RI/FS
TIME OIL COMPANY
PROPERTY # 01-070
GRANDVIEW, WASHINGTON

VST #4106

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100 EAST WINE COUNTRY ROAD
GRANVIEW, WASHINGTON

EXECUTIVE SUMMARY

The following report presents the results of a Remedial Investigation/Feasibility Study performed by Maxim Technologies, Inc.® (Maxim) for Time Oil Company on the subject property located at 100 East Wine Country Road in Grandview, Washington. Our work consisted of the following: 1) advancing eleven borings and installing one 2-inch air sparging well, four 4-inch groundwater recovery/vapor extraction wells, and six groundwater monitoring wells; 2) submitting collected soil samples for analysis; 3) performing a vapor extraction test on the individual wells RW-4 and MW-3, and on a multiple well configuration of RW-1, RW-3 and RW-4; 4) performing a 4-hour step drawdown and a 14-hour constant rate pump test on RW-3; 5) performing an air sparging test on well SW-1; 6) reviewing all field data; and 7) preparing this report. This work was based on our environmental services proposal dated October 19, 1999, submitted to Ms. Anastasia Duarte-Wilkinson of Time Oil Company. All work was conducted upon receipt of written authorization by Time Oil Company. The following summary presents significant findings detailed in this report:

- The well installation program consisted of advancing eleven borings, collecting soil samples from selected areas not characterized during the initial geoprobe investigation, and installing remedial and monitoring wells as described above.

- Soil samples from the borings completed during the initial geoprobe investigation and the well installation phase indicated the presence of elevated levels of Gasoline Range Petroleum Hydrocarbons (GRPH) and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) in the subsurface soils in the former UST tank pit on the eastern edge of the property and in the area of the existing UST pit located in the southwestern area of the property. MTCA Method A cleanup levels for soil were exceeded for GRPH in samples submitted in the vicinity of borings MW-3, MW-5, RW-1, RW-3 and RW-4.

- Water level measurements collected on May 7, 2000 from the eleven site monitoring wells exhibited groundwater at depths of 16.47 to 17.62-feet below the top of the well casing. Groundwater elevations ranged from 77.07 to 77.97 feet based on a relative site datum. No LNAPLs were detected in any site monitoring wells. A groundwater gradient of 0.0084 ft/ft was calculated for the Grandview Market property with a flow trending to the southwest.

- Analytical testing of groundwater samples collected on March 7, 2000 indicate GRPH and BTEX concentrations in excess of MTCA Method A cleanup levels in wells MW-5, MW-6, RW-1, RW-3 and RW-4.

- A 12-hour in-situ air sparging test was performed on well SW-1. Groundwater levels, dissolved oxygen, temperature, conductivity and pH were monitored in the surrounding groundwater monitoring wells throughout the duration of the test. The 12-hour in-situ air sparging test conducted on well SW-1 indicated an approximate radius of influence of 45 to 60-feet as determined from dissolved oxygen readings. The field parameters of temperature, D.O., conductivity, pH, and water level were all monitored during the test and utilized to determine an effective radius of influence. Analysis of the data indicated that in-situ air sparging would be an effective remedial technology for the site. Analysis of the samples indicated no significant increase or decrease of dissolved metals were observed as a result of the air injection in the immediate area of the sparge well, indicating fouling of the well screens should not occur.

- Four vapor extraction tests were performed on individual and multiple wells at the site. The test results indicate that an effective radius of influence of less than 20 feet was achieved. The low radius of influence may be a result of the less permeable silty fine sands located at a depth from 1 to 10 feet. The Rotron EN-404 regenerative blower did exhibit a high flow rate (32 to 87 cfm) in the immediate area of the existing tank field. This may be a result of the more porous fill material located within the tank basin. Off-gas laboratory analytical testing and field PID measurements indicated that moderate to elevated concentrations of volatile petroleum hydrocarbons could be removed from the unsaturated soils. Testing indicates that a significantly larger vacuum source is necessary to increase the radius of influence to a more feasible distance.

- Results of the pump test performed on RW-3 indicates the shallow aquifer beneath the site could sustain an average pumping rate of 1.6 gpm during the test. A maximum radius of influence of 55 feet was achieved during the test; however, this radius could be increased during long term pumping. Data collected during the pilot testing indicates that groundwater recovery can be a feasible alternative to treat the hydrocarbon impacted groundwater and control off-site migration.

- Interpretation of the three remedial methods applied during the pilot test indicates that site remediation in areas impacted with petroleum hydrocarbons within the soil and groundwater may be accomplished utilizing a combination of the technologies. Construction of a high pressure-low flow in-situ air sparging system coupled with vapor extraction would be a feasible alternative to mitigate hydrocarbon impacts. Coupling the aforementioned technologies with a groundwater recovery system would assist in reducing mounding of the

groundwater table from the air sparge system and control off-site migration of the dissolved phase plume.

- Soil generated from the investigation activities was temporarily stored in twenty-three 55-gallon drums behind the Grandview Market building. The soils were transported off-site to the Remtech facility in Spokane, Washington on March 7, 2000 for thermal remediation of the petroleum hydrocarbon impacts. Liquid generated during the investigation and pilot testing were placed in a 6,000-gallon FRAC Tank equipped with an air sparging unit. Water was treated, sampled, and then discharged to the City of Grandview's storm water collection system in accordance with the Ecology 1992 Short Term Discharge Permit.

This summary is presented for introductory purposes and should only be used in conjunction with the full text of this report. Our interpretations of subsurface conditions, installation of groundwater monitoring wells, vacuum test, and laboratory analysis are included in the text of this report. Analytical laboratory testing procedures and test certificates are included in the appendix of this report.

1.0 INTRODUCTION

Maxim Technologies, Inc.® (Maxim) performed a focused Remedial Investigation/Feasibility Study (RI/FS) for Time Oil Company at the subject property located at 100 East Wine Country Road in Grandview, Washington (Figure 1). The fieldwork was completed by our field representatives in February and March, 2000 in order to determine the most feasible alternative to mitigate the gasoline impacts in soil and groundwater at the subject site. The following report presents the results of our focused RI/FS.

The scope of work for this study consisted of the following:

- Contact a one-call utility locating service to clear underground utilities at drilling locations;
- Prepare a site specific Health & Safety Plan;
- Prepare a Traffic Plan for approval by the City of Grandview to drill explorations in the street;
- Advancing eleven soil borings to depths of approximately 25 to 34-feet below the existing site grade and collecting soil samples at selected intervals in some of the borings;
- Install one 2-inch air sparging, four 4-inch groundwater recovery/vapor extraction wells, and six 2-inch groundwater monitoring wells in the exploratory soil borings at the site. Wells MW-1 through MW-6 were completed to a depth of approximately 25-feet below grade and screened from 10 to 25-feet, wells RW-1 through RW-4 were completed to a depth of approximately 34-feet below grade and was screened from 4 to 34-feet below grade and well SW-1 was completed to approximately 30-feet below grade and screened from 25 to 30-feet;
- Collect groundwater samples from the new wells prior to conducting the remedial testing program;
- Submit selected soil samples and the groundwater samples to North Creek Analytical, Inc. for analysis of:
    - Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) by EPA Method 8020, and
    - Gasoline Range Petroleum Hydrocarbons (GRPH) by Washington State Department of Ecology (Ecology) Method WTPH-G.
- Conduct four vapor extraction tests on various combinations of existing site wells;
- Conduct a 4-hour step drawdown test to determine a suitable pumping rate for the constant rate groundwater recovery test;
- Collect air samples during intervals of the vapor extraction pilot test and submit them for analysis of WTPH-G/BTEX.
- Conduct a 14-hour groundwater constant rate recovery test using RW-3 as the extraction point;
- Collect groundwater samples from selected wells before and after the pump test and submit them for analysis of:
    - GRPH by Ecology Method WTPH-G, and
    - BTEX by EPA Method 602.

- Conduct a 12-hour in-situ air sparging test utilizing SW-1 as the air injection point;
- Collect groundwater samples from selected wells before and after the in-situ air-sparging test and submit them for analysis of:
  - GRPH by Ecology Method WTPH-G,
  - BTEX by EPA Method 602, and
  - Total dissolved metals Copper, Iron, Magnesium, Lead, Manganese and Zinc by EPA Method 6000/7000.
- Evaluate the collected data and prepare this report.

This report has been prepared for the exclusive use of Time Oil Company and their agents for specific application to this project site in accordance with generally accepted environmental assessment practices and the constraints of our approved scope of work. No other warranty, express or implied is made. In the event other information regarding site conditions becomes known, or if there are any changes to the conditions on the existing site or nearby properties, the conclusions of this report should be reviewed and, if necessary, revised by our office to reflect updated site information.

2.0 SITE DESCRIPTION

Time Oil Co. Property No. 01-070 is located at 100 East Wine Country Road (Main Street) in Grandview, Washington (Figure 1). The property is located on the southeast corner of Wine Country Road and Division Street and consists of a convenience store (Minimart), one dispenser island, and three underground storage tanks (USTs) covered with a concrete slab. The property is a relatively level, irregular shaped parcel, approximately 1/5- acre in size that is bordered to the east by a two story structure (Grandview Christian Center), the south by an alley and a structure hosting the Grandview Herald, the west by Division Street and the north by Wine Country Road. The property currently is an active convenience store and retail fuel facility. Time Oil Company has operated the UST system at the Grandview Market since 1965. The current USTs are located in the southwestern area of the site. Former USTs were located in the eastern area of the site in front of the store. Site features are presented on Figure 2, Site and Exploration Plan.

3.0 SITE HISTORY

The following is a summary of the assessment activities as provided by Time Oil Company. In May 1991, Time Oil was contacted by the Grandview Fire Department concerning the presence of gasoline vapors in a building adjacent to the subject property. Testing of the tanks at that time indicated they were tight. A soil vapor survey was also conducted at the site in May 1991. Soil gas probes were advanced to a depth of approximately 12 feet below grade with vapor samples collected at 3, 6, 9, and 12 feet below site grade. Soil gas was analyzed on site with a PhotoVac 10S70 Gas chromatograph with a photo ionization detector to determine if BTEX constituents were present. The survey did not identify BTEX constituents in the samples collected along the east property line. However, the survey did identify elevated concentrations of BTEX

deposited large volumes of sediments to the south. Sedimentary deposition occurred as slack water lakes when the water was partially impounded as it drained through the Columbia Gorge.

The CRBG are Miocene age (26 million years before present) flood-basalts deposited over a vast area of eastern Washington, Oregon and western Idaho and are of substantial cumulative thickness in the Grandview area. The basalts were generated from numerous fissures located across southeastern Washington and southern Idaho with individual flow thicknesses ranging from a few tens of feet up to 300-feet. Sediments accumulated to various thicknesses during the periods between flows.

The overlying unconsolidated sediments and the CRBG host regional aquifer systems and are a major source of water to the Grandview area. The unconsolidated sediments are more important sources of groundwater than the basalt in areas where the sedimentary deposit is of substantial thickness. The basalt flows are a multilayered aquifer system with major aquifers located within the sand and gravel interbeds (which typically average 5 to 30 percent of the total flow thickness). General regional groundwater flow is southwesterly in the Wanapum Basalts. Some aquifers are connected hydraulically through vertical fractures or columnar jointing within the thinner basalt flows. These deep aquifers are the predominant water source for most municipal, industrial, domestic and agricultural needs. The overlying unconsolidated sediments are up to 400-feet in thickness in the central valley through the Sunnyside and Grandview area and provide water for private agricultural uses. Locally, shallow perched aquifers exist on the shallower basalts away from the main river valley. In the vicinity of the subject site, the shallow aquifer beneath the site occurs at a depth of approximately 16 feet below grade. Groundwater measurements collected during this study indicates the shallow groundwater beneath the site flows in a southwesterly direction.

5.0 WELL INSTALLATION & SOIL SAMPLING

Prior to advancement of exploratory borings for well installation at the subject site, the utilities were located using the one call utility locating service. No utilities were encountered during drilling activities. Location of monitoring wells and recovery wells were selected based on a preliminary soil and groundwater investigation conducted by Maxim in January 2000. Results of this geoprobe investigation are summarized in Maxim's report to Time Oil Company entitled "Preliminary Soil and Groundwater Screening Survey" dated February 17th, 2000. A traffic plan was also submitted to the City of Grandview. This traffic plan covered activities to be completed for the geoprobe investigation and the well installation. A copy of the traffic plan submitted to the City of Grandview and their response letter is included in Appendix A.

5.1 Well Installation

In order to perform the Feasibility Study, eleven borings with well completions were advanced at the site. The locations were selected based upon the ability to obtain the necessary information from the pilot tests and the potential future use in the soil and groundwater remedial system. The wells consisted of one 2-inch diameter PVC air sparge well (30-feet deep), six 2-inch diameter PVC monitoring wells (25-feet deep) and four 4-inch diameter PVC groundwater recovery/vapor extraction wells (34-feet deep). All eleven borings completed for the well installations were

drilled on February 22nd through 24th, 2000 by Environmental West Drilling of Spokane, Washington under subcontract to Maxim and were continuously observed and logged by an experienced geologist from our firm. Each boring was advanced using a truck mounted Mobil B-61 drill rig. Four and ¼ inside diameter (I.D.) flighted auger casing was used during the drilling for the 2-inch wells and eight-inch ID augers were used for the 4-inch wells. Prior to the start of drilling activities of each boring, the drilling equipment and sampling tools were decontaminated by steam cleaning methods. During drilling operations, soil samples were collected at various locations to document soil conditions not evaluated during the geoprobe survey. Soil samples collected were placed in laboratory prepared jars and placed in chilled coolers for shipment to the laboratory for analysis. Each sample was screened in the field for the presence of volatile organic compounds utilizing a PID to facilitate the selection of soil samples for laboratory analysis. Drilling and sampling procedures are described in Appendix B.

All of the wells were installed in the Grandview Market property except for monitoring wells MW-5 and MW-6, which were installed west of the property in Division Street, and monitoring wells MW-1, located south of the Grandview Market building in a parking area behind the building. The air sparging well was constructed with 5-feet of 0.020-inch slot 2-inch diameter PVC screen and completed with 2-inch diameter PVC blank to the ground surface. The bottom of the sparge well was set at 30.0-feet below site grade. The groundwater monitoring wells (MW-1 through MW-6) were installed to a depth of 25 feet and completed with 15 feet of 0.020-inch slot 2-inch diameter PVC screen. Recovery wells (RW-1 through RW-4) were constructed with 30-feet of 0.020-inch slot 4-inch diameter PVC screen and completed with 4-inch diameter PVC blank to the ground surface.

Upon completion of well installation, each well was surged using a 1.5-inch diameter stainless steel bailer or 3-inch PVC bailer before being developed. A minimum of ten well volumes was removed from each well during development. A summary of the well installation development and sampling procedures and well logs are presented in Appendix B. Well locations are shown on Figure 2, Site and Exploration Map.

5.1.1 Subsurface soil conditions

The soils encountered during the drilling program on the Grandview Market property typically consisted of a medium dense, damp to moist, brown, fine sand with moderate silt content to a depth of approximately ten feet below ground surface (bgs). From ten feet bgs to a depth of approximately 34 feet, the soils consisted of a damp to saturated, brown/gray, interbedded fine-grained sand with moderate silt interbedded with saturated, brown/gray, medium-grained sand. During drilling activities, refusal was encountered at depth of 34 feet bgs in four of the deepest borings. The drillers operating the machinery believed they were hitting bedrock at this depth. The approximate locations of borings/monitoring wells are presented on Figure 2. Soil boring logs and groundwater monitoring well as-built diagrams are presented in Appendix B.

Soil samples were typically collected at the groundwater interface and were screened in the field for the presence of organic vapors using the field headspace measurement procedure described in Appendix B. Photoionization detector (PID) readings are presented on the boring logs in Appendix B. The field measurements of organic vapors using the PID and the head space procedures provide a general indication of the total organic vapor concentration but cannot

identify specific organic compounds. Samples collected at or below the groundwater interface displayed elevated PID readings in the borings completed within the former UST field, the current UST field, and within MW-5 and MW-6 completed on the east and west sides of Division Street.

5.2 QUANTITATIVE ANALYSES - SOIL

Due to the detailed soil characterization performed in the preliminary investigation, soil samples were only submitted from monitoring well MW-3, which was located in an area not characterized during the preliminary investigation. A total of two soil samples were submitted to North Creek Analytical, Inc. of Bothell, Washington for chemical analyses. All samples were submitted under Maxim chain-of-custody procedures and analyzed for the following:

- GRPH by Ecology Method WTPH-G,
- BTEX by EPA Method 8020,

Detectable concentrations of GRPH were found in both samples submitted from MW-3. Sample MW-3 S-2, collected from a depth of 10-12 feet bgs exhibited a GRO concentration of 1510 mg/kg. Sample MW-3 S-3, collected from a depth of 15-17 feet bgs, exhibited a GRO concentration of 236 mg/kg. Groundwater was encountered at a depth of 15.1 feet bgs in exploration MW-3. Various detections of the BTEX constituents were also found in the samples submitted as shown below.

Sample Number	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)
MW-3 S-2 (10-12 ft bgs)	1510	<0.10	0.34	8.9	47.6
MW-3 S-3 (15-17 ft bgs)	236	0.847	0.789	2.93	10.9
MTCA Method A CCL	100	0.50	40.0	20.0	20.0

Lab certificates for the soil samples collected from MW-3 are presented in Appendix C.

5.3 INVESTIGATION DERIVED WASTE

During drilling activities, a total of twenty three (23) 55-gallon drums of soil cuttings were generated. All drums were stored on site in the southern area of the property, behind the building. In addition, approximately 500 gallons of well development and decon water was generated and stored in properly labeled 55-gallon drums.

The purge and decon water was stored on-site until the Remedial Investigation (RI) phase of the project. At this time, the water was transferred to the treatment tank which was used to treat groundwater generated during the pump test. Treatment of this water is discussed in section 7.4 of this report. Empty drums used to store purge and development water were then transported to a Time Oil Company storage facility in Yakima, Washington. Three empty drums were left on-site for use during future groundwater quarterly sampling events.

The 23 drums of soil boring cuttings were transported off site on March 7th, 2000 by Remtech and transported to their facility located in Spokane, Washington. A Maxim environmental technician was on site to oversee the removal of the soil drums from the site. Upon reaching the Remtech facility, the soil was treated using thermal desorption, removing the petroleum hydrocarbons impacts from the soil. The treated soil and drums were disposed of by Remtech.

6.0 GROUNDWATER MONITORING AND SAMPLING

6.1 Groundwater Conditions

Groundwater was encountered at depths of approximately 16 to 18-feet below the ground surface on the Grandview Market property at the time of drilling. Prior to the groundwater monitoring event conducted on March 7th, 2000, groundwater was measured at depths of 16.47 to 17.62 feet below the top of well casing. Prior to pilot testing on March 20th, 2000, depth to water measurements were collected and ranged from 16.63 to 17.78-feet below top of well casing. Groundwater levels measured on March 7th and 20th were gauged using an electronic water level probe, which can accurately measure groundwater levels to 0.01-feet and were made relative to the top of the well casings. Based upon the water level measurements of March 7, 2000, groundwater elevations ranged from 77.07 to 77.97-feet based on a relative site datum. An approximate groundwater gradient of 0.0091-ft/ft (0.91-feet vertical fall in 100-feet horizontal) was calculated for the March 7, 2000 event and a gradient of 0.0084-ft/ft (0.84-feet vertical fall in 100-feet horizontal) was calculated for the March 20, 2000 event, with groundwater flow trending toward the southwest. Groundwater level measurements are presented in Table 1. A groundwater contour map for March 7, 2000 event is presented as Figure 3 and for the March 20, 2000 event as Figure 4.

Selected site groundwater monitoring wells were sampled immediately prior to and after both the in-situ air sparging and groundwater recovery tests and are discussed in section 7.0 of the report.

Approximately three well casing volumes of water were bailed from each monitoring well prior to sampling to obtain a representative sample. The actual volume of groundwater in each well casing was determined according to well dimensions (diameter and depth) and the height of the water column in the well. The wells were purged and sampled using a dedicated 1.5-inch diameter disposable polyethylene bailer. The samples were placed in laboratory prepared glass containers and stored in chilled coolers during shipment to the laboratory.

The elevations of the newly installed wells (both ground surface and top of PVC casing) were surveyed on February 24, 2000. All elevations are referenced to a relative datum of the southeast brass cap on the concrete tank pad on the project site.

6.2 Quantitative Analysis – Groundwater

Groundwater samples were collected from MW-1 through MW-6, RW-1 through RW-4, and SW-1 on March 7, 2000. In addition, a duplicate sample was collected from RW-3. All collected samples were submitted to North Creek Analytical, Inc. of Bothell, Washington for analysis of the following:

- Total Petroleum Hydrocarbons - Gasoline Range (TPH-G) by Washington Department of Ecology Method WTPH-G
- Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) by EPA Method 8020A

Detectable levels of purgeable hydrocarbons (gasoline) above laboratory detection limits of 50.0 ug/L were observed in MW-1 (104 ug/L), MW-3 (2,430 ug/L), MW-5 (22,700 ug/L), MW-6 (22,600 ug/L), RW-1 (2,100 ug/L), RW-2 (519 ug/L), RW-3 (4,070 ug/L), and RW-4 (4,080 ug/L). All detectable samples exceeded MTCA Method A cleanup levels for gasoline range hydrocarbons in groundwater of 1,000 µg/L except MW-1 and RW-2.

Concentrations of at least one of the volatile aromatic hydrocarbons BTEX were observed in samples from wells MW-1, MW-3, MW-5, MW-6, RW-1, RW-3, and RW-4. Benzene was observed in concentrations above MTCA Method A cleanup levels in all the above mentioned wells except MW-1. Toluene was observed in concentrations above MTCA Method A cleanup levels in all the above mentioned wells except MW-1, MW-3, and RW-1.. Ethylbenzene was observed in concentrations above MTCA Method A cleanup levels in all wells mentioned above except in well MW-1. Total xylenes were observed above MTCA Method A cleanup level in all wells mentioned above except MW-1. No LNAPLs were measured in any of the site monitoring wells.

A summary of analytical test results for the subject property is presented in Table 1. Analytical test certificates are presented in Appendix D. Figure 5 presents TPH-G and BTEX concentrations in the sampled wells on the subject property for the March 7, 2000 sampling event.

7.0 LIMITED REMEDIAL INVESTIGATION/FEASIBILITY STUDY

During the week of March 20, 2000, a series of remedial tests were performed at the subject site. Remedial testing consisted of vapor extraction testing on single and multiple wells, an in-situ air sparge test, and a14-hour constant rate groundwater recovery test. The tests were performed to determine the most feasible and effective method to remediate petroleum hydrocarbon impacts to the soil and groundwater below the subject property.

7.1 Vapor Extraction Test Analysis

Four vapor extraction tests were conducted at the subject site utilizing single and multiple well configurations as extraction points. A Rotron Model EN404 Regenerative blower was connected to the extraction point while site monitoring wells were monitored with Magnehelic gauges in order to determine induced subsurface vacuum and radius of influence in the unsaturated soils. During each test, off-gas measurements of: 1) relative concentrations of volatile organic vapors were collected with a PID; 2) temperature; and 3) airflow was monitored using a Dwyer Model 471 thermal anemometer. Vapor extraction tests were conducted on the individual wells RW-4 and MW-3, and a multiple well configuration of RW-1, RW-3 and RW-4. Vacuum tests were conducted for a period of 2-hours on RW-4, 1-hour on MW-3 and 4-hours on the multiple well configuration of RW-1, RW-3 and RW-4. Appendix E presents the off-gas, airflow and applied and induced vacuum measurements recorded during the vapor extraction tests completed at the site. Samples of the off-gas were collected for analysis near the beginning and 2-hours into the combined test, near the beginning and approximately 1-hour into the test on RW-4, and near the beginning of the test on MW-3 when PID reading reached their peak. Off-gas was continuously monitored with the PID throughout the duration of all tests. Samples were submitted to North Creek Analytical of Spokane, Washington for analysis of total petroleum hydrocarbons as gasoline (WTPH-G) and the volatile aromatic hydrocarbons BTEX. Results of the off-gas sample analytical testing are presented in Table 2. Laboratory certificates for analytical testing of off-gas samples are also presented in Appendix F.

A vacuum of 13-inches of water (IOW) was applied to the individual tests conducted on RW-3 and RW-4. Approximately 16 IOW was applied to the vac test conducted on MW-3. A vacuum of approximately 6.5 IOW was applied during the multiple well test. Typically, the distance affected by one percent of the total vacuum is interpreted to be the effective radius of vacuum influence for accomplishing removal of volatiles from the subsurface. This would mean that a well within the effective radius of influence should have exhibited an applied vacuum of 0.06 to 0.16-IOW. No wells were within the effective radii of influence during the tests performed on the individual wells or the multiple well configuration. The effective radius of influence for the subsurface soils beneath the site, utilizing a Rotron 404 regenerative blower, is assumed to be less than 20-feet, the distance to the closest well. Airflow rates, as measured at the manifold, ranged from 32 to 87-cubic feet per minute (cfm) from the individual wells connected to the manifold, approximately 70 cfm from the tests conducted on RW-3 and RW-4, and 24 cfm on the test conducted from MW-3. Higher flow rates from the RW wells may be a direct result of short circuiting from the existing UST pit. Off-gas laboratory analytical and field PID measurements indicate that moderate to elevated concentrations of volatile petroleum hydrocarbons were being removed from the unsaturated soils during the vapor extraction tests.

7.1.1 Summary of Vapor Extraction Testing

Vapor extraction is a proven technology to aid in the remediation of petroleum hydrocarbon impacted soils. However, this technology is most effective in porous soils through which the soil

gases migrate more easily. The vapor extraction testing performed at the site indicates that the vadose zone soils are low permeability deposits, with the highest rate of extracted airflow confined to the immediate area of the tank pit which would contain a more porous fill material. The low permeability of the native site soils limits the airflow thus reducing the effective radius of influence for the applied vacuum. Testing indicates that a significantly larger vacuum source is necessary to increase the effective radius to a more feasible distance.

7.2 Air Sparge Test Analysis

In-situ air sparging, tests are conducted to evaluate the achievable increased dissolved oxygen radius of influence in groundwater around an air injection point. An additional benefit of air injection is the passage of the injection air through soil channels and the subsequent volatilizing of aromatic hydrocarbons where they can be recovered with soil vapor extraction wells. The increased oxygen and gas phase flow within the radius of influence can also lead to increased biodegradation by naturally occurring petroleum hydrocarbon degrading aerobic microorganisms both in the saturated and unsaturated zones.

A 12-hour in-situ groundwater air sparging pilot test was performed at the subject site on March 23, 2000 to assess the feasibility of installing an in-situ air sparging system at the subject site. An air sparging well (SW-1) was installed during the subsurface exploration program in February, 2000. The well was specifically designed to conduct the sparging pilot test at the subject site. The 2-inch PVC sparge well was installed with 5-feet of 0.020-inch slot screen placed approximately 9-feet below the top of the groundwater table at the time of installation. The screen extends to a total depth of 30-feet (9 to 14 feet below the groundwater interface). Groundwater in the immediate vicinity of the air sparge well is approximately 17-feet below grade.

7.2.1 Sparge Test Procedures

The test was conducted on the sparge well SW-1 utilizing the following configuration: A Sullair 185Q air compressor was utilized to inject an air stream through a sparging regulator before introduction into the sparging well. The sparging regulator consisted of a flow meter, pressure regulator and an oil/water filter to remove any errant hydrocarbons or moisture, which may be produced by the compressor.

Throughout the duration of the test, all site monitoring wells were monitored for dissolved oxygen (D.O.), temperature, depth to water, and pressure at the well head. A YSI Model 55 dissolved oxygen meter was used to determine D.O. concentrations and groundwater temperature in the monitoring wells during the air sparging pilot test. The dissolved oxygen and temperature measurements were collected by lowering the D.O. probe into the well and obtaining direct in-place measurements. Measurements were collected approximately 1 to 2-feet below the water interface inside the well casing. Groundwater measurements were obtained utilizing a Solinst water level indicator, capable of measuring depth to water below the top of well casing to the nearest 0.01-foot. Field data measurements are attached in Appendix G.

Groundwater samples were collected from wells MW-4, RW-1, RW-2 and SW-1 immediately prior to and after the air sparging test. The samples were collected using a dedicated bailer and were placed in one laboratory prepared 500-ml poly bottle and two 40-ml VOA's for each well.

The samples were immediately placed in a chilled cooler for shipment to North Creek Analytical in Bothell, Washington under Maxim chain of custody procedures. The samples were analyzed for TPH-G, BTEX and the dissolved metals Copper, Iron, Lead, Manganese, Magnesium and Zinc. The analytical results for the collected samples are presented in Table 3. The laboratory analytical certificates are presented in Appendix H.

Prior to conducting the sparge test, an estimated break through pressure of 10.0 psi was calculated based on the measured water column above the screened interval of the sparge well. This pressure was determined to be the required breakthrough point at which air should be effectively transferred through the well screen into the saturated zone. The test was conducted on March 23, 2000 and was operated for a period of 12-hours. At the start of the test, the injected air pressure was rapidly increased as no airflow was observed through the gauge. At 5-minutes into the test the air pressure was increased to 11-psi and by 20-minutes into the test it had been increased to 18-psi. At 35-minutes into the test the air pressure was readjusted to 12 psi after a connection failure occurred at the sparge well. The pressure of 12-psi was maintained to approximately 1-1/2 hours into the test when the pressure began to increase periodically to a maximum pressure of 16 psi. Approximately 1 hour before breakthrough occurred in RW-2, the pressure again began to decrease until it reached 10.0 psi at approximately 10 hours into the test. It then remained at 10 psi throughout the remainder of the test. Airflow through the gauge was not observed until after 13-minutes into the test when a flow of approximately 2 cubic foot per minute (cfm) was recorded. After the well head connection was re-established at 25-minutes into the test, airflow increased to 4.5 cfm and fluctuated between 3.0 and 8.5 cfm throughout the test. The fluctuation in the air flow and pressure may be a direct result of channels forming through the native soils, then collapsing upon reaching the more porous tank bed fill.

7.2.2 Interpretation of Sparge Test Data

Two rounds of background measurements of fluid levels, D.O., temperature, pH and conductivity were taken from the wells prior to the initiation of the air sparge test. These background measurements were compared to the readings taken during the test and used as a base to help determine test influenced fluctuations. In addition, the laboratory analytical results from the four groundwater well samples collected after the test were compared to those collected just prior to the start of air injection. No statistically significant changes were observed upon review of the TPH-G, BTEX and dissolved metals analytical results. As a result of metals not oxidizing in the samples collected, fouling of the sand pack within air sparging wells will not occur. Dissolved oxygen concentrations were observed to exhibit a significant increase in the immediate area of the sparge well approximately three hours into the test, at which time breakthrough occurred in RW-2 which was located 11-feet west of the sparge well. Bubbling within RW-2 remained throughout the duration of the test. Dissolved oxygen concentrations in MW-4, located 20 feet west of the sparge well, exhibited increasing dissolved oxygen concentrations until approximately 9-hours into the test, at which time they began to stabilize. The remaining site monitoring wells exhibited statistical increases in dissolved oxygen until approximately six to eight hours into the test, at which time they stabilized or decreased. Although influenced by the air injection, the D.O. concentration did not achieve the calculated saturation level of 9.31 mg/L possible for water at the measured temperature and site elevation in

any site wells except RW-2. Figure 6 presents a map showing the maximum change in dissolved oxygen concentrations across the site.

A general rise in water levels was observed in all monitored wells and ranged from 0.04 (MW-6, 108 feet southwest of sparge well) to 3.48-feet (RW-2, 10 feet west of sparge well. Figure 7 presents a map showing the air sparging radius of influence as determined from groundwater mounding. Large increases in the groundwater level tends to have a negative impact on the effectiveness of air sparging by submerging soil potentially available for remediation utilizing vapor extraction.

