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TIME OIL CO.

2737 WEST COMMODORE WAY
P.O. BOX 24447

SEATTLE, WA 98199-1233
SEATTLE, WA 98124-0447

May 26, 2000

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

RE: Transmittal of Corrective Action Plan and January 2000 Groundwater Monitoring Report
Time Oil Co. Property 01-068; Valley View Market
107 W. Lincoln Avenue; Sunnyside, Washington

Dear Mr. Yee,

Please find enclosed herewith a copy of the above referenced reports produced for Time Oil Co. by MAXIM Technologies, Inc. The following paragraphs present a summary proposed remedial measures outlined in the enclosed corrective action plan (CAP), a short synopsis of conditions encountered during the January 2000 groundwater monitoring event, and our plans for future work. Please refer to the enclosed reports for more detailed descriptions of the work.

CORRECTIVE ACTION PLAN:

Previous Investigations:

The CAP includes a summary of environmental assessment, monitoring, and remediation work completed at the site to date. This work includes the following activities:

* The discovery of hydrocarbon impacted soil in September 1996,
* An initial soil and groundwater assessment consisting of the installation and sampling of sixteen soil borings, two vapor monitoring points, and eight groundwater monitoring wells (MW-1 through MW-8) in March 1997,
* Installation of an interim soil vapor extraction (SVE) system in August 1997 and subsequent operation of the interim SVE system through July 1998,
* An expanded groundwater assessment consisting of the installation and sampling of eleven off-site temporary groundwater sampling points and four off-site monitoring wells (MW-9 through MW-12) in July and August 1998,
* A remedial investigation consisting of installation of monitoring wells MW-13 through MW-16, performance of a vapor extraction test, a bioslurping test, and an air sparging test in April and May 1999,
* Quarterly groundwater monitoring activities conducted between March 1997 and October 1999 (the quarterly monitoring program is on-going; however, the last monitoring event discussed in the CAP was the October 1999 event).

The soil and groundwater assessment work completed to date appears to have resulted in full definition of the extent of affected soil and groundwater beneath the site. Quarterly groundwater monitoring has determined that significant hydrocarbon impacts appear to be present in the central area of the site near monitoring wells MW-3, MW-4, MW-5, MW-6, MW-9, MW-13, MW-14, and MW-16, with lesser amounts of hydrocarbon constituents present in well MW-15. The extent of affected groundwater appears defined by essentially clean analytical results from monitoring wells MW-1, MW-2, MW-7, MW-8, MW-

10, MW-11, and MW-12. The area of affected groundwater underlies portions of the Time Oil Co. property, South First Street, and a neighboring property owned by Washington Hills Cellars (WHC).

Groundwater monitoring activities have determined that groundwater beneath the site flows primarily towards the southeast at gradients ranging between approximately 0.09 and 0.03 feet per foot. Steeper groundwater gradients (in the 0.05 to 0.09 range) are observed in the northwestern area of the site on the Time Oil Co. property. The groundwater gradient gradually decreases to the 0.03 range to the southeast upon the WHC property.

Remedial Investigation:
Remedial testing consisting of a SVE test, a groundwater air sparging test, and a bioslurping/high-vacuum dual phase extraction (HVDPE) test was conducted in April and May 1999. Results of the SVE test indicated that SVE would be of limited use at the site due to low subsurface air flows caused by low soil permeability. SVE test data indicated that a significantly greater vacuum source would be necessary to create effective radii of influence from extraction wells. The air sparging test was unsuccessful because aquifer soils proved too dense to allow injection of sufficient amounts of air to perform effective air sparging activities. Results of HVDPE testing determined that HVDPE was a suitable remediation method for the site. The increased subsurface vacuum created through use of a liquid-ring pump as the extraction device resulted in sufficient radii of influence for both vadose zone air flow and groundwater capture zones.

Remedial System Design, Installation, and Operation:
Groundwater modeling performed on the HVDPE testing data was used to refine proposed remediation system design parameters. The groundwater modeling determined that the area of impacted groundwater could be effectively influenced through installation of a ten-well HVDPE system. Information presented in the following paragraphs presents summaries of permitting issues that must be addressed prior to installation and operation of the proposed remediation system; the remedial equipment necessary to conduct the remediation; remediation system operating parameters; health and safety measures; an installation, start-up, and monitoring schedule; an operation and maintenance/groundwater monitoring plan and schedule; and a reporting schedule.

Permitting:
The following permits or approvals are necessary to install and operate the remediation system:

- A State Environmental Policy Act (SEPA) checklist was prepared and submitted to the City of Sunnyside and the Washington Department of Ecology (WDOE). The City of Sunnyside was the lead agency for SEPA review. The City of Sunnyside issued a determination of non-significance for the project in March 2000.
- An application for industrial wastewater discharge to a POTW was submitted to the City of Sunnyside for discharge of treated groundwater. The City of Sunnyside approved the discharge permit in March 2000 and the permit package was subsequently transmitted to the WDOE for approval. WDOE approval is expected in early June 2000.
- An air discharge permit application for discharge of treated vapors from the remediation system was submitted to the Yakima Regional Clean Air Authority (YRCAA) in March 2000. We are currently awaiting YRCAA approval of an authority to construct (ATC) permit. YRCAA approval is expected in early June 2000.
- Remediation system construction required building, right-of-way, and public works permits from the City of Sunnyside. These permits were all received in April 2000 prior to the commencement of remediation system installation activities.

Remediation System Equipment:
A liquid-ring pump will be used to simultaneously extract groundwater and soil vapor from ten extraction wells. Groundwater and soil vapor will be recovered from the wells through flexible hoses that will run from beneath the static groundwater level in each extraction well to subsurface PVC conveyance lines

monthly for the remainder of the first year of system operation, and quarterly thereafter. An air discharge monitoring schedule has not yet been determined; however, all YRCAA requirements for such monitoring will be met.

Reporting:
Quarterly reports will be prepared presenting the data collected during, and conclusions drawn from, all operations and maintenance and groundwater monitoring activities. These reports will be submitted to the WDOE, YRCAA, City of Sunnyside, and WHC. Additional reporting will be conducted, if necessary, to discuss permit compliance issues or provide additional information requested by the permitting agencies.

Site Closure Criteria:
The final goal of remedial actions described in the CAP is to reduce petroleum hydrocarbon impacts beneath the site to concentrations below State of Washington Model Toxics Control Act Method A Cleanup Levels (MTCA Cleanup Levels). Should MTCA Cleanup Levels appear unachievable, it is possible that application of alternative site closure criteria may be proposed. Remedial progress will be periodically evaluated with the WDOE in order to evaluate whether MTCA Cleanup Levels can be reasonably achieved.

Operation of the remediation system will be discontinued approximately six months to one year following the collection of groundwater monitoring data which indicates that groundwater beneath the site is in compliance with site closure criteria. Groundwater confirmation samples will be collected from the site for four consecutive quarters following cessation of remediation system operation. Should groundwater beneath the site remain in compliance with site closure criteria throughout the confirmation monitoring program, site closure will be requested from the DOE.

JANUARY 2000 GROUNDWATER MONITORING EVENT:
Groundwater Monitoring Program:
Monitoring wells MW-1 through MW-16 were gauged and/or sampled on January 18, 2000. Recovered groundwater samples were analyzed for gasoline range petroleum hydrocarbons (GRPH) by the Northwest Method NWTPH-Gx and benzene, toluene, ethylbenzene, total xylenes (BTEX) by EPA Test Method 8021B.

Groundwater Monitoring Results:
Measurable thicknesses of free product were detected upon the groundwater surface in monitoring wells MW-4 (0.70 feet), MW-5 (0.77 feet), MW-6 (1.59 feet), MW-9 (0.08 feet), and MW-13 (0.05 feet); thus, these wells were not sampled.

No petroleum hydrocarbon analytes were detected in groundwater samples collected from wells MW-1, MW-2, MW-7, MW-8, MW-10, MW-11, and MW-12. Samples collected from wells MW-14, MW-15, and MW-16 contained concentrations of petroleum hydrocarbon analytes exceeding MTCA Method A Cleanup Levels – Groundwater. Samples collected from well MW-3 contained various target analytes; however, all detected analytes were present at concentrations below MTCA Method A Cleanup Levels – Groundwater. Well locations and analytical results are displayed on Figure 3 and in Table 1 of the enclosed groundwater monitoring report.

A water supply well completed in a deeper aquifer on the Washington Hills Cellars property has been incorporated into the quarterly groundwater monitoring program as a precautionary measure. A sample of the well water is collected from a dedicated sampling spigot located on the well's supply line each quarter. Water supply well samples are also analyzed for TPH-gasoline and BTEX. Neither TPH-gasoline nor BTEX were detected in the water sample collected from the Washington Hills Cellars supply well on January 18, 2000.

Groundwater level measurements determined that the average depth to groundwater (excluding wells which contained product) was approximately 18.2 feet below grade, representing a groundwater level decrease of approximately 0.3 feet since the October 1999 monitoring event. The site's groundwater flow direction was determined to be to the southeast. Respective groundwater gradients of 0.096 and 0.044 feet per foot were calculated for the northwestern and southeastern areas of the site. Groundwater surface contours and elevations are presented on Figure 3 of the enclosed groundwater monitoring report.

Conclusions:
Results of the January 2000 groundwater monitoring event indicate that the area of affected groundwater remains sufficiently defined. Non-detectable analytical results from monitoring wells MW-1, MW-2, MW-7, MW-8, MW-10, MW-11, and MW-12 appear to successfully define the area of impacted groundwater. Significant groundwater impacts remain present in the central area of the plume.

Future Work:
Implementation of the enclosed CAP commenced in early May 2000 with installation of recovery wells, well vaults, subsurface conveyance lines, and the remediation system compound. Extraction and treatment equipment will be installed in the remediation compound following completion of all necessary permitting with the WDOE and YRCAA. Installation of the extraction and treatment equipment is tentatively scheduled for the week of June 26, 2000. Commencement of full-time system operation is tentatively scheduled for July 10, 2000.

We expect that groundwater conditions beneath the site will begin to improve shortly after the commencement of system operation. The initial goal of remediation system operation is to remove free phase product present in the central portion of the groundwater plume.

Quarterly groundwater monitoring will continue on a January, April, July, and October schedule. Conditions encountered during a monitoring event conducted in April 2000 will be detailed in a forthcoming report. The next groundwater monitoring event is scheduled for July 2000.

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

Sincerely,
TIME OIL CO.

Scott B. Sloan, R.G.
Geologist

Encl: Corrective Action Plan
January 2000 Groundwater Monitoring Report

cc: Mr. John Probst - Washington Hills Cellars
Mr. Gene St. Godard – Brown & Caldwell (w/o enclosure)

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CORRECTIVE ACTION PLAN
TIME OIL PROPERTY 01-068
SUNNYSIDE, WA

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1.0 INTRODUCTION

The following report presents a Corrective Action Plan (CAP) for Time Oil Property No. 01-068 located in Sunnyside, Washington (Figure 1; Appendix A). The CAP outlines proposed procedures to abate petroleum hydrocarbons identified in soil and groundwater at the site using bioslurp technology.

The bioslurp technology is designed to remove groundwater and vapors from extraction wells located within the defined hydrocarbon plume. The bioslurp system extracts groundwater and vapors from the vadose zone. If light non-aqueous phase liquid (LNAPL) is present on the groundwater surface, it will also be removed with the bioslurp technology. Soil vapors in the vadose zone near the soil/water interface will be removed along with the groundwater and LNAPL. Completion of the remediation operations will be based on analytical results including quarterly groundwater sampling, off-gas and soil confirmation samples that meet Washington Model Toxics Control Act (MTCA) Method A Cleanup levels. If MTCA Method A Cleanup levels do not appear to be achievable, alternative cleanup levels may be discussed at a later date. When acceptable concentration levels have been achieved, final closure of the Time Oil property will be submitted to the Washington State Department of Ecology (Ecology).

2.0 SITE BACKGROUND/SITE HISTORY

Time Oil Company Property No. 01-068 is located at 107 West Lincoln Avenue, which is on the southwest corner of First Avenue and West Lincoln Street (Figure 1). Site features are shown on Figure 2 and include the Valley View Market convenience store and a retail fueling system comprised of two underground storage tanks (USTs), one product-dispensing island, and ancillary buried piping. The property is owned by Soohwan and Hyung S. Kim of Sunnyside, Washington. Time Oil Company owns the UST system, which was installed under a Special Purpose Agreement in 1972.

The USTs, underground piping and the fuel-dispensing island are located to the north of the store building. The USTs are covered with a concrete pad. Asphalt pavement covers the remainder of the site. The property is a relatively level, irregular shaped parcel, approximately 1/3 acre in size. Adjoining properties consist of commercial and residential usage.

Petroleum hydrocarbon impacted soils were first detected in subsurface soil during UST system upgrades completed in September 1996. Site assessments were completed in February and March 1996, June, July and August 1998, and April and May 1999. Results of these investigations are discussed in Section 2.1 of this report.

2.1 PREVIOUS INVESTIGATIONS

Site assessments were completed in February and March 1996, June, July and August 1998, and April and May 1999 to evaluate the extent and magnitude of subsurface contamination at the site. Information obtained during those investigations includes the following:

- Hydrocarbon contamination was first detected in September 1996 during UST system upgrades. Approximately two cubic yards of fuel-impacted soil was excavated from the site. Samples of the excavated soil exhibited measurable concentrations of petroleum hydrocarbons. The extent and magnitude of petroleum hydrocarbon impacts to soil and groundwater at the site were not determined.

- Initial site assessment activities were completed by Alisto Engineering Group (Alisto) in February and March 1997. Sixteen borings were installed on the Valley View Market property and within the First Street right-of-way. Two borings (VP-1 and VP-2) were completed as vapor monitoring points using one-inch diameter PVC piping. Free product was encountered in drive points DP-5 and DP-6, both located on the Valley View Market property. Eight of the borings were completed as groundwater monitoring wells (MW-1 through MW-8). Groundwater samples obtained in March 1997 from wells MW-3, MW-4, MW-5 and MW-6 exhibited petroleum hydrocarbons exceeding Model Toxins Control Act (MTCA) Method A cleanup levels. Groundwater elevations calculated from monitoring well water level measurements indicate groundwater flow is to the southeast at a gradient of 0.07 ft/ft. Bail-down testing completed in site monitoring wells indicated an average groundwater flow velocity of 37.20 feet per year beneath the site. Results of a soil vapor extraction test completed on well MW-3 and MW-4 indicated a radius of influence of 21 to 25 feet was obtainable at 46 inches of water at a 18 cubic feet per minute (cfm) flow rate. Samples of system effluent obtained from the wells exhibited measurable concentrations of petroleum hydrocarbons.

- In August 1997, Alisto installed a soil vapor extraction system that was connected through a manifold to monitoring wells MW-3, MW-4, MW-5 and vapor monitoring point VP-2. A Rotron® EN 707 regenerative blower was installed near the southeastern corner of the site structure to withdraw vapors from the wells. The extracted vapors were initially discharged without treatment but were later treated prior to discharge using Granulated Activated Carbon (GAC).

- Wholers Environmental conducted additional assessment activities at the site in June and July 1998. Eleven soil borings were drilled on the Washington Hills Cellars property to depths of 25 to 30-feet below ground surface (approximately 3 to 5-feet below the groundwater interface). Temporary well points were installed in each boring using 1-inch diameter PVC. Groundwater samples were collected from each of the well points and submitted for laboratory analyses. The wells were abandoned after sampling by removing the casing and grouting the holes. The groundwater sample obtained from boring B-1 exhibited TPH-G and BTEX concentrations above MTCA Method A cleanup levels for groundwater. Groundwater samples obtained from borings B-2 and B-9 exhibited benzene

concentrations in excess of MTCA Method A cleanup levels. Measurable concentrations of at least one of the BTEX compounds were detected in groundwater samples from borings B-2, B-3, B-4, B-5 and B-9.

- In August 1998, Wohlers installed four additional monitoring wells (MW-9 through MW-12) on the Washington Hills Cellars property. Groundwater samples were collected for laboratory analysis from the wells installed during this site assessment. Elevated TPH-G and BTEX compound concentrations of 22,000, 4,300, 5,300, 310 and 2,100 parts per billion (ppb), respectively were observed in the groundwater sample collected from well MW-9. Detectable concentrations of toluene below MTCA Method A cleanup levels for groundwater were observed in the samples from wells MW-10 and MW-11, all other BTEX and TPH-G compounds were below detection limits for these samples.

- In April and May 1999, Maxim Technologies, Inc. conducted a remedial investigation at the subject property. Pilot testing consisted of conducting a vapor extraction test, conducting a 3-day bioslurp test, and conducting an in-situ air sparging pilot test. Remedial testing determined that bioslurping was the most feasible remedial alternative to mitigate hydrocarbon impacts to soil and groundwater at the subject site.

- Historical data for soil and groundwater sampling are presented in Tables 1 and 2.

2.1 GEOLOGY/HYDROGEOLOGY

Geology and hydrogeology information presented in this section was obtained from published data and from previous investigations completed at the site by Maxim and other consultants.

2.1.1 REGIONAL AND SITE GEOLOGY

Subsurface soils at the site are of late Pliocene lacustrine (lake) deposits consisting of up to a 90-feet in thickness and consists of interbeds of silt and fine-grain sands. The site resides at an elevation of approximately 760-feet above mean sea level (MSL) on the southern flank of Harrison Hill within the northwest portion of the Yakima Fold Belt Subprovince of the Columbia Plateau.

The Yakima Fold Belt Subprovince consists of a series of Miocene age northeast-southwest trending low anticlinal ridges. The lacustrine deposits were deposited during catastrophic flooding related to the Lake Missoula floods approximately 12,000 years ago. Loessal deposits of wind blown glacial erosion sediments also have been deposited in the vicinity of the site.

The lacustrine deposits are overlain by the Snipes Mountain Conglomerate, which occurs as a series of linear channels representing the historic course of the Columbia River before diversion to its current location. The channels extend from the Sunnyside Gap southwesterly towards Goldendale. The Snipes Mountain Conglomerate ranges from 90 to 450-feet in thickness, overlying the Wanapum Basalt of the Columbia River Basalt Group (CRBG). The

unconsolidated deposits overlying the CRBG reach a thickness of up to 2,000-feet. 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 Sunnyside area. The basalts were generated from numerous fissures located across southeastern Washington and southern Idaho with individual flow thickness ranging from a few tens of feet up to 300-feet. Sediments accumulated to various thicknesses during the periods between flows.

Soil types encountered in exploratory drilling at the site and WHC site typically consists of silt with interbeds of fine to medium sand approximately 1 to 8-inches thick. The soil encountered at Time Oil Company site is described as loose to medium dense, moist to damp, brown, silty fine sand grading to a very stiff, moist to saturated, brown, silt with some fine sand. Soils at the WHC site are described as medium to very stiff, moist, brown fine sandy silt with some medium to fine sand interbeds grading to a medium dense to dense, saturated, brown, silty medium to fine sand. The soils at both sites have low permeability due to the fine-grained nature of the soil. The low permeability of the soil was evident in the results of the remediation tests completed on the sites. The low permeability of the native site soils limits the mobility of vapors and groundwater in the subsurface soil.

2.1.2 REGIONAL AND SITE HYDROGEOLOGY

The overlying unconsolidated sediments and the CRBG described in the regional geology, host regional aquifer systems and are a major source of water to the Sunnyside 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). Regional groundwater flow is generally 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 Sunnyside area and provide water for private agricultural uses. Locally, shallow perched aquifers exist. Near the site, the shallow aquifer beneath the site occurs at a depth of approximately 25 feet below grade. Historical groundwater management indicates the shallow groundwater beneath the site flows in a southwesterly direction.

Groundwater was encountered at depths of approximately 16 to 17-feet below the ground surface on the Valley View Mart property and 15.5 to 16.0-feet below the WHC site at the time of drilling. Based upon the water level measurements of May 10, 1999, groundwater elevations ranged from 728.49 to 747.27-feet. An approximate groundwater flow gradient of 0.0715-ft/ft (7.15-feet vertical fall in 100-feet horizontal) was calculated for the site. An approximate groundwater gradient of 0.0369-ft/ft was calculated for the WHC site and the groundwater flow gradient trends toward the southeast.

2.2 REMEDIAL INVESTIGATION/FEASABILITY STUDY

Maxim completed a feasibility study in April and May 1999 to evaluate remedial technologies for abating petroleum hydrocarbons in soil and groundwater at the site. Activities completed during that phase of the investigation included installing additional wells to provide data within areas not covered by the existing groundwater monitoring well network. Remediation technologies tested at the site consisted of: 1) Soil vapor extraction; 2) In-situ air sparging; and 3) Bioslurping. A complete discussion of the feasibility study is presented in a November, 1999 report submitted to Time Oil Company titled *Remedial Investigation/Feasibility Study.*

Soil vapor extraction tests consisted of coupling a blower to three monitoring wells located on the Valley View Market property. Maxim measured vacuum in adjacent wells and operational parameters of the blower to evaluate the capabilities of this technology. Data gathered during the tests indicated a 15 to 20 foot effective radius could be achieved at an applied vacuum of 60 to 70 inches of water. Although several of the monitoring wells exhibited measurable free product during the testing procedure, samples of the system effluent submitted for laboratory analyses indicated relatively moderate volumes of petroleum hydrocarbons were being removed from the subsurface. This may be partially attributed to the limited air flow due to the low permeability of the native soils. Therefore, test results indicated that a significantly larger vacuum source would be necessary to effectively remove petroleum hydrocarbons from subsurface material at the site.

The in-situ air sparging test consisted of injecting air into monitoring well SW-1 while operating the aforementioned soil vapor extraction system. Field parameters were measured in adjacent wells during operation of the system and consisted of temperature, dissolved oxygen, specific conductivity, and pH. Samples of the soil vapor extraction system effluent were also collected to evaluate potential stripping of volatile petroleum hydrocarbons from groundwater. Data collected during the test indicated in-situ air sparging would not be an effective remedial technology for abating petroleum hydrocarbons in soil and groundwater at the site.

Testing of bioslurp technology consisted of measuring operational parameters of the system and field parameters in adjacent wells located on the Washington Hills Cellars property. Groundwater samples were also obtained from selected monitoring wells prior to and following completion of the test procedure to measure contaminant concentrations. Data obtained during the test was evaluated using the BIOSLURP computer model (Draper Aden Environmental Modeling, Inc.). Results of the computer modeling indicated that site remediation could be accomplished utilizing bioslurp technology. Furthermore, the modeling results also provided information on configuring the remediation system, which would enhance the effectiveness of this remedial technology.

3.0 REMEDIAL SYSTEM DESIGN

Based on information obtained during the remedial technology evaluation, it is our opinion that the bioslurp method is best suited for abating petroleum hydrocarbons in soil and groundwater at the Valley View Market site. The following sections describe remedial system permitting, remedial system design, system operation and monitoring schedule, and project reporting.

3.1 REMEDIAL SYSTEM PERMITTING

Maxim submitted several permits to state and local regulatory agencies in January 2000 to install and operate the remediation system at the site. These permits consist of the following:

- A State Environmental Policy Act (SEPA) checklist was prepared in accordance with Washington Department of Ecology, Chapter 43.21 RCW guidelines and submitted to the Washington Department of Ecology and the City of Sunnyside.

- An application for a wastewater discharge permit for discharge of industrial waste water to a POTW was submitted to the City of Sunnyside.

- An air discharge permit for discharge of treated vapors from the remedial system was submitted to the Yakima Regional Clean Air Authority.

- A building permit and remediation system design was submitted to the City of Sunnyside..

In addition, Maxim retained Pavement Surface Control of Kennewick, Washington to prepare a traffic control plan for routing vehicle traffic during installation of the remediation system. At the request of the City of Sunnyside, the traffic control plan routes truck traffic around the construction site via South Hill Road and 4th Avenue. Other vehicle traffic will be routed through Nicolia Street and Carnation. The traffic control plan was submitted to the City of Sunnyside in January 2000.

