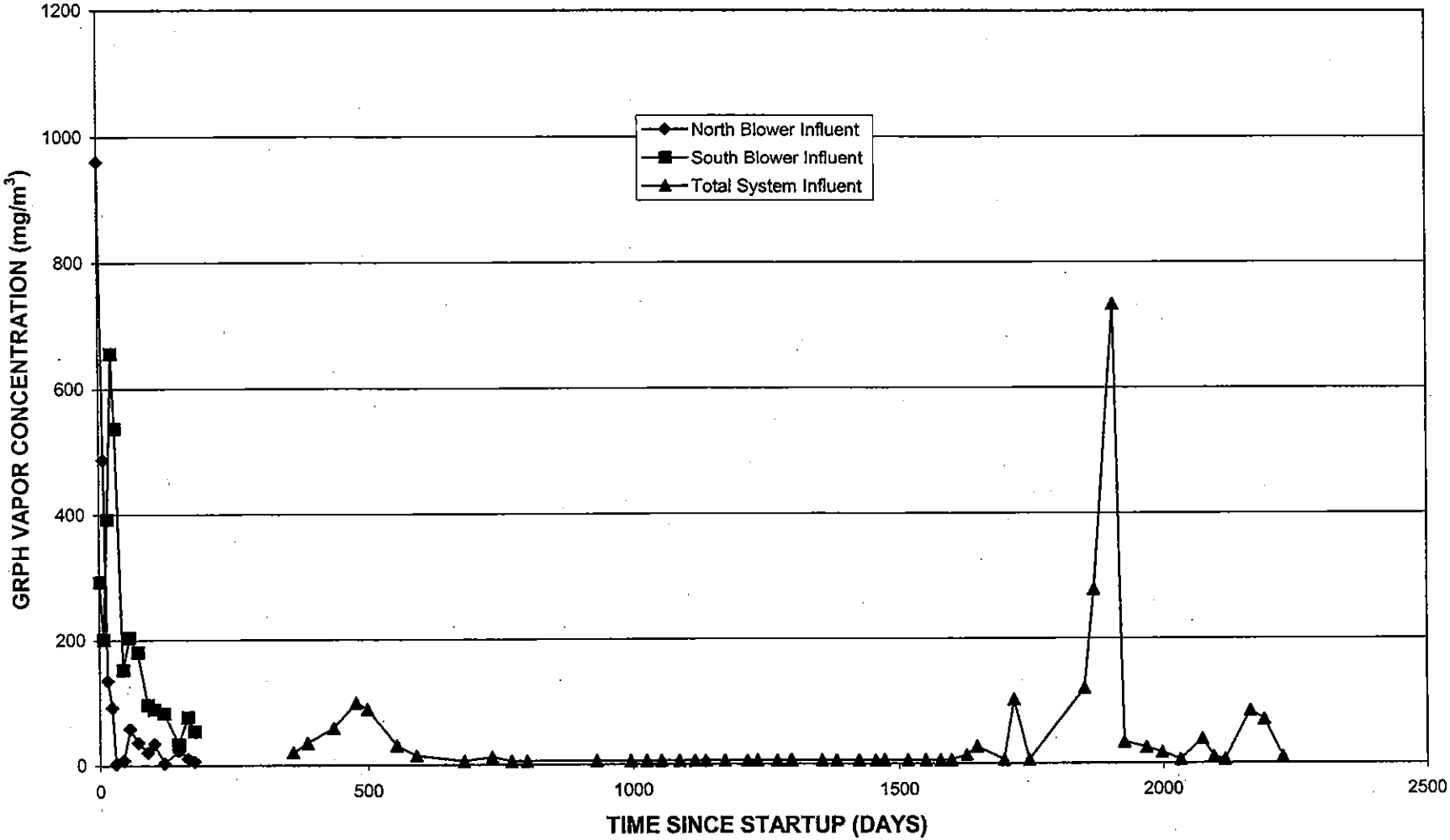


FIGURE 6
TOTAL BTEX VAPOR CONCENTRATIONS VS. TIME
WEST PARK REMEDIAL SYSTEM
RICHLAND JACKPOT - RICHLAND, WASHINGTON

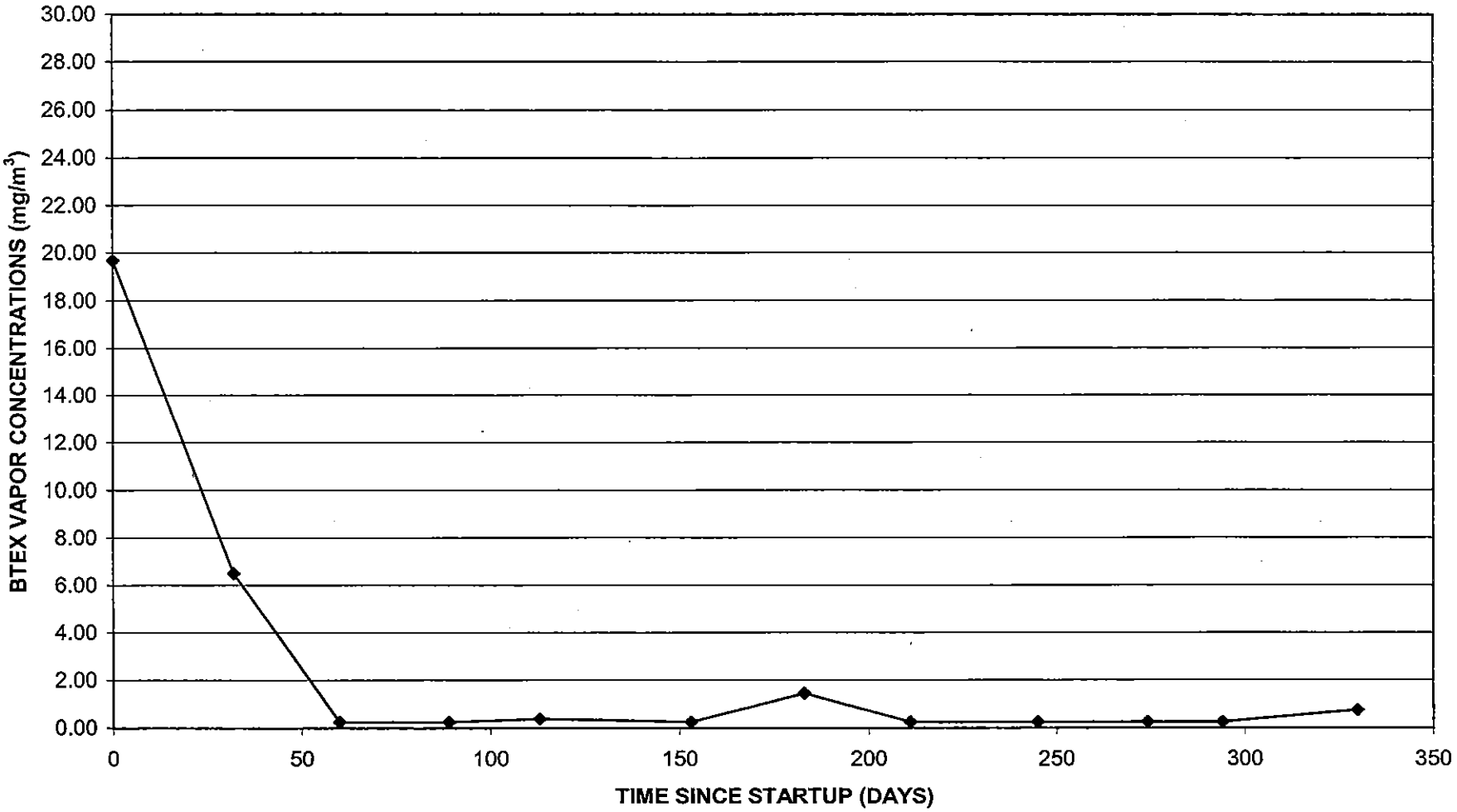


FIGURE 7
TOTAL GRPH VAPOR CONCENTRATIONS VS. TIME
WEST PARK REMEDIAL SYSTEM
RICHLAND JACKPOT - RICHLAND, WASHINGTON

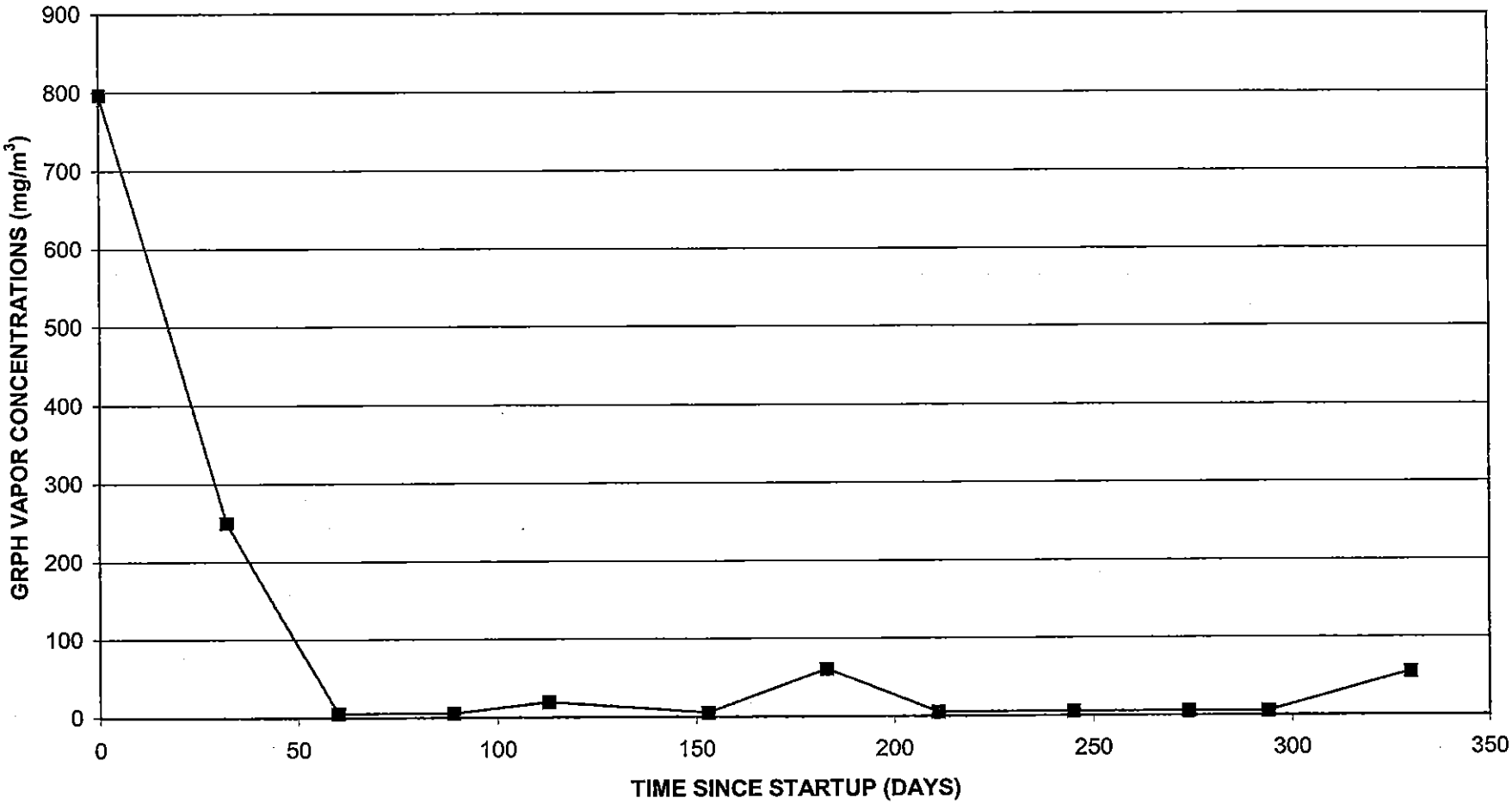


FIGURE 8
CUMULATIVE TOTAL BTEX REMOVED VS. TIME
SUBJECT PROPERTY REMEDIAL SYSTEM
RICHLAND JACKPOT - RICHLAND, WASHINGTON

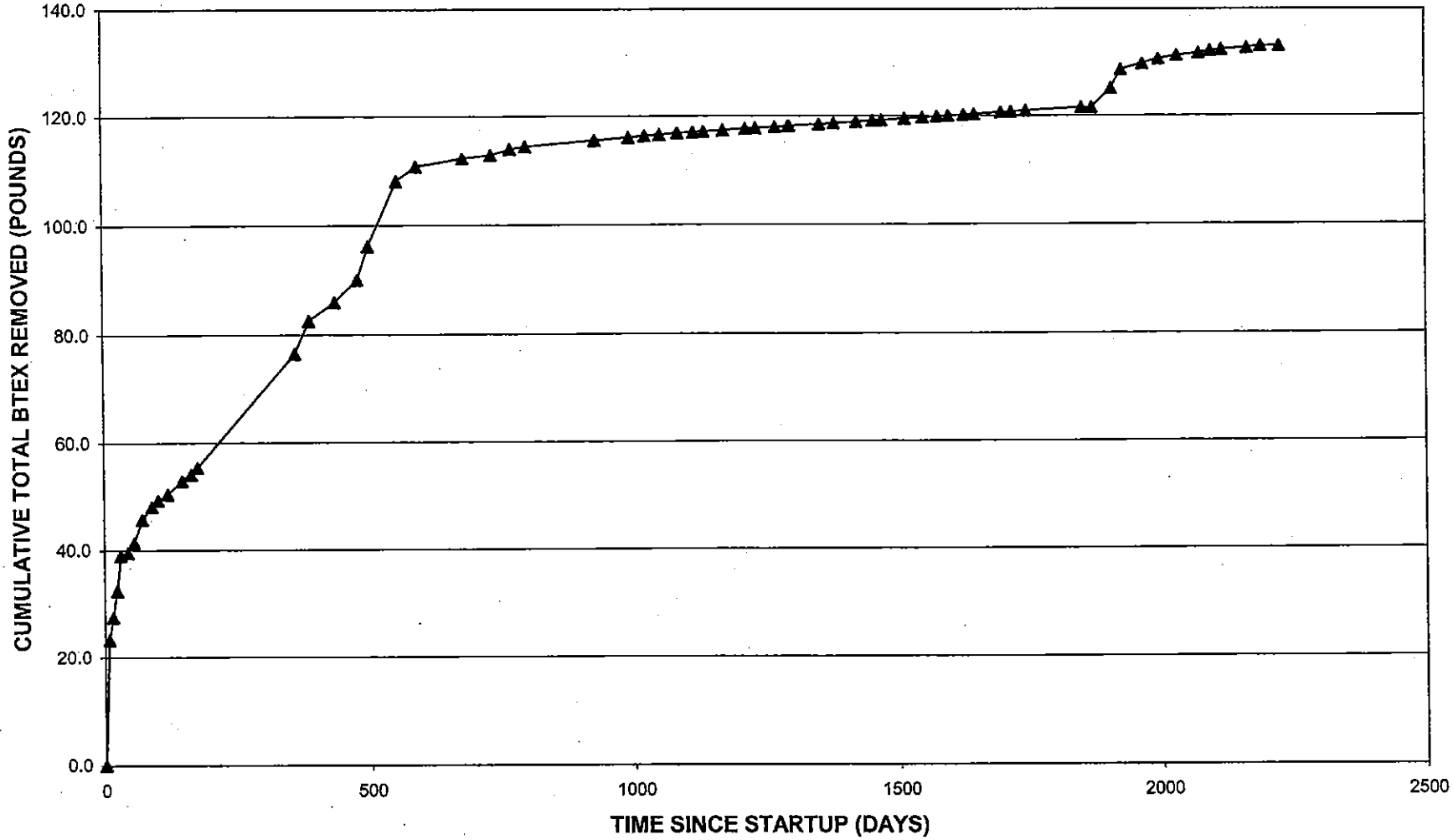


FIGURE 9
CUMULATIVE TOTAL GRPH REMOVED VS. TIME
SUBJECT PROPERTY REMEDIAL SYSTEM
RICHLAND JACKPOT - RICHLAND, WASHINGTON

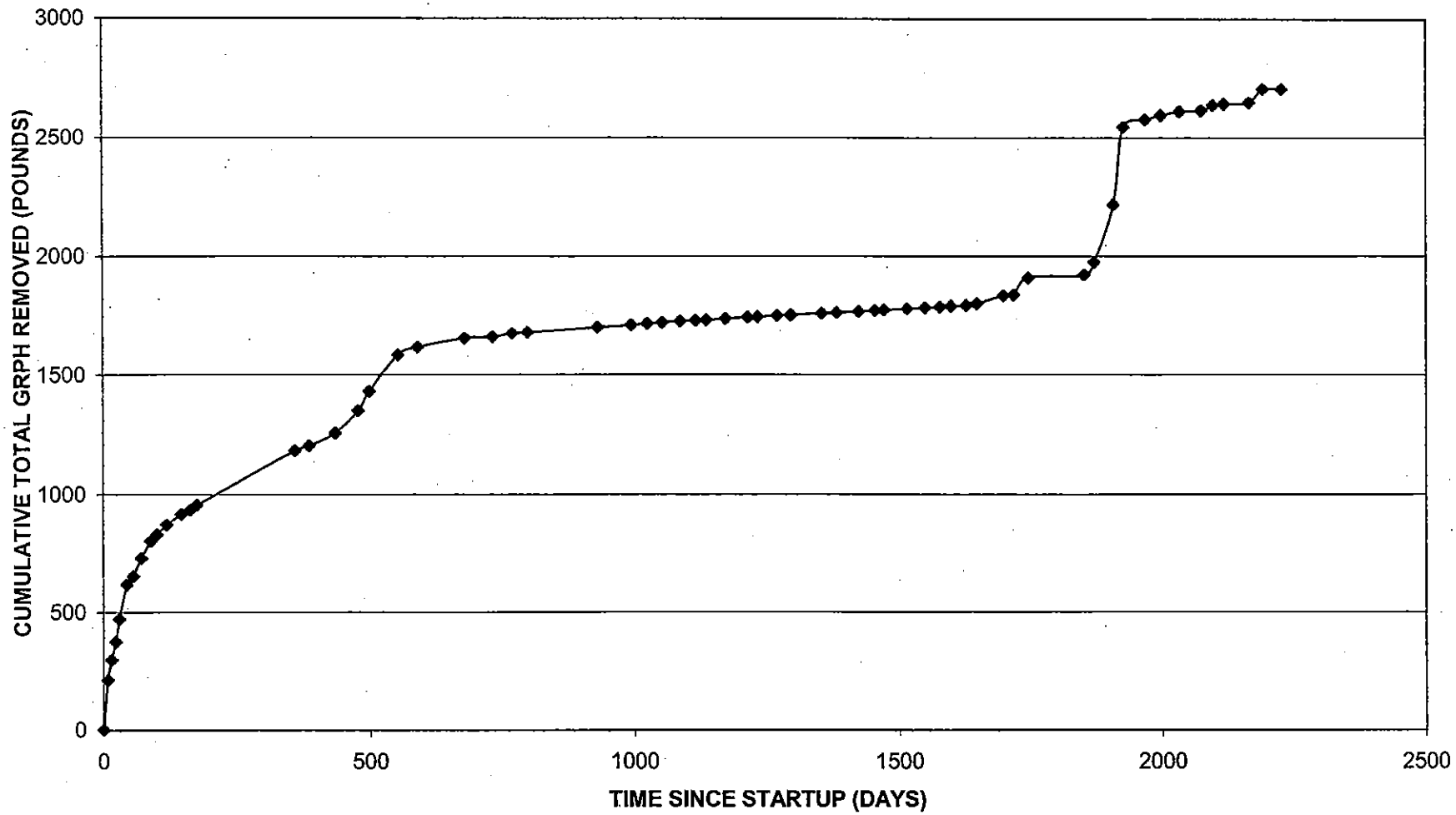


FIGURE 10
CUMULATIVE TOTAL BTEX REMOVED VS. TIME
WEST PARK REMEDIAL SYSTEM
RICHLAND JACKPOT - RICHLAND, WASHINGTON

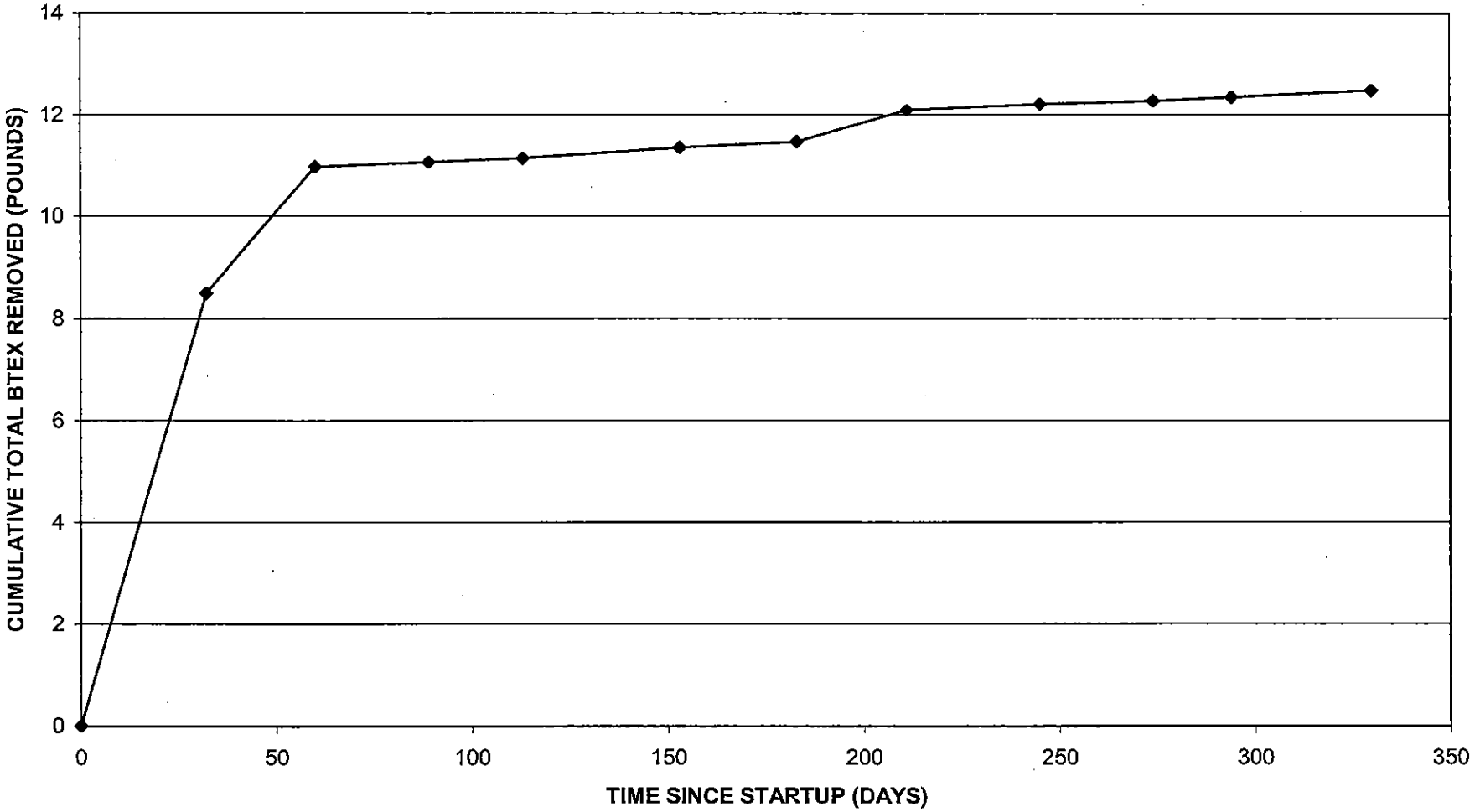


FIGURE 11
CUMULATIVE TOTAL GRPH REMOVED VS. TIME
WEST PARK REMEDIAL SYSTEM
RICHLAND JACKPOT - RICHLAND, WASHINGTON

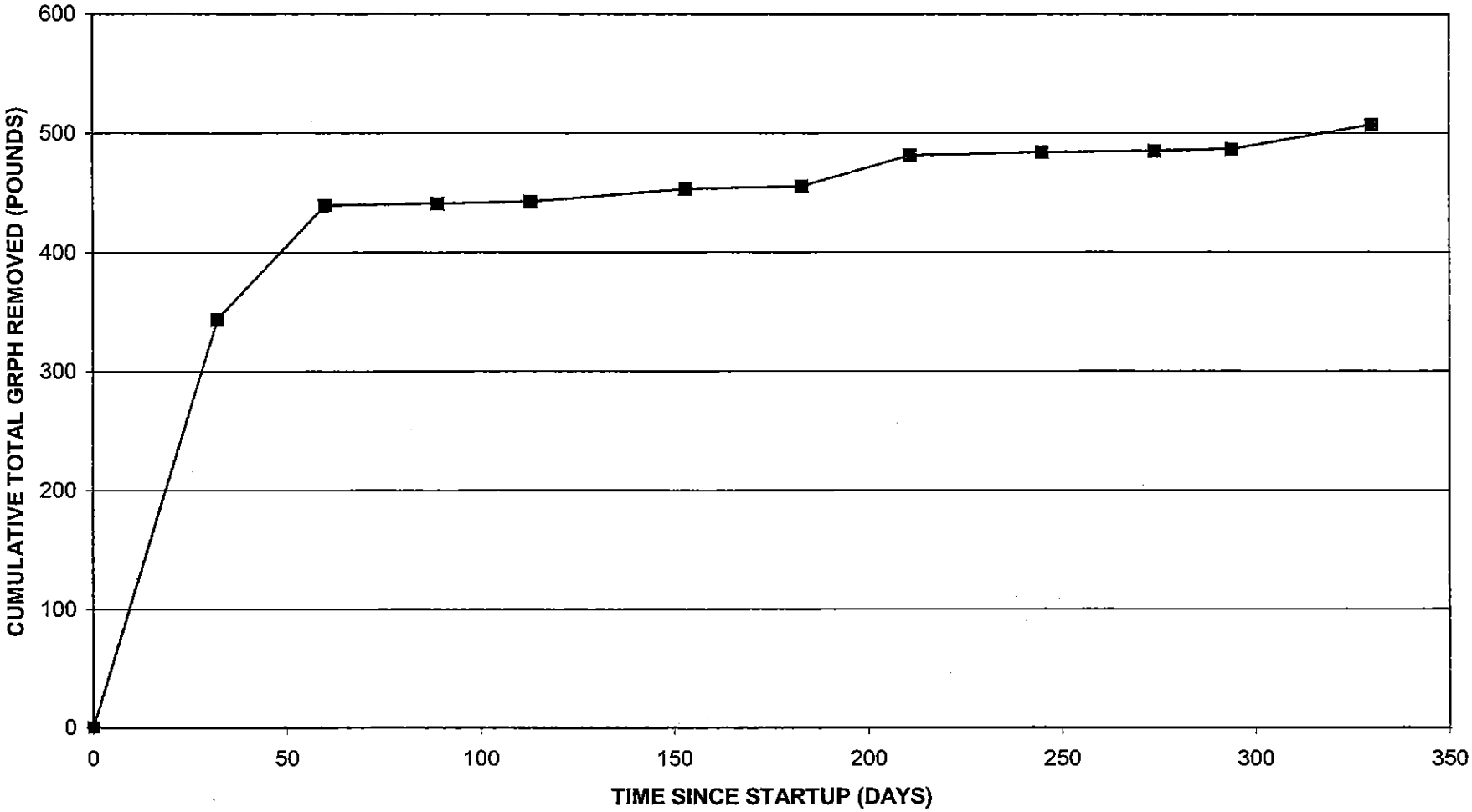


FIGURE 12
GRPH CONCENTRATIONS IN GROUNDWATER VS. TIME
RICHLAND JACKPOT - RICHLAND, WASHINGTON

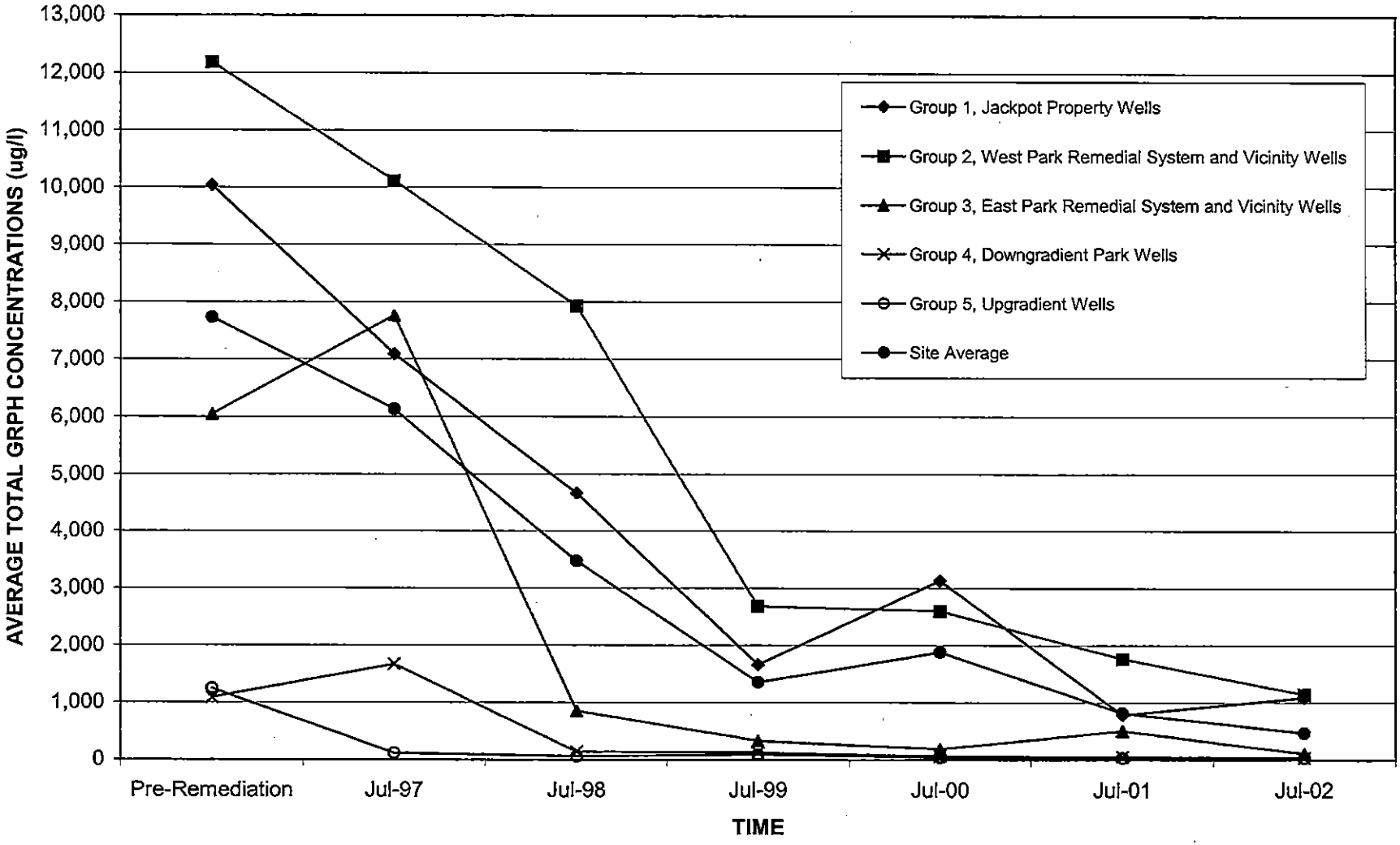
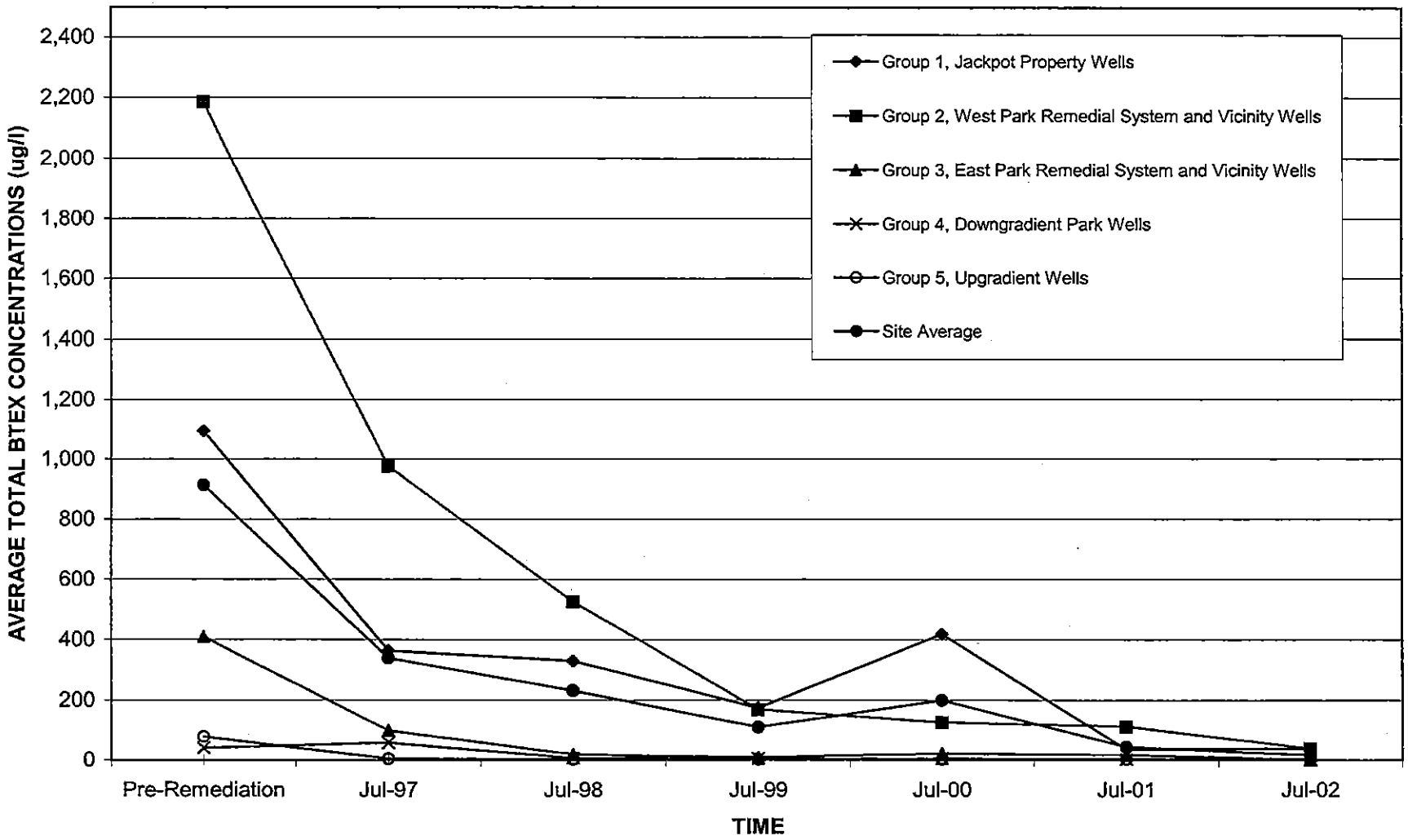


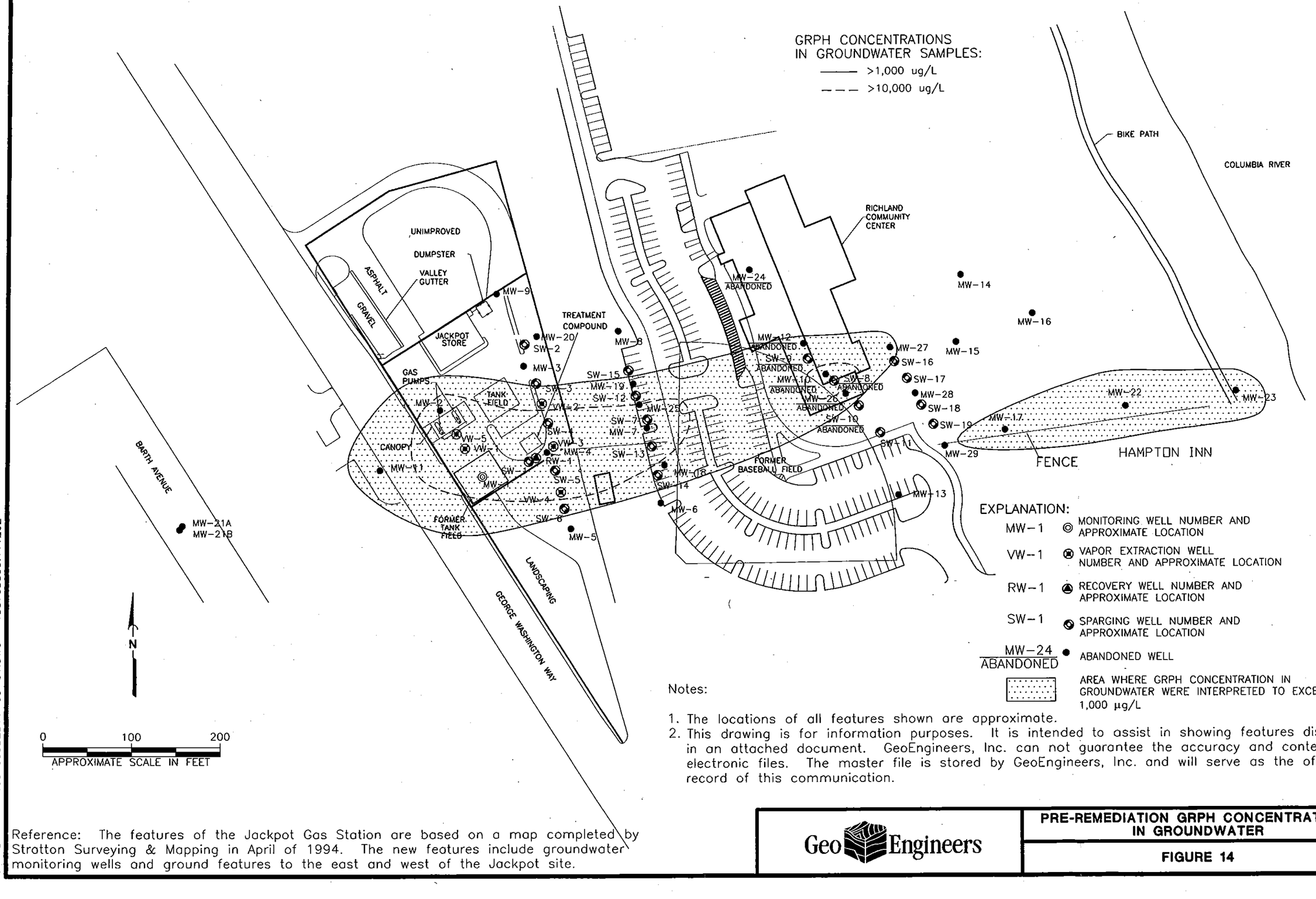
FIGURE 13
BTEX CONCENTRATIONS IN GROUNDWATER VS. TIME
RICHLAND JACKPOT - RICHLAND, WASHINGTON



GRPH CONCENTRATIONS
IN GROUNDWATER SAMPLES:

——— >1,000 ug/L

– – – >10,000 ug/L



EXPLANATION:

MW-1 ◎	MONITORING WELL NUMBER AND APPROXIMATE LOCATION
VW-1 ⊗	VAPOR EXTRACTION WELL NUMBER AND APPROXIMATE LOCATION
RW-1 ◭	RECOVERY WELL NUMBER AND APPROXIMATE LOCATION
SW-1 ⊘	SPARGING WELL NUMBER AND APPROXIMATE LOCATION
MW-24 / ABANDONED ●	ABANDONED WELL
▨	AREA WHERE GRPH CONCENTRATION IN GROUNDWATER WERE INTERPRETED TO EXCEED 1,000 µg/L

Notes:

1. The locations of all features shown are approximate.
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Reference: The features of the Jackpot Gas Station are based on a map completed by Stratton Surveying & Mapping in April of 1994. The new features include groundwater monitoring wells and ground features to the east and west of the Jackpot site.