7.3 Groundwater Recovery Testing (Pump Test Analysis)

The groundwater recovery test was performed at the subject property on March 20th and 21st, 2000 to assess the feasibility of installing a groundwater pump and treat system. Water withdrawn from the subsurface was treated in a 6,000-gallon Frac Tank equipped with an air sparging system. After treatment of the groundwater, the treated effluent was discharged to the City of Grandview's storm water collection system. The portable Frac Tank consists of a skid mounted treatment tank that is equipped with horizontal perforated lines. Air is injected into the lines by a Gast 1-1/2 horse power regenerative blower.

7.3.1 Field Procedures

On March 20th, 2000, a 4-hour step drawdown test was conducted on the 4-inch recovery well RW-3 in order to determine a pumping rate for the constant rate test. The step drawdown test began at a pumping rate of 0.5 gallons per minute (gpm). Groundwater elevation was continuously monitored in the pumping well during the step drawdown test. Based on the step drawdown test, a pumping rate of 1.6 gpm was chosen for the constant rate test.

The aquifer system was allowed to stabilize overnight prior to conducting the constant rate test. Prior to initiating the test, a round of groundwater measurements were collected from all site monitoring wells to utilize as the static water elevations. The constant rate pump test was started on March 21st, 2000 and was run for 14-hours. Drawdown in all site monitoring wells was monitored throughout the duration of the test. Upon the cessation of pumping, recharge to the pumping and observation wells were monitored for approximately 18-hours. Water level measurements were collected from site monitoring wells at various intervals throughout the pump test. Field data measurements for the drawdown and recharge of the pump test are presented in Appendix I. Maximum drawdown in site monitoring wells are presented on Figure 8. The pumping rate was maintained at 1.6 gpm throughout the duration of the test. However, review of field data indicated that some surging of the pump was being created as a result of the generator being used at the site. Therefore, recharge data was primarily used for the evaluation of aquifer parameters. During the step drawdown and constant rate test, approximately, 1700-gallons of groundwater was transferred to the Frac treatment tank, which was located in the parking area behind the site building.

Interpretation of Pump Test Data

Data collected from the pump test was analyzed using the Theis Recovery (1935) straight line method for unconfined aquifer systems and the computer software Windows32 for Aquifers.

The Windows32 aquifer modeling program uses a graphical solution of matching curves and/or straight line derived from the Theis method with plotted data from the actual pump test to determine transmissivity and storativity. From these solutions, a hydraulic conductivity can be calculated for the aquifer. Due to the surging caused from the generator during the constant rate pump test, recharge data in observation wells were utilized for the curve matching.

At the subject property, the 4-inch recovery wells are assumed to fully penetrate the aquifer. Therefore, for the analysis, the equations were solved for an assumed aquifer thickness of 16.5 feet (b=16.5).

The graphical solution utilizing the Theis method for the pump test data based on the information collected during recharge of site monitoring wells RW-1, RW-2, RW-4 and MW-5 are presented in Figures 9 through 12, respectively. Based on these analysis, the hydraulic conductivity (k) is calculated to be between 30.5 and 49.4 feet/day (0.021 to 0.034 feet/minute) assuming an aquifer thickness of 16.5 feet. Hydraulic conductivity values in this range are consistent with a sand to silty sand stratigraphy. Transmissivity was calculated between 503.33 and 814.81 ft^2/day (0.35 to 0.57 ft^2/minute). Storativity values ranged between one and four.

The pump test maintained an average rate of 1.6 gpm over the 14 hour test period and achieved a maximum drawdown of 7.09 feet in the pumping well (RW-3). Drawdown was observed in all site wells, however, the change in elevation within wells MW-1, MW-2, MW-3 and MW-6 are statistically insignificant. Figure 8 presents the graphical representation of groundwater drawdown at the site after 14 hours of pumping. At the cessation of pumping, groundwater elevations were continuing to fall in the recovery well. Based on the drawdown data, an effective radius of influence of approximately 55 feet was exhibited during the pump test. Because drawdown did not stabilize in the observation wells at the end of the pump test, the radius of influence could increase during long term pumping.

The recovery rate of groundwater recharge to the monitoring wells was measured for a period of 18 hours after the cessation of pumping. Seventeen hours after pumping ceased, RW-3 (pumping well) had recovered to better than 98 percent of the static water level measured prior to pumping. Monitoring well RW-1 recovered to 100 percent within 16-hours. Monitoring wells RW-2, RW-4, MW-5, and SW-1 had recovered 56%, 64%, 67%, and 99%, respectively, after 18 hours since the cessation of pumping. The remaining wells had statistically insignificant drawdown to determine recovery percentages.

7.3.2 Analytical Testing of Groundwater Pre- and Post-Pump Test

Groundwater samples collected on March 7, 2000 were utilized as the baseline for the pump test. After monitoring of the recharge from the groundwater recovery test, groundwater samples were collected from the pumping well (RW-3) and from monitoring wells RW-4 and MW-5. Groundwater samples collected were submitted to North Creek Analytical laboratory and analyzed for TPH-G and BTEX. Analytical results were compared to the samples collected on March 7th and are summarized in Table 4. Benzene, xylene and TPH-G concentrations increased in the three samples submitted. Toluene and ethylbenzene concentrations were erratic in the

three samples submitted. The general increase in hydrocarbon concentrations may be a result of the groundwater pump test mobilizing hydrocarbons back towards the pumping well.

7.4 Disposal of Pilot Test Groundwater

During the groundwater recovery pilot tests, extracted groundwater was transferred into a 6,000-gallon FRAC holding tank which was configured with air sparging piping. When sufficient liquid (which was extracted from RW-3 during the step drawdown and constant rate tests) had collected in the tank, a Gast 1-1/2 horsepower regenerative blower was started to treat the collected liquid. In addition, groundwater which was generated from the well development and sampling phase of the project, was transferred from the 55-gallon drums to the tank. The collected fluid was sparged for approximately 4 days (March 21st through 24th). After sparging of the water was completed, a sample was collected from the tank on March 24th and submitted to the laboratory for analytical testing of WTPH-G/BTEX. Additional samples were collected on March 26th and analyzed for pH and total lead. Analytical testing met the criteria set forth in the Washington State Department of Ecology Water Quality/TCP Lust Permit Committee May 1992 letter for short term discharges. Arrangements were made with the City of Grandview to discharge the treated effluent into a catch basin located in the alley behind the Grandview Market. According to Mr. Arteaga of the City of Grandview, the storm water collection catch basin behind the subject site flows to a district irrigation ditch south of West 5th Street (DID #10). The discharge of the treated effluent occurred on March 29th, 2000. A copy of the discharge letter and analytical test certificates are provided in Appendix J.

8.0 CONCLUSIONS

Native soils encountered beneath the subject site consist of medium dense, brown, fine sand with moderate silt content to a depth of approximately ten feet bgs. From ten feet to a depth of approximately 34 feet bgs, the soils consist of a damp to saturated, medium-grained sand with moderate silt interbedded with saturated, medium-grained sand. Basalt bedrock was interpreted to be below a depth of 34 feet bgs. Groundwater was encountered between 16 and 18 feet bgs. Stratigraphy across the site consists of a tight, siltier soil above 10 feet with lower permeabilities. Soils below 10 feet become coarser and have greater permeabilities.

Analytical testing of soil and groundwater during the initial geoprobe investigation and the subsequent well installation phase have identified hydrocarbon impacted soils and groundwater above MTCA Method A cleanup levels in the area of the former tank pit (eastern area of property) and the current UST pit on the southwestern edge of the property. Groundwater impacts were identified beneath Division Street, west of the subject property.

Water level measurements collected on May 7, 2000 from the eleven site monitoring wells exhibited groundwater at depths of 16.47 to 17.62-feet below the top of the well casing. Groundwater elevations ranged from 77.07 to 77.97 feet based on a relative site datum. No LNAPLs were detected in any site monitoring wells. A groundwater gradient of 0.0084 ft/ft was calculated for the Grandview Market property with a flow trending to the southwest.

The 12-hour in-situ air sparging test conducted on well SW-1 indicated an approximate radius of influence of 45 to 60-feet as determined from dissolved oxygen readings. The field parameters of temperature, D.O., conductivity, pH, and water level were all monitored during the test and utilized to determine an effective radius of influence. Analysis of the data indicated that in-situ air sparging would be an effective remedial technology for the site.

Three vapor extraction tests were performed on individual and multiple wells at the site. The test results indicate that an effective radius of influence of less than 20 feet was achieved. The low radius of influence may be a result of the less permeable silty fine sands located at a depth from 1 to 10 feet. The Rotron EN-404 regenerative blower did exhibit a high flow rate (32 to 87 cfm) in the immediate area of the existing tank field. This may be a result of the more porous fill material located within the tank basin. Off-gas laboratory analytical testing and field PID measurements indicated that moderate to elevated concentrations of volatile petroleum hydrocarbons could be removed from the unsaturated soils. Testing indicates that a significantly larger vacuum source is necessary to increase the radius of influence to a more feasible distance.

Results of the pump test performed on RW-3 indicates the shallow aquifer beneath the site could sustain an average pumping rate of 1.6 gpm during the test. A maximum radius of influence of 55 feet was achieved during the test; however, this radius could be increased during long term pumping. Data collected during the pilot testing indicates that groundwater recovery can be a feasible alternative to treat the hydrocarbon impacted groundwater and control off-site migration.

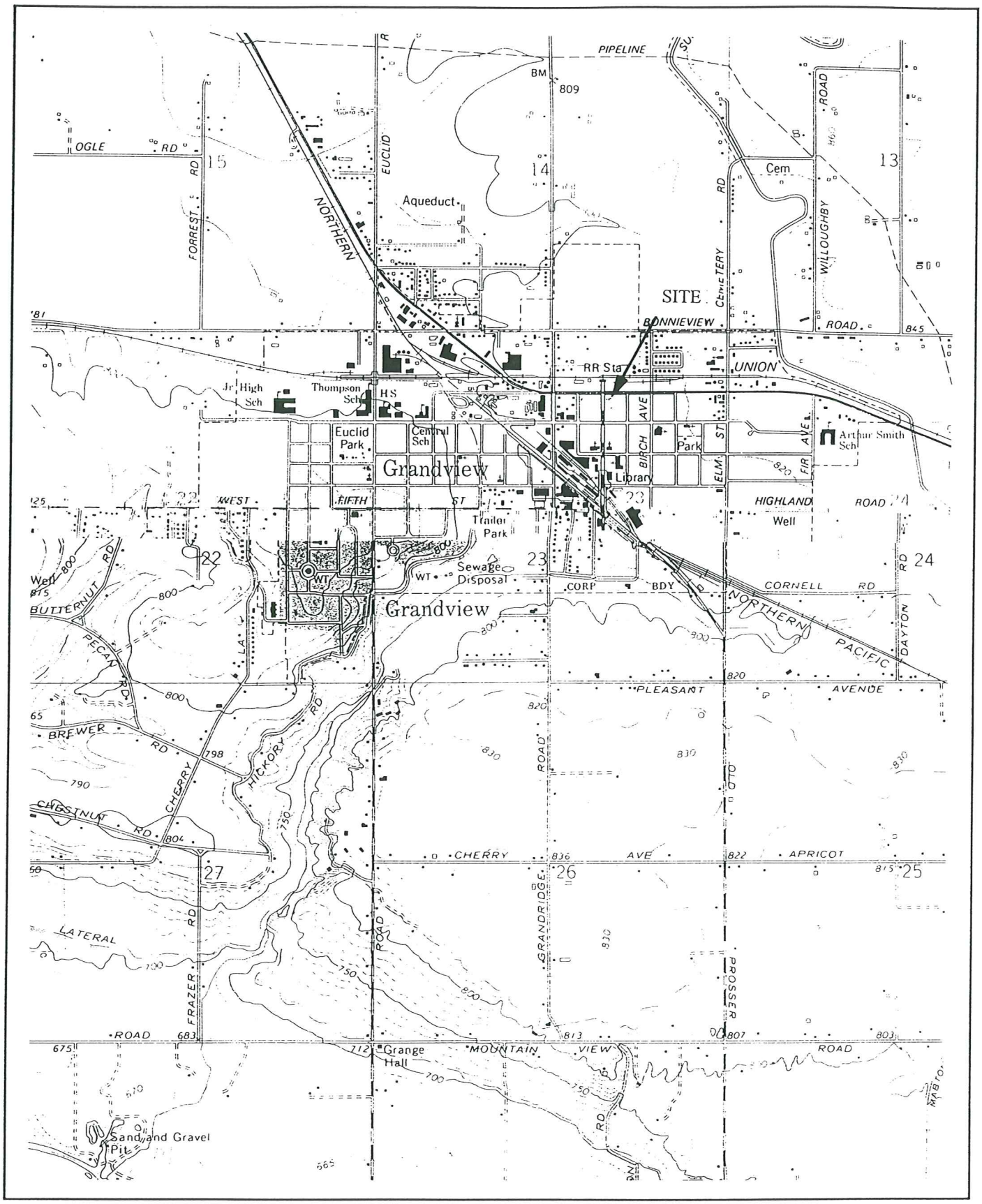
Interpretation of the three remedial methods applied during the pilot test indicates that site remediation in areas impacted with petroleum hydrocarbons within the soil and groundwater may be accomplished utilizing a combination of the technologies. Construction of a high pressure-low flow in-situ air sparging system coupled with vapor extraction would be a feasible alternative to mitigate hydrocarbon impacts. Coupling the aforementioned technologies with a groundwater recovery system would assist in reducing mounding of the groundwater table from the air sparge system and control off-site migration of the dissolved phase plume.

We appreciate this opportunity to be of service to Time Oil Company. Should you have any questions regarding this assessment report please do not hesitate to contact us at your earliest possible convenience.

Respectfully submitted,
Maxim Technologies, Inc.

Mark B. Engdahl
Environmental Geologist

Eugene N.J. St. Godard, P.G., C.H.G
Senior Project Hydrogeologist



From USGS 7.5' X Quad

N

0 Feet 50

MAXIM 9904825.100

Site Vicinity Map
Food Mart - T.O.C. #01-070
Grandview, Washington
FIGURE No. 1

c:\work\acad\timeoil\grandGW030700.dwg

Main / Wine County Road

DeBock's Texaco

Sport Center and Tavern

Sidewalk

Division

Sidewalk

MW-4

RW-2

SW-1

Canopy

Dispenser Island

MW-2

RW-1

Approximate Location of Existing UST Tank Pit

Approximate Location of Former UST's

MW-3

Grandview Christian Center

RW-3

RW-4

MW-5

Time Oil Site Grand View Food Market

Grand View Herald

MW-1

MW-6

Alley

March 2000

N

0 Feet 20

MAXIM 9004825.100

☐ Approximate Monitoring Well Location and Number (2-inch)

◙ Approximate Sparge Well Location and Number (2-inch)

☒ Approximate Recovery Well Location and Number (4-inch)

Site and Exploration Map
Time Oil Facility 01-070
Grandview, Washington
FIGURE 2

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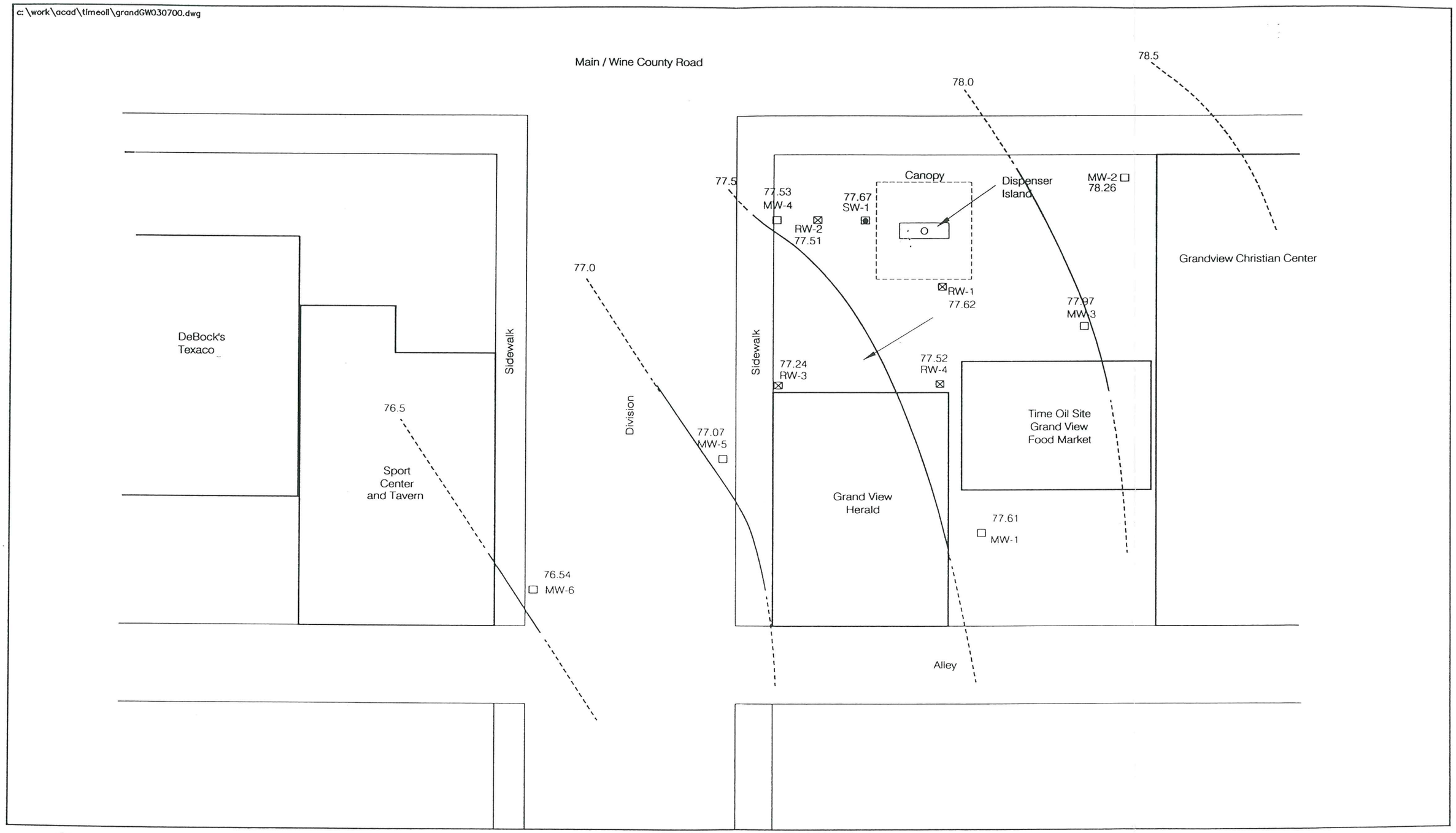


March 7, 2000

N

0 Feet 20

MAXIM 9904825.100

—— Equipotential Line

78.0 Groundwater Elevation

← Arrow Depicting Groundwater Flow Direction

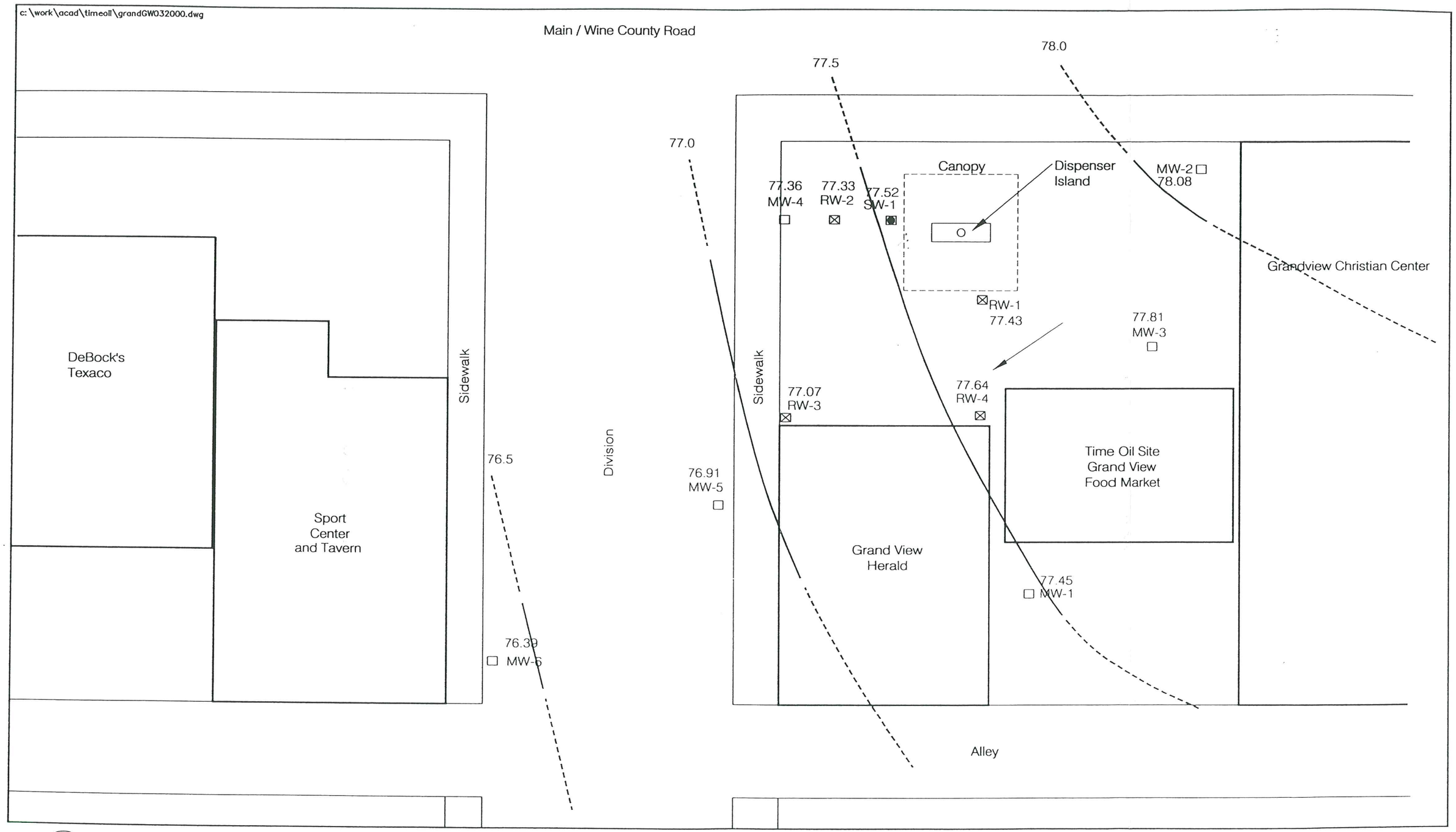
□ Approximate Monitoring Well Location and Number (2-inch)

◙ Approximate Sparge Well Location and Number (2-inch)

⊠ Approximate Recovery Well Location and Number (4-inch)

Groundwater Contour Map
Time Oil Facility 01-070
Grandview, Washington
FIGURE 3

c:\work\acad\timeoil\grandGW032000.dwg



March 20, 2000

N

0 Feet 20

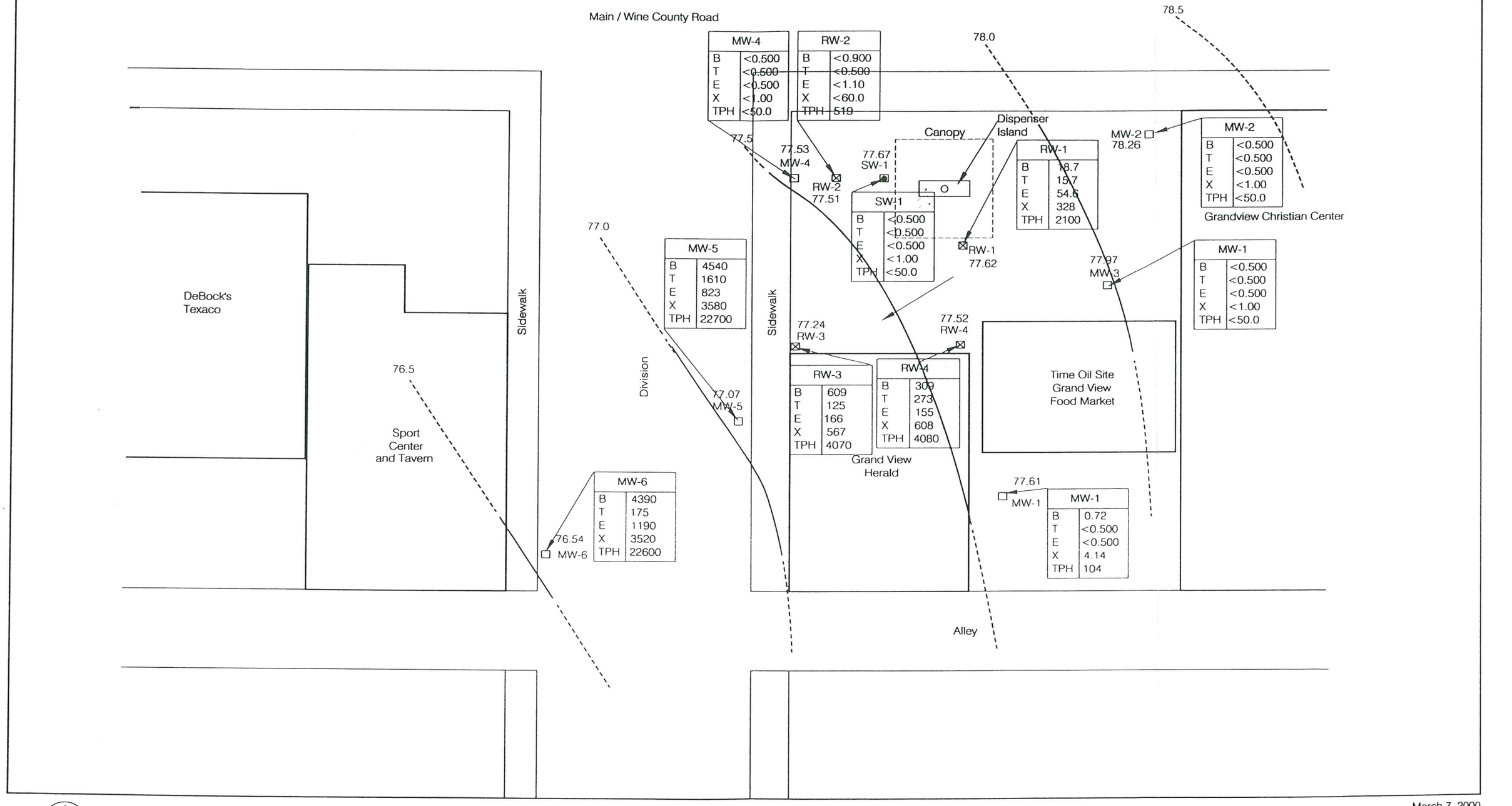
Equipotential Line
78.0 Groundwater Elevation
Arrow Depicting Groundwater Flow Direction

Approximate Monitorng Well Location and Number (2-inch)
Approximate Sparge Well Location and Number (2-inch)
Approximate Recovery Well Location and Number (4-inch)

Groundwater Contour Map
Time Oil Facility 01-070
Grandview, Washington
FIGURE 4

MAXIM 9904825.100

c:\work\acad\timeoil\grandGW030700.dwg



March 7, 2000

N

0 Feet 20

—— Equipotential Line

78.0 Groundwater Elevation

← Arrow Depicting Groundwater Flow Direction

□ Approximate Monitoring Well Location and Number (2-inch)

◉ Approximate Sparge Well Location and Number (2-inch)

⊠ Approximate Recovery Well Location and Number (4-inch)

B Benzene
T Toluene
E Ethylbenzene
X Total Xylenes
TPH Total Petroleum Hydrocabons

Site and Exploration Map
with Analytical Test Results
Time Oil Facility 01-070
Grandview, Washington
FIGURE 5

MAXIM 9904825.100

c:\work\acad\tlmeoil\grandGW030700.dwg

Main / Wine County Road

DeBock's Texaco

Sport Center and Tavern

Sidewalk

Division

Sidewalk

(0.01) MW-6

(0.07) MW-5

(1.14) MW-4

SW-1

RW-2 (Saturated)

Canopy

Dispenser Island

(0.77) MW-2

Approximate Location of Existing UST Tank Pit

RW-1 (0.08)

Approximate Location of Former UST's

(0.09) MW-3

(0.29) RW-3

RW-4 (0.11)

Grandview Christian Center

Time Oil Site Grand View Food Market

Grand View Herald

(0.11) MW-1

Alley

N

0 Feet 20

MAXIM 9904825.100

□ Approximate Monitoring Well Location and Number (2-inch)

◉ Approximate Sparge Well Location and Number (2-inch)

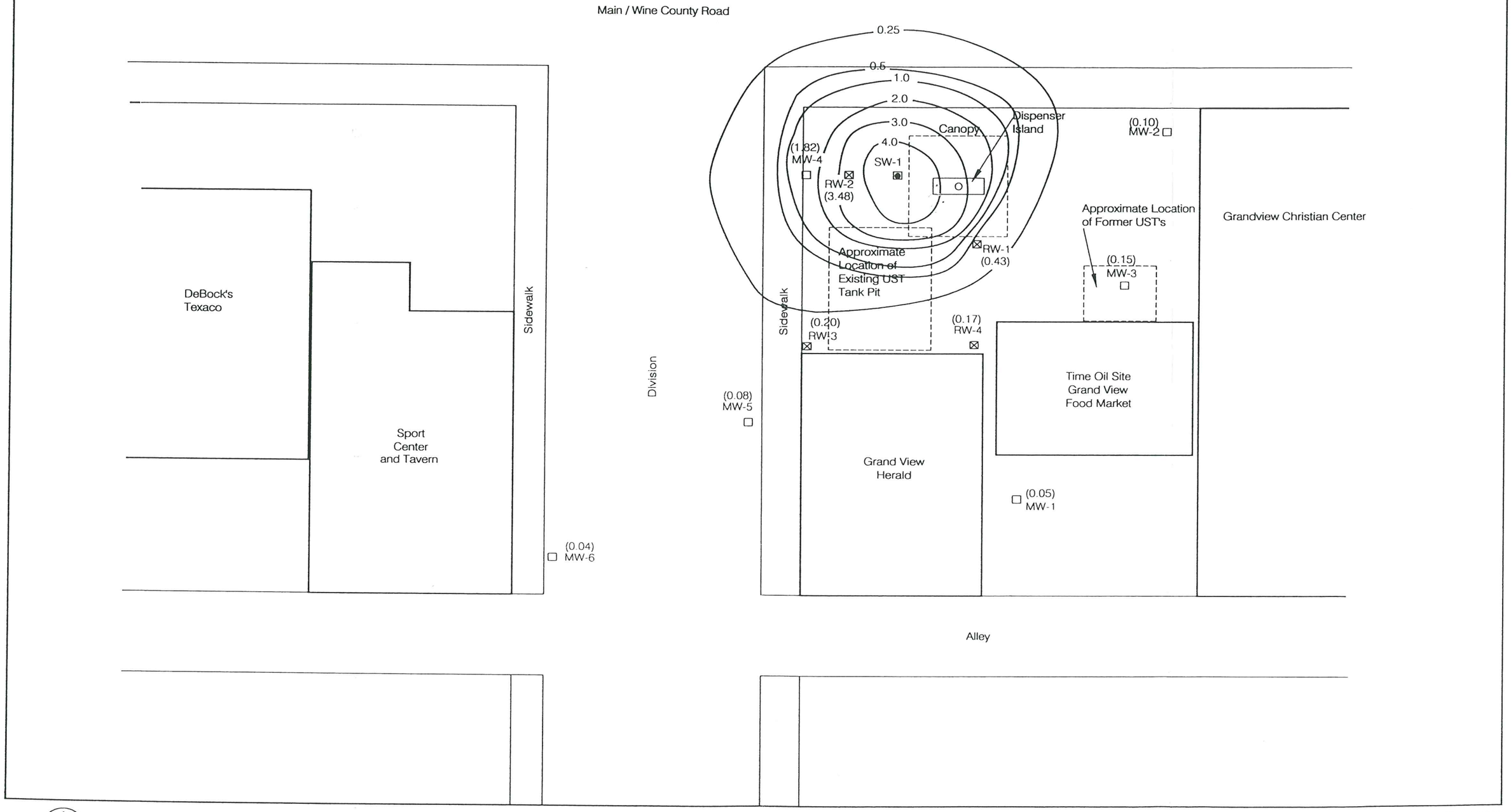
⊠ Approximate Recovery Well Location and Number (4-inch)