3.2 REMEDIAL SYSTEM EQUIPMENT

A list of all equipment and instruments utilized for the bioslurping system is presented on Figure F1, Sheet 8/8 in the Plan Sheets located in Appendix A. The equipment includes a thermal catalytic oxidizer, an air stripper, holding tanks, an oil/water separator, a moisture separator, pumps and blowers. Above ground equipment will be housed in a secured Treatment Shed and enclosed in a secured chain link fence. The instruments are designed to measure fluids, gas, vapors and air on the bioslurp system.

The bioslurp remedial design will utilize three existing monitoring wells (MW-4, MW-5 and MW-9) and 7 proposed extraction wells RW1 through RW7). Each well will be fitted with a 1-inch diameter flexible suction hose coupled to piping routed underground to the Treatment Shed. Wells will be enclosed in concrete vaults, which are accessible from the ground surface. Wells RW-6 and RW-7, which are located within the First Avenue right-of-way, will be constructed of traffic-rated vaults designed to withstand heavy vehicles. Vault designs for wells are located on Figure D4, Sheet 7/8 in the Plan Sheets located in Appendix A.
The equipment is used to extract and treat vapors, groundwater and LNAPL from each of the system wells. Vapors are heated to volatilize hydrocarbons in the thermal catalytic oxidizer before being released to the atmosphere. Liquid is piped to an oil/water separator to remove LNAPL from the waste stream. Water is piped from the oil water separator to a batch tank and into an air stripper designed to remove dissolved petroleum hydrocarbons. The treated water is

discharged into the city of Sunnyside sanitary sewer system. LNAPL that was removed in the oil/water separator is piped to a product storage tank for disposal in accordance with State of Washington regulations.

3.2.2 OPERATING PARAMETERS

The bioslurp system is designed to remove approximately 1.3 gallons per minute of liquid per well, including water and LNAPL, from each of the ten wells. Extracted groundwater will be treated by air stripping to volatize petroleum hydrocarbons. LNAPL extracted from the wells will be separated from the groundwater and stored in a holding tank on site before being disposed of in accordance with State of Washington regulations. The maximum discharge flow rate is estimated to be about 20,000 gallons per day or about 600,000 gallons per month.

3.3 HEALTH AND SAFETY PLAN

Maxim has prepared a site-specific health and safety plan for remedial system installation, operation and monitoring activities. A Maxim field representative will be responsible for all health and safety issues at the site. All personnel that are on site will be required review health and safety plan and to sign daily sheets acknowledging that they have reviewed and will abide by the health and safety issues. A site specific Health and Safety Plan prepared by Maxim is located in Appendix B.

3.4 REMEDIATION SYSTEM INSTALLATION, STARTUP AND MONITORING

The installation of the bioslurp remedition system is tentatively scheduled for May 2000. Installation of the system will be supervised by a Maxim representative following the Plan Sheets located in Appendix A. Seven additional wells will be installed as remediation extraction wells (RW-1 through RW-7). The equipment and instruments will be installed following the Plan Sheets and will be supervised by a Maxim representative. After the system is installed, a pilot test will be performed to check system operations and effectiveness.

In order to monitor the effectiveness of the bioslurp system, a Maxim field representative will be responsible for systems operation and maintenance. This will include collection of off-gas and discharge water samples for laboratory analysis.

3.5 OPERATION AND MAINTENANCE/GROUNDWATER MONITORING PLAN

A site specific Operations and Maintenance/Groundwater Sampling Plan prepared by Maxim is located in Appendix C. The Operations and Maintenance/Groundwater Sampling Plan details work to be completed by a Maxim field representative. Section 6 describes proposed operations and maintenance of and section 7 describes proposed groundwater sampling plan. Detailed work to be performed during each scheduled visit is listed under each section. A summary of the groundwater sampling and operations and maintenance-monitoring schedule including reporting dates is presented in Figure 3 and 4.

3.6 MONITORING SCHEDULE

System monitoring will be completed by a Maxim representative with knowledge of the site and the remedial system. After the initial start up of the system, monitoring will be completed daily for the first five days of operation, weekly for one month, monthly for twelve months, then quarterly for the duration of operation. Scheduling for site monitoring and reporting is presented on Figure 3.

Groundwater sampling and monitoring will be completed quarterly in January, April, July and October. A report will be completed following groundwater sampling and monitoring. Scheduling for groundwater sampling and monitoring is presented on Figure 4.

3.7 PROJECT REPORTING

Analytical testing results for off-gas and groundwater will be reported in the following manner:

- Copies of all data sheets received from the laboratory will be submitted in the report. This includes all chromatograms, and data showing QA/QC analysis by the laboratory.
- All data will be presented in tables and graphically showing concentrations over time.
- The most recent sampling and analysis shall be presented each quarter as received from the laboratory as stand alone documents.
- A brief report explaining the procedures used, field observations and the condition of the remedial system and each well. The discussion of the data will be submitted within 45 days of each operations and maintenance or sampling event.
- Reports will be submitted quarterly during remedial activities and groundwater sampling.

4.0 SITE CLOSURE

The remedial system will be operated until monitoring results indicate that the residual source of petroleum hydrocarbons in soil and groundwater have been reduced. Groundwater confirmation samples will be collected from site monitoring wells for four consecutive quarters after the cessation of remedial activities. If petroleum hydrocarbons in the groundwater are less than Washington MTCA Method A Cleanup levels, or other alternative site closure criteria approved by the Washington Department of Ecology, site closure will be requested from the Washington Department of Ecology.

Maxim appreciates the opportunity to be of continued service to Time Oil Company. If you have any questions or comments please contact us at (509) 465-2188.

Respectfully submitted,

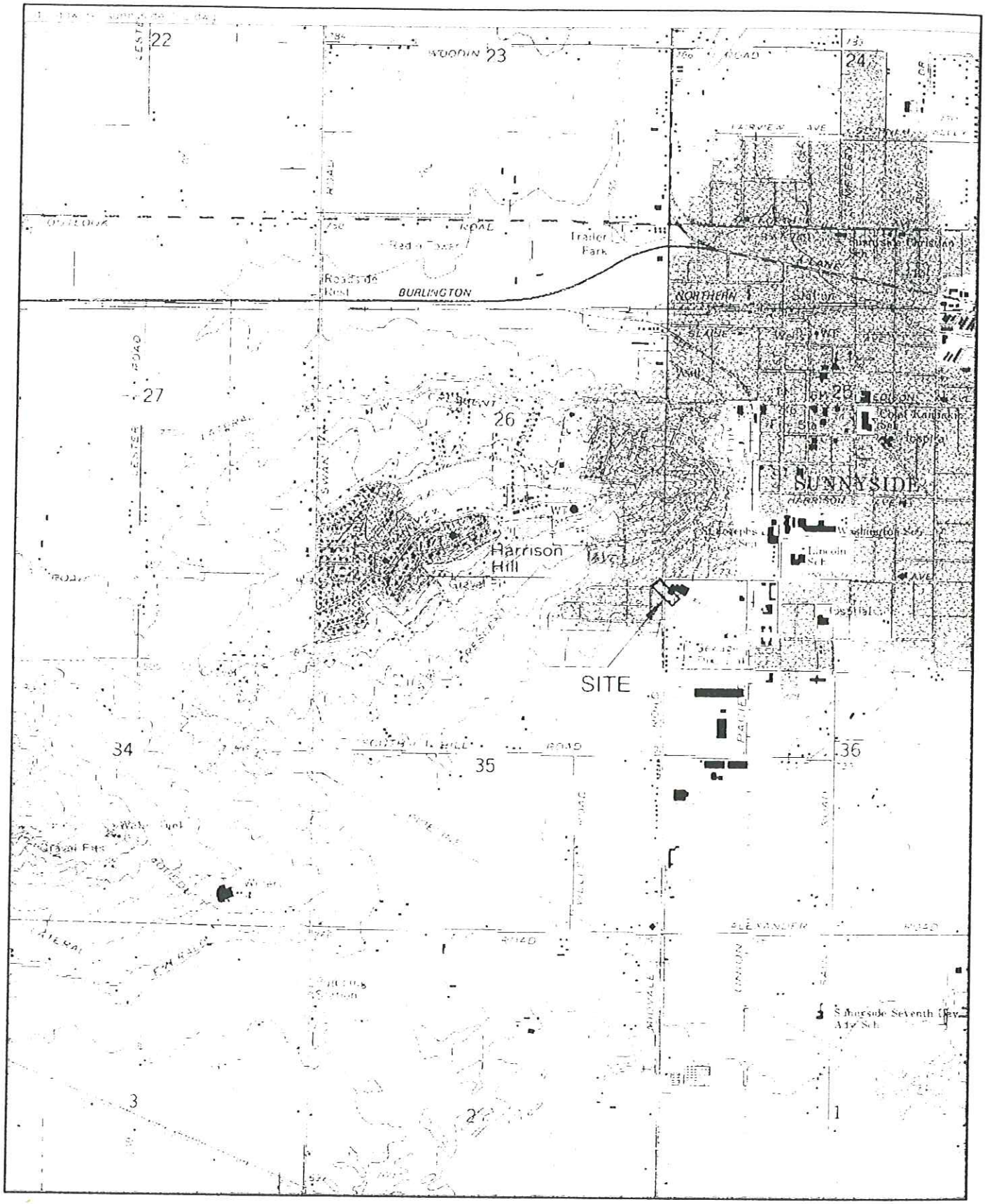
Maxim Technologies, Inc.®

Mark Engdahl for Gene St. Godard

Eugene N.J. St.Godard, P.G., C.H.G.
Senior Hydrogeologist / Office Manager

Enclosures:

Figure 1: Site Vicinity Map
Figure 2: Site and Exploration Map
Figure 3: Remedial System Monitoring Schedule
Figure 4: Groundwater Monitoring and Sampling Schedule
Table 1: Soil Sample Results
Table 2: Groundwater Sampling Results and Observations
Appendix A: System Design
Appendix B: Health and Safety Plan
Appendix C: Operations and Maintenance Plan/Groundwater Monitoring Plan



From USGS 7.5' Sunnyside, WA Quad

April 1999

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0 Feet 2000

MAXIM 9904808

Site Vicinity Map
Time Oil Facility No. 01-068
Sunnyside, Washington
FIGURE 1

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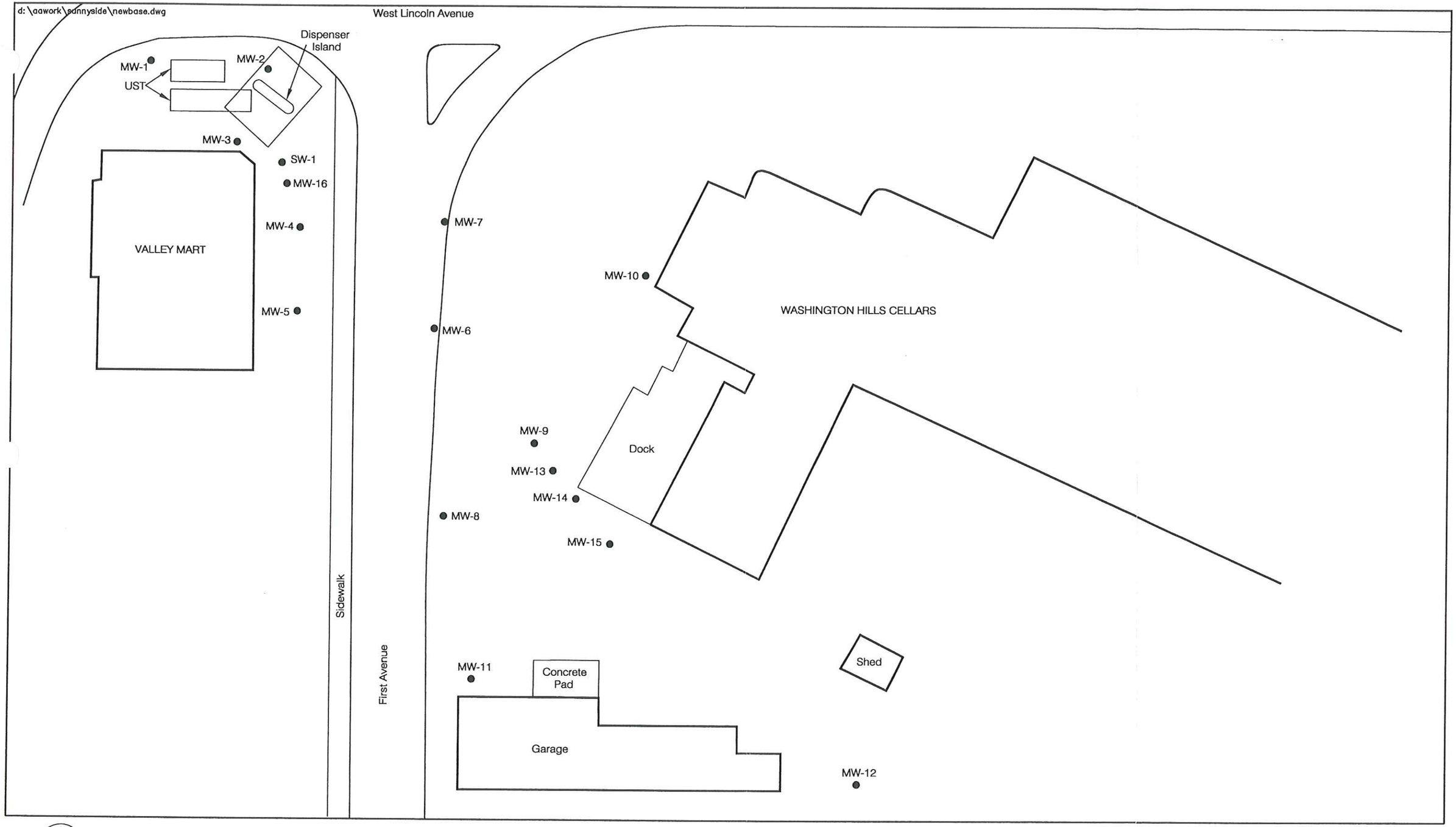


March 2000

N

0 Feet 40

MAXIM 9904808

Site and Exploration Map
Time Oil Facility 01-068
Sunnyside, Washington
FIGURE 2

FIGURE 3
TIME OIL PROPERTY # 01-068
Sunnyside, WA
Remedial System Monitoring Schedule

FIRST YEAR OF OPERATION

								2000	2001			
Month	May	June	July	August	September	October	November	December	January	February	March	April
O & M												
Reporting												

REMAINDER OF SYSTEM OPERATION

								2001	2002			
Month	May	June	July	August	September	October	November	December	January	February	March	April
O & M												
Reporting												

Note:

- Daily monitoring for the first 5 days of operation, weekly for 1 month.
- Monthly monitoring for the first year of system operation.
- Quarterly for the remainder of system operation.
- Quarterly reporting.

FIGURE 4
TIME OIL PROPERTY # 01-068
Sunnyside, WA
Groundwater Monitoring Schedule

MONTH	OCTOBER	NOVEMBER	JANUARY	FEBRUARY	APRIL	MAY	JULY	AUGUST
SAMPLING								
REPORTING								

Table 1
SOIL SAMPLE RESULTS

Sample ID	Depth (feet)	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylenes (mg/kg)	Total Lead (mg/kg)	WTPH-G (mg/kg)
DP1-5	5.0	02/25/97	**5.07**	**103**	**60.1**	**372**	11.1	**3680**
DP1-13	13.0	02/25/97	<0.05	<0.05	<0.05	<0.1	NA	<5
DP2-19.5	19.5	02/25/97	<0.05	0.0531	<0.05	0.116	NA	<5
DP2-10.5	10.5	02/25/97	**81.1**	**538**	**115**	**635**	NA	**4660**
DP3-9.5	9.5	02/25/97	<0.05	<0.05	<0.05	<0.1	NA	<5
DP4-10	10	02/25/97	0.391	<0.05	<0.05	<0.1	NA	<5
DP4-17.5	17.5	02/25/97	**1.02**	13.7	1.56	18.0	NA	**137**
DP5-13	13	02/25/97	**136**	**930**	**251**	**1360**	NA	**11500**
DP6-15	15	02/25/97	**10.1**	**41.0**	8.86	**51.9**	NA	**413**
DP7-17	17	02/25/97	<0.05	0.0572	<0.05	0.112	NA	<5
DP8-17	17	03/10/97	<0.05	<0.05	<0.05	<0.1	NA	<5
DP9-15	15	03/10/97	**2.04**	0.311	<0.05	0.290	NA	6.05
DP10-18	18	03/10/97	**0.842**	0.441	<0.05	0.324	NA	<5
DP11-18	18	03/10/97	**1.25**	3.45	0.884	5.55	NA	69.3
DP12-15	15	03/10/97	<0.05	<0.05	<0.05	<0.1	NA	<5
DP13-18	18	03/10/97	**0.537**	0.403	<0.05	0.562	NA	5.14
DP14-18	18	03/10/97	**9.01**	15.8	1.81	12.6	NA	**128**
MW1-14.5	14.5	03/11/97	0.0793	0.215	<0.05	0.208	NA	<5
MW2-15	15	03/11/97	<0.05	<0.05	<0.05	<0.1	NA	<5
MW3-25	25	03/11/97	<0.05	<0.05	<0.05	<0.1	NA	<5
MW4-15	15	03/11/97	**6.63**	13.6	2.09	12.2	NA	**138**
MW4-25	25	03/11/97	<0.05	<0.05	<0.05	<0.1	NA	<5
MW5-15	15	03/11/97	**0.991**	4.00	1.33	8.57	NA	110
MW5-25	25	03/11/97	<0.05	0.134	<0.05	0.222	NA	<5
MW6-25	25	03/12/97	<0.05	<0.05	<0.05	<0.1	NA	<5
MW7-15	15	03/12/97	<0.05	<0.05	<0.05	<0.1	NA	<5
MW8-15	15	03/12/97	<0.05	<0.05	<0.05	<0.1	NA	<5
VP-2-15	15	03/12/97	**12.7**	34.0	7.00	**39.0**	NA	**411**
MW-13/S-2	10-11.5	4/13/99	<0.05	0.0518	<0.05	<0.1	NA	<5.0
MW-13/S-3	15-17	4/13/99	**2.08**	1.78	0.211	4.60	NA	32.0
MW-13/S-4	17-19	4/13/99	**7.08**	20.4	4.73	**29.9**	NA	**287**
MW-13/S-5	19-21	4/13/99	**10.3**	19.6	2.94	17.9	NA	**153**
MW-13/S-6	21-23	4/13/99	**5.29**	5.87	0.419	2.86	NA	23.5
MW-14/S-3	15-16.5	4/13/99	<0.05	<0.05	<0.05	<0.1	NA	<5.0
MW-14/S-4	20-21.5	4/13/99	**2.78**	<0.05	<0.05	<0.1	NA	<5.0
MW-14/S-5	25-26.5	4/13/99	0.0726	<0.05	<0.05	<0.1	NA	<5.0
MW-15/S-4	17-19	4/13/99	<0.05	<0.05	<0.05	<0.1	NA	<5.0
MW-15/S-5	19-21	4/13/99	<0.05	<0.05	<0.05	<0.1	NA	<5.0
MW-15/S-6	21-23	4/13/99	0.0986	<0.05	<0.05	<0.1	NA	<5.0
SW-1/S-2	10-11.5	4/14/99	0.358	0.344	0.114	0.587	NA	5.28
SW-1/S-3	15-17	4/14/99	**4.29**	17.5	5.15	**31.0**	NA	314
SW-1/S-4	17-19	4/14/99	**3.01**	5.44	0.762	6.75	NA	48.1
SW-1/S-5	19-21	4/14/99	0.268	0.130	0.0531	0.178	NA	5.94
SW-1/S-6	21-23	4/14/99	**0.829**	1.44	0.474	3.58	NA	36.0
SW-1/S-7	23-25	4/14/99	0.0919	0.158	<0.05	0.278	NA	<5.0
MCTA Method A Cleanup Levels			**0.5**	**40.0**	**20.0**	**20.0**		**100**

NA = Not Analyzed **BOLD TYPE** = Concentrations Exceed MCTA Method A Cleanup Levels

TABLE 2
Groundwater Sampling Results and Observations
Time Oil Property # 01-068, Sunnyside, Washington

Well ID	DATE	TOC *(feet)	DTW *(feet)	PRODUCT THICKNESS *(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	03/13/97	760.28	10.79	0.00	749.49	-	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-1	06/12/97	760.28	10.86	0.00	749.42	-0.07	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-1	09/16/97	760.28	10.90	0.00	749.38	-0.04	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-1	12/16/97	760.28	10.63	0.00	749.65	0.27	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-1	04/07/98	760.28	12.50	0.00	747.78	-1.87	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-1	07/02/98	760.28	11.69	0.00	748.59	0.81	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-1	08/28/98	760.28	10.98	0.00	749.30	0.71	-	-	-	-	-	-
MW-1	10/21/98	760.28	10.63	0.00	749.65	0.35	<0.500	<0.500	<0.500	<1.50	<250	NCA
MW-1	01/27/99	760.28	12.36	0.00	747.92	-1.73	<0.500	<0.500	<0.500	<1.50	<100	NCA
MW-1	04/14/99	760.28	13.47	0.00	746.81	-1.11	<0.500	<0.500	<0.500	<1.00	<0.500	NCA
MW-1	07/07/99	760.28	11.95	0.00	748.33	1.52	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-1	10/25/99	760.28	10.69	0.00	749.59	1.26	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-2	03/13/97	759.43	12.54	0.00	746.89	-	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-2	06/12/97	759.43	12.78	0.00	746.65	-0.24	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-2	09/16/97	759.43	12.00	0.00	747.43	0.78	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-2	12/16/97	759.43	12.62	0.00	746.81	-0.62	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-2	04/07/98	759.43	14.48	0.00	744.95	-1.86	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-2	07/02/98	759.43	14.04	0.00	745.39	0.44	<0.500	<0.500	<0.500	<1.00	<250	SA
MW-2	08/28/98	759.43	13.32	0.00	746.11	0.72	-	-	-	-	-	-
MW-2	10/21/98	759.43	13.09	0.00	746.34	0.23	<0.500	<0.500	<0.500	<1.5	<250	SA
MW-2	01/27/99	759.43	14.60	0.00	744.83	-1.51	<0.500	<0.500	<0.500	<1.5	<100	SA
MW-2	04/14/99	759.43	15.76	0.00	743.67	-1.16	<0.500	<0.500	<0.500	1.48	<50.0	NCA
MW-2	07/07/99	759.43	14.64	0.00	744.79	1.12	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-2	10/25/99	759.43	13.32	0.00	746.11	1.32	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MTCA Method A Cleanup Levels for Groundwater							**5.0**	**40.0**	**30.0**	**20.0**	**1,000**	

TABLE 2 (Continued)
Groundwater Sampling Results and Observations
Time Oil Property # 01-068, Sunnyside, Washington