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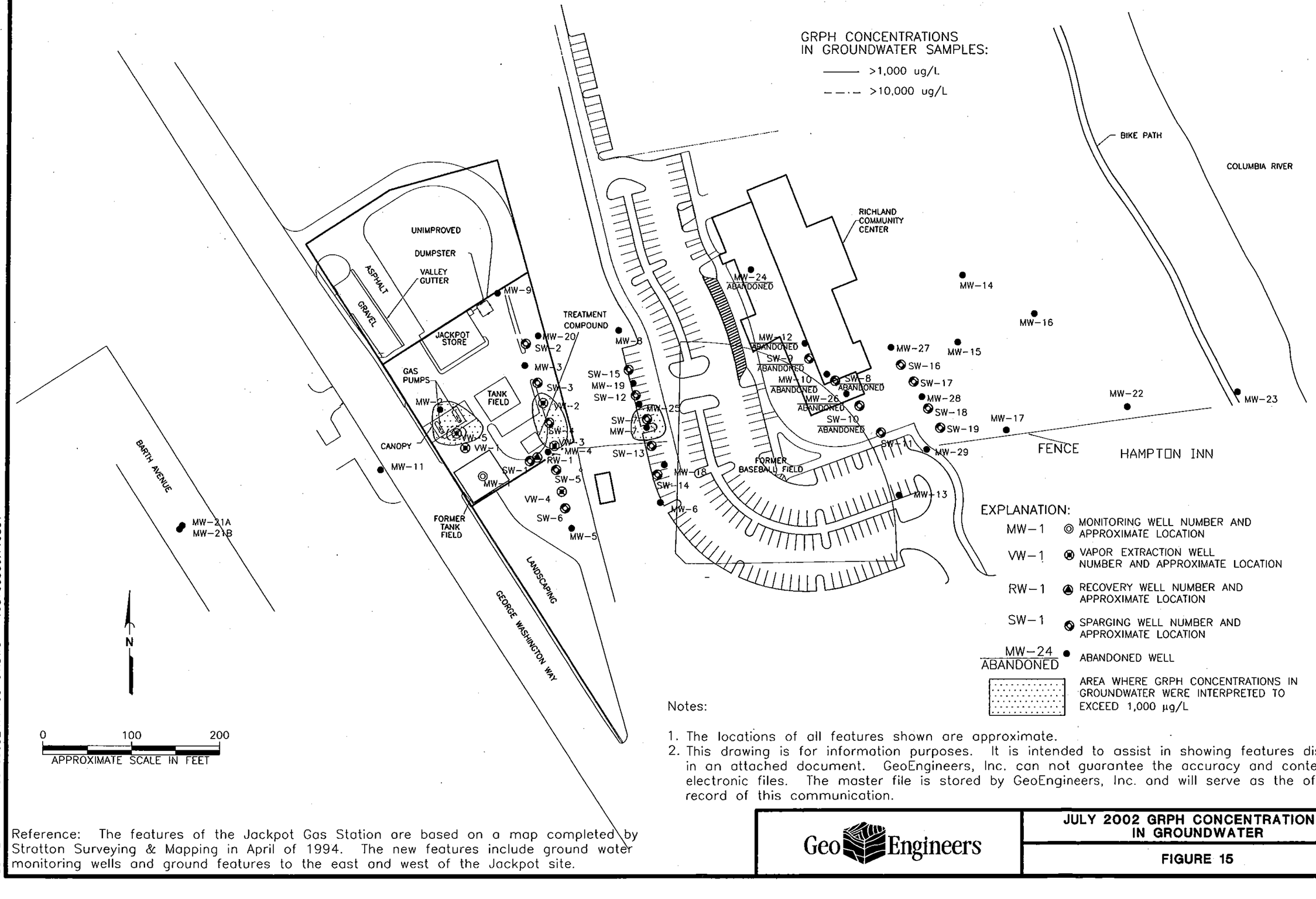
PRE-REMEDIATION GRPH CONCENTRATIONS IN GROUNDWATER

FIGURE 14

BDW:EAM 1957033B2B11-08-01.DWG 195703300:111202



Notes:

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GeoEngineers

JULY 2002 GRPH CONCENTRATIONS IN GROUNDWATER

FIGURE 15

BDW:EAM 1957033B2A11-08-01.DWG 1957033300:110801

APPENDIX A

APPENDIX A

CHEMICAL ANALYTICAL PROGRAM

ANALYTICAL METHODS

Chain-of-custody procedures were followed during the transport of the field vapor samples to the analytical laboratory. The samples were held at room temperature in a dark environment until extraction and/or analysis. The analytical results, analytical methods reference and laboratory quality assurance/quality control (QA/QC) records are included in this appendix. The analytical results also are summarized in the text and tables of this report.

ANALYTICAL DATA REVIEW

The laboratory maintains an internal quality assurance program as documented in its laboratory quality assurance manual. The laboratory uses a combination of blanks, surrogate recoveries, duplicates, matrix spike recoveries, matrix spike duplicate recoveries, blank spike recoveries and blank spike duplicate recoveries to evaluate the analytical results. The laboratory also uses data quality goals for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The data quality goals were included in the laboratory reports. The laboratory compared each group of samples with the existing data quality goals and noted any exceptions in the laboratory report. Any data quality exceptions documented by the accredited laboratory were reviewed by GeoEngineers and are addressed in the data quality exception section of this appendix.

ANALYTICAL DATA REVIEW SUMMARY

No significant data quality exceptions were noted in the laboratory report or during our review. Based on our data quality review, it is our opinion that the quality of the analytical data is acceptable for their intended use.

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503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

20 November 2001

Bruce Williams
Geo Engineers - Spokane
523 East 2nd
Spokane, WA 99202

RE: Time Oil Richland

Enclosed are the results of analyses for samples received by the laboratory on 11/09/01 06:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Amar Gill
Project Manager

www.ncalabs.com

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Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-2	B1K0203-01	Water	11/07/01 12:00	11/09/01 06:00
MW-6	B1K0203-02	Water	11/07/01 12:00	11/09/01 06:00
MW-7	B1K0203-03	Water	11/07/01 12:00	11/09/01 06:00
MW-8	B1K0203-04	Water	11/07/01 12:00	11/09/01 06:00
MW-13	B1K0203-05	Water	11/07/01 12:00	11/09/01 06:00
MW-15	B1K0203-06	Water	11/07/01 12:00	11/09/01 06:00
MW-17	B1K0203-07	Water	11/07/01 12:00	11/09/01 06:00
MW-21B	B1K0203-08	Water	11/08/01 12:00	11/09/01 06:00
MW-22	B1K0203-09	Water	11/07/01 12:00	11/09/01 06:00
MW-23	B1K0203-10	Water	11/07/01 12:00	11/09/01 06:00
MW-25	B1K0203-11	Water	11/07/01 12:00	11/09/01 06:00
MW-27	B1K0203-12	Water	11/07/01 12:00	11/09/01 06:00
MW-28	B1K0203-13	Water	11/07/01 12:00	11/09/01 06:00
MW-29	B1K0203-14	Water	11/07/01 12:00	11/09/01 06:00
MW-40	B1K0203-15	Water	11/07/01 12:00	11/09/01 06:00
EFF110801	B1K0203-16	Air	11/08/01 14:00	11/09/01 06:00

North Creek Analytical - Bothell

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.

Amar Gill, Project Manager

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2 (B1K0203-01) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	**2460**	100	ug/l	2	1K16048	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	**3.57**	1.00	"	"	"	"	"	"	
Toluene	**27.4**	1.00	"	"	"	"	"	"	
Ethylbenzene	**55.6**	1.00	"	"	"	"	"	"	
Xylenes (total)	**393**	2.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*109 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*111 %*	*62-125*			"	"	"	"	
MW-6 (B1K0203-02) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	1K16048	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*85.8 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*90.6 %*	*62-125*			"	"	"	"	
MW-7 (B1K0203-03) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	**13500**	500	ug/l	10	1K16048	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	**18.4**	5.00	"	"	"	"	"	"	I-06
Toluene	ND	5.00	"	"	"	"	"	"	
Ethylbenzene	**116**	5.00	"	"	"	"	"	"	
Xylenes (total)	**292**	10.0	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*120 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*99.2 %*	*62-125*			"	"	"	"	

North Creek Analytical - Bothell

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.

Amar Gill, Project Manager

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-8 (B1K0203-04) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	1K16048	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*84.0 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*91.5 %*	*62-125*			"	"	"	"	
MW-13 (B1K0203-05) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	1K16049	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*92.7 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*93.5 %*	*62-125*			"	"	"	"	
MW-15 (B1K0203-06) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	**67.0**	50.0	ug/l	1	1K16049	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*96.2 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*92.1 %*	*62-125*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-17 (B1K0203-07) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	**104**	50.0	ug/l	1	1K16049	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	**0.764**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	**2.93**	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*97.5 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*95.8 %*	*62-125*			"	"	"	"	
MW-21B (B1K0203-08) Water Sampled: 11/08/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	1K16049	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*91.5 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*92.3 %*	*62-125*			"	"	"	"	
MW-22 (B1K0203-09) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	1K16049	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*91.5 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*94.4 %*	*62-125*			"	"	"	"	

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-23 (B1K0203-10) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	1K16049	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*91.9 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*95.4 %*	*62-125*			"	"	"	"	
MW-25 (B1K0203-11) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	**3850**	250	ug/l	5	1K16049	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	**13.8**	2.50	"	"	"	"	"	"	
Toluene	ND	2.50	"	"	"	"	"	"	
Ethylbenzene	**17.3**	2.50	"	"	"	"	"	"	
Xylenes (total)	**19.5**	5.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*108 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*99.0 %*	*62-125*			"	"	"	"	
MW-27 (B1K0203-12) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	**1280**	50.0	ug/l	1	1K16049	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	**7.91**	0.500	"	"	"	"	"	"	
Toluene	**0.712**	0.500	"	"	"	"	"	"	I-06
Ethylbenzene	**23.6**	0.500	"	"	"	"	"	"	
Xylenes (total)	**1.83**	1.00	"	"	"	"	"	"	I-06
Surrogate: 4-BFB (FID)	*172 %*	*62-139*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*116 %*	*62-125*			"	"	"	"	

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-28 (B1K0203-13) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	**141**	50.0	ug/l	1	1K16049	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	**0.862**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	**2.81**	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*100 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*94.2 %*	*62-125*			"	"	"	"	
MW-29 (B1K0203-14) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	**638**	50.0	ug/l	1	1K16049	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	**3.45**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	**25.1**	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*133 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*101 %*	*62-125*			"	"	"	"	
MW-40 (B1K0203-15) Water Sampled: 11/07/01 12:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	**2480**	50.0	ug/l	1	1K16049	11/16/01	11/18/01	NWTPH-Gx/8021B	
Benzene	**2.93**	0.500	"	"	"	"	"	"	
Toluene	**19.8**	0.500	"	"	"	"	"	"	
Ethylbenzene	**40.2**	0.500	"	"	"	"	"	"	
Xylenes (total)	**266**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*145 %*	*62-139*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*101 %*	*62-125*			"	"	"	"	

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EFF110801 (B1K0203-16) Air Sampled: 11/08/01 14:00 Received: 11/09/01 06:00									
Gasoline Range Hydrocarbons	**186**	10.0	mg/m³ Air	1	1K09004	11/09/01	11/09/01	NWTPH Modified	
Benzene	**1.87**	0.100	"	"	"	"	"	"	
Toluene	**1.00**	0.100	"	"	"	"	"	"	
Ethylbenzene	**0.637**	0.100	"	"	"	"	"	"	I-06
Xylenes (total)	**1.99**	0.200	"	"	"	"	"	"	I-06
Surrogate: 4-BFB (FID)	*94.5 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*96.8 %*	*50-150*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**43.8**	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	**0.577**	0.0308	"	"	"	"	"	"	
Toluene (v/v)	**0.262**	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	**0.144**	0.0227	"	"	"	"	"	"	I-06
Xylenes, total (v/v)	**0.451**	0.0454	"	"	"	"	"	"	I-06

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1K16048: Prepared 11/16/01 Using EPA 5030B (P/T)										
Blank (1K16048-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*40.6*		"	*48.0*		*84.6*	*62-139*			
Surrogate: 4-BFB (PID)	*43.9*		"	*48.0*		*91.5*	*62-125*			
LCS (1K16048-BS1)										
Gasoline Range Hydrocarbons	488	50.0	ug/l	500		97.6	80-120			
Benzene	6.08	0.500	"	6.01		101	80-120			
Toluene	32.3	0.500	"	35.8		90.2	80-120			
Ethylbenzene	8.71	0.500	"	8.37		104	80-120			
Xylenes (total)	40.6	1.00	"	41.4		98.1	80-120			
Surrogate: 4-BFB (FID)	*45.4*		"	*48.0*		*94.6*	*62-139*			
Surrogate: 4-BFB (PID)	*42.2*		"	*48.0*		*87.9*	*62-125*			
LCS Dup (1K16048-BSD1)										
Gasoline Range Hydrocarbons	511	50.0	ug/l	500		102	80-120	4.60	25	
Benzene	5.91	0.500	"	6.01		98.3	80-120	2.84	40	
Toluene	31.5	0.500	"	35.8		88.0	80-120	2.51	40	
Ethylbenzene	8.50	0.500	"	8.37		102	80-120	2.44	40	
Xylenes (total)	39.6	1.00	"	41.4		95.7	80-120	2.49	40	
Surrogate: 4-BFB (FID)	*47.1*		"	*48.0*		*98.1*	*62-139*			
Surrogate: 4-BFB (PID)	*41.6*		"	*48.0*		*86.7*	*62-125*			
Matrix Spike (1K16048-MS1)					**Source: B1K0200-02**					
Gasoline Range Hydrocarbons	463	50.0	ug/l	500	ND	89.9	70-130			
Benzene	6.18	0.500	"	6.01	ND	101	80-120			
Toluene	32.2	0.500	"	35.8	ND	89.2	75-117			
Ethylbenzene	8.58	0.500	"	8.37	ND	103	80-120			
Xylenes (total)	40.2	1.00	"	41.4	ND	97.1	80-120			
Surrogate: 4-BFB (FID)	*44.8*		"	*48.0*		*93.3*	*62-139*			
Surrogate: 4-BFB (PID)	*42.6*		"	*48.0*		*88.8*	*62-125*			

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1K16048: Prepared 11/16/01 Using EPA 5030B (P/T)										
Matrix Spike Dup (1K16048-MSD1)					**Source: B1K0200-02**					
Gasoline Range Hydrocarbons	489	50.0	ug/l	500	ND	95.1	70-130	5.46	25	
Benzene	5.95	0.500	"	6.01	ND	97.3	80-120	3.79	40	
Toluene	31.2	0.500	"	35.8	ND	86.4	75-117	3.15	40	
Ethylbenzene	8.35	0.500	"	8.37	ND	99.8	80-120	2.72	40	
Xylenes (total)	38.6	1.00	"	41.4	ND	93.2	80-120	4.06	40	
Surrogate: 4-BFB (FID)	*47.2*		"	*48.0*		*98.3*	*62-139*			
Surrogate: 4-BFB (PID)	*41.7*		"	*48.0*		*86.9*	*62-125*			
Batch 1K16049: Prepared 11/16/01 Using EPA 5030B (P/T)										
Blank (1K16049-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*42.1*		"	*48.0*		*87.7*	*62-139*			
Surrogate: 4-BFB (PID)	*46.1*		"	*48.0*		*96.0*	*62-125*			
LCS (1K16049-BS1)										
Gasoline Range Hydrocarbons	511	50.0	ug/l	500		102	80-120			
Benzene	5.76	0.500	"	6.01		95.8	80-120			
Toluene	29.8	0.500	"	35.8		83.2	80-120			
Ethylbenzene	7.79	0.500	"	8.37		93.1	80-120			
Xylenes (total)	37.2	1.00	"	41.4		89.9	80-120			
Surrogate: 4-BFB (FID)	*47.7*		"	*48.0*		*99.4*	*62-139*			
Surrogate: 4-BFB (PID)	*42.3*		"	*48.0*		*88.1*	*62-125*			

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1K16049: Prepared 11/16/01 Using EPA 5030B (P/T)										
LCS Dup (1K16049-BSD1)										
Gasoline Range Hydrocarbons	523	50.0	ug/l	500		105	80-120	2.32	25	
Benzene	5.69	0.500	"	6.01		94.7	80-120	1.22	40	
Toluene	29.6	0.500	"	35.8		82.7	80-120	0.673	40	
Ethylbenzene	7.80	0.500	"	8.37		93.2	80-120	0.128	40	
Xylenes (total)	36.9	1.00	"	41.4		89.1	80-120	0.810	40	
Surrogate: 4-BFB (FID)	*48.7*		"	*48.0*		*101*	*62-139*			
Surrogate: 4-BFB (PID)	*42.8*		"	*48.0*		*89.2*	*62-125*			
Matrix Spike (1K16049-MS1)					**Source: B1K0203-08**					
Gasoline Range Hydrocarbons	520	50.0	ug/l	500	ND	102	70-130			
Benzene	5.94	0.500	"	6.01	ND	96.8	80-120			
Toluene	30.1	0.500	"	35.8	ND	83.3	75-117			
Ethylbenzene	7.84	0.500	"	8.37	ND	93.7	80-120			
Xylenes (total)	36.9	1.00	"	41.4	ND	88.1	80-120			
Surrogate: 4-BFB (FID)	*47.9*		"	*48.0*		*99.8*	*62-139*			
Surrogate: 4-BFB (PID)	*42.4*		"	*48.0*		*88.3*	*62-125*			
Matrix Spike Dup (1K16049-MSD1)					**Source: B1K0203-08**					
Gasoline Range Hydrocarbons	502	50.0	ug/l	500	ND	97.9	70-130	3.52	25	
Benzene	5.79	0.500	"	6.01	ND	94.3	80-120	2.56	40	
Toluene	29.6	0.500	"	35.8	ND	81.9	75-117	1.68	40	
Ethylbenzene	7.63	0.500	"	8.37	ND	91.2	80-120	2.71	40	
Xylenes (total)	35.4	1.00	"	41.4	ND	84.4	80-120	4.15	40	
Surrogate: 4-BFB (FID)	*46.7*		"	*48.0*		*97.3*	*62-139*			
Surrogate: 4-BFB (PID)	*44.0*		"	*48.0*		*91.7*	*62-125*			

North Creek Analytical - Bothell

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.

Amar Gill, Project Manager

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503.906.9200 fax 503.906.9210
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541.383.9310 fax 541.382.7588

Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1K09004: Prepared 11/09/01 Using EPA 5030B (P/T)										
Blank (1K09004-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene	ND	0.100	mg/m³ Air							
Benzene (v/v)	ND	0.0308	ppmv							
Toluene	ND	0.100	mg/m³ Air							
Toluene (v/v)	ND	0.0261	ppmv							
Ethylbenzene	ND	0.100	mg/m³ Air							
Ethylbenzene (v/v)	ND	0.0227	ppmv							
Xylenes (total)	ND	0.200	mg/m³ Air							
Xylenes, total (v/v)	ND	0.0454	ppmv							
Surrogate: 4-BFB (FID)	*9.08*		*mg/m³ Air*	*9.60*		*94.6*	*50-150*			
Surrogate: 4-BFB (PID)	*8.97*		*"*	*9.60*		*93.4*	*50-150*			
LCS (1K09004-BS1)										
Gasoline Range Hydrocarbons	70.1	10.0	mg/m³ Air	100		70.1	50-150			
Surrogate: 4-BFB (FID)	*9.16*		*"*	*9.60*		*95.4*	*50-150*			
LCS (1K09004-BS2)										
Benzene	1.54	0.100	mg/m³ Air	2.00		77.0	50-150			
Toluene	1.55	0.100	"	2.00		77.5	50-150			
Ethylbenzene	1.55	0.100	"	2.00		77.5	50-150			
Xylenes (total)	4.74	0.200	"	6.00		79.0	50-150			
Surrogate: 4-BFB (PID)	*9.45*		*"*	*9.60*		*98.4*	*50-150*			
LCS Dup (1K09004-BSD1)										
Gasoline Range Hydrocarbons	63.2	10.0	mg/m³ Air	100		63.2	50-150	10.4	50	
Surrogate: 4-BFB (FID)	*9.13*		*"*	*9.60*		*95.1*	*50-150*			

North Creek Analytical - Bothell

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Amar Gill, Project Manager

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1K09004: Prepared 11/09/01 Using EPA 5030B (P/T)										
LCS Dup (1K09004-BSD2)										
Benzene	1.43	0.100	mg/m³ Air	2.00		71.5	50-150	7.41	50	
Toluene	1.44	0.100	"	2.00		72.0	50-150	7.36	50	
Ethylbenzene	1.44	0.100	"	2.00		72.0	50-150	7.36	50	
Xylenes (total)	4.39	0.200	"	6.00		73.2	50-150	7.67	50	
Surrogate: 4-BFB (PID)	*9.37*		"	*9.60*		*97.6*	*50-150*			
Duplicate (1K09004-DUP1)					**Source: B1K0153-02**					
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air		11.4			89.9	30	Q-07
Surrogate: 4-BFB (FID)	*9.26*		"	*9.60*		*96.5*	*50-150*			
Duplicate (1K09004-DUP2)					**Source: B1K0153-07**					
Gasoline Range Hydrocarbons	8250	1000	mg/m³ Air		8230			0.243	30	
Surrogate: 4-BFB (FID)	*10.2*		"	*9.60*		*106*	*50-150*			

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA, 99202	Project Manager: Bruce Williams	11/20/01 08:48

Notes and Definitions

I-06	The analyte concentration may be artificially elevated due to coeluting compounds or components.
Q-07	The RPD value for this QC sample is above the established control limit. Review of associated QC indicates the high RPD does not represent an out-of-control condition for the batch.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
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

North Creek Analytical - Bothell

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.

Amar Gill, Project Manager

BIK0203

CHAIN OF CUSTODY RECORD

GEOENGINEERS INC.
2924 COLBY AVE
EVERETT, WASHINGTON 98201
(425) 252-4565 • Fax: (425) 252-4586

GeoEngineers

DATE 11-9-01
PAGE 1 OF 2
LAB NCA
LAB NO.

PROJECT NAME/LOCATION TOC RICHLAND
PROJECT NUMBER 1957-033-00
PROJECT MANAGER BRUCE WILLIAMS
SAMPLED BY SCOTT OVERDICK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	NWTPH-G/BTEX	(Preserved, filtered, etc.)
-01	MW-2	11-7-01		W	2	X	NORMAL TAT
-02	MW-6	"		W	2	X	
03	MW-7	"		W	2	X	
-04	MW-8	"		W	2	X	
-05	MW-13	"		W	2	X	
-06	MW-15	"		W	2	X	
-07	MW-17	"		W	2	X	
-08	MW-21B	11-8-01		W	2	X	
-09	MW-22	11-7-01		W	2	X	
-10	MW-23	"		W	2	X	
-11	MW-25	"		W	2	X	

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEE	SIGNATURE		SIGNATURE	
PRINTED NAME	SCOTT OVERDICK	PRINTED NAME		PRINTED NAME	
DATE 11-9-01	TIME 0600	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM**	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE	NCA	SIGNATURE		SIGNATURE	
PRINTED NAME	Colette Weaver	PRINTED NAME		PRINTED NAME	
DATE 11-9-01	TIME 600	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

2.52 WID

BIKU203

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DATE 11-9-01
PAGE 2 OF 2
LAB NCA
LAB NO.

PROJECT NAME/LOCATION TOC RICHLAND
PROJECT NUMBER 1657033-00
PROJECT MANAGER BRUCE WILLIAMS
SAMPLED BY SCOT OVERDICK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED											NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	NWTPH-G/BTEX											(Preserved, filtered, etc.)
-12	MW-27	11-7-01		W	2	X											NORMAL TAT
-13	MW-28	"		W	2	X											
-14	MW-29	"		W	2	X											
-15	MW-40	"		W	2	X											
-16	EFF110801	11-8-01	1400	W	1	X											72 HR TAT

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEI	SIGNATURE		SIGNATURE	
PRINTED NAME	Scot Overdick	PRINTED NAME		PRINTED NAME	
DATE 11-9-01	TIME 0600	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM** NCA	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE	Colette Weaver	SIGNATURE		SIGNATURE	
PRINTED NAME	Colette Weaver	PRINTED NAME		PRINTED NAME	
DATE 11-9-01	TIME 0600	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

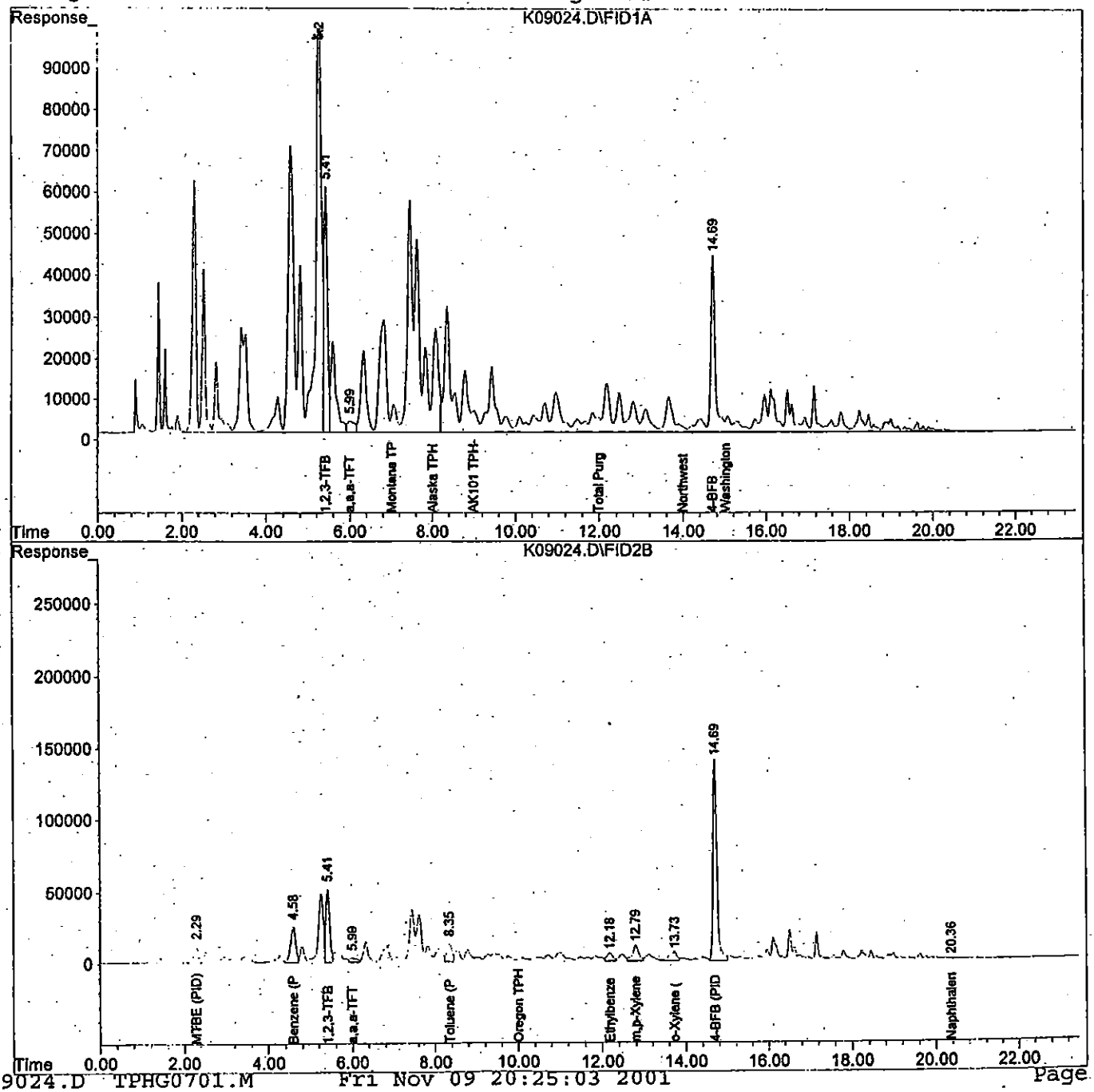
2.5°C W/D

Signal #1 : C:\HPCHEM\1\DATA\110901\K09024.D\FID1A.CH Vial: 24
Signal #2 : C:\HPCHEM\1\DATA\110901\K09024.D\FID2B.CH
Acq On : 9 Nov 2001 8:01 pm Operator: sk
Sample : b1k0203-16 Inst : GC #2
Misc : 1X 25 ml, air Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: TPH.E IntFile Signal #2: TPH2.E

Quant Time: Nov 9 20:25 2001 Quant Results File: TPHG0701.RES

Quant Method : C:\HPCHEM\1\METHODS\TPHG0701.M (Chemstation Integrator)
Title : DB-MTBE Method
Last Update : Tue Oct 23 23:29:10 2001
Response via : Multiple Level Calibration
DataAcq Meth : TPHG0701.M

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

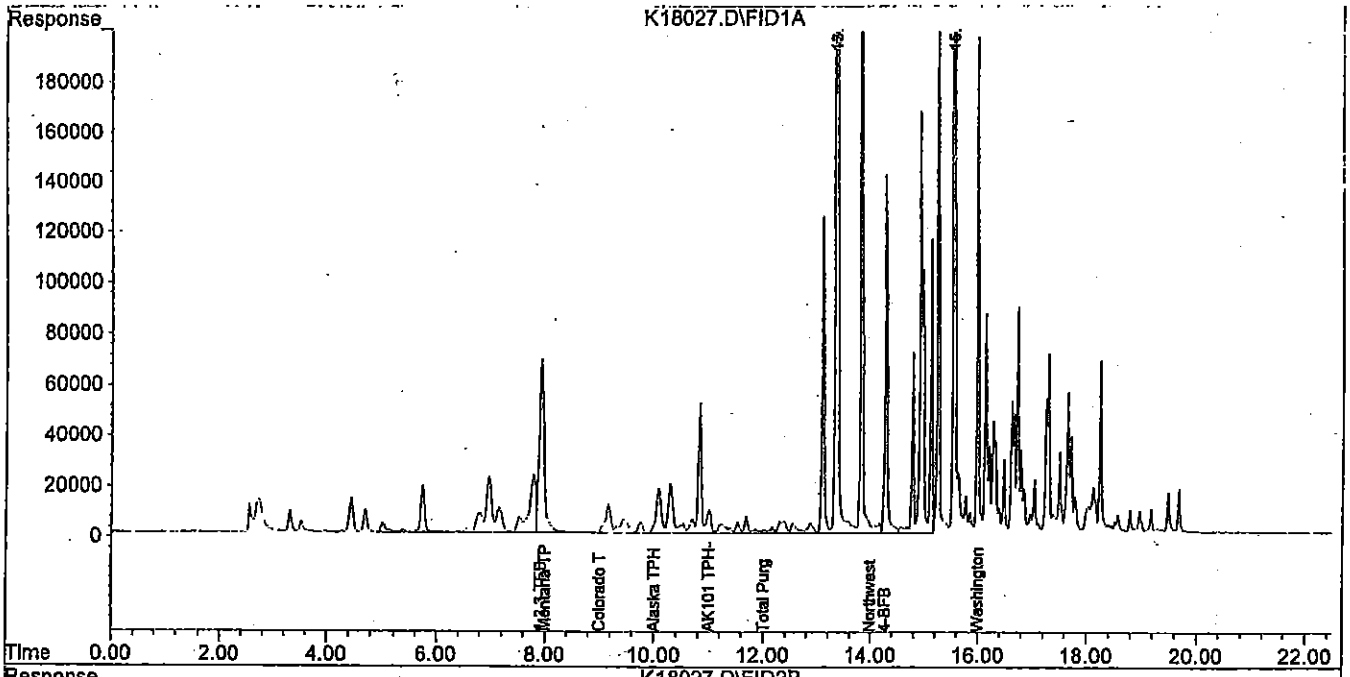


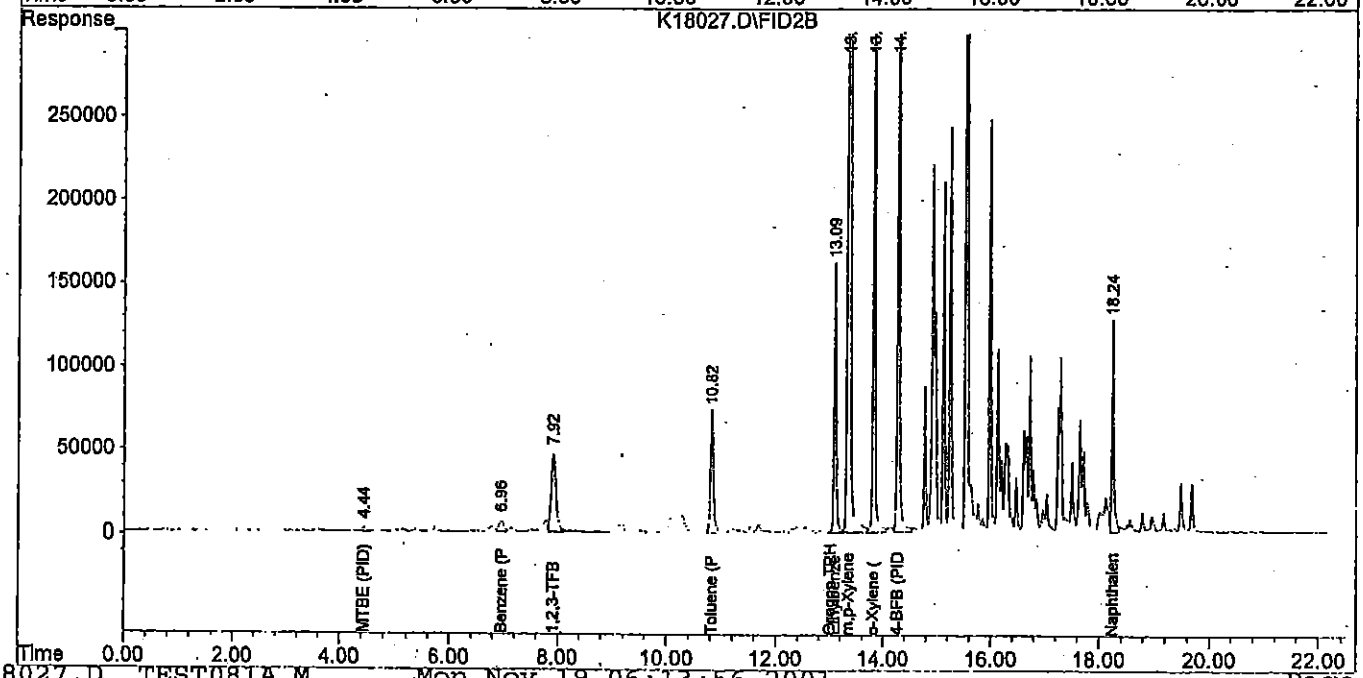
Signal #1 : D:\HPCHEM\3\DATA\111801\K18027.D\FID1A.CH Vial: 27
Signal #2 : D:\HPCHEM\3\DATA\111801\K18027.D\FID2B.CH
Acq On : 18 Nov 2001 19:38 Operator: EP
Sample : BlK0203-01 r1 Inst : GC #6
Misc : 2x 2.5 mL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 20:01 2001 Quant Results File: TEST081A.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST081A.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Fri Nov 16 13:36:44 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST081A.M

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



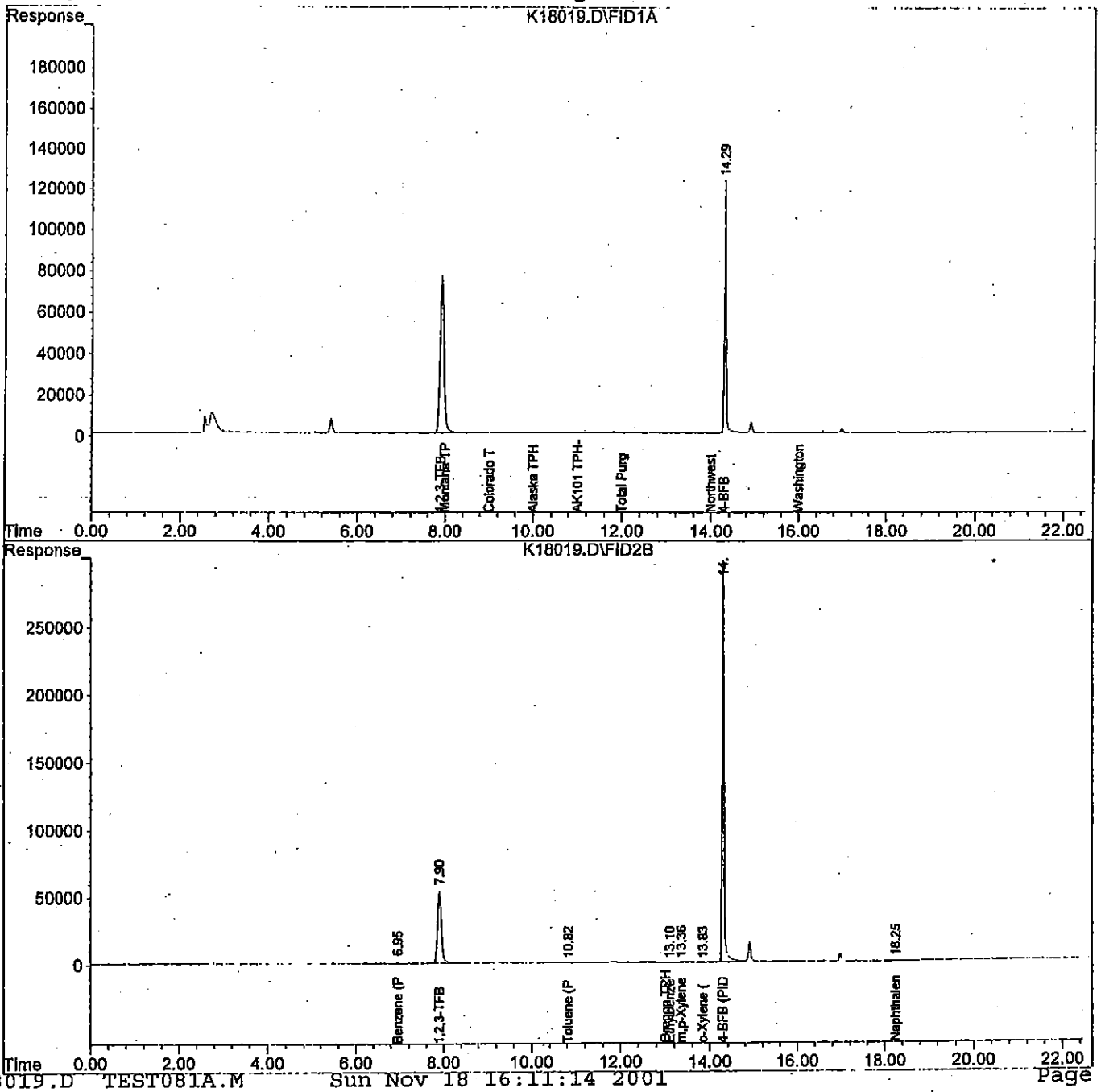


Signal #1 : D:\HPCHEM\3\DATA\111801\K18019.D\FID1A.CH Vial: 19
Signal #2 : D:\HPCHEM\3\DATA\111801\K18019.D\FID2B.CH
Acq On : 18 Nov 2001 3:48 pm Operator: EP
Sample : blk0203-02 Inst : GC #6
Misc : 1X 5 mL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 16:11 2001 Quant Results File: TEST081A.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST081A.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Tue Nov 13 13:36:45 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST081A.M