(0.04) Change in Dissolved Oxygen Concentration (mg/L)

March 2000

Air Sparging Radius of Influence
Dissolved Oxygen Concentrations
Time Oil Facility 01-070
Grandview, Washington
FIGURE 6

c:\work\acad\timeoil\grandGW030700.dwg



MAXIM 9904825.100

March 2000

□ Approximate Monitoring Well Location and Number (2-inch)

◙ Approximate Sparge Well Location and Number (2-inch)

⊠ Approximate Recovery Well Location and Number (4-inch)

(3.48) Groundwater Change in Elevation (feet)

Air Sparging Radius of Influence
Groundwater Mounding
Time Oil Facility 01-070
Grandview, Washington
FIGURE 7

c:\work\acad\timeoil\grandGW030700.dwg

Main / Wine County Road

DeBock's Texaco

Sidewalk

Sport Center and Tavern

(0.01) MW-6

Division

Sidewalk

(0.05) MW-4

RW-2 (0.09)

(0.09) SW-1

Canopy

Dispenser Island

MW-2 (0.02)

Approximate Location of Former UST's

Grandview Christian Center

Approximate Location of Existing UST Tank Pit

RW-1 (0.10)

(0.02) MW-3

(0.14) RW-4

RW-3 (7.09)

5.0

1.0

0.5

0.1

(0.15) MW-5

Time Oil Site Grand View Food Market

Grand View Herald

(0.03) MW-1

Alley

March 2000

N

0 Feet 20

MAXIM 9904825.100

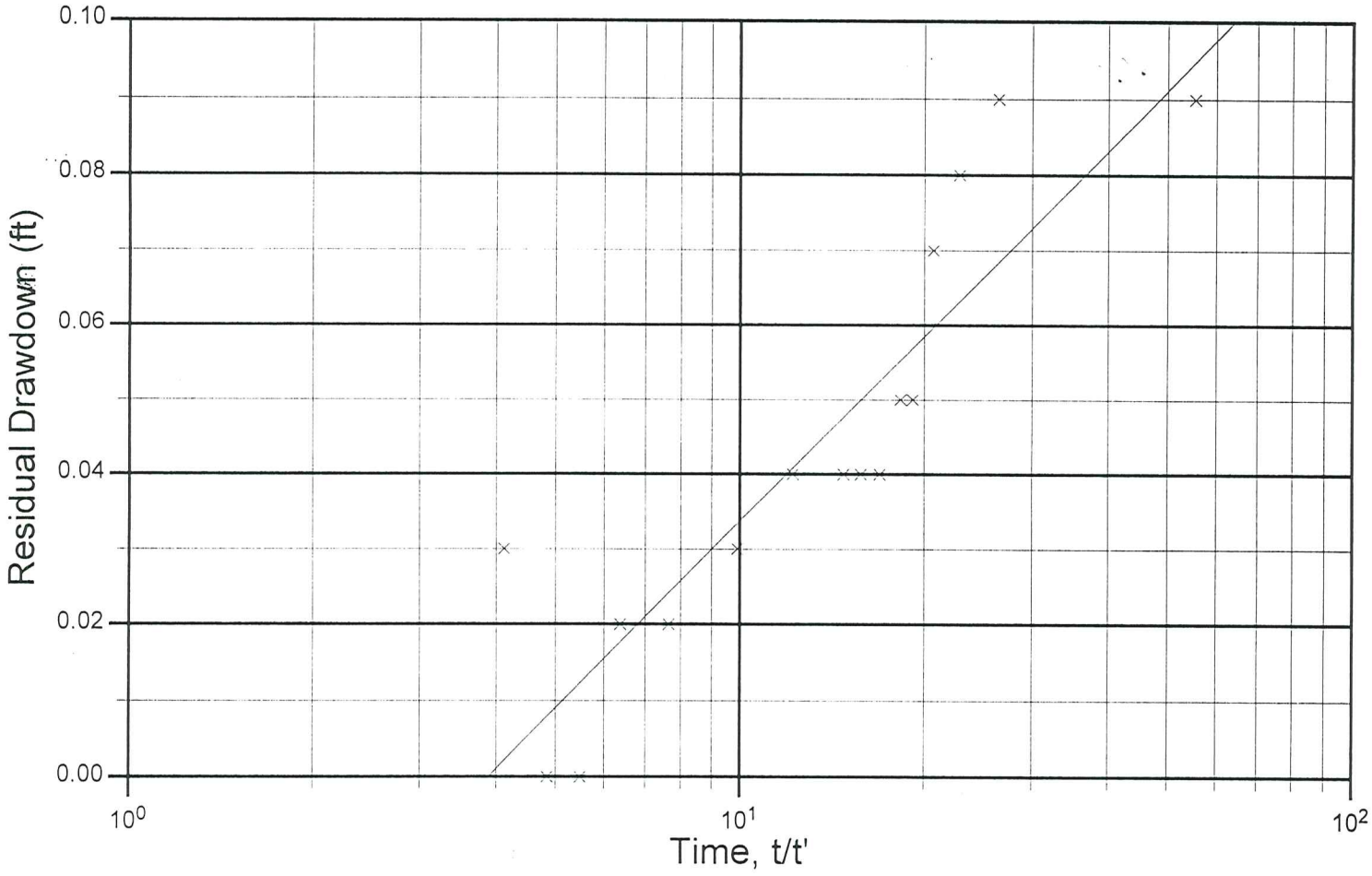
□ Approximate Monitoring Well Location and Number (2-inch)

◉ Approximate Sparge Well Location and Number (2-inch)

⊠ Approximate Recovery Well Location and Number (4-inch)

(0.15) Groundwater Change in Elevation (feet)

Radius of Influence
Constant Rate Pump Test
Time Oil Facility 01-070
Grandview, Washington
FIGURE 8

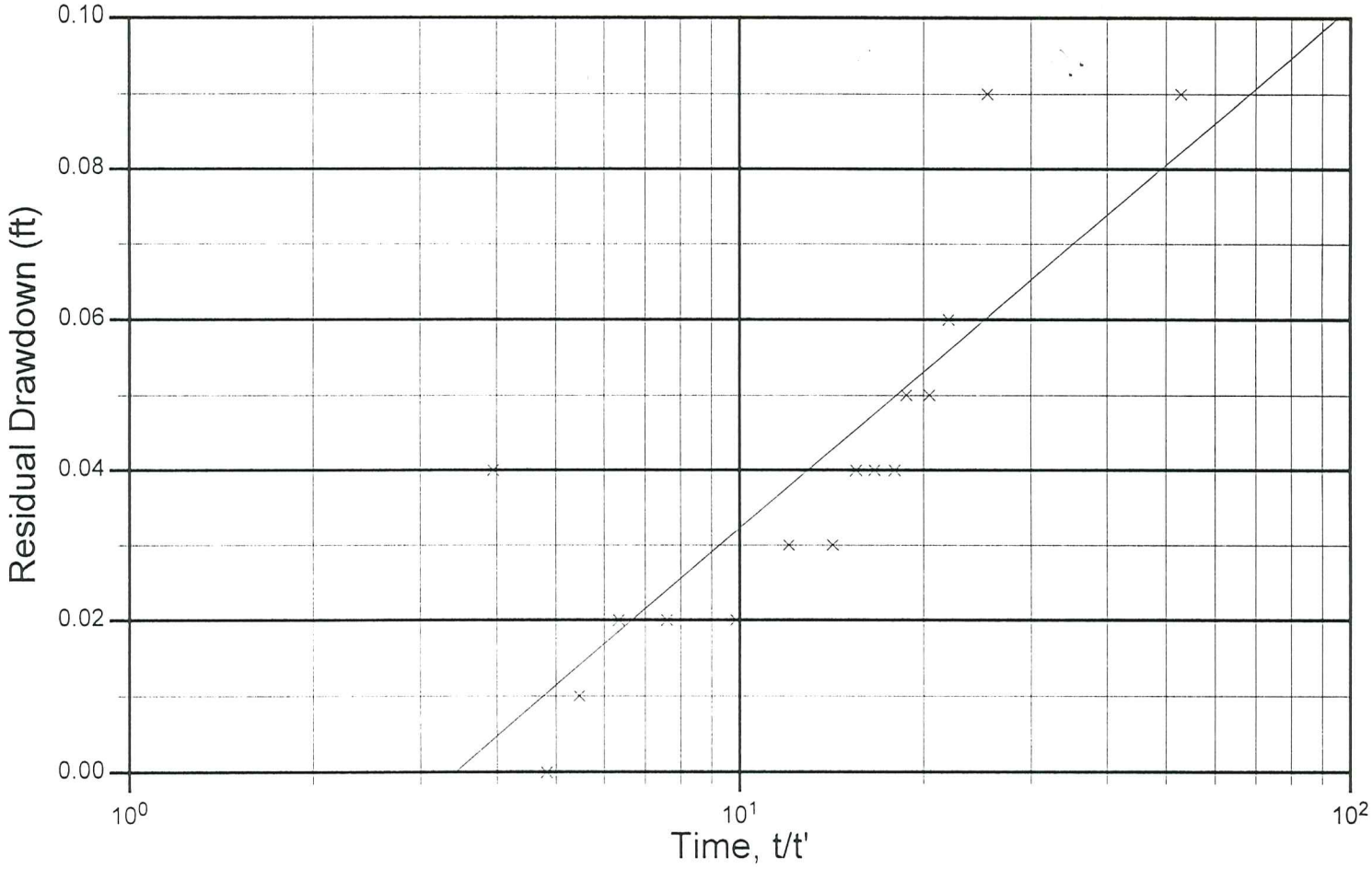


March 2000

MAXIM 9904825.100

T = 686.68 ft²/day
S = 3.86
K = 41.62 ft/day
(0.029 ft/min)

RW-1 Recovery
Constant Rate Test - RW-3
Time Oil Facility 01-070
Grandview, Washington
Figure 9

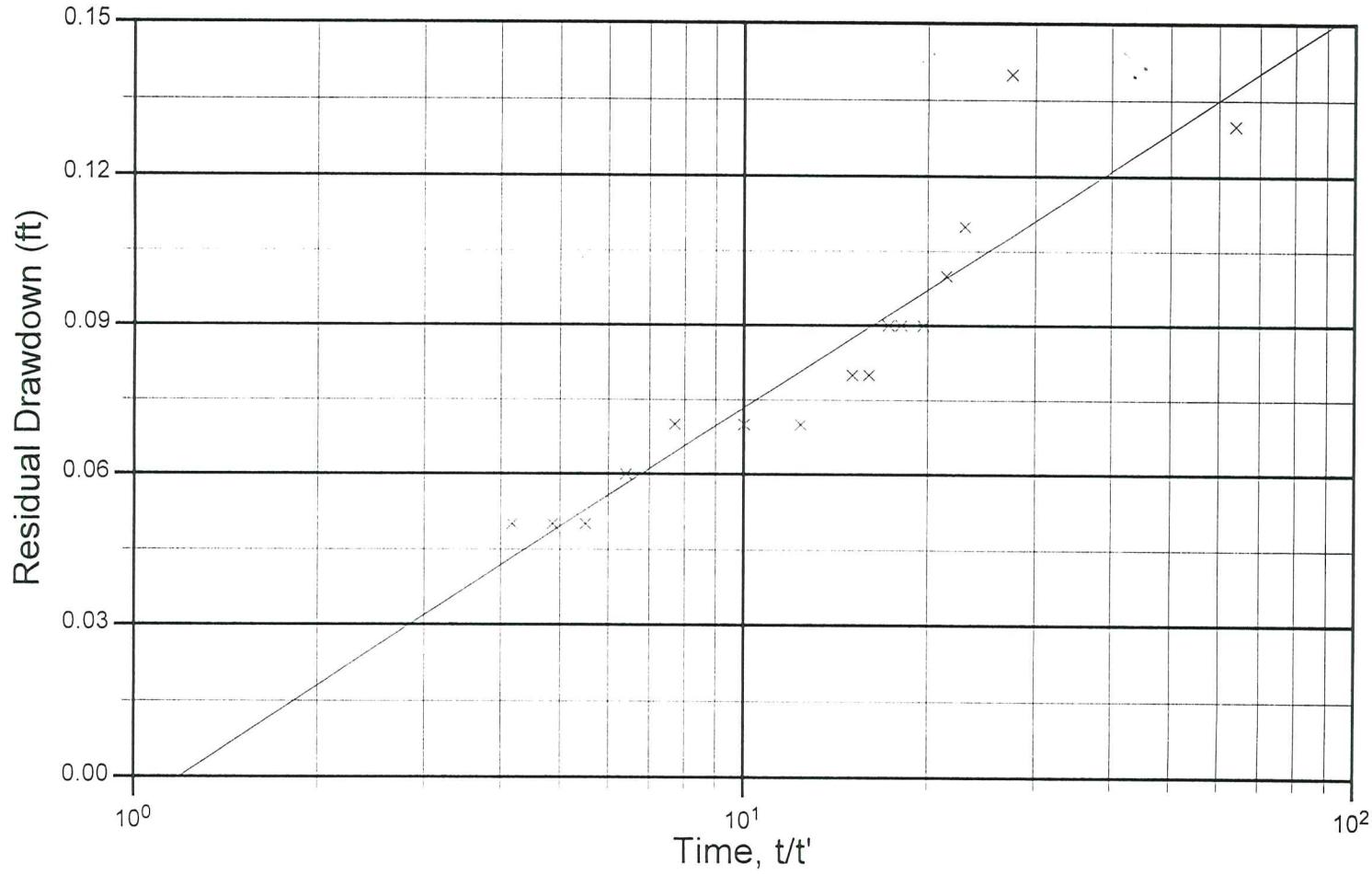


March 2000

MAXIM 9904825.100

T = 814.81 ft^2/day
S = 3.42
K = 49.38 ft/day
(0.034 ft/min)

RW-2 Recovery
Constant Rate Test - RW-3
Time Oil Facility 01-070
Grandview, Washington
Figure 10

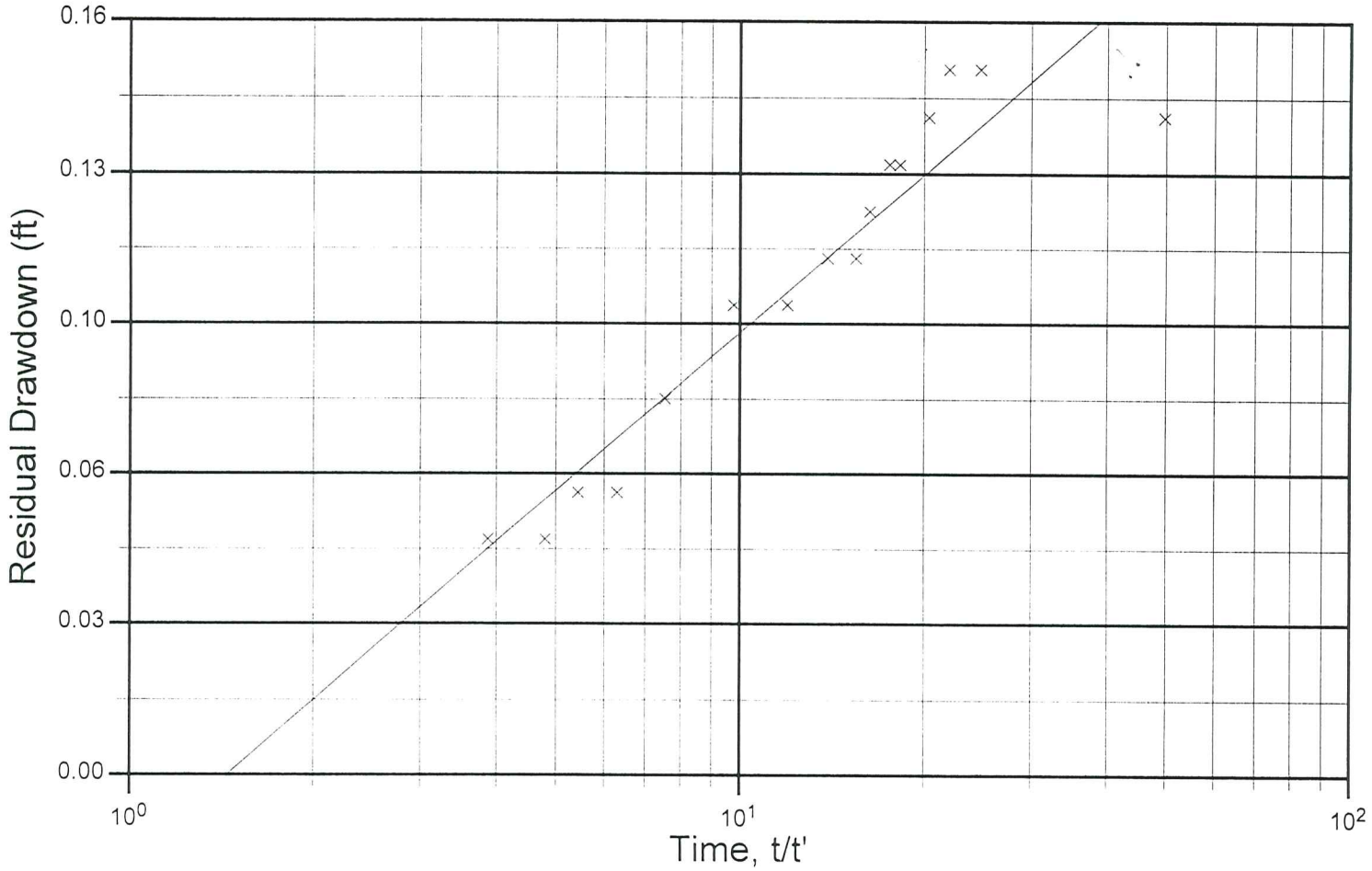


MAXIM 9904825.100

T = 711.5 ft²/day
S = 1.18
K = 43.12 ft/day
(0.03 ft/min)

March 2000

RW-4 Recovery
Constant Rate Test - RW-3
Time Oil Facility 01-070
Grandview, Washington
Figure 11



MAXIM 9904825.100

March 2000

T = 503.33 ft²/day
S = 1.44
K = 30.5 ft/day
(0.021 ft/min)

MW-5 Recovery
Constant Rate Test - RW-3
Time Oil Facility 01-070
Grandview, Washington
Figure 12

TABLE 1
Summary of Groundwater Elveation & Analytical Test Data
TIME OIL GRANDVIEW
100 East Wine Country Road
9904825

Well ID	DATE	TOC (feet)	DTW (feet)	TWD (feet)	GWE (feet)	Change in Elevation (feet)	B ug/l	T ug/l	E ug/l	X ug/l	TPH-G ug/l	LAB
MW-1	03/07/2000	94.8	17.19	25	77.61	----	0.72	<0.500	<0.500	4.14	104	NCA
	03/20/2000		17.35	25	77.45	-0.16	----	----	----	----	----	----
MW-2	03/07/2000	95.21	16.95	25	78.26	----	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
	03/20/2000		17.13	25	78.08	-0.18	----	----	----	----	----	----
MW-3	03/07/2000	95.59	17.62	25	77.97	----	8.26	21.4	37.2	651	2430	NCA
	03/20/2000		17.78	25	77.81	-0.16	----	----	----	----	----	----
MW-4	03/07/2000	94.18	16.65	25	77.53	----	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
	03/20/2000		16.82	25	77.36	-0.17	----	----	----	----	----	----
MW-5	03/07/2000	93.54	16.47	25	77.07	----	4540	1610	823	3580	22700	NCA
	03/20/2000		16.63	25	76.91	-0.16	----	----	----	----	----	----
MW-6	03/07/2000	93.60	17.06	25	76.54	----	4390	175	1190	3520	22600	NCA
	03/20/2000		17.21	25	76.39	-0.15	----	----	----	----	----	----
RW-1	03/07/2000	95.00	17.38	34	77.62	----	18.7	15.7	54.6	328	2100	NCA
	03/20/2000		17.57	34	77.43	-0.19	----	----	----	----	----	----
RW-2	03/07/2000	94.68	17.17	34	77.51	----	<0.900	<0.500	<1.10	<60.0	519	NCA
	03/20/2000		17.35	34	77.33	-0.18	----	----	----	----	----	----
RW-3	03/07/2000	94.83	17.59	34	77.24	----	609	125	166	567	4070	NCA
	03/20/2000		17.76	34	77.07	-0.17	----	----	----	----	----	----
RW-4	03/07/2000	95.18	17.66	34	77.52	----	309	273	155	608	4080	NCA
	03/20/2000		17.54	34	77.64	0.12	----	----	----	----	----	----
SW-1	03/07/2000	94.91	17.24	30	77.67	----	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
	03/20/2000		17.39	30	77.52	-0.15	----	----	----	----	----	----
Duplicate 03/07/2000 Collected from RW-3.							552	111	142	480	3370	NCA
MTCA Method A Cleanup Levels - Groundwater							**5.0**	**40.0**	**30.0**	**20.0**	**1000**	

TOC Top of Casing
DTW Depth to Water
TWD Total Well Depth
GWE Ground Water Elevation
---- No Data Collected
Note: Brass cap surveyed in southeast corner of concrete near the Grandview Herold (95.58).

TABLE 2

Summary of Off-Gas Analytical Data

TIME OIL GRANDVIEW
100 East Wine Country Road
9904825

Well ID	DATE	B mg/m^3	T mg/m^3	E mg/m^3	X mg/m^3	TPH-G mg/m^3	LAB
RW-4/S-1	03/20/00	131	161	4.78	163	2690	NCA
RW-4/S-2	03/20/00	123	164	4.57	165	2410	NCA
MW-3/S-1	03/20/00	73.9	46.5	72.0	283	4030	NCA
RW-1,RW-3,RW-4/S-1	03/21/00	47.3	58.2	18.9	82.7	1460	NCA
RW-1,RW-3,RW-4/S-2	03/22/00	56.0	69.1	23.5	98.6	1660	NCA

ABBREVATIONS:

B	Benzene	**THP-G**	Total Petroleum Hydrocarbons as gasoline
T	Toluene	**mg/m^3**	Milligrams per cubic meter
E	Ethylbenzene	NCA	North Creek Analytical
X	Total Xylenes		

TABLE 3

Air Sparging - Pre and Post Sampling

TIME OIL GRANDVIEW
100 East Wine Country Road
9904825

Well ID	DATE	GWE	B	T	E	X	TPH-G	Cu	Fe	Mg	Mn	Pb	Zn	LAB
		feet	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	
MW-4	03/22/00	77.26	<0.500	<0.500	<0.500	1.43	<50.0	0.0029	<0.150	55.2	0.0273	<0.00100	<0.0100	NCA
	03/23/00	77.24	<0.500	<0.500	<0.500	2.25	<50.0	0.0109	<0.150	62.8	0.0342	<0.00100	<0.0100	NCA
RW-1	03/22/00	77.40	110	68.2	137	1040	5190	0.0102	<0.150	57.3	1.21	<0.00100	<0.0100	NCA
	03/23/00	77.38	125	84.9	238	1110	5910	0.0066	<0.150	54.3	1.47	<0.00100	<0.0100	NCA
RW-2	03/22/00	77.28	4.70	<1.25	<2.80	20.6	1270	0.002	<0.150	51.8	1.93	<0.00100	<0.0100	NCA
	03/23/00	77.22	<0.500	<0.500	<0.500	<4.05	204	0.0617	<0.150	74.6	0.897	<0.00100	0.0155	NCA
SW-1	03/22/00	77.44	<0.500	0.521	1.26	7.92	64.9	0.0193	<0.150	72.6	0.217	<0.00100	0.0234	NCA
	03/23/00	77.26	<0.500	<0.500	<0.500	<1.00	<50.0	0.0162	<0.150	87.2	0.269	<0.00100	<0.0100	NCA

ABBREVATIONS:

B	Benzene	THP-G	Total Petroleum Hydrocarbons as gasoline	Cu	Copper
T	Toluene	ug/l	Micrograms per liter	Fe	Iron
E	Ethylbenzene	GWE	Groundwater Elevation	Mg	Magnesium
X	Total Xylenes	NCA	North Creek Analytical	Mn	Manganese
				Pb	Lead
				Zn	Zinc

TABLE 4

Pre-Post Groundwater Recovery Test

TIME OIL GRANDVIEW
100 East Wine Country Road
9904825

Well ID	DATE	GWE *(feet)	B ug/l	T ug/l	E ug/l	X ug/l	TPH-G ug/l	LAB
MW-5	03/07/2000	77.07	4540	1610	823	3580	22700	NCA
	03/21/2000	76.91	5120	1580	830	4510	23600	NCA
RW-3	03/07/2000	77.24	609	125	166	567	4070	NCA
	03/21/2000	77.07	1320	321	156	1060	6330	NCA
RW-4	03/07/2000	77.52	309	273	155	608	4080	NCA
	03/21/2000	77.64	1490	960	520	2930	17700	NCA

ABBREVATIONS:

B	Benzene	THP-G	Total Petroleum Hydrocarbons as gasoline
T	Toluene	ug/l	Micrograms per liter
E	Ethylbenzene	GWE	Groundwater Elevation
X	Total Xylenes	NCA	North Creek Analytical

APPENDIX A

TRAFFIC PLAN

MAXIM
TECHNOLOGIES INC

E. 111 Magnesium Road, Suite A
Spokane, Washington 99208
(509) 465-2188
fax: (509) 465-2199

Project No. 9904825.100

January 19, 2000

Mr. Cus Arteaga
Public Works Director - City of Grandview
207 W. 2nd Street
Grandview, Washington 98930

Subject: Traffic Plan for Geoprobe Explorations
Grandview FoodMart - Division Street and Main Street
Grandview, Washington

Mr. Arteaga:

Maxim Technologies, Inc. (Maxim) will be conducting a preliminary assessment on behalf of Time Oil Company for the property located at 100 East Wine Country Road. This assessment will include the completion of an estimated nine Geoprobe explorations in the public right-of-ways on Division Street and Main Street. The Geoprobe will be pushed through the asphalt (or if concrete is present a coring machine will be used), causing a 2-inch diameter hole and advanced to a depth of approximately 20-feet below grade. Soil and groundwater samples will be collected from each Geoprobe location. After sample collection, the Geoprobe will be withdrawn from the subsurface and the hole filled with bentonite to the bottom of the asphalt. The hole in the asphalt will then be filled with asphalt cold patch.

It is estimated that the Geoprobe equipment will be located at each exploration location for approximately 1 to 2 hours. All work will be conducted on the right side of the roadway on the shoulder or within several feet of the curb. No intersections will be blocked by the equipment. The exploration locations are shown on the attached Figures. These locations are approximate and may be moved due to utilities.

As shown on the attached figures, there are four primary work zones. Location of traffic control signs for each zone are shown on the figures. In addition, orange traffic cones will be placed around the work zone and angled approximately 75 feet to the on-coming traffic.

No permanent monitoring wells will be installed in the right-of-ways during this phase of the project. A determination of the monitoring well locations will be completed after review of the data collected during the Geoprobe exploration phase. A subsequent traffic plan, including as-builts of the wells, will be submitted to your office in early February with the monitoring well location information.

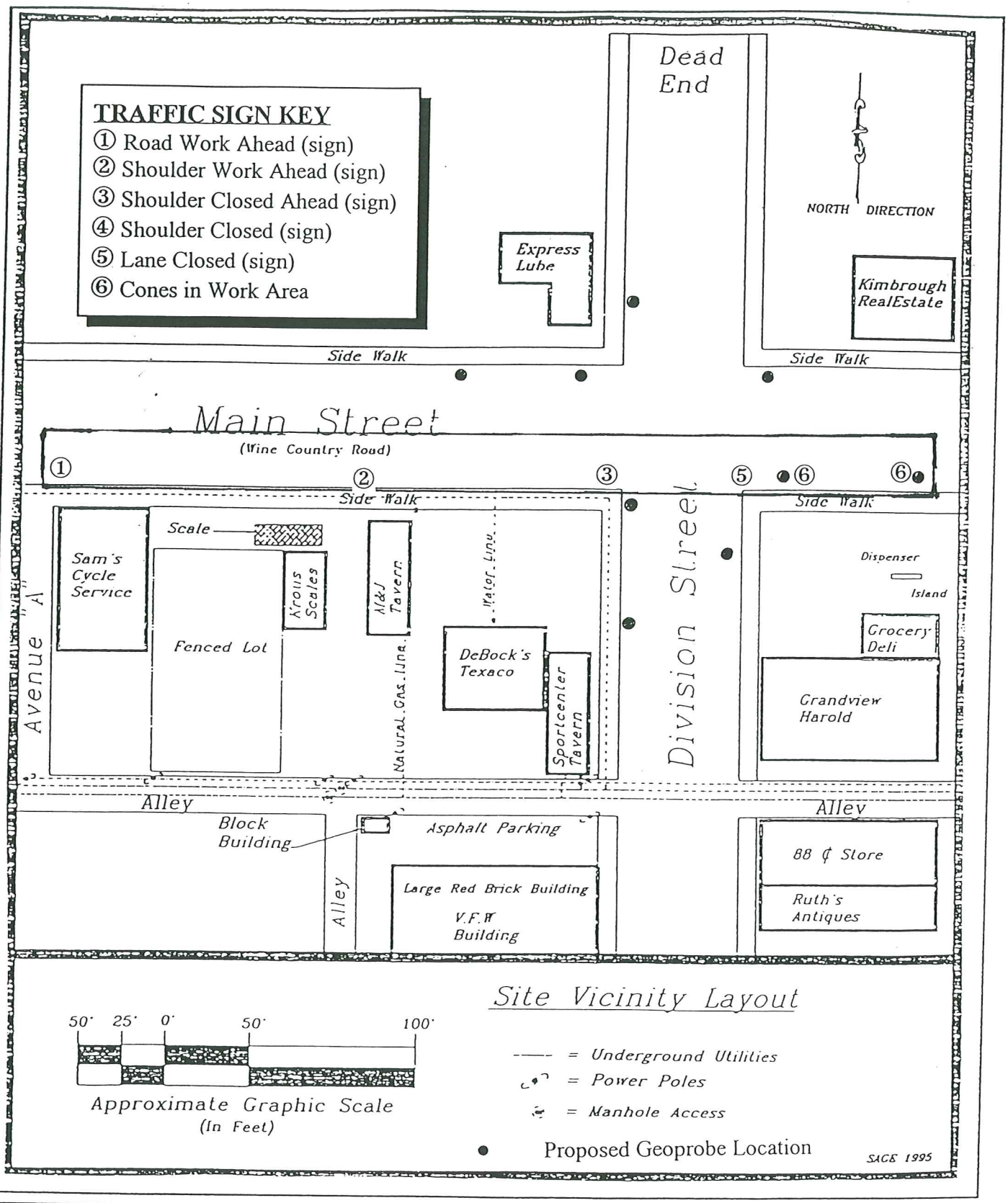
Maxim has scheduled the field work for January 27th and 28th, 2000. If your office requires any additional information regarding this phase of the project, or subsequent phases, please contact us at your convenience. We appreciate your cooperation with this project and look forward to completing the required tasks with minimal disturbance to the traffic flow on Division and Main Streets.

Respectfully submitted,
Maxim Technologies, Inc.