Well ID	DATE	TOC *(feet)	DTW *(feet)	PRODUCT THICKNESS *(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-3	03/13/97	758.11	11.81	0.00	746.30	-	**985**	**2,410**	**384**	**1,540**	**12,900**	NCA
MW-3	06/12/97	758.11	13.04	0.00	745.07	-1.23	**553**	**1,240**	**159**	**1,190**	**4,430**	NCA
MW-3	09/16/97	758.11	11.30	0.00	746.81	1.74	**1,670**	**5,230**	**706**	**1,040**	**36,800**	NCA
MW-3	12/16/97	758.11	11.78	0.00	746.33	-0.48	**1,210**	**5,500**	**1,010**	**5,190**	**28,300**	NCA
MW-3	04/07/98	758.11	13.68	0.00	744.43	-1.90	**55**	**50.9**	**94**	**120**	**1,300**	NCA
MW-3	07/02/98	758.11	13.27	0.00	744.84	0.41	**38**	**90**	23	**180**	**2,000**	SA
MW-3	08/28/98	758.11	12.44	0.00	745.67	0.83	-	-	-	-	-	-
MW-3	10/21/98	758.11	12.38	0.00	745.73	0.06	**24**	**510**	**250**	**820**	**5,600**	SA
MW-3	01/27/99	758.11	13.81	0.00	744.30	-1.43	3.80	1.80	17	8.50	370	SA
MW-3	04/14/99	758.11	14.91	0.00	743.20	-1.10	0.542	0.598	<0.500	1.57	59.4	NCA
MW-3	07/07/99	758.11	13.81	0.00	744.30	1.10	**14.4**	3.58	19.9	**26.9**	269	NCA
MW-3	10/25/99	758.11	12.60	0.00	745.51	1.21	**26.4**	**45.1**	**259**	**624**	**4210**	NCA
MW-4	03/13/97	756.89	14.75	0.00	742.14	-	**19,000**	**29,900**	**2,330**	**1,210**	**122,000**	NCA
MW-4	06/12/97	756.89	15.89	0.30	741.26	-0.88	-	-	-	-	-	NCA
MW-4	09/16/97	756.89	14.73	0.00	742.16	0.90	**26,700**	**35,100**	**2,530**	**15,900**	**185,000**	NCA
MW-4	12/16/97	756.89	15.22	0.00	741.67	-0.49	**20,900**	**25,300**	**1,610**	**12,200**	**149,000**	NCA
MW-4	04/07/98	756.89	15.59	0.30	741.56	-0.12	-	-	-	-	-	-
MW-4	07/02/98	756.89	16.47	Trace	740.42	-1.13	-	-	-	-	-	-
MW-4	08/28/98	756.89	16.09	0.02	740.82	0.40	-	-	-	-	-	-
MW-4	10/21/98	756.89	16.18	Trace	740.71	-0.11	-	-	-	-	-	-
MW-4	01/27/99	756.89	17.04	0.01	739.86	-0.85	-	-	-	-	-	-
MW-4	04/14/99	756.89	17.87	0.03	739.05	-0.81	-	-	-	-	-	NCA
MW-4	07/0799	756.89	17.56	0.38	739.65	0.61	-	-	-	-	-	NCA
MTCA Method A Cleanup Levels for Groundwater							**5.0**	**40.0**	**30.0**	**20.0**	**1,000**	

TABLE 2 (Continued)
Groundwater Sampling Results and Observations
Time Oil Property # 01-068, Sunnyside, Washington

Well ID	DATE	TOC *(feet)	DTW *(feet)	PRODUCT THICKNESS *(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-6	10/25/99	753.81	19.57	1.33	735.37	0.49	-	-	-	-	-	-
MW-7	03/13/97	755.44	16.64	0.00	738.80	-	0.793	0.685	<0.500	<1.00	<80.0	NCA
MW-7	06/12/97	755.44	17.65	0.00	737.79	-1.01	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-7	09/16/97	755.44	17.40	0.00	738.04	0.25	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-7	12/16/97	755.44	17.66	0.00	737.78	-0.26	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-7	04/07/98	755.44	18.58	0.00	736.86	-0.92	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-7	07/02/98	755.44	18.87	0.00	736.57	-0.29	<0.500	<0.500	<0.500	<1.00	<250	SA
MW-7	08/28/98	755.44	18.47	0.00	736.97	0.40	-	-	-	-	-	-
MW-7	10/21/98	755.44	18.62	0.00	736.82	-0.15	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-7	01/27/99	755.44	19.30	0.00	736.14	-0.68	<0.500	<0.500	<0.500	<1.50	<100	SA
MW-7	04/14/99	755.44	19.91	0.00	735.53	-0.61	<0.500	0.68	<0.500	<1.00	<50.0	NCA
MW-7	07/07/99	755.44	19.75	0.00	735.69	0.16	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-7	10/25/99	755.44	19.14	0.00	736.30	0.61	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-8	03/13/97	751.46	17.37	0.00	734.09	-	1.29	<0.500	<0.500	<1.00	<80.0	NCA
MW-8	06/12/97	751.46	18.31	0.00	733.15	-0.94	1.41	<0.500	<0.500	<1.00	<80.0	NCA
MW-8	09/16/97	751.46	18.52	0.00	732.94	-0.21	1.42	<0.500	<0.500	<1.00	<80.0	NCA
MW-8	12/16/97	751.46	18.87	0.00	732.59	-0.35	1.09	<0.500	<0.500	<1.00	<80.0	NCA
MW-8	04/07/98	751.46	19.16	0.00	732.30	-0.29	0.675	<0.500	<0.500	<1.00	<50.0	NCA
MW-8	07/02/98	751.46	19.59	0.00	731.87	-0.43	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-8	08/28/98	751.46	19.72	0.00	731.74	-0.13	-	-	-	-	-	-
MW-8	10/21/98	751.46	19.99	0.00	731.47	-0.27	<0.500	<0.500	<0.500	<1.50	<100	SA
MW-8	01/27/99	751.46	20.33	0.00	731.13	-0.34	<0.500	<0.500	<0.500	<1.50	<100	SA
MW-8	04/14/99	751.46	20.54	0.00	730.92	-0.21	-	-	-	-	-	-
MW-8	07/07/99	751.46	20.61	0.00	730.85	-0.07	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MTCA Method A Cleanup Levels for Groundwater							**5.0**	**40.0**	**30.0**	**20.0**	**1,000**	

TABLE 2 (Continued)
Groundwater Sampling Results and Observations
Time Oil Property # 01-068, Sunnyside, Washington

Well ID	DATE	TOC *(feet)	DTW *(feet)	PRODUCT THICKNESS *(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-8	10/25/99	751.46	20.47	NM	730.99	0.14	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-9	08/28/98	751.25	19.50	0.00	731.75	-	**4,300**	**5,300**	**310**	**2,100**	**22,000**	SA
MW-9	10/21/98	751.25	20.65	0.00	730.60	-1.15	**22,000**	**21,000**	**100**	**9,600**	**50,000**	SA
MW-9	01/27/99	751.25	21.70	0.98	730.38	-0.22	-	-	-	-	-	-
MW-9	04/14/99	751.25	22.22	1.29	730.13	-0.26	-	-	-	-	-	-
MW-9	07/07/99	751.25	21.77	0.54	729.94	-0.19	-	-	-	-	-	-
MW-9	10/25/99	751.25	22.00	1.07	730.16	0.22	-	-	-	-	-	-
MW-10	10/21/98	752.83	19.09	NM	733.74	-	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-10	01/27/99	752.83	19.66	NM	733.17	-0.57	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-10	04/14/99	752.83	20.07	NM	732.76	-0.41	<0.500	2.14	0.565	3.44	<50.0	NCA
MW-10	07/07/99	752.83	20.10	NM	732.73	-0.03	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-10	10/25/99	752.83	19.73	NM	733.10	0.37	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-11	08/28/98	748.57	19.73	NM	728.84	-3.89	<0.500	0.6	<0.500	<1.5	<250	SA
MW-11	10/21/98	748.57	20.00	NM	728.57	-0.27	<0.500	<0.500	<0.500	<1.5	<250	SA
MW-11	01/27/99	748.57	20.12	NM	728.45	-0.12	<0.500	<0.500	<0.500	<1.5	<100	SA
MW-11	04/14/99	748.57	20.32	NM	728.25	-0.20	<0.500	<0.500	<0.500	2.07	<50.0	NCA
MW-11	07/07/99	748.57	20.52	NM	728.05	-0.20	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-11	10/25/99	748.57	20.35	NM	728.22	0.17	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-12	08/28/98	744.29	19.30	NM	724.99	-3.06	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-12	10/21/98	744.29	19.51	NM	724.78	-0.21	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-12	01/27/99	744.29	19.50	NM	724.79	0.01	<0.500	<0.500	<0.500	<1.50	<100	SA
MW-12	04/14/99	744.29	19.53	NM	724.76	-0.03	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-12	07/07/99	744.29	19.78	NM	724.51	-0.25	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MTCA Method A Cleanup Levels for Groundwater							**5.0**	**40.0**	**30.0**	**20.0**	**1,000**	

TABLE 2 (Continued)
Groundwater Sampling Results and Observations
Time Oil Property # 01-068, Sunnyside, Washington

Well ID	DATE	TOC *(feet)	DTW *(feet)	PRODUCT THICKNESS *(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-12	10/25/99	744.29	19.82	NM	724.47	-0.04	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-13	07/07/99	750.25	20.46	TRACE	729.79	-	-	-	-	-	-	-
MW-13	10/25/99	750.25	20.31	0.00	729.94	0.15	**40700**	**67800**	**4080**	**24700**	**475000**	NCA
MW-14	07/07/99	749.88	20.89	0.00	728.99	-	**1530**	**93.1**	<25.0	**45.1**	**1230**	NCA
MW-14	10/25/99	749.88	20.81	0.00	729.07	0.08	**4700**	**3790**	**252**	**1070**	**12600**	NCA
MW-15	07/07/99	749.39	21.04	NM	728.35	-	**39.7**	<0.500	<0.500	1.98	85.4	NCA
MW-15	10/25/99	749.39	20.96	NM	728.43	0.08	**225**	0.677	<0.500	1.77	228	NCA
MW-16	07/07/99	757.48	17.33	NM	740.15	-	**25800**	**28800**	**1730**	**17200**	**166000**	NCA
MW-16	10/25/99	757.48	16.49	NM	740.99	0.84	**25100**	**32100**	**2010**	**16700**	**157000**	NCA
Duplicate	07/07/99	MW-15					**39.1**	<1.00	<0.500	2.54	85.8	NCA
Duplicate	10/25/99	MW-15					**246**	0.579	<0.500	1.98	131	NCA
WHC prod well	07/07/99						<0.500	<0.500	<0.500	<1.00	<50.0	NCA
WHC prod well	10/25/99						<0.500	<0.500	<0.500	<1.00	<50.0	NCA
Barrel Comp	07/07/99						<0.500	<0.500	<0.500	1.06	<50.0	NCA
Barrel Comp	10/25/99						<1.35	1.61	0.63	3.79	110	NCA
MTCA Method A Cleanup Levels for Groundwater							**5.0**	**40.0**	**30.0**	**20.0**	**1,000**	

ABBREVATIONS:

B	Benzene	THP-G	Total Petroleum Hydrocarbons as gasoline	-	Not analyzed/measured/applicable
T	Toluene	ug/l	Micrograms per liter	NCA	North Creek Analytical
E	Ethylbenzene	ND	Not detected above the reported detection limit	SA	Speciality Analytical
X	Total Xylenes	TOC	Top of Casing	GWE	Groundwater Elevation
		DTW	Depth to Water		

Note: Groundwater Elevation = Casing Elevation - (Depth of Water-(Product thickness *0.85)).
Groundwater from past events were corrected using this formula to reflect depression by product.

APPENDIX A

SYSTEM DESIGN

BIOSLURPING REMEDIATION SYSTE

TIME OIL PROPERTY / 01-068

January 2000

FIGURE	DESCRIPTI
Cover	Cover
L1	Remediatio
D1	Treatment S
P1	Mechanical
D2	Manifold/Di
D3	Trench Deta
D4	Extraction W
F1	Flow Diagra

MAXIM
TECHNOLOGIES INC®

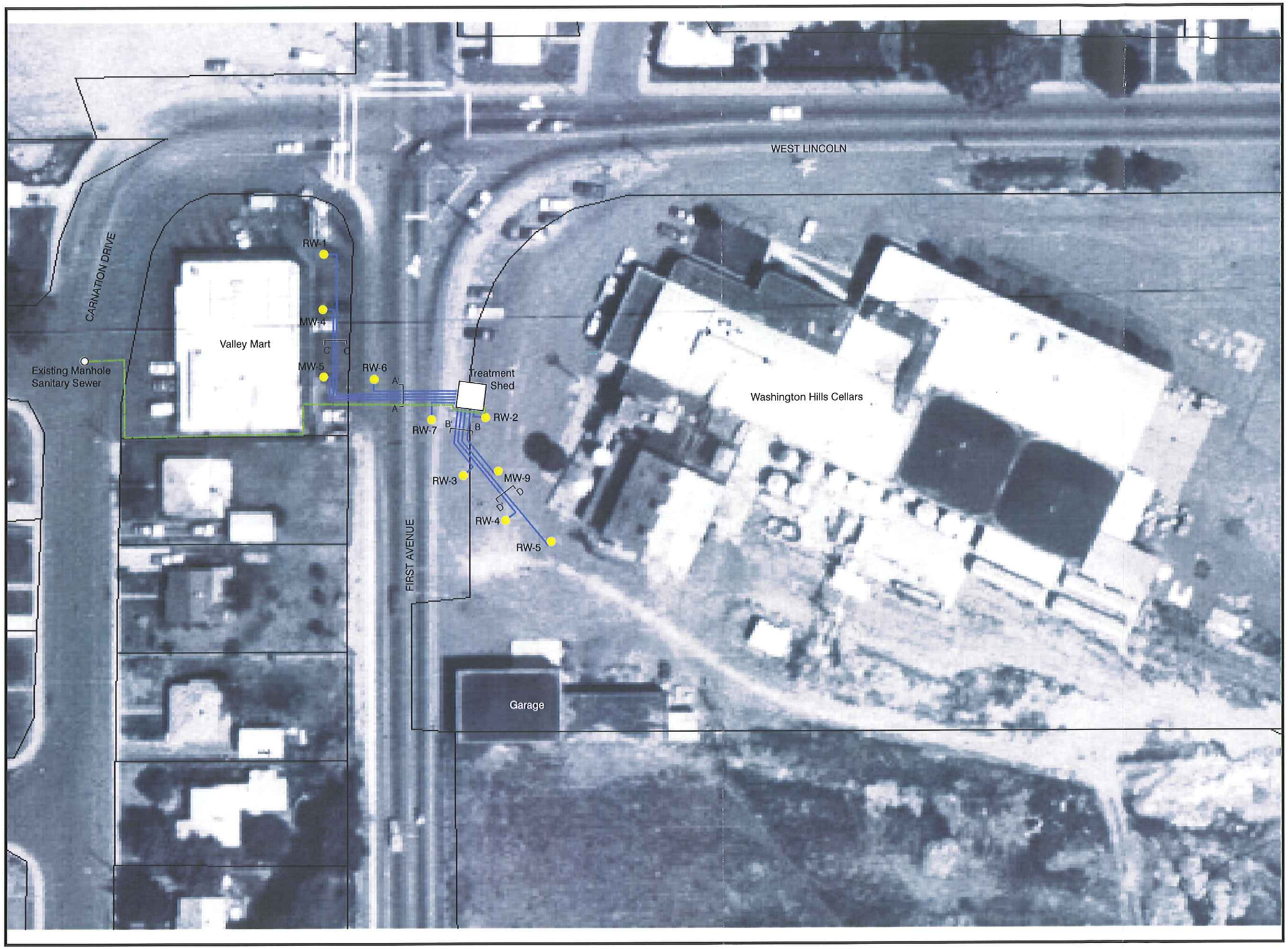


Photo Source: Yakima County GIS, 1992

WILLIAM G. BUCHER
STATE OF WASHINGTON
35426
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES 10-01-01

NOTE: Wells RW-1 through RW-7 to be installed as part of this work.

NOT IN THIS CONTRACT

Bioslurping Well

N

0 Feet 50

MAXIM TECHNOLOGIES INC

2436 Dixon
P.O. Box 2730
Missoula, Montana 59801

PREPARED FOR:

TIME OIL
PROPERTY 01-068
REMEDIATION SYSTEM

107 W Lincoln Avenue
Sunnyside, Washington

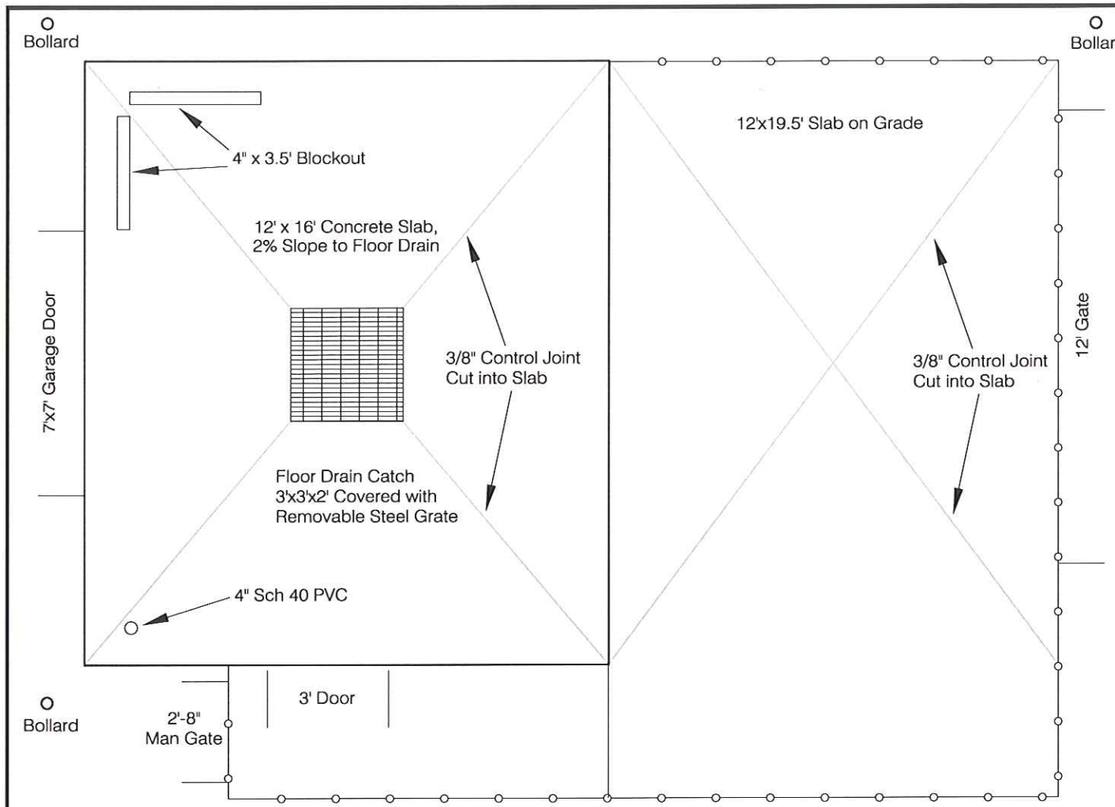
REMEDIATION SYSTEM LAYOUT

Work Request Number
9904808

DESIGNED BY:	DETAILED BY:	CHECKED BY:
BT	BGK	BG

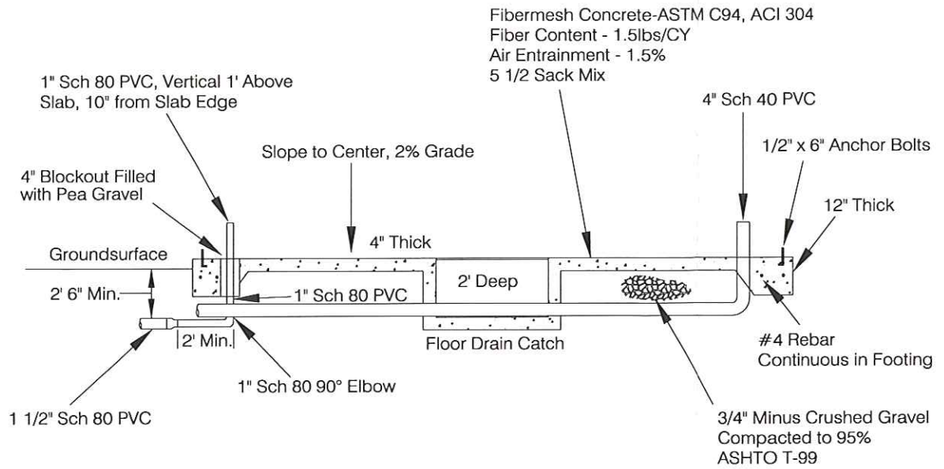
DATE:	ACAD FILE:
January 2000	D:/work/sunny/design/photo
PROJECT NO.: 9904808.100	PLOT SCALE: 1:50

FIGURE:	REVISION:	SHEET:
L1	1/20/00	2/8



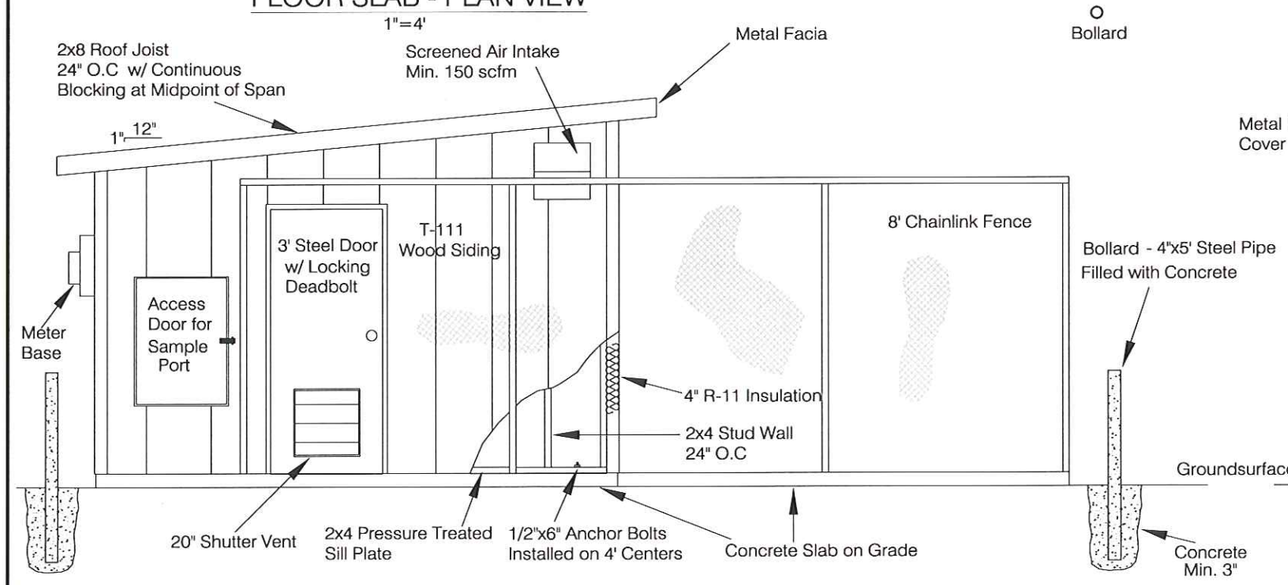
FLOOR SLAB - PLAN VIEW

1"=4'



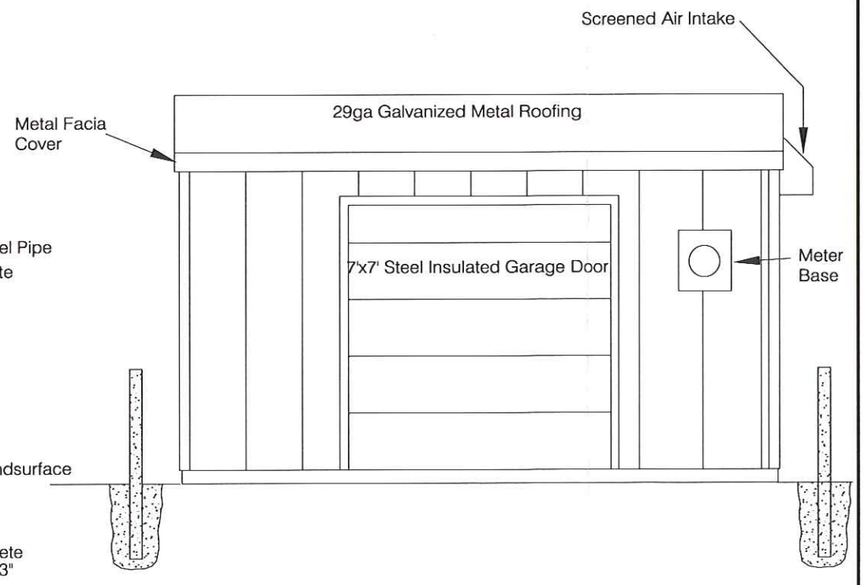
FLOOR SLAB - SECTION VIEW

1"=4'