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

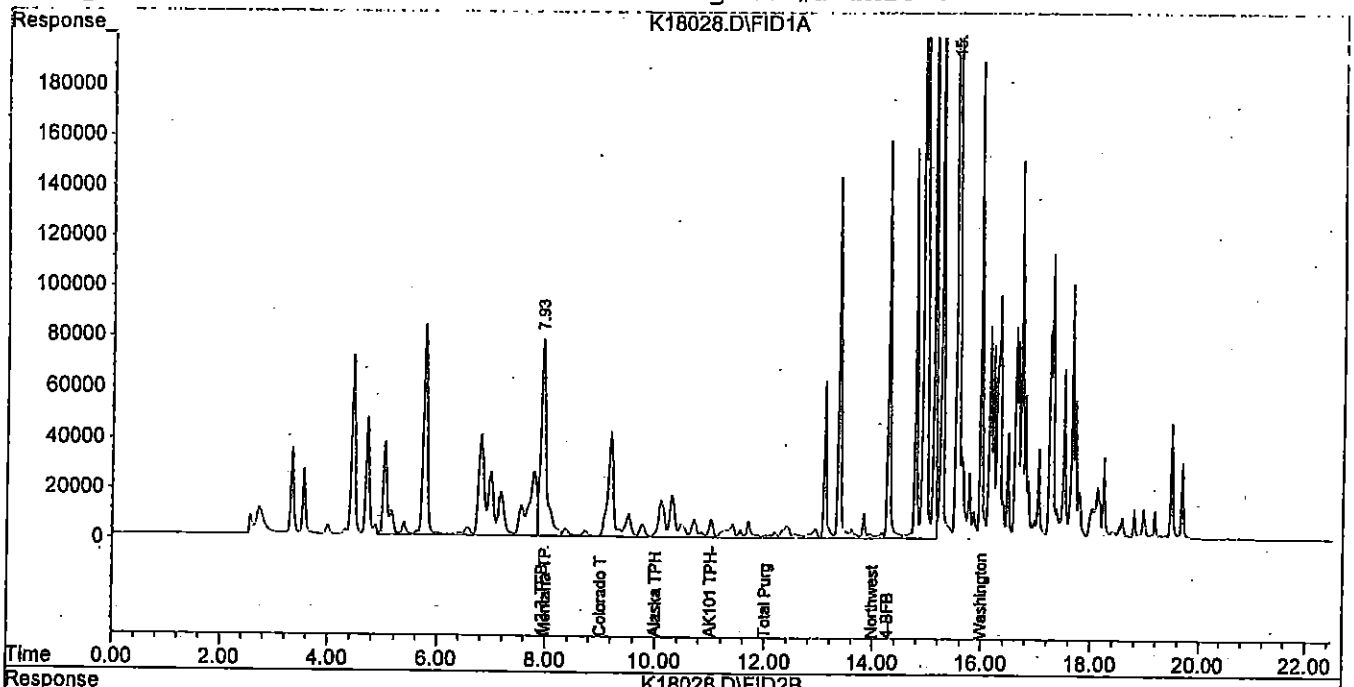


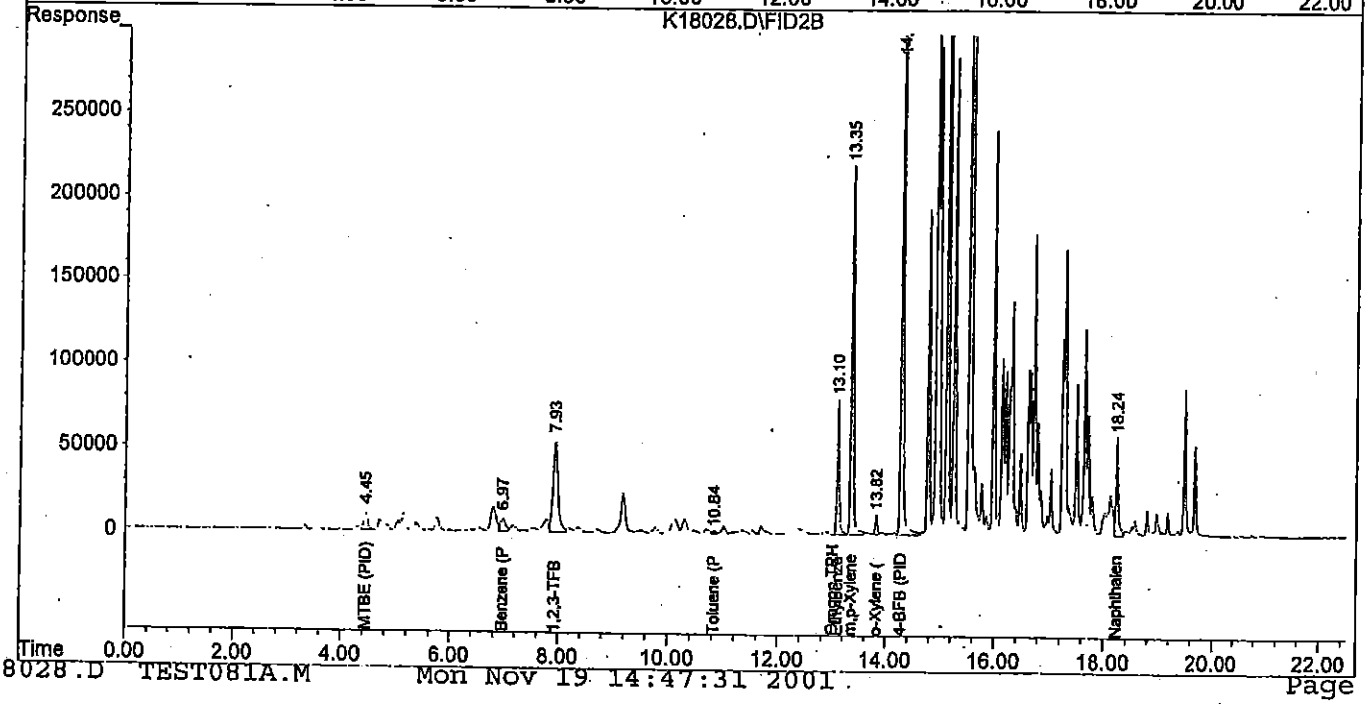
Signal #1 : D:\HPCHEM\3\DATA\111801\K18028.D\FID1A.CH Vial: 28
Signal #2 : D:\HPCHEM\3\DATA\111801\K18028.D\FID2B.CH
Acq On : 18 Nov 2001 20:07 Operator: EP
Sample : B1K0203-03 r1 Inst : GC #6
Misc : 10x 500uL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E

Quant Time: Nov 19 14:42 2001 Quant Results File: TEST081A.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST081A.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Fri Nov 16 13:36:44 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST081A.M

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



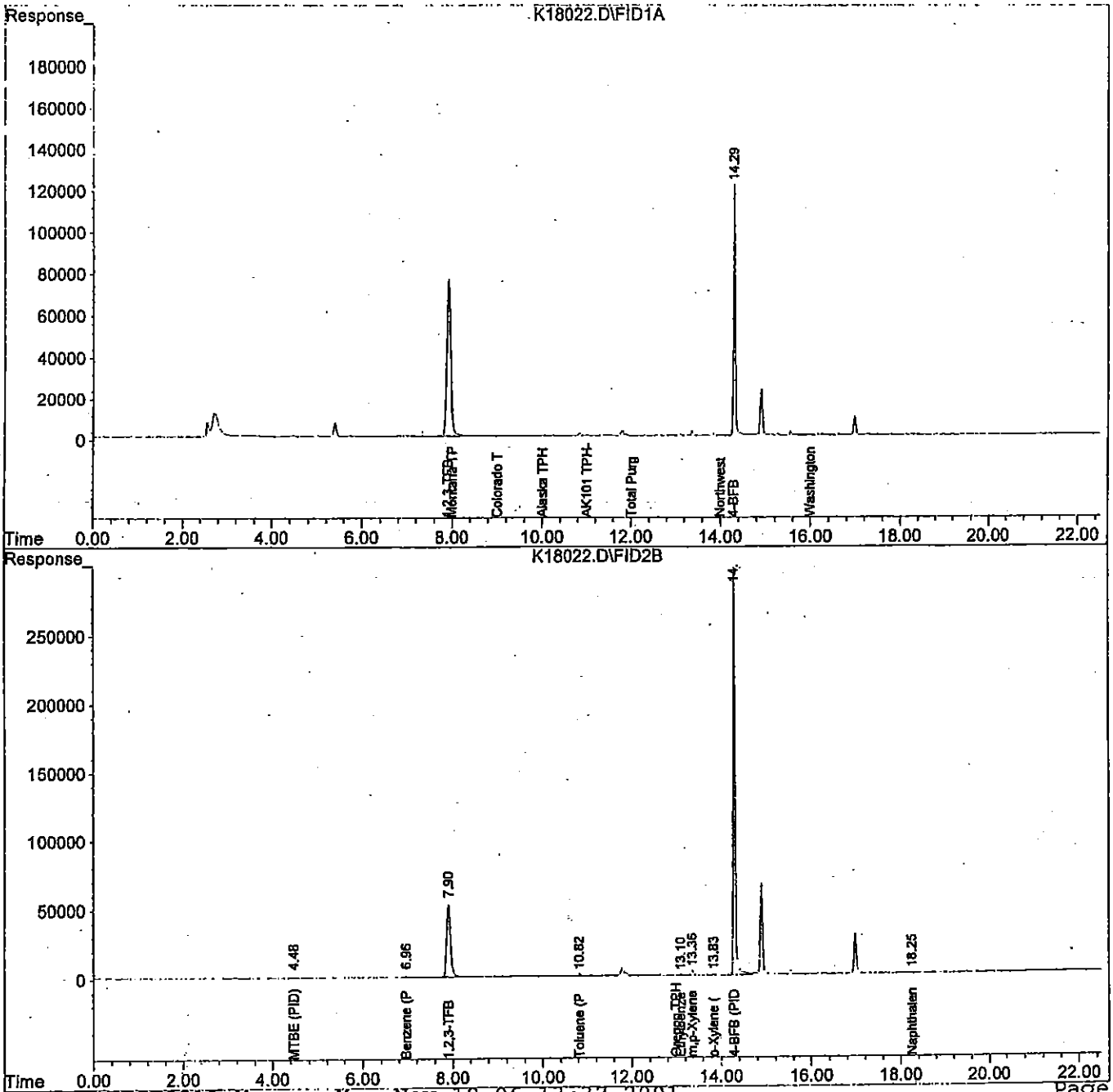


Signal #1 : D:\HPCHEM\3\DATA\111801\K18022.D\FID1A.CH Vial: 22
Signal #2 : D:\HPCHEM\3\DATA\111801\K18022.D\FID2B.CH
Acq On : 18 Nov 2001 17:14 Operator: EP
Sample : blk0203-04 Inst : GC #6
Misc : 1X 5 mL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 17:37 2001 Quant Results File: TEST081A.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST081A.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Fri Nov 16 13:36:44 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST081A.M

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

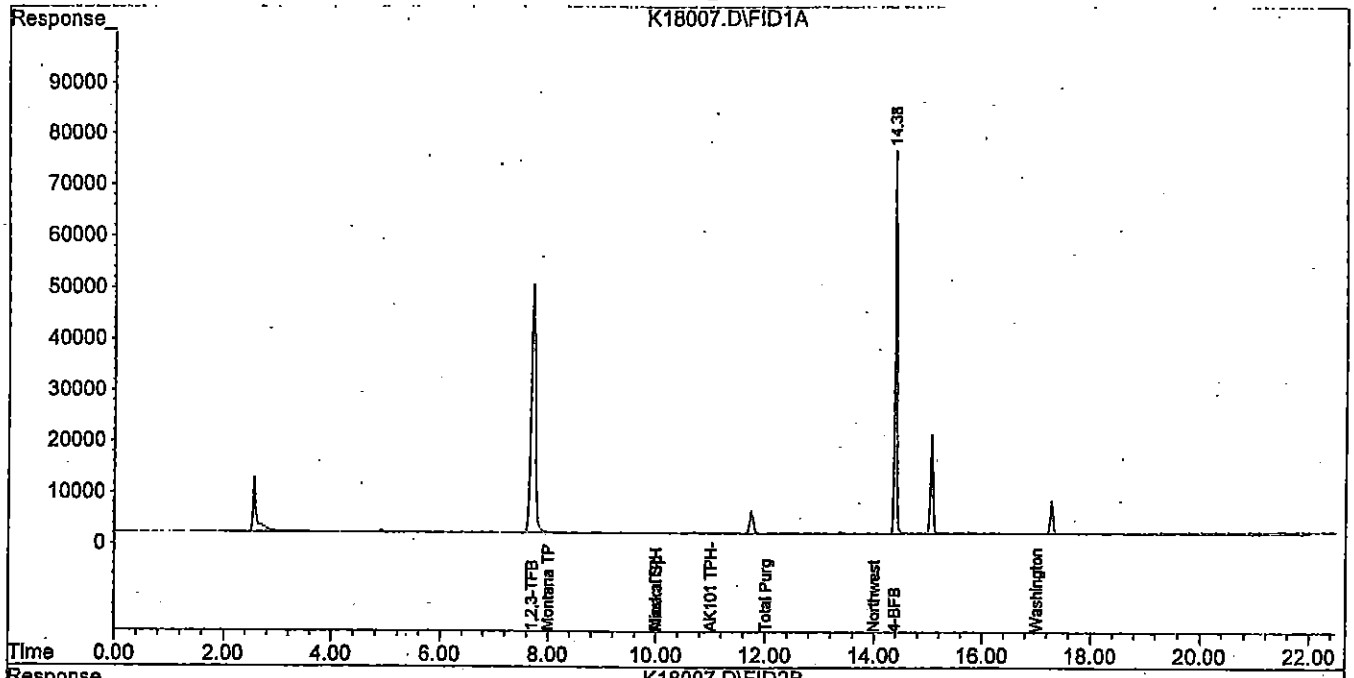


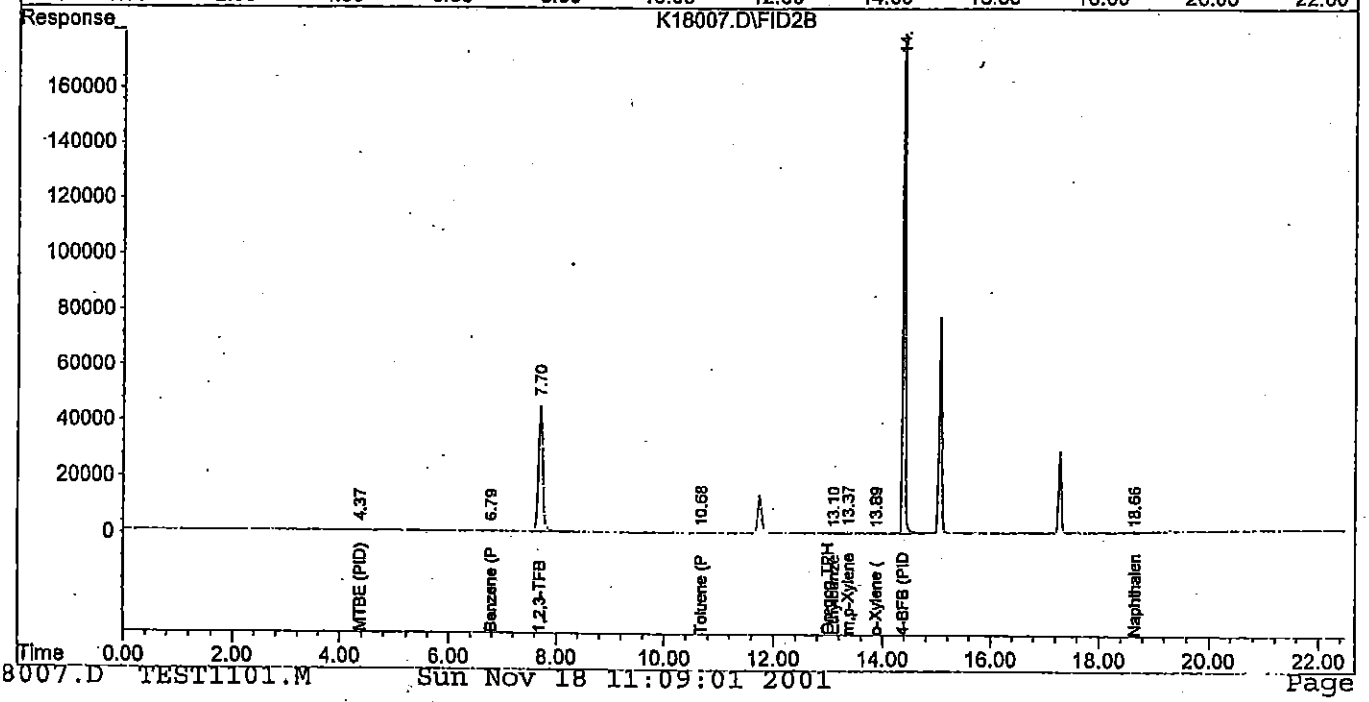
Signal #1 : D:\HPCHEM\4\DATA\111801\K18007.D\FID1A.CH Vial: 7
Signal #2 : D:\HPCHEM\4\DATA\111801\K18007.D\FID2B.CH
Acq On : 18 Nov 2001 10:46 am Operator: EP
Sample : blk0203-05 Inst : GC #8
Misc : 1x 5 mL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 11:08 2001 Quant Results File: TEST1101.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1101.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Nov 14 09:16:46 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST1101.M