Eugene N.J. St. Godard, P.G., C.HG.
Senior Hydrogeologist
Spokane Office Manager

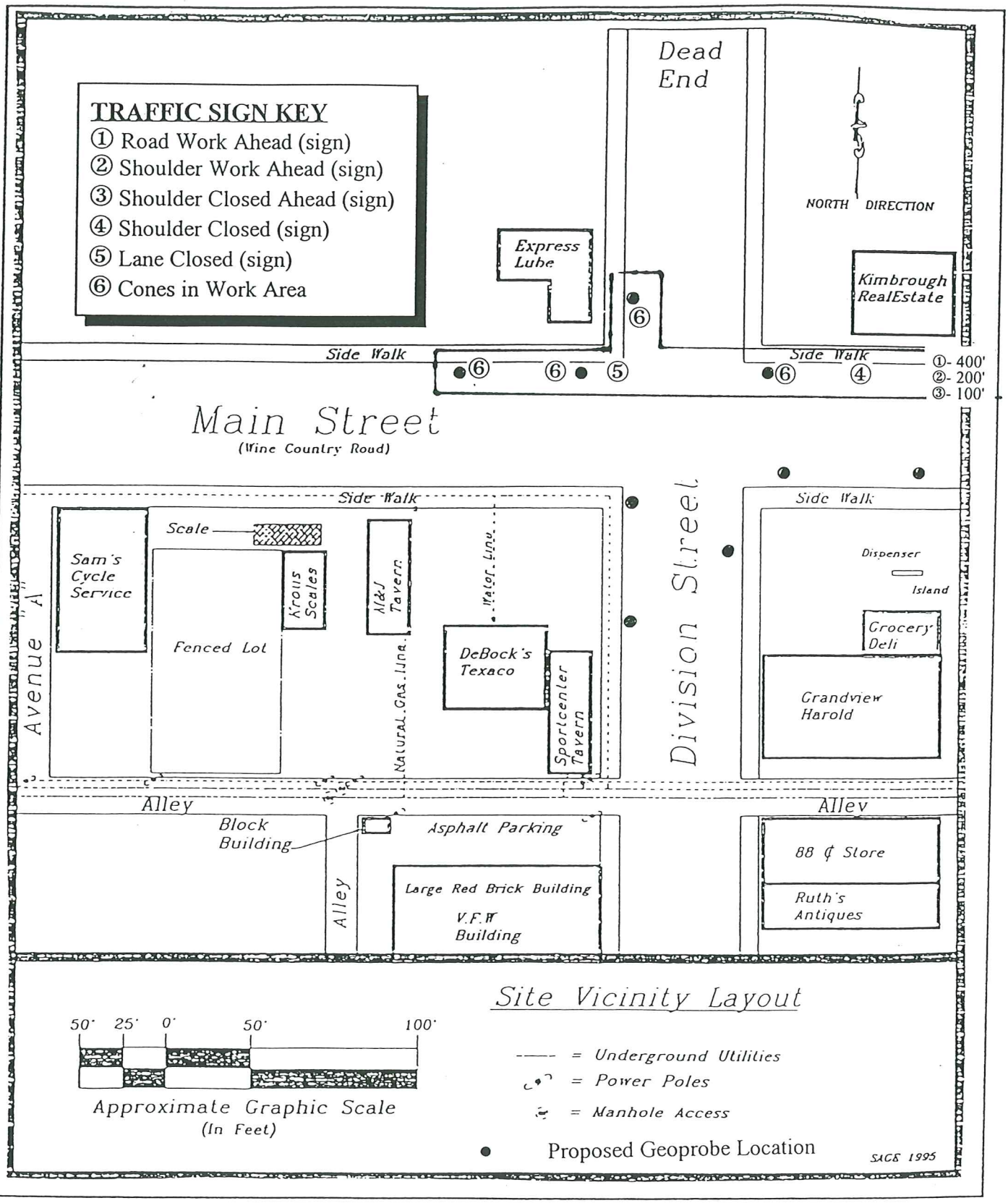
Attachments: Traffic Plans (4)

cc: Anne Wilkinson - Time Oil Company



N	Drawn By:	PROPOSED GEOPROBE LOCATIONS & TRAFFIC CONTROL PLAN Grandview Foodmart Grandview, Washington
	Reviewed By:	
Basemap Source	Scale:	
MAXIM Technologies	Project Number: 9904825.100	Date:

FIGURE 1A



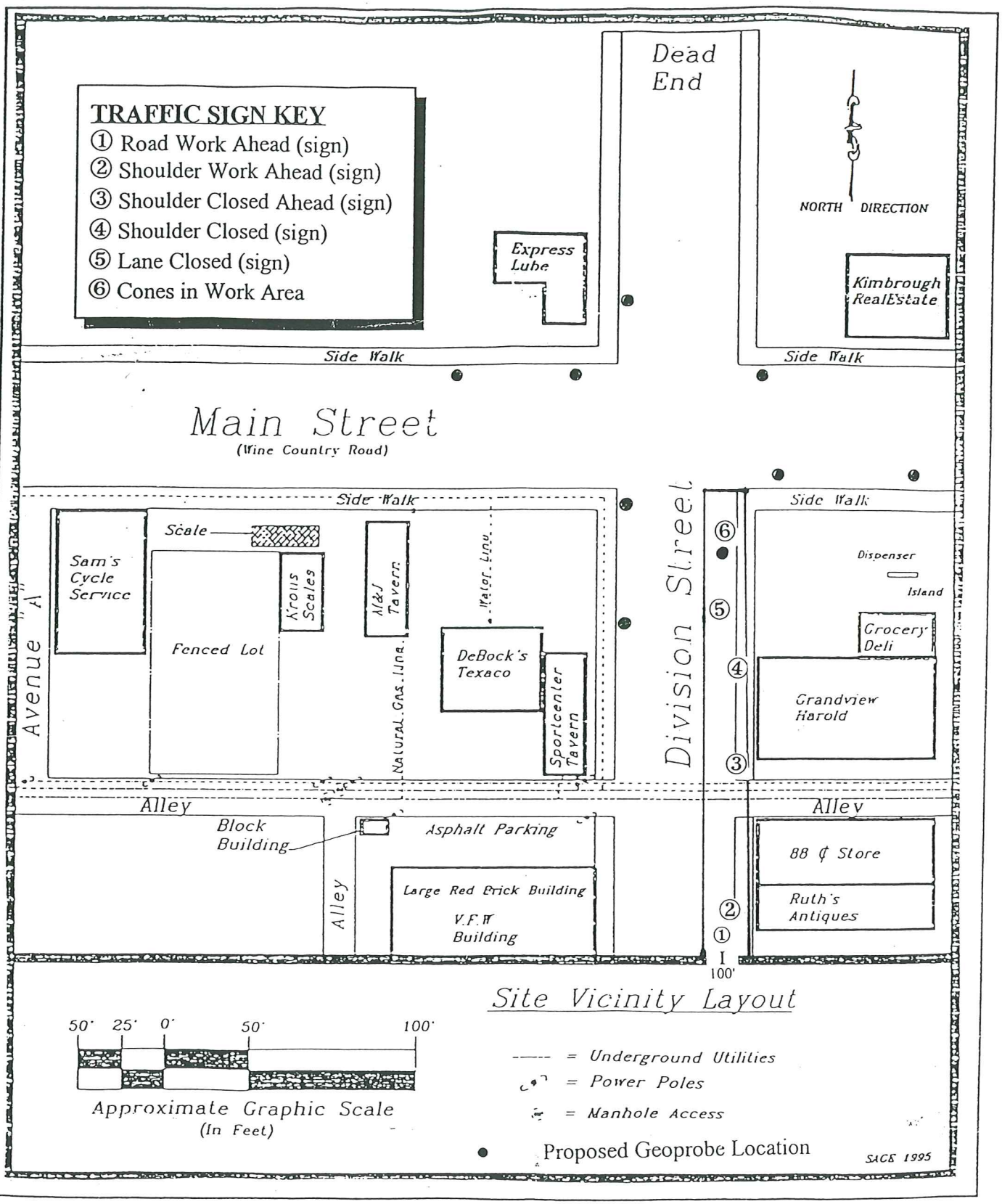
N

Basemap Source

MAXIM Technologies

Drawn By:	PROPOSED GEOPROBE LOCATIONS & TRAFFIC CONTROL PLAN Grandview Foodmart Grandview, Washington
Reviewed By:	
Scale:	
Project Number: 9904825.100	Date:

FIGURE 1 B



N	Drawn By:	PROPOSED GEOPROBE LOCATIONS & TRAFFIC CONTROL PLAN Grandview Foodmart Grandview, Washington
	Reviewed By:	
Basemap Source MAXIM Technologies	Scale:	
	Project Number: 9904825.100	Date:

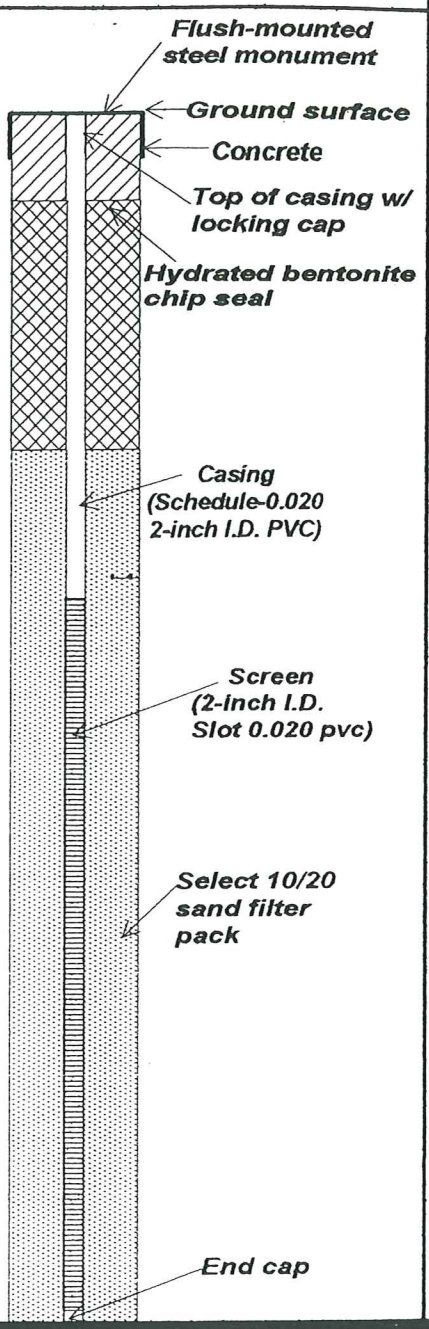
FIGURE 1 C

PROJECT *Grandview Time Oil Property No. 01-070* W.O. *9904825.100* WELL NO.

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0						
5						
10						
15						
20						
25						
30						

AS-BUILT DESIGN



TESTING

LEGEND

MAXIM TECHNOLOGIES, INC.
N. 10220 Nevada, Suite 290
Spokane, Washington 99218

Drilling started: Drilling completed: Logged by: *ENJS*

APPENDIX B

SUBSURFACE EXPLORATION PROCEDURES

AND EXPLORATORY LOGS

APPENDIX B
SUBSURFACE EXPLORATION PROCEDURES

Subsurface Exploration

The field exploration program conducted for this study consisted of advancing eleven hollow stem auger borings to a minimum depth of 25 to 34 feet below the existing site grade. The borings were accomplished to install six 2-inch groundwater monitoring wells (MW-1 through MW-6) to a depth of 25 feet, four 4-inch groundwater recovery/vapor extraction wells (RW-1 through RW-4) to a depth of 34 feet, and one 2-inch air sparging well (SW-1) to a depth of 30 feet. The approximate locations of the explorations are illustrated on Figure 2 in the text of the report.

The borings were drilled during February 22 through 24, 2000 by Environmental West of Spokane, Washington and were continuously observed and logged by an experienced Maxim geologist. The borings were advanced with a truck-mounted B-61 drill rig utilizing both 4.25 and 6-inch inside diameter (ID) hollow stem augers. The 4.25-inch augers were used for installation of the 2-inch wells and the 6-inch augers for the installation of the 4-inch wells.

Characterization of Soils

Soil samples were obtained using the Standard Penetration Test procedure as described in ASTM:D-1586. The testing and sampling consisted of driving a standard 2-inch outside diameter split barrel sampler a distance of 18 or 24-inches into the soil below the auger bit with a 140-pound hammer free falling a distance of 30-inches. The number of blows for each 6-inch interval is recorded and the number of blows required to drive the sampler the final 12-inches is considered the Standard Penetration Resistance ("N") or the blow count which is represented on the boring logs in this appendix. If a total of 50 blows are recorded within a 6-inch interval, the blow count is recorded as 50 blows for the actual number of inches of penetration and is considered refusal. The blow count, or "N" value, provides a measure of the relative density of the granular soils or the relative consistency of cohesive soils. The high gravel, cobble and boulder content of some fluvial and glacial soils often yields unrepresentatively high blow counts due to oversized material. The soil samples retrieved from the split-spoon sampler were classified in the field and a representative portion placed in laboratory prepared glass containers.

Soil Sampling Procedures

Soil samples are typically retrieved starting at 5 feet below the ground surface, and at 5-foot intervals thereafter. However, due to the preliminary site investigation conducted at the subject site with a geoprobe, samples were only collected at the groundwater interface, and at five intervals in monitoring well MW-3 because this exploration was in an area which was not characterized during the initial investigation. The soil samples were recovered at each interval using procedures designed to minimize the risk of cross contamination. Prior to drilling of the boring, the drilling equipment and sample tools were cleaned by a steam cleaner. Between each sampling attempt, the sampling tools were scrubbed with a stiff brush and a detergent solution consisting of Liquinox and warm water, rinsed with potable water, then liberal quantities of distilled water. The samples were classified in the field and immediately transferred to laboratory treated glass jars, and tightly sealed with a Teflon-lined threaded cap. Samples were screened in the field with a Photovac Microtip photo ionization detector (PID) and samples were

selected for laboratory analysis. Samples were stored in a chilled ice chest throughout the field program. Selected soil samples were subsequently transferred to North Creek Analytical in Bothell, Washington in accordance with Maxim Technologies, Inc. chain of custody procedures.

The boring logs presented in this appendix are based on the drilling action, visual inspection of the samples secured in the field, and drill cuttings. The various types of soil are indicated as well as the depths where soils or characteristics of the soils changed. It should be noted that these changes may have been gradual, and if changes occurred between sample intervals, the soil contacts are interpreted. Subsurface water conditions are evaluated by observing the moisture condition of the samples, the free water on the sample rods, and in well measurements. Groundwater was interpreted to have been encountered at depths of 16 to 18 feet beneath the ground surface at the time of drilling.

Field Headspace Measurements

Each soil sample was screened for the presence of volatile organic compounds to facilitate selecting an appropriate soil sample to submit for chemical analysis. This involved placing approximately 6 ounces of soil directly into a zip-lock baggie. The sample was then shaken vigorously for approximately 15 seconds and a headspace reading was taken after plunging the probe of a PID detector through the side of the baggie. Field headspace analysis was performed on each sample utilizing a Photovac Microtip Model 100 PID. The highest digital readout value displayed by the instrument was recorded for each sample. This value indicates the total vapor concentration of volatilized organic compounds. These compounds include numerous constituents of petroleum hydrocarbons. However, the PID is not capable of determining the species of these compounds or their concentrations in the soil samples. Consequently, it should be considered merely a rough screening tool that aides in detecting the presence of volatile soil contaminants.

When insufficient soil sample recovery occurred at the subject site, the interval was generally logged from the observation of the drilling action. Soil cuttings generated from the boring were continuously monitored and when elevated organic vapors were noted, a sample of the cuttings was secured for field screening.

Monitoring Well Installation

The eleven borings were completed for the purpose of installing remedial or monitoring wells. The hollow stem auger was advanced into the substrate to depths of approximately 25 feet (MW-1 through MW-6), 30 feet (SW-1)and 34 feet (RW-1 through RW-4) below the ground surface and approximately 8 to 17 feet below the groundwater interface. The monitoring wells were screened with 2-inch 0.020 slot well screen from 10 to 25 feet. The four recovery/vapor extraction wells were screened with 4-inch 0.020 slot well screen from 4 to 34 feet. Wells were then completed from the top of the screen to the ground surface with blank piping. All monitoring wells were constructed with schedule 40 PVC screen and pipe. The well casing was installed inside the annulus of the hollow stem auger casing. During installation of the wells, the auger casing was filled periodically with a select sand filter pack and slowly withdrawn to allow the sand to surround the well screen and fill the annulus of the boring to approximately 2 feet above the top of the well screen. The depth to the top of sand was monitored to ensure that caving of the sidewalls did not occur. A bentonite seal was then laced above the sand filter pack

to a depth of approximately 1-1/2 feet below the ground surface. Above the bentonite seal, a concrete seal was then placed into which a flush-mounted steel monument was installed. The well was completed by installing a locking cap into the top of the blank PVC pipe and secured with a padlock.

Sparge Well Installation

One of the borings was completed for the purpose of installing a 2-inch in-situ air sparging well. The hollow stem auger casing was advanced into the substrate to a depth of approximately 30-feet below the ground surface and approximately 14 feet below the groundwater interface. The sparge well was screened with 2-inch 0.020 slot well screen from 25 to 30 feet below the ground surface. The top of the well screen was placed approximately 9 feet below the groundwater interface. The well was completed with schedule 40 2-inch PVC casing from the top of the well screen to the surface. The sand pack placement consisted of pouring sand down the bore hole as the auger casing was slowly withdrawn. Sand was placed in the bore hole to a depth of approximately one foot above the well screen. The depth to the top of sand was monitored to ensure that caving of the sidewalls did not occur. A 13 foot seal consisting of bentonite chip was then placed above the sand filter pack followed by a 2 foot concrete plug. A flush-mounted steel well monument was installed into the concrete. The well was completed by installing a locking cap in the top of the blank PVC casing.

Well Development

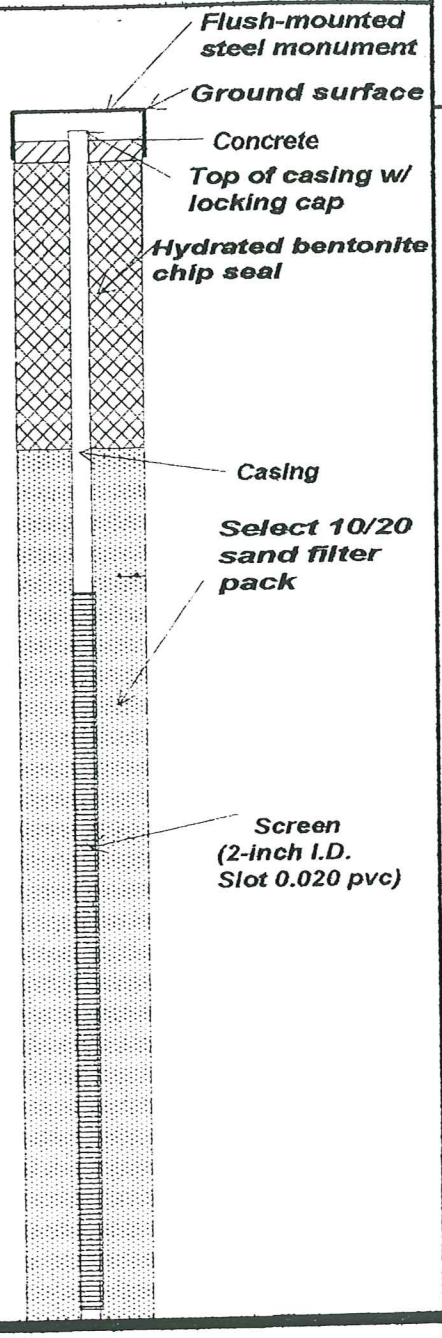
Monitoring wells and recovery wells were developed on February 24th, 2000 by surging a 1.5-inch steel or 3-inch PVC bailer in the well and removing approximately ten well volumes. By the end of development, the withdrawn water had become essentially sand free and reduced in silt content. Development water was stored in 55-gallon drums then treated during the remedial investigation phase of the project. Prior to sampling of wells for analytical testing, three well volumes are purged from the well as determined from field measurements at the time of sampling. Purge water was also placed into 55-gallon drums and treated during the remedial investigation phase of the project.

PROJECT *Grandview* W.O. *9904825* WELL NO. *MW-1*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0						
5						
10						
15						ATD
	Saturated, gray, medium grained SAND with silt		S-1	7/8/ 14/16	66.0	
	Saturated, fine grained SAND with silt					
20						
25						
30						

AS-BUILT DESIGN



TESTING

LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

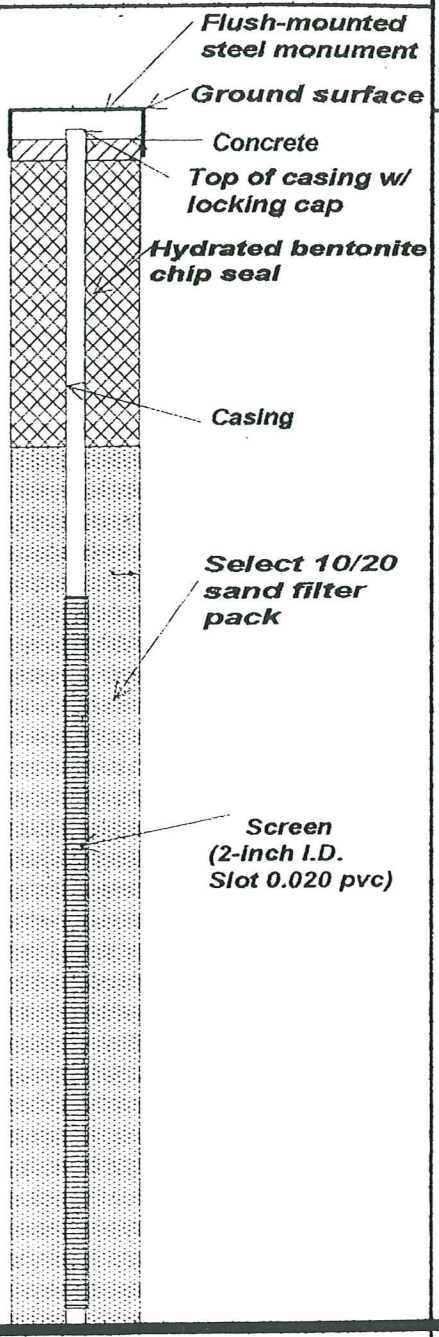
Drilling started: *22 February 2000* Drilling completed: *22 February 2000* Logged by: *ME*

PROJECT *Grandview* **W.O.** *9904825* **WELL NO.** *MW-2*

Elevation reference:
Ground surface elevation: **Casing elevation:**

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0	*Asphalt, road base*					
	Moist, brown, fine SAND with silt					
5						
10						
15	*Becomes wet*					
	Saturated, brown, fine SAND with silt		S-1	3/5/8/10	1.0	ATD
	Saturated, brown, medium grained SAND with silt					
20						
25						
30						

AS-BUILT DESIGN



TESTING

LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

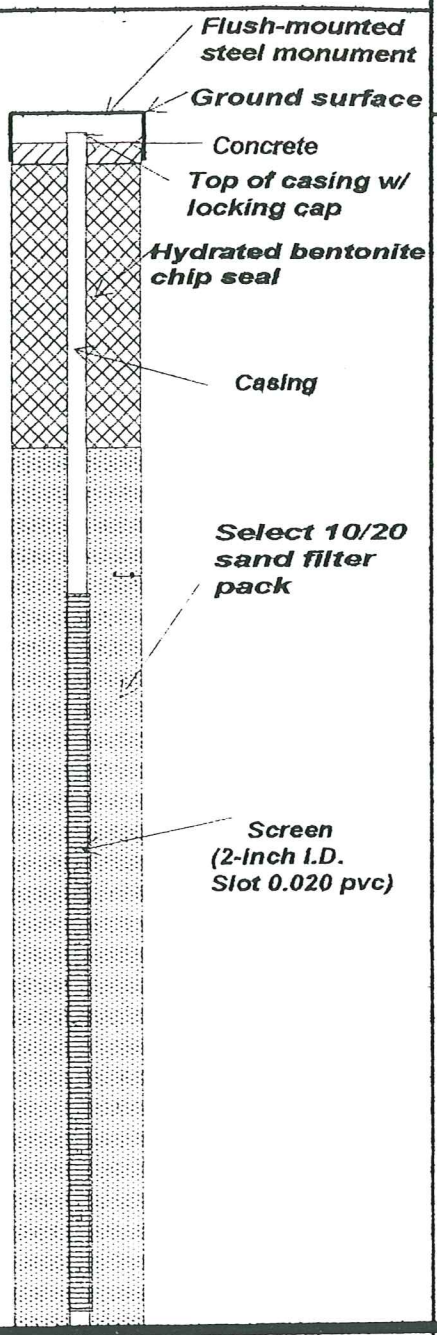
Drilling started: *22 February 2000* **Drilling completed:** *22 February 2000* **Logged by:** *ME*

PROJECT *Grandview* W.O. *9904825* WELL NO. *MW-3*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER	TESTING
0							
5	*Moist, light gray, fine SAND with silt*		S-1	2/4/3/3	1.4		
10	*Moist, brown, fine SAND with silt* *Damp, brown, medium grained SAND*		S-2	2/10/14/16	465		WTPH-G BTEX
	Moist, brown, fine SAND with silt						
15	*Saturated, gray, fine SAND with silt with thin interbeds of gray, medium SAND*		S-3		2260	ATD	WTPH-G BTEX
20							
25							
30							

AS-BUILT DESIGN



LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

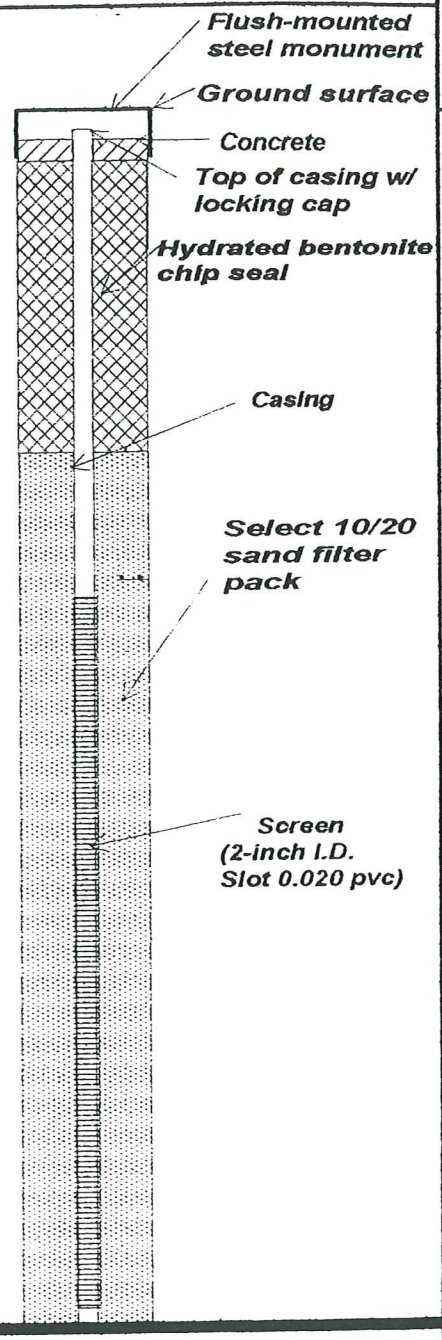
Drilling started: *22 February 2000* **Drilling completed:** *22 February 2000* **Logged by:** *ME*

PROJECT *Grandview* W.O. *9904825* WELL NO. *MW-4*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0	*Asphalt, road base*					
	Moist, brown, fine SAND with silt					
5						
10						
	Becomes damp					
15	*Wet, brown, fine SAND with silt with interbedded medium grained SAND every 6"*		S-1	5/8/ 11/12	4.5	ATD
	Becomes saturated					
20						
25						
30						

AS-BUILT DESIGN



TESTING

LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

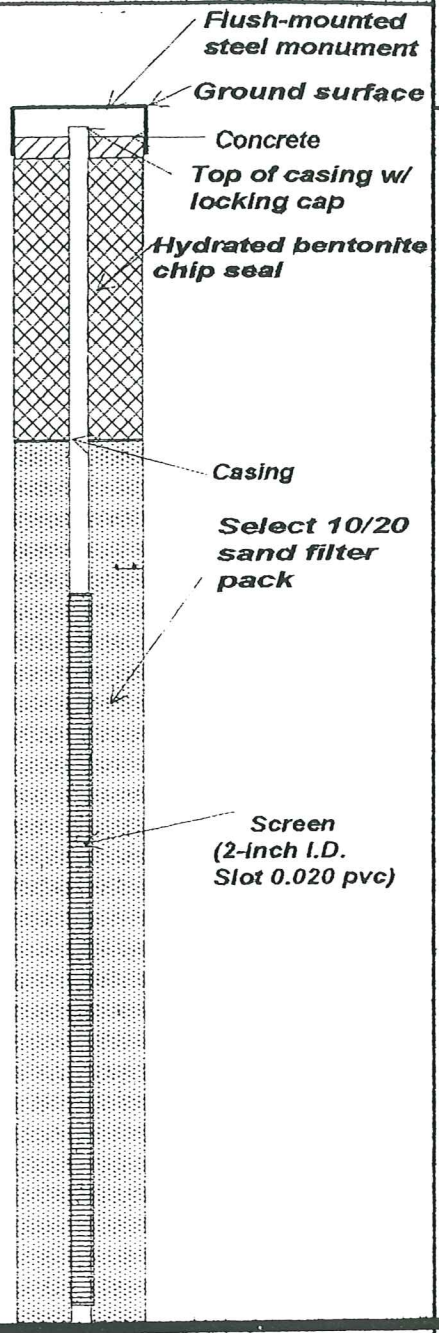
Drilling started: *22 February 2000* **Drilling completed:** *22 February 2000* **Logged by:** *ME*

PROJECT *Grandview* **W.O.** *9904825* **WELL NO.** *MW-5*

Elevation reference:
Ground surface elevation: **Casing elevation:**

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0	*Asphalt, road base*					
	Damp, brown, fine SAND with silt					
5						
10						
15	*Wet to saturated, gray, fine SAND with silt and with interbedded medium grained SAND*		S-1	7/8/15/16	963	ATD
20						
25						
30						

AS-BUILT DESIGN



TESTING

LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

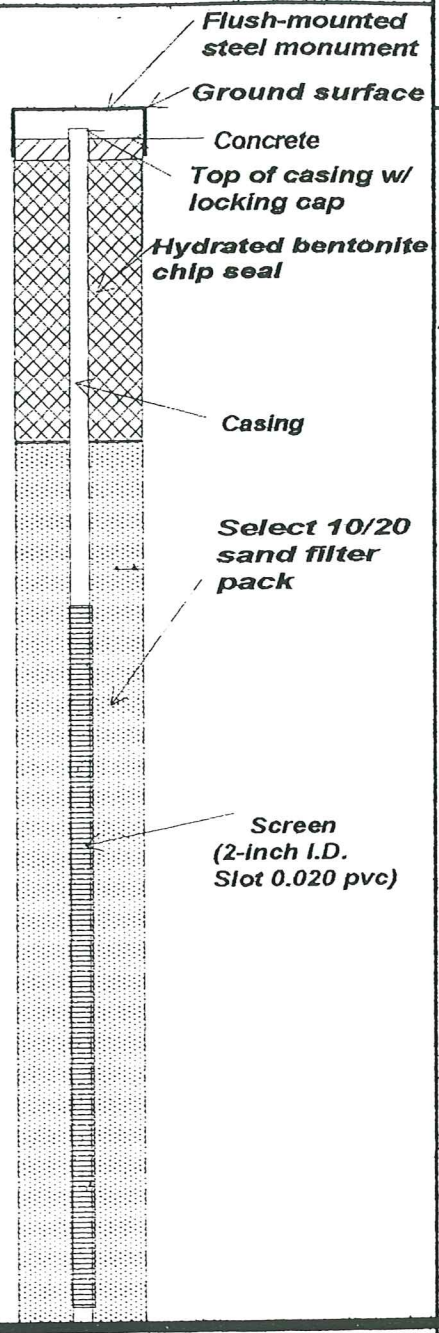
Drilling started: *22 February 2000* **Drilling completed:** *22 February 2000* **Logged by:** *ME*