EAST ELEVATION

1"=4'



SOUTH ELEVATION

1"=4'

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35426
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EXPIRES 10.01.01

MAXIM TECHNOLOGIES INC®
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P.O. Box 2730
Missoula, Montana 59801

PREPARED FOR:

TIME OIL
PROPERTY 01-068
REMEDIATION SYSTEM
107 W Lincoln Avenue
Sunnyside, Washington

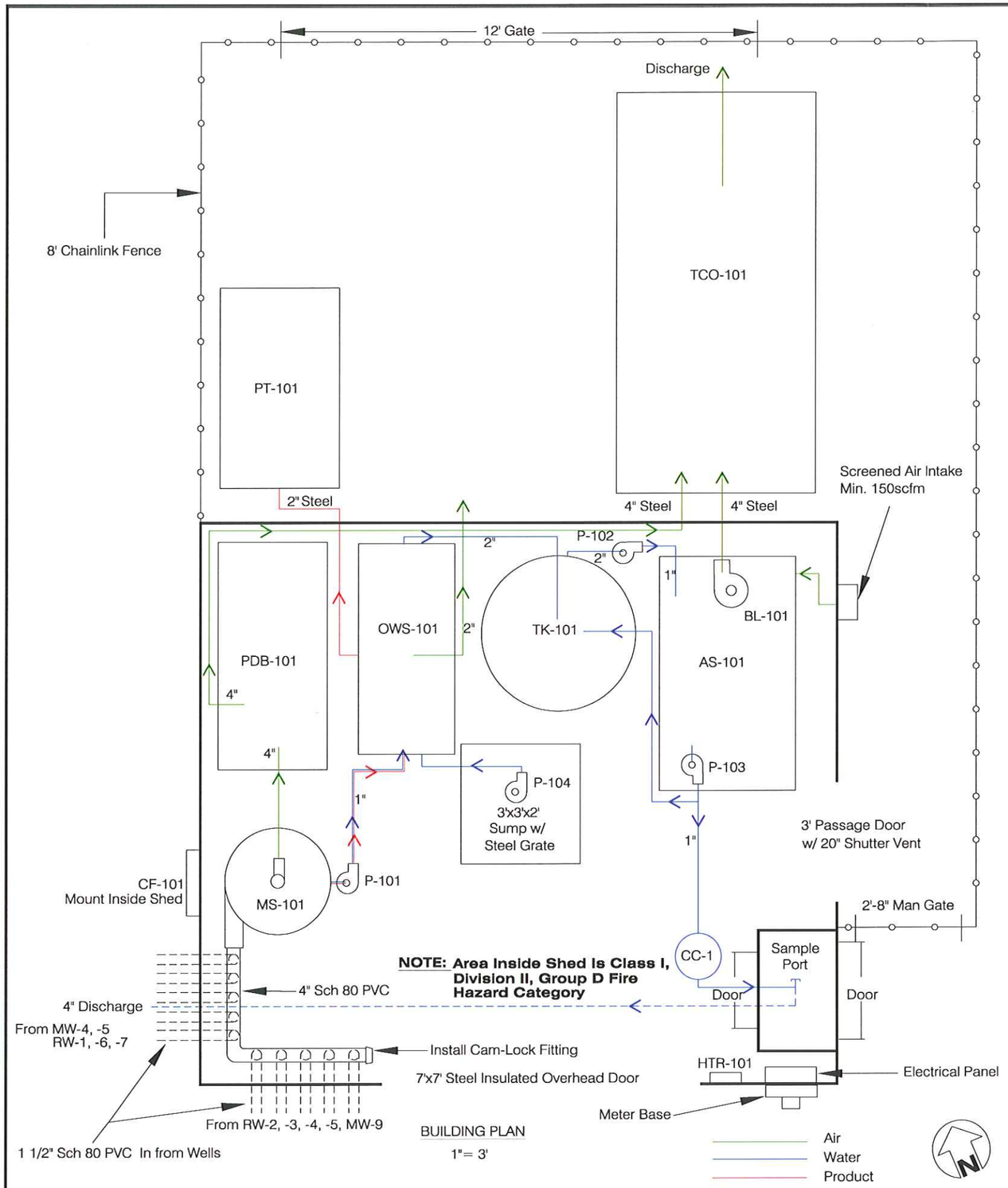
TREATMENT SHED AND
FENCED COMPOUND DETAIL

Work Request Number
9904808

DESIGNED BY:	DETAILED BY:	CHECKED BY:
BT	BGK	BG

DATE:	ACAD FILE:
January 2000	shdprof.dwg
PROJECT NO.: 9904808.100	PLOT SCALE: 1:1

FIGURE:	REVISION:	SHEET:
D1	1/20/00	3/8



AS-101
Air Stripper- Tray Type
MFG: NEEP Systems
Model: 1331-P
Operating Point: 15 gpm
Sump Capacity: 42 gal

PT-101
Product Tank - Double Wall
Material: Steel
Capacity: 400 gal

TK-101
Batch Tank
Material: Polyethylene
Capacity: 300 gal

MS-101
Moisture Separator
MFG: H2 Oil
Technologies
Capacity: 110 gal

BL-101
MFG: Rotron EN707
Operating Pt.: 150 scfm
Rating: 5HP, 230VAC,
3ϕ Explosion Proof

OWS-101
Oil Water Separator
MFG: Hydroflow
Operating Point: 12 gpm
Capacity: 70 gal

PDB-101
Positive Displacement Blower
MFG: Sutorbuilt
Operating Point: 250 scfm @ 14" Hg
Model: 4LP
Rating: 20hp, 230 VAC, 3ϕ Explosion Proof

CF-101
Cooling Fan - Wall Mounted
MFG: Grainger
Model: 3XK55
Operating Pt.: 3390 scfm
Wallgaurd: 6D584 (20.5")
Thermostat: 2E499
Rating: 1/3 hp, 120 VAC, 1ϕ Explosion Proof

TCO-101
Thermal Catalytic Oxidizer
MFG: H2 Oil Technologies
Model: H2TO/CO450
Operating Point: 100 - 500 scfm

HTR-101
Electric Heater - Wall Mounted
MFG: Grainger
Model: 3UG37
Thermostat: 2E499
Rating: 208 VAC, 1ϕ, 3.6 kw
Explosion Proof

P-101, 102, 103
Transfer Pump
MFG: Goulds
Model: 1ST
Operating Point: 20gpm @ 28' of Head
Rating: 1/2hp, 230VAC, 1ϕ, Explosion Proof

CC-1
Carbon Canister, Aqueous Phase
(optional)

P-104
Sump Pump
MFG: BJM
Model: R100
Operating Point: 17gpm @ 5' of Head
Rating: .15hp, 110VAC, 1ϕ

WILLIAM H. BUCHELE
STATE OF WASHINGTON
35428
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 10.01.01

MAXIM TECHNOLOGIES INC
2436 Dixon
P.O. Box 2730
Missoula, Montana 59801

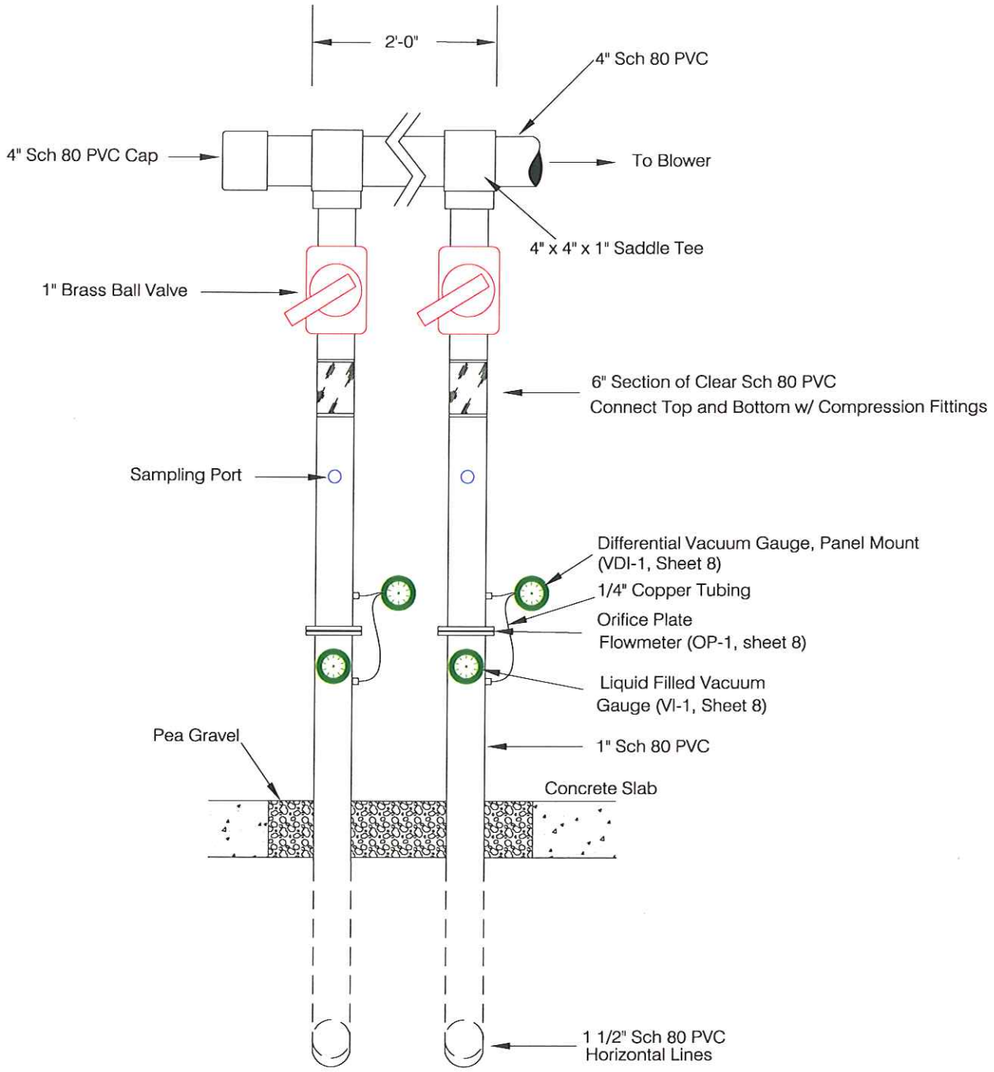
PREPARED FOR:

TIME OIL
PROPERTY 01-068
REMEDIATION SYSTEM
107 W Lincoln Avenue
Sunnyside, Washington

MECHANICAL PLAN

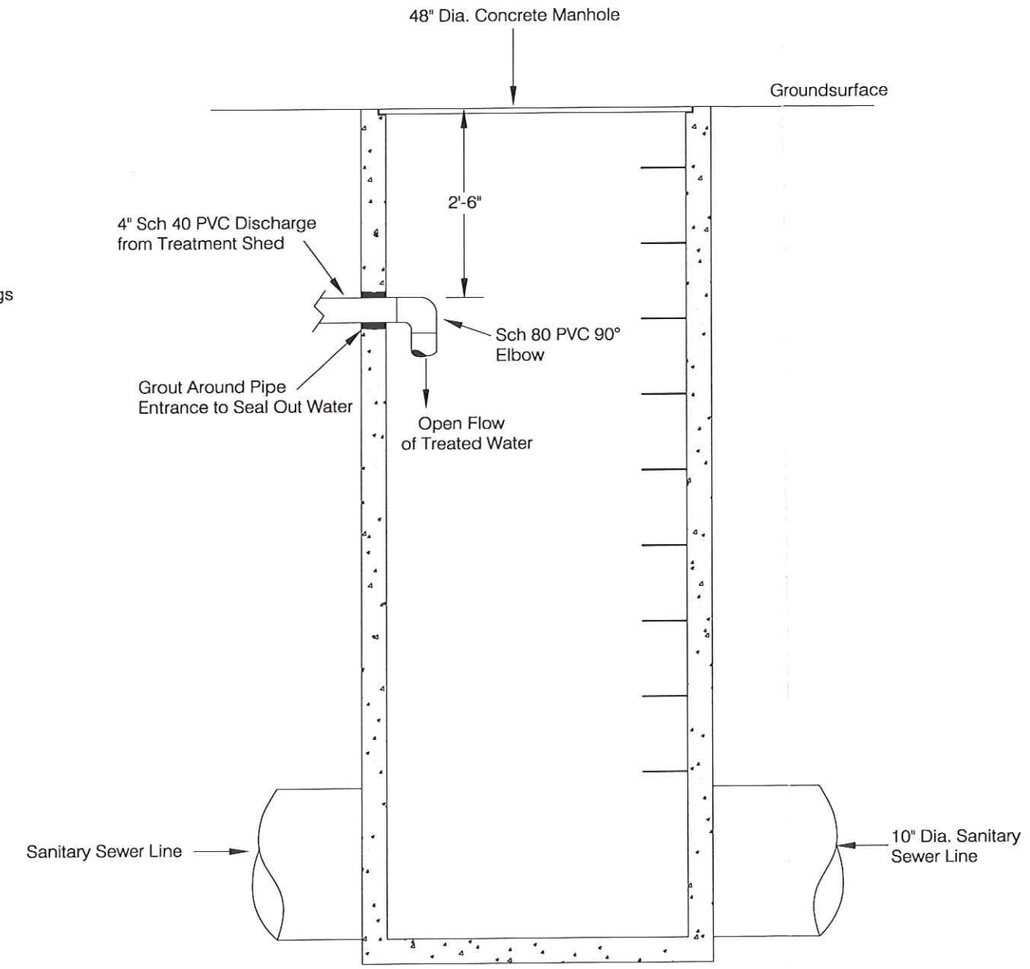
Work Request Number
9904808

DESIGNED BY:	DETAILED BY:	CHECKED BY:
BT	BGK	BG
DATE: January 2000	ACAD FILE: blshed.DWG	
PROJECT NO.: 9904808.100	PLOT SCALE: 1:1	
FIGURE: P1	REVISION: 1/20/00	SHEET: 4/8



MANIFOLD DETAIL (TYP.)

1" = 1'



EXISTING MANHOLE (Sunnyside Public Works)

1" = 2'

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PROFESSIONAL ENGINEER
EXPIRES 10.01.01

MAXIM TECHNOLOGIES INC®
2436 Dixon Avenue
P.O. Box 2730
Missoula, Montana 59801

PREPARED FOR:
TIME OIL
PROPERTY 01-068
REMEDIATION SYSTEM
107 W Lincoln Avenue
Sunnyside, Washington

MANIFOLD / DISCHARGE DETAILS

WORK REQUEST NUMBER
9904808

DESIGNED BY:	DETAILED BY:	CHECKED BY:
BT	BGK	BG

DATE:	ACAD FILE:
January 2000	MANIFLD.DWG
PROJECT NO.: 9904808.100	PLOT SCALE: 1:1

FIGURE:	REVISION:	SHEET:
D2	1/20/00	5/8

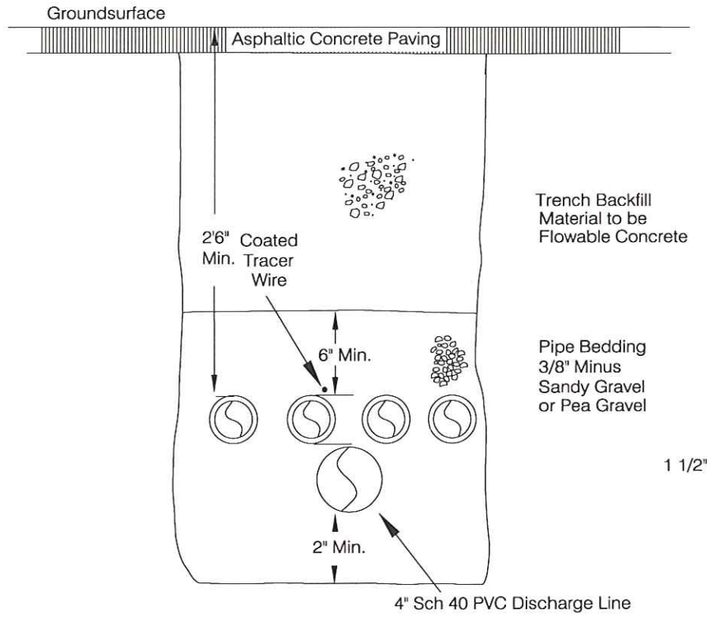
ROAD CROSSING TRENCH SPECIFICATIONS:

1. Trench subgrade preparation shall be performed in accordance with WDOT 1998 Standard Specifications contained in Division 2, Section 6.
2. Material used for trench backfill shall be deposited in maximum 6" lifts, wetted to within 2% of the optimum moisture content, and compacted to at least 95% of the maximum dry density as determined by WDOT Test Method 606.
3. All excess rock and debris in R/W shall be hauled away by contractor.
4. Backfill material at First Avenue and Carnation Drive Crossings to consist of Flowable Concrete. The flowable concrete will be a 2 to 3 sack mix with 5% (5 quarts per cubic yard) calcium chloride to decrease curing time.
5. Road surface to be smoothed and graded to preconstruction conditions.
6. Asphaltic concrete paving shall be a minimum of 3" or 1 1/2 times the existing paving whichever is greater.
7. No steel tracks, wheels or outrigger pads shall be allowed on the pavement.
8. Where pavement is damaged, the contractor shall saw and remove a 4' minimum width of pavement, recompact sub-base and repave.
9. All excavation work shall be performed in accordance with OSHA regulations.

NOTES:

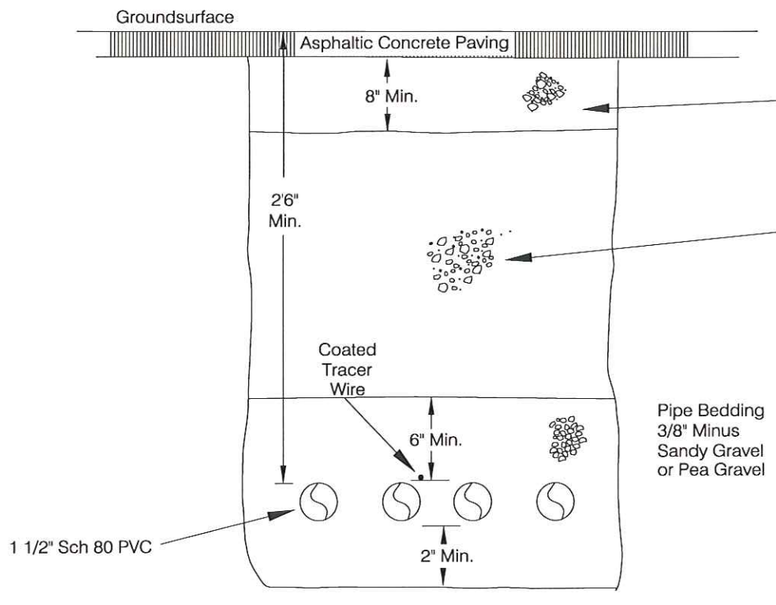
1. Trenchless pipe installation techniques are acceptable for road crossings.
2. All excavation work shall be performed in accordance with OSHA regulations.
3. Place loose backfill soil in 8-inch maximum lift height.

A-A' (First Avenue Crossing)

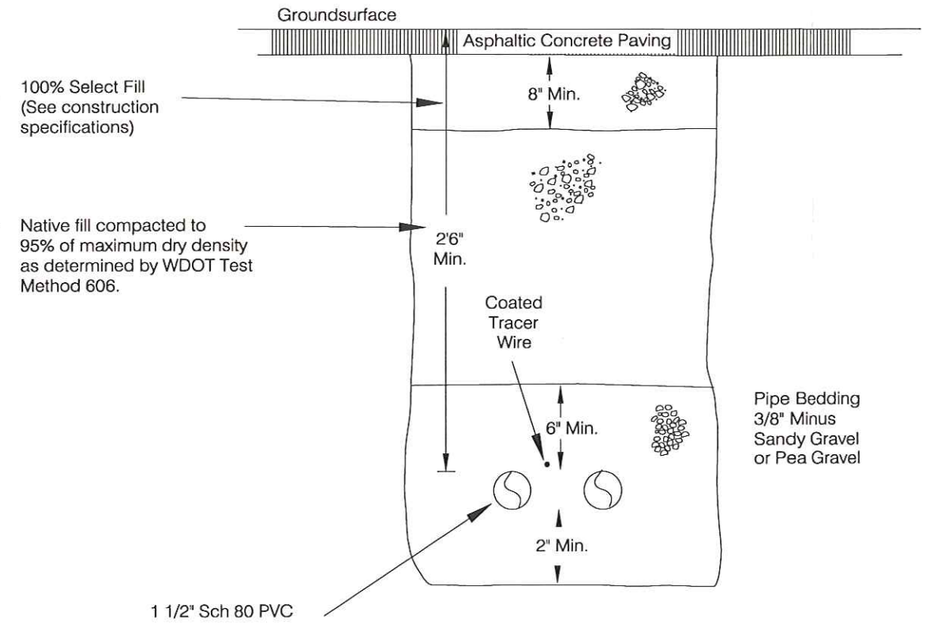


1 1/2" Sch 80 PVC, Sleeve Inside Steel Casing Under First Avenue

B-B'



C-C' & D-D'



WILLIAM H. BUCHER
STATE OF WASHINGTON
35426
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 10-01-01

MAXIM TECHNOLOGIES INC®
2436 Dixon
P.O. Box 2730
Missoula, Montana 59801

PREPARED FOR:

TIME OIL
PROPERTY 01-068
REMEDIATION SYSTEM
107 W Lincoln Avenue
Sunnyside, Washington