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



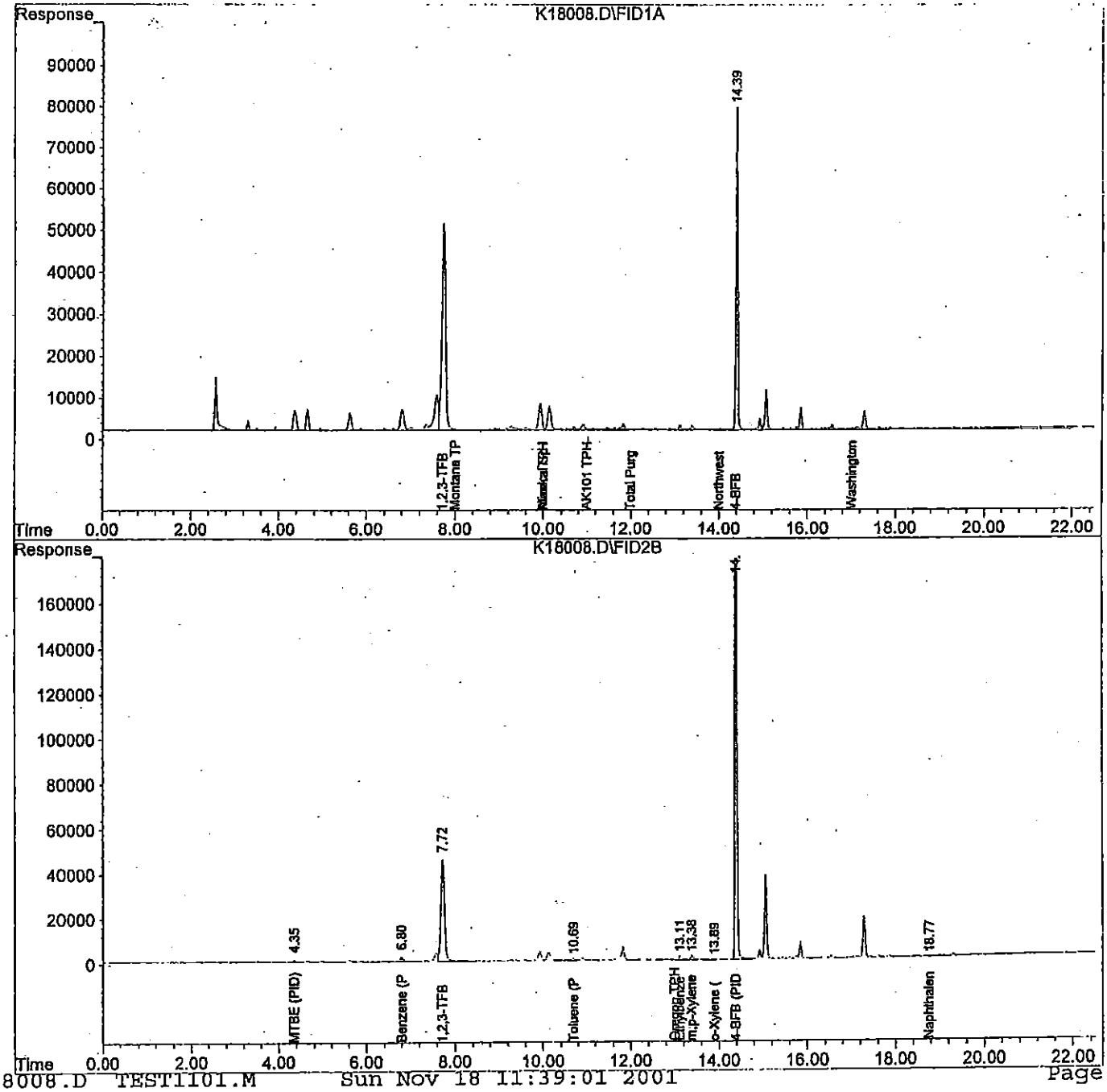


```
Signal #1 : D:\HPCHEM\4\DATA\111801\K18008.D\FID1A.CH    Vial: 8
Signal #2 : D:\HPCHEM\4\DATA\111801\K18008.D\FID2B.CH
Acq On    : 18 Nov 2001  11:16 am                    Operator: EP
Sample    : blk0203-06                               Inst    : GC #8
Misc      : 1x 5 mL                                  Multiplr: 1.00
                                                  Sample Amount: 0.00
IntFile Signal #1: TPH.E        IntFile Signal #2: SURR2.E

Quant Time: Nov 18 11:38 2001  Quant Results File: TEST1101.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1101.M (Chemstation Integrator)
Title        : TPH-G Water Method
Last Update  : Wed Nov 14 09:16:46 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST1101.M

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



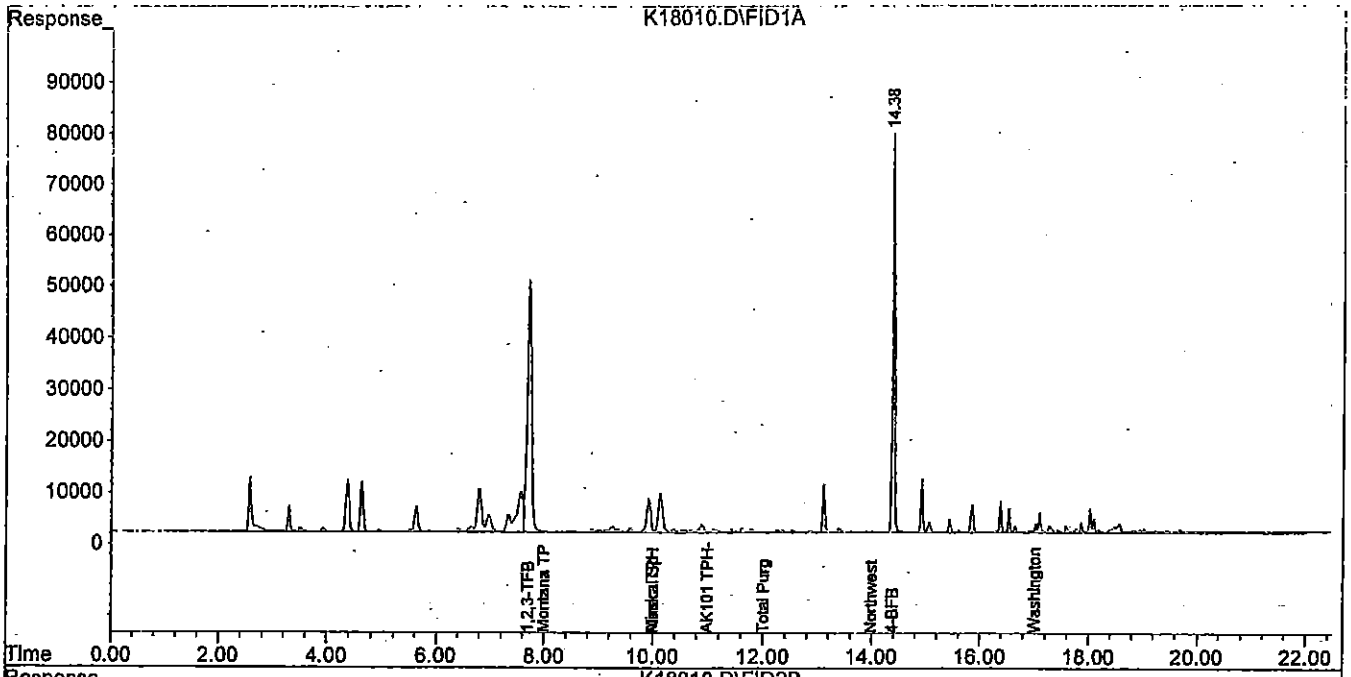
Signal #1 : D:\HPCHEM\4\DATA\111801\K18010.D\FID1A.CH Vial: 10
Signal #2 : D:\HPCHEM\4\DATA\111801\K18010.D\FID2B.CH
Acq On : 18 Nov 2001 12:16 pm Operator: EP
Sample : blk0203-07 Inst : GC #8
Misc : 1X 5 mL Multiplr: 1.00
Sample Amount: 0.00

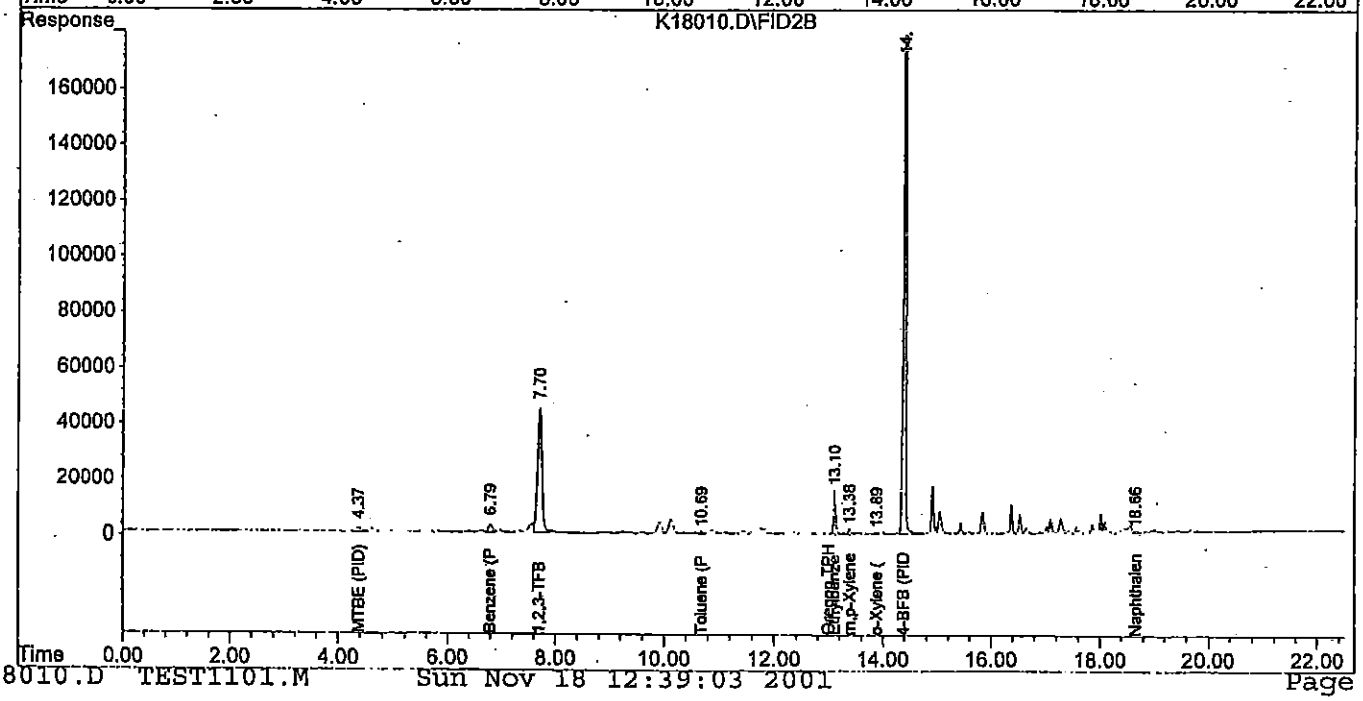
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 12:39 2001 Quant Results File: TEST1101.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1101.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Nov 14 09:16:46 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST1101.M

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



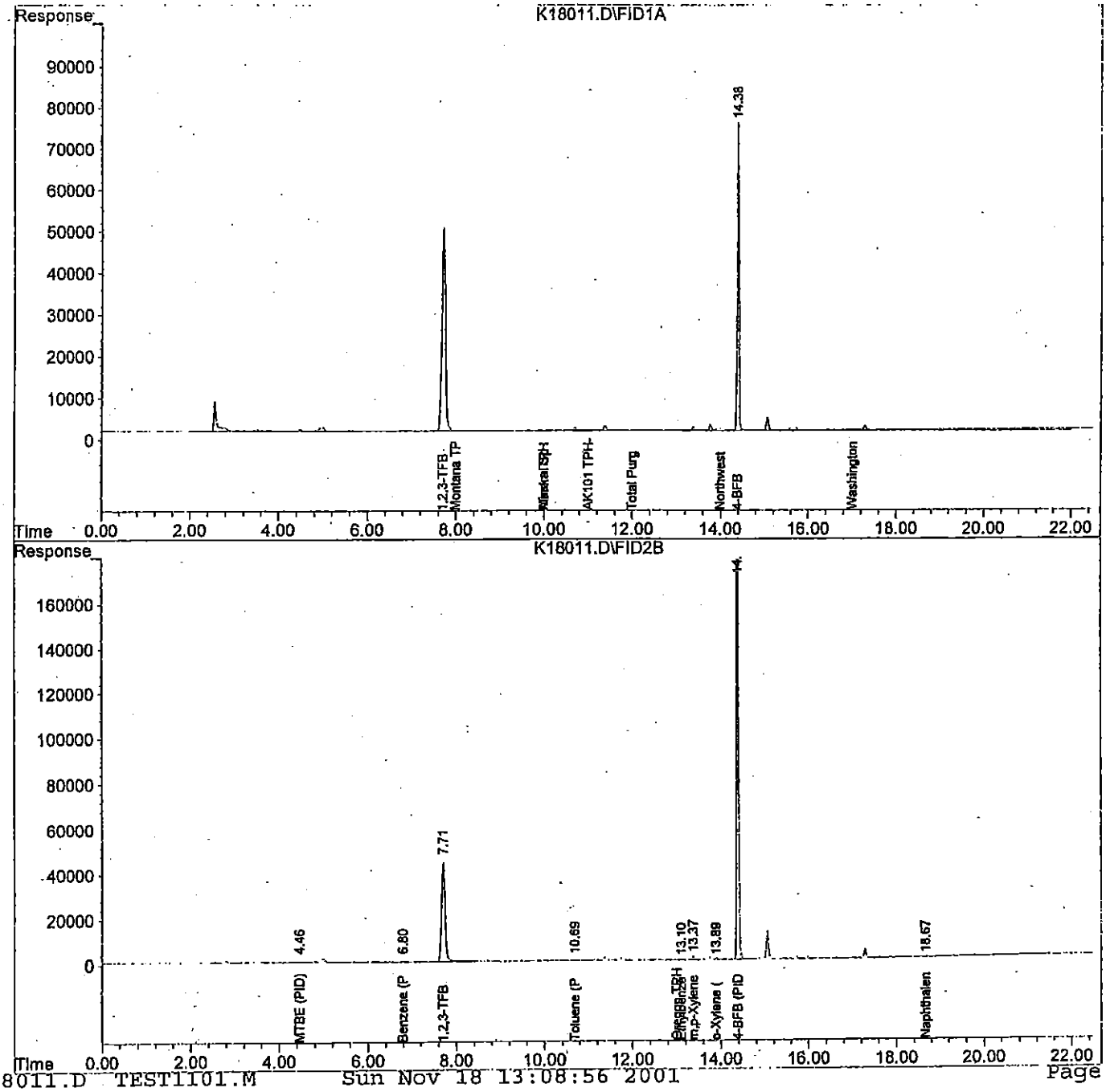


Signal #1 : D:\HPCHEM\4\DATA\111801\K18011.D\FID1A.CH Vial: 11
Signal #2 : D:\HPCHEM\4\DATA\111801\K18011.D\FID2B.CH
Acq On : 18 Nov 2001 12:45 pm Operator: EP
Sample : blk0203-08 Inst : GC #8
Misc : 1X 5 mL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 13:08 2001 Quant Results File: TEST1101.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1101.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Nov 14 09:16:46 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST1101.M

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

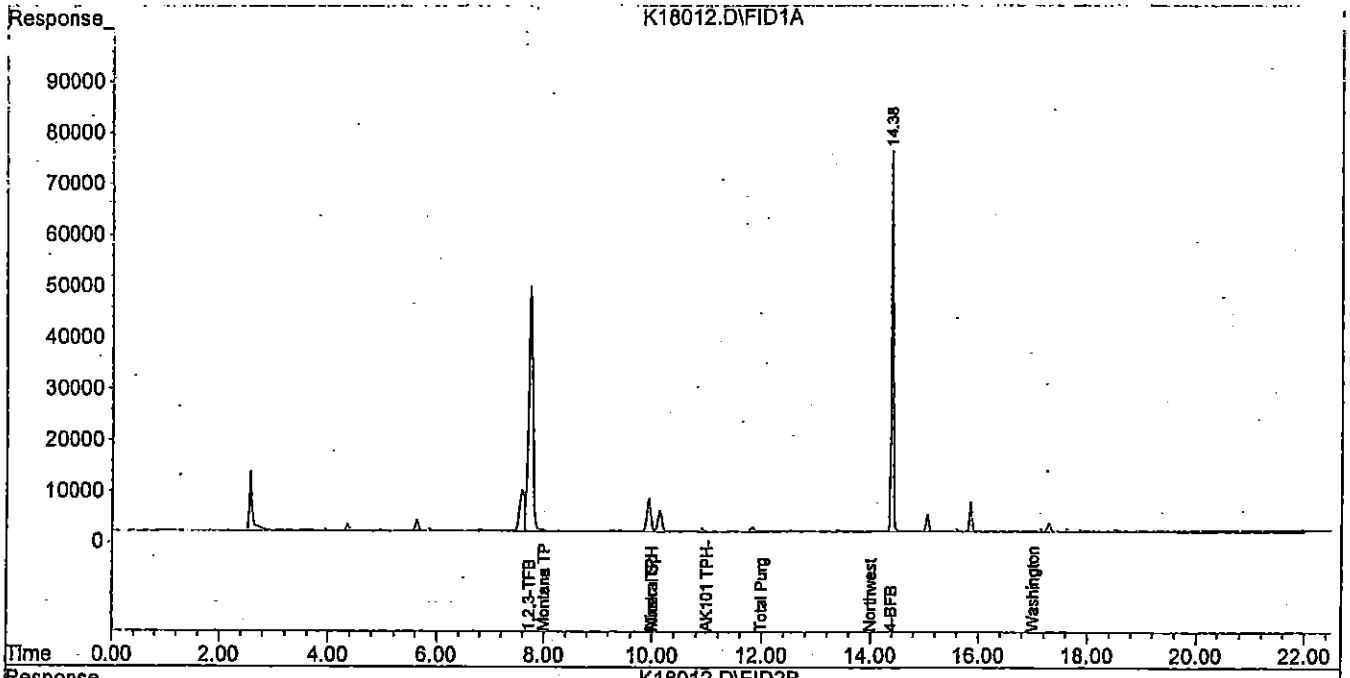


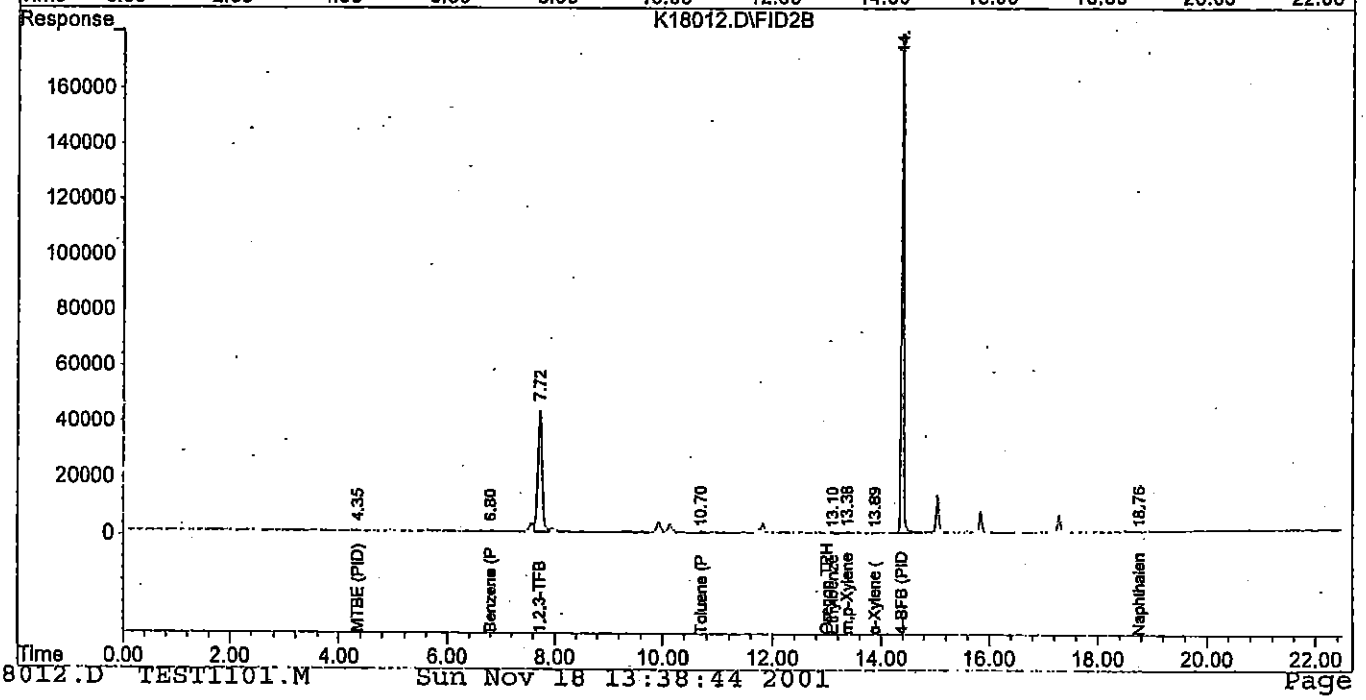
Signal #1 : D:\HPCHEM\4\DATA\111801\K18012.D\FID1A.CH Vial: 12
Signal #2 : D:\HPCHEM\4\DATA\111801\K18012.D\FID2B.CH
Acq On : 18 Nov 2001 1:15 pm Operator: EP
Sample : b1k0203-09 Inst : GC #8
Misc : 1X 5 mL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 13:38 2001 Quant Results File: TEST1101.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1101.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Nov 14 09:16:46 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST1101.M

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



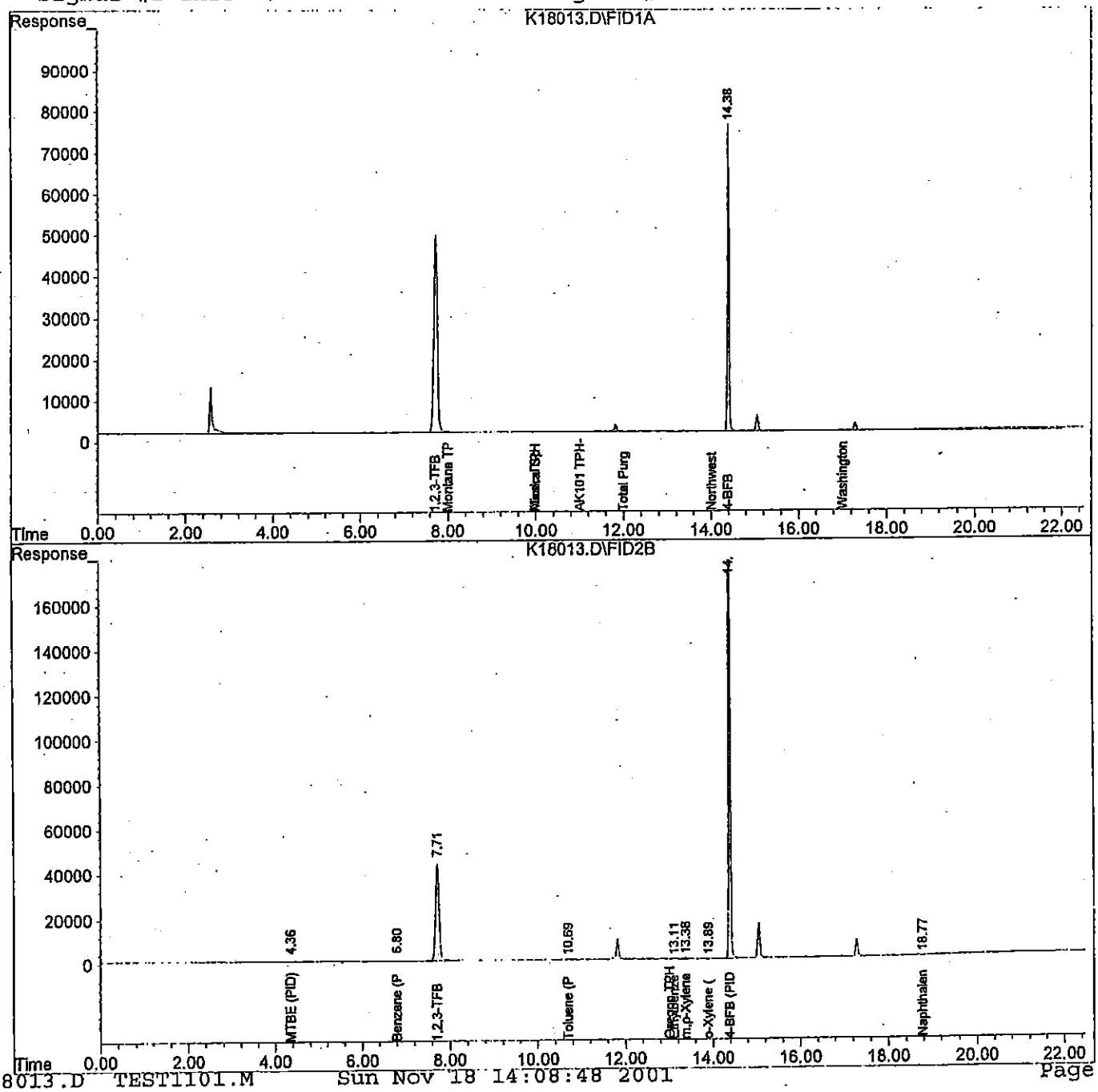


Signal #1 : D:\HPCHEM\4\DATA\111801\K18013.D\FID1A.CH Vial: 13
Signal #2 : D:\HPCHEM\4\DATA\111801\K18013.D\FID2B.CH
Acq On : 18 Nov 2001 1:45 pm Operator: EP
Sample : blk0203-10 Inst : GC #8
Misc : 1X 5 mL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 14:08 2001 Quant Results File: TEST1101.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1101.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Nov 14 09:16:46 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST1101.M

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



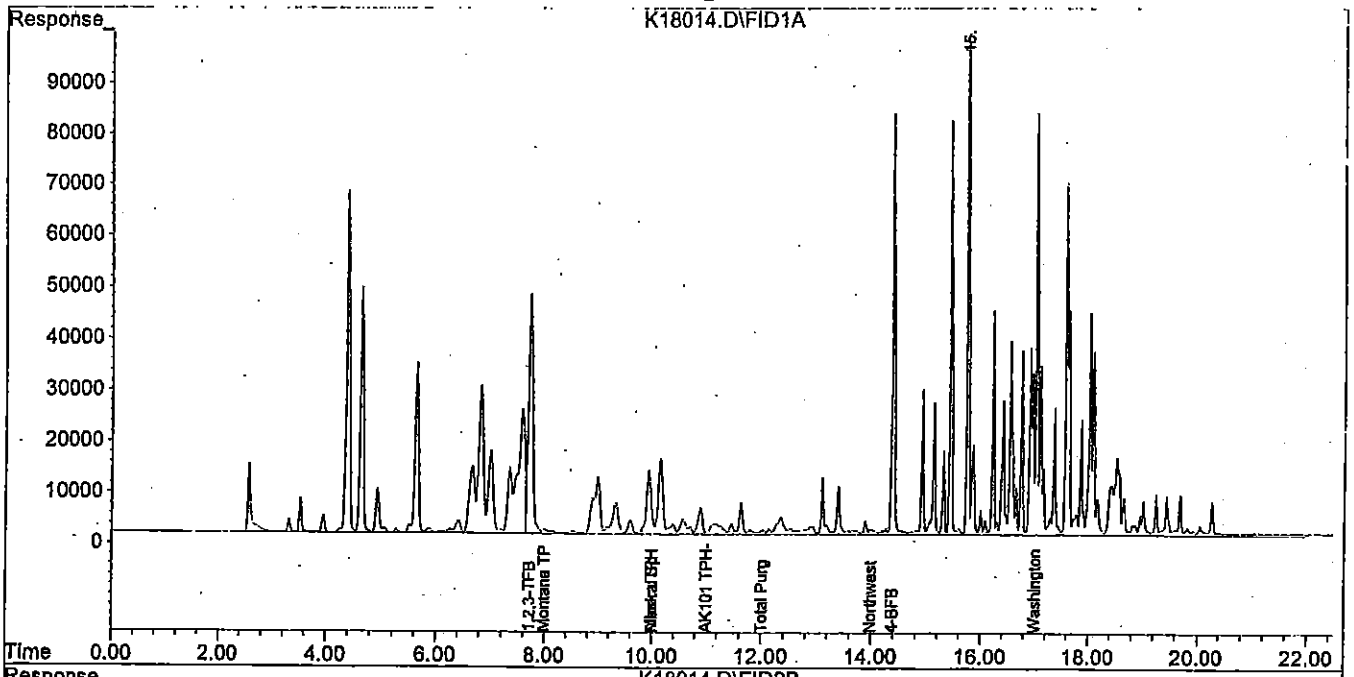
Quantitation Report

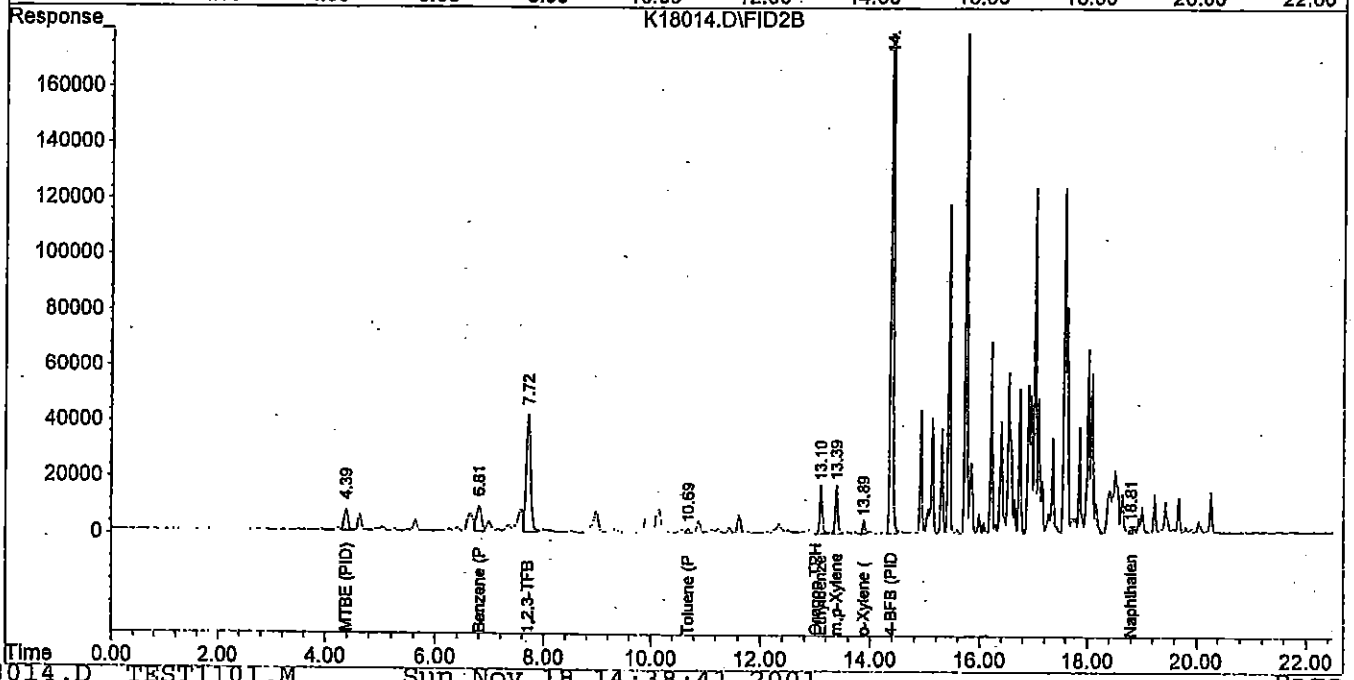
Signal #1 : D:\HPCHEM\4\DATA\111801\K18014.D\FID1A.CH Vial: 14
Signal #2 : D:\HPCHEM\4\DATA\111801\K18014.D\FID2B.CH
Acq On : 18 Nov 2001 2:15 pm Operator: EP
Sample : b1k0203-11 Inst : GC #8
Misc : 5X 1 mL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 14:38 2001 Quant Results File: TEST1101.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1101.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Nov 14 09:16:46 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST1101.M

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



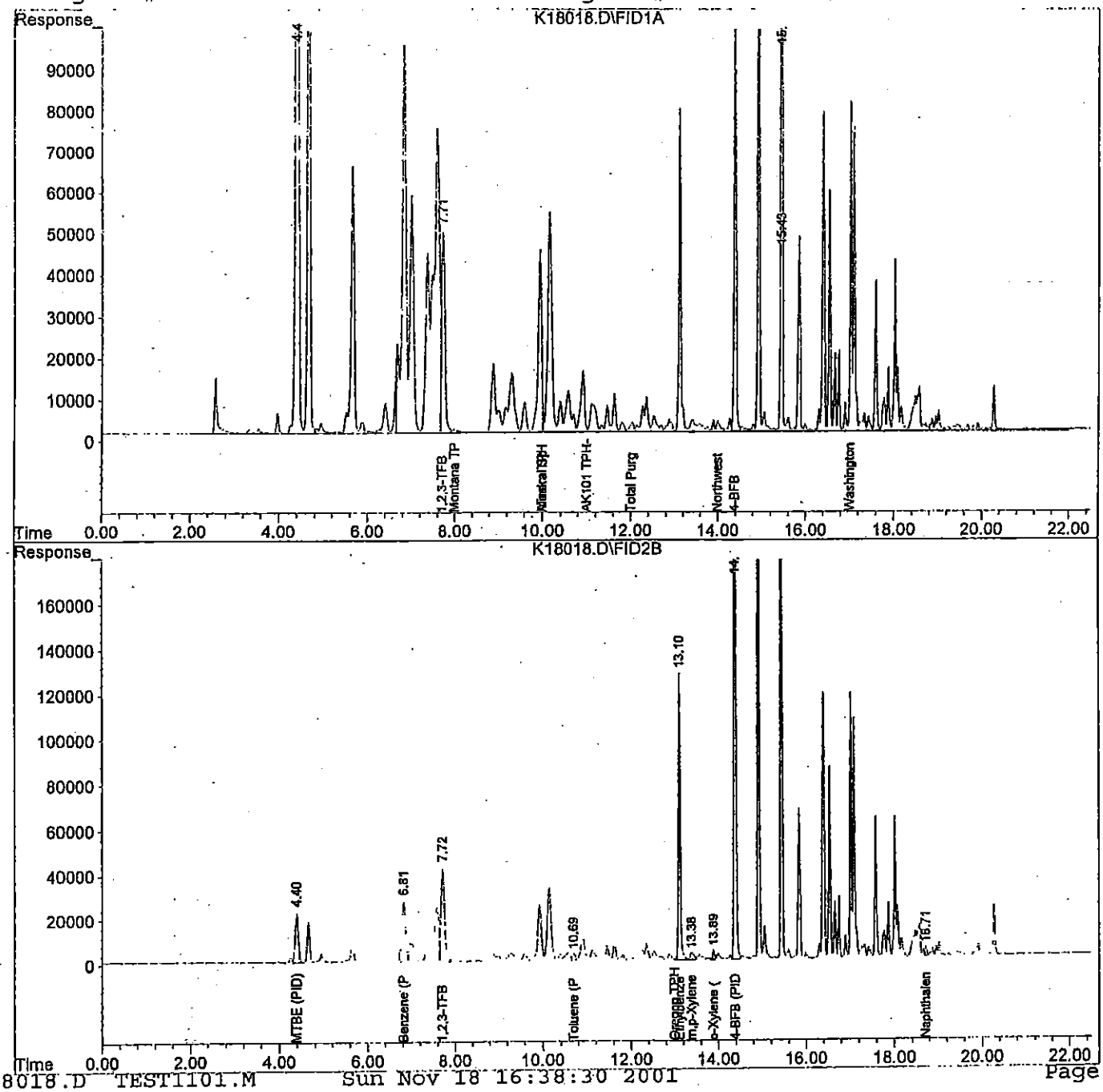


Signal #1 : D:\HPCHEM\4\DATA\111801\K18018.D\FID1A.CH Vial: 18
Signal #2 : D:\HPCHEM\4\DATA\111801\K18018.D\FID2B.CH
Acq On : 18 Nov 2001 4:15 pm Operator: EP
Sample : blk0203-12 Inst : GC #8
Misc : 1X 5 mL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 16:38 2001 Quant Results File: TEST1101.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1101.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Nov 14 09:16:46 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST1101.M

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

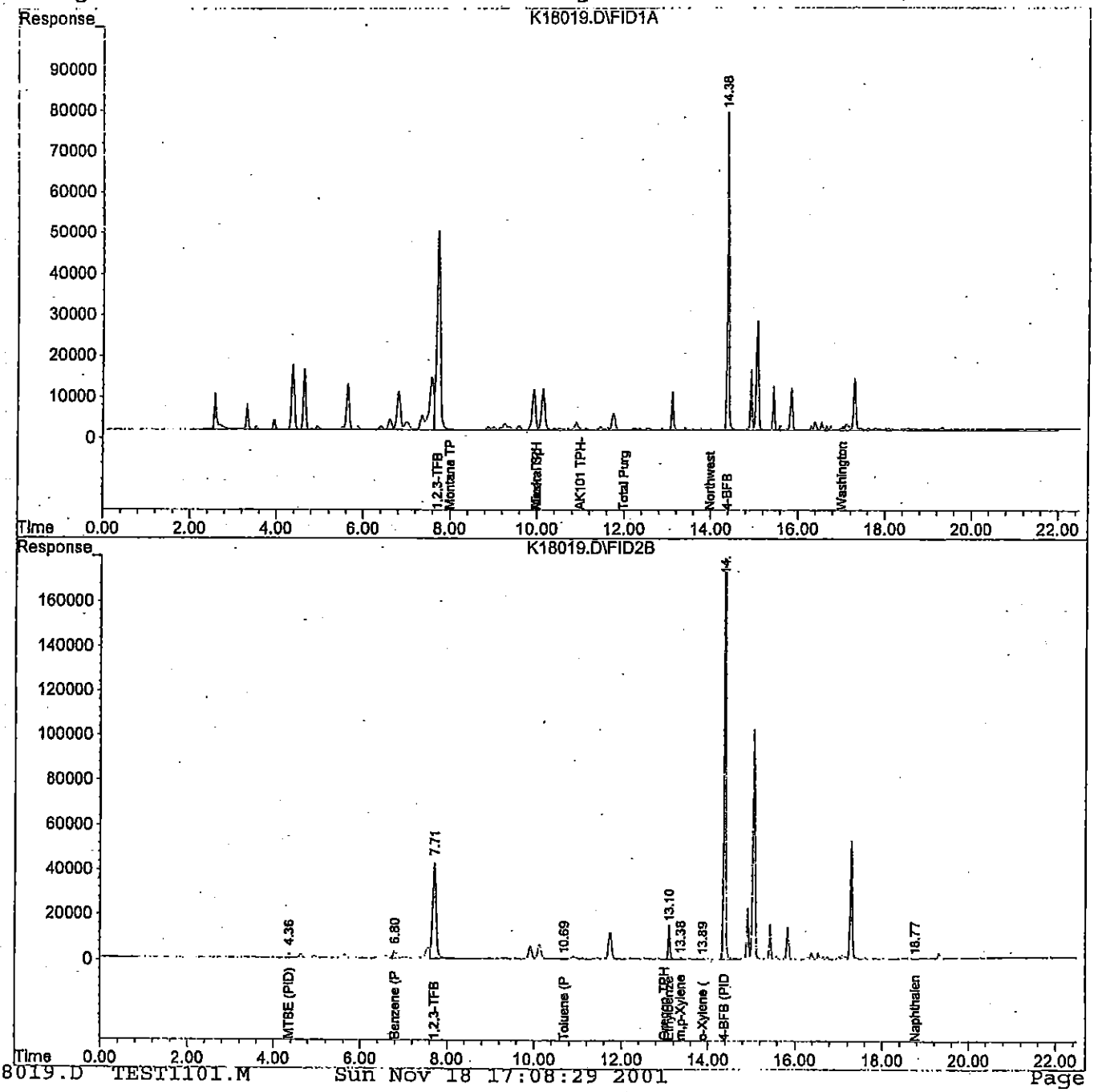


Signal #1 : D:\HPCHEM\4\DATA\111801\K18019.D\FID1A.CH Vial: 19
Signal #2 : D:\HPCHEM\4\DATA\111801\K18019.D\FID2B.CH
Acq On : 18 Nov 2001 4:45 pm Operator: EP
Sample : blk0203-13 Inst : GC #8
Misc : 1X 5 mL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 17:08 2001 Quant Results File: TEST1101.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1101.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Wed Nov 14 09:16:46 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST1101.M

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

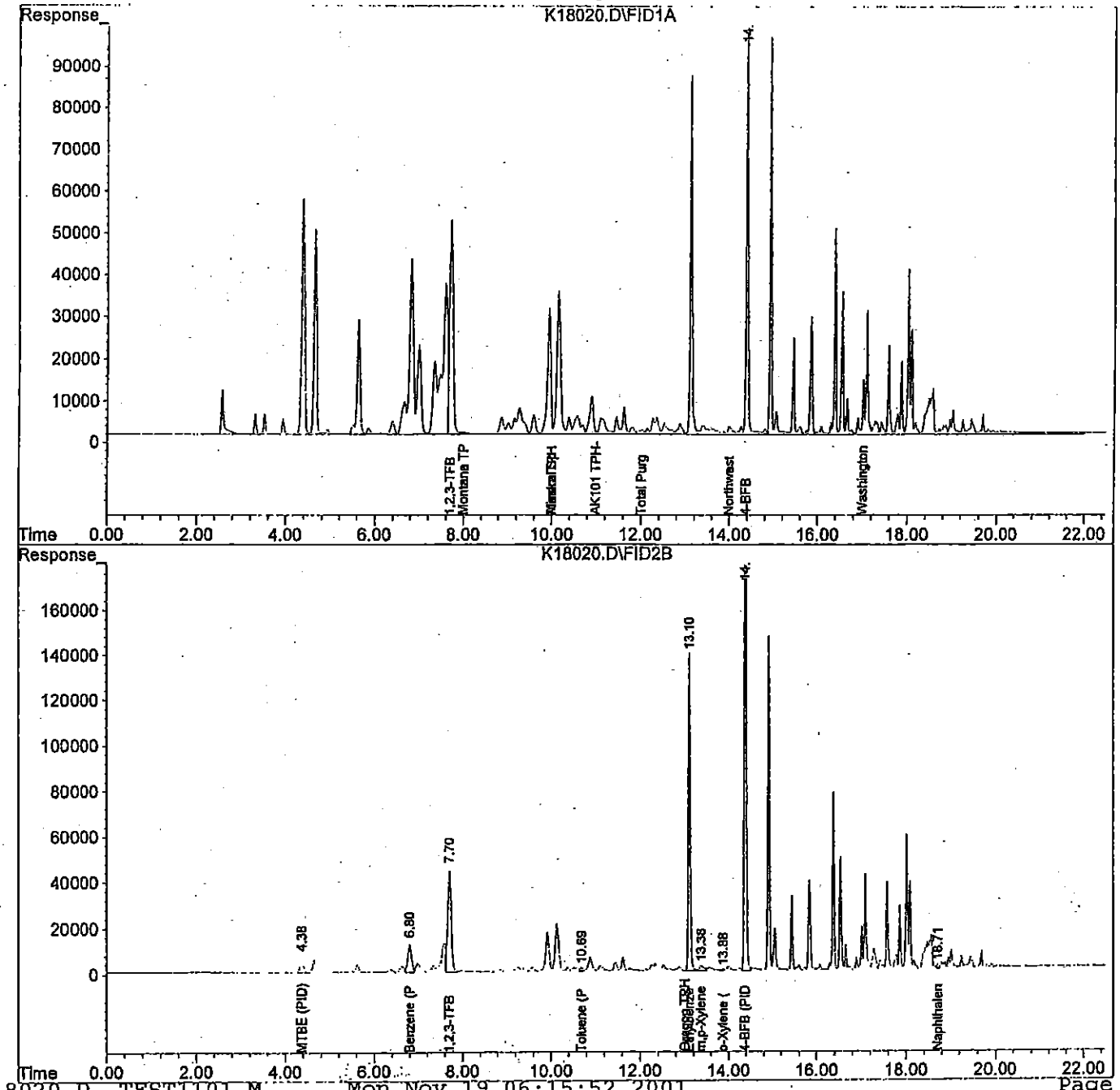


Signal #1 : D:\HPCHEM\4\DATA\111801\K18020.D\FID1A.CH Vial: 20
Signal #2 : D:\HPCHEM\4\DATA\111801\K18020.D\FID2B.CH
Acq On : 18 Nov 2001 17:15 Operator: EP
Sample : blk0203-14 Inst : GC #8
Misc : 1X 5 mL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 17:38 2001 Quant Results File: TEST1101.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1101.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Nov 16 13:34:25 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST1101.M

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

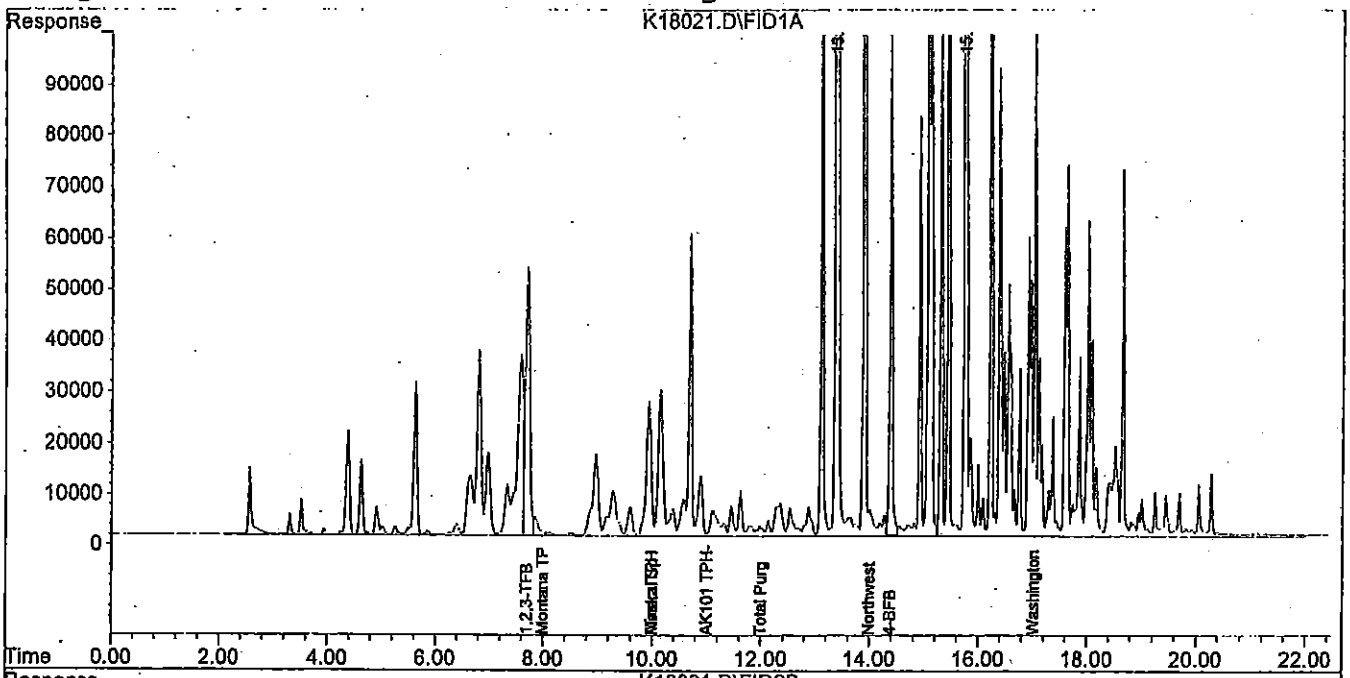


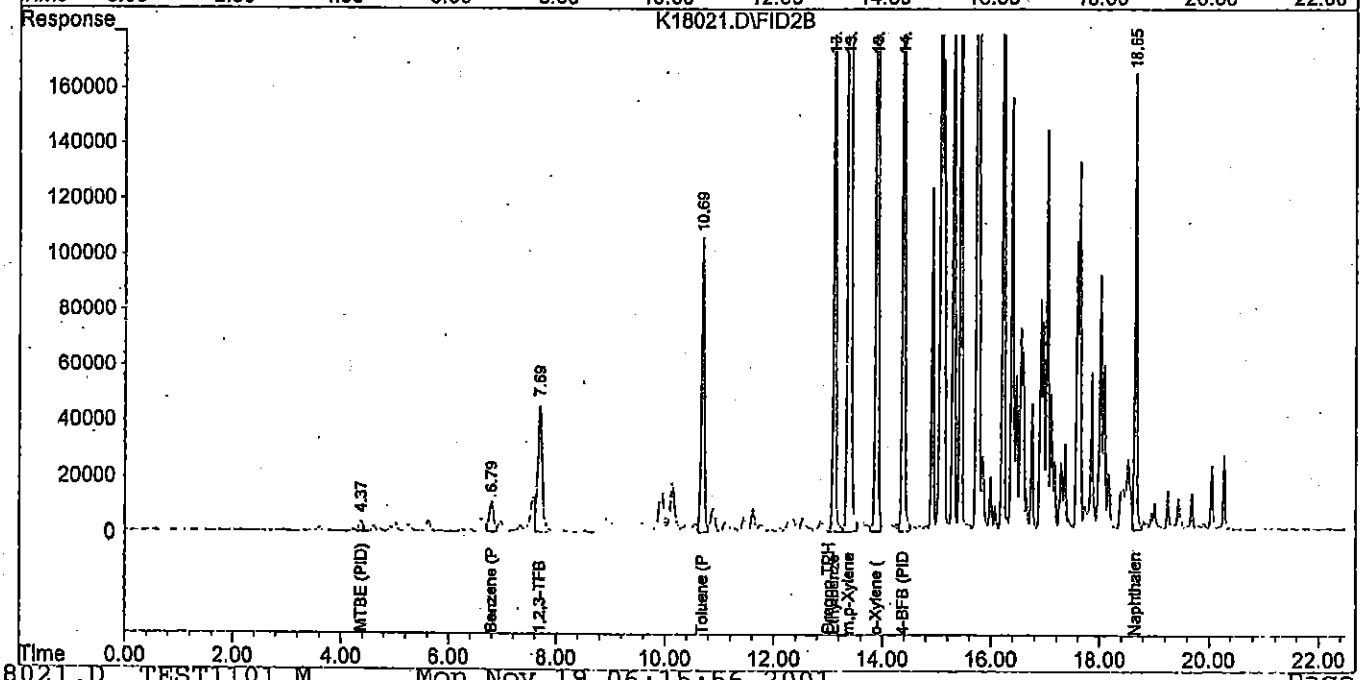
Signal #1 : D:\HPCHEM\4\DATA\111801\K18021.D\FID1A.CH Vial: 21
Signal #2 : D:\HPCHEM\4\DATA\111801\K18021.D\FID2B.CH
Acq On : 18 Nov 2001 17:45 Operator: EP
Sample : b1k0203-15 Inst : GC #8
Misc : 1X 5 mL Multiplr: 1.00
Sample Amount: 0.00
IntFile Signal #1: TPH.E IntFile Signal #2: SURR2.E

Quant Time: Nov 18 18:08 2001 Quant Results File: TEST1101.RES

Quant Method : D:\HPCHEM\4\METHODS\TEST1101.M (Chemstation Integrator)
Title : TPH-G Water Method
Last Update : Fri Nov 16 13:34:25 2001
Response via : Multiple Level Calibration
DataAcq Meth : TEST1101.M

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





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541.383.9310 fax 541.382.7588

April 2002

ıce Williams
ıo Engineers - Spokane
3 East 2nd
okane, WA/USA 99202
:: Time Oil Richland

closed are the results of analyses for samples received by the laboratory on 04/24/02 15:20. If you have any estions concerning this report, please feel free to contact me.

ıcerely,

ıar Gill
ɔject Manager

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Geo Engineers - Spokane 523 East 2nd Spokane WA/USA, 99202	Project: Time Oil Richland Project Number: 1957-033-00 Project Manager: Bruce Williams	**Reported:** 04/30/02 14:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-2	B2D0486-01	Water	04/22/02 12:00	04/24/02 15:20
MW-6	B2D0486-02	Water	04/22/02 12:00	04/24/02 15:20
MW-7	B2D0486-03	Water	04/22/02 12:00	04/24/02 15:20
MW-8	B2D0486-04	Water	04/22/02 12:00	04/24/02 15:20
MW-13	B2D0486-05	Water	04/22/02 12:00	04/24/02 15:20
MW-15	B2D0486-06	Water	04/22/02 12:00	04/24/02 15:20
MW-17	B2D0486-07	Water	04/22/02 12:00	04/24/02 15:20
MW-21B	B2D0486-08	Water	04/22/02 12:00	04/24/02 15:20
MW-22	B2D0486-09	Water	04/22/02 12:00	04/24/02 15:20
MW-23	B2D0486-10	Water	04/22/02 12:00	04/24/02 15:20
MW-25	B2D0486-11	Water	04/22/02 12:00	04/24/02 15:20
MW-27	B2D0486-12	Water	04/22/02 12:00	04/24/02 15:20
MW-28	B2D0486-13	Water	04/22/02 12:00	04/24/02 15:20
MW-29	B2D0486-14	Water	04/22/02 12:00	04/24/02 15:20
MW-40	B2D0486-15	Water	04/22/02 12:00	04/24/02 15:20
EFF042302	B2D0486-16	Air	04/23/02 10:00	04/24/02 15:20
EFFP042302	B2D0486-17	Air	04/23/02 10:10	04/24/02 15:20

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:o Engineers - Spokane	Project: Time Oil Richland	
3 East 2nd	Project Number: 1957-033-00	**Reported:**
ıokane WA/USA, 99202	Project Manager: Bruce Williams	04/30/02 14:01

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

ılyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
V-2 (B2D0486-01) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
ıoline Range Hydrocarbons	**772**	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
ızene	**2.92**	0.500	"	"	"	"	"	"	
uene	**5.97**	0.500	"	"	"	"	"	"	
ylbenzene	**24.0**	0.500	"	"	"	"	"	"	
enes (total)	**76.9**	1.00	"	"	"	"	"	"	
rogate: 4-BFB (FID)	*133 %*	*62-139*			"	"	"	"	
rogate: 4-BFB (PID)	*110 %*	*62-125*			"	"	"	"	
V-6 (B2D0486-02) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
:oline Range Hydrocarbons	ND	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
ızene	ND	0.500	"	"	"	"	"	"	
uene	ND	0.500	"	"	"	"	"	"	
ylbenzene	ND	0.500	"	"	"	"	"	"	
enes (total)	ND	1.00	"	"	"	"	"	"	
rogate: 4-BFB (FID)	*98.8 %*	*62-139*			"	"	"	"	
rogate: 4-BFB (PID)	*103 %*	*62-125*			"	"	"	"	
V-7 (B2D0486-03) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
ıoline Range Hydrocarbons	**12200**	500	ug/l	10	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
ızene	**30.3**	5.00	"	"	"	"	"	"	
uene	ND	5.00	"	"	"	"	"	"	
ıylbenzene	**146**	5.00	"	"	"	"	"	"	
lenes (total)	**208**	10.0	"	"	"	"	"	"	
rogate: 4-BFB (FID)	*137 %*	*62-139*			"	"	"	"	
rogate: 4-BFB (PID)	*110 %*	*62-125*			"	"	"	"	

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	04/30/02 14:01

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-8 (B2D0486-04) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*95.6 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*104 %*	*62-125*			"	"	"	"	
MW-13 (B2D0486-05) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*98.5 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*104 %*	*62-125*			"	"	"	"	
MW-15 (B2D0486-06) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*99.8 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*104 %*	*62-125*			"	"	"	"	

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eo Engineers - Spokane	Project: Time Oil Richland	
3 East 2nd	Project Number: 1957-033-00	**Reported:**
okane WA/USA, 99202	Project Manager: Bruce Williams	04/30/02 14:01

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

alyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
V-17 (B2D0486-07) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
soline Range Hydrocarbons	**139**	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
ızene	**1.54**	0.500	"	"	"	"	"	"	
uene	ND	0.500	"	"	"	"	"	"	
ylbenzene	ND	0.500	"	"	"	"	"	"	
lenes (total)	ND	1.00	"	"	"	"	"	"	
rogate: 4-BFB (FID)	*100 %*	*62-139*			"	"	"	"	
rogate: 4-BFB (PID)	*99.4 %*	*62-125*			"	"	"	"	
V-21B (B2D0486-08) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
ioline Range Hydrocarbons	ND	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
ızene	ND	0.500	"	"	"	"	"	"	
uene	ND	0.500	"	"	"	"	"	"	
ylbenzene	ND	0.500	"	"	"	"	"	"	
lenes (total)	ND	1.00	"	"	"	"	"	"	
rogate: 4-BFB (FID)	*95.8 %*	*62-139*			"	"	"	"	
rogate: 4-BFB (PID)	*104 %*	*62-125*			"	"	"	"	
V-22 (B2D0486-09) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
ioline Range Hydrocarbons	ND	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
ızene	ND	0.500	"	"	"	"	"	"	
uene	ND	0.500	"	"	"	"	"	"	
ylbenzene	ND	0.500	"	"	"	"	"	"	
lenes (total)	ND	1.00	"	"	"	"	"	"	
rogate: 4-BFB (FID)	*96.2 %*	*62-139*			"	"	"	"	
rogate: 4-BFB (PID)	*105 %*	*62-125*			"	"	"	"	

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	04/30/02 14:01

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-23 (B2D0486-10) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*97.9 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*104 %*	*62-125*			"	"	"	"	
MW-25 (B2D0486-11) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
Gasoline Range Hydrocarbons	**1880**	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
Benzene	**15.6**	0.500	"	"	"	"	"	"	
Toluene	**0.873**	0.500	"	"	"	"	"	"	I-06
Ethylbenzene	**12.9**	0.500	"	"	"	"	"	"	
Xylenes (total)	**7.82**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*162 %*	*62-139*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*105 %*	*62-125*			"	"	"	"	
MW-27 (B2D0486-12) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
Gasoline Range Hydrocarbons	**326**	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
Benzene	**4.23**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	**1.37**	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*106 %*	*62-139*			"	"	"	"	
Surrogate: 4-BFB (PID)	*102 %*	*62-125*			"	"	"	"	

North Creek Analytical - Bothell

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eo Engineers - Spokane	Project: Time Oil Richland	
23 East 2nd	Project Number: 1957-033-00	**Reported:**
pokane WA/USA, 99202	Project Manager: Bruce Williams	04/30/02 14:01

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

alyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
W-28 (B2D0486-13) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
soline Range Hydrocarbons	**76.2**	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
ızene	**0.783**	0.500	"	"	"	"	"	"	
uene	ND	0.500	"	"	"	"	"	"	
ylbenzene	ND	0.500	"	"	"	"	"	"	
lenes (total)	ND	1.00	"	"	"	"	"	"	
rogate: 4-BFB (FID)	*95.4 %*	*62-139*			"	"	"	"	
rogate: 4-BFB (PID)	*102 %*	*62-125*			"	"	"	"	
W-29 (B2D0486-14) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
soline Range Hydrocarbons	**424**	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
ızene	**5.38**	0.500	"	"	"	"	"	"	
uene	ND	0.500	"	"	"	"	"	"	
ylbenzene	**8.18**	0.500	"	"	"	"	"	"	
lenes (total)	ND	1.00	"	"	"	"	"	"	
rogate: 4-BFB (FID)	*111 %*	*62-139*			"	"	"	"	
rogate: 4-BFB (PID)	*104 %*	*62-125*			"	"	"	"	
W-40 (B2D0486-15) Water Sampled: 04/22/02 12:00 Received: 04/24/02 15:20									
soline Range Hydrocarbons	**692**	50.0	ug/l	1	2D29006	04/29/02	04/29/02	NWTPH-Gx/8021B	
ızene	**2.84**	0.500	"	"	"	"	"	"	
luene	**5.62**	0.500	"	"	"	"	"	"	
ylbenzene	**22.3**	0.500	"	"	"	"	"	"	
lenes (total)	**63.3**	1.00	"	"	"	"	"	"	
rogate: 4-BFB (FID)	*133 %*	*62-139*			"	"	"	"	
rogate: 4-BFB (PID)	*109 %*	*62-125*			"	"	"	"	

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	04/30/02 14:01

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EFF042302 (B2D0486-16) Air Sampled: 04/23/02 10:00 Received: 04/24/02 15:20									
Gasoline Range Hydrocarbons	**24.7**	10.0	mg/m³ Air	1	2D25002	04/25/02	04/25/02	NWTPH Modified	
Benzene	**0.124**	0.100	"	"	"	"	"	"	I-06
Toluene	**0.111**	0.100	"	"	"	"	"	"	I-06
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	**0.993**	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*89.4 %*	*52-148*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*57-117*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**5.81**	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	**0.0383**	0.0308	"	"	"	"	"	"	I-06
Toluene (v/v)	**0.0289**	0.0261	"	"	"	"	"	"	I-06
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	**0.225**	0.0454	"	"	"	"	"	"	
EFFP042302 (B2D0486-17) Air Sampled: 04/23/02 10:10 Received: 04/24/02 15:20									
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air	1	2D25002	04/25/02	04/25/02	NWTPH Modified	
Benzene	ND	0.100	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	ND	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*78.8 %*	*52-148*			"	"	"	"	
Surrogate: 4-BFB (PID)	*110 %*	*57-117*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	ND	0.0308	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.0454	"	"	"	"	"	"	

North Creek Analytical - Bothell

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eo Engineers - Spokane
!3 East 2nd
)okane WA/USA, 99202

Project: Time Oil Richland
Project Number: 1957-033-00
Project Manager: Bruce Williams

Reported:
04/30/02 14:01

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control
North Creek Analytical - Bothell

alyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
tch 2D29006: Prepared 04/29/02 Using EPA 5030B (P/T)										
nk (2D29006-BLK1)										
oline Range Hydrocarbons	ND	50.0	ug/l							
zene	ND	0.500	"							
ıene	ND	0.500	"							
ylbenzene	ND	0.500	"							
enes (total)	ND	1.00	"							
rogate: 4-BFB (FID)	*45.9*		"	*48.0*		*95.6*	*62-139*			
rogate: 4-BFB (PID)	*50.4*		"	*48.0*		*105*	*62-125*			
S (2D29006-BS1)										
oline Range Hydrocarbons	474	50.0	ug/l	500		94.8	80-120			
zene	6.16	0.500	"	6.01		102	80-120			
ıene	31.4	0.500	"	35.8		87.7	80-120			
ylbenzene	8.60	0.500	"	8.37		103	80-120			
enes (total)	39.9	1.00	"	41.4		96.4	80-120			
rogate: 4-BFB (FID)	*51.0*		"	*48.0*		*106*	*62-139*			
rogate: 4-BFB (PID)	*46.6*		"	*48.0*		*97.1*	*62-125*			
S Dup (2D29006-BSD1)										
oline Range Hydrocarbons	488	50.0	ug/l	500		97.6	80-120	2.91	25	
zene	6.46	0.500	"	6.01		107	80-120	4.75	40	
ıene	33.0	0.500	"	35.8		92.2	80-120	4.97	40	
ylbenzene	8.98	0.500	"	8.37		107	80-120	4.32	40	
enes (total)	42.0	1.00	"	41.4		101	80-120	5.13	40	
rogate: 4-BFB (FID)	*50.7*		"	*48.0*		*106*	*62-139*			
rogate: 4-BFB (PID)	*46.8*		"	*48.0*		*97.5*	*62-125*			
trix Spike (2D29006-MS1)					**Source: B2D0486-02**					