PROJECT *Grandview* W.O. *9904825* WELL NO. *MW-6*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0	*Asphalt, road base*					
	Moist, brown, fine SAND with silt					
5						
10						
	Becomes wet, gray, petroleum odor					
15			S-1	6/7/13/17	536	ATD
	Becomes brown					
20						
25						
30						

AS-BUILT DESIGN



TESTING

LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

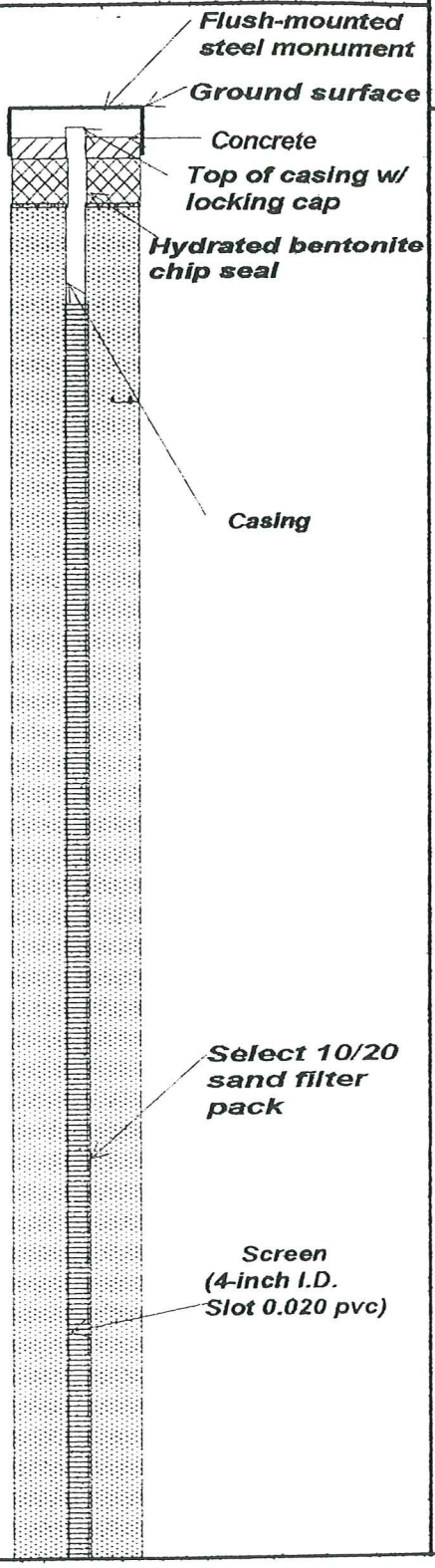
Drilling started: *22 February 2000* **Drilling completed:** *22 February 2000* **Logged by:** *ME*

PROJECT *Grandview* W.O. *9904825* WELL NO. *RW-1*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0	*Asphalt, road base*					
	Moist, brown, fine SAND with silt					
5						
	Becomes gray, petroleum odor				12.4	
10						
15	*Saturated, black, fine SAND with silt interbedded with medium grained sand approxiamtely every 2", 1" layer of medium SAND*	1	S-1	9/18/25/30	536	ATD
	Becomes brown					
20						
25						
	Drilling becomes hard					
30						

AS-BUILT DESIGN



TESTING

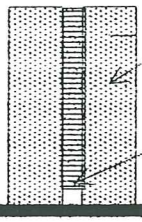
LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

Drilling started: *23 February 2000* Drilling completed: *23 February 2000* Logged by: *ME*

PROJECT *Grandview* W.O. *9904825* WELL NO. *RW-1*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER	AS-BUILT DESIGN	TESTING
30	*Drilling began to get hard.*						 *Select 10/20 sand filter pack* *Screen (4-inch I.D. Slot 0.020 pvc)*	
35	*Drilling hard-BEDROCK?*							
40								
45								
50								
55								
60								

LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

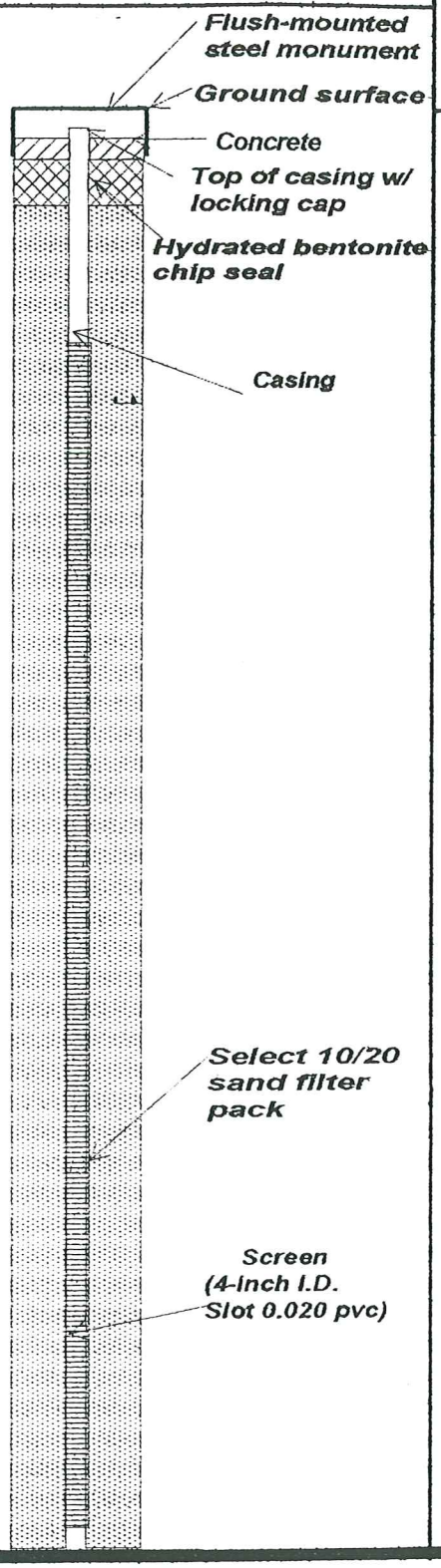
Drilling started: *23 February 2000* Drilling completed: *23 February 2000* Logged by: *ME*

PROJECT *Grandview* **W.O.** *9904825* **WELL NO.** *RW-2*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0	*Asphalt, road base*					
	Moist, brown, fine SAND with silt					
5						
10	*Becomes gray, petroleum odor*					
15	*Wet, gray, fine SAND with silt, interbedded with medium grained SAND with some silt*		S-1	6/8/ 10/12	1042	ATD
	Becomes brown					
20						
25						
	Drilling becomes hard					
30						

AS-BUILT DESIGN



TESTING

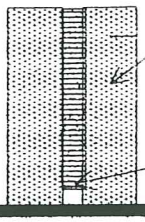
LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

Drilling started: *23 February 2000* **Drilling completed:** *23 February 2000* **Logged by:** *ME*

PROJECT *Grandview* W.O. *9904825* WELL NO. *RW-2*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER	AS-BUILT DESIGN	TESTING
30	*Drilling began to get hard.*						 *Select 10/20 sand filter pack* *Screen (4-inch I.D. Slot 0.020 pvc)*	
35	*Drilling hard-BEDROCK?*							
40								
45								
50								
55								
60								

LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

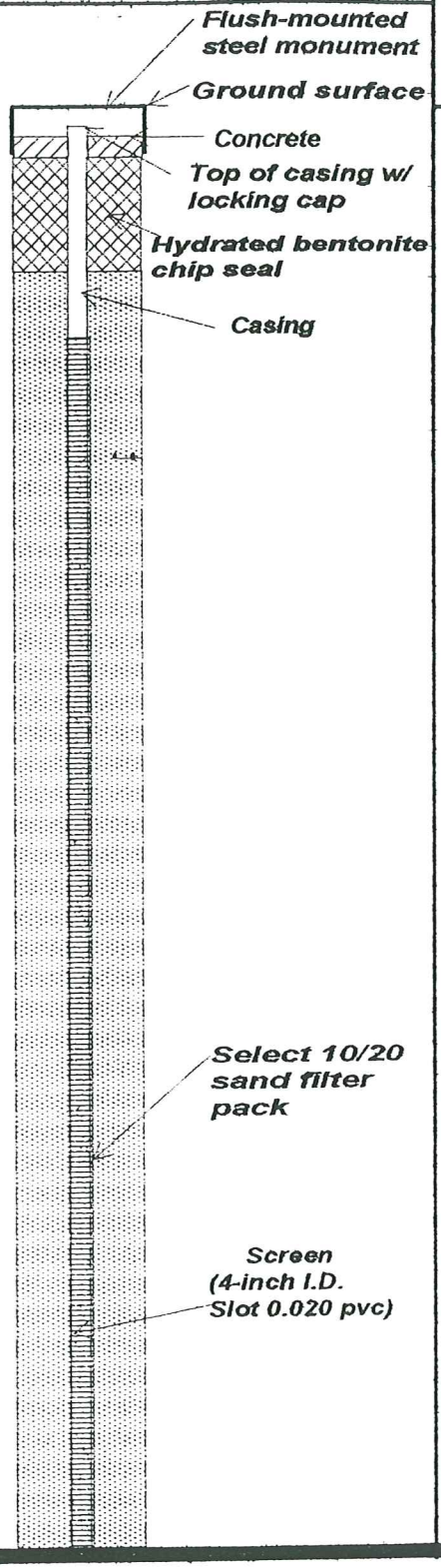
Drilling started: *23 February 2000* Drilling completed: *23 February 2000* Logged by: *ME*

PROJECT *Grandview* W.O. *9904825* WELL NO. *RW-3*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0	*Asphalt, road base*					
	Moist, brown, fine SAND with silt					
5						
10						
	Becomes dark gray, petroleum odor					
15	*Becomes saturated*					ATD
20						
25						
30						

AS-BUILT DESIGN



TESTING

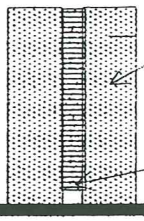
LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

Drilling started: *22 February 2000* **Drilling completed:** *22 February 2000* **Logged by:** *ME*

PROJECT *Grandview* W.O. *9904825* WELL NO. *RW-3*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER	AS-BUILT DESIGN	TESTING
30	*Drilling began to get hard.*						 *Select 10/20 sand filter pack* *Screen (4-inch I.D. Slot 0.020 pvc)*	
35	*Drillinghard-BEDROCK?*							
40								
45								
50								
55								
60								

LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

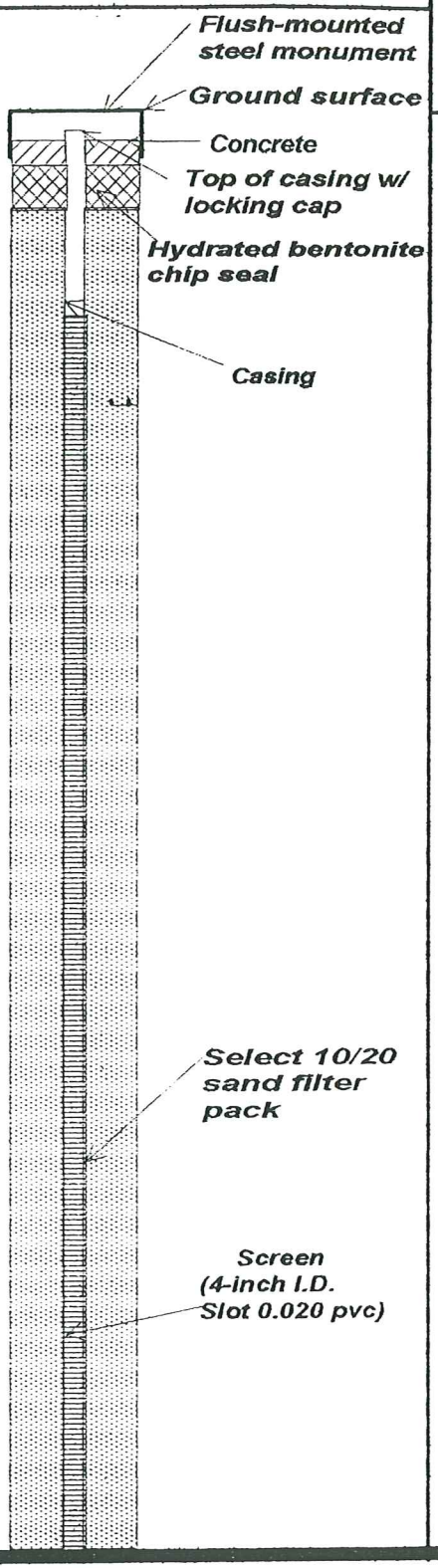
Drilling started: *23 February 2000* Drilling completed: *23 February 2000* Logged by: *ME*

PROJECT *Grandview* W.O. *9904825* WELL NO. *RW-4*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0	*Asphalt, road base*					
	Moist, brown, fine SAND with silt					
5						
10	*Becomes gray, petroleum odor*					
15						ATD
	Becomes saturated					
20						
25	*Becomes brown*					
30						

AS-BUILT DESIGN



TESTING

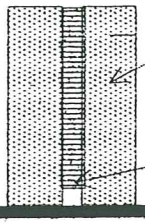
LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

Drilling started: *24 February 2000* **Drilling completed:** *24 February 2000* **Logged by:** *ME*

PROJECT *Grandview* W.O. *9904825* WELL NO. *RW-4*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER	AS-BUILT DESIGN	TESTING
30	*Drilling began to get hard.*						 Select 10/20 sand filter pack; Screen (4-inch I.D. Slot 0.020 pvc)	
35	*Drilling hard-BEDROCK?*							
40								
45								
50								
55								
60								

LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

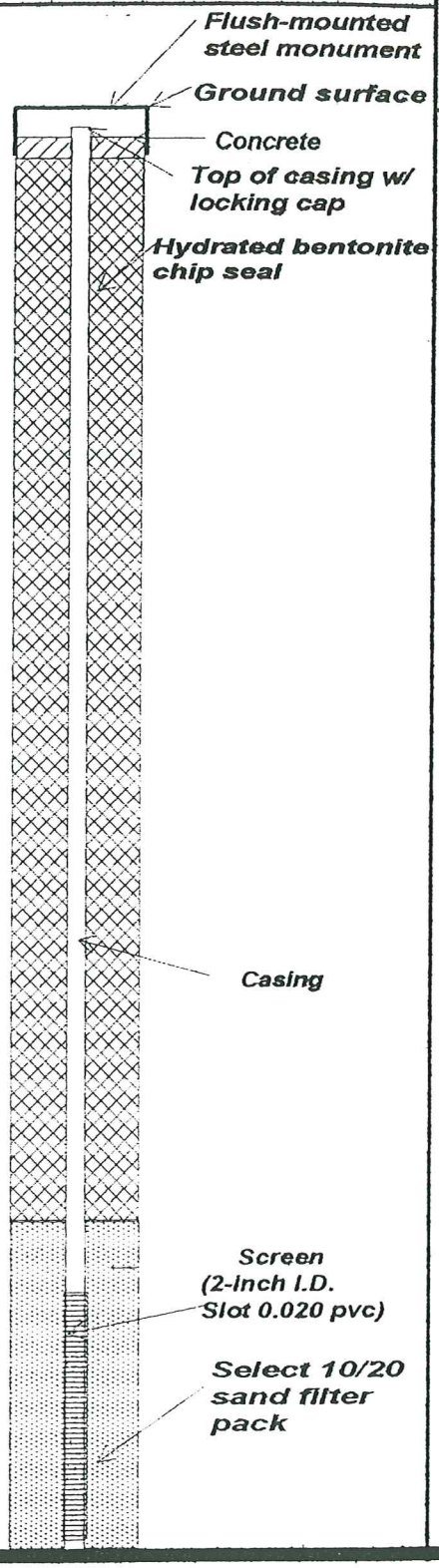
Drilling started: *23 February 2000* Drilling completed: *23 February 2000* Logged by: *ME*

PROJECT *Grandview* W.O. *9904825* WELL NO. *SW-1*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0	*Asphalt, road base*					
	Moist, brown, fine SAND with silt					
5						
10						
15			S-1			ATD
	Becomes saturated, stained gray and black					
20	*Saturated, brown/light gray, fine SAND with silt*					
25						
30						

AS-BUILT DESIGN



TESTING

LEGEND

MAXIM TECHNOLOGIES, INC.
E. 111 Magnesium Road, Suite A
Spokane, Washington 99218

Drilling started: *22 February 2000* **Drilling completed:** *22 February 2000* **Logged by:** *ME*

APPENDIX C

ANALYTICAL TEST CERTIFICATES - SOIL

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541.383.9310 fax 541.382.7588

Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled:	2/22/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received:	3/1/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported:	3/7/00 14:42

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-3 S-2	S003004-01	Soil	2/22/00
MW-3 S-3	S003004-02	Soil	2/22/00

Dennis D. Wells, Laboratory Director

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541.383.9310 fax 541.382.7588

Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled: 2/22/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received: 3/1/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported: 3/7/00 14:42

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
MW-3 S-2			S003004-01				Soil	
Gasoline Range Hydrocarbons	0300015	3/3/00	3/3/00		10.0	1510	mg/kg dry	
Benzene	"	"	"		0.100	ND	"	
Toluene	"	"	"		0.100	0.340	"	
Ethylbenzene	"	"	"		0.100	8.90	"	
Xylenes (total)	"	"	"		0.200	47.6	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*NR*	%	*1*
Surrogate: 4-BFB (PID)	"	"	"	*53.0-136*		*NR*	"	*1*
MW-3 S-3			S003004-02				Soil	
Gasoline Range Hydrocarbons	0300015	3/3/00	3/3/00		5.00	236	mg/kg dry	
Benzene	"	"	"		0.0500	0.847	"	
Toluene	"	"	"		0.0500	0.789	"	
Ethylbenzene	"	"	"		0.0500	2.93	"	
Xylenes (total)	"	"	"		0.100	10.9	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*NR*	%	*1*
Surrogate: 4-BFB (PID)	"	"	"	*53.0-136*		*120*	"	

North Creek Analytical - Spokane

**Refer to end of report for text of notes and definitions.*

Dennis D Wells, Laboratory Director

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Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled:	2/22/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received:	3/1/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported:	3/7/00 14:42

Dry Weight Determination
North Creek Analytical - Spokane

Sample Name	Lab ID	Matrix	Result	Units
MW-3 S-2	S003004-01	Soil	84.5	%
MW-3 S-3	S003004-02	Soil	76.8	%

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Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled: 2/22/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received: 3/1/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported: 3/7/00 14:42

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0300015	**Date Prepared: 3/3/00**					**Extraction Method: GC Volatiles**				
Blank	0300015-BLK1									
Gasoline Range Hydrocarbons	3/3/00			ND	mg/kg dry	5.00				
Benzene	"			ND	"	0.0500				
Toluene	"			ND	"	0.0500				
Ethylbenzene	"			ND	"	0.0500				
Xylenes (total)	"			ND	"	0.100				
Surrogate: 4-BFB (FID)	"	*1.25*		*1.17*	"	*50.0-150*	*93.6*			
Surrogate: 4-BFB (PID)	"	*1.25*		*1.30*	"	*53.0-136*	*104*			
LCS	0300015-BS1									
Gasoline Range Hydrocarbons	3/3/00	50.0		52.8	mg/kg dry	70.0-120	106			
Surrogate: 4-BFB (FID)	"	*1.25*		*1.78*	"	*50.0-150*	*142*			
LCS	0300015-BS2									
Benzene	3/3/00	0.500		0.503	mg/kg dry	70.0-120	101			
Toluene	"	0.500		0.466	"	70.0-120	93.2			
Ethylbenzene	"	0.500		0.495	"	70.0-120	99.0			
Xylenes (total)	"	1.50		1.45	"	70.0-120	96.7			
Surrogate: 4-BFB (PID)	"	*1.25*		*1.29*	"	*53.0-136*	*103*			
Duplicate	0300015-DUP1		S002045-03							
Gasoline Range Hydrocarbons	3/3/00		874	1720	mg/kg dry			50.0	**65.2**	2
Benzene	"		1.26	2.79	"			50.0	**75.6**	2
Toluene	"		6.27	12.0	"			50.0	**62.7**	2
Ethylbenzene	"		16.9	30.1	"			50.0	**56.2**	2
Xylenes (total)	"		112	202	"			50.0	**57.3**	2
Surrogate: 4-BFB (FID)	"	*1.47*		*8.18*	"	*50.0-150*	*NR*			*1*
Surrogate: 4-BFB (PID)	"	*1.47*		*28.0*	"	*53.0-136*	*NR*			*1*
Matrix Spike	0300015-MS1		S002045-03							
Gasoline Range Hydrocarbons	3/3/00	58.9	874	637	mg/kg dry	70.0-130	NR			3
Surrogate: 4-BFB (FID)	"	*1.47*		*9.83*	"	*50.0-150*	*NR*			*1*
Matrix Spike	0300015-MS2		S002045-03							
Benzene	3/3/00	0.589	1.26	3.10	mg/kg dry	51.0-138	NR			3
Toluene	"	0.589	6.27	16.9	"	47.0-147	NR			3
Ethylbenzene	"	0.589	16.9	31.8	"	49.0-151	NR			3
Xylenes (total)	"	1.77	112	179	"	50.0-145	NR			3

North Creek Analytical - Spokane

**Refer to end of report for text of notes and definitions.*

Dennis D Wells, Laboratory Director

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Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled:	2/22/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received:	3/1/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported:	3/7/00 14:42

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike (continued)	0300015-MS2		S002045-03							
Surrogate: 4-BFB (PID)	*3/3/00*	*1.47*		*22.5*	*mg/kg dry*	*53.0-136*	*NR*			*1*

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Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled:	2/22/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received:	3/1/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported:	3/7/00 14:42

Notes and Definitions

#	Note
1	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.
2	The RPD value for this QC sample is outside the advisory limit established by NCA. Additional sources for assessment of method precision, such as field duplicates, should be referenced.
3	The spike recovery for this QC sample cannot be accurately calculated due to high concentration of analyte in the sample.
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
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical - Spokane

Dennis D Wells, Laboratory Director

nca™
North Creek Analytical, Inc.
Environmental Laboratory Network
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CHAIN OF CUSTODY REPORT

Work Order #: 5003004

CLIENT: MAXIM TECHNOLOGIES

REPORT TO: Gene St. Godard

ADDRESS: 111 MAGNESIUM STE A
SPOKANE WA 99208

PHONE: 509 465 7188 FAX:

PROJECT NAME: GRANDVIEW

PROJECT NUMBER: 9904825

SAMPLED BY: ME

INVOICE TO: ~~SAME~~
Anne Wilkinson
Time Oil Company

P.O. NUMBER:

TURNAROUND REQUEST in Business Days*

Organic & Inorganic Analyses: 10 | 7 | 5 | 4 | 3 | 2 | 1 | <1

STD

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

OTHER Please Specify

*Turnaround Requests less than standard may incur Rush Charges

	LABORATORY SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	REQUESTED ANALYSES: TPH-Dx	MATRIX (W, S, O)	# OF CONT.	COMMENTS
1.	MW-3 S-2	2/22/00 1210	X			5003004-01
2.	MW-3	2/22/00 1215	X			-02
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

RELINQUISHED BY: [signature] FIRM: MAXIM DATE: 3/1/00 TIME: 1550

RECEIVED BY: Teresa L. Hranbourg FIRM: UCAS DATE: 3-1 TIME: 15.

PRINT NAME: Teresa L. Hranbourg

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

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

ADDITIONAL REMARKS

TEMP: 6.3

COC REV 3/99

PAGE 1 OF

North Creek Analytical, Inc. Environmental Laboratory Network

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APPENDIX D

ANALYTICAL TEST CERTIFICATES

GROUNDWATER – MARCH 7th, 2000

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Maxim Technologies - Spokane 111 E. Magnesium Rd., Suite A Spokane WA, 99208	Project: TOC-Grandview Project Number: 9904825 Project Manager: Gene St. Goddard	**Reported:** 04/05/00 15:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
RW-4	B0C0532-01	Water	03/21/00 12:25	03/25/00 09:45
RW-3	B0C0532-02	Water	03/21/00 12:35	03/25/00 09:45
MW-5	B0C0532-03	Water	03/21/00 12:45	03/25/00 09:45
RW-1	B0C0532-04	Water	03/22/00 06:50	03/25/00 09:45
RW-2	B0C0532-05	Water	03/22/00 07:00	03/25/00 09:45
SW-1	B0C0532-06	Water	03/22/00 07:10	03/25/00 09:45
MW-4	B0C0532-07	Water	03/22/00 07:20	03/25/00 09:45
RW-1	B0C0532-08	Water	03/23/00 09:30	03/25/00 09:45
SW-1	B0C0532-09	Water	03/23/00 09:40	03/25/00 09:45
RW-2	B0C0532-10	Water	03/23/00 09:50	03/25/00 09:45
MW-4	B0C0532-11	Water	03/23/00 10:00	03/25/00 09:45

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Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
RW-4 (B0C0532-01) Water Sampled: 03/21/00 12:25 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**17700**	5000	ug/l	100	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	**1490**	50.0	"	"	"	"	"	"	
Toluene	**960**	50.0	"	"	"	"	"	"	
Ethylbenzene	**520**	50.0	"	"	"	"	"	"	
Xylenes (total)	**2930**	100	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*95.8 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*100 %*	*50-150*			"	"	"	"	
RW-3 (B0C0532-02) Water Sampled: 03/21/00 12:35 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**6330**	2500	ug/l	50	0C28033	03/28/00	03/30/00	WTPH-G/8021B	
Benzene	**1320**	25.0	"	"	"	"	"	"	
Toluene	**321**	25.0	"	"	"	"	"	"	
Ethylbenzene	**156**	25.0	"	"	"	"	"	"	
Xylenes (total)	**1060**	50.0	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*91.9 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*87.5 %*	*50-150*			"	"	"	"	
MW-5 (B0C0532-03) Water Sampled: 03/21/00 12:45 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**23600**	2500	ug/l	50	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	**5120**	25.0	"	"	"	"	"	"	
Toluene	**1580**	25.0	"	"	"	"	"	"	
Ethylbenzene	**830**	25.0	"	"	"	"	"	"	
Xylenes (total)	**4510**	50.0	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*103 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*50-150*			"	"	"	"	

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Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
RW-1 (B0C0532-04) Water Sampled: 03/22/00 06:50 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**5190**	500	ug/l	10	0C28033	03/28/00	03/28/00	WTPH-G/8021B	
Benzene	**110**	5.00	"	"	"	"	"	"	
Toluene	**68.2**	5.00	"	"	"	"	"	"	
Ethylbenzene	**137**	5.00	"	"	"	"	"	"	
Xylenes (total)	**1040**	10.0	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*102 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*108 %*	*50-150*			"	"	"	"	
RW-2 (B0C0532-05) Water Sampled: 03/22/00 07:00 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**1270**	50.0	ug/l	1	0C28033	03/28/00	03/28/00	WTPH-G/8021B	
Benzene	**4.70**	0.500	"	"	"	"	"	"	
Toluene	ND	1.25	"	"	"	"	"	"	R-03
Ethylbenzene	ND	2.80	"	"	"	"	"	"	R-03
Xylenes (total)	**20.6**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*147 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*115 %*	*50-150*			"	"	"	"	
SW-1 (B0C0532-06) Water Sampled: 03/22/00 07:10 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**64.9**	50.0	ug/l	1	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	**0.521**	0.500	"	"	"	"	"	"	
Ethylbenzene	**1.26**	0.500	"	"	"	"	"	"	
Xylenes (total)	**7.92**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*89.6 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*99.4 %*	*50-150*			"	"	"	"	

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Maxim Technologies - Spokane 111 E. Magnesium Rd., Suite A Spokane WA, 99208	Project: TOC-Grandview Project Number: 9904825 Project Manager: Gene St. Goddard	**Reported:** 04/05/00 15:37

Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4 (B0C0532-07) Water Sampled: 03/22/00 07:20 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	**1.43**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*94.4 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*50-150*			"	"	"	"	
RW-1 (B0C0532-08) Water Sampled: 03/23/00 09:30 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**5910**	500	ug/l	10	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	**125**	5.00	"	"	"	"	"	"	
Toluene	**84.9**	5.00	"	"	"	"	"	"	
Ethylbenzene	**238**	5.00	"	"	"	"	"	"	
Xylenes (total)	**1110**	10.0	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*105 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*111 %*	*50-150*			"	"	"	"	
SW-1 (B0C0532-09) Water Sampled: 03/23/00 09:40 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*96.3 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*100 %*	*50-150*			"	"	"	"	

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Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
RW-2 (B0C0532-10) Water Sampled: 03/23/00 09:50 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**204**	50.0	ug/l	1	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	4.05	"	"	"	"	"	"	R-03
Surrogate: 4-BFB (FID)	*106 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*101 %*	*50-150*			"	"	"	"	
MW-4 (B0C0532-11) Water Sampled: 03/23/00 10:00 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	**2.25**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*95.0 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*101 %*	*50-150*			"	"	"	"	

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Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
RW-1 (B0C0532-04) Water Sampled: 03/22/00 06:50 Received: 03/25/00 09:45									Q-30
Copper	**0.0102**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**57.3**	0.100	"	"	"	"	"	"	
Manganese	**1.21**	0.0100	"	10	0C28008	03/28/00	04/01/00	EPA 6020	
Lead	ND	0.00100	"	1	"	"	03/30/00	"	
Zinc	ND	0.0100	"	"	"	"	"	"	
RW-2 (B0C0532-05) Water Sampled: 03/22/00 07:00 Received: 03/25/00 09:45									Q-30
Copper	**0.00202**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**51.8**	0.100	"	"	"	"	"	"	
Manganese	**1.93**	0.0100	"	10	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	1	"	"	03/30/00	"	
Zinc	ND	0.0100	"	"	"	"	"	"	
SW-1 (B0C0532-06) Water Sampled: 03/22/00 07:10 Received: 03/25/00 09:45									Q-30
Copper	**0.0193**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**72.6**	0.100	"	"	"	"	"	"	
Manganese	**0.217**	0.00100	"	"	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	"	"	"	03/30/00	"	
Zinc	**0.0234**	0.0100	"	"	"	"	"	"	
MW-4 (B0C0532-07) Water Sampled: 03/22/00 07:20 Received: 03/25/00 09:45									Q-30
Copper	**0.00287**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**55.2**	0.100	"	"	"	"	"	"	
Manganese	**0.0273**	0.00100	"	"	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	"	"	"	03/30/00	"	
Zinc	ND	0.0100	"	"	"	"	"	"	

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Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Dissolved Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
RW-1 (B0C0532-08) Water Sampled: 03/23/00 09:30 Received: 03/25/00 09:45									Q-30
Copper	**0.00656**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**54.3**	0.100	"	"	"	"	"	"	
Manganese	**1.47**	0.0100	"	10	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	1	"	"	03/30/00	"	
Zinc	ND	0.0100	"	"	"	"	"	"	
SW-1 (B0C0532-09) Water Sampled: 03/23/00 09:40 Received: 03/25/00 09:45									Q-30
Copper	**0.0162**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**87.2**	0.100	"	"	"	"	"	"	
Manganese	**0.269**	0.00100	"	"	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	"	"	"	03/30/00	"	
Zinc	ND	0.0100	"	"	"	"	"	"	
RW-2 (B0C0532-10) Water Sampled: 03/23/00 09:50 Received: 03/25/00 09:45									Q-30
Copper	**0.0617**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**74.6**	0.100	"	"	"	"	"	"	
Manganese	**0.897**	0.00500	"	5	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	1	"	"	03/30/00	"	
Zinc	**0.0155**	0.0100	"	"	"	"	"	"	
MW-4 (B0C0532-11) Water Sampled: 03/23/00 10:00 Received: 03/25/00 09:45									Q-30
Copper	**0.0109**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**62.8**	0.100	"	"	"	"	"	"	
Manganese	**0.0342**	0.00100	"	"	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	"	"	"	03/30/00	"	
Zinc	ND	0.0100	"	"	"	"	"	"	