TRENCH DETAILS
Underground Piping

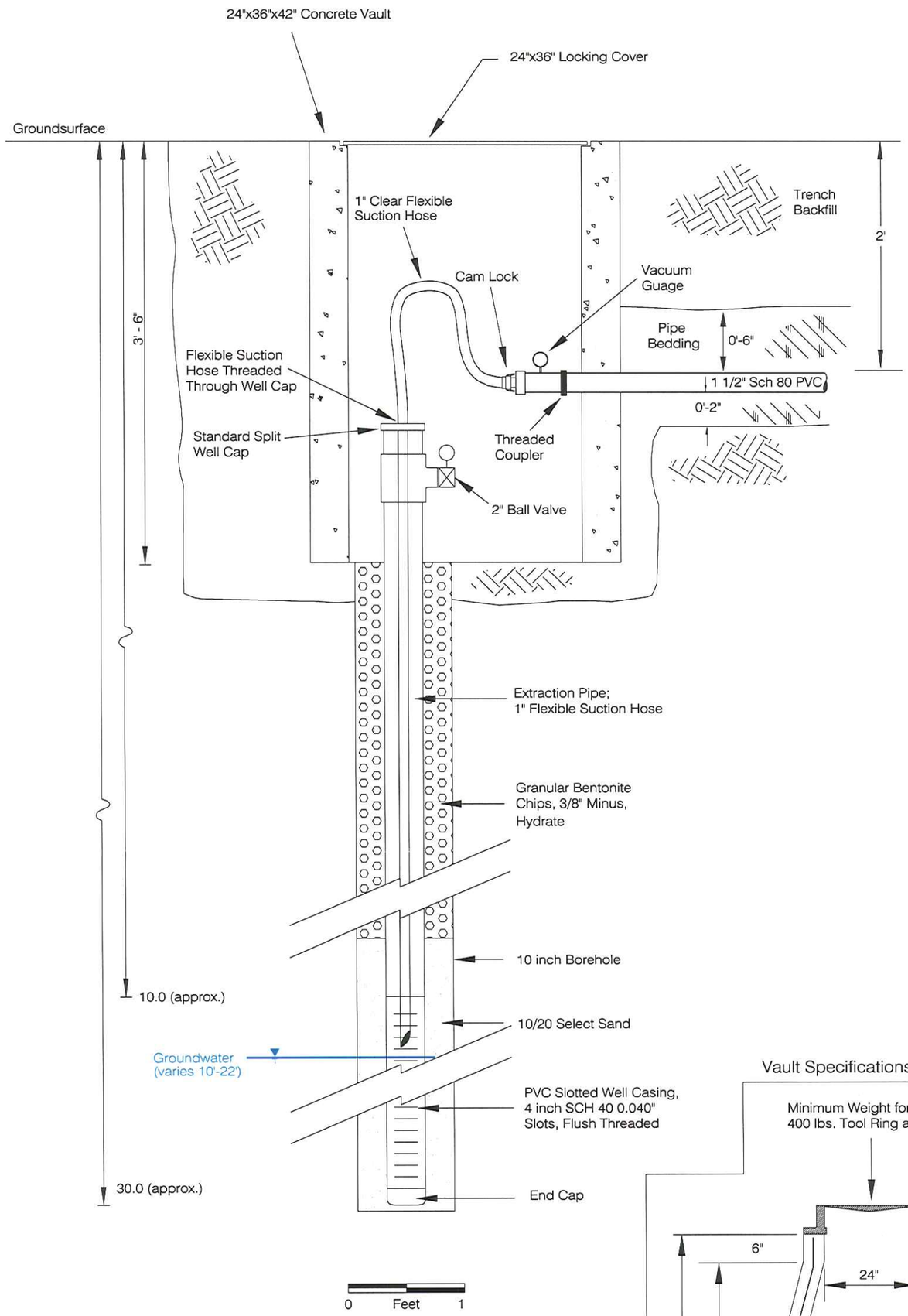
Work Request Number
9904808

DESIGNED BY:	DETAILED BY:	CHECKED BY:
EP	BGK	BG

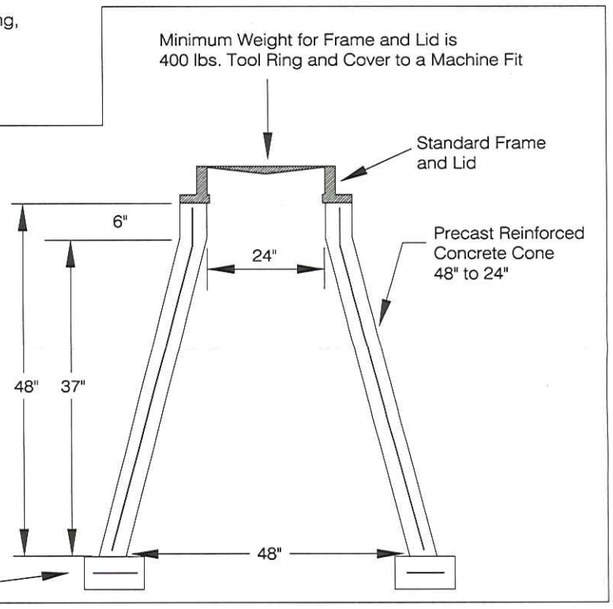
DATE:	ACAD FILE:
January 2000	roadxing.DWG
PROJECT NO.: 9904808.100	PLOT SCALE: 1:1

FIGURE:	REVISION:	SHEET:
D3	1/20/00	6/8

NOTE: Utility Vault Shown Below Shall be Constructed for all Wells Except RW-6 and RW-7



Vault Specifications for Wells RW-6 and RW-7



NOTE; for RW-6, 7

Conform All Manhole Construction Excepting Frame, Lid, and Base to AASHTO M-199, This Provides that Reinforcement may be Made of
(1) Cold Drawn Steel Wire - AASHTO M-32,
(2) Steel Wire Fabric - AASHTO M-55,
(3) Steel Bars - AASHTO M-31

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2436 Dixon Avenue
P.O. Box 2730
Missoula, Montana 59801

PREPARED FOR:
TIME OIL
PROPERTY 01-068
REMEDIATION SYSTEM
107 W Lincoln Avenue
Sunnyside, Washington

EXTRACTION WELL DETAIL

WORK REQUEST NUMBER: 9904808

DESIGNED BY: BT | DETAILED BY: BDK | CHECKED BY: BG
DATE: January 2000 | ACAD FILE: WELLSCHLDWG
PROJECT NO.: 9904808.100 | PLOT SCALE: 1:1
REVISION: 1/20/00 | SHEET: 7/8
FIGURE: D4

WILLIAM H. BUCHANAN
STATE OF WASHINGTON
35426
REGISTERED PROFESSIONAL ENGINEER
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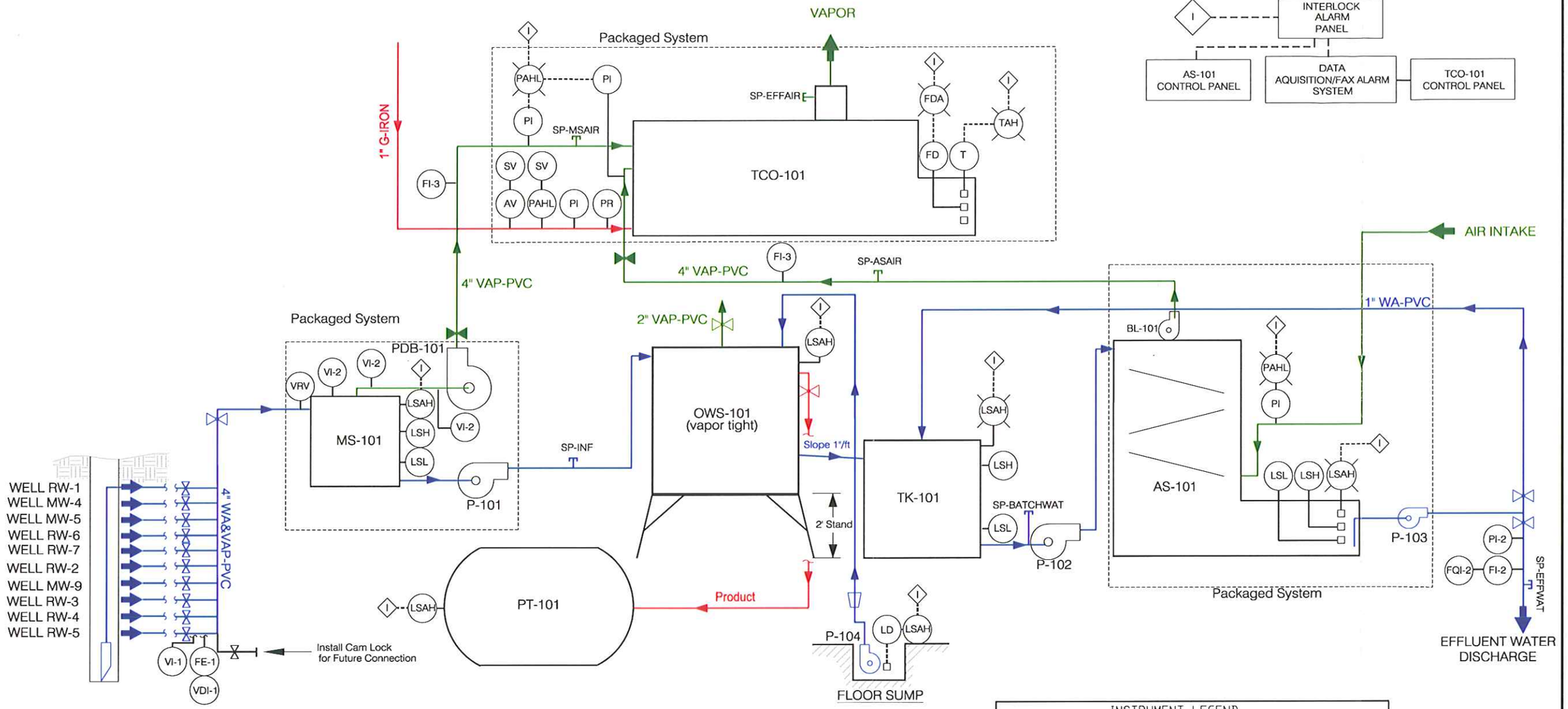

SYMBOL LEGEND

- In-Line Filter
- Ball valve
- Check valve
- Blower or pump
- Flow/Direction
- Interlock
- SP Sample port
- Indicating light

Piping line numbers

3"- WA- PVC

- Material
- Fluid Type
- Diameter

Fluids

WA- Water AS- Air supply
G-Gas VAP- Vapor

EQUIPMENT LEGEND

TAG NO.	SERVICE	DESCRIPTION
TCO-101	Vapor	Thermal Catalytic Oxidizer
AS-101	Fluid	Air Stripper - Tray Type
BL-101	Vapor	Blower
TK-101	Fluid	Batch Tank
OWS-101	Fluid	Oil/Water Separator
PT-101	Fluid	Product Storage tank
MS-101	Fluid/Vapor	Moisture Separator
PDB-101	Vapor	Positive Displacement Blower
P-101,102,103	Fluid	Transfer Pump
P-104	Fluid	Sump Pump

INSTRUMENT LEGEND

TAG NO.	SERVICE	DESCRIPTION
VI-1	Fluid/Vapor	Liquid Filled Vacuum Indicator (0-20" Hg)
VDI-1	Fluid/Vapor	Vacuum Differential Gauge (0-40" H_2O)
VI-2	Fluid/Vapor	Liquid Filled Vacuum Indicator (0-30" Hg)
VRV	Vapor	Vacuum Relief Valve with Silencer
FQI-1	Fluid	Flow Quantity Indicator
T-1	Fluid	Temperature Guage (0-100° F)
FI-1	Fluid	Flow Rate Indicator (0-50 gpm)
FQI-2	Fluid	Electronic Flow Quantity Indicator
FI-2	Fluid	Electronic Flow Rate Indicator (0-50 gpm)
FI-3	Fluid	Flow Rate Indicator, Pilot Tube
PI-2	Fluid	Pressure Indicator (0-100 psi)
TAH	Vapor	Temperature Alarm, High (pre-packaged)
FD	Gas	Flame Detector (pre-packaged)
FDA	Gas	Flame Detector Alarm (pre-packaged)
AV	Gas	Automatic Valve (pre-packaged
PR	Air	Pressure Regulator (pre-packaged)
LSL	Fluid	Level Sensor, Low
LSH	Fluid	Level Sensor, High
LSAH	Fluid	Level Sensor Alarm, High (pre-packaged)
PAHL	Vapor	Pressure Alarm, High-Low (pre-packaged)
LD	Fluid	Liquid Detector
SV-1	Vapor	Solenoid Valve
FE-1	Vapor	Orifice Plate

WILLIAM H. BUCHER
STATE OF WASHINGTON
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PROFESSIONAL ENGINEER
EXPIRES 10.01.01

MAXIM TECHNOLOGIES INC®
2436 Dixon
P.O. Box 2730
Missoula, Montana 59801

PREPARED FOR:

TIME OIL
PROPERTY 01-068
REMEDIATION SYSTEM
107 W Lincoln Avenue
Sunnyside, Washington

FLOW DIAGRAM
Piping and Instruments

Work Request Number
9904808

DESIGNED BY:	DETAILED BY:	CHECKED BY:
BT	BGK	BG

DATE:	ACAD FILE:
January 2000	flowsht1.dwg
PROJECT NO.: 9904808.100	PLOT SCALE: 1:1

FIGURE:	REVISION:	SHEET:
F1	1/20/00	8/8

APPENDIX B

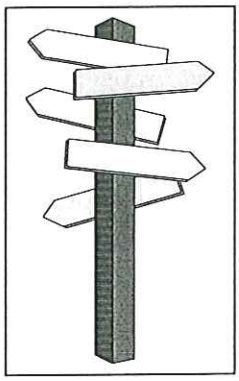
HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

Project Name: Valley View Market
Project Location: 107 West Lincoln Avenue Sunnyside, WA
Project Number: 9904808

MAXIM TECHNOLOGIES, INC.SAFETY PERSONNEL

Project Manager: Gene St.Godard
Job Manager: Mark Engdahl
Health and Safety Office: Mark Engdahl
Corporate Health and Safety Officer: Lois Farakas



EMERGENCY CONTACTS

Hospital – Sunnyside Community Hospital: 10th & Tacoma 837-1500
(map showing shortest route to hospital on back of report)

Police Department	**719 E Edison Ave**	**911 or**	**509-836-6200**
Washington State Patrol	Ellensburg West Interchange		509-925-5303
Fire Department	**513 S 8th St**	**911 or**	**509-837-3999**
Ambulance		911 or	509-786-4444

Poison Control Center	**1-800-572-9176**
Utilities/gas Cascade Natural Gas	509-837-2041
Emergency Phone Sprint:	**1-800-877-4421 or 1125**
Emergency Water Shut off	509-837-5206
Department of Ecology (Yakima, WA)	**509-575-2490**

Maxim Project Manager	Gene St.Godard	509-465-2188
	Cell Phone	509-939-8844
	Home	509-466-8951
Maxim Health and Safety Officer	Mark Engdahl	509-465-2188
	Pager	509-880-9221
	Cell Phone	509-939-8844
	Home	509-927-1007

Note: Site Health and Safety Officer and Project Manager are to be notified immediately if worker exposure, accidents or site conditions not anticipated in this document are encountered. In case of hazard exposure during and/or prior to a medical situation, the hospital and any emergency response personnel shall be notified that patients clothing may be contaminated.

EXPECTED DPE LEVEL: LEVEL D (hard hat, steel toe boots, protective gloves)

ACTION LEVELS

Upgrade PPE Level to Level C:	10 ppm or greater measured on OVM in breathing zone (sustained)
Stop all work and exit work area:	300 ppm or greater measured on OVM

MAXIM TECHNOLOGIES
SITE SAFETY AND HEALTH PLAN

Site Name: Sunnyside Time Oil Property # 01-068

Location: 107 West Lincoln Avenue
Sunnyside, Washington

Project Title: Remedial Investigation

Job Number(s): 99-04808

Project Manager: Gene St.Godard

Job Manager: Mark Engdahl

Site Safety & Health Officer: Mark Engdahl

Date of Field Work: May, 2000 through June, 2000

TABLE OF CONTENTS
SUNNYSIDE HEALTH AND SAFETY
TIME OIL PROPERTY 01-068
SUNNYSIDE, WA

ATTACHMENTS

A: ROUTES OF EXPOSURE
B: ROUTE TO HOSPITAL

1.0 GENERAL

1.1 PROJECT DESCRIPTION:

The field work portion of this project will consist of three phases. The first phase is scheduled for May 2000 and consists of drilling seven four inch recovery wells. The wells will be completed at a depth of 35 below ground surface.

The second phase is scheduled to start in May 2000 and will consist of installing a remedial system underground at the site, extending across First Avenue into the parking lot of Washington Hills Cellar Winery.

The third phase is also scheduled to start in May/June 2000 and will consist of performing operations and maintenance of the remedial system along with the quarterly groundwater sampling.

1.2 SITE DESCRIPTION:

The site is located at the southwest corner of First Avenue and West Lincoln Street in Sunnyside, WA. The site is a relatively level, irregular shaped parcel approximately 1/3-acre in size. It is currently operated as a convenience store and retail fuel facility.

2.0 CONTACTS

2.1 EMERGENCIES:

In the event of an emergency, personnel should dial 9-1-1.

2.2 NEAREST HOSPITAL:

Directions from site:

1) East on Lincoln to 10th Street
2) North on 10th Street to 10th and Tacoma
3) Hospital is on Northeast corner f 10th Street and Tacoma

2.3 MAXIM CONTACTS:

Project Manager: Gene St.Godard
Site Health & Safety Officer: Mark Engdahl

MAXIM Technologies, Inc.
111 E. Magnesium Rd. Suite A
Spokane, WA 99208
509-465-2188 509-465-2199 (fax)

Corporate Site Health and Safety Officer: Lois Farkas 972-247-7576
2342 Fabens Street
Dallas, TX 75229

2.4 CLIENT/PROPERTY OWNER:

Client: Time Oil Co,
2737 West Commodore Way
Seattle, Washington 98199
Contact: Mr. Scott Sloan

Property Owner: Soohwan & Hyung S. Kim
4007 West Lincoln Ave
Sunnyside, Washington

3.0 HAZARD ASSESSMENT

3.1 CHARACTERIZATION: The following is a brief description of the work site and expected hazards. The summary is based on information supplied by the client: Time Oil Co.

A. Facility Type

Landfill	____
Commercial	_X_
Industrial	____
Residential	____
Public	____
Construction	_X_

B. Facility Status

Active	_X_
Inactive	____
Under Construction	_X_
Abandoned	____
Other (specify)	_____

C. Physical Hazard

Heat	_X_
Cold	_X_
Noise	_X_
Excavation	_X_
Heavy Lifting	_X_
House Keeping	_X_
Confined Space	____
Heavy Equipment	_X_
Drilling	_X_
Other (specify)	_X_ operating equipment (compressors, pumps blowers etc.)

D. Waste Type

Gasoline	_X_
Solid	_X_
Liquid	_X_
Unknown	____
Electrical(A/B)*	____
Non ionizing Rad	____

E. Waste Class

Corrosive	____
Flammable	_X_
Poison	____
Radioactive	____
Explosive	_X_

F. Route of Exposure

Inhalation	_X_
Absorption	_X_
Ingestion	_X_
Other	_____

Oxidizer ____
Biohazard ____
Compressed Gas ____
Misc. ____

* A: Above Ground B: Below Ground

3.2 KNOWN SITE BACKGROUND INFORMATION ON CHEMICAL HAZARD:

Petroleum hydrocarbons from underground storage tanks. Gasoline range petroleum hydrocarbons are the only known chemical hazard. A description of toxicity and symptoms are presented in Section 3.3.

3.3 RELATIVE TOXICITY AND POTENTIAL HEALTH RISKS OF CHEMICALS: (PARENTHETICAL REMARKS REFER TO NFPA DESIGNATIONS FOR THAT MATERIAL)

PETROLEUM PRODUCTS:

Middle distillate fuels, such as **kerosene, diesel** and **aviation fuels** (0-2-0), can be absorbed through oral, dermal, or inhalation exposure. The chief systemic reaction to such fuels is depression of the body's central nervous system (CNS). Toxicological effects resemble those of kerosene, i.e. low oral, moderate dermal, and high aspiration hazard. Symptoms include irritation to the skin and mucous membranes, as well as headaches and nausea.

Acute exposure to middle distillate fuels can lead to headaches, nausea, mental confusion, and irritation of the respiratory system. Further exposure can cause hemolytic anemia (breakdown of red blood cells) and cardiovascular disturbances; in some extreme cases, loss of consciousness can occur.

Chronic exposure to middle distillates causes neurological effects. Epidemiological studies have shown that workers constantly exposed to diesel fuel have developed recurrent symptoms of dizziness, headache, and nausea. Feelings of suffocation, coughs, and palpitations are also prevalent. Inhalation of high concentrations of vapors can lead to acute symptoms.

Compounds in these fuels that are most likely to be of toxicological concern are non-carcinogenic petroleum aromatic hydrocarbons (PAHs), such as **naphthalene** (2-2-0); and carcinogenic PAHs, such as **benzo(a)-anthracene** (N/A) and **benzo(a)-pyrene** (0-0-0). **Cresols** are highly irritating to the skin, mucous membranes, and eyes. They can impair liver and kidney function and cause CNS and cardiovascular disturbances. **Phenol** (3-2-0) is also toxic to the liver and kidneys.

Gasoline is a volatile, flammable liquid which may contain various constituents including benzene, toluene, ethylbenzene, xylene and lead. Inhalation of gasoline is known to cause headache, blurred vision, dizziness, and nausea. Acute inhalation exposure may result in

intense burning of the throat and respiratory system. Asphyxiation may occur from oxygen displacement. Ingestion of small amounts may result in symptoms of poisoning.

Benzene (2-3-0) is a clear, colorless, volatile, highly flammable liquid with a characteristic odor. Benzene is a known human carcinogen with a threshold limit value (TLV) of 0.1 ppm. The primary route of entry is inhalation of the vapor. Exposure to liquid or vapor may cause irritation to the skin, eyes, and respiratory tract. Dermatitis may also develop from over exposure. Acute exposure may result in central nervous system (CNS) depression. Dizziness, headache, nausea, convulsions may develop. Extreme acute exposures may result in coma or death.

Toluene (2-3-0) is a clear, colorless, noncorrosive liquid with a sweet pungent odor. The TLV is 100 ppm. Harmful effects and symptoms are similar to those of benzene.

Xylene (2-3-0) (which include orth-, meta-, and para - xylene) is a colorless flammable liquid solvent. The TLV for xylene is 100 ppm. Inhalation and absorption of vapors is the primary route of exposure. In addition to eye, nose, and throat irritation, prolonged skin contact may lead to dermatitis. Acute exposure to xylene vapors may cause CNS depression (similar to that of benzene) and minor reversible effects upon liver and kidneys. Over exposure to high vapor concentrations may cause unconsciousness.

Ethylbenzene (2-3-0) is a lacquer diluent often found in petroleum products. Absorption into the body is mainly through inhalation. High concentrations may produce tearing of the eyes and nasal irritation. Ethylbenzene also has a narcotic effect. The TLV is 100 ppm. Eye irritation will result with exposures in excess of 200 ppm.

METALS:

Arsenic is a grayish metallic solid which turns black when exposed to air. It is insoluble in water. Inhalation and ingestion of arsenic dust and/or fumes are the primary routes of entry. Brief contact with skin causes no adverse effects, however prolonged contact may cause irritation. Acute toxic effects to arsenic are rare. Symptoms include choking, chest pain, and shock. Chronic overexposure to arsenic is rare and generally confined to patients taking prescribed medications. Symptoms include weight loss, nausea, and diarrhea.

Barium is a silver white metal which is insoluble in water, but soluble in alcohol. Skin or eye contact and ingestion or inhalation of dusts or fumes are the primary routes of entry. Barium and its compounds may cause irritation to the eyes, nose, throat, and skin.

Barium Sulfate is a fine odorless powder which is insoluble in water. It is currently not regulated by state or federal requirements.

Cadmium is a bluish white metal that is insoluble in water but soluble in acids. Small amounts of cadmium are found in zinc, copper, and lead ores. Cadmium is an irritant to the respiratory tract. Acute toxicity is almost always caused by inhalation of cadmium dusts or fumes, which are produced when cadmium is heated.

Chromium may exist in one of three valence states in compounds, +2, +3, and +6. Chromic acid and chromates, the hexavalent form, are the most common. Water insoluble hexavalent chromium compounds are classified as confirmed human carcinogens by the ACGIH. In some cases chromium can cause dermatitis to exposed skin. Acute exposure to dust or mist can cause coughing, wheezing, and headache.

Lead is a blue-gray metal which is very soft. Inorganic lead compounds include lead oxides, metallic lead, and lead salts. Lead is slightly soluble in water. Ingestion of lead dust is the primary route of entry. Systemic effects of lead poisoning are difficult to identify except through laboratory testing. Symptoms include decreased physical fitness, fatigue, sleep disturbance, headache, and aching bones. These symptoms are reversible and complete recovery is possible.

Lead-based paints were widely used in industry up until 1970. The primary route of entry for lead in this form is ingestion. Early effects of lead poisoning are non specific and, except by laboratory testing, are difficult to distinguish from the symptoms of minor seasonal illnesses. These symptoms include decreased physical fitness, fatigue, sleep disturbance, headache, and aching bones and muscles. All of these symptoms are reversible over time. Points of attack include kidneys, blood, central nervous system, and gastrointestinal system. Although the ACGIH has established a TWA for lead dust of 0.15 mg/m^3, this standard doesn't apply to lead paints.

Mercury, commonly present as salt compounds, is generally insoluble in water. Mercury is a skin and mucous membrane irritant. It may occasionally be a skin sensitizer. Acute mercury poising, due to inhalation of vapors, affects the lungs primarily. Chronic exposure to mercury produces symptoms which vary depending on the individual. These include weakness, loss of appetite, weight loss, insomnia, indigestion, and soreness of the mouth or throat. Both acute and chronic exposures may produce permanent changes to affected organs.

Selenium, a reddish powder, is used in the manufacture of electronic components. The primary route of entry is inhalation of selenium dust or vapor. Selenium is considered to be relatively non-irritating and difficult to absorb through skin contact.

4.0 DIRECTIONS FOR SOIL SAMPLING (Drilling)

Select a sampling depth. Drive a clean split spoon into the soil to collect the soil. If the soil is rocky enough to prevent the spoon from being driven, it may help to raise the augers off of the bottom of the hole to allow sluff to fall in the hole. This sluff can then be collected in the spoon. Open the split spoon and quickly place in the soil jar. Fill the jar so there is no headspace. Cap the jar. Then prepare the headspace sample, if needed. Lastly, look at the soil for identification purposes, and evidence of petroleum impact. Fill out the label, record the sample point, who collected the sample, the date, time the sample was collected and place sample on ice for preservation. Send the sample to the lab. Be sure to keep the sample cool until it reaches the lab.

4.1 SAFETY AND HEALTH CONTROLS

4.2 REQUIRED PERSONAL PROTECTIVE EQUIPMENT: For the purposes of this job, level "D" protection (minimum) shall be used. Since the atmosphere contains no known hazard, no respiratory protection is being required. The following personal protective equipment (PPE) is required:

hard hat	X	harness	____
safety glasses	X	coveralls:	____
safety goggles	____	type	____
outer gloves:	X	hearing protection	X
type-	laytex	respirator: if upgraded	(X)
liner gloves	____	type - (see below)	
safety shoes	____	safety toed boots	X
Other:	____		

4.3 RESPIRATORY PROTECTION:

It is not anticipated that respiratory protection will be required to perform the scope of work. However if volatile organics are detected in excess of 10 ppm above background in the breathing zone, a half mask respirator fitted with organic vapor/acid gas/high efficiency particulate cartridges shall be used. If detector readings exceed 50 ppm, a half mask respiratory will be inadequate. Should this occur, all personnel will immediately stop operations, and move upwind of the source, and call the Site Safety and Health officer, Project Manager , and/or Corporate Health and Safety Officer.

4.4 HAZARD MONITORING:

Breathing zone monitoring will be conducted periodically using a PID. Due to the low risk level and the short duration of work, we do not anticipate the implementation of continuous hazard monitoring at the work site.

4.4.1 AIR MONITORING:

Calibration: All equipment calibrated proper to project start up and periodically during conductance of work

Routine Maintenance: See Maxim SOP's

Troubleshooting: See Maxim SOP's

Relative Responses:(see attached manual)

5.0 SYSTEM INSTALLATION

The remedial system installation will consist of using a backhoe to excavate trenches to an approximate depth of 30-inches below the surface. A confined space entry permit is not expected to be needed to enter the trenches. Piping will be layed into the trenches and connected to various wells. Multiple trip hazards will be encountered on the site, therefore good housekeeping practices will be utilized and enforced by the SSO.

5.1 SAFETY AND HEALTH CONTROLS

5.2 REQUIRED PERSONAL PROTECTIVE EQUIPMENT

For the purposes of this job, level "D" protection (minimum) shall be used. Since the atmosphere contains no known hazard, no respiratory protection is being required. The following personal protective equipment (PPE) is required:

hard hat	X	harness	
safety glasses	X	coveralls:	
safety goggles		type	
outer gloves:	X	hearing protection	X
type-	laytex	respirator: if upgraded	(X)
liner gloves		type - (see below)	
safety shoes		safety toed boots	X
Other:			

5.3 RESPIRATORY PROTECTION:

It is not anticipated that respiratory protection will be required to perform the scope of work. However if volatile organics are detected in excess of 10 ppm above background in the breathing zone, a half mask respirator fitted with organic vapor/acid gas/high efficiency particulate cartridges shall be used. If detector readings exceed 50 ppm, a half mask respiratory will be inadequate. Should this occur, all personnel will immediately stop operations, and move upwind of the source, and call the Site Safety and Health officer, Project Manager , and/or Corporate Health and Safety Officer.

5.4 HAZARD MONITORING:

Breathing zone monitoring will be conducted periodically using a PID. Due to the low risk level and the short duration of work, we do not anticipate the implementation of continuous hazard monitoring at the work site. The SSO will designate safe routes of travel during the installation to prevent trips and falls.

5.4.1 AIR MONITORING:

Calibration: All equipment calibrated proper to project start up and periodically during conductance of work

Routine Maintenance: See Maxim SOP's

Troubleshooting: See Maxim SOP's

Relative Responses:(see attached manual)

6.0 GROUNDWATER MONITORING

Shut down the remedial system if operating, according to operations and monitoring specifications, and allow sufficient time for the groundwater to recover. Locate and open all wells that need to be sampled or measured for depth to water or Liquid Petroleum Hydrocarbons (LPH). Measure depth to water or LPH by slowly lowering the probe down the well. When the probe signals contact with water or LPH, record the depth from the top of the casing. Decontaminate the probe using potable tap water, washing with Liquinox/water mixture, and rinsing with deionized water between each well. Calculate the amount of water that needs to be purged then evacuate the water using a dedicated disposable bailer and bailer cord. Allow the water level to recharge to within 80 percent of static before collecting a sample. Transfer the sample from the bailer to a laboratory-prepared glass sample jar for transport to the analytical laboratory. Fill the jar so there is no headspace. Cap the jar. Properly fill out the label and place the sample on ice for preservation. Record the sample point, who collected the sample, and the date and time of collection. Send the sample to the lab as soon as possible.

6.1 SAFETY AND HEALTH CONTROLS

6.2 REQUIRED PERSONAL PROTECTIVE EQUIPMENT

For the purposes of this job, level "D" protection (minimum) shall be used. Since the atmosphere contains no known hazard, no respiratory protection is being required. The following personal protective equipment (PPE) is required:

hard hat	X	harness	
safety glasses	X	coveralls:	
safety goggles		type	
outer gloves:	X	hearing protection	X
type-	laytex	respirator: if upgraded	(X)
liner gloves		type - (see below)	
safety shoes		safety toed boots	X
Other:			

6.3 RESPIRATORY PROTECTION:

It is not anticipated that respiratory protection will be required to perform the scope of work. However if volatile organics are detected in excess of 10 ppm above background in the breathing zone, a half mask respirator fitted with organic vapor/acid gas/high efficiency particulate cartridges shall be used. If detector readings exceed 50 ppm, a half mask respiratory will be inadequate. Should this occur, all personnel will immediately stop

operations, and move upwind of the source, and call the Site Safety and Health officer, Project Manager , and/or Corporate Health and Safety Officer.

6.4 HAZARD MONITORING:

Breathing zone monitoring will be conducted periodically using a PID. Due to the low risk level and the short duration of work, we do not anticipate the implementation of continuous hazard monitoring at the work site

6.4.1 AIR MONITORING:

Calibration: Calibrate all equipment prior to project start up and periodically during conductance of work

7.0 OPERATIONS AND MAINTENANCE

Check system operation status, and record vacuum on all wells and equipment. Inspect all equipment to assure that it is operating properly. Clean the Tray Stripper and check the oil water separator for proper operation. No PID measurements will be able to be collected on the system before the oil water separator, due to water flowing through the lines. Take depth to water or LPH measurements across the site. PID measurements will be collected at the stack, and an off-gas sample will be collected in a Tedlar bag and analyzed for the aromatic hydrocarbons benzene, toluene, ehtylbenzene and xylenes (BTEX) and GRO.

7.1 SAFETY AND HEALTH CONTROLS

Remedial system to be equipped with off-gas vapor controls. Monitoring of ambient air within remedial compound to be conducted with PID prior to entrance of the remedial compound.

7.2 REQUIRED PERSONAL PROTECTIVE EQUIPMENT

For the purposes of this job, level "D" protection (minimum) shall be used. Since the atmosphere contains no known hazard, no respiratory protection is being required. The following personal protective equipment (PPE) is required:

hard hat	X	harness	____
safety glasses	X	coveralls:	____
safety goggles	____	type	____
outer gloves:	X	hearing protection	X
type-	laytex	respirator: if upgraded	(X)
liner gloves	____	type - (see below)	
safety shoes	____	safety toed boots	X
Other:	_____		

7.3 RESPIRATORY PROTECTION:

It is not anticipated that respiratory protection will be required to perform the scope of work. However if volatile organics are detected in excess of 10 ppm above background in the breathing zone, a half mask respirator fitted with organic vapor/acid gas/high efficiency particulate cartridges shall be used. If detector readings exceed 50 ppm, a half mask respiratory will be inadequate. Should this occur, all personnel will immediately stop operations, and move upwind of the source, and call the Site Safety and Health officer, Project Manager , and/or Corporate Health and Safety Officer.

7.4 HAZARD MONITORING:

Breathing zone monitoring will be conducted periodically using a PID. Due to the low risk level and the short duration of work, we do not anticipate the implementation of continuous hazard monitoring at the work site

8.0 REQUIRED FIRST AID AND SAFETY EQUIPMENT:

fire extinguisher	_X_	eye wash station	____
------(Multi-Class)		two way radios	____
monitoring equipment:	_X_		
first aid kit	_X_		

9.0 DECONTAMINATION:

- An area shall be designated as the decontamination area. In this area, equipment decontamination prior to drill (auger, steam-cleaning), and removal and bagging of protective clothing, shall occur. All other portions of the site should be considered potentially contaminated, and the protective measures provided herein shall be used.

- Care should be taken not to contaminate the outside of the sampling containers. After labeling sampling containers, they should be immediately refrigerated, and readied for transport.

- All protective clothing should be rinsed with detergent and tap water immediately after use. Non-disposable clothing needs to be laundered separately after use.

- All exposed surfaces of the body (i.e. hands, arms, face should be washed with soap and water prior to eating, drinking or smoking.

10.0 TRAINING:

All Maxim personnel assigned to this project shall be qualified for working at hazardous waste sites. Qualification requires the following:

1. Successful completion of a 40 hour training program as required by 29 CFR 1910.120.

2. Successful completion of an 8 hour refresher training course in the past 12 months, provided the 40 hour training occurred over 12 months ago.

3. Successful completion of an 8 hour supervisor training course, for Maxim Managers.

4. Currently qualification to wear a respirator, in accordance with Maxim's Safety and Health Manual.

5. Received Hazard Communication training in accordance with Maxim's Safety and Health Manual.

11.0 MEDICAL SURVEILLANCE:

All Maxim personnel assigned to this project shall be enrolled in Maxim's Medical Surveillance Program. The program requires baseline (upon employment) and periodic (annual) examinations by a licensed physician. Records of these examinations are maintained at Maxim's corporate headquarters.

12.0 GENERAL SAFETY AND HEALTH REQUIREMENTS

- All Maxim personnel shall follow the corporate Health and Safety Manual, except where this site-specific Health and Safety plan conflicts, in which case this plan shall take precedence.

- Each day at the site a brief safety meeting should be held. At a minimum, the following information will be reviewed:

    - Work to be done
    - Basic/specific work procedures
    - Review of chemical/physical hazards

- No persons other than those pre-approved by the site Health and Safety Officer shall be allowed on the site during exploration activities.

- A minimum of two persons are required on-site when activities are taking place.

- No smoking, eating, drinking, or chewing gum or tobacco on site. Wash hands and face before engaging in these activities off-site.

- Avoid touching on-site materials, walking through known or suspected "hot zones" or contaminated puddles, kneeling or sitting on the ground, sitting or leaning against potentially contaminated equipment or machinery.

- All contractors or subcontractors shall contact the site Health and Safety Officer or project manager if any unsafe condition or practice occurs.

- Compliance with this Health and Safety Plan may be documented on a daily sign-off sheet.

13.0 SPILL CONTAINMENT PLAN:

Liquid hazardous wastes are not expected at these sites. However, should any contaminated water or soil have to be purged or excavated, it will be drummed until laboratory analysis is performed. Drums and handling of drums will be carried out by qualified personnel with proper equipment. Maxim Technologies, Inc. will ensure that:

1. Drums used meet appropriate DOT, WISHA, and EPA regulations;
2. Drums are inspected for integrity:
3. Drums are properly labeled with NFPA (4-part diamond) labels.

14.0 CONFINED SPACE ENTRY PLAN:

A confined space provides the potential for unusually high concentrations of contaminants, explosive atmopheres, limited visibility, and restriced movement. Background information and pre-entry site characterization indicate that confined space entry will not be a part of this project.

However, a cavity greater that four feet in depth may be considered a confined space under some circumstances. Maxim Technologies employees are not to enter such areas without following confined space entry guidelines. The guidelines for safe entry into, continued work in, and safe exit from confined spaces may be found in the Maxim Technologies, Inc. Health and Safety Manual for Safe Work Practices located at the Maxim Technologies, Spokane office. Additional information regarding confined space entry can be found in 29 CFR 1926; 29 CFR 1926-21; 29 CFR 1910 and NIOSH 80-106; WAC 296-62-145.

15.0 AUTHORIZATION

15.1 SITE SAFETY OFFICER (SSO):

The SSO has the authority to enforce all rules and regulations applicable to this project and to ensure Maxim policies and procedures are followed.

15.2 PROJECT MANAGER (PM):

The PM has the responsibility for making sure that all aspects of the Health and Safety Plan are reviewed prior to starting field activities.

15.3 SUBCONTRACTORS:

All subcontractors shall receive a copy of this plan. They shall in turn have their own site safety plan for their workers and provide their own protective equipment.

15.4 SIGNATURES

Site Safety Officer: _____

Project Manager: _____

Attachments: A: Routes of Exposure
B: Route to Hospital

ACKNOWLEDGEMENT FORM

I have read; I understand; and will abide by the rules established in the MAXIM Health and Safety Plan.

SIGNATURE	DATE
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

ATTACHMENT A - Routes of Exposure

A.1 Inhalation

Breathing a gas, vapor, mist, fume, or dust is the most common type of accidental exposure. Generally, respirators should be worn when activities that involve the generation of airborne particles or when organic vapors are suspected. It is the responsibility of the site H & S officer to determine where and when respirators will be worn (see Section 5.2).

A.2 Skin Absorption

Skin absorption is the second most common accidental means of entry of chemicals to the body. Avoid unnecessary contact with contaminated surfaces. All skin areas shall be protected when working with hazardous materials. Items to protect the skin may include: disposable tyvek suits, rubber boots, gloves and face shield.

After work is completed all protective equipment must be decontaminated or disposed of as hazardous waste.

A.3 Ingestion

Ingestion is a common route of chemical exposure. Thus, the following activities are prohibited on site within the primary work area: eating, drinking, smoking an chewing gum or tobacco.

A.4 Eye Contact

Most chemicals have the ability to injure the eye to some degree through surface contact or absorption. Appropriate safety goggles shall be worn on the site. Further, contact lenses are not allowed in work areas where hazardous chemicals are encountered. Cal/OSHA and WSHA (Washington) regulations do not allow contact lenses to be worn with a respirator.

APPENDIX C

OPERATIONS AND MAINTENANCE/

GROUNDWATER SAMPLING PLAN

OPERATIONS AND MAINTENANCE/ GROUNDWATER SAMPLING PLAN

TIME OIL PROPERTY No. 01-068 SUNNYSIDE, WA

Prepared for:

Mr. Scott Sloan
Time Oil Company
2737 West Commodore Way
Seattle, Washington 98199

Maxim Technologies Inc.®
111 E. Magnesium Road, Suite A
Spokane, WA 99208

January 21, 2000

OPERATIONS AND MAINTENANCE/ GROUNDWATER SAMPLING PLAN TABLE OF CONTENTS TIME OIL PROPERTY 01-068 SUNNYSIDE, WA

LIST OF FIGURES

LIST OF TABLES

SUMMARY

Maxim Technologies, Inc.® (Maxim) is pleased to submit an operations and maintenance/groundwater monitoring plan for Time Oil Company for the proposed remedial system at the subject property located at 107 West Lincoln Avenue and the Washington Hills Cellars property located to the east across First Avenue, in Sunnyside, Washington. The following report presents a focused plan for operations and maintenance and quarterly groundwater sampling activites.

The scope of work for this operations and maintenance/groundwater monitoring plan consists of the following:

- The purpose of this work plan is to provide a scope of work which is sufficient to allow reasonable interpretation of the effectiveness of the remedial system operation and evaluate through quarterly groundwater quality at the above referenced property.

- The scope of work for this plan consists of monitoring operational parameters of the remedial system, performing maintenance on the (tray stripper, catalytic oxidizer and regenerative blower), obtaining fluid level measurements in selected monitoring wells, and performing quantitative chemical analyses for hydrocarbons collected from samples at the off gas stack and from the knockout tank after passing through the tray stripper.

- The scope of work for the groundwater monitoring plan consists of obtaining fluid level measurements, collecting groundwater biological indicator parameters of pH, specific conductivity (SC), dissolved oxygen (DO), collecting groundwater samples and performing quantitative chemical analyses of groundwater samples collected from selected site monitoring wells for petroleum hydrocarbons.

1.0 SITE DESCRIPTION

Time Oil Co. Property No. 01-068 is located at 107 West Lincoln Avenue in Sunnyside, Washington. The property is located on the southwest corner of First Avenue and West Lincoln Street and consists of a convenience store (Valley View Market), one dispenser island, and two underground storage tanks (USTs) covered with a concrete slab. The property is a relatively level, irregular shaped parcel, approximately 1/3- acre in size that is bordered to the east by First Avenue, the south and west by single family housing, and north by West Lincoln Avenue. The property currently is an active convenience store and retail fuel facility. Time Oil Company has operated the UST system at the Valley View Market under a Special Purpose Agreement since 1972. The property is currently owned by another party, and there is no known history of gasoline storage or sales at the property prior to installation of the Time Oil Company UST system. A site vicinity map is presented as Figure 1 and site features are presented on Figure 2.

2.0 STATEMENT OF PURPOSE

The purpose of this work plan is to provide a scope of work which is sufficient to continue operations and maintenance of the remedial system and evaluate the effectiveness through quarterly groundwater monitoring at the subject site. Work accomplished at the property to date has characterized the subsurface geology, hydrogeology, extent and presence of petroleum hydrocarbons in the subsurface. This work plan is submitted to meet the requirements of WAC 173-340-410, which are applicable to this site.

3.0 SITE HISTORY

The following is a summary of the assessment activities as identified in the Alisto (June 1997) and Wohlers (October 1998) reports. Hydrocarbon contamination was first detected in September 1996 while Time Oil Company was installing cathodic protection at the site. During these activities, approximately two cubic yards of soil were excavated during the installation of the seven cathodic protection anodes. Analysis verified the presence of hydrocarbons at concentrations of 8.17 to 4050 milligrams per kilogram (mg/kg) in two samples taken from the excavated soil stockpile. Benzene, toluene, ethylbenzene, and total xylenes (BTEX) were detected at concentrations of 2.27, 31.2, 37.5 and 242 mg/kg, respectively in one of the soil samples. The other sample did not contain concentrations above the laboratory detection limits.

Alisto performed initial site assessment activities at the site between February and March 1997. These activities included a drivepoint assessment consisting of a total of 16 borings both onsite and to the east within the First Street right-of -way. In two of the borings, one-inch diameter vapor monitoring points (VP-1 and VP-2) were completed for future remedial work. During this initial phase of the assessment, light non-aqueous phase liquid (LNAPL) was encountered in drive points DP-5 and DP-6, both driven on the subject site. Based on the drivepoint assessment, a total of eight monitoring wells were installed, five within the service station property and three on the east side of First

Street. Monitoring wells MW-3, MW-4 and MW-5 were completed as 4-inch diameter wells and wells MW-1, MW-2, MW-6, MW-7 and MW-8 were completed as 2-inch diameter monitoring wells.

During groundwater monitoring performed in March of 1997, groundwater was determined to flow from the property in a southeasterly direction under an apparent hydraulic gradient of 0.07 ft/ft. Groundwater containing dissolved hydrocarbons in excess of the Model Toxics Control Act (MTCA) Method A levels were found in wells MW-3, MW-4, MW-5 and MW-6. Remedial testing was also conducted in March 1997 which consisted of an aquifer bail down test and vapor extraction testing. The bail down testing indicated an average groundwater flow velocity of 37.20 feet per year beneath the site. Vacuum test determined that a radius of influence of 21 to 25 feet was obtainable at 46 inches of water and 18 cubic feet per minute (cfm) flow. Air samples collected during the vapor extraction tests on wells MW-3 and MW-4 contained concentrations of total non-methane hydrocarbons (TNMH) of 4,600 and 450 parts per million per unit volume (ppmv), respectively. BTEX compounds at concentrations of 57, 100, 15 and 62 ppmv, respectively were detected in the air sample from MW-3. Only benzene and toluene were detected in the sample from MW-4 at concentrations of 15 and 16 ppmv, respectively.

In August 1997, a soil vapor extraction system was installed at the site and was connected through a manifold to MW-3, MW-4, MW-5 and VP-2. A Rotron EN 707 regenerative blower was installed near the southeastern corner of the site structure to withdraw vapors from the wells. The extracted vapors were initially discharged without treatment but were later being treated prior to discharge using Granulated Activated Carbon (GAC).

In June and July of 1998, Wholers Environmental conducted additional assessment activities at the site. Drivepoint sampling was attempted on the Washington Hills Cellars property in June, but due to impenetrable soil conditions the probe could only penetrate a few feet below the ground surface. Eleven soil borings were advanced in July on the Washington Hills Cellars property to depths of 25 to 30-feet below ground surface or approximately 3 to 5-feet below the groundwater table. In each of the borings, temporary well points consisting of 1-inch diameter PVC were installed. Groundwater samples were collected from each of the well points, following which the well points were abandoned by removing the casing and grouting the holes. Elevated TPH-G and BTEX concentrations above MTCA Method A cleanup levels for groundwater were observed in the groundwater sample from boring B-1. Concentrations of at least one of the BTEX compounds were detected in groundwater samples from borings B-2, B-3, B-4, B-5 and B-9 with benzene concentrations in excess of MTCA Method A cleanup levels in the samples from B-2 and B-9. TPH-G/BTEX compounds were not detected in the samples from borings B-8, B-10 and B-11.

Based on the analytical results obtained from the well points, four monitoring wells were installed on the Washington Hills Cellars property in August of 1998. Well MW-9 was constructed as a 4-inch diameter well and MW-10, MW-11 and MW-12 were constructed as 2-inch wells. LNAPL was not measured in any of these wells. Elevated TPH-G and BTEX compound concentrations of 22,000, 4,300, 5,300, 310 and 2,100 parts per billion

(ppb), respectively were observed in the groundwater sample collected from well MW-9. Detectable concentrations of toluene below MTCA Method A cleanup levels for groundwater were observed in the samples from wells MW-10 and MW-11, all other BTEX and TPH-G compounds were below detection limits for these samples. TPH-G/BTEX compounds were not detected in the sample from well MW-12.

Quarterly groundwater monitoring has been conducted at the site since the assessment activities were initiated. LNAPL up to 0.25 feet thick has been gauged in wells MW-4 and MW-6 several times. The groundwater plume, which has been estimated to be approximately 275 feet long and 80 feet wide, crosses beneath First Avenue onto the Washington Hills Cellar property. The groundwater appears to have been flowing consistently in a southeasterly direction. A groundwater contour map from October 1999 is presented as Figure 3.

4.0 REGIONAL GEOLOGY & HYDROGEOLOGY

The site resides at an elevation of approximately 760-feet above mean sea level (MSL) on the southern flank of Harrison Hill within the northwest portion of the Yakima Fold Belt Subprovince of the Columbia Plateau. The Yakima Fold Belt Subprovince consists of a series of Miocene age northeast to southwest trending low anticlinal ridges. Subsurface soils in the vicinity of the site consist of late Pliocene lacustrine (lake) deposits consisting of up to a 90-foot thickness of interbedded silt and fine-grained sands. The lacustrine deposits were lain down during catastrophic flooding related to the Lake Missoula floods. Loessal deposits of wind blown glacial erosion sediments may be also have been deposited in the vicinity of the site.

The lacustrine deposits are overlain by the Snipes Mountain Conglomerate which occurs as a series of linear channels representing the historic course of the Columbia River before diversion to its current location. The channels extend from the Sunnyside Gap southwesterly towards Goldendale. The Snipes Mountain Conglomerate ranges from 90 to 450-feet in thickness, overlying the Wanapum Basalt of the Columbia River Basalt Group (CRBG). The unconsolidated deposits overlying the CRBG reach thicknesses of up to 2,000-feet.

The unconsolidated sediments and the CRBG host regional aquifer systems and are a major source of water to the Sunnyside area. The unconsolidated sediments are more important sources of groundwater than the basalt in areas where the deposit is of substantial thickness. The basalt flows are a multilayered aquifer system with major aquifers located within the basalt 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. Locally, shallow perched aquifers exist. In the vicinity of the subject site, the shallow aquifer beneath the site occurs at a depth of approximately 25 feet below grade.

Historical groundwater management indicates the shallow groundwater beneath the site flows in a southwesterly direction.

5.0 SITE SPECIFIC CONDITIONS

Currently, the site consists of sixteen groundwater monitoring wells and one air sparge well. Quarterly fluid level measurements have been collected in monitoring wells MW-1 through MW-8 since March 1997, wells MW-9, MW-11, and MW-12 since August 1998, well MW-10 since October 1998, and wells MW-13 through MW-16 were installed by Maxim in April 1999. Monitoring wells MW-3, MW-4, MW-5, and MW-9 are the only four-inch wells on site, all other wells are 2-inch. Light non-aqueous phase liquid (LNAPL) is presently observed in wells MW-4, MW-5, MW-6, MW-9, and MW-13 at respective levels of 0.38, 0.59, 0.54, 0.54, and <0.01. A summary of groundwater measurements collected at the site is presented in Table 1.

Four additional monitoring wells are to be installed at the site. Of the four wells, two will be utilized in the remedial system and the other two used as groundwater monitoring wells. The two groundwater monitoring wells will be included into the quarterly groundwater monitoring program upon installation.

A historical summary of analytical test results performed on groundwater collected by Maxim and previous consultants are also presented in Table 1. Maxim has been performing the quarterly sampling the site since April 1999. All wells were sampled for BTEX and TPH-G except SW-1 and wells containing LNAPL.

6.0 PROPOSED OPERATIONS AND MAINTENANCE PLAN

6.1 Work To Be Performed

Remedial activities to mitigate hydrocarbons in soil and groundwater will occur on the subject site and the WHC property located across First Avenue. The remedial compound will be located in the western section of the WHC property (Figure L1). Currently 15 monitoring wells are located on the two properties. An additional 2 monitoring wells and 7 recovery wells will be installed at the site.

Maxim field personnel will perform the following operations & maintenance on the remedial system on site, a proposed operations and maintenance schedule is presented as Figure 5:

1. Arrive on site and check the integrity of the remedial compound.
2. Check and record the status of operating equipment.
3. Record reading from total system hour meter.
4. Record applied vacuum at the system knock out tank and vacuum for individual wells at the system manifold within the remedial compound.

5. Inspect the catalytic oxidizer and record all measurements associated with the vapor treatment system.
6. Measure and record vapor concentrations using a photo ionization detector (PID) at the individual wells prior to entering the catalytic oxidizer and at the off gas stack. Due to water being drawn through the system, the air samples collected at the wells must be drawn into a tedlar bag via a vacuum pump then measured with the PID.
7. Measure and record airflow velocities at the off gas stack.
8. Collect a total system effluent vapor sample prior to catalytic oxidizer and at the off gas stack.
9. Record the current reading on the MSA LEL meter located on the off gas stack, and recalibrate.
10. Inspect the operating parameters of the oil/water separator, tray stripper, and product holding tank. Record all applicable data.
11. Record the number of gallons discharged from the tray stripper.
12. Manually trigger the batch tank pump, initiating the tray stripper sequence. Open and check the tray stripper to assure it is functioning properly. Approximately half way through the sequence collect an effluent water sample from the discharge port into two laboratory prepared sample jars. Place the water samples on ice to preserve sample integrity.
13. The remedial system operations and maintenance shall be performed daily for the first week of operation, weekly for the first month, then monthly for 12 months and quarterly thereafter. The remediation system monitoring schedule is attached as Figure 4.
14. Measure groundwater levels in monitoring wells MW-3, MW-6, and MW-15. If LNAPL is present use an oil/water interface probe to measure LNAPL thickness. Adjust bioslurping stinger heights to correspond with changing water levels in the recovery wells.
15. Shut down the remedial system and perform maintenance on the tray stripper and blower as per the manufacture specifications.
16. Turn the remedial system back on, close, and lock the site.

6.2 Reporting Requirements

All analytical testing results will be reported in the following manner:

1. Copies of all data sheets received from the laboratory will be submitted in the report. This includes all chromatograms, and data showing any QA/QC analysis run by the laboratory.
2. All data will be presented in tables and graphically showing concentrations over time.
3. The most recent sampling and analysis shall be presented each quarter as received from the lab as stand alone documents.
4. A brief report explaining the procedures used, anything unusual noted during sampling, the condition of the remedial system and each well. The discussion

of the data will be submitted within 45 days of each operations and maintenance event.

5. Reports will be submitted quarterly for the duration of the remediation project.

6.3 Groundwater Measurements, Air and Water Sampling

Locate and open all wells that need to be measured for depth to water or LNAPL. Measure depth to water or LNAPL by slowly lowering the probe down the well. When the probe signals contact with water or LNAPL, record the depth from the top of the casing. To obtain a LNAPL thickness, continue to lower the probe down the well until the signal changes to an intermittent signal, then record the depth to water from the top of the well casing. Decontaminate the probe using potable tap water, washing with Liquinox/water mixture, and rinsing with deionized water between each well. The interface probe will only be used in wells known to contain, or have contained LNAPL.

All water samples will be collected in laboratory prepared glass sample jars and stored in a cooler chilled to 4 degrees Centigrade for shipping under standard chain of custody procedures. Each shipment will include a completed chain of custody form, a copy of which is presented in Figure 4. The samples will be shipped via express air courier to arrive at North Creek Analytical of Bothell, Washington within 24 hours of sampling. All samples will be extracted and analyzed in accordance with EPA approved holding times for the specific analyses assigned.

In order to collect a water sample from the remedial system, Maxim personnel will manually trigger the batch tank pump, initiating the tray stripper sequence. Approximately half way through the sequence, a water sample will be collected from the discharge port into two laboratory prepared sample jars. The water samples will be placed on ice to preserve sample integrity during shipping to North Creek Analytical of Bothell, Washington. The frequency for sampling the discharge water will be:

Daily for the first five days of operation,
Weekly for one month,
Monthly for one year;
Quarterly thereafter.

A quarterly discharge report will be written and submitted to the City of Sunnyside and Ecology. Discharge levels will be set in accordance with the Level 1 criteria for industrial wastewater discharge.

Air samples will be collected using Suma® canisters. After the Suma® canisters contain the vapor stream, they will be properly labeled and placed in a box for shipping. Each shipment will include a completed chain of custody form. The samples will be shipped via express air courier to Performance Analytical in Sima Valley, California within 24 hours of sampling. All samples will be extracted and analyzed in accordance with EPA approved holding times for the specific analyses assigned.

Sampling and analyses events are scheduled to start immediately after start up of the remedial system (estimated between April and May 2000) and continue until remediation of soil and groundwater is completed.

6.4 Purge Water Storage and Disposal

All purge and development water generated during the operation of the remedial system will be run through an oil/water separator to remove any LNAPL. The water will then be routed into a batch tank until sufficient water accumulates to trigger a pumping cycle. After the pumping cycle is activated, the batch tank water will be run through a tray stripper and discharged into the City of Sunnyside's sanitary sewer system. A sample will be collected to verify that hydrocarbons had been volatilized and sample results remain below permit criteria.

6.5 Quantitative Analyses

Water samples collected from the remedial system will be analyzed for petroleum hydrocarbons using the WTPH-G method (detection limit of <50.0 ug/L) for determining TPH gasoline concentrations and EPA Method 8021B for determining aromatic hydrocarbons benzene, toluene, ethylbenzene, and total xylenes (BTEX) with respective detection limits of <0.500, <0.500, <0.500 and <1.00 ug/L. Lead and pH samples will be collected and analyzed by the respective analytical methods of ICPMS 6020 (detection limit of 1.0ug/L) and 150.1 (with a range of 1 - 14). All air samples collected will be analyzed for total non-methane hydrocarbons gasoline (TNPHG) hydrocarbon speciation by EPA test method TO12 and 14. All samples will be extracted and analyzed in accordance with EPA approved holding times for the specific analyses assigned.

7.0 PROPOSED SAMPLING PLAN

7.1 Work To Be Performed

Field sampling of the pre-determined monitoring wells on the proposed groundwater monitoring schedule, located as Figure 6, will consist of the following:

1. Obtaining water level measurements in each of the wells accurate to one one-hundredth of an inch (0.01 inch).
2. Evaluating each well to determine the integrity of the well seal and cap to insure no contamination will enter the well from the surface.
3. Utilizing an oil water interface probe to determine if LNAPL is present within the wells.
4. Obtain a representative water sample from the selected wells for analytical testing.
5. Use field equipment to determine the concentrations of DO, SC, pH, and temperature in the groundwater sampled.
6. Analytes to be tested include BTEX and TPH-G. The analysis shall be conducted through North Creek Analytical of Bothell, Washington.

7. All analytical results will be reported in micrograms per liter (ppb).
8. A water table contour map shall be prepared and submitted showing groundwater elevations and flow directions after each sampling event.
9. Wells to be sampled include MW-1 through MW-16 and the two new well to be completed.
10. The wells shall be sampled once every three months (quarterly) until analytes measured reach MTCA Method A cleanup levels. The schedule for sampling is attached as Figure 4.
11. All monitoring wells constructed at the site shall be maintained in good condition as per the standards established in WAC 173-160.

7.2 Reporting Requirements

All analytical testing results will be reported in the following manner:

1. Copies of all data sheets received from the laboratory will be submitted in the report. This includes all chromatograms, and data showing any QA/QC analysis run by the laboratory.
2. All data will be presented in tables and graphically showing concentrations over time.
3. The most recent sampling and analysis shall be presented each quarter as received from the lab as stand alone documents.
4. A brief report explaining the procedures used, anything unusual noted during sampling, the condition of each well and discussion of the data will be submitted within 45 days of each sampling event.
5. Reports will be submitted quarterly for the duration of the remediation project.

7.3 Groundwater Measurements and Sampling

Shut down the remedial system if operating, according to operations and maintenance specifications, and allow sufficient time for the groundwater to recover. Locate and open all wells that need to be sampled or measured for depth to water or Liquid Petroleum Hydrocarbons (LNAPL). Measure depth to water or LNAPL by slowly lowering the probe down the well. When the probe signals contact with water or LNAPL, record the depth from the top of the casing. Decontaminate the probe using potable tap water, washing with Liquinox/water mixture, and rinsing with deionized water between each well.

Prior to sampling, approximately 3 casing volumes of water will be removed from each well and the water level allowed to recharge to within 80 percent of static before a sample is collected. Groundwater samples will be collected by hand bailing, via a disposable bailer, and transferred from the bailer into a laboratory prepared glass sample jars for transport to the analytical laboratory. All well purging and groundwater sampling will be performed using a new, polyethylene bailer and bailer cord dedicated to each well. Monitoring wells containing LNAPL will not be sampled for groundwater analysis, but samples of LNAPL may be collected for fuel fingerprint analyses.

All groundwater samples collected will be transferred to laboratory prepared glass sample jars and stored in a cooler chilled to at least 4 degrees Centigrade for shipping under standard Maxim chain of custody procedures. Each shipment will include a completed chain of custody form, a copy of which is presented in Figure 4. The samples will be shipped via express air courier to arrive at North Creek Analytical of Bothell, Washington within 24 hours of sampling. All samples will be extracted and analyzed in accordance with EPA approved holding times for the specific analyses assigned.

Groundwater sampling and analyses events are scheduled to start in October 1999 and continue until analytes sampled reach MTCA Method A cleanup levels

7.4 Purge Water Storage and Disposal

All purge and development water generated during these sampling events will be stored on-site in clearly labeled and marked 55-gallon storage drums. While on site, purge water will be sparged within the drum with a Rotron 101 regenerative blower. Upon completion of sparging activities, a sample would be collected to verify that hydrocarbons had been volatilized. After receiving sample results below MTCA Method A cleanup levels, the purge water will be used for on-site irrigation.

7.5 Quantitative Analyses

Groundwater samples collected from the monitoring wells will be analyzed for petroleum hydrocarbons using the WTPH-G method for determining TPH gasoline concentrations and EPA Method 8020A procedure for determining aromatic hydrocarbons benzene, toluene, ethylbenzene, and total xylenes (BTEX).

Approximately ten percent of the samples submitted for analysis will include duplicate samples which would be analyzed to evaluate the performance of the laboratory. In addition to the duplicate, a standard laboratory method blank will be submitted for analysis. Method detection limits for the analyses will be at least as stringent as the MTCA Method A cleanup levels for the analytes being tested.

8.0 CONCLUSION

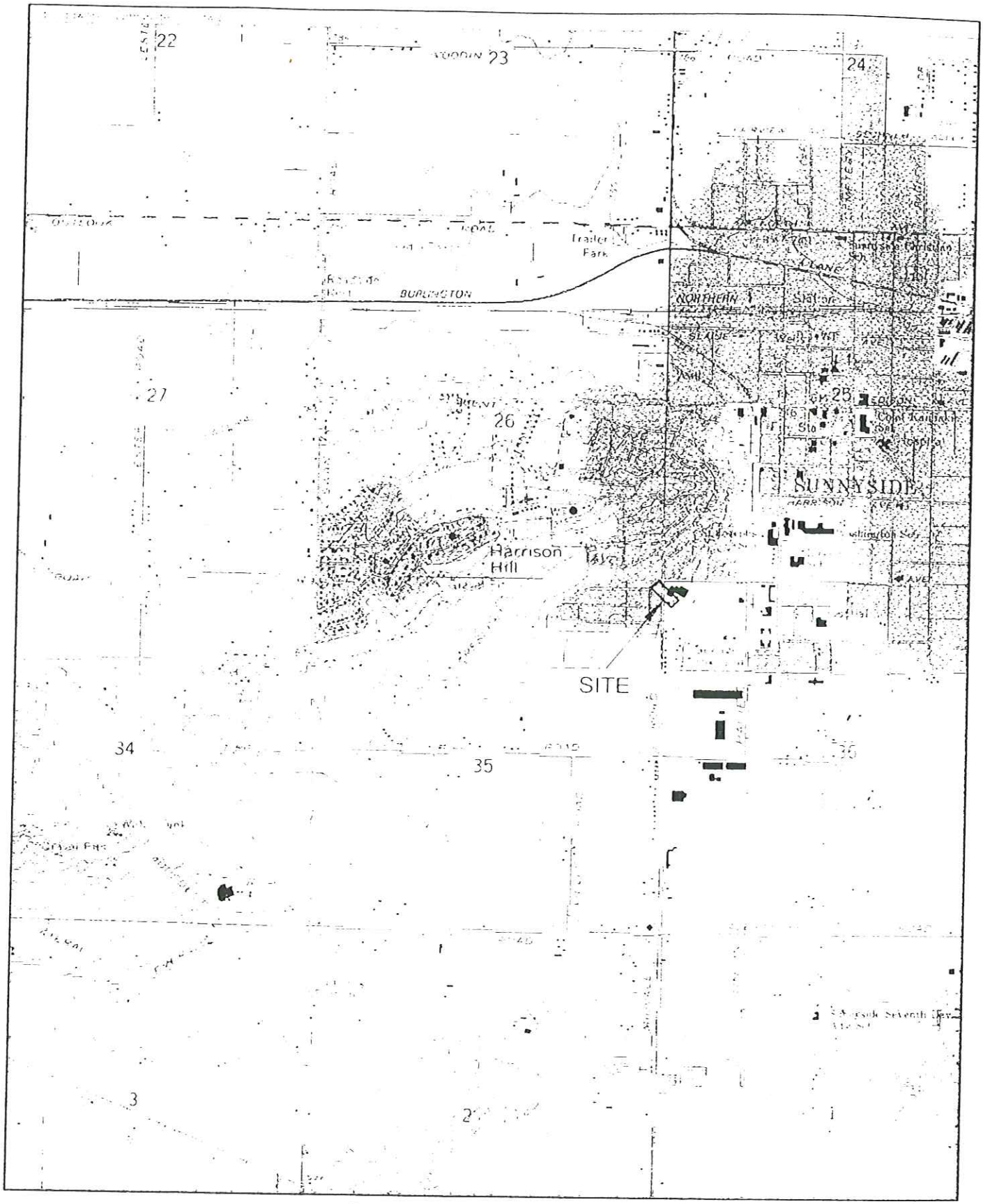
This report has been prepared for the exclusive use of the Time Oil Company and their agents for specific application to this project site in accordance with generally accepted environmental assessment practices and the constraints of our approved scope of work. No other warranty, express or implied 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.

We appreciate the opportunity to be of continued service to the Time Oil, Company. Should you have any questions regarding this operations and maintenance/groundwater monitoring plan or other aspects of this project, please do not hesitate to call us at your earliest convenience.

Respectfully submitted,
MAXIM Technologies, Inc.®

Mark Engdahl
Geologist

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



From USGS 7.5' Sunnyside, WA Quad

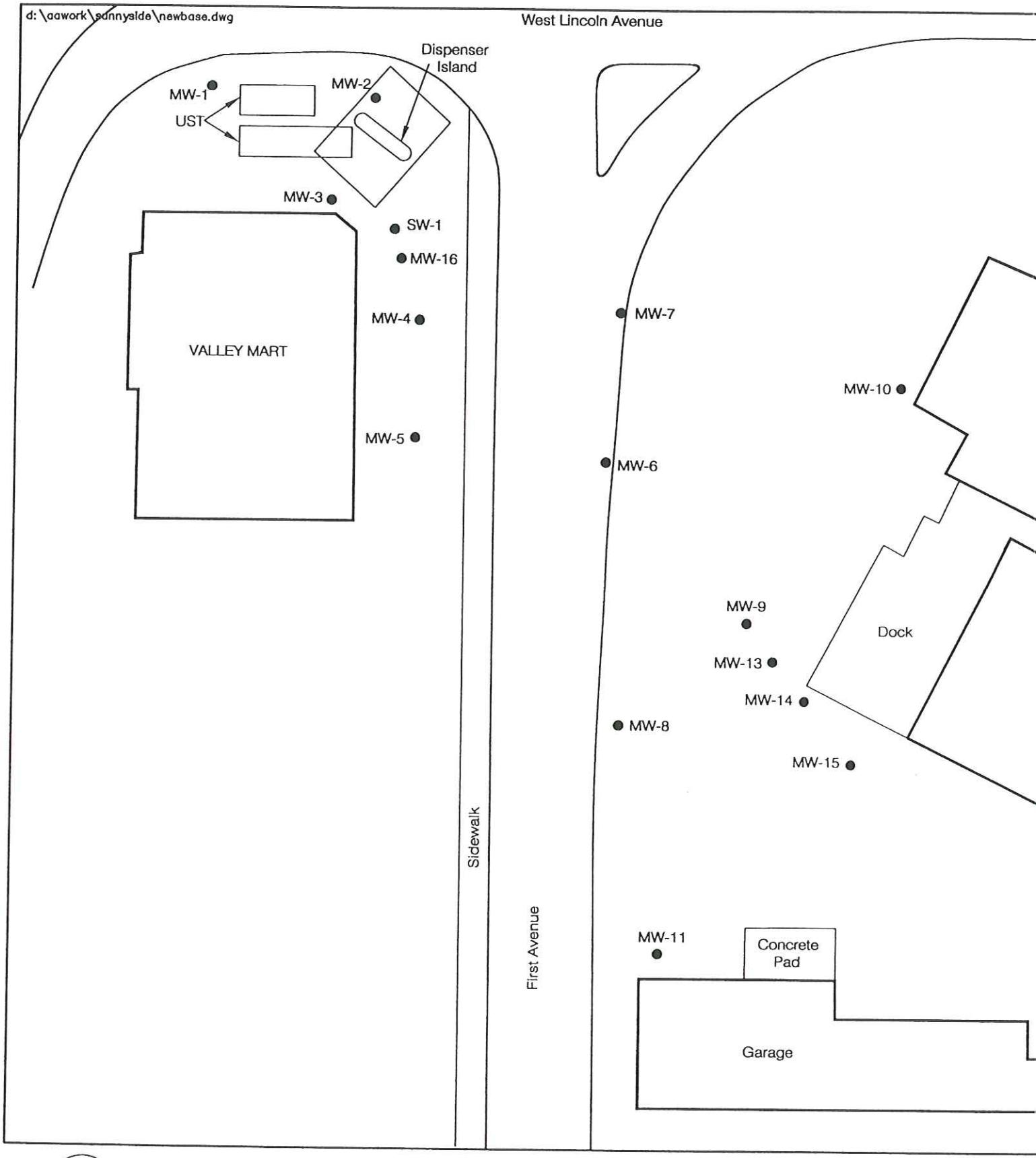
April 1999

N

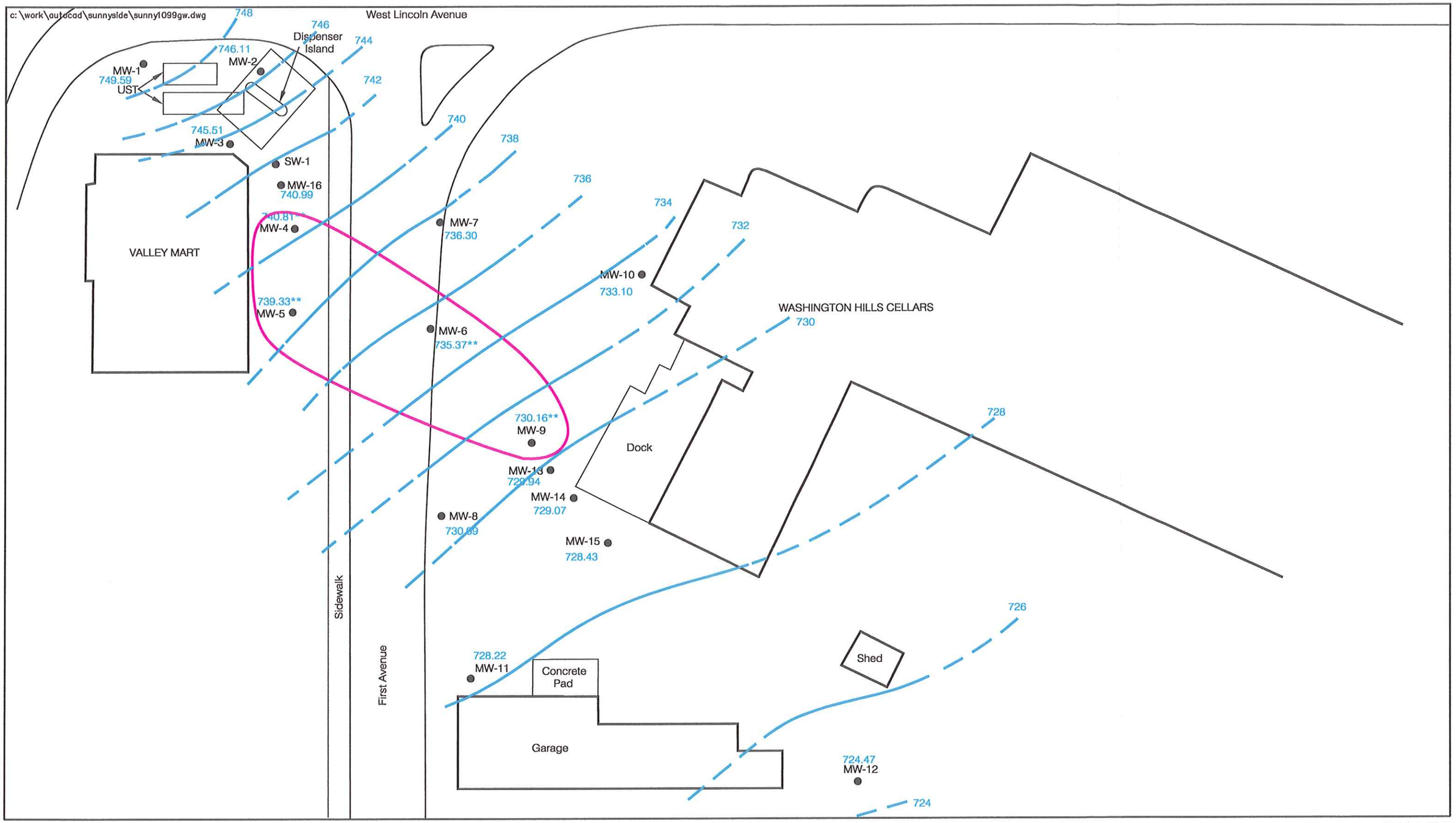
0 Feet 2000

MAXIM 9904808

Site Vicinity Map
Time Oil Facility No. 01-068
Sunnyside, Washington
FIGURE 1



MAXIM 9904808



October 1999

N

0 Feet 40

MAXIM 9904808

** Not Used for Contouring Due to Presence of LNAPL

● Monitoring Well

ND Not Detected at Laboratory Reporting Limit

53.03 Groundwater Elevation above Mean Sea Level (feet)

Equipotential Line

Estimated extent of LPH plume

Groundwater Elevation Map
Time Oil Facility 01-068
Sunnyside, Washington
FIGURE 3

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

939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (425) 420-9200 FA J-9210
East 11115 Montgomery, Suite B, Spokane, WA 98206-4776 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 906-9200 FAX 906-9210
20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711 (541) 383-9310 FAX 382-7588

FIGURE 4

CHAIN OF CUSTODY REPORT

Work Order #:

CLIENT:

REPORT TO:

ADDRESS:

PHONE: FAX:

INVOICE TO:

P.O. NUMBER:

PROJECT NAME:

PROJECT NUMBER:

SAMPLED BY:

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	MATRIX (W, S, O)	# OF CONT.	COMMENTS	NCA WO ID
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

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

ADDITIONAL REMARKS:

TEMP:

COC REV 3/99

PAGE OF

FIGURE 5
TIME OIL PROPERTY # 01-068
Sunnyside, WA
Remedial System Monitoring Schedule

FIRST YEAR OF OPERATION

									2000	2001			
Month	May	June	July	August	September	October	November	December	January	February	March	April
O & M													
Reporting													

REMAINDER OF SYSTEM OPERATION

									2001	2002			
Month	May	June	July	August	September	October	November	December	January	February	March	April
O & M													
Reporting													

Note:

- Daily monitoring for the first 5 days of operation, weekly for 1 month.
- Monthly monitoring for the first year of system operation.
- Quarterly for the remainder of system operation.
- Quarterly reporting.

FIGURE 6
TIME OIL PROPERTY # 01-068
Sunnyside, WA
Groundwater Monitoring Schedule

MONTH	OCTOBER	NOVEMBER	JANUARY	FEBRUARY	APRIL	MAY	JULY	AUGUST
SAMPLING								
REPORTING								

TABLE 1
Time Oil Property # 01-068
Sunnyside, Wa

Well ID	DATE	TOC *(feet)	DTW *(feet)	TWD *(feet)	PRODUCT THICKNESS *(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	03/13/97	760.28	10.79	25	NM	749.49	-	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-1	06/12/97	760.28	10.86	25	NM	749.42	-0.07	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-1	09/16/97	760.28	10.90	25	NM	749.38	-0.04	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-1	12/16/97	760.28	10.63	25	NM	749.65	0.27	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-1	04/07/98	760.28	12.50	25	NM	747.78	-1.87	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-1	07/02/98	760.28	11.69	25	NM	748.59	0.81	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-1	08/28/98	760.28	10.98	25	NM	749.30	0.71	-	-	-	-	-	-
MW-1	10/21/98	760.28	10.63	25	NM	749.65	0.35	<0.500	<0.500	<0.500	<1.50	<250	-
MW-1	01/27/99	760.28	12.36	25	NM	747.92	-1.73	<0.500	<0.500	<0.500	<1.50	<100	-
MW-1	04/14/99	760.28	13.47	25	NM	746.81	-1.11	<0.500	<0.500	<0.500	<1.00	<0.500	NCA
MW-1	07/07/99	760.28	11.95	25	NM	748.33	1.52	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-1	10/25/99	760.28	10.69	25	NM	749.59	1.26	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-1	01/18/00	760.28	12.37	25	NM	747.91	-1.68	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-2	03/13/97	759.43	12.54	25	NM	746.89	-	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-2	06/12/97	759.43	12.78	25	NM	746.65	-0.24	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-2	09/16/97	759.43	12.00	25	NM	747.43	0.78	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-2	12/16/97	759.43	12.62	25	NM	746.81	-0.62	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-2	04/07/98	759.43	14.48	25	NM	744.95	-1.86	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-2	07/02/98	759.43	14.04	25	NM	745.39	0.44	<0.500	<0.500	<0.500	<1.00	<250	SA
MW-2	08/28/98	759.43	13.32	25	NM	746.11	0.72	-	-	-	-	-	-
MW-2	10/21/98	759.43	13.09	25	NM	746.34	0.23	<0.500	<0.500	<0.500	<1.5	<250	SA
MW-2	01/27/99	759.43	14.60	25	NM	744.83	-1.51	<0.500	<0.500	<0.500	<1.5	<100	SA
MW-2	04/14/99	759.43	15.76	25	NM	743.67	-1.16	<0.500	<0.500	<0.500	1.48	<50.0	NCA
MW-2	07/07/99	759.43	14.64	25	NM	744.79	1.12	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-2	10/25/99	759.43	13.32	25	NM	746.11	1.32	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-2	01/18/00	759.43	14.71	25	NM	744.72	-1.39	<0.500	<0.500	<0.500	<1.00	<50.0	NCA

TABLE 1
Time Oil Property # 01-068
Sunnyside, Wa

Well ID	DATE	TOC *(feet)	DTW *(feet)	TWD *(feet)	PRODUCT THICKNESS *(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-3	03/13/97	758.11	11.81	25	NM	746.30	-	985	2,410	384	1,540	12,900	NCA
MW-3	06/12/97	758.11	13.04	25	NM	745.07	-1.23	553	1,240	159	1,190	4,430	NCA
MW-3	09/16/97	758.11	11.30	25	NM	746.81	1.74	1,670	5,230	706	1,040	36,800	NCA
MW-3	12/16/97	758.11	11.78	25	NM	746.33	-0.48	1,210	5,500	1,010	5,190	28,300	NCA
MW-3	04/07/98	758.11	13.68	25	NM	744.43	-1.90	55	50.9	94	120	1,300	NCA
MW-3	07/02/98	758.11	13.27	25	NM	744.84	0.41	38	90	23	180	2,000	SA
MW-3	08/28/98	758.11	12.44	25	NM	745.67	0.83	-	-	-	-	-	-
MW-3	10/21/98	758.11	12.38	25	NM	745.73	0.06	24	510	250	820	5,600	SA
MW-3	01/27/99	758.11	13.81	25	NM	744.30	-1.43	3.80	1.80	17	8.50	370	SA
MW-3	04/14/99	758.11	14.91	25	NM	743.20	-1.10	0.542	0.598	<0.500	1.57	59.4	NCA
MW-3	07/07/99	758.11	13.81	25	NM	744.30	1.10	14.4	3.58	19.9	26.9	269	NCA
MW-3	10/25/99	758.11	12.60	25	NM	745.51	1.21	26.4	45.1	259	624	4210	NCA
MW-3	01/18/00	758.11	13.97	25	NM	744.14	-1.37	<0.500	<0.500	0.535	2.1	103	NCA
MW-4	03/13/97	756.89	14.75	25	0.00	742.14	-	19,000	29,900	2,330	1,210	122,000	NCA
MW-4	06/12/97	756.89	15.89	25	0.30	741.26	-0.88	-	-	-	-	-	NCA
MW-4	09/16/97	756.89	14.73	25	0.00	742.16	0.90	26,700	35,100	2,530	15,900	185,000	NCA
MW-4	12/16/97	756.89	15.22	25	0.00	741.67	-0.49	20,900	25,300	1,610	12,200	149,000	NCA
MW-4	04/07/98	756.89	15.59	25	0.30	741.56	-0.12	-	-	-	-	-	-
MW-4	07/02/98	756.89	16.47	25	Trace	740.42	-1.13	-	-	-	-	-	-
MW-4	08/28/98	756.89	16.09	25	0.02	740.82	0.40	-	-	-	-	-	-
MW-4	10/21/98	756.89	16.18	25	Trace	740.71	-0.11	-	-	-	-	-	-
MW-4	01/27/99	756.89	17.04	25	0.01	739.86	-0.85	-	-	-	-	-	-
MW-4	04/14/99	756.89	17.87	25	0.03	739.05	-0.81	-	-	-	-	-	NCA
MW-4	07/0799	756.89	17.56	25	0.38	739.65	0.61	-	-	-	-	-	NCA

TABLE 1
Time Oil Property # 01-068
Sunnyside, Wa

Well ID	DATE	TOC *(feet)	DTW *(feet)	TWD *(feet)	PRODUCT THICKNESS *(feet)	GWE (b) *(feet)	CHANGE IN ELEVATION *(feet)	B ug/l	T ug/l	E ug/l	X ug/l	TPH-G ug/l	LAB
MW-4	10/25/99	756.89	16.42	25	0.40	740.81	1.16	-	-	-	-	-	-
MW-4	01/18/00	756.89	17.85	25	0.70	739.64	-1.17	-	-	-	-	-	-
MW-5	03/13/97	755.81	14.84	25	0.00	740.97	-	940	23,500	1,960	9,950	100,000	NCA
MW-5	06/12/97	755.81	15.76	25	0.00	740.05	-0.92	16,300	32,100	1,190	8,200	114,000	NCA
MW-5	09/16/97	755.81	15.18	25	0.00	740.63	0.58	17,300	38,500	2,440	14,800	174,000	NCA
MW-5	12/16/97	755.81	15.57	25	0.00	740.24	-0.39	18,900	46,900	2,660	16,900	89,000	NCA
MW-5	04/07/98	755.81	16.75	25	0.00	739.06	-1.18	9,900	32,900	2,128	12,000	151,000	NCA
MW-5	07/02/98	755.81	16.60	25	0.00	739.21	0.15	13,000	43,222	27,000	20,000	93,000	SA
MW-5	08/28/98	755.81	16.23	25	0.00	739.58	0.37	-	-	-	-	-	-
MW-5	10/21/98	755.81	16.56	25	0.01	739.26	-0.32	-	-	-	-	-	-
MW-5	01/27/99	755.81	17.37	25	Trace	738.44	-0.82	-	-	-	-	-	-
MW-5	04/14/99	755.81	18.38	25	0.33	737.71	-0.73	-	-	-	-	-	-
MW-5	07/07/99	755.81	17.98	25	0.59	738.33	0.62	-	-	-	-	-	-
MW-5	10/25/99	755.81	16.84	25	0.42	739.33	1.00	-	-	-	-	-	-
MW-5	01/18/00	755.81	18.22	25	0.77	738.24	-1.08	-	-	-	-	-	-
MW-6	03/13/97	753.81	15.97	25	0.00	737.84	-	33,900	27,100	1,860	10,200	108,000	NCA
MW-6	06/12/97	753.81	17.10	25	0.18	736.86	-0.98	-	-	-	-	-	NCA
MW-6	09/16/97	753.81	16.67	25	0.00	737.14	0.28	66,500	91,300	9,880	64,500	893,000	NCA
MW-6	12/16/97	753.81	17.06	25	0.00	736.75	-0.39	6,630	65,600	3,500	22,800	265,000	NCA
MW-6	04/07/98	753.81	17.92	25	0.18	736.04	-0.71	-	-	-	-	-	NCA
MW-6	07/02/98	753.81	18.46	25	0.25	735.56	-0.48	-	-	-	-	-	SA
MW-6	08/28/98	753.81	18.09	25	0.18	735.87	0.31	-	-	-	-	-	-
MW-6	10/21/98	753.81	18.17	25	0.02	735.66	-0.22	-	-	-	-	-	-
MW-6	01/27/99	753.81	18.84	25	0.09	735.05	-0.61	-	-	-	-	-	-
MW-6	04/14/99	753.81	19.19	25	0.00	734.62	-0.43	53,100	50,000	3,180	19,300	212,000	NCA
MW-6	07/07/99	753.81	19.39	25	0.54	734.88	0.26	-	-	-	-	-	-

TABLE 1
Time Oil Property # 01-068
Sunnyside, Wa

Well ID	DATE	TOC *(feet)	DTW *(feet)	TWD *(feet)	PRODUCT THICKNESS *(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-6	10/25/99	753.81	19.57	25	1.33	735.37	0.49	-	-	-	-	-	-
MW-6	01/18/00	753.81	20.11	25	1.59	735.05	-0.32	-	-	-	-	-	-
MW-7	03/13/97	755.44	16.64	25	NM	738.80	-	0.793	0.685	<0.500	<1.00	<80.0	NCA
MW-7	06/12/97	755.44	17.65	25	NM	737.79	-1.01	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-7	09/16/97	755.44	17.40	25	NM	738.04	0.25	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-7	12/16/97	755.44	17.66	25	NM	737.78	-0.26	<0.500	<0.500	<0.500	<1.00	<80.0	NCA
MW-7	04/07/98	755.44	18.58	25	NM	736.86	-0.92	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-7	07/02/98	755.44	18.87	25	NM	736.57	-0.29	<0.500	<0.500	<0.500	<1.00	<250	SA
MW-7	08/28/98	755.44	18.47	25	NM	736.97	0.40	-	-	-	-	-	-
MW-7	10/21/98	755.44	18.62	25	NM	736.82	-0.15	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-7	01/27/99	755.44	19.30	25	NM	736.14	-0.68	<0.500	<0.500	<0.500	<1.50	<100	SA
MW-7	04/14/99	755.44	19.91	25	NM	735.53	-0.61	<0.500	0.68	<0.500	<1.00	<50.0	NCA
MW-7	07/07/99	755.44	19.75	25	NM	735.69	0.16	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-7	10/25/99	755.44	19.14	25	NM	736.30	0.61	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-7	01/18/00	755.44	19.63	25	NM	735.81	-0.49	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-8	03/13/97	751.46	17.37	25	NM	734.09	-	1.29	<0.500	<0.500	<1.00	<80.0	NCA
MW-8	06/12/97	751.46	18.31	25	NM	733.15	-0.94	1.41	<0.500	<0.500	<1.00	<80.0	NCA
MW-8	09/16/97	751.46	18.52	25	NM	732.94	-0.21	1.42	<0.500	<0.500	<1.00	<80.0	NCA
MW-8	12/16/97	751.46	18.87	25	NM	732.59	-0.35	1.09	<0.500	<0.500	<1.00	<80.0	NCA
MW-8	04/07/98	751.46	19.16	25	NM	732.30	-0.29	0.675	<0.500	<0.500	<1.00	<50.0	NCA
MW-8	07/02/98	751.46	19.59	25	NM	731.87	-0.43	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-8	08/28/98	751.46	19.72	25	NM	731.74	-0.13	-	-	-	-	-	-
MW-8	10/21/98	751.46	19.99	25	NM	731.47	-0.27	<0.500	<0.500	<0.500	<1.50	<100	SA
MW-8	01/27/99	751.46	20.33	25	NM	731.13	-0.34	<0.500	<0.500	<0.500	<1.50	<100	SA
MW-8	04/14/99	751.46	20.54	25	NM	730.92	-0.21	-	-	-	-	-	-
MW-8	07/07/99	751.46	20.61	25	NM	730.85	-0.07	<0.500	<0.500	<0.500	<1.00	<50.0	-

TABLE 1
Time Oil Property # 01-068
Sunnyside, Wa

Well ID	DATE	TOC *(feet)	DTW *(feet)	TWD *(feet)	PRODUCT THICKNESS *(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-8	10/25/99	751.46	20.47	25	NM	730.99	0.14	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-8	01/18/00	751.46	20.36	25	NM	731.10	0.11	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-9	08/28/98	751.25	19.50	25	0.00	731.75	-	4,300	5,300	310	2,100	22,000	SA
MW-9	10/21/98	751.25	20.65	25	0.00	730.60	-1.15	22,000	21,000	100	9,600	50,000	SA
MW-9	01/27/99	751.25	21.70	25	0.98	730.38	-0.22	-	-	-	-	-	-
MW-9	04/14/99	751.25	22.22	25	1.29	730.13	-0.26	-	-	-	-	-	-
MW-9	07/07/99	751.25	21.77	25	0.54	729.94	-0.19	-	-	-	-	-	-
MW-9	10/25/99	751.25	22.00	25	1.07	730.16	0.22	-	-	-	-	-	-
MW-9	01/18/00	751.25	21.03	25	0.08	730.29	0.13	-	-	-	-	-	-
MW-10	10/21/98	752.83	19.09	28.9	NM	733.74	-	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-10	01/27/99	752.83	19.66	28.9	NM	733.17	-0.57	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-10	04/14/99	752.83	20.07	28.9	NM	732.76	-0.41	<0.500	2.14	0.565	3.44	<50.0	NCA
MW-10	07/07/99	752.83	20.10	28.9	NM	732.73	-0.03	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-10	10/25/99	752.83	19.73	28.9	NM	733.10	0.37	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-10	01/18/00	752.83	20.01	28.9	NM	732.82	-0.28	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-11	08/28/98	748.57	19.73	29.7	NM	728.84	-3.89	<0.500	0.6	<0.500	<1.5	<250	SA
MW-11	10/21/98	748.57	20.00	29.7	NM	728.57	-0.27	<0.500	<0.500	<0.500	<1.5	<250	SA
MW-11	01/27/99	748.57	20.12	29.7	NM	728.45	-0.12	<0.500	<0.500	<0.500	<1.5	<100	SA
MW-11	04/14/99	748.57	20.32	29.7	NM	728.25	-0.20	<0.500	<0.500	<0.500	2.07	<50.0	NCA
MW-11	07/07/99	748.57	20.52	29.7	NM	728.05	-0.20	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-11	10/25/99	748.57	20.35	29.7	NM	728.22	0.17	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-11	01/18/00	748.57	19.81	29.7	NM	728.76	0.54	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-12	08/28/98	744.29	19.30	32.7	NM	724.99	-3.06	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-12	10/21/98	744.29	19.51	32.7	NM	724.78	-0.21	<0.500	<0.500	<0.500	<1.50	<250	SA
MW-12	01/27/99	744.29	19.50	32.7	NM	724.79	0.01	<0.500	<0.500	<0.500	<1.50	<100	SA

TABLE 1
Time Oil Property # 01-068
Sunnyside, Wa

Well ID	DATE	TOC *(feet)	DTW *(feet)	TWD *(feet)	PRODUCT THICKNESS *(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-12	04/14/99	744.29	19.53	32.7	NM	724.76	-0.03	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-12	07/07/99	744.29	19.78	32.7	NM	724.51	-0.25	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-12	10/25/99	744.29	19.82	32.7	NM	724.47	-0.04	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-12	01/18/00	744.29	19.61	32.7	NM	724.68	0.21	<0.500	<0.500	<0.500	<1.00	<50.0	NCA
MW-13	07/07/99	750.25	20.46	25	TRACE	729.79	-	-	-	-	-	-	-
MW-13	10/25/99	750.25	20.31	25	0.00	729.94	0.15	40700	67800	4080	24700	475000	NCA
MW-13	01/18/00	750.25	20.32	25	0.05	729.93	-0.01	----	----	----	----	----	----
MW-14	07/07/99	749.88	20.89	25	0.00	728.99	-	1530	93.1	<25.0	45.1	1230	NCA
MW-14	10/25/99	749.88	20.81	25	0.00	729.07	0.08	4700	3790	252	1070	12600	NCA
MW-14	01/18/00	749.88	20.70	25	0.00	729.18	0.11	2610	1190	115	852	7400	NCA
MW-15	07/07/99	749.39	21.04	25	NM	728.35	-	39.7	<0.500	<0.500	1.98	85.4	NCA
MW-15	10/25/99	749.39	20.96	25	NM	728.43	0.08	225	0.677	<0.500	1.77	228	NCA
MW-15	01/18/00	749.39	20.84	25	NM	728.55	0.12	222	<0.500	<0.500	1.98	125	NCA

TABLE 1
Time Oil Property # 01-068
Sunnyside, Wa

Well ID	DATE	TOC *(feet)	DTW *(feet)	TWD *(feet)	PRODUCT THICKNESS *(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-16	07/07/99	757.48	17.33	25	NM	740.15	-	25800	28800	1730	17200	166000	NCA
MW-16	10/25/99	757.48	16.49	25	NM	740.99	0.84	25100	32100	2010	16700	157000	NCA
MW-16	01/18/00	757.48	17.35	25	NM	740.13	-0.86	20900	34000	2740	22600	160000	NCA
Duplicate	07/07/99	MW-15						39.1	<1.00	<0.500	2.54	85.8	NCA
Duplicate	10/25/99	MW-15						246	0.579	<0.500	1.98	131	NCA
Duplicate	01/18/00	MW-14						3190	1470	124	965	7420	NCA
WHC prod well	07/07/99							<0.500	<0.500	<0.500	<1.00	<50.0	NCA
WHC prod well	10/25/99							<0.500	<0.500	<0.500	<1.00	<50.0	NCA
WHC prod well	01/18/00							<0.500	<0.500	<0.500	<1.00	<50.0	NCA
Barrel Comp	07/07/99							<0.500	<0.500	<0.500	1.06	<50.0	NCA
Barrel Comp	10/25/99							<1.35	1.61	0.63	3.79	110	NCA
Barrel Comp	01/18/00							<0.500	<0.500	<0.500	<1.00	277	NCA
MTCA Method A Cleanup Levels for Groundwater								5.0	40.0	30.0	20.0	1,000	

ABBREVATIONS:

B	Benzene	THP-G	Total Petroleum Hydrocarbons as gasoline	-	Not analyzed/measured/applicable
T	Toluene	ug/l	Micrograms per liter	NCA	North Creek Analytical
E	Ethylbenzene	ND	Not detected above the reported detection limit	SA	Speciality Analytical
X	Total Xylenes	TOC	Top of Casing	GWE	Groundwater Elevation
		DTW	Depth to Water		

Note: Groundwater Elevation = Casing Elevation - (Depth of Water-(Product thickness *0.85)).
Groundwater from past events were corrected using this formula to reflect depression by product.