oline Range Hydrocarbons	498	50.0	ug/l	500	ND	96.9	70-130			
zene	6.55	0.500	"	6.01	ND	109	80-120			
ıene	33.7	0.500	"	35.8	ND	93.4	75-117			
ylbenzene	9.04	0.500	"	8.37	ND	108	80-120			
enes (total)	41.9	1.00	"	41.4	ND	100	80-120			
rogate: 4-BFB (FID)	*51.8*		"	*48.0*		*108*	*62-139*			
rogate: 4-BFB (PID)	*48.8*		"	*48.0*		*102*	*62-125*			

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	04/30/02 14:01

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2D29006: Prepared 04/29/02 Using EPA 5030B (P/T)										
Matrix Spike Dup (2D29006-MSD1)					**Source: B2D0486-02**					
Gasoline Range Hydrocarbons	459	50.0	ug/l	500	ND	89.1	70-130	8.15	25	
Benzene	6.81	0.500	"	6.01	ND	113	80-120	3.89	40	
Toluene	36.2	0.500	"	35.8	ND	100	75-117	7.15	40	
Ethylbenzene	9.33	0.500	"	8.37	ND	111	80-120	3.16	40	
Xylenes (total)	43.2	1.00	"	41.4	ND	103	80-120	3.06	40	
Surrogate: 4-BFB (FID)	*49.2*		"	*48.0*		*102*	*62-139*			
Surrogate: 4-BFB (PID)	*48.9*		"	*48.0*		*102*	*62-125*			

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:o Engineers - Spokane	Project: Time Oil Richland	
3 East 2nd	Project Number: 1957-033-00	Reported:
okane WA/USA, 99202	Project Manager: Bruce Williams	04/30/02 14:01

asoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

lyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
:ch 2D25002: Prepared 04/25/02 Using EPA 5030B (P/T)										
nk (2D25002-BLK1)										
oline Range Hydrocarbons	ND	10.0	mg/m³ Air							
oline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
zene	ND	0.100	mg/m³ Air							
zene (v/v)	ND	0.0308	ppmv							
ıene	ND	0.100	mg/m³ Air							
ıene (v/v)	ND	0.0261	ppmv							
lbenzene	ND	0.100	mg/m³ Air							
lbenzene (v/v)	ND	0.0227	ppmv							
nes (total)	ND	0.200	mg/m³ Air							
nes, total (v/v)	ND	0.0454	ppmv							
ogate: 4-BFB (FID)	*8.59*		*mg/m³ Air*	*9.60*		*89.5*	*52-148*			
ogate: 4-BFB (PID)	*9.63*		*"*	*9.60*		*100*	*57-117*			
S (2D25002-BS1)										
oline Range Hydrocarbons	89.0	10.0	mg/m³ Air	100		89.0	50-150			
ogate: 4-BFB (FID)	*8.66*		*"*	*9.60*		*90.2*	*52-148*			
S (2D25002-BS2)										
zene	1.53	0.100	mg/m³ Air	2.00		76.5	50-150			
ıene	1.49	0.100	"	2.00		74.5	50-150			
lbenzene	1.44	0.100	"	2.00		72.0	50-150			
nes (total)	4.49	0.200	"	6.00		74.8	50-150			
ogate: 4-BFB (PID)	*10.2*		*"*	*9.60*		*106*	*57-117*			
S Dup (2D25002-BSD1)										
oline Range Hydrocarbons	73.1	10.0	mg/m³ Air	100		73.1	50-150	19.6	50	
ogate: 4-BFB (FID)	*8.85*		*"*	*9.60*		*92.2*	*52-148*			

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	04/30/02 14:01

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2D25002: Prepared 04/25/02 Using EPA 5030B (P/T)										
LCS Dup (2D25002-BSD2)										
Benzene	1.54	0.100	mg/m³ Air	2.00		77.0	50-150	0.651	50	
Toluene	1.49	0.100	"	2.00		74.5	50-150	0.00	50	
Ethylbenzene	1.43	0.100	"	2.00		71.5	50-150	0.697	50	
Xylenes (total)	4.48	0.200	"	6.00		74.7	50-150	0.223	50	
Surrogate: 4-BFB (PID)	*10.2*		"	*9.60*		*106*	*57-117*			
Duplicate (2D25002-DUP1)					**Source: B2D0495-01**					
Gasoline Range Hydrocarbons	8670	250	mg/m³ Air		7530			14.1	30	
Surrogate: 4-BFB (FID)	*9.17*		"	*9.60*		*95.5*	*52-148*			

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eo Engineers - Spokane	Project: Time Oil Richland	
13 East 2nd	Project Number: 1957-033-00	**Reported:**
okane WA/USA, 99202	Project Manager: Bruce Williams	04/30/02 14:01

Notes and Definitions

06	The analyte concentration may be artificially elevated due to coeluting compounds or components.
04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
ET	Analyte DETECTED
D	Analyte NOT DETECTED at or above the reporting limit
R	Not Reported
y	Sample results reported on a dry weight basis
PD	Relative Percent Difference

rth Creek Analytical - Bothell

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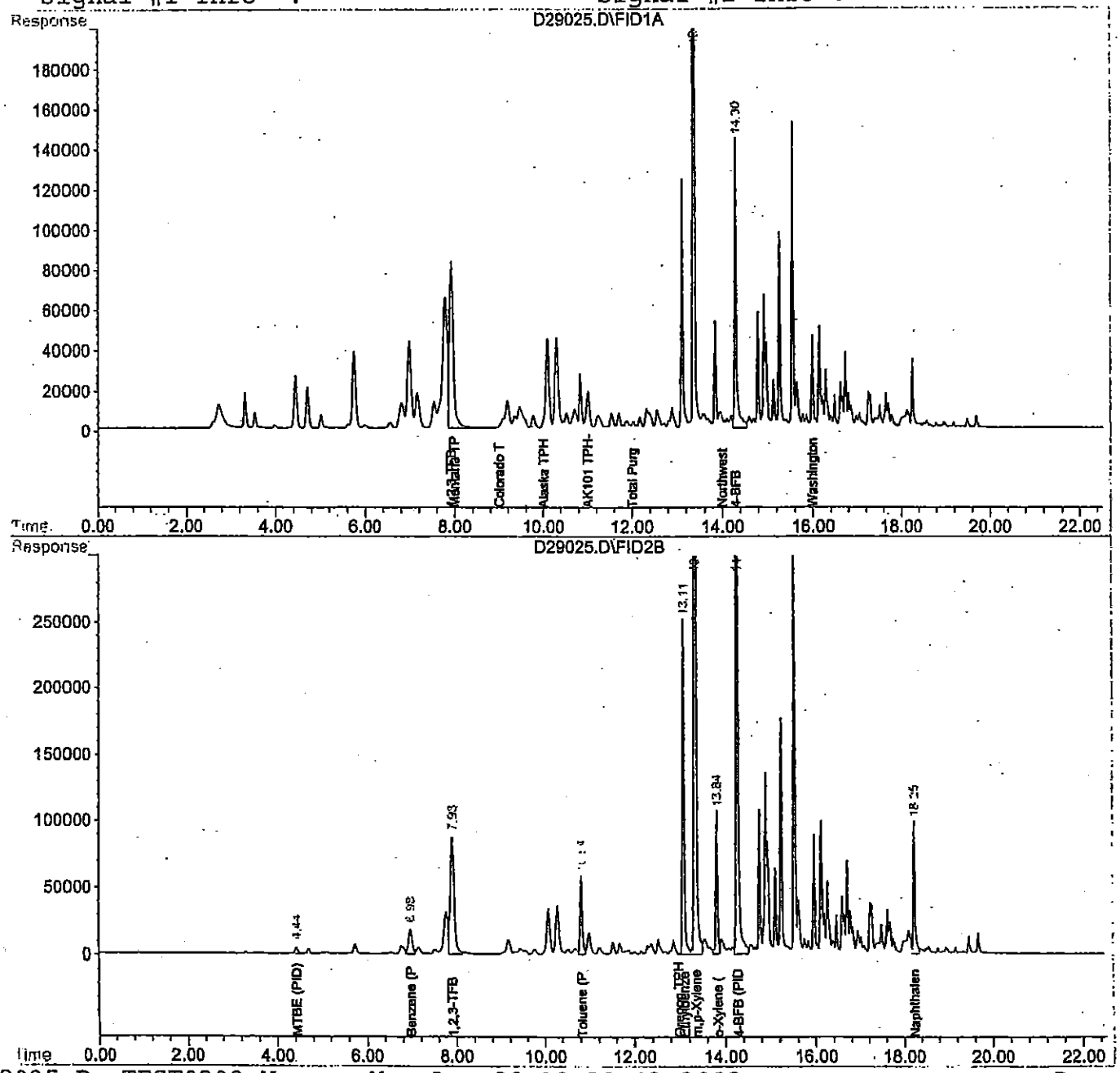
Quantitation Report

Signal #1 : D:\HPCHEM\3\DATA\042902\D29025.D\FID1A.CH Vial: 25
Signal #2 : D:\HPCHEM\3\DATA\042902\D29025.D\FID2B.CH
Acq On : 29 Apr 2002 18:06 Operator: sk
Sample : b2d0486-01 r1 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 18:29 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

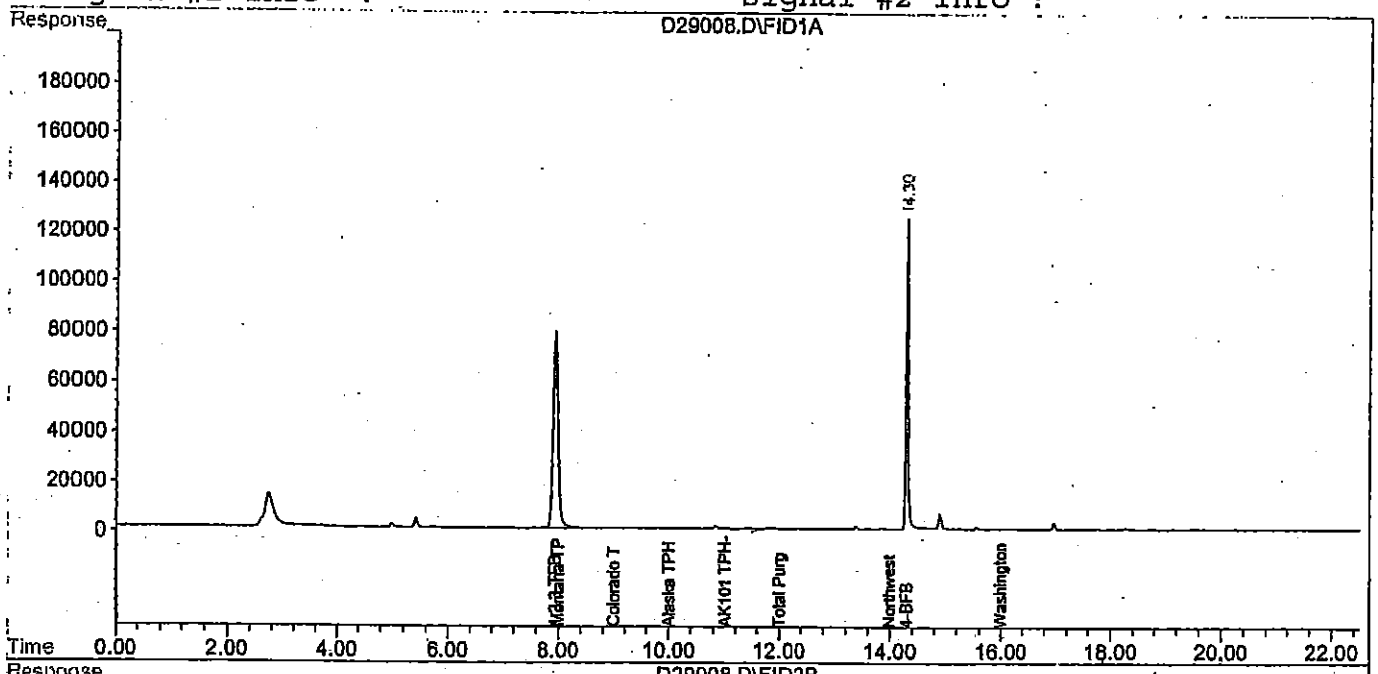
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

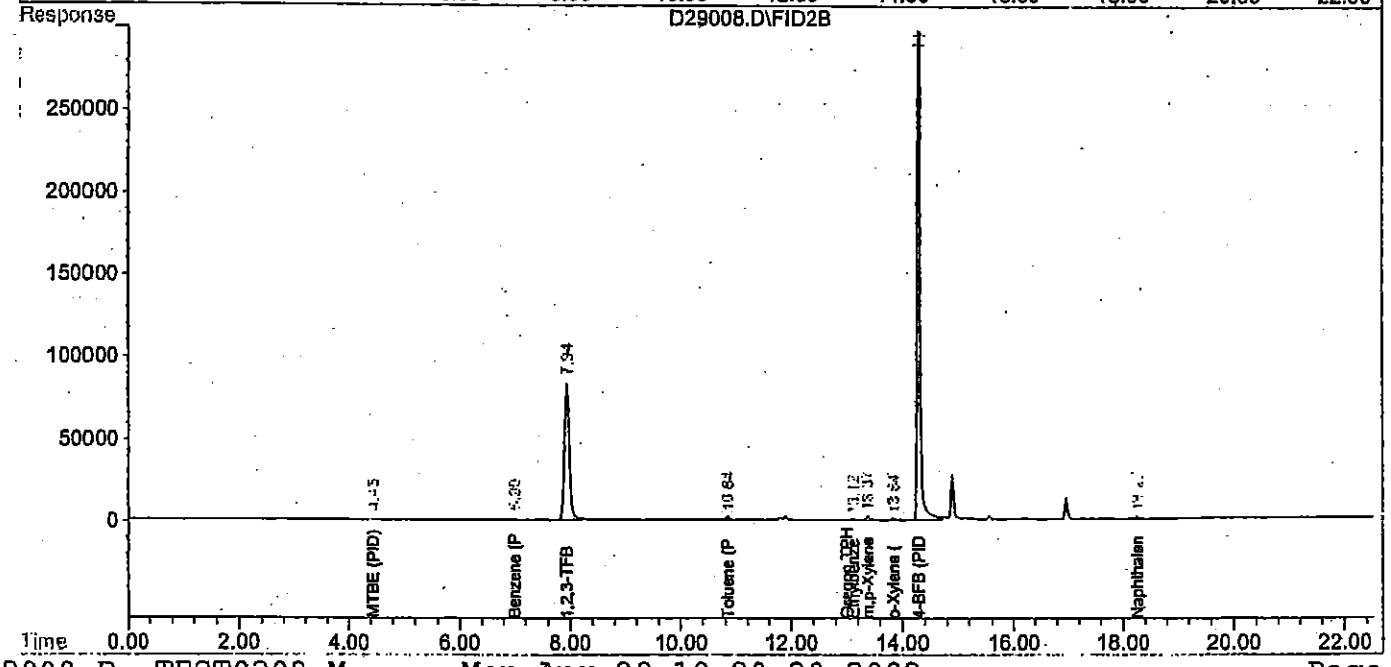


Signal #1 : D:\HPCHEM\3\DATA\042902\D29008.D\FID1A.CH Vial: 8
Signal #2 : D:\HPCHEM\3\DATA\042902\D29008.D\FID2B.CH
Acq On : 29 Apr 2002 9:57 Operator: sk
Sample : b2d0486-02 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 10:20 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 22 11:03:19 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

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



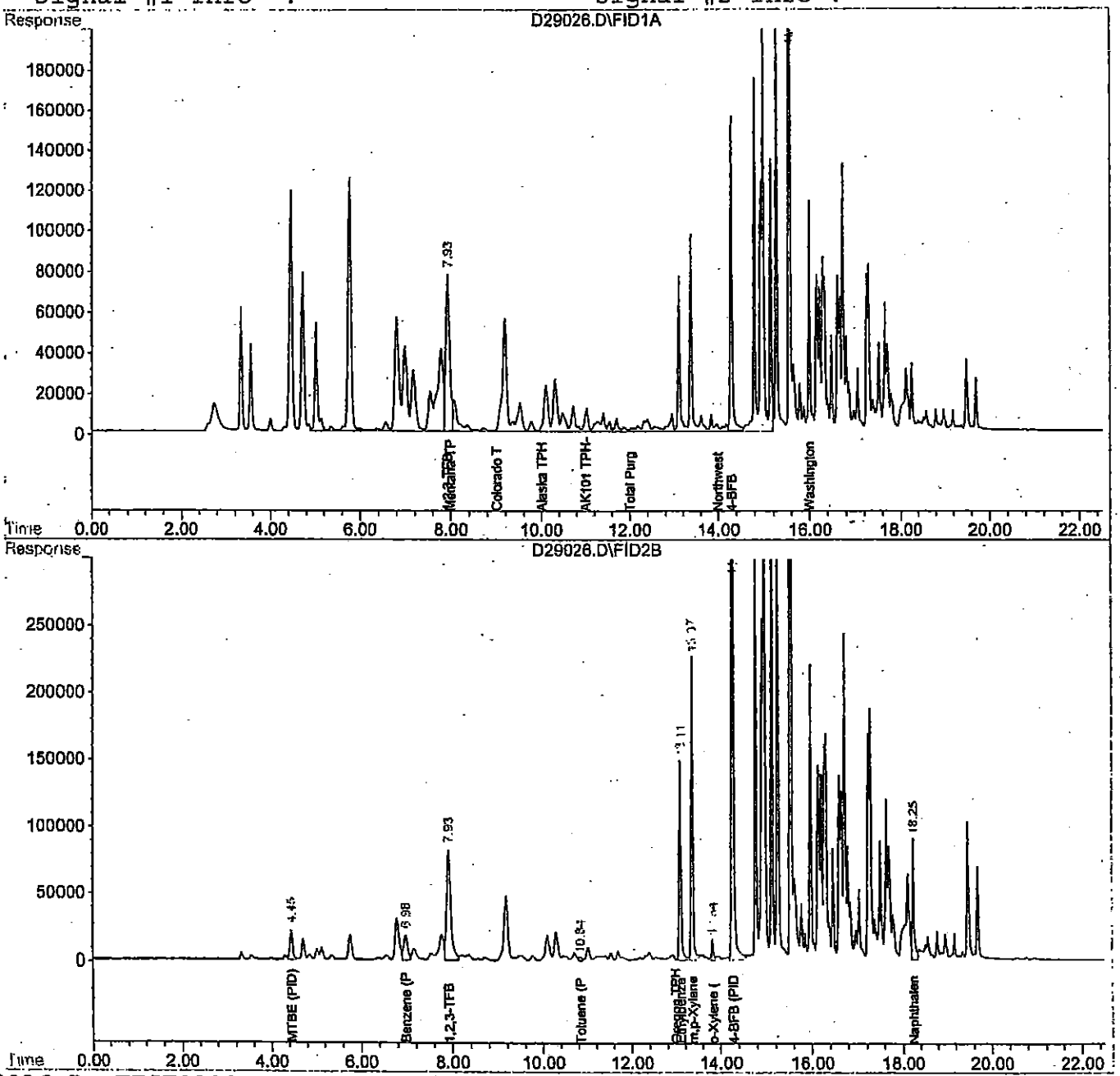


Quantitation Report

Signal #1 : D:\HPCHEM\3\DATA\042902\D29026.D\FID1A.CH Vial: 26
Signal #2 : D:\HPCHEM\3\DATA\042902\D29026.D\FID2B.CH
Acq On : 29 Apr 2002 18:35 Operator: sk
Sample : b2d0486-03 r1 Inst : GC #6
Misc : 10x 500 ul Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 18:58 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

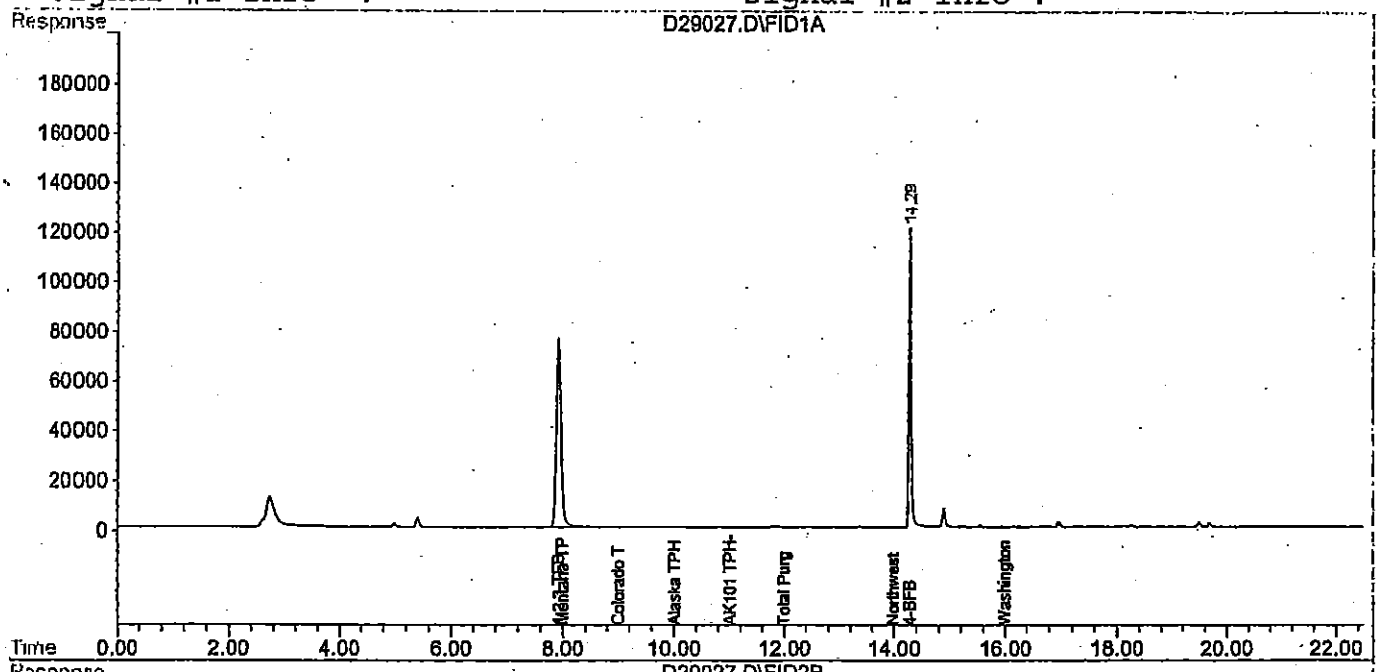
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

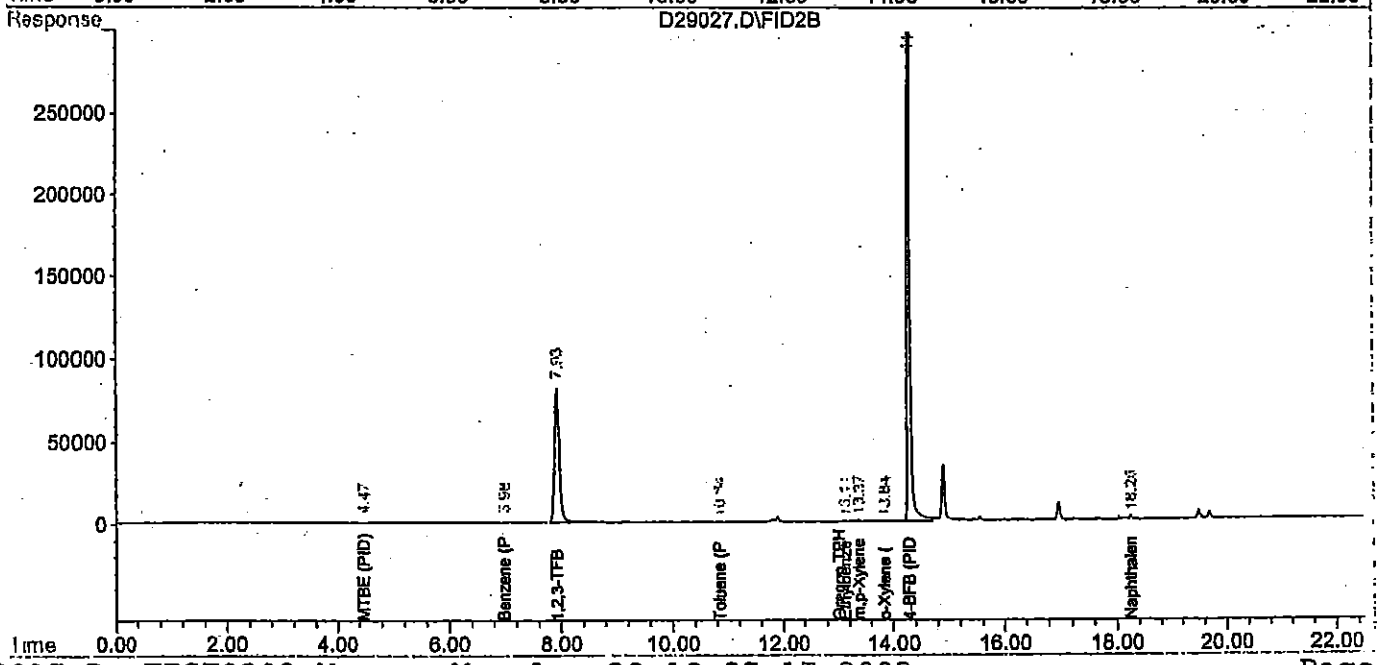


Signal #1 : D:\HPCHEM\3\DATA\042902\D29027.D\FID1A.CH Vial: 27
Signal #2 : D:\HPCHEM\3\DATA\042902\D29027.D\FID2B.CH
Acq On : 29 Apr 2002 19:04 Operator: sk
Sample : b2d0486-04 r1 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 19:27 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

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



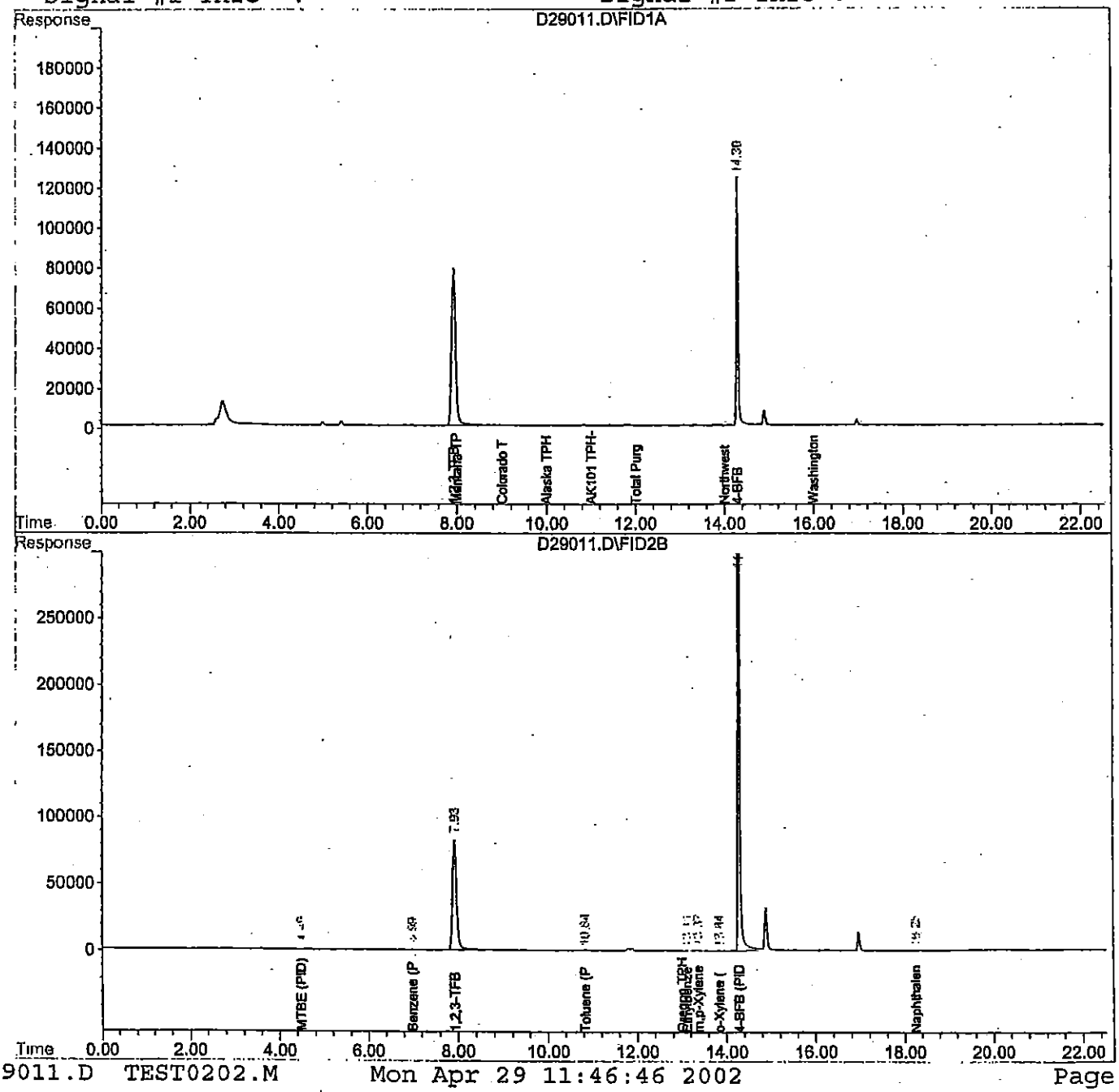


Quantitation Report

Signal #1 : D:\HPCHEM\3\DATA\042902\D29011.D\FID1A.CH Vial: 11
Signal #2 : D:\HPCHEM\3\DATA\042902\D29011.D\FID2B.CH
Acq On : 29 Apr 2002 11:23 Operator: sk
Sample : b2d0486-05 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 11:46 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

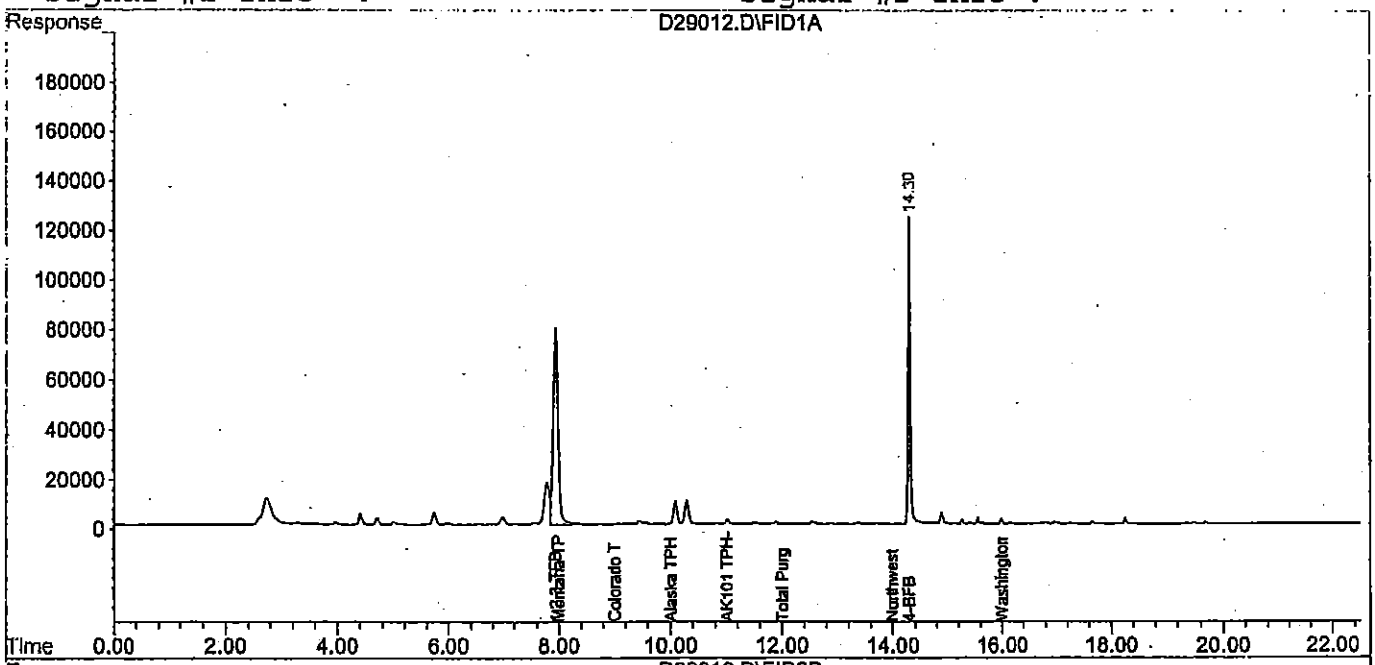
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

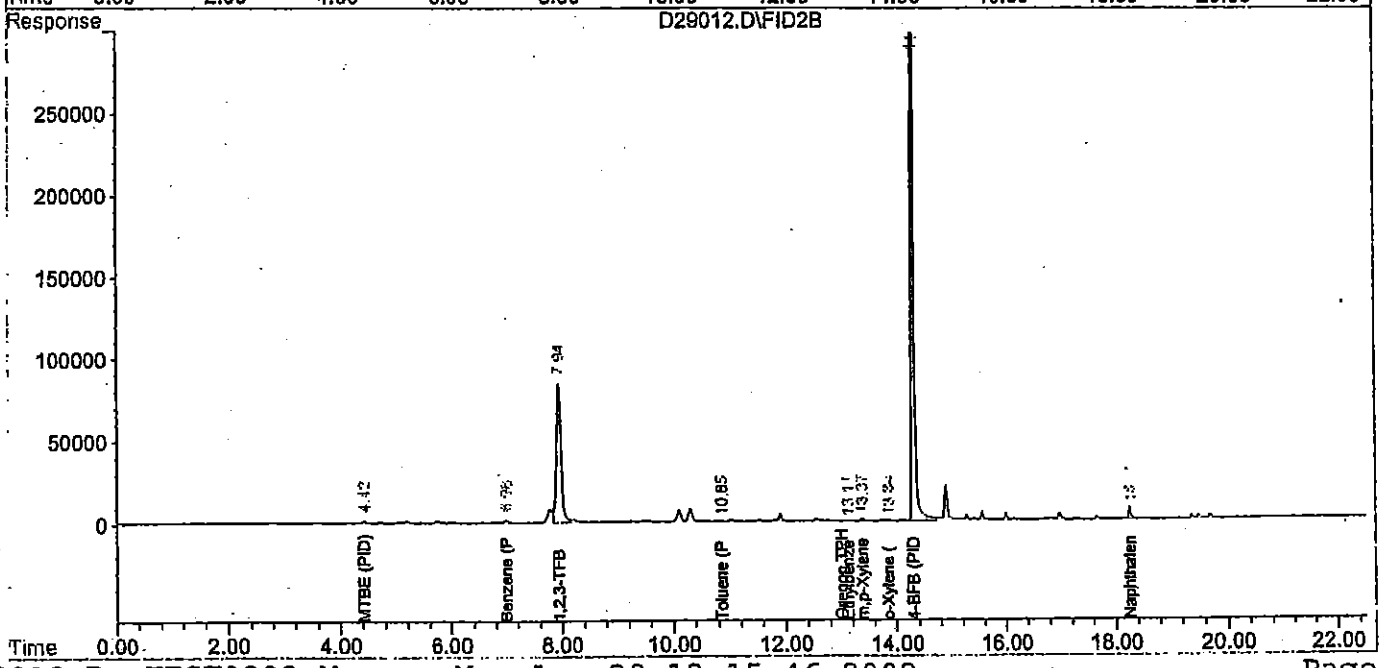


Signal #1 : D:\HPCHEM\3\DATA\042902\D29012.D\FID1A.CH Vial: 12
Signal #2 : D:\HPCHEM\3\DATA\042902\D29012.D\FID2B.CH
Acq On : 29 Apr 2002 11:52 Operator: sk
Sample : b2d0486-06 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 12:15 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

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



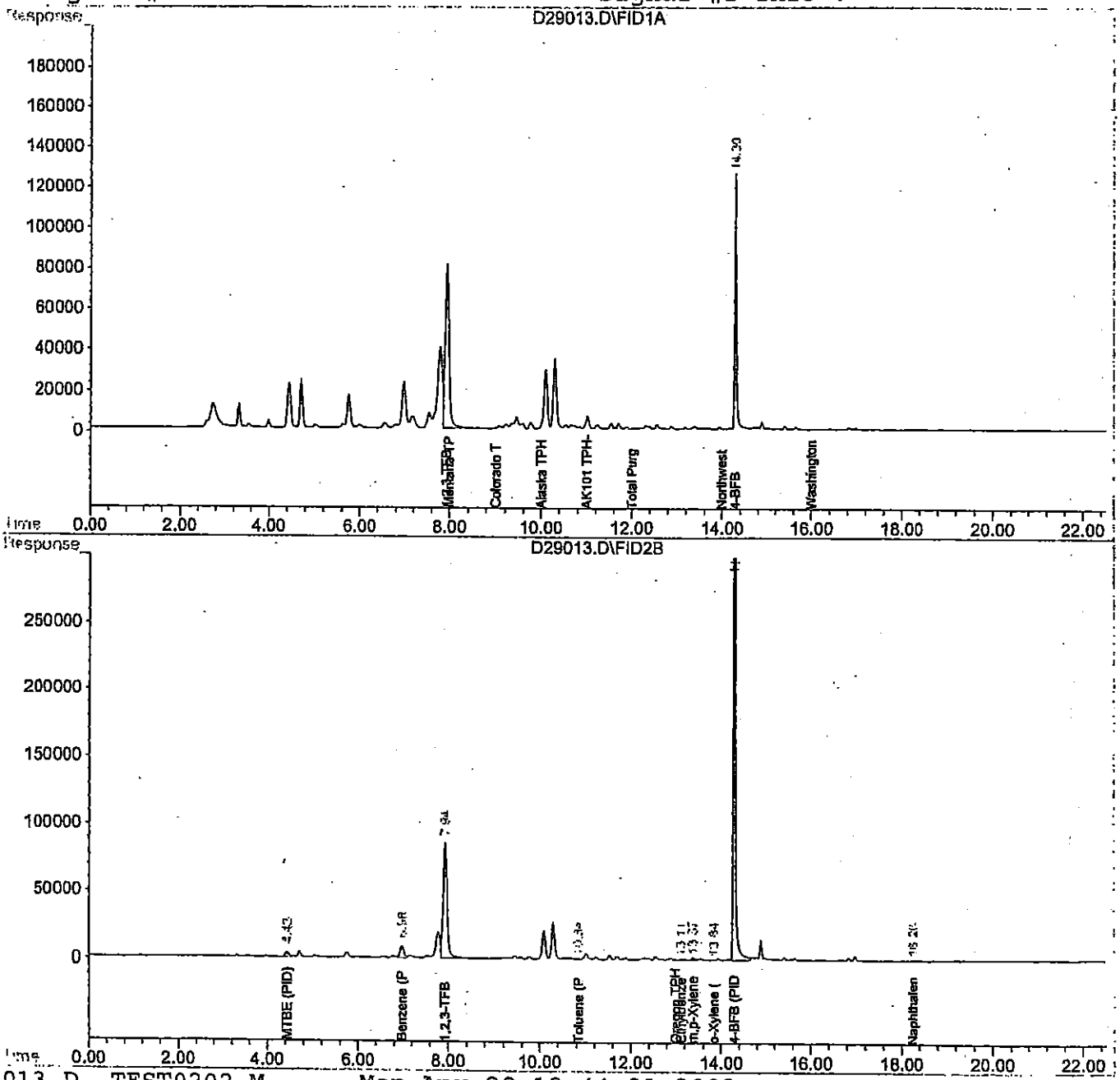


Quantitation Report

Signal #1 : D:\HPCHEM\3\DATA\042902\D29013.D\FID1A.CH Vial: 13
Signal #2 : D:\HPCHEM\3\DATA\042902\D29013.D\FID2B.CH
Acq On : 29 Apr 2002 12:21 Operator: sk
Sample : b2d0486-07 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 12:44 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

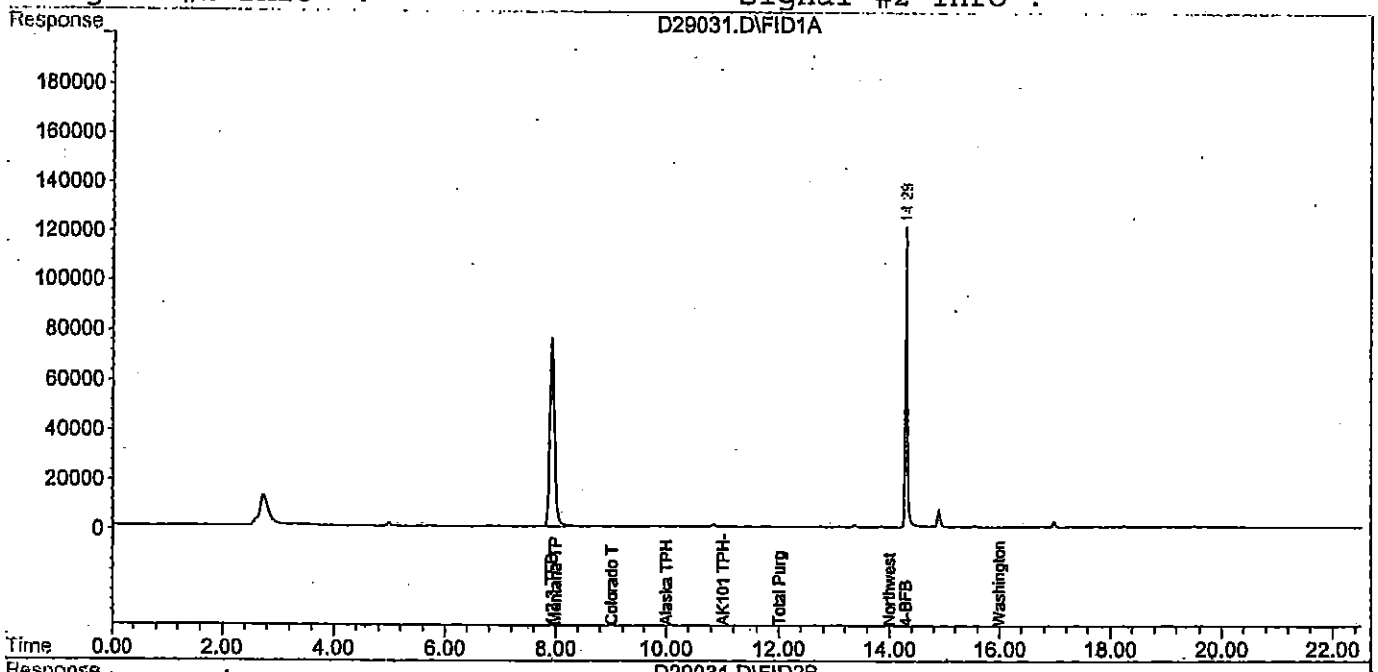
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

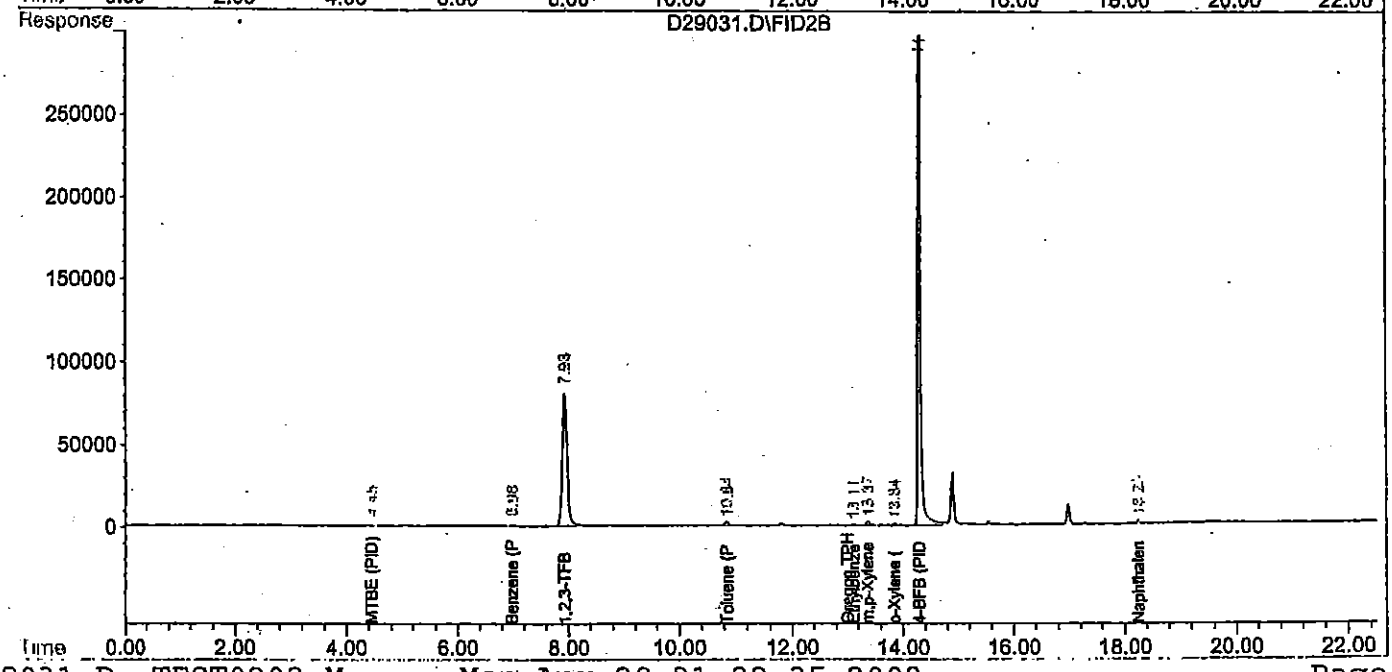


Signal #1 : D:\HPCHEM\3\DATA\042902\D29031.D\FID1A.CH Vial: 31
Signal #2 : D:\HPCHEM\3\DATA\042902\D29031.D\FID2B.CH
Acq On : 29 Apr 2002 20:59 Operator: sk
Sample : b2d0486-08 r1 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 21:22 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

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



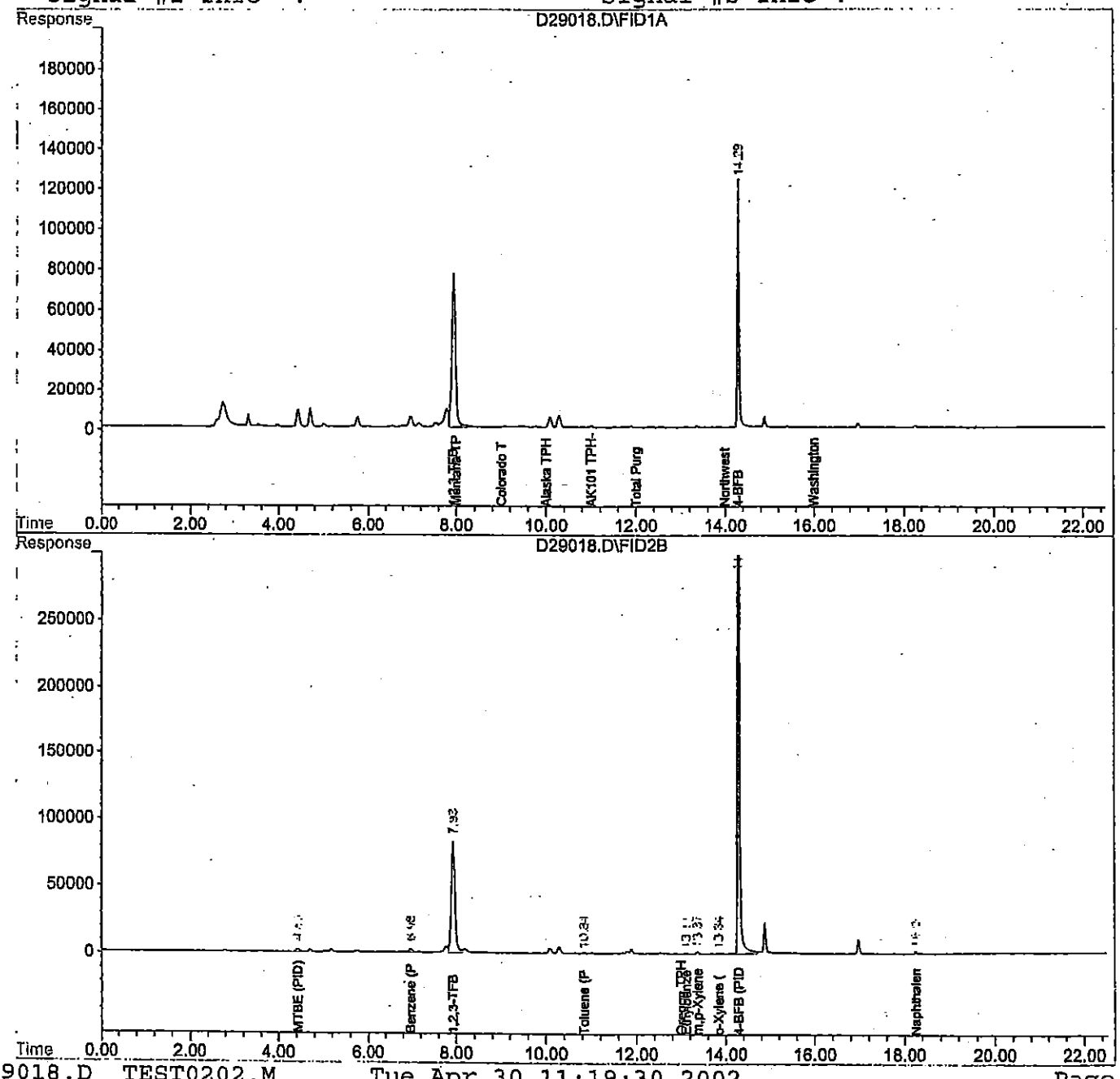


Quantitation Report

Signal #1 : D:\HPCHEM\3\DATA\042902\D29018.D\FID1A.CH Vial: 18
Signal #2 : D:\HPCHEM\3\DATA\042902\D29018.D\FID2B.CH
Acq On : 29 Apr 2002 14:45 Operator: sk
Sample : b2d0486-09 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 15:08 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

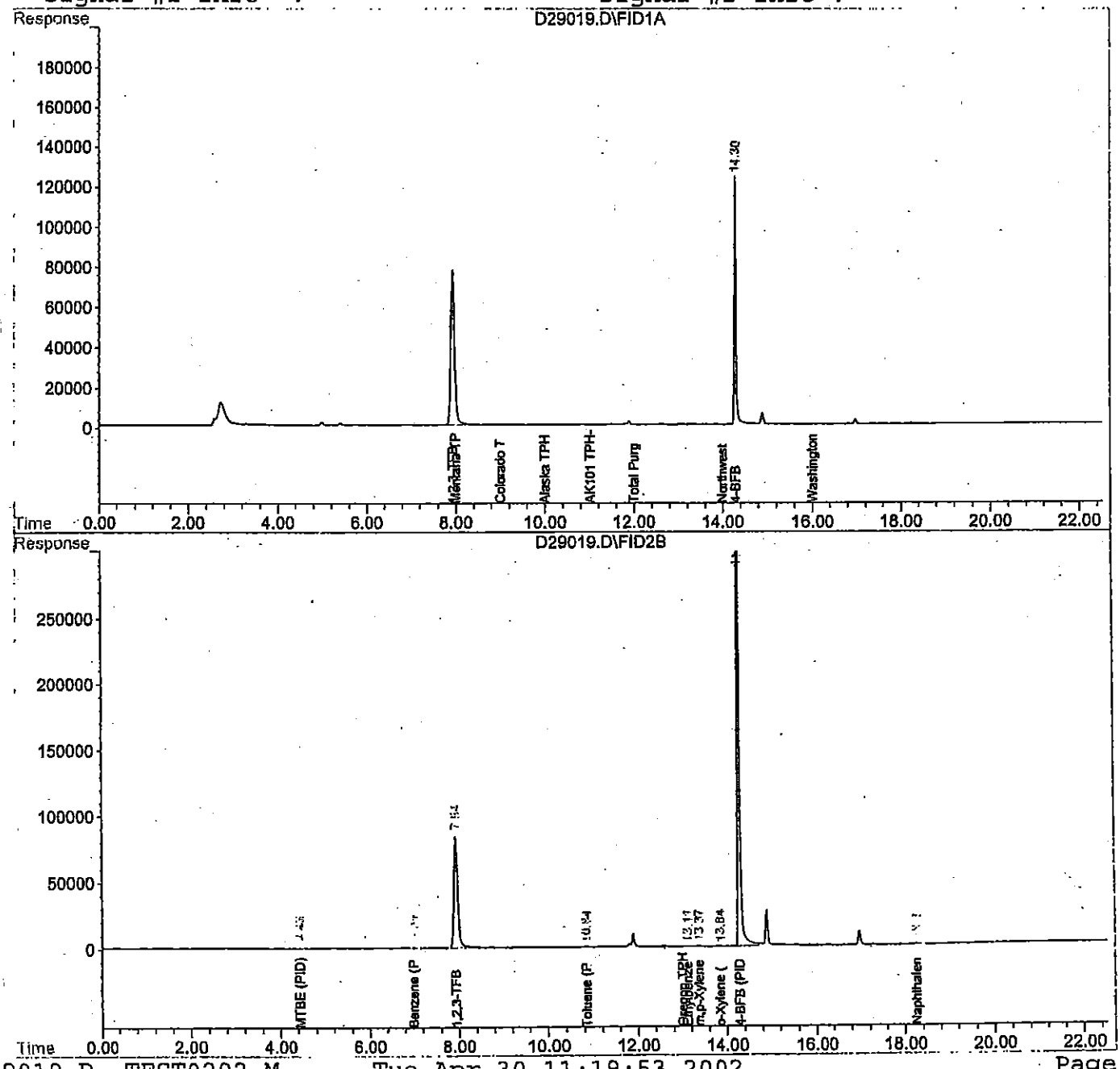
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : D:\HPCHEM\3\DATA\042902\D29019.D\FID1A.CH Vial: 19
Signal #2 : D:\HPCHEM\3\DATA\042902\D29019.D\FID2B.CH
Acq On : 29 Apr 2002 15:14 Operator: sk
Sample : b2d0486-10 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 15:37 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

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

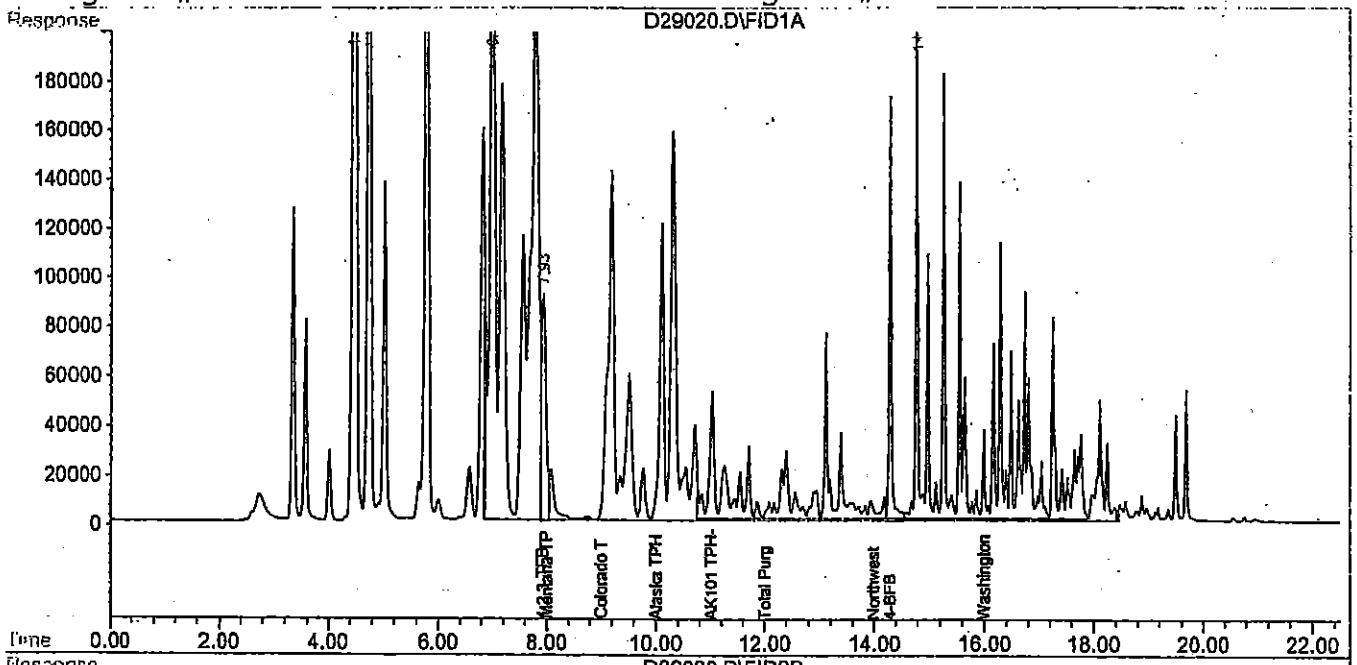


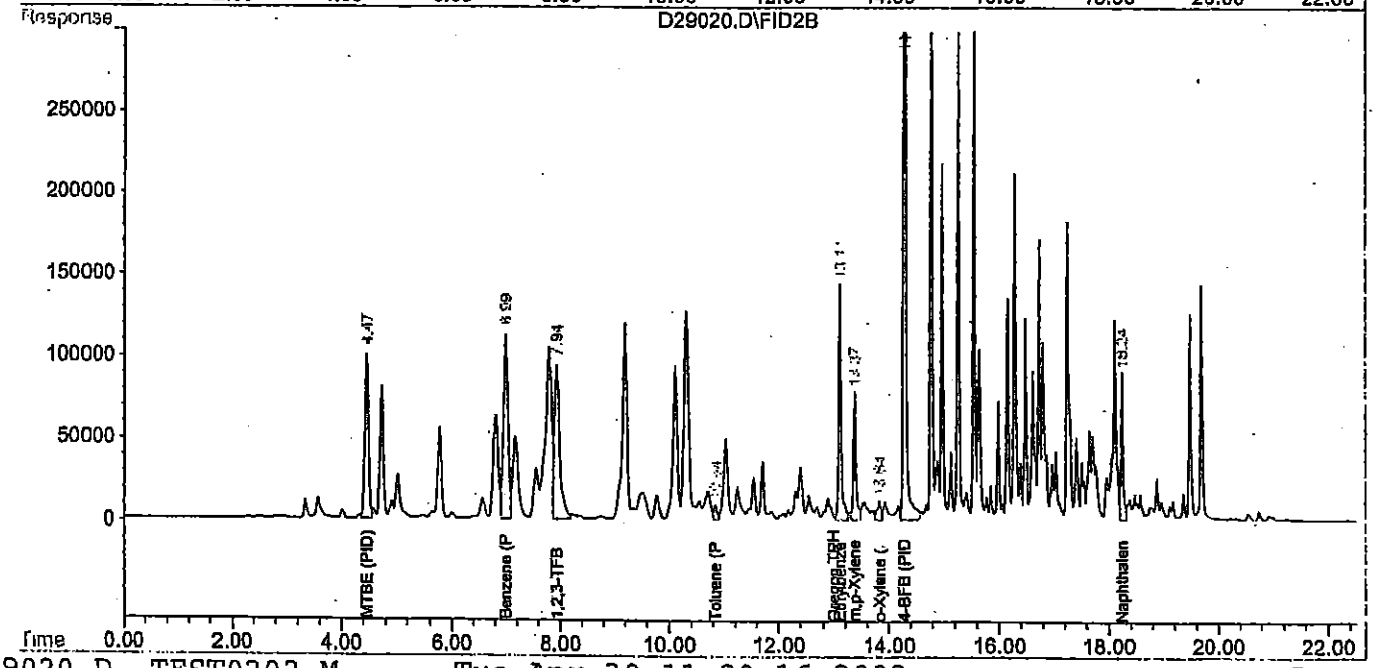
Quantitation Report

Signal #1 : D:\HPCHEM\3\DATA\042902\D29020.D\FID1A.CH Vial: 20
Signal #2 : D:\HPCHEM\3\DATA\042902\D29020.D\FID2B.CH
Acq On : 29 Apr 2002 15:42 Operator: sk
Sample : b2d0486-11 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 16:05 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

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

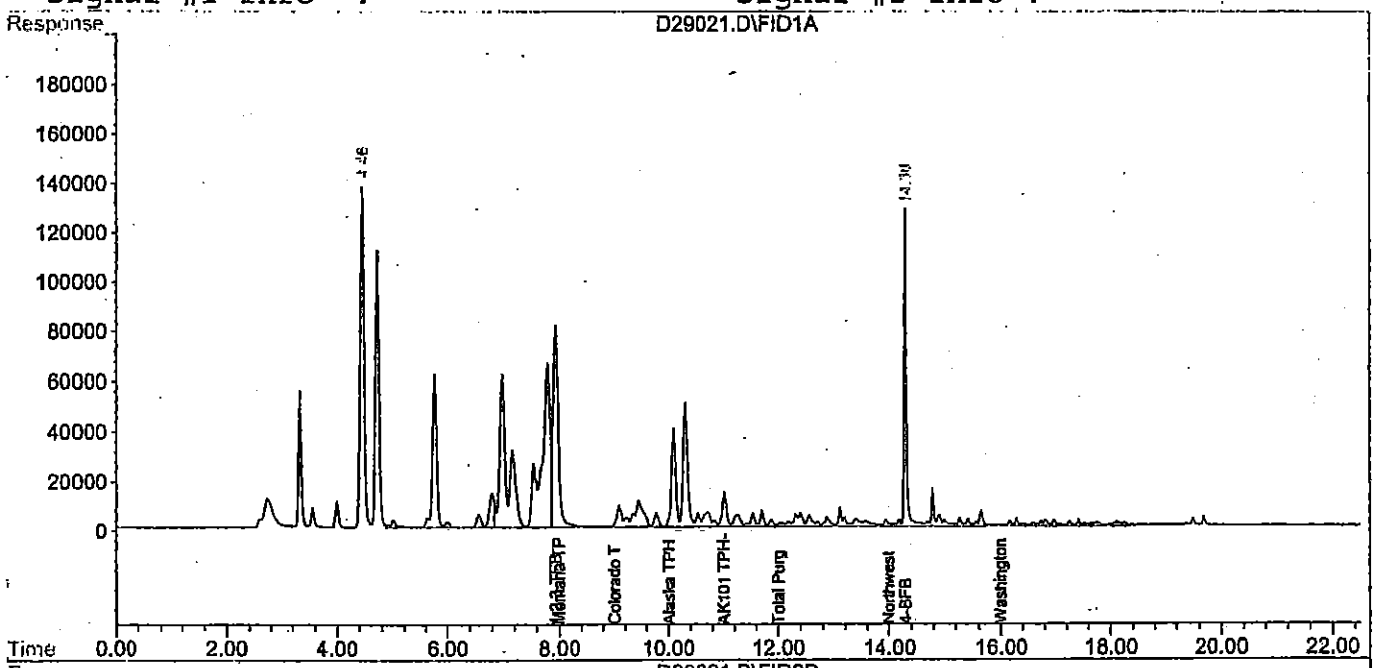


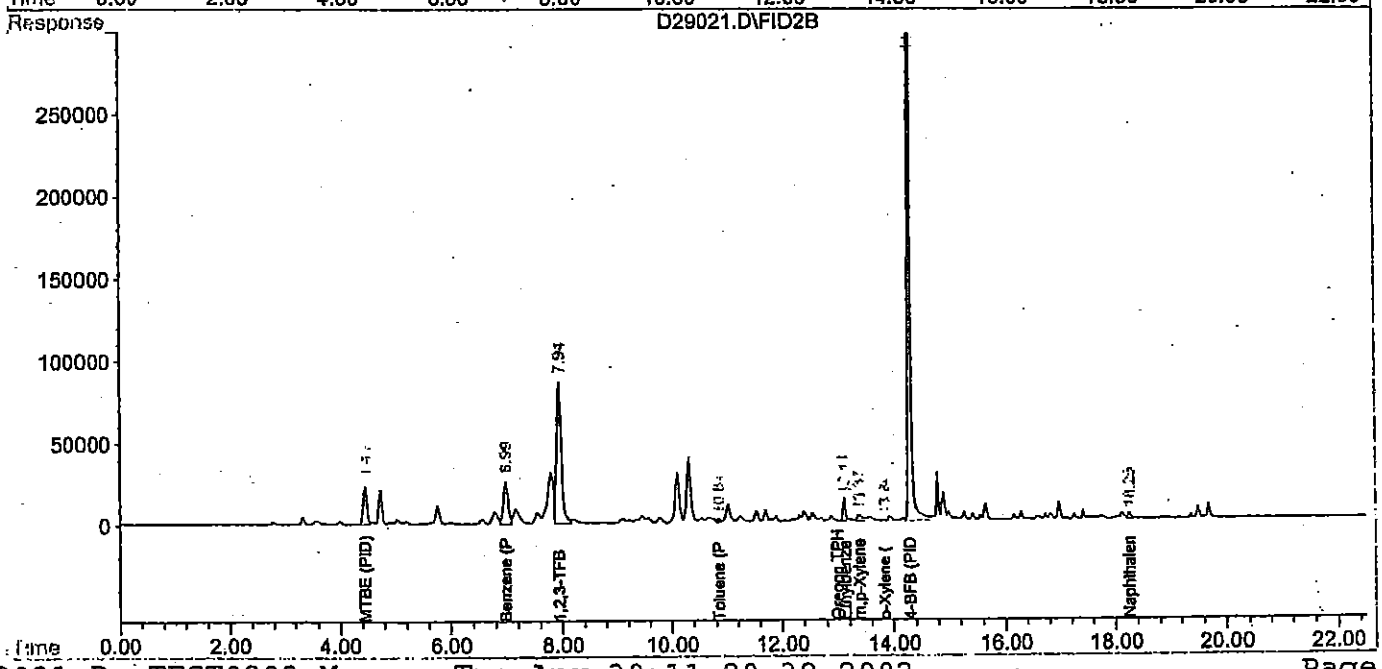


Signal #1 : D:\HPCHEM\3\DATA\042902\D29021.D\FID1A.CH Vial: 21
Signal #2 : D:\HPCHEM\3\DATA\042902\D29021.D\FID2B.CH
Acq On : 29 Apr 2002 16:11 Operator: sk
Sample : b2d0486-12 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 16:34 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

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



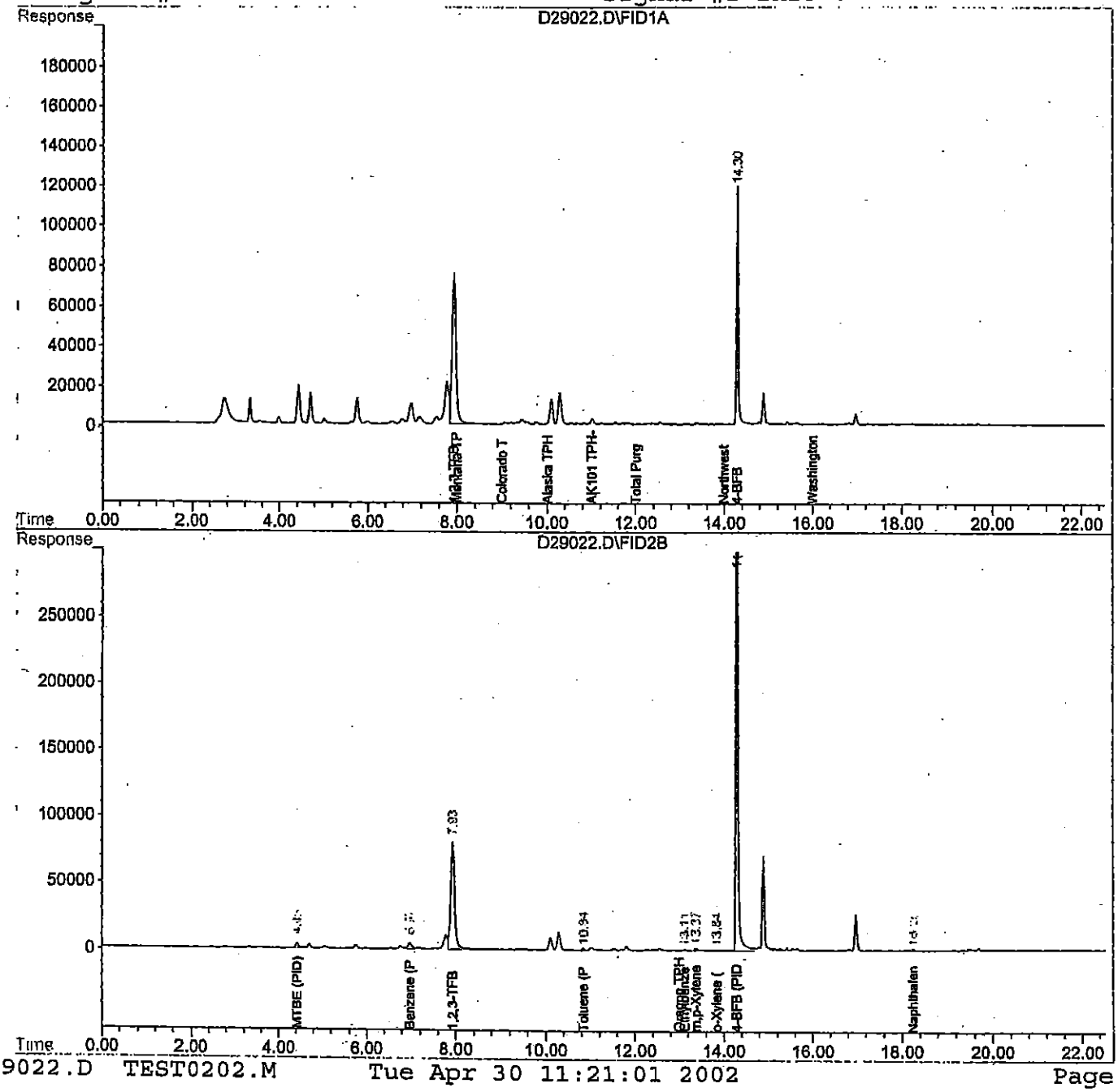


Quantitation Report

Signal #1 : D:\HPCHEM\3\DATA\042902\D29022.D\FID1A.CH Vial: 22
Signal #2 : D:\HPCHEM\3\DATA\042902\D29022.D\FID2B.CH
Acq On : 29 Apr 2002 16:40 Operator: sk
Sample : b2d0486-13 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 17:03 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

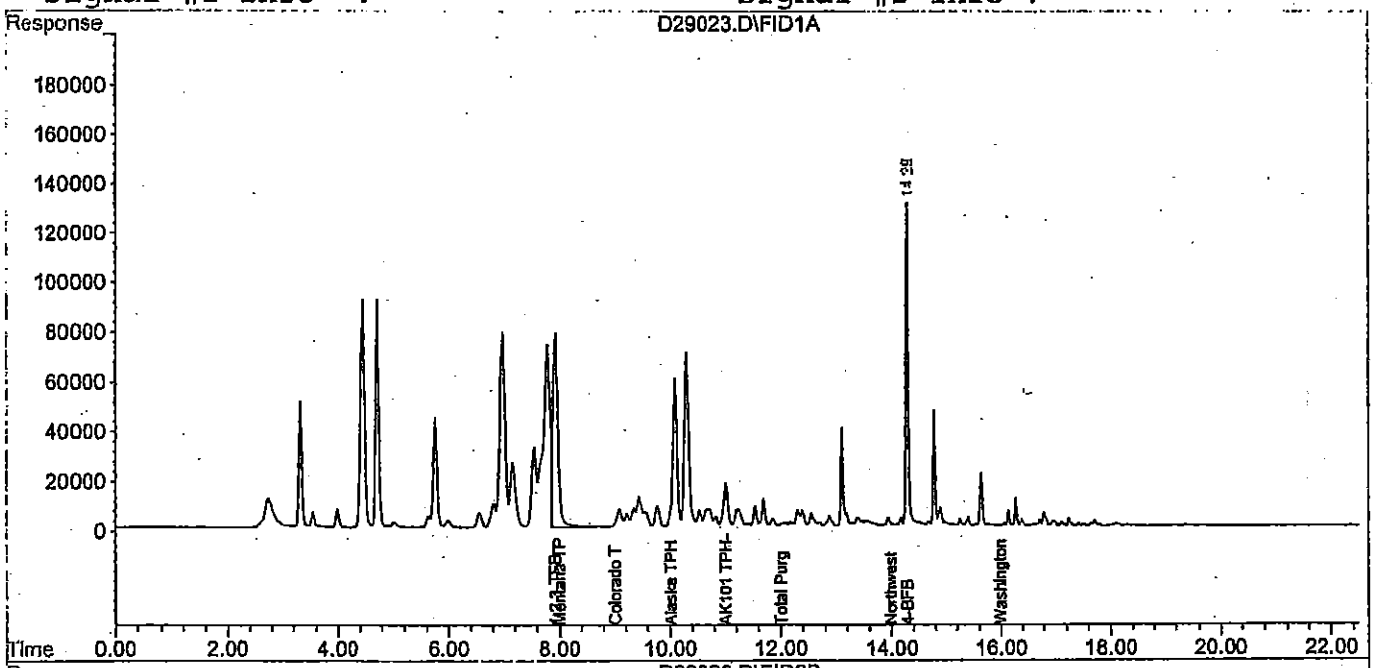
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :

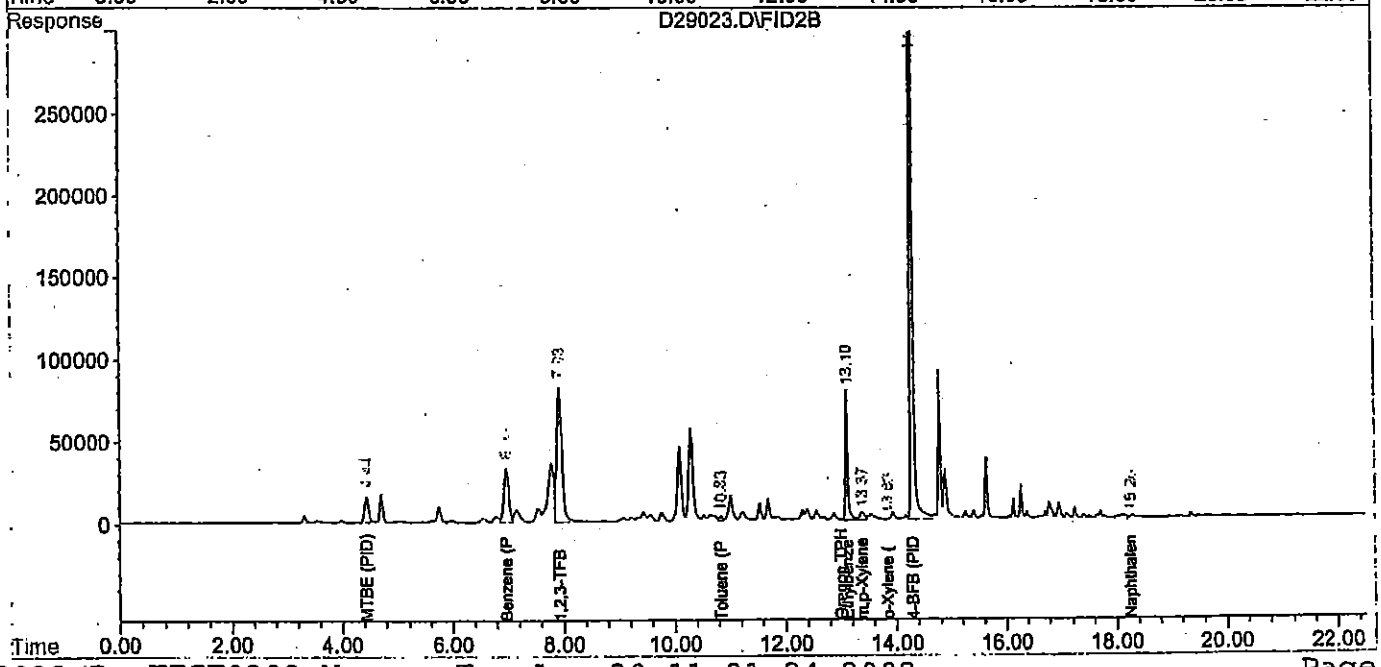


Signal #1 : D:\HPCHEM\3\DATA\042902\D29023.D\FID1A.CH Vial: 23
Signal #2 : D:\HPCHEM\3\DATA\042902\D29023.D\FID2B.CH
Acq On : 29 Apr 2002 17:09 Operator: sk
Sample : b2d0486-14 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 17:32 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

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



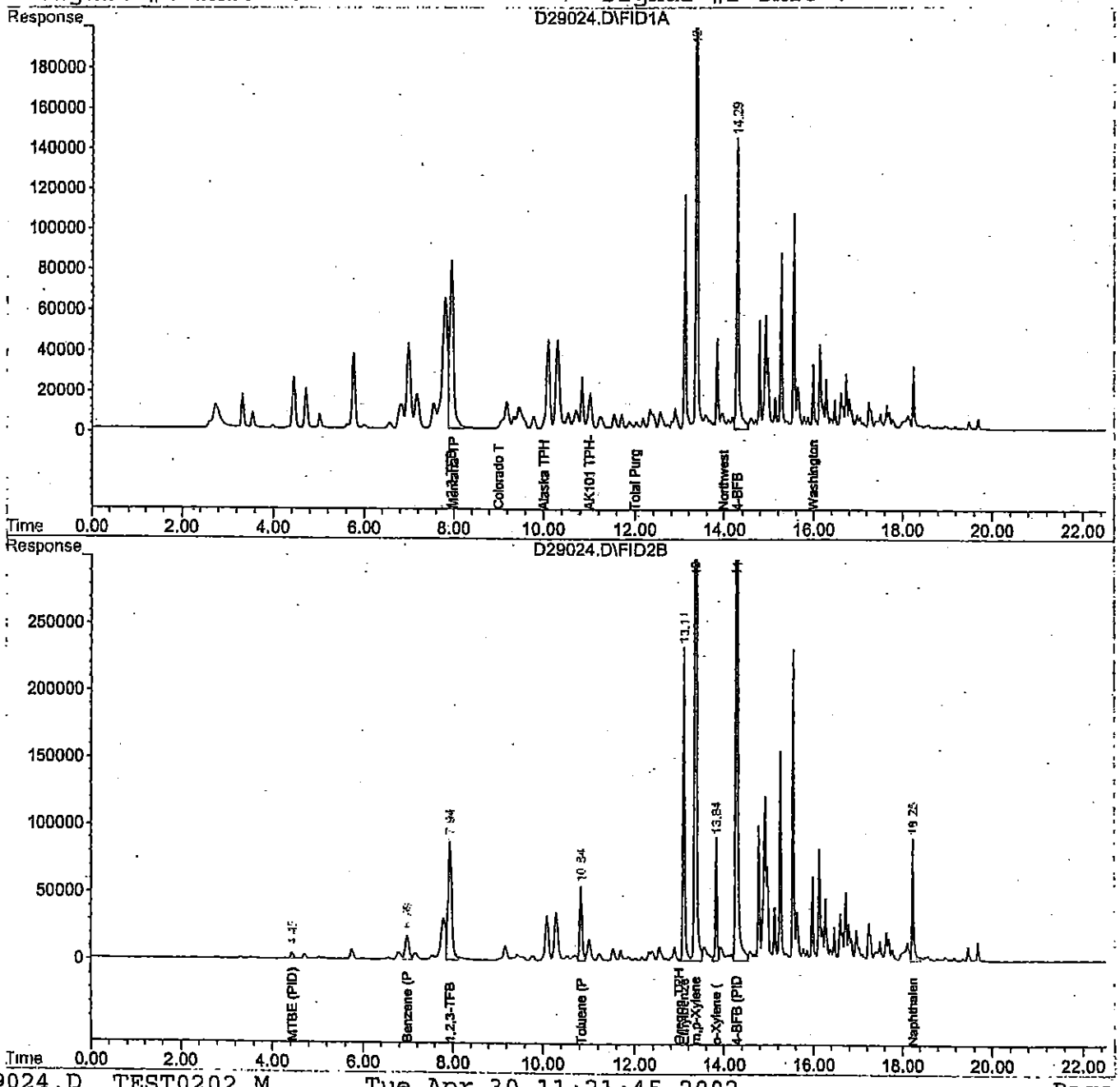


Quantitation Report

Signal #1 : D:\HPCHEM\3\DATA\042902\D29024.D\FID1A.CH Vial: 24
Signal #2 : D:\HPCHEM\3\DATA\042902\D29024.D\FID2B.CH
Acq On : 29 Apr 2002 17:38 Operator: sk
Sample : b2d0486-15 Inst : GC #6
Misc : 1x 5 ml Multiplr: 1.00
IntFile Signal #1: SURR.E IntFile Signal #2: SURR2.E
Quant Time: Apr 29 18:00 2002 Quant Results File: TEST0202.RES

Quant Method : D:\HPCHEM\3\METHODS\TEST0202.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Mon Apr 29 11:45:22 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0202.M

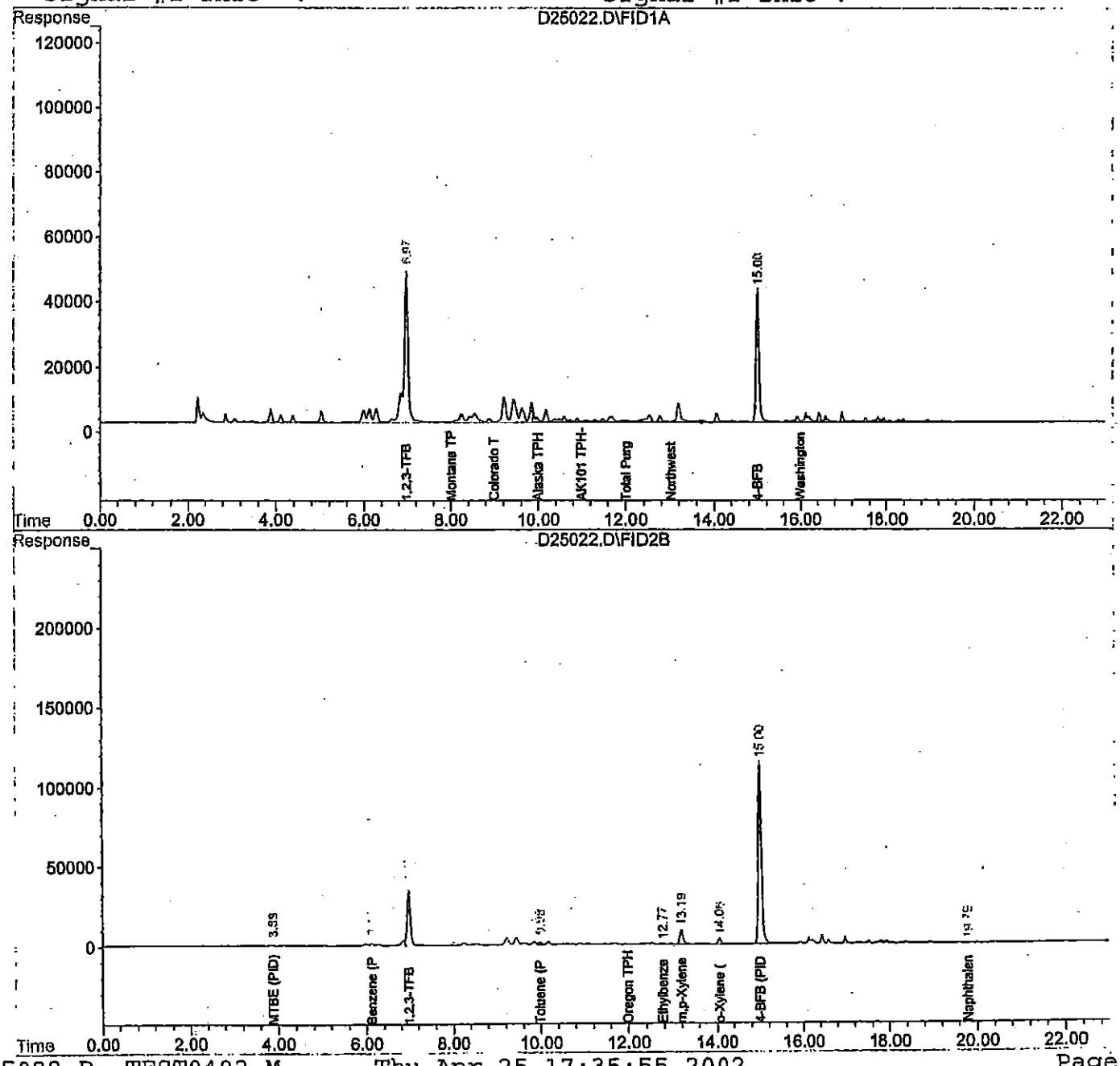
Volume Inj. :
Signal #1 Phase : Signal #2 Phase:
Signal #1 Info : Signal #2 Info :



Signal #1 : C:\HPCHEM\1\DATA\042502\D25022.D\FID1A.CH Vial: 22
Signal #2 : C:\HPCHEM\1\DATA\042502\D25022.D\FID2B.CH
Acq On : 25 Apr 2002 17:12 Operator: sk
Sample : b2d0486-16 Inst : GC #2
Misc : 1X 25 mL, air Multiplr: 1.00
IntFile Signal #1: TPH2.E IntFile Signal #2: SURR2.E
Quant Time: Apr 25 17:35 2002 Quant Results File: TEST0402.RES

Quant Method : C:\HPCHEM\1\METHODS\TEST0402.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Fri Apr 19 15:12:51 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0402.M

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

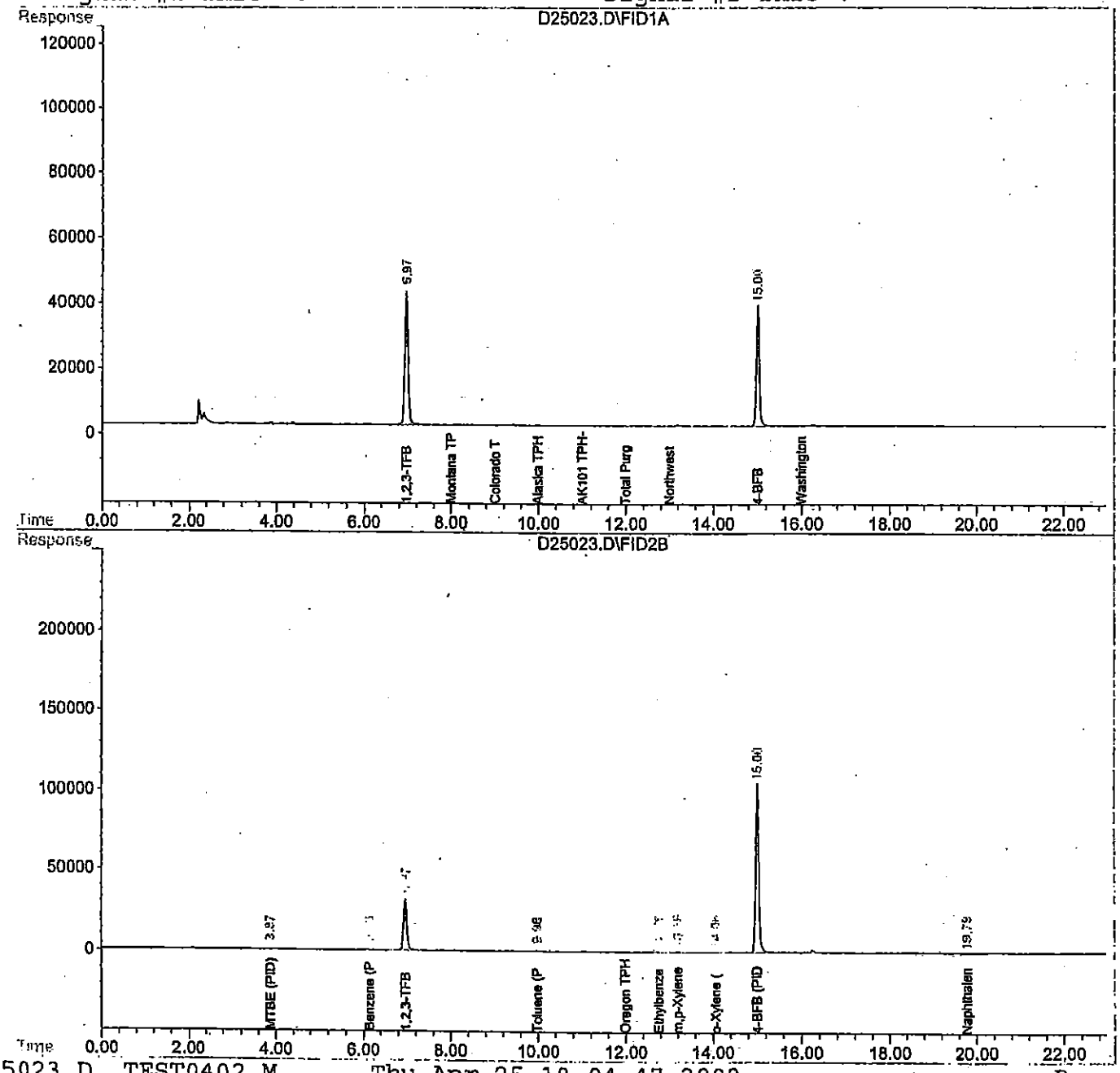


Quantitation Report

Signal #1 : C:\HPCHEM\1\DATA\042502\D25023.D\FID1A.CH Vial: 23
Signal #2 : C:\HPCHEM\1\DATA\042502\D25023.D\FID2B.CH
Acq On : 25 Apr 2002 17:41 Operator: sk
Sample : b2d0486-17 Inst : GC #2
Misc : 1X 25 mL, air Multiplr: 1.00
IntFile Signal #1: TPH2.E IntFile Signal #2: SURR2.E
Quant Time: Apr 25 18:04 2002 Quant Results File: TEST0402.RES

Quant Method : C:\HPCHEM\1\METHODS\TEST0402.M (Chemstation Integrator)
Title : TPH-G Method
Last Update : Fri Apr 19 15:12:51 2002
Response via : Multiple Level Calibration
DataAcq Meth : TEST0402.M

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



CHAIN OF CUSTODY RECORD

GEOENGINEERS INC.
2924 COLBY AVE
EVERETT, WASHINGTON 98201
(425) 252-4565 • Fax: (425) 252-4586

Geo Engineers

DATE 4-24-02
PAGE 1 OF 2
LAB NCA
LAB NO. B2D0486

PROJECT NAME/LOCATION TOC RICHLAND
PROJECT NUMBER 1957-033-00
PROJECT MANAGER BRUCE WILLIAMS
SAMPLED BY S. OVERDICK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	NWTPH-G BTEX	(Preserved, filtered, etc.)
	MW-2	4-22-02		W	3	X	B2D0486 01
	MW-6			W	3	X	02
	MW-7			W	3	X	03
	MW-8			W	3	X	04
	MW-13			W	3	X	05
	MW-15			W	3	X	06
	MW-17			W	3	X	07
	MW-21B			W	3	X	08
	MW-22			W	3	X	09
	MW-23			W	3	X	10
	MW-25			W	3	X	11

NORMAL TAT

RELINQUISHED BY	RELINQUISHED BY	RELINQUISHED BY
FIRM GEL	FIRM	FIRM
SIGNATURE	SIGNATURE	SIGNATURE
PRINTED NAME S. OVERDICK	PRINTED NAME	PRINTED NAME
DATE 4-24-02 TIME 1520	DATE TIME	DATE TIME
RECEIVED BY	RECEIVED BY	RECEIVED BY
FIRM NCA	FIRM	FIRM
SIGNATURE	SIGNATURE	SIGNATURE
PRINTED NAME DUSTIN CYSEWSKI	PRINTED NAME	PRINTED NAME
DATE 4-24-02 TIME 1520	DATE TIME	DATE TIME

ADDITIONAL COMMENTS:

WO 2-7

CHAIN OF CUSTODY RECORD

GEOENGINEERS INC.
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EVERETT, WASHINGTON 98201
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GeoEngineers

DATE 4-24-02
PAGE 2 OF 2
LAB NCA
LAB NO. B2D0486

PROJECT NAME/LOCATION Toc Richland
PROJECT NUMBER 1957-033-00
PROJECT MANAGER Bruce Williams
SAMPLED BY Sue Quekdick

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	VOA TPH-G/BTEX	(Preserved, filtered, etc.)
	MW-27	4-22-02		W	3	X	Normal TAT
	MW-28	"		W	3	X	
	MW-29	"		W	3	X	
	MW-40	"		W	3	X	
	EFF042302	4-23-02	1000	A	1		* 72 HR TAT
	EFFP042302	4-23-02	1010	A	1		* 72 HR TAT

B2D0486 12 13 14 15 16 17

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE		SIGNATURE		SIGNATURE	
PRINTED NAME Sue Quekdick		PRINTED NAME		PRINTED NAME	
DATE 4-24-02	TIME 1530	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM** NCA	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE		SIGNATURE		SIGNATURE	
PRINTED NAME Dustin Cysewski		PRINTED NAME		PRINTED NAME	
DATE 4-24-02	TIME 1520	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

WO 21

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

08 August 2002

Bruce Williams
Geo Engineers - Spokane
523 East 2nd
Spokane, WA/USA 99202

RE: Time Oil Richland

Enclosed are the results of analyses for samples received by the laboratory on 08/01/02 15:51. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Amar Gill
Project Manager

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

CASE NARRATIVE for B2H0027.

Client: Geo Engineers Spokane
Project Manager: Bruce Williams
Project Name: Time Oil Richland
Project Number: 1957-033-00

1.0 DESCRIPTION OF CASE

Forty Eight (48) water and One (1) air samples were submitted for the analysis of Gasoline Range Hydrocarbons by NWTPH-Gx, BTEX by EPA 8021B.

2.0 COMMENTS ON SAMPLE RECEIPT

The samples were received and logged in on 1st August 2002 at a temperature of 4.3°C.

3.0 PREPARATION AND ANALYSIS

Gasoline Hydrocarbons by NWTPH-Gx and BTEX by EPA 8021B

The air sample was originally analyzed within hold in analytical batch 2H02040. Due to a failing Gas Range CCV the sample was re-batch in analytical batch 2H05018 and re-analyzed for Gas Range Hydrocarbons outside the recommended hold time. Both the original and re-extracted results have been reported for the Gas Range compounds. There were no anomalies or discrepancies associated with this analysis of the BTEX compounds for the air sample. No additional anomalies or discrepancies were associated with this analysis other than those already qualified in the data.

"I certify that this data package is in compliance with the Contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature."

Amar Gill
Project Manager
North Creek Analytical

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Geo Engineers - Spokane
523 East 2nd
Spokane WA/USA, 99202

Project: Time Oil Richland
Project Number: 1957-033-00
Project Manager: Bruce Williams

Reported:
08/08/02 16:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	B2H0027-01	Water	07/30/02 12:00	08/01/02 15:51
MW-2	B2H0027-02	Water	07/30/02 12:00	08/01/02 15:51
MW-3	B2H0027-03	Water	07/30/02 12:00	08/01/02 15:51
MW-4	B2H0027-04	Water	07/30/02 12:00	08/01/02 15:51
MW-5	B2H0027-05	Water	07/30/02 12:00	08/01/02 15:51
MW-6	B2H0027-06	Water	07/30/02 12:00	08/01/02 15:51
MW-7	B2H0027-07	Water	07/30/02 12:00	08/01/02 15:51
MW-8	B2H0027-08	Water	07/30/02 12:00	08/01/02 15:51
MW-9	B2H0027-09	Water	07/30/02 12:00	08/01/02 15:51
MW-11	B2H0027-10	Water	07/30/02 12:00	08/01/02 15:51
MW-13	B2H0027-11	Water	07/30/02 12:00	08/01/02 15:51
MW-14	B2H0027-12	Water	07/30/02 12:00	08/01/02 15:51
MW-15	B2H0027-13	Water	07/30/02 12:00	08/01/02 15:51
MW-16	B2H0027-14	Water	07/30/02 12:00	08/01/02 15:51
MW-17	B2H0027-15	Water	07/30/02 12:00	08/01/02 15:51
MW-18	B2H0027-16	Water	07/30/02 12:00	08/01/02 15:51
MW-19	B2H0027-17	Water	07/30/02 12:00	08/01/02 15:51
MW-20	B2H0027-18	Water	07/30/02 12:00	08/01/02 15:51
MW-21A	B2H0027-19	Water	07/30/02 12:00	08/01/02 15:51
MW-21B	B2H0027-20	Water	07/30/02 12:00	08/01/02 15:51
MW-22	B2H0027-21	Water	07/30/02 12:00	08/01/02 15:51
MW-23	B2H0027-22	Water	07/30/02 12:00	08/01/02 15:51
MW-25	B2H0027-23	Water	07/30/02 12:00	08/01/02 15:51
MW-27	B2H0027-24	Water	07/30/02 12:00	08/01/02 15:51
MW-28	B2H0027-25	Water	07/31/02 12:00	08/01/02 15:51
MW-29	B2H0027-26	Water	07/31/02 12:00	08/01/02 15:51
MW-40	B2H0027-27	Water	07/31/02 12:00	08/01/02 15:51
VW-2	B2H0027-28	Water	07/31/02 12:00	08/01/02 15:51