Amar Gill, Project Manager

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Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-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 0C28033: Prepared 03/28/00 Using EPA 5030B (P/T)										
Blank (0C28033-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)	*42.8*		"	*48.0*		*89.2*	*50-150*			
Surrogate: 4-BFB (PID)	*47.8*		"	*48.0*		*99.6*	*50-150*			
Blank (0C28033-BLK2)										
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)	*44.9*		"	*48.0*		*93.5*	*50-150*			
Surrogate: 4-BFB (PID)	*47.4*		"	*48.0*		*98.8*	*50-150*			
LCS (0C28033-BS1)										
Gasoline Range Hydrocarbons	514	50.0	ug/l	500		103	70-130			
Surrogate: 4-BFB (FID)	*49.6*		"	*48.0*		*103*	*50-150*			
Duplicate (0C28033-DUP1)					**Source: B0C0532-02**					
Gasoline Range Hydrocarbons	7110	500	ug/l		6330			11.6	25	
Surrogate: 4-BFB (FID)	*48.2*		"	*48.0*		*100*	*50-150*			
Duplicate (0C28033-DUP2)					**Source: B0C0535-02**					
Gasoline Range Hydrocarbons	ND	50.0	ug/l		21.0			78.0	25	
Surrogate: 4-BFB (FID)	*46.7*		"	*48.0*		*97.3*	*50-150*			

Amar Gill, Project Manager

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Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-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 0C28033: Prepared 03/28/00 Using EPA 5030B (P/T)										
Matrix Spike (0C28033-MS1)					**Source: B0C0532-09**					
Benzene	11.2	0.500	ug/l	10.0	0.118	111	70-130			
Toluene	11.2	0.500	"	10.0	0.143	111	70-130			
Ethylbenzene	11.1	0.500	"	10.0	0.109	110	70-130			
Xylenes (total)	33.5	1.00	"	30.0	0.921	109	70-130			
Surrogate: 4-BFB (PID)	*50.0*		"	*48.0*		*104*	*50-150*			
Matrix Spike Dup (0C28033-MSD1)					**Source: B0C0532-09**					
Benzene	11.0	0.500	ug/l	10.0	0.118	109	70-130	1.80	15	
Toluene	10.9	0.500	"	10.0	0.143	108	70-130	2.71	15	
Ethylbenzene	10.9	0.500	"	10.0	0.109	108	70-130	1.82	15	
Xylenes (total)	33.0	1.00	"	30.0	0.921	107	70-130	1.50	15	
Surrogate: 4-BFB (PID)	*49.2*		"	*48.0*		*103*	*50-150*			

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Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Dissolved Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0C28008: Prepared 03/28/00 Using EPA 3005A										
Blank (0C28008-BLK1)										
Copper	ND	0.00100	mg/l							
Lead	ND	0.00100	"							
Manganese	ND	0.00100	"							
Zinc	ND	0.0100	"							
LCS (0C28008-BS1)										
Copper	0.194	0.00100	mg/l	0.200		97.0	80-120			
Lead	0.180	0.00100	"	0.200		90.0	80-120			
Manganese	0.189	0.00100	"	0.200		94.5	80-120			
Zinc	0.197	0.0100	"	0.200		98.5	80-120			
Matrix Spike (0C28008-MS1)					**Source: B0C0532-04**					
Copper	0.199	0.00100	mg/l	0.200	0.0102	94.4	75-125			
Lead	0.188	0.00100	"	0.200	0.000412	93.8	75-125			
Manganese	1.44	0.0100	"	0.200	1.21	115	75-125			
Zinc	0.186	0.0100	"	0.200	0.00672	89.6	75-125			
Matrix Spike Dup (0C28008-MSD1)					**Source: B0C0532-04**					
Copper	0.199	0.00100	mg/l	0.200	0.0102	94.4	75-125	0	20	
Lead	0.191	0.00100	"	0.200	0.000412	95.3	75-125	1.58	20	
Manganese	1.47	0.0100	"	0.200	1.21	130	75-125	2.06	20	Q-01
Zinc	0.186	0.0100	"	0.200	0.00672	89.6	75-125	0	20	
Batch 0C28012: Prepared 03/28/00 Using EPA 3005A										
Blank (0C28012-BLK1)										
Iron	ND	0.150	mg/l							
Magnesium	ND	0.100	"							

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503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
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Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Dissolved Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0C28012: Prepared 03/28/00 Using EPA 3005A										
LCS (0C28012-BS1)										
Iron	11.1	0.150	mg/l	10.0		111	80-120			
Magnesium	11.4	0.100	"	10.0		114	80-120			
Matrix Spike (0C28012-MS1)					**Source: B0C0532-05**					
Iron	11.1	0.150	mg/l	10.0	ND	111	80-120			
Magnesium	60.2	0.100	"	10.0	51.8	84.0	80-120			
Matrix Spike Dup (0C28012-MSD1)					**Source: B0C0532-05**					
Iron	11.2	0.150	mg/l	10.0	ND	112	80-120	0.897	20	
Magnesium	61.9	0.100	"	10.0	51.8	101	80-120	2.78	20	

Amar Gill, Project Manager

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Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Notes and Definitions

Q-01	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
Q-30	This sample was laboratory filtered since it was not field filtered as is required by the methodology.
R-03	The reporting limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
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

nca™
North Creek Analytical, Inc.
Environmental Laboratory Network
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20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 (541) 383-9310 FAX 382-7588

CHAIN OF CUSTODY REPORT

Work Order #: BOC0532

CLIENT: Maxim Technologies
REPORT TO: Gene St. Goddard
ADDRESS: 111 E Magnesium Rd Ste A
Spokane, WA 99208
PHONE: 509-465-2188 FAX: 465-2199

INVOICE TO:
Time Oil
Anne Wilkinson

P.O. NUMBER:

PROJECT NAME: Glenwood
PROJECT NUMBER: 9904825
SAMPLED BY: Mark Engdahl

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

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	REQUESTED ANALYSES: G-BTEX	Metals (Filtered, Lab: Cu, Mg, Fe; Pb, Mn, Zn)	MATRIX (W, S, O)	# OF CONT.	COMMENTS	NCA WO ID
1.	RW-4	3/21/00 - 1225	X				BOC0532	-01
2.	RW-3	3/21/00 - 1235	X					-02
3.	MW-5	3/21/00 - 1245	X					-03
4.	RW-1	3/22/00 - 0650	X	X				-04
5.	RW-2	3/22/00 - 0700	X	X				-05
6.	SW-1	3/22/00 - 0710	X	X				-06
7.	MW-4	3/22/00 - 0720	X	X				-07
8.	RW-1	3/23/00 - 0930	X	X				-08
9.	SW-1	3/23/00 - 0940	X	X				-09
10.	RW-2	3/23/00 - 0950	X	X				-10
11.	MW-4	3/23/00 - 1000	X	X				-11
12.								
13.								
14.								
15.								

RELINQUISHED BY: Mark Engdahl		DATE: 3/24/00	RECEIVED BY: Adar Reed		DATE: 3/25/00
PRINT NAME: Mark Engdahl	FIRM: Maxim	TIME: 1600	PRINT NAME: Adar Reed	FIRM: NCA-B	TIME: 09:45
RELINQUISHED BY:		DATE:	RECEIVED BY:		DATE:
PRINT NAME:	FIRM:	TIME:	PRINT NAME:	FIRM:	TIME:

ADDITIONAL REMARKS: WO/

TEMP: 3.4

COC REV 3/99

PAGE OF

MAXIM TECHNOLOGIES INC
N. 10220 Nevada St., Suite 290
Spokane, Washington 99218
(509) 465-2188
Fax: (509) 465-2199

GROUNDWATER MONITORING AND SAMPLING

PROJECT NAME: Grandview Food Mart (Time 0.1) FIELD REPORT No.: ____ PAGE 1 OF 2

SAMPLER: Brad Engdahl DATE SAMPLED: 03/07/00 PROJECT No.: ____

METHOD OF COLLECTION: D. B. WEATHER: Clear 35°

PURGE WATER DISPOSITION: TREATMENT ☐ DRUMMED ON-SITE ☒ OTHER (SPECIFY) ____ DRUM COUNT ____

PRODUCT DISPOSITION: DRUMMED ON-SITE ☐ DRUM COUNT ____ OTHER (SPECIFY) ____

1 WELL VOLUME = (COLUMN HEIGHT)(WELL VOLUME CONSTANT)

WELL VOLUME CONSTANTS: 1"ID...0.041 gal/ft 1.5"ID...0.092 gal/ft 2"ID...0.163 gal/ft 4"ID...0.653 gal/ft 6"ID...1.469 gal/ft

SAMPLE / WELL DIAMETER	LAB I.D.	DEPTH TO PRODUCT (ft)	DEPTH TO WATER (ft)	PRODUCT THICKNESS (ft)	DEPTH TO BOTTOM (ft)	COLUMN HEIGHT (ft) / 1 WELL VOLUME	VOLUME PURGED / BAILED DRY (Y/N)	TIME SAMPLED	CONDUCTIVITY (uMHOS)	DISSOLVED O_2 % / (mg/L)	TEMP. (C)	pH
MW-1 / 2"			17.19		25	7.81 / 1.27	3.82	1615				
MW-2 / 2"			16.95		25	8.05 / 1.31	3.94	1330				
MW-3 / 2"			17.62		25	7.38 / 1.20	3.61	1420				
MW-4 / 2"			16.65		25	8.35 / 1.36	4.08	1530				
MW-5 / 2"			16.47		25	8.53 / 1.39	4.17	1545				
MW-6 / 2"			17.06		25	7.94 / 1.29	3.88	1500				
RW-1 / 4"			17.38		34	16.62 / 10.85	32.54	1145				
RW-2 / 4"			17.17		34	16.83 / 10.99	32.97	1245				
RW-3 / 4"			17.59		34	16.41 / 10.72	32.15	0945				
						TOTAL PURGED						

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GROUNDWATER MONITORING AND SAMPLING

PROJECT NAME: Grandview Food Mart (Time 0.1) FIELD REPORT No.: _____ PAGE 2 OF 2

SAMPLER: Brad Engdahl DATE SAMPLED: 03/07/00 PROJECT No.: _____

METHOD OF COLLECTION: D. B. WEATHER: Clear 35°

PURGE WATER DISPOSITION: TREATMENT ☐ DRUMMED ON-SITE ☒ OTHER (SPECIFY) _____ DRUM COUNT _____

PRODUCT DISPOSITION: DRUMMED ON-SITE ☐ DRUM COUNT _____ OTHER (SPECIFY) _____

1 WELL VOLUME = (COLUMN HEIGHT)(WELL VOLUME CONSTANT)

WELL VOLUME CONSTANTS: 1"ID...0.041 gal/ft 1.5"ID...0.092 gal/ft 2"ID...0.163 gal/ft 4"ID...0.653 gal/ft 6"ID...1.469 gal/ft

SAMPLE / WELL DIAMETER	LAB I.D.	DEPTH TO PRODUCT (ft)	DEPTH TO WATER (ft)	PRODUCT THICKNESS (ft)	DEPTH TO BOTTOM (ft)	COLUMN HEIGHT (ft) / 1 WELL VOLUME	VOLUME PURGED / BAILED DRY (Y/N)	TIME SAMPLED	CONDUCTIVITY (uMHOS)	DISSOLVED O2 % / (mg/L)	TEMP. (C)	pH
RW-4 / 4"			17.66		34	16.34 / 10.67	32.01 /	1050		/		/
SW-1 / 2"			17.24		30	12.76 / 2.08	6.24 /	1400		/		/
/						/	/			/		/
/						/	/			/		/
/						/	/			/		/
/						/	/			/		/
/						/	/			/		/
/						/	/			/		/
/						/	/			/		/
						TOTAL PURGED						

APPENDIX E

VAPOR EXTRACTION TEST FIELD DATA

GRANDVIEW MARKET
PILOT VAC TEST
RW-4 (continued)
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

VAC TEST RW-4 OBSERVATION WELLS			
Well #	**Time**	**DTW feet**	**VAC IOW**
VAC TEST RW-1	00:03:45	---	0.00
	00:04:15	---	0.00
	00:05:30	17.66	---
	00:06:00	17.66	---
	00:07:30	17.66	0.00
	00:08:00	---	0.00
	00:09:00	---	0.00
	00:09:45	17.66	---
	00:10:15	17.66	---
	00:11:00	---	0.00
	00:12:00	---	0.00
	00:13:00	17.66	---
	00:15:00	17.65	---
	00:15:30	---	0.00
	00:18:00	---	0.00
	00:20:00	---	0.00
	00:21:15	17.62	---
	00:25:00	17.62	0.00
	00:30:00	17.61	0.00
	00:35:00	17.61	0.00
	00:40:00	17.61	0.00
	00:45:00	17.61	0.00
	00:50:00	17.61	0.00
	01:00:00	17.61	0.00
	01:07:00	17.61	trace
	01:15:00	17.61	trace
	01:30:00	17.61	0.00
	01:45:00	17.61	0.00
	02:00:00	17.61	0.00

VAC TEST RW-4 OBSERVATION WELLS			
Well #	**Time**	**DTW feet**	**VAC IOW**
MW-3	00:15:15	17.78	---
	00:28:00	17.82	---
	01:45:00	17.81	0.00
RW-2	00:19:30	---	---
	00:29:00	---	---
	01:45:00	---	---
RW-3	00:17:00	17.80	---
	00:30:00	17.80	---
	01:45:00	17.80	0.00
MW-1	00:24:00	17.35	0.00
SW-1	---	17.43	0.00
MW-5	---	16.65	0.00
MW-6	---	17.22	0.00
MW-1	---	17.37	0.00
MW-2	---	17.15	0.00

GRANDVIEW MARKET
PILOT VAC TEST
RW-4
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

Vac Test RW-4 EXTRACTION WELL						
Well #	**Time**	**PID ppm**	**VAC IOW**	**Flow fpm**	**Temp °F**	
Vac Test RW-4	00:00:15		13.50	3224	54.4	
	00:00:30					
	00:00:45	1400	13.50	3138		
	00:01:00	1060	13.50	3184		
	00:01:15		13.50	3175		
	00:01:30		13.50	3164		
	00:01:45	1016	13.50	3156		
	00:02:00	1013	13.50	3154	54.8	
	00:02:30	1012	13.50	3156	54.8	
	00:03:00	1017	13.50	3136	54.8	
	00:03:30	1025	13.50	3178	54.8	
	00:04:00	1034	13.50	3195	54.8	
	00:04:30	1040	13.50	3180	54.8	
	00:05:00	1050	13.50	3195	54.8	
	00:05:30	1066	13.50	3215	54.6	
	00:06:00	1080	13.50	3202		
	00:06:30	1081	13.50	3249		
	00:07:00	1083	13.50	3258		
	00:07:30	1085	13.50	3257		
	00:08:00	1086	13.00	3260		S-1
	00:09:00	1087	12.75	3258	54.5	
	00:10:00	1087	12.75	3290		
	00:11:00	1100	12.75	3343	54.1	
	00:12:00	1100	12.75	3359	54.1	
	00:13:00	1100	12.75	3400	53.9	
	00:14:00	1098	12.75	3338	53.7	
	00:15:00	1096	12.75	3366	53.6	
	00:16:00	1093	12.75	3396	53.5	
	00:17:00	1094	12.75	3428	53.5	
	00:18:00	1093	12.75	3484	53.0	
	00:19:00	1094	12.50	3478	53.0	
	00:20:00	1095	12.50	3498	52.6	
	00:25:00	1099	12.50	3489	51.7	
	00:30:00	1103	12.50	3514	51.0	
	00:35:00	1115	12.50	3564	50.7	
	00:40:00	1118	12.50	3544	50.3	
	00:45:00	1117	12.50	3510	50.1	
	00:50:00	1110	12.25	3499	49.9	
	00:55:00	1077	12.25	3514	49.9	S-2
	01:00:00	1077	12.25	3531	49.9	
	01:15:00	1062	12.50	3562	49.2	
	01:30:00	1047	12.50	3487	48.7	
	01:45:00	1034	12.50	3439	48.1	
	02:00:00	1020	12.50	3496	47.8	

GRANDVIEW MARKET
PILOT VAC TEST
MW-3
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

Vac Test MW-3 EXTRACTION WELLS					
Well #	Time	PID ppm	VAC IOW	Flow fpm	Temp °F
VAC TEST MW-3	00:00:15	784	16.00	1180	
	00:00:30	981	16.00	1148	
	00:00:45	1025	16.00	1133	
	00:01:00	1060	16.00	1116	50.70
	00:01:15	1072	16.25	1117	
	00:01:30	1089	16.00	1100	51.00
	00:01:45	1100	16.25	1088	
	00:02:00	1111	16.25	1080	51.20
	00:02:30	1118	16.25	1077	
	00:03:00	1122	16.25	1064	
	00:03:30	1134	16.25	1075	51.60
	00:04:00	1143	16.25	1072	
	00:04:30	1160	16.25	1066	51.70
	00:05:00	1185	16.00	1070	51.70
	00:06:00	1202	16.00	1072	51.70
	00:07:00	1211	16.00	1086	51.70
	00:08:00	1261	16.00	1106	51.90
	00:09:00	1255	16.00	1102	51.90
	00:10:00	1252	15.75	1104	51.90
	00:11:00	1249	15.75	1100	51.70
	00:12:00	1249	15.75	1104	51.70
	00:13:00	1247	15.75	1114	51.60
	00:14:00	1246	15.75	1114	51.60
	00:15:00	1250	15.75	1120	51.60
	00:20:00	1240	15.75	1146	51.40
	00:25:00	241	15.75	1161	51.40
	00:30:00	1234	15.75	1205	51.40
	00:40:00	1236	15.75	1235	51.00
	00:50:00	1255	15.75	1226	50.80
	01:00:00	1190	15.75	1283	50.70

VAC TEST MW-3 OBSERVATION WELLS			
Well #	Time	DTW feet	VAC IOW
RW-1	00:11:30	17.58	0.00
	00:17:15	17.58	0.00
	00:25:00	17.58	0.00
	00:31:30	17.58	0.00
	00:40:00	17.58	0.00
	00:59:00	17.59	0.00
RW-4	00:12:45	17.81	0.00
	00:41:45	17.84	0.00
	01:00:00	17.83	0.00
MW-2	00:15:00	17.16	0.00
	00:43:00	17.16	0.00

VAC TEST MW-3 OBSERVATION WELLS POST TEST WATER LEVELS			
Well #	Time	DTW feet	VAC IOW
SW-1	00:00:00	17.43	0.00
MW-4	00:00:00	16.83	0.00
RW-2	00:00:00	17.38	0.00
RW-3	00:00:00	17.77	0.00
MW-5	00:00:00	16.65	0.00
MW-6	00:00:00	17.23	0.00
MW-1	00:00:00	17.37	0.00

GRANDVIEW MARKET
PILOT VAC TEST RECHARGE DATA
MW-3
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

MW-3 Recharge

Time	DTW feet
01:02:15	14.42
01:02:30	14.51
01:02:45	14.66
01:03:00	14.84
01:03:15	15.02
01:03:30	15.22
01:03:45	15.38
01:04:00	15.48
01:04:15	15.56
01:04:30	15.68
01:04:45	15.78
01:05:00	15.89
01:06:00	16.19
01:07:00	16.43
01:08:00	16.60
01:09:00	16.75
01:10:00	16.88
01:11:00	16.99
01:12:00	17.07
01:13:00	17.15
01:14:00	17.21
01:15:00	17.28
01:22:00	17.50
01:25:00	17.55
01:30:00	17.61

RW-4 Recharge

Time	DTW feet
02:01:15	15.10
02:01:30	15.35
02:01:45	15.55
02:02:00	15.80
02:02:15	16.01
02:02:30	16.12
02:02:45	16.24
02:03:00	16.34
02:03:30	16.54
02:04:00	16.66
02:04:30	16.81
02:05:00	16.92
02:05:30	17.02
02:06:00	17.11
02:07:00	17.20
02:08:00	17.29
02:09:00	17.38
02:10:00	17.45
02:11:00	17.50
02:12:00	17.53

GRANDVIEW MARKET
VAPOR EXTRACTION TEST DATA
RW-1, RW-3, AND RW-4
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

OBSERVATIONS WELLS			
Well #	Time	DTW	VAC IOW
MW-3	00:20:30	17.81	0.00
	00:46:30	17.81	0.00
	01:36:00	17.81	0.00
	02:02:00	17.81	0.00
	02:40:00	17.81	0.00
	03:40:00	17.81	0.00
SW-1	00:44:00	17.45	0.00
	01:10:00	17.45	0.00
	01:41:00	17.45	0.00
	02:06:00	17.45	0.00
	02:43:00	17.45	0.00
	03:43:00	17.44	0.00
RW-2	00:12:30	17.41	0.00
	00:41:30	17.40	0.00
	01:08:00	17.41	0.00
	01:44:00	17.41	0.00
	02:07:00	17.40	0.00
	02:47:00	17.38	0.00
	03:45:00	17.39	0.00
MW-4	00:15:15	16.86	0.00
	01:06:00	16.86	0.00
	01:46:00	16.86	0.00
	02:08:00	16.85	0.00
	03:47:00	16.84	0.00
MW-5	00:17:45	16.69	0.00
	01:03:00	16.68	0.00
	02:09:00	16.67	0.00
	02:48:00	16.67	0.00
	03:48:00	16.66	0.00
MW-2	00:23:00	17.15	0.00
	00:49:00	17.15	0.00
	01:39:00	17.15	0.00
	02:05:00	17.15	0.00
	03:42:00	17.13	0.00
MW-1	00:26:30	17.37	0.00
	00:55:15	17.37	0.00
	02:12:00	17.37	0.00
	03:51:00	17.36	0.00
MW-6	00:29:30	17.24	0.00
	01:00:00	17.23	0.00
	02:10:00	17.22	0.00
	03:49:00	17.22	0.00

Well #	Time	VAC IOW	Flow fpm	PID ppm	Temp °F	
RW-1	00:00:00		1718	430		
	00:00:15					
	00:00:30					
	00:00:45					
	00:01:00		1753	295		
	00:01:15					
	00:01:30					
	00:01:45					
	00:02:00					
	00:02:30			60		
	00:03:00			50		
	00:03:30			76		
	00:04:00					
	00:04:30		2176	93		
	00:05:00					
	00:07:00	6.50	1883	495	55.0	
	00:08:00	6.50	2065		56.1	S-1
	00:10:00		2063			
	00:11:00		2190			
	00:12:00		2307			
	00:13:00	6.50	2450			
	00:14:00	6.50	2590			
	00:15:00	6.50	2794	561	62.4	
	00:20:00	6.50	2253	589	57.0	
	00:25:00	6.50	2115	597	54.1	
	00:30:00	6.50	2062	609	53.9	
	00:35:00	6.50	1962	615	51.4	
	00:40:00	6.50	1783	621	50.7	
	00:45:00	6.50	1964	623	50.8	
	00:50:00	6.50	1910	625	50.7	
	00:55:00	6.50	2096	625	52.1	
	01:00:00	6.50	2020	625	51.2	
	01:15:00	6.50	1837	580	49.0	
	01:30:00	6.25	1905	613	49.0	
	01:45:00	6.25	1961	595	49.4	
	02:00:00	6.25	2263	593	52.1	S-2
	02:15:00	6.25	2021	605	49.9	
	02:30:00	6.25	2182	578	51.4	
	02:45:00	6.25	2312	589	53.0	
	03:00:00	6.00	2142	573	51.6	
	03:15:00	6.00	2228	567	52.5	
	03:30:00	6.00	2881	552	58.2	
	03:45:00	6.00	3292	571	63.1	
	04:00:00	6.00	4454	572	67.4	

GRANDVIEW MARKET
VAPOR EXTRACTION TEST DATA (con't)
RW-1, RW-3, AND RW-4
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

Well #	Time	VAC IOW	Flow fpm	PID ppm	Temp °F
RW-3	00:00:05				
	00:00:30		1562	400	
	00:00:45				
	00:01:00				
	00:01:15		1764	180	51.7
	00:01:30				
	00:01:45				
	00:02:00				
	00:02:30				
	00:03:00				
	00:03:30		1790	91	
	00:04:00			123	
	00:04:30				
	00:05:00				
	00:06:00	6.50	1823		54.3
	00:08:00		1640		
	00:09:00		1882	495	
	00:10:00		1963		
	00:11:00	6.50	2096		
	00:12:00		2190		
	00:13:00		2177		
	00:14:00	6.50	2475		62.2
	00:15:00		2256	561	62.5
	00:20:00	6.50	1764	591	56.4
	00:25:00	6.50	1690	600	54.1
	00:30:00	6.50	1655	608	54.1
	00:35:00	6.50	1471	614	51.6
	00:40:00	6.50	1377	621	51.4
	00:45:00	6.50	1466	623	51.6
	00:50:00	6.50	1459	625	51.7
	00:55:00	6.50	1582	625	52.8
	01:00:00	6.50	1495	625	51.9
	01:15:00	6.25	1385	580	50.7
	01:30:00	6.25	1500	613	50.1
	01:45:00	6.25	1500	595	50.7
	02:00:00	6.25	1534	593	53.0
	02:15:00	6.25	1580	605	51.6
	02:30:00	6.25	1630	578	53.4
	02:45:00	6.25	1693	589	54.8
	03:00:00	6.00	1521	573	53.9
	03:15:00	6.00	1461	567	55.2
	03:30:00	6.00	2030	552	61.3
	03:45:00	6.00	2275	571	64.4
	04:00:00	6.00	3213	572	68.3

GRANDVIEW MARKET
VAPOR EXTRACTION TEST DATA (con't)
RW-1, RW-3, AND RW-4
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

Well #	Time	VAC IOW	Flow fpm	PID ppm	Temp °F
RW-4	00:00:15				
	00:00:30				
	00:00:45	6.50	1751	370	
	00:01:00				
	00:01:15				
	00:01:30		1836	125	
	00:01:45		1855	84	
	00:02:00		1890	58	
	00:02:30				
	00:03:00				
	00:03:30				
	00:04:00				
	00:04:30				
	00:05:00	6.50	1959	167	
	00:06:00		1750		55.0
	00:08:00		1822		
	00:09:00	6.50	2043		56.1
	00:10:00	6.50	2250		
	00:11:00	6.50	2333		
	00:12:00		2437		
	00:13:00	6.50	2520	540	
	00:14:00		2873		61.8
	00:15:00	6.50	2805	561	60.9
	00:20:00	6.50	2175	593	55.9
	00:25:00	6.50	2286	605	54.3
	00:30:00	6.50	2060	607	52.8
	00:35:00	6.50	1905	612	51.4
	00:40:00	6.50	1915	621	51.4
	00:45:00	6.50	2286	623	51.4
	00:50:00	6.50	2198	625	52.5
	00:55:00	6.50	2368	625	51.4
	01:00:00	6.50	2429	625	51.9
	01:15:00	6.25	1903	580	51.2
	01:30:00	6.25	2188	613	50.7
	01:45:00	6.25	2036	595	50.8
	02:00:00	6.25	2286	593	52.1
	02:15:00	6.25	2210	605	50.8
	02:30:00	6.25	2273	578	53.7
	02:45:00	6.25	2374	589	54.3
	03:00:00	6.00	2129	573	53.4
	03:15:00	6.00	1993	567	55.2
	03:30:00	6.00	2477	552	59.8
	03:45:00	6.00	2726	571	62.2
	04:00:00	6.00	4070	572	65.6

GRANDVIEW MARKET
VAPOR EXTRACTION RECOVERY TEST DATA
RW-1, RW-3, AND RW-4
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

Well #	Time	DTW feet
RW-1	00:00:15	
	00:00:30	
	00:00:45	
	00:01:00	
	00:01:15	
	00:01:30	16.61
	00:01:45	
	00:02:00	
	00:02:15	16.72
	00:02:30	
	00:02:45	16.81
	00:03:00	
	00:03:30	16.81
	00:04:30	16.95
	00:05:00	17.02
	00:06:00	17.05
	00:06:30	17.12
	00:07:00	17.15
	00:08:00	17.30
	00:09:00	17.24
	00:10:00	17.29
	00:11:00	17.31
	00:12:00	17.35
	00:13:00	17.37
	00:14:00	17.39
	00:15:00	17.41
	00:20:00	17.47
	00:25:00	17.51
	00:32:00	17.54
	00:52:00	17.56

Well #	Time	DTW feet
RW-4	00:00:15	
	00:00:30	
	00:00:45	
	00:01:00	16.78
	00:01:15	
	00:02:00	17.02
	00:02:30	17.13
	00:03:00	17.21
	00:04:00	17.30
	00:04:30	17.37
	00:05:00	17.41
	00:06:00	17.45
	00:06:30	17.51
	00:07:00	17.54
	00:08:00	17.54
	00:09:00	17.60
	00:10:00	17.63
	00:11:00	17.66
	00:12:00	17.68
	00:13:00	17.70
	00:14:00	17.71
	00:15:00	17.70
	00:20:00	17.77

Well #	Time	DTW feet	Time	DTW feet
RW-3	04:01:15	16.80	04:07:00	17.31
	04:01:45	16.85	04:07:30	17.32
	04:02:00	16.91	04:08:00	17.34
	04:02:15	16.93	04:08:30	17.36
	04:02:30	16.97	04:09:00	17.39
	04:02:45	16.98	04:09:30	17.40
	04:03:00	17.02	04:10:00	17.42
	04:03:15	17.05	04:10:30	17.45
	04:03:30	17.07	04:11:00	17.47
	04:03:45	17.08	04:12:00	17.50
	04:04:00	17.11	04:13:00	17.52
	04:04:15	17.12	04:14:00	17.54
	04:04:30	17.15	04:15:00	17.56
	04:04:45	17.17	04:16:00	17.58
	04:05:00	17.20	04:21:00	17.64
	04:05:15	17.21	04:25:00	17.67
	04:05:30	17.22	04:33:00	17.70
	04:05:45	17.23	04:45:00	17.71
	04:06:00	17.25		
	04:06:30	17.30		

GRANDVIEW MARKET
VAPOR EXTRACTION RECOVERY TEST DATA
RW-1, RW-3, AND RW-4
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

Well #	Time	DTW
		feet
RW-3	00:00:00	17.7
	00:00:15	18.00
	00:00:30	18.09
	00:00:45	18.18
	00:01:00	18.30
	00:01:15	18.42
	00:01:30	18.57
	00:01:45	18.67
	00:02:00	18.76
	00:02:30	18.94
	00:03:00	19.20
	00:03:30	19.38
	00:04:00	19.63
	00:04:30	19.93
	00:05:00	20.20
	00:06:00	20.63
	00:07:00	21.40
	00:08:00	21.40
	00:09:00	21.68
	00:10:00	21.93
	00:11:00	22.17
	00:12:00	22.35
	00:13:00	22.52
	00:14:00	22.67
	00:15:00	22.79
	00:30:00	23.45
	00:45:00	23.70
	01:00:00	24.18
	01:15:00	25.55
	01:30:00	24.25
	01:45:00	24.26
	02:00:00	24.23
	02:15:00	24.36
	02:30:00	24.39
	02:45:00	24.37
	03:00:00	24.33
	03:15:00	24.32
	03:30:00	24.33
	03:45:00	24.31
	04:00:00	24.28
	04:15:00	24.33
	04:30:00	24.40
	04:45:00	24.42
	05:00:00	24.42
	05:15:00	24.40
	05:30:00	24.50

Well #	Time	DTW
		feet
RW-3	05:45:00	24.37
	06:00:00	24.45
	06:30:00	24.45
	07:00:00	24.51
	07:30:00	24.47
	08:00:00	24.40
	08:30:00	24.62
	09:00:00	24.64
	09:30:00	24.64
	10:00:00	24.75
	10:30:00	24.75
	11:00:00	24.76
	11:30:00	24.59
	12:00:00	24.59
	12:30:00	24.54
	13:00:00	24.69
	13:30:00	24.79

GRANDVIEW MARKET
VAPOR EXTRACTION RECOVERY TEST DATA
RW-1, RW-3, AND RW-4
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

Well #	Time	DTW
RW-3	04:01:15	**16.8**
	04:01:45	16.85
	04:02:00	16.91
	04:02:15	16.93
	04:02:30	16.97
	04:02:45	16.98
	04:03:00	17.02
	04:03:15	17.05
	04:03:30	17.07
	04:03:45	17.08
	04:04:00	17.11
	04:04:15	17.12
	04:04:30	17.15
	04:04:45	17.17
	04:05:00	17.20
	04:05:15	17.21
	04:05:30	17.22
	04:05:45	17.23
	04:06:00	17.25
	04:06:30	17.30
	04:07:00	17.31
	04:07:30	17.32
	04:08:00	17.34
	04:08:00	17.36
	04:09:00	17.39
	04:09:30	17.40
	04:10:00	17.42
	04:10:30	17.45
	04:11:00	17.47
	04:12:00	17.50
	04:13:00	17.52
	04:14:00	17.54
	04:15:00	17.56
	04:16:00	17.58
	04:21:00	17.64
	04:25:00	17.67
	04:33:00	17.70
	04:45:00	17.71

APPENDIX F

ANALYTICAL TEST CERTIFICATES - AIR

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

Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled:	3/20/00 to 3/21/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received:	3/23/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported:	4/10/00 13:01

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
RW-4/S-1	S003063-01	Air	3/20/00
RW-4/S-2	S003063-02	Air	3/20/00
RW-3/S-1	S003063-03	Air	3/20/00
RW-1, RW-3, RW-4/S-1	S003063-04	Air	3/21/00
RW-1, RW-3, RW-4/S-2	S003063-05	Air	3/21/00

Dennis D Wells, Laboratory Director

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Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled: 3/20/00 to 3/21/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received: 3/23/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported: 4/10/00 13:01

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RW-4/S-1			S003063-01				Air	
Gasoline Range Hydrocarbons (mg/m³)	0300077	3/24/00	3/24/00		59.9	2690	(per analyte)	
Benzene (mg/m³)	"	"	"		1.50	131	"	
Toluene (mg/m³)	"	"	"		1.50	161	"	
Ethylbenzene (mg/m³)	"	"	"		1.50	4.78	"	
Total Xylenes (mg/m³)	"	"	"		2.99	163	"	
Gasoline Range Hydrocarbons (ppmv)	"	"	"		12.9	634	"	
Benzene (ppmv)	"	"	"		0.479	40.3	"	
Toluene (ppmv)	"	"	"		0.359	42.0	"	
Ethylbenzene (ppmv)	"	"	"		0.359	1.08	"	
Total Xylenes (ppmv)	"	"	"		0.689	37.1	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*97.6*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*90.6*	"	
RW-4/S-2			S003063-02				Air	
Gasoline Range Hydrocarbons (mg/m³)	0300077	3/24/00	3/24/00		59.9	2410	(per analyte)	
Benzene (mg/m³)	"	"	"		1.50	123	"	
Toluene (mg/m³)	"	"	"		1.50	164	"	
Ethylbenzene (mg/m³)	"	"	"		1.50	4.57	"	
Total Xylenes (mg/m³)	"	"	"		2.99	165	"	
Gasoline Range Hydrocarbons (ppmv)	"	"	"		12.9	569	"	
Benzene (ppmv)	"	"	"		0.479	37.9	"	
Toluene (ppmv)	"	"	"		0.359	42.9	"	
Ethylbenzene (ppmv)	"	"	"		0.359	1.04	"	
Total Xylenes (ppmv)	"	"	"		0.689	37.5	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*98.6*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*99.2*	"	
RW-3/S-1			S003063-03				Air	
Gasoline Range Hydrocarbons (mg/m³)	0300077	3/24/00	3/24/00		59.9	4030	(per analyte)	
Benzene (mg/m³)	"	"	"		1.50	71.9	"	
Toluene (mg/m³)	"	"	"		1.50	46.5	"	
Ethylbenzene (mg/m³)	"	"	"		1.50	72.0	"	
Total Xylenes (mg/m³)	"	"	"		2.99	283	"	
Gasoline Range Hydrocarbons (ppmv)	"	"	"		12.9	950	"	
Benzene (ppmv)	"	"	"		0.479	22.2	"	
Toluene (ppmv)	"	"	"		0.359	12.1	"	
Ethylbenzene (ppmv)	"	"	"		0.359	16.3	"	
Total Xylenes (ppmv)	"	"	"		0.689	64.2	"	

North Creek Analytical - Spokane

**Refer to end of report for text of notes and definitions.*

Dennis D Wells, Laboratory Director

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Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled: 3/20/00 to 3/21/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received: 3/23/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported: 4/10/00 13:01

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
RW-3/S-1 (continued)			S003063-03				Air	
Surrogate: 4-BFB (FID)	*0300077*	*3/24/00*	*3/24/00*	*50.0-150*		*118*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*85.2*	"	
RW-1, RW-3, RW-4/S-1			S003063-04				Air	
Gasoline Range Hydrocarbons (mg/m³)	0300077	3/24/00	3/24/00		12.0	1460	(per analyte)	
Benzene (mg/m³)	"	"	"		0.299	47.3	"	
Toluene (mg/m³)	"	"	"		0.299	58.2	"	
Ethylbenzene (mg/m³)	"	"	"		0.299	18.9	"	
Total Xylenes (mg/m³)	"	"	"		0.599	82.7	"	
Gasoline Range Hydrocarbons (ppmv)	"	"	"		2.57	345	"	
Benzene (ppmv)	"	"	"		0.0958	14.6	"	
Toluene (ppmv)	"	"	"		0.0718	15.2	"	
Ethylbenzene (ppmv)	"	"	"		0.0719	4.29	"	
Total Xylenes (ppmv)	"	"	"		0.138	18.8	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*138*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*93.0*	"	
RW-1, RW-3, RW-4/S-2			S003063-05				Air	
Gasoline Range Hydrocarbons (mg/m³)	0300077	3/24/00	3/24/00		59.9	1660	(per analyte)	
Benzene (mg/m³)	"	"	"		1.50	56.0	"	
Toluene (mg/m³)	"	"	"		1.50	69.1	"	
Ethylbenzene (mg/m³)	"	"	"		1.50	23.5	"	
Total Xylenes (mg/m³)	"	"	"		2.99	98.6	"	
Gasoline Range Hydrocarbons (ppmv)	"	"	"		12.9	390	"	
Benzene (ppmv)	"	"	"		0.479	17.2	"	
Toluene (ppmv)	"	"	"		0.359	18.0	"	
Ethylbenzene (ppmv)	"	"	"		0.359	5.33	"	
Total Xylenes (ppmv)	"	"	"		0.689	22.4	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*95.0*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*92.4*	"	

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541.383.9310 fax 541.382.7588

Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled: 3/20/00 to 3/21/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received: 3/23/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported: 4/10/00 13:01

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021/Quality Control
North Creek Analytical - Spokane

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0300077	**Date Prepared: 3/24/00**					**Extraction Method: GC Volatiles**				
Blank	0300077-BLK1									
Gasoline Range Hydrocarbons (mg/m³)	3/24/00			ND	(per analyte)	2.40				
Benzene (mg/m³)	"			ND	"	0.0599				
Toluene (mg/m³)	"			ND	"	0.0599				
Ethylbenzene (mg/m³)	"			ND	"	0.0599				
Total Xylenes (mg/m³)	"			ND	"	0.120				
Gasoline Range Hydrocarbons (ppmv)	"			ND	"	0.515				
Benzene (ppmv)	"			ND	"	0.0192				
Toluene (ppmv)	"			ND	"	0.0144				
Ethylbenzene (ppmv)	"			ND	"	0.0144				
Total Xylenes (ppmv)	"			ND	"	0.0275				
Surrogate: 4-BFB (FID)	"	*5.00*		*5.05*	"	*50.0-150*	*101*			
Surrogate: 4-BFB (PID)	"	*5.00*		*5.80*	"	*50.0-150*	*116*			
LCS	0300077-BS1									
Gasoline Range Hydrocarbons (mg/m³)	3/24/00			178	(per analyte)	85.0-115				
Surrogate: 4-BFB (FID)	"	*5.00*		*6.03*	"	*50.0-150*	*121*			
LCS	0300077-BS2									
Benzene (mg/m³)	3/24/00	2.00		2.11	(per analyte)	85.0-115	105			
Toluene (mg/m³)	"	2.00		1.87	"	85.0-115	93.5			
Ethylbenzene (mg/m³)	"	2.00		2.02	"	85.0-115	101			
Total Xylenes (mg/m³)	"			5.92	"	85.0-115				
Surrogate: 4-BFB (PID)	"	*5.00*		*6.07*	"	*50.0-150*	*121*			

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Seattle 18939 120th Avenue NE, Suite 101, Bothell, WA 98011-9508
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

Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled:	3/20/00 to 3/21/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received:	3/23/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported:	4/10/00 13:01

Notes and Definitions

#	Note
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
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical - Spokane

Dennis D Wells, Laboratory Director

APPENDIX G

AIR SPARGING PILOT TEST FIELD DATA

AIR SPARGE TEST
GRANDVIEW MARKET
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

Well #	Time	Flow cfm	Pressure PSI
AS/ SW-1	00:00:00		10.00
	00:00:30		
	00:01:00		
	00:01:30		
	00:02:00		
	00:02:30		
	00:03:00		
	00:03:30		
	00:04:00		
	00:04:30		
	00:05:00	1.00	11.00
	00:05:30		
	00:06:00		
	00:06:30		
	00:07:00		
	00:09:00		
	00:09:30		
	00:11:00		
	00:12:15		
	00:13:00	2.00	13.00
	00:17:30		
	00:19:45	4.50	18.00
	00:21:00		
	00:22:00	4.00	18.00
	00:23:00		
	00:24:15		
	00:25:30		
	00:28:00		
	00:30:00		
	00:35:30	4.50	12.00
	00:36:00	2.50	12.00
	00:37:00		
	00:38:30	3.00	12.00
	00:42:00	3.00	12.00
	00:45:00	3.00	12.00
	00:47:30		
	00:50:00	3.25	12.00
	00:55:00	3.50	12.00
	01:00:00	3.25	12.00
	01:05:00	3.50	12.00
	01:10:00	3.50	12.00
	01:16:00	4.00	12.00
	01:23:00	4.00	14.00
	01:25:00	6.50	14.00
	01:30:00	5.50	14.00
	01:35:00	5.00	14.00
	01:40:00	5.00	14.00
	01:44:00	7.50	15.00

Well #	Time	Flow cfm	Pressure PSI
AS/ SW-1	01:45:00	6.50	15.00
	01:47:00		
	01:51:00	8.00	16.00
	01:55:00	7.50	16.25
	02:00:00	7.50	16.00
	02:05:00	7.50	16.00
	02:10:00	7.50	15.75
	02:15:00	7.50	15.75
	02:25:00	7.75	15.50
	03:18:00	8.00	13.50
	04:05:00	8.50	13.00
	04:07:00	8.00	12.25
	04:44:30	8.00	11.50
	06:01:00	8.25	11.50
	06:02:00	8.00	11.25
	06:50:00	8.50	11.25
	06:51:00	8.00	10.50
	07:20:00	8.00	10.00
	08:12:00	8.00	10.00
	08:30:00	8.00	10.00
	09:00:00	8.00	10.00
	09:30:00	8.00	10.00
	10:00:00	8.00	10.00
	10:30:00	8.00	10.00
	11:00:00	8.00	10.00
	11:30:00	8.00	10.00
	12:00:00	8.00	10.00

AIR SPARGE TEST
GRANDVIEW MARKET
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

Well #	Time	DTW	DO mg/L	TEMP °C	Pressure IOW
Initial AS/ RW-1	00:00:00	17.60	0.23	17.0	
	00:07:30	17.51			
	00:15:30		0.29	16.9	
	00:16:00	17.47			
	00:42:00	17.39			
	00:52:00		0.20	17.0	
	00:57:00	17.34			
	01:04:30		0.23	17.0	
	01:09:00	17.32			
	01:21:00		0.23	17.0	
	01:30:00	17.30			
	01:59:00	17.17			
	02:09:00		0.25	17.0	
	02:40:00	17.18	0.25	17.0	
	03:25:45	17.25			
	03:32:30		0.25	17.0	
	04:18:00	17.30	0.26	16.9	
	04:50:25				0
	05:13:45	17.35	0.32	16.9	
	05:57:30	17.35	0.27	16.9	
	06:40:15	17.35	0.30	16.9	
	07:35:00	17.40	0.26	17.0	
	07:55:00	17.40	0.28	16.9	
	08:23:00	17.40	0.28	16.9	
	08:49:00	17.42	0.28	16.9	0
	09:34:00	17.42	0.31	16.9	
	10:12:00	17.43	0.29	16.9	
	10:40:00	17.43	0.21	17.0	
	11:05:00	17.44	0.23	17.0	
	11:34:00	17.44	0.26	16.9	0

Well #	Time	DTW	DO mg/L	TEMP °C	Pressure IOW
Initial AS/ RW-4	00:00:00	17.87	0.23	17.4	
	00:16:30	17.83			
	00:41:00	17.80			
	00:50:00		0.22	17.4	
	00:56:00	17.78			
	01:03:00		0.25	17.4	
	01:08:30	17.77			
	01:20:00		0.24	17.4	
	01:28:45	17.76			
	01:58:00	17.72			
	02:07:00		0.34	17.4	
	02:28:00	17.70	0.32	17.4	
	03:24:30	17.72			
	03:30:30		0.31	17.4	
	04:13:30	17.73	0.27	17.4	
	04:49:30				0.00
	05:11:45	17.75			
	05:53:45	17.75	0.28	17.4	
	06:34:45	17.75	0.27	17.5	
	07:34:00	17.76	0.32	17.4	
	07:51:00	17.76	0.27	17.4	
	08:20:00	17.78	0.28	17.4	
	08:47:00	17.78	0.34	17.4	0.00
	09:31:00	17.78	0.34	17.4	
	10:07:00	17.78	0.24	17.4	
	10:36:00	17.78	0.24	17.4	
	11:03:00	17.80	0.24	17.4	
	11:32:00	17.79	0.29	17.4	0.00

Well #	Time	DTW	DO mg/L	TEMP °C	Pressure IOW
Initial AS/ MW-4	00:00:00	16.92	1.80	17.0	
	00:08:00	16.74			
	00:14:30	16.60			
	00:38:30	16.25			
	00:43:45		1.99	17.1	
	00:55:30	16.16			
	00:58:00				0.00
	01:00:00		2.40	17.0	
	01:07:00	15.92			
	01:15:15		2.46	17.0	
	01:26:15	15.86			
	01:57:00	15.37			
	02:02:00		2.42	17.0	0.02
	02:34:00	15.10	2.30	17.0	0.02
	03:15:45	15.29			
	03:20:15		2.15	17.0	0.02
	04:00:00	15.31	2.50	17.0	0.025
	04:54:00				0.02
	05:02:30	15.65	2.17	17.0	
	05:45:30	15.70	2.23	17.0	

Well #	Time	DTW	DO mg/L	TEMP °C	Pressure IOW
AS/ MW-4	06:24:30	15.76	2.28	17.0	0.01
	06:54:30				0.01
	07:28:00	15.93	2.58	17.0	
	07:45:00	16.00	2.78	16.9	0.02
	08:15:00	16.03	2.83	16.9	
	08:40:00	16.04	2.83	16.8	0.02
	09:26:00	16.07	2.96	16.8	
	10:00:00	16.10	2.94	16.9	
	10:30:00	16.11	2.85	16.9	
	11:00:00	16.13	2.94	16.9	
	11:29:00	16.14	2.93	16.8	0.02

AIR SPARGE TEST
GRANDVIEW MARKET
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

Well #	Time	DTW	DO mg/L	TEMP °C	Pressure IOW
Initial RW-3	00:00:00	17.81	0.70	16.8	
	00:40:00	17.75			
	00:46:00		0.65	16.9	
	00:56:00	17.72			
	01:01:00		1.03	16.8	
	01:08:00	17.71			
	01:17:30		1.00	16.8	
	01:27:30	17.70			
	01:57:00	17.64			
	02:04:00		0.99	16.8	
	02:35:00	17.61	0.99	16.8	
	03:23:15	17.64			
	03:28:30		0.99	16.7	
	04:10:00	17.63	0.89	16.7	
	04:48:00				0.01
	05:05:00	17.66	0.81	16.7	
	05:50:00	17.66	0.65	16.8	
	06:30:30	17.66	0.66	16.7	
	07:30:00	17.68	0.63	16.7	
	07:48:00	17.68	0.63	16.7	
	08:16:00	17.68	0.46	16.7	
	08:43:00	17.68	0.55	16.7	0.00
	09:29:00	17.69	0.46	16.7	
	10:05:00	17.69	0.47	16.7	
	10:31:00	17.70	0.40	16.7	
	10:35:00	17.43	0.36	16.8	
	11:01:00	17.70	0.31	16.8	
	11:30:00	17.70	0.45	16.7	0.00

Well #	Time	DTW	DO mg/L	TEMP °C	Pressure IOW
Initial MW-5	00:00:00	16.70	0.32	17.2	
	01:36:00	16.66			
	02:45:00	16.66	0.32	17.3	
	04:30:00	16.65	0.30	17.3	
	04:55:30				0.00
	05:26:00	16.63	0.33	17.2	
	06:57:00	16.62	0.39	17.2	
	08:04:00	16.62	0.34	17.3	
	08:57:00	16.63	0.26	17.3	0.00
	10:49:00	16.65	0.30	17.3	
	11:40:00	16.64	0.30	17.3	0.00

Well #	Time	DTW	DO mg/L	TEMP °C	Pressure IOW
Initial MW-6	00:00:00	17.26	0.33	17.2	
	01:36:30	17.22			
	02:48:00	17.22	0.28	17.3	
	04:34:00	17.22	0.26	17.3	
	04:56:00				0.00
	05:29:30	17.22	0.32	17.2	
	07:01:30	17.22	0.34	17.2	
	08:06:00	17.22	0.34	17.2	
	09:02:00	17.22	0.25	17.2	0.00
	10:50:00	17.23	0.30	17.2	
	11:42:00	17.23	0.25	17.3	0.00

Well #	Time	DTW	DO mg/L	TEMP °C	Pressure IOW
Initial MW-3	00:00:00	17.80	0.21	17.3	0.00
	01:41:30	17.72			
	02:43:00	17.78	0.24	17.3	
	04:21:45	17.65	0.26	17.3	
	04:51:15				0.00
	05:18:00	17.65	0.34	17.2	
	06:44:00	17.66	0.30	17.2	
	07:58:00	17.68	0.27	17.2	
	08:54:00	17.70	0.26	17.2	0.00
	10:42:00	17.70	0.23	17.3	
	11:35:00	17.70	0.23	17.2	0.00

Well #	Time	DTW	DO mg/L	TEMP °C	Pressure IOW
Initial MW-1	00:00:00	17.39	0.38	17.6	
	01:38:00	17.36			
	02:53:00	17.35	0.52	17.6	
	03:36:45	17.35	0.47	17.6	
	04:37:30	17.34	0.47	17.7	
	04:57:20	17.34	0.48	17.6	0.00
	07:04:50	17.35	0.49	17.6	
	08:09:00	17.34	0.40	17.7	
	09:05:00	17.35	0.45	17.7	0.00
	10:53:00	17.36	0.47	17.7	
	11:45:00	17.36	0.47	17.7	0.00

AIR SPARGE TEST
GRANDVIEW MARKET
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

Well #	Time	DTW	DO mg/L	TEMP °C	Pressure IOW
AS/ RW-2	00:00:00	17.40	0.56		
	00:00:30	17.40			
	00:01:00	17.36			
	00:01:00	17.35			
	00:02:00	17.31			
	00:02:30	17.30			
	00:03:00	17.25			
	00:03:30	17.20			
	00:04:00	17.17	0.56	16.7	
	00:04:30	17.14			
	00:05:00				
	00:05:30				
	00:06:00	17.06			
	00:06:30	17.03			
	00:07:00	16.99			
	00:09:00	16.84			
	00:09:30				Trace
	00:11:00		0.41		
	00:12:15	16.65			
	00:13:00		0.30	16.8	
	00:17:30				Trace
	00:19:45				
	00:21:00		0.25	16.9	0.02
	00:22:00				
	00:23:00	15.50			
	00:24:15	15.12	0.83	16.9	
	00:25:30	Blew connection from well			
	00:28:00	Start			
	00:30:00	16.20			
	00:35:30	16.51			
	00:36:00				
	00:37:00		2.43	16.5	
	00:38:30	16.16	2.60	16.7	
	00:42:00	16.03	2.77	16.8	0.02
	00:45:00	15.89			0.02
	00:47:30		3.52	16.7	
	00:50:00	15.80			
	00:55:00	15.76	4.16	16.7	
	01:00:00	15.75	4.59	16.7	
	01:05:00	15.77	5.08	16.7	0.02
	01:10:00	15.79	5.32	16.6	0.02
	01:16:00	15.70	5.56	16.7	0.03
	01:23:00	15.70	5.78	16.8	
	01:25:00	15.57	5.88	16.7	
	01:30:00	15.25	5.95	16.7	0.03
	01:35:00	15.07	6.12	16.8	
	01:40:00	15.08	6.42	16.8	0.04

Well #	Time	DTW	DO mg/L	TEMP °C	Pressure IOW
AS/ RW-2	01:44:00	15.07	6.64	16.8	
	01:45:00		6.75		
	01:47:00				0.05
	01:51:00	14.81			
	01:55:00	14.54	7.01	16.8	0.06
	02:00:00	14.30	7.16	16.8	0.06
	02:05:00	14.11	7.49	16.7	0.07
	02:10:00	14.03	7.73	16.8	0.07
	02:15:00	14.00	7.88	16.6	0.07
	02:25:00	13.92	8.23	16.7	0.07
	Break through (bubbling in well)				
	03:18:00				
	04:05:00				
	04:07:00				
	04:44:30				
	06:01:00				
	06:02:00				
	06:50:00				
	06:51:00				
	07:20:00				
	08:12:00				
	08:30:00				
	09:00:00				
	09:30:00				
	10:00:00				
	10:30:00				
	11:00:00				
	11:30:00				
	12:00:00				

Well #	Time	DTW	DO mg/L	TEMP °C	Pressure IOW
Initial MW-2	00:00:00	17.15	5.18	16.8	
	01:42:00	17.10			
	02:43:00	17.08	5.50	16.7	
	04:25:15	17.05	5.72	16.7	
	04:52:30				0.00
	05:21:45	17.05	5.75	16.7	
	06:47:15	17.05	5.75	16.7	
	08:00:00	17.06	5.77	16.7	
	08:55:00	17.06	5.80	16.7	
	10:45:00	17.07	5.93	16.7	
	11:38:00	17.08	5.95	16.7	0.00

AIR SPARGE TEST
GRANDVIEW MARKET
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

Well #	Time	DTW
Initial	00:00:00	
RCH	00:01:45	16.15
MW-4	00:03:00	16.20
	00:04:00	16.25
	00:04:30	16.30
	00:05:30	16.38
	00:06:15	16.44
	00:07:30	16.50
	00:08:00	16.58
	00:09:00	16.62
	00:10:00	16.68
	00:13:00	16.85
	00:14:00	16.90
	00:17:35	17.03
	00:29:00	17.30
	00:42:30	17.40
	01:02:00	17.40
	00:17:00	17.38
	05:45:00	17.38

Well #	Time	DTW
Initial	00:00:00	
RCH	01:03:00	No Water
SW-1	01:28:00	No Water

Well #	Time	DTW
Initial	00:00:00	
RCH	00:00:45	16.32
RW-2	00:02:00	16.35
	00:02:50	16.56
	00:03:30	16.84
	00:04:15	17.10
	00:05:00	17.36
	00:05:45	17.68
	00:06:45	18.03
	00:07:45	18.48
	00:08:30	18.82
	00:09:30	19.10
	00:10:30	19.37
	00:12:15	19.75
	00:13:30	19.88
	00:17:00	20.13
	00:27:45	20.15
	00:41:25	19.85
	01:00:00	19.45
	01:16:00	19.22
	01:28:15	19.10

APPENDIX H

ANALYTICAL TEST CERTIFICATES
GROUNDWATER COLLECTED DURING
REMEDIAL INVESTIGATION

Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	Reported:
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
RW-4	B0C0532-01	Water	03/21/00 12:25	03/25/00 09:45
RW-3	B0C0532-02	Water	03/21/00 12:35	03/25/00 09:45
MW-5	B0C0532-03	Water	03/21/00 12:45	03/25/00 09:45
RW-1	B0C0532-04	Water	03/22/00 06:50	03/25/00 09:45
RW-2	B0C0532-05	Water	03/22/00 07:00	03/25/00 09:45
SW-1	B0C0532-06	Water	03/22/00 07:10	03/25/00 09:45
MW-4	B0C0532-07	Water	03/22/00 07:20	03/25/00 09:45
RW-1	B0C0532-08	Water	03/23/00 09:30	03/25/00 09:45
SW-1	B0C0532-09	Water	03/23/00 09:40	03/25/00 09:45
RW-2	B0C0532-10	Water	03/23/00 09:50	03/25/00 09:45
MW-4	B0C0532-11	Water	03/23/00 10:00	03/25/00 09:45

Maxim Technologies - Spokane 111 E. Magnesium Rd., Suite A Spokane WA, 99208	Project: TOC-Grandview Project Number: 9904825 Project Manager: Gene St. Goddard	**Reported:** 04/05/00 15:37

Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
RW-4 (B0C0532-01) Water Sampled: 03/21/00 12:25 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	17700	5000	ug/l	100	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	1490	50.0	"	"	"	"	"	"	
Toluene	960	50.0	"	"	"	"	"	"	
Ethylbenzene	520	50.0	"	"	"	"	"	"	
Xylenes (total)	2930	100	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*95.8 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*100 %*	*50-150*			"	"	"	"	
RW-3 (B0C0532-02) Water Sampled: 03/21/00 12:35 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	6330	2500	ug/l	50	0C28033	03/28/00	03/30/00	WTPH-G/8021B	
Benzene	1320	25.0	"	"	"	"	"	"	
Toluene	321	25.0	"	"	"	"	"	"	
Ethylbenzene	156	25.0	"	"	"	"	"	"	
Xylenes (total)	1060	50.0	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*91.9 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*87.5 %*	*50-150*			"	"	"	"	
MW-5 (B0C0532-03) Water Sampled: 03/21/00 12:45 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	23600	2500	ug/l	50	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	5120	25.0	"	"	"	"	"	"	
Toluene	1580	25.0	"	"	"	"	"	"	
Ethylbenzene	830	25.0	"	"	"	"	"	"	
Xylenes (total)	4510	50.0	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*103 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*50-150*			"	"	"	"	

Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
RW-1 (B0C0532-04) Water Sampled: 03/22/00 06:50 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**5190**	500	ug/l	10	0C28033	03/28/00	03/28/00	WTPH-G/8021B	
Benzene	**110**	5.00	"	"	"	"	"	"	
Toluene	**68.2**	5.00	"	"	"	"	"	"	
Ethylbenzene	**137**	5.00	"	"	"	"	"	"	
Xylenes (total)	**1040**	10.0	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*102 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*108 %*	*50-150*			"	"	"	"	
RW-2 (B0C0532-05) Water Sampled: 03/22/00 07:00 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**1270**	50.0	ug/l	1	0C28033	03/28/00	03/28/00	WTPH-G/8021B	
Benzene	**4.70**	0.500	"	"	"	"	"	"	
Toluene	ND	1.25	"	"	"	"	"	"	R-03
Ethylbenzene	ND	2.80	"	"	"	"	"	"	R-03
Xylenes (total)	**20.6**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*147 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*115 %*	*50-150*			"	"	"	"	
SW-1 (B0C0532-06) Water Sampled: 03/22/00 07:10 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**64.9**	50.0	ug/l	1	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	**0.521**	0.500	"	"	"	"	"	"	
Ethylbenzene	**1.26**	0.500	"	"	"	"	"	"	
Xylenes (total)	7.92	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*89.6 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*99.4 %*	*50-150*			"	"	"	"	

Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4 (B0C0532-07) Water Sampled: 03/22/00 07:20 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	**1.43**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*94.4 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*103 %*	*50-150*			"	"	"	"	
RW-1 (B0C0532-08) Water Sampled: 03/23/00 09:30 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**5910**	500	ug/l	10	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	**125**	5.00	"	"	"	"	"	"	
Toluene	**84.9**	5.00	"	"	"	"	"	"	
Ethylbenzene	**238**	5.00	"	"	"	"	"	"	
Xylenes (total)	**1110**	10.0	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*105 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*111 %*	*50-150*			"	"	"	"	
SW-1 (B0C0532-09) Water Sampled: 03/23/00 09:40 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*96.3 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*100 %*	*50-150*			"	"	"	"	

Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
RW-2 (B0C0532-10) Water Sampled: 03/23/00 09:50 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	**204**	50.0	ug/l	1	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	4.05	"	"	"	"	"	"	R-03
Surrogate: 4-BFB (FID)	*106 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*101 %*	*50-150*			"	"	"	"	
MW-4 (B0C0532-11) Water Sampled: 03/23/00 10:00 Received: 03/25/00 09:45									
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	0C28033	03/28/00	03/29/00	WTPH-G/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	2.25	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*95.0 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*101 %*	*50-150*			"	"	"	"	

Amar Gill, Project Manager

Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Dissolved Metals by EPA 6000/7000 Series Methods

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
RW-1 (B0C0532-04) Water	**Sampled: 03/22/00 06:50**	**Received: 03/25/00 09:45**							Q-30
Copper	**0.0102**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**57.3**	0.100	"	"	"	"	"	"	
Manganese	**1.21**	0.0100	"	10	0C28008	03/28/00	04/01/00	EPA 6020	
Lead	ND	0.00100	"	1	"	"	03/30/00	"	
Zinc	ND	0.0100	"	"	"	"	"	"	
RW-2 (B0C0532-05) Water	**Sampled: 03/22/00 07:00**	**Received: 03/25/00 09:45**							Q-30
Copper	**0.00202**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**51.8**	0.100	"	"	"	"	"	"	
Manganese	**1.93**	0.0100	"	10	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	1	"	"	03/30/00	"	
Zinc	ND	0.0100	"	"	"	"	"	"	
SW-1 (B0C0532-06) Water	**Sampled: 03/22/00 07:10**	**Received: 03/25/00 09:45**							Q-30
Copper	**0.0193**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**72.6**	0.100	"	"	"	"	"	"	
Manganese	**0.217**	0.00100	"	"	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	"	"	"	03/30/00	"	
Zinc	**0.0234**	0.0100	"	"	"	"	"	"	
MW-4 (B0C0532-07) Water	**Sampled: 03/22/00 07:20**	**Received: 03/25/00 09:45**							Q-30
Copper	**0.00287**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**55.2**	0.100	"	"	"	"	"	"	
Manganese	**0.0273**	0.00100	"	"	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	"	"	"	03/30/00	"	
Zinc	ND	0.0100	"	"	"	"	"	"	

Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Dissolved Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
RW-1 (B0C0532-08) Water	**Sampled: 03/23/00 09:30**	**Received: 03/25/00 09:45**							Q-30
Copper	**0.00656**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**54.3**	0.100	"	"	"	"	"	"	
Manganese	**1.47**	0.0100	"	10	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	1	"	"	03/30/00	"	
Zinc	ND	0.0100	"	"	"	"	"	"	
SW-1 (B0C0532-09) Water	**Sampled: 03/23/00 09:40**	**Received: 03/25/00 09:45**							Q-30
Copper	**0.0162**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**87.2**	0.100	"	"	"	"	"	"	
Manganese	**0.269**	0.00100	"	"	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	"	"	"	03/30/00	"	
Zinc	ND	0.0100	"	"	"	"	"	"	
RW-2 (B0C0532-10) Water	**Sampled: 03/23/00 09:50**	**Received: 03/25/00 09:45**							Q-30
Copper	**0.0617**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**74.6**	0.100	"	"	"	"	"	"	
Manganese	**0.897**	0.00500	"	5	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	1	"	"	03/30/00	"	
Zinc	**0.0155**	0.0100	"	"	"	"	"	"	
MW-4 (B0C0532-11) Water	**Sampled: 03/23/00 10:00**	**Received: 03/25/00 09:45**							Q-30
Copper	**0.0109**	0.00100	mg/l	1	0C28008	03/28/00	03/30/00	EPA 6020	
Iron	ND	0.150	"	"	0C28012	03/28/00	04/03/00	EPA 6010B	
Magnesium	**62.8**	0.100	"	"	"	"	"	"	
Manganese	**0.0342**	0.00100	"	"	0C28008	03/28/00	04/03/00	EPA 6020	
Lead	ND	0.00100	"	"	"	"	03/30/00	"	
Zinc	ND	0.0100	"	"	"	"	"	"	

Amar Gill, Project Manager

Maxim Technologies - Spokane 111 E. Magnesium Rd., Suite A Spokane WA, 99208	Project: TOC-Grandview Project Number: 9904825 Project Manager: Gene St. Goddard	**Reported:** 04/05/00 15:37

Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-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 0C28033: Prepared 03/28/00 Using EPA 5030B (P/T)										
Blank (0C28033-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)	*42.8*		"	*48.0*		*89.2*	*50-150*			
Surrogate: 4-BFB (PID)	*47.8*		"	*48.0*		*99.6*	*50-150*			
Blank (0C28033-BLK2)										
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)	*44.9*		"	*48.0*		*93.5*	*50-150*			
Surrogate: 4-BFB (PID)	*47.4*		"	*48.0*		*98.8*	*50-150*			
LCS (0C28033-BS1)										
Gasoline Range Hydrocarbons	514	50.0	ug/l	500		103	70-130			
Surrogate: 4-BFB (FID)	*49.6*		"	*48.0*		*103*	*50-150*			
Duplicate (0C28033-DUP1)					Source: B0C0532-02					
Gasoline Range Hydrocarbons	7110	500	ug/l		6330			11.6	25	
Surrogate: 4-BFB (FID)	*48.2*		"	*48.0*		*100*	*50-150*			
Duplicate (0C28033-DUP2)					Source: B0C0535-02					
Gasoline Range Hydrocarbons	ND	50.0	ug/l		21.0			78.0	25	
Surrogate: 4-BFB (FID)	*46.7*		"	*48.0*		*97.3*	*50-150*			

Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	Reported:
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Gasoline Range Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-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 0C28033: Prepared 03/28/00 Using EPA 5030B (P/T)										
Matrix Spike (0C28033-MS1)					Source: B0C0532-09					
Benzene	11.2	0.500	ug/l	10.0	0.118	111	70-130			
Toluene	11.2	0.500	"	10.0	0.143	111	70-130			
Ethylbenzene	11.1	0.500	"	10.0	0.109	110	70-130			
Xylenes (total)	33.5	1.00	"	30.0	0.921	109	70-130			
Surrogate: 4-BFB (PID)	*50.0*		"	*48.0*		*104*	*50-150*			
Matrix Spike Dup (0C28033-MSD1)					Source: B0C0532-09					
Benzene	11.0	0.500	ug/l	10.0	0.118	109	70-130	1.80	15	
Toluene	10.9	0.500	"	10.0	0.143	108	70-130	2.71	15	
Ethylbenzene	10.9	0.500	"	10.0	0.109	108	70-130	1.82	15	
Xylenes (total)	33.0	1.00	"	30.0	0.921	107	70-130	1.50	15	
Surrogate: 4-BFB (PID)	*49.2*		"	*48.0*		*103*	*50-150*			

Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	Reported:
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Dissolved Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0C28008: Prepared 03/28/00 Using EPA 3005A										
Blank (0C28008-BLK1)										
Copper	ND	0.00100	mg/l							
Lead	ND	0.00100	"							
Manganese	ND	0.00100	"							
Zinc	ND	0.0100	"							
LCS (0C28008-BS1)										
Copper	0.194	0.00100	mg/l	0.200		97.0	80-120			
Lead	0.180	0.00100	"	0.200		90.0	80-120			
Manganese	0.189	0.00100	"	0.200		94.5	80-120			
Zinc	0.197	0.0100	"	0.200		98.5	80-120			
Matrix Spike (0C28008-MS1)					Source: B0C0532-04					
Copper	0.199	0.00100	mg/l	0.200	0.0102	94.4	75-125			
Lead	0.188	0.00100	"	0.200	0.000412	93.8	75-125			
Manganese	1.44	0.0100	"	0.200	1.21	115	75-125			
Zinc	0.186	0.0100	"	0.200	0.00672	89.6	75-125			
Matrix Spike Dup (0C28008-MSD1)					Source: B0C0532-04					
Copper	0.199	0.00100	mg/l	0.200	0.0102	94.4	75-125	0	20	
Lead	0.191	0.00100	"	0.200	0.000412	95.3	75-125	1.58	20	
Manganese	1.47	0.0100	"	0.200	1.21	130	75-125	2.06	20	Q-01
Zinc	0.186	0.0100	"	0.200	0.00672	89.6	75-125	0	20	
Batch 0C28012: Prepared 03/28/00 Using EPA 3005A										
Blank (0C28012-BLK1)										
Iron	ND	0.150	mg/l							
Magnesium	ND	0.100	"							

Maxim Technologies - Spokane	Project: TOC-Grandview	
111 E. Magnesium Rd., Suite A	Project Number: 9904825	**Reported:**
Spokane WA, 99208	Project Manager: Gene St. Goddard	04/05/00 15:37

Dissolved Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 0C28012: Prepared 03/28/00 Using EPA 3005A										
LCS (0C28012-BS1)										
Iron	11.1	0.150	mg/l	10.0		111	80-120			
Magnesium	11.4	0.100	"	10.0		114	80-120			
Matrix Spike (0C28012-MS1)					Source: B0C0532-05					
Iron	11.1	0.150	mg/l	10.0	ND	111	80-120			
Magnesium	60.2	0.100	"	10.0	51.8	84.0	80-120			
Matrix Spike Dup (0C28012-MSD1)					Source: B0C0532-05					
Iron	11.2	0.150	mg/l	10.0	ND	112	80-120	0.897	20	
Magnesium	61.9	0.100	"	10.0	51.8	101	80-120	2.78	20	

Amar Gill, Project Manager

Notes and Definitions

Q-01	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
Q-30	This sample was laboratory filtered since it was not field filtered as is required by the methodology.
R-03	The reporting limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
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

APPENDIX I

GROUNDWATER PUMP TEST
FIELD DATA SHEETS

GRANDVIEW MARKET
CONSTANT RATE PUMP TEST (RW-3)
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825
Initial = Depth to static

CONSTANT RATE PUMP TEST ON RW-3

TIME SINCE TEST START HH:MM:SS	DTW RW-3
Initial	17.70
00:00:15	18.00
00:00:30	18.09
00:00:45	18.18
00:01:00	18.30
00:01:15	18.42
00:01:30	18.57
00:01:45	18.67
00:02:00	18.76
00:02:30	18.94
00:03:00	19.20
00:03:30	19.38
00:04:00	19.63
00:04:30	19.93
00:05:00	20.20
00:06:00	20.63
00:07:00	21.02
00:08:00	21.40
00:09:00	21.68
00:10:00	21.93
00:11:00	22.17
00:12:00	22.35
00:13:00	22.52
00:14:00	22.67
00:15:00	22.79
00:30:00	23.45
00:45:00	23.70
01:00:00	24.18
01:15:00	25.55
01:30:00	24.25
01:45:00	24.26
02:00:00	24.23
02:15:00	24.36
02:30:00	24.39
02:45:00	24.37
03:00:00	24.33
03:15:00	24.32
03:30:00	24.33
03:45:00	24.31
04:00:00	24.28
04:15:00	24.33
04:30:00	24.40
04:45:00	24.42
05:00:00	24.42
05:15:00	24.48
05:30:00	24.50
05:45:00	24.37
00:00:00	24.45
06:30:00	24.45
00:00:00	24.51
07:30:00	24.47
08:00:00	24.48
08:30:00	24.62
09:00:00	24.64
09:30:00	24.64
10:00:00	24.75
10:30:00	24.75
11:00:00	24.76
11:30:00	24.59
12:00:00	24.59
12:30:00	24.54
13:00:00	24.69
13:30:00	24.79

Recharge from constant rate pump test -- RW-3

TIME SINCE TEST TERMINATED HH:MM:SS	DTW RW-3
Initial	24.79
00:00:15	24.35
00:00:30	24.00
00:00:45	23.75
00:01:00	23.42
00:01:15	23.15
00:01:30	22.55
00:01:45	22.59
00:02:00	22.34
00:02:30	21.80
00:03:00	21.34
00:03:30	20.98
00:04:00	20.74
00:04:30	20.51
00:05:00	20.27
00:06:00	19.82
00:07:00	19.53
00:08:00	19.30
00:09:00	19.15
00:10:00	19.03
00:11:00	18.93
00:12:00	18.80
00:13:00	18.73
00:14:00	18.64
00:15:00	18.58
14:28:30	18.08
14:35:00	17.99
14:40:00	17.96
14:45:00	17.93
15:00:00	17.90
15:15:00	17.87
15:30:00	17.85
15:45:00	17.85
16:00:00	17.84
16:30:00	17.83
17:00:00	17.82

GRANDVIEW MARKET
CONSTANT RATE PUMP TEST (RW-3)
OBSERVATION WELL DATA-DRAWDOWN
MAXIM TECHNOLOGIES, INC.
Maxim No. 9904825

TIME SINCE TEST START HH:MM:SS	DTW RW-4	TIME SINCE TEST START HH:MM:SS	DTW RW-2	TIME SINCE TEST START HH:MM:SS	DTW MW-5
Initial	17.82	Initial	17.38	Initial	16.65
00:01:00	17.82	00:03:00	17.37	00:04:00	16.65
00:05:30	17..82	00:06:30	17.37	00:07:30	16.65
00:09:00	17.85	00:10:00	17.38	00:11:00	16.66
00:12:00	17.86	00:14:00	17.40	00:15:30	16.65
00:16:00	17.87	00:16:30	17.40	00:18:00	16.68
00:20:00	17.88	00:21:00	17.41	00:21:45	16.68
00:23:00	17.88	00:24:00	17.41	00:25:00	16.68
00:26:00	17.88	00:28:00	17.41	00:29:15	16.69
00:37:30	17.88	00:43:30	17.42	01:01:00	16.70
01:19:15	17.91	01:24:00	17.44	01:25:00	16.72
01:34:00	17.91	01:35:00	17.43	01:36:00	16.72
01:47:00	17.91	01:50:00	17.43	01:51:00	16.72
02:02:00	17.91	02:05:00	17.43	02:07:30	16.73
02:31:00	17.91	02:32:00	17.44	02:33:30	16.74
03:01:45	17.92	03:03:30	17.43	03:04:15	16.74
03:31:45	17.92	03:33:45	17.44	03:34:45	16.74
04:02:15	17.92	04:08:30	17.45	04:11:00	16.74
04:31:45	17.92	04:32:00	17.45	04:34:00	16.75
04:46:30	17.93	04:47:30	17.45	04:49:00	16.75
05:01:15	17.92	05:06:30	17.45	05:09:00	16.76
05:32:15	17.93	05:33:30	17.45	05:35:00	16.77
06:01:45	17.93	06:07:30	17.46	06:09:00	16.76
06:31:30	17.95	06:34:00	17.45	06:35:00	16.75
07:01:45	17.94	07:08:00	17.46	07:10:30	16.76
07:31:15	17.94	07:33:45	17.46	07:35:00	16.77
08:01:15	17.95	08:07:00	17.46	08:09:30	16.77
08:31:45	17.95	08:33:45	17.46	08:35:30	16.77
09:00:00	17.94	09:03:00	17.46	09:04:00	16.77
09:30:00	17.94	09:33:00	17.47	09:33:00	16.77
10:00:00	17.94	10:05:00	17.46	10:07:00	16.77
10:30:00	17.94	10:32:00	17.47	10:33:00	16.78
11:00:00	17.95	11:04:00	17.47	11:06:00	16.78
12:02:00	17.95	12:06:00	17.47	12:07:00	16.79
13:00:00	17.95	13:04:00	17.47	13:06:00	16.79
13:43:00	17.95	13:45:45	17.47	13:46:45	16.79
14:00:00	17.96	14:00:00	17.47	14:00:00	16.80

GRANDVIEW MARKET
CONSTANT RATE PUMP TEST (RW-3)
OBSERVATION WELL DATA-DRAWDOWN
MAXIM TECHNOLOGIES, INC.

TIME SINCE TEST START HH:MM:SS	DTW RW-1
Initial	17.57
00:13:00	17.58
00:20:00	17.59
00:27:00	17.61
00:38:30	17.61
01:22:30	17.63
01:34:00	17.63
01:48:00	17.62
02:04:30	17.63
02:32:00	17.64
03:32:45	17.64
04:03:30	17.65
05:02:15	17.65
06:02:45	17.66
06:32:30	17.65
07:02:45	17.66
07:32:30	17.66
08:02:15	17.66
08:32:45	17.66
09:01:00	17.66
09:31:00	17.66
10:01:00	17.66
10:31:00	17.66
11:00:00	17.67
12:02:00	17.66
13:01:00	17.67
13:45:00	17.66

TIME SINCE TEST START HH:MM:SS	DTW MW-3
Initial	17.79
00:39:45	17.79
02:35:00	17.79
04:04:45	17.79
05:03:30	17.80
06:04:00	17.81
07:03:45	17.81
08:03:15	17.82
09:09:00	17.81
10:03:00	17.81
11:01:00	17.81
12:03:00	17.81
13:02:00	17.81
13:44:15	17.81

TIME SINCE TEST START HH:MM:SS	DTW MW-2
Initial	17.14
00:41:15	17.12
02:36:00	17.14
04:06:15	17.13
05:04:15	17.13
06:05:00	17.15
07:05:00	17.15
08:04:15	17.15
09:08:00	17.15
10:03:00	17.15
11:03:00	17.15
12:03:00	17.15
13:03:00	17.15
13:44:45	17.16

TIME SINCE TEST START HH:MM:SS	DTW MW-6
Initial	17.22
01:02:30	17.21
02:39:00	17.22
04:12:30	17.22
05:10:15	17.22
06:10:47	17.22
07:12:00	17.23
08:10:30	17.22
09:05:00	17.23
10:08:00	17.22
11:08:00	17.23
12:08:00	17.23
12:07:00	17.23
13:47:00	17.23

GRANDVIEW MARKET
CONSTANT RATE PUMP TEST (RW-3)
OBSERVATION WELL DATA-DRAWDOWN
MAXIM TECHNOLOGIES, INC.

TIME SINCE TEST START HH:MM:SS	DTW SW-1	TIME SINCE TEST START HH:MM:SS	DTW MW-4	TIME SINCE TEST START HH:MM:SS	DTW MW-1
Initial	17.42	Initital	16.84	Initial	17.35
00:42:30	17.45	00:46:00	16.85	01:05:30	17.35
02:36:00	17.46	02:37:30	16.86	02:40:00	17.36
04:07:15	17.46	04:09:45	16.86	04:14:00	17.36
05:05:30	17.48	05:07:15	16.87	05:12:00	17.37
06:06:15	17.48	06:09:00	16.87	06:13:15	17.37
07:06:30	17.48	07:09:00	16.88	07:13:45	17.37
08:05:45	17.79	08:08:00	16.88	08:12:15	17.38
09:07:00	17.49	09:06:00	16.89	09:11:00	17.37
10:04:30	17.50	10:06:00	16.89	10:09:30	17.38
11:04:00	17.50	11:05:00	16.89	11:08:00	17.38
12:04:00	17.50	12:06:00	16.89	12:09:00	17.39
13:03:00	17.50	13:05:00	16.90	13:10:00	17.38
13:45:15	17.51	13:46:15	16.89	13:48:00	17.38

GRANDVIEW MARKET
CONSTANT RATE PUMP TEST (RW-3)
OBSERVATION WELL DATA-RECOVERY
MAXIM TECHNOLOGIES, INC.

RECHARGE DATA FROM CONSTANT RATE PUMP TEST

TIME SINCE PUMP CEASED HH:MM:SS	DTW RW-4	TIME SINCE PUMP CEASED HH:MM:SS	DTW RW-2	TIME SINCE PUMP CEASED HH:MM:SS	MW-5
14:00:45	17.96	14:03:15	17.47	14:04:15	16.80
14:07:00	17.93	14:08:45	17.44		16.80
14:09:45	17.92	14:11:45	17.43	14:12:00	16.79
14:13:30	17.91	14:15:45	17.43	14:17:00	16.78
14:17:30	17.91	14:18:00	17.42	14:19:00	16.78
14:20:00	17.91	14:22:00	17.42	14:23:00	16.77
14:24:00	17.90	14:26:00	17.42	14:26:00	16.76
14:27:45	17.90	14:31:30	17.41	14:32:45	16.76
14:41:15	17.89	14:43:30	17.41	14:44:00	16.75
15:00:00	17.89	15:01:30	17.40	15:02:30	16.75
15:31:00	17.89	15:33:00	17.40	15:34:00	16.73
16:00:00	17.88	16:02:00	17.40	16:03:00	16.71
16:30:00	17.87	16:32:00	17.39	16:33:00	16.71
17:00:00	17.87	17:02:00	17.38	17:03:00	16.70
17:45:00	17.87**	18:05:00	17.42	18:12:00	16.70

TIME SINCE PUMP CEASE HH:MM:SS	DTW RW-1	TIME SINCE HH:MM:SS	DTW MW-3	TIME SINCE HH:MM:SS	MW-2
14:02:00	17.66	14:30:00	17.82	14:30:30	17.15
14:07:15	17.65	17:54:42	17.80	17:58:00	17.15
14:11:15	17.64		SW-1		MW-4
14:14:45	17.62	14:31:00	0.00	14:32:00	16.88
14:17:00	17.62	14:31:00	17.47	17:09:00	16.82
14:21:00	17.61		MW-6		MW-1
14:25:00	17.61	14:35:00	17.22	14:35:00	17.38
14:29:00	17.61	18:16:00	17.26**	18:22:00	17.41**
14:42:30	17.61				
15:01:00	17.60				
15:32:00	17.59				
16:01:00	17.59				
16:31:00	17.57				
17:01:00	17.57				
17:49:45	17.60**				

Note:
** Measurements collected after a small amount of water extracted for pH, SC readings, not an accurate WL.

APPENDIX J

PILOT TEST TREATED GROUNDWATER DISCHARGE PERMIT

MAXIM
TECHNOLOGIES INC

E. 111 Magnesium Road, Suite A
Spokane, Washington 99208
(509) 465-2188
fax: (509) 465-2199

Project No. 9904825.100
File No. 9904825discharge.let

March 28, 2000

Mr. Cus Arteaga
Public Works Director - City of Grandview
207 W. 2nd Street
Grandview, Washington 98930

Subject: Discharge of Treated Groundwater
Remedial Investigation/Pump Test Study
Grandview FoodMart - Division Street and Main Street
Grandview, Washington

Mr. Arteaga:

Maxim Technologies, Inc. (Maxim) conducted a remedial investigation at the above referenced site in order to characterize aquifer conditions for design of a remedial system to mitigate hydrocarbon impacts to soil and groundwater identified during an independent site assessment of the property. The site assessment and remedial investigation were conducted in accordance with guidelines outlined in the Model Toxic Control Act (WAC 173-340).

On May 21st and 22nd, 2000, Maxim conducted a four (4) hour step test and a fourteen (14) hour constant rate recovery test on monitoring well MW-3 located adjacent to the tank pit. Groundwater withdrawn from the subsurface was transferred to a 6,000-gallon Frac Tank equipped with an internal air sparging unit. Approximately 1800-gallons of groundwater was pumped from the subsurface and treated within the Frac Tank. The groundwater was treated within the Frac Tank for approximately 3 days prior to sampling. A summary of analytical testing is presented below.

Maxim will discharge the treated effluent to a storm water collection system located in the alley behind the Grandview MiniMart. Discharge of the treated effluent is expected to occur on Wednesday morning, March 29th, 2000. Discharge will be completed in accordance with the Washington State Department of Ecology Water Quality/TCP LUST Permit Committee May 1992 criteria for short term discharge (copy attached). Discharge of the effluent on the site meet the requirements set forth in this document. Figure 1 presents a site diagram and the location of the proposed discharge point. According to Mr. Arteaga of the City of Grandview, the storm water collection catch basin behind the subject site flows to a district irrigation ditch south of West 5th Street (DID #10).

The following is a summary of analytical test results for the treated groundwater to be discharged:

Analyte	May 1992 Discharge Criteria	Sampling Result of Effluent
TPH-Gasoline	1.0 ppm	<0.05 ppm
Benzene	5.0 ppb	<0.5 ppb
Toluene	*(total BTEX 100 ppb)	<0.5 ppb

Ethyl benzene	*(total BTEX 100 ppb)	<0.5 ppb
Total Xylenes	*(total BTEX 100 ppb)	<1.0 ppb
TPH-Diesel	10.0 ppm	<0.25 ppm
Total Lead	5.0 ppb	<2.0 ppb
pH	6 - 9	7.818

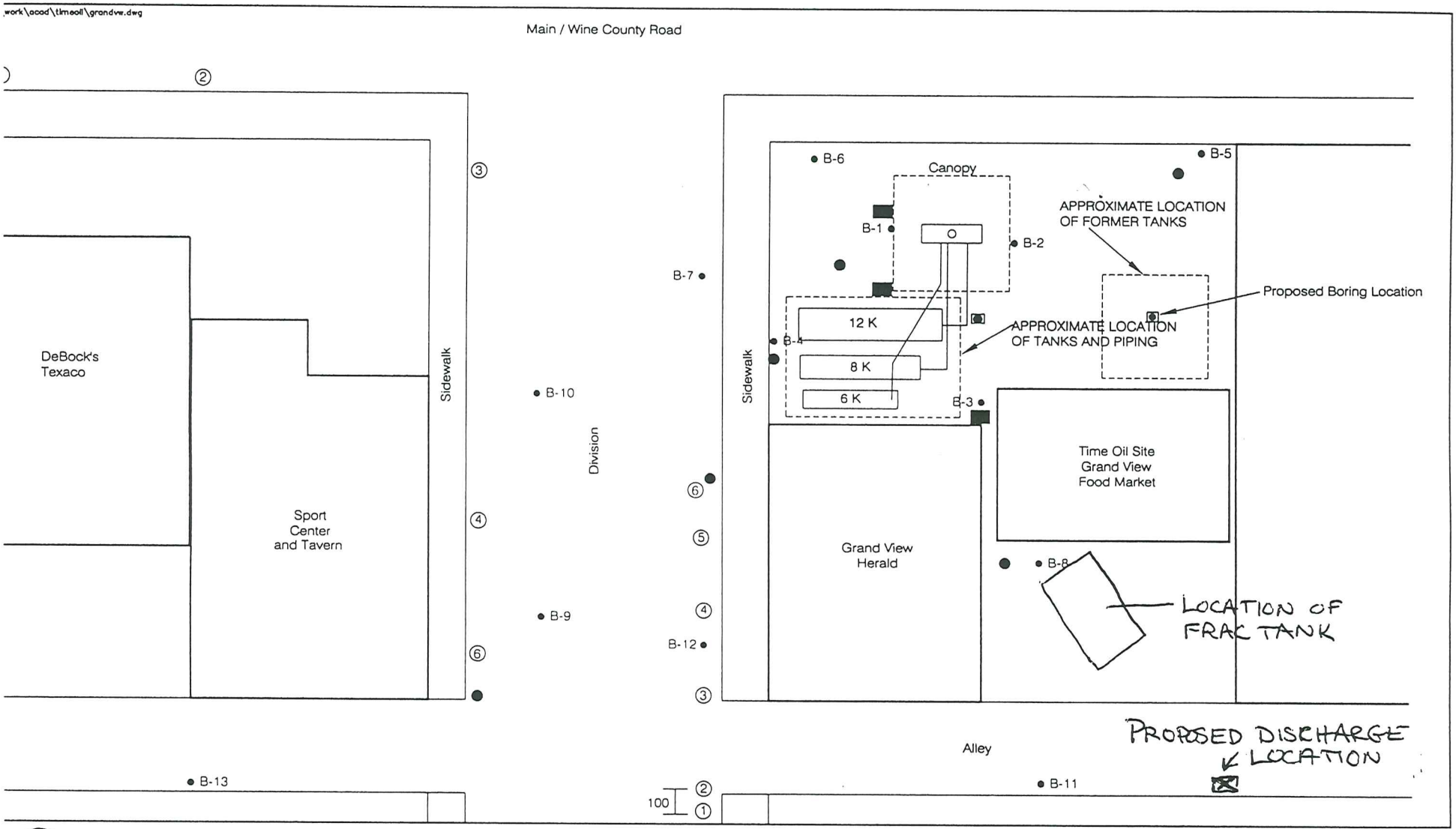
Maxim will discharge the effluent to the storm water collection basin on March 29th, 2000. Notification to the Washington State Department of Ecology and the City of Grandview will be made prior to discharge. We appreciate your cooperation in assisting Maxim and Time Oil Company in completing this independent remedial action. If you have any question regarding the discharge of the treated effluent, or other aspects of the project, please call us at your earliest convenience.

Respectfully submitted,
Maxim Technologies, Inc.

Eugene N.J. St.Godard, P.G., C.HG.
Senior Hydrogeologist

Attachments: May 1992 Ecology Discharge Letter
Site Plan
Analytical Test Certificates

cc: Mr. Tom Macke, Ecology CRO, Yakima, Washington
Ms. Anne Duarte, Time Oil Company, Seattle, Washington


work\acad\timeoil\grandvw.dwg
Main / Wine County Road
DeBock's Texaco
Sport Center and Tavern
Sidewalk
Division
B-10
B-9
B-13
B-6
Canopy
B-5
APPROXIMATE LOCATION OF FORMER TANKS
B-1
O
B-2
B-7
Proposed Boring Location
12 K
APPROXIMATE LOCATION OF TANKS AND PIPING
B-4
8 K
6 K
B-3
Time Oil Site Grand View Food Market
Grand View Herald
B-8
LOCATION OF FRAC TANK
B-12
PROPOSED DISCHARGE LOCATION
Alley
B-11
100
Feet 20
9904825.100
① Road Work Ahead (sign)
② Shoulder Work Ahead (sign)
③ Shoulder Closed Ahead (sign)
④ Shoulder Closed (sign)
⑤ Lane Closed (sign)
⑥ Cones In Work Area
Approximate Geoprobe Location and Number
Proposed Monitoring Well
Proposed Air Sparge Well
Proposed Vapor Extraction/GW Recovery Well
Proposed Boring Location
January 2000
Proposed Well Location Map
Time Oil Property 01-070
Grandview, Washington
FIGURE :

WASHINGTON STATE DEPARTMENT OF ECOLOGY

WATER QUALITY/TCP LUST PERMIT COMMITTEE

MAY 1992

RECOMMENDATIONS TO JOINT MANAGEMENT TEAMS

The Committee recognizes two classes of water discharges from independent LUST site actions

1. Short-Term *(treated effluent discharge of 60 days or less)*
2. Long-Term *(treated effluent discharge greater than 60 days; also, any duration discharge where a permit is REQUESTED)*

The Committee included the following contaminants in this recommendation.

- *Gasoline contamination only*
- *Mixture of gasoline and diesel contamination*
- *Diesel contamination only*

The Committee agreed on the following definitions supporting this recommendation

- Treatment to technical standards:

  Gasoline: *1.0 ppm WTPH-G (total petroleum hydrocarbons), pH (6-9), Benzene (5 ppb), Total lead (5 ppb), BETX (100 ppb)*
  Diesel: *10.0 ppm WTPH-D, pH (6-9)*
  Mixture: *meet standards for both gasoline (WTPH-G, pH, benzene, lead, BETX) and diesel (WTPH-D, pH)*

- Discharge to Ground:

  Land application and infiltration trench or other land disposal systems, however, injection wells or dry wells are prohibited

- Point of Compliance:

  The point of compliance for technical standards will be at the end of the treatment process

- Total petroleum hydrocarbons analytical methods:

  April 1992 updates of Table II and Appendix L of the "Guidance for Remediation of Releases from USTs"

- Local jurisdiction approval:

  The approval given by a lawful representative of the publicly-owned treatment works (POTW) prior to effluent discharge into their collection system

STANDARDS THAT APPLY TO EACH CLASS

Short-Term Action

An interprogram policy decision will be made which recognizes independent cleanup actions will proceed; due to program resource constraints, Ecology will not require a waste discharge permit provided:

- Discharge to ground within site boundary

  Treatment to technical standards (gasoline, diesel, mixture)

- Discharge to POTW

  Treatment to technical standards and approval of local jurisdiction

  Discharge to surface waters

  Treatment to technical standards and 10:1 dilution in receiving water (gasoline and mixture)

  Treatment to technical standards (diesel only)

Advice to staff

- If questions arrive concerning monitoring frequency:

  Sample weekly during first 30 days, then once prior to shutdown

- SEPA:

  Project proponent is responsible to satisfy local officials and air authority, if required

- Model Toxics Control Act:

  Project proponent is responsible for satisfying the reporting requirements under WAC 173-340-450

Long-Term Action

- Require waste discharge permit application and SEPA checklist
- Engineering report approval by consultant (P.E.) certification
- Discharge to ground or POTW

  To ground: *Permit by rule when application indicates treatment to technical standards*

  To POTW: *Permit by rule when application indicates treatment to technical standards and approval of local jurisdiction*

- Discharge to surface waters

  A state or NPDES permit is required; the LUST "model permit" is designed for application to gasoline, diesel, or a mixture of both through options contained in the permit. The permit writer will have to analyze each application of the LUST permit to ensure the technology-based standards can be protective of receiving water quality within a regulatory "mixing zone," if appropriate.

3:km(1/1)

www.ncalabs.com

Seattle 18939 120th Avenue NE, Suite 101, Bothell, WA 98011-9508
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

Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled:	3/23/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received:	3/23/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported:	4/10/00 13:05

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
N Tank	S003063-06	Water	3/23/00

www.ncalabs.com

Seattle 18939 120th Avenue NE, Suite 101, Bothell, WA 98011-9508
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

Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled: 3/23/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received: 3/23/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported: 4/10/00 13:05

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
N Tank			S003063-06				Water	
Gasoline Range Hydrocarbons	0300076	3/24/00	3/24/00		50.0	ND	ug/l	
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*82.8*	%	
Surrogate: 4-BFB (PID)	"	"	"	*53.0-142*		*104*	"	

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Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled: 3/23/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received: 3/23/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported: 4/10/00 13:05

Diesel Hydrocarbons (C12-C24) by WTPH-D
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
N Tank			S003063-06				Water	
Diesel Range Hydrocarbons	0300073	3/24/00	3/27/00		0.250	ND	mg/l	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*94.8*	%	
Surrogate: p-Terphenyl-d14	"	"	"	*50.0-150*		*94.2*	"	

North Creek Analytical - Spokane

*Refer to end of report for text of notes and definitions.

Dennis D Wells, Laboratory Director

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Maxim Technologies - Spokane	Project:	Grandview Time Oil	Sampled: 3/23/00
111 Magnesium Road, Ste. A	Project Number:	9904825	Received: 3/23/00
Spokane, WA 99208	Project Manager:	Gene St. Godard	Reported: 4/10/00 13:05

Total Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Spokane

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
N Tank			S003063-06				Water	
Lead	0300081	3/24/00	3/24/00	EPA 7421	2.00	40.1	ug/l	