VW-3	B2H0027-29	Water	07/31/02 12:00	08/01/02 15:51

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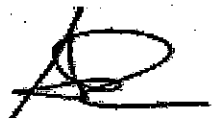

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
VW-4	B2H0027-30	Water	07/31/02 12:00	08/01/02 15:51
VW-5	B2H0027-31	Water	07/31/02 12:00	08/01/02 15:51
RW-1	B2H0027-32	Water	07/31/02 12:00	08/01/02 15:51
SW-1	B2H0027-33	Water	07/31/02 12:00	08/01/02 15:51
SW-2	B2H0027-34	Water	07/31/02 12:00	08/01/02 15:51
SW-3	B2H0027-35	Water	07/31/02 12:00	08/01/02 15:51
SW-4	B2H0027-36	Water	07/31/02 12:00	08/01/02 15:51
SW-5	B2H0027-37	Water	07/31/02 12:00	08/01/02 15:51
SW-6	B2H0027-38	Water	07/31/02 12:00	08/01/02 15:51
SW-7	B2H0027-39	Water	07/31/02 12:00	08/01/02 15:51
SW-11	B2H0027-40	Water	07/31/02 12:00	08/01/02 15:51
SW-12	B2H0027-41	Water	07/31/02 12:00	08/01/02 15:51
SW-13	B2H0027-42	Water	07/31/02 12:00	08/01/02 15:51
SW-14	B2H0027-43	Water	07/31/02 12:00	08/01/02 15:51
SW-15	B2H0027-44	Water	07/31/02 12:00	08/01/02 15:51
SW-16	B2H0027-45	Water	08/01/02 12:00	08/01/02 15:51
SW-17	B2H0027-46	Water	08/01/02 12:00	08/01/02 15:51
SW-18	B2H0027-47	Water	08/01/02 12:00	08/01/02 15:51
SW-19	B2H0027-48	Water	08/01/02 12:00	08/01/02 15:51
INF080102	B2H0027-49	Air	08/01/02 12:00	08/01/02 15:51

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (B2H0027-01) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	468	50.0	ug/l	1	2H02041	08/02/02	08/05/02	NWTPH-Gx/8021B	
Benzene	4.82	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	3.75	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*103 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*99.2 %*	*62-120*			"	"	"	"	
MW-2 (B2H0027-02) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	2020	250	ug/l	5	2H02041	08/02/02	08/05/02	NWTPH-Gx/8021B	
Benzene	3.87	2.50	"	"	"	"	"	"	
Toluene	32.4	2.50	"	"	"	"	"	"	
Ethylbenzene	58.0	2.50	"	"	"	"	"	"	
Xylenes (total)	436	5.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*104 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*111 %*	*62-120*			"	"	"	"	
MW-3 (B2H0027-03) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H02041	08/02/02	08/05/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*95.6 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*102 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4 (B2H0027-04) Water	**Sampled: 07/30/02 12:00**	**Received: 08/01/02 15:51**							
Gasoline Range Hydrocarbons	**145**	50.0	ug/l	1	2H02042	08/02/02	08/04/02	NWTPH-Gx/8021B	
Benzene	**1.19**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	**1.04**	1.00	"	"	"	"	"	"	1-06
Surrogate: 4-BFB (FID)	*98.5 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*94.6 %*	*62-120*			"	"	"	"	
MW-5 (B2H0027-05) Water	**Sampled: 07/30/02 12:00**	**Received: 08/01/02 15:51**							
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H02042	08/02/02	08/04/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*96.2 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*102 %*	*62-120*			"	"	"	"	
MW-6 (B2H0027-06) Water	**Sampled: 07/30/02 12:00**	**Received: 08/01/02 15:51**							
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H02042	08/02/02	08/04/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*94.2 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*101 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-7 (B2H0027-07) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**10000**	500	ug/l	10	2H02042	08/02/02	08/04/02	NWTPH-Gx/8021B	
Benzene	**18.5**	5.00	"	"	"	"	"	"	
Toluene	ND	5.00	"	"	"	"	"	"	
Ethylbenzene	**129**	5.00	"	"	"	"	"	"	
Xylenes (total)	**188**	10.0	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*131 %*	*57-125*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*114 %*	*62-120*			"	"	"	"	
MW-8 (B2H0027-08) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H02042	08/02/02	08/04/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*94.8 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*62-120*			"	"	"	"	
MW-9 (B2H0027-09) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H02042	08/02/02	08/04/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*93.8 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*62-120*			"	"	"	"	

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-11 (B2H0027-10) Water	**Sampled: 07/30/02 12:00**		**Received: 08/01/02 15:51**						
Gasoline Range Hydrocarbons	**207**	50.0	ug/l	1	2H02042	08/02/02	08/04/02	NWTPH-Gx/8021B	
Benzene	**2.33**	0.500	"	"	"	"	"	"	
Toluene	**0.583**	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	**1.18**	1.00	"	"	"	"	"	"	I-06
Surrogate: 4-BFB (FID)	*96.7 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*99.8 %*	*62-120*			"	"	"	"	
MW-13 (B2H0027-11) Water	**Sampled: 07/30/02 12:00**		**Received: 08/01/02 15:51**						
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H02042	08/02/02	08/04/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	**1.43**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*94.0 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*104 %*	*62-120*			"	"	"	"	
MW-14 (B2H0027-12) Water	**Sampled: 07/30/02 12:00**		**Received: 08/01/02 15:51**						
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H02042	08/02/02	08/04/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*92.1 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-15 (B2H0027-13) Water	**Sampled: 07/30/02 12:00**		**Received: 08/01/02 15:51**						
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H02042	08/02/02	08/04/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*92.3 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*102 %*	*62-120*			"	"	"	"	
MW-16 (B2H0027-14) Water	**Sampled: 07/30/02 12:00**		**Received: 08/01/02 15:51**						
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*92.7 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*116 %*	*62-120*			"	"	"	"	
MW-17 (B2H0027-15) Water	**Sampled: 07/30/02 12:00**		**Received: 08/01/02 15:51**						
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*95.6 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*116 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-18 (B2H0027-16) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**885**	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	**2.65**	0.500	"	"	"	"	"	"	
Toluene	**2.19**	0.500	"	"	"	"	"	"	I-06
Ethylbenzene	**22.2**	0.500	"	"	"	"	"	"	
Xylenes (total)	**12.8**	1.00	"	"	"	"	"	"	I-06
Surrogate: 4-BFB (FID)	*161 %*	*57-125*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*138 %*	*62-120*			"	"	"	"	*S-04*
MW-19 (B2H0027-17) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**130**	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	**1.47**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*94.0 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*114 %*	*62-120*			"	"	"	"	
MW-20 (B2H0027-18) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*89.0 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*116 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-21A (B2H0027-19) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*93.8 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*120 %*	*62-120*			"	"	"	"	
MW-21B (B2H0027-20) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*85.0 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*116 %*	*62-120*			"	"	"	"	
MW-22 (B2H0027-21) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**68.8**	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	**0.562**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*92.1 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*112 %*	*62-120*			"	"	"	"	

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-23 (B2H0027-22) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*97.7 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*120 %*	*62-120*			"	"	"	"	
MW-25 (B2H0027-23) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**747**	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	**6.79**	0.500	"	"	"	"	"	"	
Toluene	**1.47**	0.500	"	"	"	"	"	"	I-06
Ethylbenzene	**1.89**	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*119 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*118 %*	*62-120*			"	"	"	"	
MW-27 (B2H0027-24) Water Sampled: 07/30/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**508**	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	**5.12**	0.500	"	"	"	"	"	"	
Toluene	**1.16**	0.500	"	"	"	"	"	"	I-06
Ethylbenzene	**1.34**	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*122 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*125 %*	*62-120*			"	"	"	"	*S-04*

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-28 (B2H0027-25) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*91.5 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*114 %*	*62-120*			"	"	"	"	
MW-29 (B2H0027-26) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**211**	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	**1.96**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	**0.945**	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*101 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*114 %*	*62-120*			"	"	"	"	
MW-40 (B2H0027-27) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**1970**	50.0	ug/l	1	2H05001	08/05/02	08/05/02	NWTPH-Gx/8021B	
Benzene	**3.14**	0.500	"	"	"	"	"	"	
Toluene	**28.4**	0.500	"	"	"	"	"	"	
Ethylbenzene	**49.7**	0.500	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*176 %*	*57-125*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*145 %*	*62-120*			"	"	"	"	*S-04*

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-40 (B2H0027-27RE1) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Xylenes (total)	**468**	5.00	ug/l	5	2H07023	08/05/02	08/07/02	NWTPH-Gx/8021B	
Surrogate: 4-BFB (PID)	*111 %*	*62-120*			"	"	"	"	
VW-2 (B2H0027-28) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**1680**	50.0	ug/l	1	2H02041	08/02/02	08/05/02	NWTPH-Gx/8021B	
Benzene	**8.57**	0.500	"	"	"	"	"	"	
Toluene	**0.573**	0.500	"	"	"	"	"	"	I-06
Ethylbenzene	**5.50**	0.500	"	"	"	"	"	"	
Xylenes (total)	**5.07**	1.00	"	"	"	"	"	"	I-06
Surrogate: 4-BFB (FID)	*177 %*	*57-125*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*110 %*	*62-120*			"	"	"	"	
VW-3 (B2H0027-29) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**1220**	50.0	ug/l	1	2H02041	08/02/02	08/05/02	NWTPH-Gx/8021B	
Benzene	**5.58**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	**4.47**	0.500	"	"	"	"	"	"	
Xylenes (total)	**2.70**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*135 %*	*57-125*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*106 %*	*62-120*			"	"	"	"	
VW-4 (B2H0027-30) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**488**	50.0	ug/l	1	2H02041	08/02/02	08/05/02	NWTPH-Gx/8021B	
Benzene	**4.08**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	**1.08**	0.500	"	"	"	"	"	"	
Xylenes (total)	**1.45**	1.00	"	"	"	"	"	"	I-06
Surrogate: 4-BFB (FID)	*106 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*94.4 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
VW-5 (B2H0027-31) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**14200**	250	ug/l	5	2H02041	08/02/02	08/05/02	NWTPH-Gx/8021B	
Benzene	**9.09**	2.50	"	"	"	"	"	"	1-06
Toluene	ND	2.50	"	"	"	"	"	"	
Ethylbenzene	**33.6**	2.50	"	"	"	"	"	"	
Xylenes (total)	**101**	5.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*146 %*	*57-125*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*115 %*	*62-120*			"	"	"	"	
RW-1 (B2H0027-32) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*96.9 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*105 %*	*62-120*			"	"	"	"	
SW-1 (B2H0027-33) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*94.8 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*107 %*	*62-120*			"	"	"	"	

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SW-2 (B2H0027-34) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*96.0 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*106 %*	*62-120*			"	"	"	"	
SW-3 (B2H0027-35) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*93.3 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*107 %*	*62-120*			"	"	"	"	
SW-4 (B2H0027-36) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*96.0 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*106 %*	*62-120*			"	"	"	"	

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SW-5 (B2H0027-37) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*94.2 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*106 %*	*62-120*			"	"	"	"	
SW-6 (B2H0027-38) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*95.8 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*107 %*	*62-120*			"	"	"	"	
SW-7 (B2H0027-39) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	**0.560**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*90.0 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*105 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SW-11 (B2H0027-40) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*92.3 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*108 %*	*62-120*			"	"	"	"	
SW-12 (B2H0027-41) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**603**	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	**5.22**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	**9.92**	0.500	"	"	"	"	"	"	
Xylenes (total)	**3.16**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*138 %*	*57-125*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*111 %*	*62-120*			"	"	"	"	
SW-13 (B2H0027-42) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*90.4 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*105 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SW-14 (B2H0027-43) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	500	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	2.59	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*99.6 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*96.5 %*	*62-120*			"	"	"	"	
SW-15 (B2H0027-44) Water Sampled: 07/31/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06007	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*91.2 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*106 %*	*62-120*			"	"	"	"	
SW-16 (B2H0027-45) Water Sampled: 08/01/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	87.6	50.0	ug/l	1	2H06008	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*97.9 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SW-17 (B2H0027-46) Water Sampled: 08/01/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06008	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*99.4 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*104 %*	*62-120*			"	"	"	"	
SW-18 (B2H0027-47) Water Sampled: 08/01/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06008	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*98.8 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*105 %*	*62-120*			"	"	"	"	
SW-19 (B2H0027-48) Water Sampled: 08/01/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2H06008	08/06/02	08/06/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*95.6 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*107 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
INF080102 (B2H0027-49) Air Sampled: 08/01/02 12:00 Received: 08/01/02 15:51									
Gasoline Range Hydrocarbons	**38.5**	10.0	mg/m³ Air	1	2H02040	08/02/02	08/03/02	NWTPH Modified	A-01
Benzene	**0.574**	0.100	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
Ethylbenzene	ND	0.100	"	"	"	"	"	"	
Xylenes (total)	ND	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*93.1 %*	*58-131*			"	"	"	"	
Surrogate: 4-BFB (PID)	*102 %*	*63-129*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**9.08**	2.36	ppmv	"	"	"	"	"	A-01
Benzene (v/v)	**0.177**	0.0308	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	ND	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	ND	0.0454	"	"	"	"	"	"	
INF080102 (B2H0027-49RE1) Air Sampled: 08/01/02 12:00 Received: 08/01/02 15:51									
asoline Range Hydrocarbons	**27.9**	10.0	mg/m³ Air	1	2H05018	08/02/02	08/05/02	NWTPH Modified	I-02,X
Surrogate: 4-BFB (FID)	*77.5 %*	*58-131*			"	"	"	"	*I-02,X*
Gasoline Range Hydrocarbons (v/v)	**6.57**	2.36	ppmv	"	"	"	"	"	I-02,X

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2H02041: Prepared 08/02/02 Using EPA 5030B (P/T)										
Blank (2H02041-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*44.6*		"	*48.0*		*92.9*	*57-125*			
Surrogate: 4-BFB (PID)	*48.5*		"	*48.0*		*101*	*62-120*			
LCS (2H02041-BS1)										
Gasoline Range Hydrocarbons	491	50.0	ug/l	500		98.2	80-120			
Benzene	6.73	0.500	"	6.19		109	80-120			
Toluene	35.1	0.500	"	37.6		93.4	80-120			
Ethylbenzene	9.01	0.500	"	8.83		102	80-120			
Xylenes (total)	44.1	1.00	"	44.5		99.1	80-120			
Surrogate: 4-BFB (FID)	*50.7*		"	*48.0*		*106*	*57-125*			
Surrogate: 4-BFB (PID)	*48.0*		"	*48.0*		*100*	*62-120*			
LCS Dup (2H02041-BSD1)										
Gasoline Range Hydrocarbons	532	50.0	ug/l	500		106	80-120	8.02	25	
Benzene	6.87	0.500	"	6.19		111	80-120	2.06	40	
Toluene	35.9	0.500	"	37.6		95.5	80-120	2.25	40	
Ethylbenzene	9.26	0.500	"	8.83		105	80-120	2.74	40	
Xylenes (total)	45.3	1.00	"	44.5		102	80-120	2.68	40	
Surrogate: 4-BFB (FID)	*51.9*		"	*48.0*		*108*	*57-125*			
Surrogate: 4-BFB (PID)	*48.7*		"	*48.0*		*101*	*62-120*			
Matrix Spike (2H02041-MS1)					**Source: B2H0027-28**					
Gasoline Range Hydrocarbons	1290	50.0	ug/l	500	1680	-78.0	70-130			Q-02
Benzene	11.7	0.500	"	6.19	8.57	50.6	80-120			Q-02
Toluene	33.8	0.500	"	37.6	0.573	88.4	68-114			
Ethylbenzene	12.4	0.500	"	8.83	5.50	78.1	80-120			Q-02
Xylenes (total)	42.7	1.00	"	44.5	5.07	84.6	80-120			
Surrogate: 4-BFB (FID)	*64.1*		"	*48.0*		*134*	*57-125*			*S-04*
Surrogate: 4-BFB (PID)	*48.9*		"	*48.0*		*102*	*62-120*			

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2H02041: Prepared 08/02/02 Using EPA 5030B (P/T)										
Matrix Spike Dup (2H02041-MSD1)					Source: B2H0027-28					
Gasoline Range Hydrocarbons	1310	50.0	ug/l	500	1680	-74.0	70-130	1.54	25	Q-02
Benzene	11.7	0.500	"	6.19	8.57	50.6	80-120	0.00	40	Q-02
Toluene	33.6	0.500	"	37.6	0.573	87.8	68-114	0.593	40	
Ethylbenzene	11.7	0.500	"	8.83	5.50	70.2	80-120	5.81	40	Q-02
Xylenes (total)	42.9	1.00	"	44.5	5.07	85.0	80-120	0.467	40	
Surrogate: 4-BFB (FID)	*61.6*		"	*48.0*		*128*	*57-125*			*S-04*
Surrogate: 4-BFB (PID)	*47.7*		"	*48.0*		*99.4*	*62-120*			
Batch 2H02042: Prepared 08/02/02 Using EPA 5030B (P/T)										
Blank (2H02042-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*43.6*		"	*48.0*		*90.8*	*57-125*			
Surrogate: 4-BFB (PID)	*49.3*		"	*48.0*		*103*	*62-120*			
LCS (2H02042-BS1)										
Gasoline Range Hydrocarbons	544	50.0	ug/l	500		109	80-120			
Benzene	7.24	0.500	"	6.19		117	80-120			
Toluene	37.9	0.500	"	37.6		101	80-120			
Ethylbenzene	9.82	0.500	"	8.83		111	80-120			
Xylenes (total)	48.5	1.00	"	44.5		109	80-120			
Surrogate: 4-BFB (FID)	*52.1*		"	*48.0*		*109*	*57-125*			
Surrogate: 4-BFB (PID)	*48.9*		"	*48.0*		*102*	*62-120*			

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2H02042: Prepared 08/02/02 Using EPA 5030B (P/T)										
LCS Dup (2H02042-BSD1)										
Gasoline Range Hydrocarbons	524	50.0	ug/l	500		105	80-120	3.75	25	
Benzene	7.39	0.500	"	6.19		119	80-120	2.05	40	
Toluene	38.4	0.500	"	37.6		102	80-120	1.31	40	
Ethylbenzene	9.93	0.500	"	8.83		112	80-120	1.11	40	
Xylenes (total)	49.1	1.00	"	44.5		110	80-120	1.23	40	
Surrogate: 4-BFB (FID)	*49.8*		"	*48.0*		*104*	*57-125*			
Surrogate: 4-BFB (PID)	*48.8*		"	*48.0*		*102*	*62-120*			
Matrix Spike (2H02042-MS1)					**Source: B2H0027-05**					
Gasoline Range Hydrocarbons	510	50.0	ug/l	500	ND	102	70-130			
Benzene	7.30	0.500	"	6.19	ND	118	80-120			
Toluene	38.1	0.500	"	37.6	ND	101	68-114			
Ethylbenzene	9.86	0.500	"	8.83	ND	111	80-120			
Xylenes (total)	48.5	1.00	"	44.5	ND	109	80-120			
Surrogate: 4-BFB (FID)	*50.2*		"	*48.0*		*105*	*57-125*			
Surrogate: 4-BFB (PID)	*49.0*		"	*48.0*		*102*	*62-120*			
Matrix Spike Dup (2H02042-MSD1)					**Source: B2H0027-05**					
Gasoline Range Hydrocarbons	501	50.0	ug/l	500	ND	100	70-130	1.78	25	
Benzene	7.35	0.500	"	6.19	ND	119	80-120	0.683	40	
Toluene	38.3	0.500	"	37.6	ND	102	68-114	0.524	40	
Ethylbenzene	9.90	0.500	"	8.83	ND	111	80-120	0.405	40	
Xylenes (total)	48.4	1.00	"	44.5	ND	109	80-120	0.206	40	
Surrogate: 4-BFB (FID)	*49.7*		"	*48.0*		*104*	*57-125*			
Surrogate: 4-BFB (PID)	*49.4*		"	*48.0*		*103*	*62-120*			
Batch 2H05001: Prepared 08/05/02 Using EPA 5030B (P/T)										
Blank (2H05001-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*43.0*		"	*48.0*		*89.6*	*57-125*			
Surrogate: 4-BFB (PID)	*54.1*		"	*48.0*		*113*	*62-120*			

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2H05001: Prepared 08/05/02 Using EPA 5030B (P/T)										
LCS (2H05001-BS1)										
Gasoline Range Hydrocarbons	463	50.0	ug/l	500		92.6	80-120			
Benzene	6.71	0.500	"	6.19		108	80-120			
Toluene	36.1	0.500	"	37.6		96.0	80-120			
Ethylbenzene	9.32	0.500	"	8.83		106	80-120			
Xylenes (total)	46.5	1.00	"	44.5		104	80-120			
Surrogate: 4-BFB (FID)	*53.4*		"	*48.0*		*111*	*57-125*			
Surrogate: 4-BFB (PID)	*57.4*		"	*48.0*		*120*	*62-120*			
LCS Dup (2H05001-BSD1)										
Gasoline Range Hydrocarbons	451	50.0	ug/l	500		90.2	80-120	2.63	25	
Benzene	6.77	0.500	"	6.19		109	80-120	0.890	40	
Toluene	36.3	0.500	"	37.6		96.5	80-120	0.552	40	
Ethylbenzene	9.36	0.500	"	8.83		106	80-120	0.428	40	
ylenes (total)	46.9	1.00	"	44.5		105	80-120	0.857	40	
Surrogate: 4-BFB (FID)	*52.9*		"	*48.0*		*110*	*57-125*			
Surrogate: 4-BFB (PID)	*57.2*		"	*48.0*		*119*	*62-120*			
Matrix Spike (2H05001-MS1)					**Source: B2H0027-19**					
Gasoline Range Hydrocarbons	402	50.0	ug/l	500	ND	80.4	70-130			
Benzene	6.60	0.500	"	6.19	ND	105	80-120			
Toluene	35.1	0.500	"	37.6	ND	92.3	68-114			
Ethylbenzene	9.14	0.500	"	8.83	ND	102	80-120			
Xylenes (total)	43.6	1.00	"	44.5	ND	96.6	80-120			
Surrogate: 4-BFB (FID)	*52.1*		"	*48.0*		*109*	*57-125*			
Surrogate: 4-BFB (PID)	*59.3*		"	*48.0*		*124*	*62-120*			*S-03*
Matrix Spike Dup (2H05001-MSD1)					**Source: B2H0027-19**					
Gasoline Range Hydrocarbons	408	50.0	ug/l	500	ND	81.6	70-130	1.48	25	
Benzene	6.81	0.500	"	6.19	ND	108	80-120	3.13	40	
Toluene	36.1	0.500	"	37.6	ND	95.0	68-114	2.81	40	
Ethylbenzene	9.37	0.500	"	8.83	ND	105	80-120	2.49	40	
Xylenes (total)	44.7	1.00	"	44.5	ND	99.1	80-120	2.49	40	
Surrogate: 4-BFB (FID)	*51.5*		"	*48.0*		*107*	*57-125*			
Surrogate: 4-BFB (PID)	*59.0*		"	*48.0*		*123*	*62-120*			*S-03*

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2H06007: Prepared 08/06/02 Using EPA 5030B (P/T)										
Blank (2H06007-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*45.1*		"	*48.0*		*94.0*	*57-125*			
Surrogate: 4-BFB (PID)	*51.6*		"	*48.0*		*108*	*62-120*			
LCS (2H06007-BS1)										
Gasoline Range Hydrocarbons	479	50.0	ug/l	500		95.8	80-120			
Benzene	6.30	0.500	"	6.19		102	80-120			
Toluene	31.0	0.500	"	37.6		82.4	80-120			
Ethylbenzene	8.65	0.500	"	8.83		98.0	80-120			
Xylenes (total)	40.2	1.00	"	44.5		90.3	80-120			
Surrogate: 4-BFB (FID)	*50.5*		"	*48.0*		*105*	*57-125*			
Surrogate: 4-BFB (PID)	*49.2*		"	*48.0*		*102*	*62-120*			
LCS Dup (2H06007-BSD1)										
Gasoline Range Hydrocarbons	475	50.0	ug/l	500		95.0	80-120	0.839	25	
Benzene	6.26	0.500	"	6.19		101	80-120	0.637	40	
Toluene	30.8	0.500	"	37.6		81.9	80-120	0.647	40	
Ethylbenzene	8.56	0.500	"	8.83		96.9	80-120	1.05	40	
Xylenes (total)	39.8	1.00	"	44.5		89.4	80-120	1.00	40	
Surrogate: 4-BFB (FID)	*51.3*		"	*48.0*		*107*	*57-125*			
Surrogate: 4-BFB (PID)	*50.9*		"	*48.0*		*106*	*62-120*			
Matrix Spike (2H06007-MS1)					**Source: B2H0027-34**					
Gasoline Range Hydrocarbons	461	50.0	ug/l	500	ND	89.2	70-130			
Benzene	6.24	0.500	"	6.19	ND	101	80-120			
Toluene	30.8	0.500	"	37.6	ND	81.4	68-114			
Ethylbenzene	8.51	0.500	"	8.83	ND	95.4	80-120			
Xylenes (total)	39.6	1.00	"	44.5	ND	88.1	80-120			
Surrogate: 4-BFB (FID)	*49.1*		"	*48.0*		*102*	*57-125*			
Surrogate: 4-BFB (PID)	*49.2*		"	*48.0*		*102*	*62-120*			

North Creek Analytical - Bothell

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Geo Engineers - Spokane
523 East 2nd
Spokane WA/USA, 99202

Project: Time Oil Richland
Project Number: 1957-033-00
Project Manager: Bruce Williams

Reported:
08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2H06007: Prepared 08/06/02 Using EPA 5030B (P/T)										
Matrix Spike Dup (2H06007-MSD1)					Source: B2H0027-34					
Gasoline Range Hydrocarbons	460	50.0	ug/l	500	ND	89.0	70-130	0.217	25	
Benzene	6.30	0.500	"	6.19	ND	102	80-120	0.957	40	
Toluene	31.1	0.500	"	37.6	ND	82.2	68-114	0.969	40	
Ethylbenzene	8.58	0.500	"	8.83	ND	96.2	80-120	0.819	40	
Xylenes (total)	40.0	1.00	"	44.5	ND	89.0	80-120	1.01	40	
Surrogate: 4-BFB (FID)	*47.9*		"	*48.0*		*99.8*	*57-125*			
Surrogate: 4-BFB (PID)	*49.3*		"	*48.0*		*103*	*62-120*			
Batch 2H06008: Prepared 08/06/02 Using EPA 5030B (P/T)										
Blank (2H06008-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*44.3*		"	*48.0*		*92.3*	*57-125*			
Surrogate: 4-BFB (PID)	*49.3*		"	*48.0*		*103*	*62-120*			
LCS (2H06008-BS1)										
Gasoline Range Hydrocarbons	490	50.0	ug/l	500		98.0	80-120			
Benzene	6.73	0.500	"	6.19		109	80-120			
Toluene	36.1	0.500	"	37.6		96.0	80-120			
Ethylbenzene	9.38	0.500	"	8.83		106	80-120			
Xylenes (total)	46.2	1.00	"	44.5		104	80-120			
Surrogate: 4-BFB (FID)	*49.8*		"	*48.0*		*104*	*57-125*			
Surrogate: 4-BFB (PID)	*49.3*		"	*48.0*		*103*	*62-120*			

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2H06008: Prepared 08/06/02 Using EPA 5030B (P/T)										
LCS Dup (2H06008-BSD1)										
Gasoline Range Hydrocarbons	512	50.0	ug/l	500		102	80-120	4.39	25	
Benzene	6.90	0.500	"	6.19		111	80-120	2.49	40	
Toluene	37.1	0.500	"	37.6		98.7	80-120	2.73	40	
Ethylbenzene	9.59	0.500	"	8.83		109	80-120	2.21	40	
Xylenes (total)	47.0	1.00	"	44.5		106	80-120	1.72	40	
Surrogate: 4-BFB (FID)	*50.1*		"	*48.0*		*104*	*57-125*			
Surrogate: 4-BFB (PID)	*49.0*		"	*48.0*		*102*	*62-120*			
Matrix Spike (2H06008-MS1)					**Source: B2H0029-02**					
Gasoline Range Hydrocarbons	465	50.0	ug/l	500	ND	90.1	70-130			
Benzene	6.91	0.500	"	6.19	ND	112	80-120			
Toluene	36.9	0.500	"	37.6	ND	97.8	68-114			
Ethylbenzene	9.62	0.500	"	8.83	ND	108	80-120			
Xylenes (total)	46.5	1.00	"	44.5	ND	104	80-120			
Surrogate: 4-BFB (FID)	*49.5*		"	*48.0*		*103*	*57-125*			
Surrogate: 4-BFB (PID)	*49.6*		"	*48.0*		*103*	*62-120*			
Matrix Spike Dup (2H06008-MSD1)					**Source: B2H0029-02**					
Gasoline Range Hydrocarbons	455	50.0	ug/l	500	ND	88.1	70-130	2.17	25	
Benzene	6.90	0.500	"	6.19	ND	111	80-120	0.145	40	
Toluene	37.1	0.500	"	37.6	ND	98.3	68-114	0.541	40	
Ethylbenzene	9.61	0.500	"	8.83	ND	108	80-120	0.104	40	
Xylenes (total)	46.0	1.00	"	44.5	ND	103	80-120	1.08	40	
Surrogate: 4-BFB (FID)	*50.2*		"	*48.0*		*105*	*57-125*			
Surrogate: 4-BFB (PID)	*50.4*		"	*48.0*		*105*	*62-120*			
Batch 2H07023: Prepared 08/07/02 Using EPA 5030B (P/T)										
Blank (2H07023-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*45.9*		"	*48.0*		*95.6*	*57-125*			
Surrogate: 4-BFB (PID)	*49.4*		"	*48.0*		*103*	*62-120*			

North Creek Analytical - Bothell

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Geo Engineers - Spokane
523 East 2nd
Spokane WA/USA, 99202

Project: Time Oil Richland
Project Number: 1957-033-00
Project Manager: Bruce Williams

Reported:
08/08/02 16:17

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2H07023: Prepared 08/07/02 Using EPA 5030B (P/T)										
LCS (2H07023-BS1)										
Gasoline Range Hydrocarbons	531	50.0	ug/l	500		106	80-120			
Benzene	6.84	0.500	"	6.19		111	80-120			
Toluene	36.8	0.500	"	37.6		97.9	80-120			
Ethylbenzene	9.55	0.500	"	8.83		108	80-120			
Xylenes (total)	47.0	1.00	"	44.5		106	80-120			
Surrogate: 4-BFB (FID)	*51.7*		"	*48.0*		*108*	*57-125*			
Surrogate: 4-BFB (PID)	*48.8*		"	*48.0*		*102*	*62-120*			
LCS Dup (2H07023-BSD1)										
Gasoline Range Hydrocarbons	536	50.0	ug/l	500		107	80-120	0.937	25	
Benzene	6.79	0.500	"	6.19		110	80-120	0.734	40	
Toluene	36.4	0.500	"	37.6		96.8	80-120	1.09	40	
Ethylbenzene	9.50	0.500	"	8.83		108	80-120	0.525	40	
Xylenes (total)	46.7	1.00	"	44.5		105	80-120	0.640	40	
Surrogate: 4-BFB (FID)	*52.1*		"	*48.0*		*109*	*57-125*			
Surrogate: 4-BFB (PID)	*48.5*		"	*48.0*		*101*	*62-120*			
Matrix Spike (2H07023-MS1)					**Source: B2H0029-10RE1**					
Gasoline Range Hydrocarbons	441	50.0	ug/l	500	ND	84.2	70-130			
Benzene	7.04	0.500	"	6.19	ND	114	80-120			
Toluene	37.3	0.500	"	37.6	ND	98.6	68-114			
Ethylbenzene	9.61	0.500	"	8.83	ND	106	80-120			
Xylenes (total)	44.1	1.00	"	44.5	ND	97.0	80-120			
Surrogate: 4-BFB (FID)	*49.0*		"	*48.0*		*102*	*57-125*			
Surrogate: 4-BFB (PID)	*50.8*		"	*48.0*		*106*	*62-120*			
Matrix Spike Dup (2H07023-MSD1)					**Source: B2H0029-10RE1**					
Gasoline Range Hydrocarbons	475	50.0	ug/l	500	ND	91.0	70-130	7.42	25	
Benzene	6.95	0.500	"	6.19	ND	112	80-120	1.29	40	
Toluene	36.7	0.500	"	37.6	ND	97.0	68-114	1.62	40	
Ethylbenzene	9.51	0.500	"	8.83	ND	105	80-120	1.05	40	
Xylenes (total)	44.0	1.00	"	44.5	ND	96.7	80-120	0.227	40	
Surrogate: 4-BFB (FID)	*51.0*		"	*48.0*		*106*	*57-125*			
Surrogate: 4-BFB (PID)	*49.1*		"	*48.0*		*102*	*62-120*			

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2H02040: Prepared 08/02/02 Using EPA 5030B (P/T)										
Blank (2H02040-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene	ND	0.100	mg/m³ Air							
Benzene (v/v)	ND	0.0308	ppmv							
Toluene	ND	0.100	mg/m³ Air							
Toluene (v/v)	ND	0.0261	ppmv							
Ethylbenzene	ND	0.100	mg/m³ Air							
Ethylbenzene (v/v)	ND	0.0227	ppmv							
Xylenes (total)	ND	0.200	mg/m³ Air							
Xylenes, total (v/v)	ND	0.0454	ppmv							
Surrogate: 4-BFB (FID)	*8.80*		*mg/m³ Air*	*9.60*		*91.7*	*58-131*			
Surrogate: 4-BFB (PID)	*10.1*		*"*	*9.60*		*105*	*63-129*			
LCS (2H02040-BS2)										
Benzene	1.39	0.100	mg/m³ Air	2.00		69.5	50-150			
Toluene	1.40	0.100	"	2.00		70.0	50-150			
Ethylbenzene	1.44	0.100	"	2.00		72.0	50-150			
Xylenes (total)	4.41	0.200	"	6.00		73.5	50-150			
Surrogate: 4-BFB (PID)	*10.9*		*"*	*9.60*		*114*	*63-129*			
LCS Dup (2H02040-BSD2)										
Benzene	1.38	0.100	mg/m³ Air	2.00		69.0	50-150	0.722	50	
Toluene	1.43	0.100	"	2.00		71.5	50-150	2.12	50	
Ethylbenzene	1.47	0.100	"	2.00		73.5	50-150	2.06	50	
Xylenes (total)	4.53	0.200	"	6.00		75.5	50-150	2.68	50	
Surrogate: 4-BFB (PID)	*10.7*		*"*	*9.60*		*111*	*63-129*			
Duplicate (2H02040-DUP1)					**Source: B2H0011-01**					
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air		ND			NA	30	
Surrogate: 4-BFB (FID)	*8.59*		*"*	*9.60*		*89.5*	*58-131*			

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2H05018: Prepared 08/05/02 Using EPA 5030B (P/T)										
Blank (2H05018-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Surrogate: 4-BFB (FID)	*8.65*		*mg/m³ Air*	*9.60*		*90.1*	*58-131*			
LCS (2H05018-BS1)										
Gasoline Range Hydrocarbons	61.6	10.0	mg/m³ Air	100		61.6	50-150			
Surrogate: 4-BFB (FID)	*9.15*		"	*9.60*		*95.3*	*58-131*			
LCS Dup (2H05018-BSD1)										
Gasoline Range Hydrocarbons	65.0	10.0	mg/m³ Air	100		65.0	50-150	5.37	50	
Surrogate: 4-BFB (FID)	*8.99*		"	*9.60*		*93.6*	*58-131*			
Duplicate (2H05018-DUP1)					**Source: B2H0011-01RE1**					
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air		ND			NA	30	
Surrogate: 4-BFB (FID)	*8.48*		"	*9.60*		*88.3*	*58-131*			

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	08/08/02 16:17

Notes and Definitions

A-01	Numbers are provided for reference purpose only.
I-02	This sample was analyzed outside of the recommended holding time.
I-06	The analyte concentration may be artificially elevated due to coeluting compounds or components.
Q-02	The spike recovery for this QC sample is outside of NCA established control limits due to sample matrix interference.
S-03	The surrogate recovery for this sample is outside of established control limits. Review of associated QC indicates the recovery for this surrogate does not represent an out-of-control condition.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
X	See case narrative.
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

North Creek Analytical - Bothell

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Amar Gill, Project Manager

CHAIN OF CUSTODY RECORD

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GeoEngineers

DATE 8-1-02
PAGE 1 OF 35
LAB NCA
LAB NO. BZH0027

PROJECT NAME/LOCATION TIME OIL RICHLAND
PROJECT NUMBER 1957-033-00
PROJECT MANAGER BRUCE WILLIAMS
SAMPLED BY SCOTT OVERDICK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	NWTPH-G/BTEX	(Preserved, filtered, etc.)
01	MW-1	7-30-02		W	3	X	NORMAL TAT
02	MW-2			W	3	X	
03	MW-3			W	3	X	
04	MW-4			W	3	X	
05	MW-5			W	3	X	
06	MW-6			W	3	X	
07	MW-7			W	3	X	
08	MW-8			W	3	X	
09	MW-9			W	3	X	
10	MW-11			W	3	X	
11	MW-13			W	3	X	

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEE	SIGNATURE		SIGNATURE	
PRINTED NAME	SCOTT OVERDICK	PRINTED NAME		PRINTED NAME	
DATE 8-1-02	TIME 1450	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM**	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE	NCA	SIGNATURE		SIGNATURE	
PRINTED NAME	Katie Brown	PRINTED NAME		PRINTED NAME	
DATE 8-1-02	TIME 14:30	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:
W/O 4-30

CHAIN OF CUSTODY RECORD

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DATE 8-1-02
PAGE 2 OF 35
LAB NCA
LAB NO.

PROJECT NAME/LOCATION TIMBERLINE RICHLAND
PROJECT NUMBER 157033-00
PROJECT MANAGER BRUCE WILLIAMS
SAMPLED BY SCOTT QUERDICK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS (Preserved, filtered, etc.)
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	NWTPH-HCID	
12	MW-14	7-30-02		W	3	X	NORMAL TAT
13	MW-15			W	3	X	
14	MW-16			W	3	X	
15	MW-17			W	3	X	
16	MW-18			W	3	X	
17	MW-19			W	3	X	
18	MW-20			W	3	X	
19	MW-21A			W	3*	X	
20	MW-21B			W	3	X	
21	MW-22			W	3	X	
22	MW-23	↓		W	3	X	

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEI	SIGNATURE		SIGNATURE	
PRINTED NAME	SCOTT QUERDICK	PRINTED NAME		PRINTED NAME	
DATE 8-1-02	TIME 1430	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM** NCA	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE	Katie Brown	SIGNATURE		SIGNATURE	
PRINTED NAME	Katie Brown	PRINTED NAME		PRINTED NAME	
DATE 8-1-02	TIME 1430	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:

w/o 4.3

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DATE 8-1-02
PAGE 3 OF 5
LAB NCA
LAB NO.

PROJECT NAME/LOCATION Time Oil Richland
PROJECT NUMBER 1457-033-00
PROJECT MANAGER Bruce Williams
SAMPLED BY Sean Overdick

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	VOCs by 8260B	(Preserved, filtered, etc.)
23	MW-25	7-30-02		W	3	X	Normal TAT
24	MW-27			W	3	X	
25	MW-28			W	3	X	
26	MW-29			W	3	X	
27	MW-40			W	3	X	
28	VW-2	7-31-02		W	3	X	
29	VW-3			W	3	X	
30	VW-4			W	3	X	
31	VW-5			W	3	X	
32	RW-1			W	3	X	
33	SW-1			W	3	X	

RELINQUISHED BY	FIRM	RECEIVED BY	FIRM
SIGNATURE	GEI	SIGNATURE	NCA
PRINTED NAME	Sean Overdick	PRINTED NAME	Katie Brown
DATE 8-1-02	TIME 1430	DATE 8-1-02	TIME 14:30

RELINQUISHED BY	FIRM	RECEIVED BY	FIRM
SIGNATURE		SIGNATURE	
PRINTED NAME		PRINTED NAME	
DATE	TIME	DATE	TIME

RELINQUISHED BY	FIRM	RECEIVED BY	FIRM
SIGNATURE		SIGNATURE	
PRINTED NAME		PRINTED NAME	
DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS: W/O 4.3

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DATE 8-1-02
PAGE 4 OF 5
LAB NCA
LAB NO.

PROJECT NAME/LOCATION TIME OIL RICHLAND
PROJECT NUMBER 1557-033-00
PROJECT MANAGER BRUCE WILLIAMS
SAMPLED BY S. QUERDICK

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS (Preserved, filtered, etc.)
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	BTEX/PHC/MTBE	
34	SW-2	7/31/02		W	3	X	NORMAL TAT
35	SW-3			W	3	X	
36	SW-4			W	3	X	
37	SW-5			W	3	X	
38	SW 6			W	3	X	
39	SW-7			W	3	X	
40	SW # 11			W	3	X	
41	SW # 12			W	3	X	
42	SW-#13			W	3	X	
43	SW-14			W	3	X	
44	SW-15			W	3	X	

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEI	SIGNATURE		SIGNATURE	
PRINTED NAME	S. QUERDICK	PRINTED NAME		PRINTED NAME	
DATE 8-1-02	TIME 1458	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM**	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE	NCA	SIGNATURE		SIGNATURE	
PRINTED NAME	Katie Brown	PRINTED NAME		PRINTED NAME	
DATE 8-1-02	TIME 14:30	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS: WO. 4.3

CHAIN OF CUSTODY RECORD

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Geo Engineers

DATE 8-1-02
PAGE 5 OF 5
LAB NCA
LAB NO.

PROJECT NAME/LOCATION Time Oil Richland
PROJECT NUMBER #1557-033-02
PROJECT MANAGER Bruce Williams
SAMPLED BY Scott Overdick

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	NWTPH-G/BTEX	(Preserved, filtered, etc.)
45	SW-16	8-1-02		W	3	X	Normal TAT
46	SW-17			W	3	X	
47	SW-18			W	3	X	
48	SW-19			W	3	X	
49	TWF-080102			A	1	X	72HR TAT

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEI	SIGNATURE		SIGNATURE	
PRINTED NAME	Scott Overdick	PRINTED NAME		PRINTED NAME	
DATE 8-1-02	TIME 1430	DATE	TIME	DATE	TIME
RECEIVED BY	FIRM NCA	RECEIVED BY	FIRM	RECEIVED BY	FIRM
SIGNATURE	Katie Brown	SIGNATURE		SIGNATURE	
PRINTED NAME	Katie Brown	PRINTED NAME		PRINTED NAME	
DATE 8-1-02	TIME 14:30	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS:
w/D 4.3°

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08 November 2002

Bruce Williams
Geo Engineers - Spokane
523 East 2nd
Spokane, WA/USA 99202

RE: Time Oil Richland

Enclosed are the results of analyses for samples received by the laboratory on 10/31/02 06:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Amar Gill
Project Manager

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	11/08/02 15:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-2	B2J0758-01	Water	10/30/02 12:00	10/31/02 06:15
MW-6	B2J0758-02	Water	10/29/02 12:00	10/31/02 06:15
MW-7	B2J0758-03	Water	10/29/02 12:00	10/31/02 06:15
MW-8	B2J0758-04	Water	10/29/02 12:00	10/31/02 06:15
MW-13	B2J0758-05	Water	10/29/02 12:00	10/31/02 06:15
MW-15	B2J0758-06	Water	10/29/02 12:00	10/31/02 06:15
MW-17	B2J0758-07	Water	10/29/02 12:00	10/31/02 06:15
MW-21B	B2J0758-08	Water	10/30/02 12:00	10/31/02 06:15
MW-22	B2J0758-09	Water	10/29/02 12:00	10/31/02 06:15
MW-23	B2J0758-10	Water	10/29/02 12:00	10/31/02 06:15
MW-25	B2J0758-11	Water	10/29/02 12:00	10/31/02 06:15
MW-27	B2J0758-12	Water	10/29/02 12:00	10/31/02 06:15
MW-28	B2J0758-13	Water	10/29/02 12:00	10/31/02 06:15
MW-29	B2J0758-14	Water	10/29/02 12:00	10/31/02 06:15
EFF103002	B2J0758-15	Air	10/30/02 15:00	10/31/02 06:15
MW-40	B2J0758-16	Water	10/30/02 12:00	10/31/02 06:15

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	11/08/02 15:04

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2 (B2J0758-01) Water Sampled: 10/30/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	**1870**	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	**4.44**	0.500	"	"	"	"	"	"	
Toluene	**10.4**	0.500	"	"	"	"	"	"	
Ethylbenzene	**39.3**	0.500	"	"	"	"	"	"	
Xylenes (total)	**119**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*135 %*	*57-125*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*89.8 %*	*62-120*			"	"	"	"	
MW-6 (B2J0758-02) Water Sampled: 10/29/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*79.0 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*79.8 %*	*62-120*			"	"	"	"	
MW-7 (B2J0758-03) Water Sampled: 10/29/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	**13600**	125	ug/l	2.5	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	**8.49**	1.25	"	"	"	"	"	"	I-06
Toluene	**1.64**	1.25	"	"	"	"	"	"	I-06
Ethylbenzene	**52.9**	1.25	"	"	"	"	"	"	
Xylenes (total)	**106**	2.50	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*%*	*57-125*			"	"	"	"	*S-02*
Surrogate: 4-BFB (PID)	*103 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Amar Gill, Project Manager

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	11/08/02 15:04

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-8 (B2J0758-04) Water Sampled: 10/29/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*81.0 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*79.6 %*	*62-120*			"	"	"	"	
MW-13 (B2J0758-05) Water Sampled: 10/29/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*86.5 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*80.6 %*	*62-120*			"	"	"	"	
MW-15 (B2J0758-06) Water Sampled: 10/29/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*80.6 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*79.4 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	11/08/02 15:04

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-17 (B2J0758-07) Water Sampled: 10/29/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	**234**	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	**1.36**	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	**5.06**	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*94.4 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*80.4 %*	*62-120*			"	"	"	"	
MW-21B (B2J0758-08) Water Sampled: 10/30/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*77.9 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*80.2 %*	*62-120*			"	"	"	"	
MW-22 (B2J0758-09) Water Sampled: 10/29/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*79.6 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*82.3 %*	*62-120*			"	"	"	"	

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	11/08/02 15:04

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-23 (B2J0758-10) Water Sampled: 10/29/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*83.3 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*81.0 %*	*62-120*			"	"	"	"	
MW-25 (B2J0758-11) Water Sampled: 10/29/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	**2440**	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	**8.69**	0.500	"	"	"	"	"	"	
Toluene	**0.680**	0.500	"	"	"	"	"	"	I-06
Ethylbenzene	**20.1**	0.500	"	"	"	"	"	"	
Xylenes (total)	**8.23**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*145 %*	*57-125*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*86.9 %*	*62-120*			"	"	"	"	
MW-27 (B2J0758-12) Water Sampled: 10/29/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	**100**	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	**0.760**	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*85.0 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*79.8 %*	*62-120*			"	"	"	"	

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	11/08/02 15:04

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-28 (B2J0758-13) Water Sampled: 10/29/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	77.8	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*79.8 %*	*57-125*			"	"	"	"	
Surrogate: 4-BFB (PID)	*75.4 %*	*62-120*			"	"	"	"	
MW-29 (B2J0758-14) Water Sampled: 10/29/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	993	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	5.35	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	33.5	0.500	"	"	"	"	"	"	
Xylenes (total)	2.38	1.00	"	"	"	"	"	"	I-06
Surrogate: 4-BFB (FID)	*154 %*	*57-125*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*97.7 %*	*62-120*			"	"	"	"	
MW-40 (B2J0758-16) Water Sampled: 10/30/02 12:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	1820	50.0	ug/l	1	2K01003	11/01/02	11/01/02	NWTPH-Gx/8021B	
Benzene	4.31	0.500	"	"	"	"	"	"	
Toluene	9.95	0.500	"	"	"	"	"	"	
Ethylbenzene	37.7	0.500	"	"	"	"	"	"	
Xylenes (total)	117	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*136 %*	*57-125*			"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)	*89.8 %*	*62-120*			"	"	"	"	

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	11/08/02 15:04

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EFF103002 (B2J0758-15) Air Sampled: 10/30/02 15:00 Received: 10/31/02 06:15									
Gasoline Range Hydrocarbons	**84.0**	10.0	mg/m³ Air	1	2J31002	10/31/02	10/31/02	NWTPH Modified	
Benzene	**0.489**	0.100	"	"	"	"	"	"	
Toluene	ND	0.100	"	"	"	"	"	"	
Ethylbenzene	**0.186**	0.100	"	"	"	"	"	"	
Xylenes (total)	**0.423**	0.200	"	"	"	"	"	"	I-06
Surrogate: 4-BFB (FID)	*103 %*	*58-131*			"	"	"	"	
Surrogate: 4-BFB (PID)	*101 %*	*63-129*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**19.8**	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	**0.151**	0.0308	"	"	"	"	"	"	
Toluene (v/v)	ND	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	**0.0422**	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	**0.0960**	0.0454	"	"	"	"	"	"	I-06

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	11/08/02 15:04

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2K01003: Prepared 11/01/02 Using EPA 5030B (P/T)										
Blank (2K01003-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*35.4*		"	*48.0*		*73.8*	*57-125*			
Surrogate: 4-BFB (PID)	*38.6*		"	*48.0*		*80.4*	*62-120*			
LCS (2K01003-BS1)										
Gasoline Range Hydrocarbons	461	50.0	ug/l	502		91.8	80-120			
Benzene	5.79	0.500	"	6.20		93.4	80-120			
Toluene	30.6	0.500	"	38.1		80.3	80-120			
Ethylbenzene	7.69	0.500	"	8.94		86.0	80-120			
Xylenes (total)	36.5	1.00	"	44.0		83.0	80-120			
Surrogate: 4-BFB (FID)	*42.3*		"	*48.0*		*88.1*	*57-125*			
Surrogate: 4-BFB (PID)	*36.6*		"	*48.0*		*76.2*	*62-120*			
LCS Dup (2K01003-BSD1)										
Gasoline Range Hydrocarbons	507	50.0	ug/l	502		101	80-120	9.50	25	
Benzene	6.50	0.500	"	6.20		105	80-120	11.6	40	
Toluene	34.2	0.500	"	38.1		89.8	80-120	11.1	40	
Ethylbenzene	8.60	0.500	"	8.94		96.2	80-120	11.2	40	
Xylenes (total)	40.9	1.00	"	44.0		93.0	80-120	11.4	40	
Surrogate: 4-BFB (FID)	*41.9*		"	*48.0*		*87.3*	*57-125*			
Surrogate: 4-BFB (PID)	*36.1*		"	*48.0*		*75.2*	*62-120*			
Matrix Spike (2K01003-MS1)					**Source: B2J0758-01**					
Gasoline Range Hydrocarbons	2440	50.0	ug/l	502	1870	114	70-130			
Benzene	10.0	0.500	"	6.20	4.44	89.7	80-120			
Toluene	40.9	0.500	"	38.1	10.4	80.1	68-114			
Ethylbenzene	43.7	0.500	"	8.94	39.3	49.2	80-120			Q-03
Xylenes (total)	148	1.00	"	44.0	119	65.9	80-120			Q-03
Surrogate: 4-BFB (FID)	*71.2*		"	*48.0*		*148*	*57-125*			*S-04*
Surrogate: 4-BFB (PID)	*41.6*		"	*48.0*		*86.7*	*62-120*			

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	11/08/02 15:04

Volatile Petroleum Products and BTEX by NWTPH-Gx and EPA 8021B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2K01003: Prepared 11/01/02 Using EPA 5030B (P/T)										
Matrix Spike Dup (2K01003-MSD1)					**Source: B2J0758-01**					
Gasoline Range Hydrocarbons	2310	50.0	ug/l	502	1870	87.6	70-130	5.47	25	
Benzene	9.80	0.500	"	6.20	4.44	86.5	80-120	2.02	40	
Toluene	41.4	0.500	"	38.1	10.4	81.4	68-114	1.22	40	
Ethylbenzene	44.0	0.500	"	8.94	39.3	52.6	80-120	0.684	40	Q-03
Xylenes (total)	150	1.00	"	44.0	119	70.5	80-120	1.34	40	Q-03
Surrogate: 4-BFB (FID)	*68.9*		"	*48.0*		*144*	*57-125*			*S-04*
Surrogate: 4-BFB (PID)	*42.0*		"	*48.0*		*87.5*	*62-120*			

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	11/08/02 15:04

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2J31002: Prepared 10/31/02 Using EPA 5030B (P/T)										
Blank (2J31002-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene	ND	0.100	mg/m³ Air							
Benzene (v/v)	ND	0.0308	ppmv							
Toluene	ND	0.100	mg/m³ Air							
Toluene (v/v)	ND	0.0261	ppmv							
Ethylbenzene	ND	0.100	mg/m³ Air							
Ethylbenzene (v/v)	ND	0.0227	ppmv							
Xylenes (total)	ND	0.200	mg/m³ Air							
Xylenes, total (v/v)	ND	0.0454	ppmv							
Surrogate: 4-BFB (FID)	*8.16*		*mg/m³ Air*	*9.60*		*85.0*	*58-131*			
Surrogate: 4-BFB (PID)	*9.07*		*"*	*9.60*		*94.5*	*63-129*			
LCS (2J31002-BS1)										
Gasoline Range Hydrocarbons	52.3	10.0	mg/m³ Air	100		52.3	50-150			
Surrogate: 4-BFB (FID)	*8.49*		*"*	*9.60*		*88.4*	*58-131*			
LCS (2J31002-BS2)										
Benzene	1.58	0.100	mg/m³ Air	2.00		79.0	50-150			
Toluene	1.66	0.100	"	2.00		83.0	50-150			
Ethylbenzene	1.67	0.100	"	2.00		83.5	50-150			
Xylenes (total)	5.21	0.200	"	6.00		86.8	50-150			
Surrogate: 4-BFB (PID)	*9.86*		*"*	*9.60*		*103*	*63-129*			
LCS Dup (2J31002-BSD1)										
Gasoline Range Hydrocarbons	71.4	10.0	mg/m³ Air	100		71.4	50-150	30.9	50	
Surrogate: 4-BFB (FID)	*9.49*		*"*	*9.60*		*98.9*	*58-131*			

North Creek Analytical - Bothell

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Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	Reported:
Spokane WA/USA, 99202	Project Manager: Bruce Williams	11/08/02 15:04

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2J31002: Prepared 10/31/02 Using EPA 5030B (P/T)										
LCS Dup (2J31002-BSD2)										
Benzene	1.26	0.100	mg/m³ Air	2.00		63.0	50-150	22.5	50	
Toluene	1.33	0.100	"	2.00		66.5	50-150	22.1	50	
Ethylbenzene	1.33	0.100	"	2.00		66.5	50-150	22.7	50	
Xylenes (total)	4.11	0.200	"	6.00		68.5	50-150	23.6	50	
Surrogate: 4-BFB (PID)	*9.95*		"	*9.60*		*104*	*63-129*			
Duplicate (2J31002-DUP1)					**Source: B2J0704-01**					
Gasoline Range Hydrocarbons	14.9	10.0	mg/m³ Air		11.3			27.5	30	
Surrogate: 4-BFB (FID)	*8.36*		"	*9.60*		*87.1*	*58-131*			

North Creek Analytical - Bothell

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.

Amar Gill, Project Manager

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503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588

Geo Engineers - Spokane	Project: Time Oil Richland	
523 East 2nd	Project Number: 1957-033-00	**Reported:**
Spokane WA/USA, 99202	Project Manager: Bruce Williams	11/08/02 15:04

Notes and Definitions

I-06	The analyte concentration may be artificially elevated due to coeluting compounds or components.
Q-03	The percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte already present in the sample.
S-02	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
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

North Creek Analytical - Bothell

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.

Amar Gill, Project Manager

CHAIN OF CUSTODY RECORD

BZJ0758

GEOENGINEERS INC.
2924 COLBY AVE
EVERETT, WASHINGTON 98201
(425) 252-4565 • Fax: (425) 252-4586

GeoEngineers

DATE 10-31-02
PAGE 1 OF 2
LAB NCA
LAB NO.

PROJECT NAME/LOCATION TIME OIL RICHLAND
PROJECT NUMBER 1957-033-00
PROJECT MANAGER BRUCE WILLIAMS
SAMPLED BY SUE OVERDIKE

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED												NOTES/COMMENTS (Preserved, filtered, etc.)
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	NWTPH-G/BTEX												
01	MW-2	10-30		W	3	X												NORMAL TAT
02	MW-6	10-29		W	3	X												
03	MW-7	"		W	3	X												
04	MW-8	"		W	3	X												
05	MW-13	"		W	3	X												
06	MW-15	"		W	3	X												
07	MW-17	"		W	3	X												
08	MW-21B	10-30		W	3	X												
09	MW-22	10-29		W	3	X												
10	MW-23	"		W	3	X												
11	MW-25	"		W	3	X												

RELINQUISHED BY	RELINQUISHED BY	RELINQUISHED BY
SIGNATURE	SIGNATURE	SIGNATURE
PRINTED NAME SUE OVERDIKE	PRINTED NAME	PRINTED NAME
FIRM GEI	FIRM	FIRM
DATE 10-31-02 TIME 0615	DATE TIME	DATE TIME
RECEIVED BY Colette Weaver	RECEIVED BY	RECEIVED BY
SIGNATURE	SIGNATURE	SIGNATURE
PRINTED NAME Colette Weaver	PRINTED NAME	PRINTED NAME
FIRM NCA	FIRM	FIRM
DATE 10-31-02 TIME 0615	DATE TIME	DATE TIME

ADDITIONAL COMMENTS:

2.8°

CHAIN OF CUSTODY RECORD

B210258

GEOENGINEERS INC.
2924 COLBY AVE
EVERETT, WASHINGTON 98201
(425) 252-4565 • Fax: (425) 252-4586

GeoEngineers

DATE 10-31-02
PAGE 2 OF 2
LAB NCA
LAB NO.

PROJECT NAME/LOCATION Time Oil Kirkland
PROJECT NUMBER 1557-033-00
PROJECT MANAGER Bruce Williams
SAMPLED BY Scot Overdick

SAMPLE IDENTIFICATION		SAMPLE COLLECTION			# OF	ANALYSIS REQUIRED	NOTES/COMMENTS (Preserved, filtered, etc.)
LAB	GEOENGINEERS	DATE	TIME	MATRIX	JARS	NWTPH-G/BTEX	
12	mw-27	10-29		W	3	X	NORMAL TAT
13	mw-28	"		W	3	X	
14	mw-29	"		W	3	X	
15	EFF103002	10-30	1500	A	1	X	72 HR TAT ON AIR
16	MW-40	10-30		W	3	X	

RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM	RELINQUISHED BY	FIRM
SIGNATURE	GEI	SIGNATURE		SIGNATURE	
PRINTED NAME Scot Overdick		PRINTED NAME		PRINTED NAME	
DATE 10-31-02	TIME 0615	DATE	TIME	DATE	TIME
RECEIVED BY	**FIRM** NCA	**RECEIVED BY**	**FIRM**	**RECEIVED BY**	**FIRM**
SIGNATURE Colette Weaver		SIGNATURE		SIGNATURE	
PRINTED NAME Colette Weaver		PRINTED NAME		PRINTED NAME	
DATE 10.31.02	TIME 0615	DATE	TIME	DATE	TIME

ADDITIONAL COMMENTS: