UST # 4108

INSTALLATION REPORT
BIOSLURPING SYSTEM
CONSTRCTION
TIME OIL PROPERTY
01-068
SUNNYSIDE
WASHINGTON

Submitted To:

Time Oil Company
2723 West Commodore Way
Seattle, Washington 98199-1233

Submitted By:

Brown and Caldwell
10015 North Division Street, Suite 100
Spokane, Washington 99218

Mike Fitzgerald
Project Engineer

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

October 2000

Project # 19046.004

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

This report summarizes and provides supporting documentation of the bioslurping remedial system installed at the Time Oil Company (Time Oil) property 01-068, located at 107 West Lincoln Avenue, Sunnyside, Washington. The purpose of the bioslurping system is to remove petroleum hydrocarbons from groundwater and soil at the subject site and beneath the Washington Hills Cellars property located east of the subject site across First Avenue. The majority of the system is constructed on property owned by Washington Hills Cellars located at 111 West Lincoln Avenue, directly across First Avenue from the Time Oil property.

The report includes the following items:

- Summary of work (Section 2.0),
- Products (Section 3.0),
- Execution (Section 4.0),
- As-Built drawings (Section 5.0),
- Equipment warrantees (Section 6.0), and
- Permits (Section 7.0).

Summaries and supporting documentation contained within this report are current at the time of the report's release.

2.0 SUMMARY OF WORK

The subject and Washington Hills Cellars property (hereafter referred to as "site") site has been subject to investigative and remedial actions since February 1997. The primary objective of constructing the bioslurping system is to remove petroleum hydrocarbons from soil and groundwater at the site. Installation included constructing certain components of the soil and groundwater remediation system both below and above ground. The major work items consisted of the following:

- Mobilizing and demobilizing personnel, materials and equipment to and from the site;
- Preparing a work schedule;
- Constructing an equipment shed and fenced compound;
- Preparing the site that included surface grading and removal of an existing smoke stack support;
- Installing seven additional 4-inch remedial wells and two additional monitoring wells;
- Installing underground piping and buried electrical tracer wires between the equipment shed and ten bioslurping wells;
- Installing concrete vaults at ten bioslurping wells;
- Installing underground piping for treated effluent discharge and buried electrical tracer wires between the groundwater treatment shed and the existing City of Sunnyside sanitary sewer manhole;
- Providing electrical service from the nearest electrical utility;
- Installing treatment shed electrical wiring;
- Installing a weatherproof electrical meter base on the exterior of the treatment shed and a breaker panel outside the shed;
- Restoring areas disturbed during buried pipe installation and construction activities;
- Replacing any asphalt pavement and concrete sidewalks damaged during construction activities;
- Cleaning-up and removing scrap, rubbish, unused materials, asphalt, and excess excavated soil; and
- Transporting petroleum-impacted soil (drill cuttings) to the Remtech Incineration Facility in Spokane.

2.1 Project Schedule

The below ground remedial system was installed during the time period of May 1, 2000 through May 11, 2000. This phase consisted of the installation of remedial wells, placement of remedial system piping, vaults, power and natural gas lines, and construction of the remediation equipment shed. In general, these time frames were consistent with the project Work Schedule prepared by the oversight personnel. No deviances from the Work Schedule were noted. The above ground installation of remedial equipment occurred from June 26, 2000 to July 9, 2000.

2.2 Contactors and Subcontractors

The remedial system required four separate contractors and their subcontractors:

1) Construction Contractor and their subcontractors (herein referenced individually as "Construction Contractor" and "Subcontractor of the Contractor" and referenced collectively as "Contractor"), - Custom Backhoe
2) Remedial Treatment Equipment Contractor, - H_2Oil Recovery Equipment
3) Well Installation and Traffic Control Subcontractors, - Environmental West Inc. and Pavement Surface Control; and
4) Construction Oversight and Engineering Services Contractor (herein referenced as "Consultant") – Brown and Caldwell.

Contact information and primary services performed for each of the contractors and subcontractors are provided below. Contact information is current at the time of the installation.

2.2.1 Construction Contractor and Subcontractors

Construction Contractor: Custom Backhoe and Dump Truck, Inc.
Project Representative: Geoff Yates, President
Address: 13032 SE 45th Court, Bellevue, WA 98006
Phone: (425) 641-6659
Primary Service Performed: trenching, backfilling, installation of subsurface conveyance piping, performance of subsurface conveyance pipe pressure testing, concrete mix, delivering and pouring of concrete, asphaltic paving (ac-paving) stubbing of PVC piping, and construction of treatment shed and fenced compound.

Subcontractor to the Contractor: O.L. Luther Paving, Inc.
Address: 710 Luther Road, Granger, WA 98932
Phone: (509) 837-2527
Primary Services Performed: installation of ac-pavement

Subcontractor to the Contractor: Pro Cut Concrete Cutting, Inc.
Project Representative: Levi Haywood
Address: P.O. Box 9284, Yakima, WA 98909-0284
Phone: (509) 575-0745
Primary Services Performed: cutting of concrete

Subcontractor to the Contractor: Jack Horner Electrical, Inc.
Address: 1212 North 16th Avenue, Yakima, WA 98902-1348
Phone: (509) 453-8320
Primary Services Performed: electrical wiring

2.2.2 Remedial Treatment Equipment Contractor

Remedial Treatment Equipment Contractor: H2 Oil Recovery Equipment, Inc.
Project Representative: Troy York
Address: P.O. Box 9028, Bend, OR 97708
Phone: (541) 382-7070
Primary Services Performed: installation of remedial treatment equipment

2.2.3 Construction Oversight Contractor and Subcontractors

Well Installation Subcontractor: Environmental West Exploration, Inc.
Project Representative: Ron Sink
Address: P.O. Box 11095, Spokane, WA 99211
Phone: (509) 534-2740
Primary Service Performed: installation of extraction wells, split spoon sample collection, and development of wells

Traffic Control Subcontractor: Pavement Surface Control
Project Representative: Steve Sorick
Address: 307 N. Dayton, Kennewick, WA 99336
Phone: (509) 585-1969
Primary Services Performed: developing and implementing the traffic control plan

2.2.4 Engineering Services Contractor

Construction Oversight Contractor: Brown and Caldwell
Project Representative: Gene St.Godard
Address: 10015 North Division, Spokane, WA 99128
Phone: (509) 777-1126
Primary Service Performed: overseeing construction activities

2.3 Equipment, Labor and Materials

Except for remedial treatment equipment, contractors provided all materials, equipment and labor, and purchased all new materials associated with the installation of the system. Remedial treatment equipment was provided by Time Oil. Installed equipment for the system is described in detail in Section 3.0.

3.0 PRODUCTS

This section summarizes the bioslurping remedial system components and associated products installed at the site. The Section is organized into three sub-sections: below ground components, above ground components, and utilities. As-Built Drawings, illustrating product configurations are provided in Appendix A.

3.1 Below Ground Components

Below ground components primarily consist of those items associated with the installation of subsurface piping and recovery wells.

3.1.1 Wells

The bioslurp remedial system utilizes three existing monitoring wells (MW-4, MW-5, and MW-9) and required the installation of seven new extraction/recovery wells (RW-1 through RW-7). The seven new recovery wells were constructed with 4-inch diameter PVC casing and completed to depths of approximately 30 feet fellow grade. Twenty feet of 0.020 slot screen was placed in each constructed well excepth for RW-3, which was constructed with 15 feet of screen and RW-6 which was constructed with 25 feet of screen. Well as-builts are presented in Appendix B. Each well was fitted with one-inch diameter flexible suction hose coupled to subsurface conveyance piping, a vacuum pressure gauge and air dilution valve. The flexible hoses were installed at a depth of 6 1/2 feet below static water level. Wells were enclosed in concrete vaults, which are accessible from the ground surface. Concrete vaults are described in Section 3.1.6 below. Well protectors were removed and the well casings were cut at approximately 16-inches below the ground surface. Grout was placed around the well casings to form a watertight seal to the annulus of the exploration. One modification to the original design was made for the recovery wells. At approximately 15 feet above the down-hole end of the 1-inch suction hose, a 1/8-inch hole was installed to provide additional in-line air and increase recovery flow.

Two, two-inch monitoring wells (MW-17 and MW-18) were also installed. As-Built drawings for new remedial system and monitoring wells are provided in Appendix B.

3.1.2 Subsurface Conveyance Piping

Liquids and gasses, collected at the recovery wells, are conveyed to the pipe manifolds located in the treatment shed through subsurface piping; and, treated effluent is also conveyed via subsurface piping from the treatment shed to the sanitary sewer manhole located in Carnation Drive west of the site. Subsurface recovery well piping consists of 2-inch, Schedule 80, PVC. Treated effluent subsurface piping consists of a two-inch, Schedule 40, PVC pipe.

Electrically conductive tracer wire of 12 gauge or larger with standard green insulation, or other approved materials, was installed for the purpose for locating the nonmetallic, buried pipe networks. One wire is installed in the center of each trench, including trenches to each remedial well.

Additional PVC lines were placed in the trench across First Avenue in the event future work was required. Three, four-inch Schedule 40 PVC lines were placed beneath First Avenue. Of the three PVC lines, two four-inch Schedule 40 PVC lines were extended to recovery wells RW-6 and RW-7, and the third was laid directly across the road.

Installed non-roadway and First Avenue crossing trench specifications, minimum pipe separations, pipe bedding and backfill materials, and tracer wire locations are illustrated on Figure D4, Sheet 6 of the As-Built Drawings.

Product modifications from the original design included: the previously mentioned additional lines, pipe size changes and omission of steel casing at the First Street Crossing. Pipe size changes were completed to account for low volume, long distance and high pressure pumping anticipated for the site. Pipe size changes included replacing the originally specified 1 ½- inch lines with two-inch lines universally. Due to the usage of flowable concrete (CDF), originally specified pipe steel casing was omitted.

3.1.3 Subsurface Manhole Discharge

Effluent water is discharged to an existing 48-inch sanitary sewer manhole via a two-inch Schedule 40 PVC line. The existing manhole is located west of the Valley View Mart in Carnation Street. The two-inch line pierces the manhole at a depth of two feet and six inches below ground surface, elbows downward to the bottom of the sanitary sewer line, and outfalls at a 45-degree downward angle toward the downstream direction. The point where the manhole is pierced by the discharge pipe is grout sealed.

Three product modifications from the original specifications are in-place at the manhole discharge. As previously stated, a two-inch, Schedule 40, PVC pipe for the system effluent was substituted for the originally specified four-inch, Schedule 40, PVC pipe. To help facilitate dry access down the manhole, the vertical discharge pipe was extended to the bottom of the sanitary sewer line; and a 45-degree elbow directing discharging effluent downstream was added.

3.1.4 General Pipe Bedding and Backfill

General pipe bedding and trench backfill described below apply for all pipe installations excluding installation of pipe beneath First Avenue and Carnation Drive. First Avenue and Carnation Drive pipe bedding and trench backfill descriptions are provided in Section 3.1.5 below.

Pipe bedding consists of a four-inch thick layer of bedding material under the pipe, and bedding material around and over the pipe is to six inches above the top of pipe. Bedding material consists of sand or sandy gravel having a maximum size of 3/4 inches. After the bedding material was placed as described above, native soil was used for backfill to the bottom of the existing pavement. All backfill material is free from cinders, ashes, refuse, boulders, and other unsuitable material.

One product modification was made. Three inches of select road base course (crushed 5/8-inch minus) was not used. General backfill consisting of native material was determined to be a suitable replacement.

3.1.5 Pipe Bedding and Backfill at First Avenue and Carnation Drive

PVC pipe bedding consists of a four-inch thick layer of bedding material under the pipe, and bedding material around and over the pipe is to six inches above the top of pipe. Bedding material consists of the native silty sand having a maximum size of 3/4 inches. Trench backfill material consists of CDF. After the bedding material was placed, flowable CDF with a compressive strength of at least 700 pounds per square inch (psi) and a one sack concrete mix was placed. To decrease curing time, calcium chloride was mixed with the concrete at approximately five percent of the mix.

3.1.6 Concrete Vaults

For wells RW-1, RW-2, RW-3, RW-4, and RW-5; MW-4, MW-5; and MW-9, precast concrete vaults were installed. Concrete vaults are Utility Vault Co. model number 233 LA bottomless. The vaults are a minimum of 42 inches from the interior base to the final grade of the cover and the inside area is 24-inches by 36-inches. Knockouts for incoming pipe are as shown on As-Built Drawings. The vaults have a 24-inch by 36-inch diamond plate (non-slip) locking access cover that are rated for light traffic areas. Covers are installed flush with the top of the utility vault which was installed approximately ¼ to ½ - inch above the site grade and sloped to drain off storm water.

For wells RW-6 and RW-7, located withing First Avenue, precast reinforced concrete cones were used as vaults. The concrete cones are approved for Type I Manhole installations in heavy traffic areas. A precast reinforced concrete ring was installed as a base. The vaults are a minimum of 42 inches from the interior base to the final grade of the cover and the inside area is 48-inches at the base to 24-inch at the top opening. Knockouts for incoming pipes are placed as shown on the As-Built Drawings. The vaults have a 24-inch circular manhole lid that is flush with the street pavement surface.

All surfaces around the vaults are sloped away from the cover such that water will not pond near or in the vaults. PVC pipe entering the sidewall in vaults extends beyond the interior face of the vault for a distance of no less than four inches. Grout is placed around all piping and well risers that extend into the vault to form a watertight seal.

3.2 Above Ground Components

Above ground components primarily consist of those items associated with the installation of the treatment shed, fenced compound, and remedial treatment equipment and repair of the roadway beneath which subsurface piping was installed. Detailed drawings and equipment specifications are shown on Sheet 4 and 8 of the engineering diagrams within Appendix A. Modifications of the initial equipment design included the addition of carbon scrub units placed after the tray stripper and before discharge to the sanitary sewer.

3.2.1 Remedial Equipment

The installed remedial equipment is used to extract and treat vapors, groundwater and light non-aqueous phase liquid (LNAPL) from each of the system wells. Vapors are heated to burn hydrocarbons in the thermal catalytic oxidizer before releasing treated vapors to the atmosphere. Liquid pulled from the recovery wells is piped through a liquid ring pump into an air water separator then pumped through 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.

Installed remedial equipment included the following: thermal catalytic oxidizer, air stripper, holding tanks, oil/water separator, moisture separator, pumps and blowers. Figure F1, Sheet 8 of the As-Built Drawings list all of the equipment utilized and presents equipment sequencing and Figure P1, Sheet 4 illustrates 1) remedial equipment layout with respect to the treatment shed and fenced compound and 2) manufacturer, model, rating and capacity information.

3.2.2 Treatment Shed/Fenced Compound

As illustrated on Figure D1, Sheet 3 of the As-Built Drawings, all equipment is housed in the treatment shed and fenced compound located on the Washington Hills Cellars property across First Avenue. The treatment shed is 14 feet by 16 feet and has a 29 gauge metal roof, wood sides, three-foot passage and seven-foot garage door, screened air intake, exhaust fan, and concrete floor with a floor drain catch. The area inside the shed is a Class I, Division II, Group D Fire Hazard Category. The fenced compound, located immediately to the north of the treatment shed, stages the thermal catalytic oxidizer, double walled product tank and drum storage area.

A 14-foot by 16-foot slab with thickened edges was built for the treatment shed and a 12-foot by 19.5-foot slab for the fenced compound. Concrete consists of Fibermesh Concrete (ASTM C94, ACI 304) with Fiber content of 1.5 pounds per cubic yard. The mix consisted of 5 1/2 sacks cement per cubic yard of concrete. A minimum four-inch layer of free draining gravel was placed beneath the slabs. This material consisted of minus 3/4-inch gravel with less than 60 percent passing a No. 4 sieve and less than 10 percent passing a No. 200 sieve. The building slab is sloped approximately one-inch per ten-feet towards a

three-foot by three-foot floor drain catch in the slab center. The 12-inch thick slab edges are reinforced with #4 rebar. The concrete surface is trowelled and the surface has a medium broom finish.

The floor drain catch consists of a three-foot diameter by three-foot deep cement basin. The basin has no openings, holes, etc. to allow liquids to leave the basin bottom and sides. Recovery well piping enters the building through blockouts in the concrete slab as illustrated on the As-Built Drawings. Concrete anchor bolts (1/2-inch by six-inch) are placed in the concrete around the slab perimeter on four-foot spacing and anchor the building walls.

All treatment shed building materials are new commercial grade. The main components of the building are presented below.

- Building walls are framed with two-inch by four-inch wooden studs on 24-inch centers.
- Rafters are wooden two-inch by eight-inch wooden trusses on 16-inch centers with a one-inch per foot pitch.
- Interior walls and ceilings have fiberglass insulation, rated R-11.
- One three-foot by six-foot steel insulated door with a locking deadbolt is located on the east wall of the building.
- A 24-inch louver vent is located on the north wall of the building.
- A one-foot by four-inch vent is located on the east wall.
- Three ceiling vents were installed, and subsequently covered.
- A 30-inch by 36-inch sampling access door is located on the southeast corner of the building.
- A seven-foot by seven-foot steel insulated overhead garage door is located in the south wall of the building.
- Wall exteriors are sided with T-11 wood siding.
- Roof exterior is covered with three-foot, 29 gauge-galvanized metal roofing.
- One 20-inch shutter vent and wall mount cooling fan is located in the west wall of the building.

3.2.4 Pavement

Ac-pavement damaged or removed during construction was replaced. The ac-pavement was placed as shown on the As-Built Drawings and in accordance with Section 5-04 of the WSDOT 1998 Standard Specifications Manual. Over the trench sections, ac-pavement is a minimum thickness of three-inches or 1-1/2 times the thickness of the existing pavement, whichever was determined to be the greater. Ac-pavement conforms to WSDOT standard specifications section 5-04 for Class A or Class B and is AR-4000.

3.3 Utilities

Electricity is brought to the treatment shed via a subsurface conduit and an electrical drop from the power pole located immediately to the northeast of the shed. Natural gas is brought to the facility meter via a subsurface line to the west facing, northwest corner of the treatment shed. A phone line is provided via a subsurface line that enters the southeast corner of the treatment shed.

3.4 Miscellaneous

During the installation, an approximate one-foot by four-foot section of sidewalk located near the Valley Mart was damaged and replaced. Replacement concrete conformed to the treatment shed and fenced compound concrete described above, and was finished flush with and similar to adjacent sidewalk sections.

4.0 EXECUTION

This section provides discussions regarding the execution of work activities that took place during the remedial system installation. Unless otherwise noted, the execution of the work items was completed by the Contractor.

4.1 Work and Staging Areas

Work was primarily restricted to the treatment shed/fenced compound, areas proximal to the First Avenue roadway crossing, and locations immediately adjacent to recovery wells. A short-term staging area was located near the maintenance garage on the southwest corner of the Washington Hills Cellars property. The short-term storage area's usage was restricted to temporary staging of equipment and asphalt spoils.

4.2 Site Access and Construction Roads

Access to the site was open. The construction of temporary roads and trails were not required.

4.3 Existing Structures

The existing stack support located along the western boundary of the WHC property was removed with the use of a cutting torch. The concrete support footing was left in-place.

4.4 Waste Disposal

Oil, grease and other liquid or solid wastes generated during the installation were not disposed of in the staging area or on the project site. Thirty 55-gallon drums of drill cuttings from well drilling activities were hauled and disposed of off-site at the RemTech facility located in Spokane, Washington where it was treated by thermal disorption. Liquids generated during well development were stored on-site in 55-gallon drums and treated with the on-site tray stripper following the installation of the remedial equipment. Approximately eight dump truck loads of asphalt spoils were transported and disposed of by the Contractor. Where applicable (i.e., drill cutting wastes), regulated waste disposal documentation and contractor contact information are provided in Appendix C.

4.5 Utility Locates

Two utility locates were initiated by the Consultant and Contractor and completed by a qualified on-call service. Off-site utilities were located prior to the projects initiation: and, an on-site utility locate was performed on the first day of construction.

4.6 Mobilization/Demobilization

Mobilization and demobilization occurred on May 1, 2000 and May 11, 2000. Mobilization included: completing the preparatory work and operations necessary for the movement of personnel, equipment, supplies, and incidentals to and from the project site; preparing a work schedule, reviewing the Traffic Plan; obtaining necessary permits; obtaining appropriate insurance for the contract; providing the appropriate insurance certificates and proof of OSHA 40-hour training certificates; and completing other work and operations that must be performed before beginning on the various items on the project site. Demobilization included completing work activities necessary for the removal of personnel, equipment, supplies, and incidentals from the project site.

4.7 Site Preparation

Site preparation included grading and clearing the area and removing the existing smoke stack support. Work items completed during the removal of the smoke stack support are provided in Section 4.3.

4.8 Construction Staking

The Consultant furnished locations for concrete vaults, piping, tracer wire, the discharge pipe leading to the City of Sunnyside sanitary sewer, and the groundwater treatment shed and fenced compound. No detailed surveys were needed for construction of the involved work except for a survey of the western property line of the WHC property to assure the remedial shed was constructed with the required 10-feet set back from the right-of-way boundary.

4.9 Concrete Placement

Two concrete slabs were constructed. Prior to placing the concrete slab, the building and fenced compound site were stripped of topsoil and cobbles greater than three inches in diameter. A minimum four-inch layer of free draining gravel was placed beneath the slabs. The building slab was sloped approximately one-inch per ten-feet towards a three-foot by three-foot floor catch basin in the slab center. The compound slab was poured on grade and the 12-inch thick slab edges were reinforced with #4 rebar. The floor drain catch was provided by the Contractor and consisted of a three-foot deep by three-foot diameter cement basin. The basin was installed such that there were no openings, holes, etc. to allow liquids to leave the basin bottom and sides. The concrete surface was troweled, then a medium broom finish was applied to the surface. Piping enters the building through blockouts in the concrete slab as illustrated on the As-Built Drawings and was stubbed for later use. Concrete anchor bolts (1/2-inch by six-inch) were placed in the concrete around the slab perimeter on four-foot spacing for anchoring the building walls.

During the installation, an approximate one-foot by four-foot section of sidewalk located near the Valley Mart was damaged and replaced. Damaged concrete was removed with conventional excavation equipment. The replacement section was finished flush with and similar to adjacent the sidewalk sections.

There was no placement of concrete when the ambient air temperature was below 40 degrees Fahrenheit. Concrete was adequately protected from freezing damage during curing. Concrete was placed when weather forecasts indicated that the temperature would not drop below 32 degrees Fahrenheit in the succeeding two days.

4.10 Trenching

Trenching was predominantly completed with conventional excavation equipment. As the only exception, the installation of the remedial system's two-inch discharge pipe and piping connecting MW-4, MW-5 and RW-1 required hand excavation south of the Valley View Mart structure. Prior to backfill, no building or fence damage was observed. Prior to backfill, electrical tracer wires were installed for all pipe trenches in accordance with the specifications. When crossing existing or prospective cultivated areas, private gravel roadways and other developed areas surface material was stripped to the full depth of the material, stockpiled, and replaced over the trench after backfilling. Topsoil was removed to the full depth of the topsoil, or to a maximum depth of 12 inches, which ever was less, stockpiled and replaced over the trench after backfilling.

4.11 Excavation

Excavations were completed with conventional equipment and as necessary at the locations shown on the plan sheets for installation of concrete vaults. During excavation, materials suitable for backfilling were piled in an orderly manner at a sufficient distance from the excavation to avoid overloading and to prevent slides or cave-ins.

4.12 Hydrocarbon Impacted Soils Excavation and Transport

Potentially petroleum hydrocarbon impacted soils were encountered during well drilling activities in the form of drill cuttings. Cuttings were stored on-site in 55-gallon drums. Off-site transportation and disposal of the potentially hydrocarbon impacted cuttings was provided by RemTech following well installation activities. Regulated waste information is provided in Appendix C. No hydrocarbon impacted soils were encountered during trenching or excavating activities.

4.13 Pipe Bedding

During excavation activities, the native soil was determined suitable for back fill material. Native soil excavated during trenching was placed by hand and consisted of a four-inch thickness of bedding material under the pipe, and bedding material around and over the pipe to six-inches above the top of pipe.

4.14 Backfill and Compaction

Trench backfill material at the First Avenue and Carnation Drive Crossings consisted of CDF. Native backfill material was placed in trenches such that, after compaction, the maximum lift thickness was six inches. A minimum initial lift of six inches of backfill was in-place over the pipe before compaction with hand operated equipment. A minimum of two six-inch lifts was in place before any heavy compaction equipment was placed in the trench. After the bedding material was placed, trench backfilling was performed.

For all other trenches, native soil was used for backfill to a depth of approximately eight inches below the bottom of the existing pavement. After the bedding material was placed as specified above, trench backfilling was performed. All backfill material was observed by the Consultant to be free from cinders, ashes, refuse, boulders, and other unsuitable material. Backfill material was placed in trenches such that, after compaction, the

maximum lift thickness was eight inches. One eight-inch lift of backfill was in place over the pipe before compaction with hand operated equipment. A minimum of two eight-inch lifts was in-place before any heavy compaction equipment was placed in the trench.

Around the treatment shed and fenced compound, fill was graded to provide drainage away from the building.

4.15 Treatment Shed Construction

The treatment shed was constructed after completion of the concrete work and prior to remedial treatment equipment installation. All new construction materials were used and included the components listed in section 3.2.2. The As-Built Drawings illustrate the shed's final configuration.

4.16 Fencing

An eight-foot chain link fence with privacy slats and associated access gates was constructed on the north, east, and west perimeters of the 12-foot (north-south) by 19.5-foot (east-west) concrete slab adjoining the treatment shed as shown in the As-Built Drawings. Section 3.2.2 lists the fence components.

4.17 Vacuum Pipe Testing

Each new PVC pipe was vacuum tested prior to trench backfilling by pressurization. The PVC pipe was pressurized with air at a pressure with the ends sealed. The pressure was maintained at 35 psi in the piping for a minimum of 35 minutes. The Construction Oversight Contractor was present during the testing and no failures occurred.

Deviations in execution included the utilization of a test pressure of 35 psi versus the originally specified 27 psi and decrease in test duration from two hours to 35 minutes.

4.18 Bollard Installation

A total of six bollards were installed: one at each corner of the treatment shed/fenced compound and two proximal to the gas meter. Concrete filled excavations were made for the bollard bases; and concrete filled steel pipe was set into the bases prior to curing.

4.19 New Well Installation

The Well Installation Contractor supervised the installation of all new wells. Two, two-inch PVC monitoring wells (MW-17 and MW-18) were installed with a four-inch auger drill, completed at approximately 30 feet. The wells were completed with 15 feet of screen. Seven, four-inch PVC recovery wells (RW-1 through RW-7) were installed with a four-inch auger drill, completed at approximately 35 feet, and received 25 feet of screen. Completion of well construction consisted of placing sand to two feet above the screened interval and bentonite seal to two feet below ground surface. As-Built well logs are provided in Appendix B.

For each well the Construction Oversight Contractor logged, recorded, split spoon sampled at the ground water interface, and completed well development. Well development included well purging 10 well bore volumes by hand bailer.

4.20 Existing Well Modification

Three existing wells were modified to become part of the remedial system (MW-4, MW-5, and MW-9). Modifications included trimming of the casing, connecting to underground piping, and setting new vaults around the wells.

4.21 Concrete Vault Installation

Precast concrete vaults (Utility Vault Co. model number 233 LA bottomless) for wells RW-1, RW-2, RW-3, RW-4, RW-5, MW-4, MW-5, and MW-9 were installed. Knockouts for incoming pipe were placed as shown on the As-Built Drawings. Access covers were installed flush with the top of the utility vault and placed in the center of the top.

Precast reinforced concrete cones (Type I Manhole) were installed as vaults for wells RW-6 and RW–7. A precast reinforced concrete ring was installed as a base. Knockouts for incoming pipe were placed as shown on the As-Built Drawings. Manhole lids are flush with pavement surface.

At all vaults, surfaces around the vaults were sloped away from the cover such that water will not pond near or in the vaults. PVC pipe entering the sidewall in vaults were extended beyond the interior face of the vault no less than four inches. Grout was placed around all piping and well risers that extend into the vault to form a watertight seal.

4.22 Well to Subsurface Pipe Connections

The Consultant made the necessary well to subsurface pipe connections. A total of six connections were made. Connection components are described section 3.1.2.

4.23 Discharge Pipe Connection

At the City of Sunnyside sanitary sewer in Carnation Drive, a two-inch PVC discharge pipe was installed to the existing manhole. The pipe was constructed with a 45 degree elbow faced in the down stream direction for free flow of treated water into the sewer line. The discharge enters the east side of the concrete manhole at a depth of 36-inches below ground surface. The pipe terminates within and at the base of the sewer pipe. Grout was placed at the pipe entrance to form a watertight seal.

4.24 Utility Service

The Contractor coordinated with the local electrical utility company to obtain a service drop to the building and installed a weatherproof meter base on the building exterior. A weatherproof meter base was supplied by the local electrical utility to provide 240-volt, three-phase electrical service. The Contractor also coordinated with the local gas and phone utility companies to obtain these services at the building.

4.25 Dust Control

Although the City of Sunnyside requested the implementation of dust control measures during construction (e.g., stockpiles of excavated soil left overnight to be sprayed with water or covered with tarps to minimize dust generation), no circumstance for the use of dust control occurred during the remedial system installation activities.

4.26 Site Restoration

During the installation, an approximate one-foot by four-foot section of sidewalk located near the Valley Mart was damaged and replaced. Execution of work associated with the removal and replacement section of the sidewalk section is provided in Section 4.9.

Ac-pavement damaged or removed during construction was replaced in accordance with Section 5-04 of the WSDOT 1998 Standard Specifications Manual. Ac-pavement

replaced over trench sections was a minimum thickness of three-inches or 1-1/2 times the thickness of the existing pavement, whichever is greater.

Ac-pavement was placed in the following manner:

- Abutting edges of the pavement were trimmed by saw cutting. Cuts were clean, vertical and exposed to the full depth of the existing pavement.
- Abutting edges of existing pavement and structures (i.e., catch basins, curbs, etc.) were painted with liquid asphalt to provide a positive bond between the existing pavement or structure and the new pavement.
- Where asphalt concrete was placed on a Portland Cement pavement or over an existing asphalt surface, a uniform tack coat was applied.
- Hot asphalt pavement mixture was placed on a dry prepared surface when the ambient temperature was at least 45 degrees Fahrenheit and rising.
- Placement of any mixture during rain or other adverse weather conditions normally was not be permitted, except that, mix in transit in these adverse conditions was laid if of proper temperature; if the mix was covered during transit; if placed on foundation free from pools or flow of water; and, if all other requirements of these specifications were met.

4.27 Traffic Control

The implementation of traffic control adhered to the approved Traffic Control Plan submitted for the project activities.

5.0 AS-BUILT DRAWINGS

As-Built Drawings are provided in Appendix A. As-Built Drawings reflected the installed remedial system components and are accurate at the time of this report. As-Built Drawings include:

- Cover (Cover, Sheet 1),
- Remedial System Layout (Figure L1, Sheet 2),
- Treatment Shed and Fenced Compound (Figure D1, Sheet 3),
- Mechanical Plan (Figure P1, Sheet 4),
- Manifold/Discharge Details (Figure D2, Sheet 5),
- Trench Details (Figure D3, Sheet 6),
- Extraction Well Detail (Figure D4, Sheet 7), and
- Flow Diagram (Figure F1, Sheet 8).

All modifications conducted during installation activities are presented on the As-Built Drawings.

6.0 EQUIPMENT WARRANTIES

Time Oil Company maintains all project equipment warranties and associated records. Therefore, this Section is not used.

7.0 PERMITS, PERMISSION AND AGREEMENTS

This Section provides a summary of the permits obtained to install and operate the remedial system.

7.1 Clean Air Authority – Notice of Construction

The Consultant submitted, on behalf of Time Oil, a "Yakima Regional Clean Air Authority – Notice of Construction" form to the Yakima County Clean Air Authority on March 1, 2000. The air discharge notice of construction was conditionally approved on June 1, 2000. A Copy of the notice filed and the conditional approval are included in Appendix D. The air discharge permit is currently in use and is conditionally approved through June 16, 2001.

7.2 State Waste Discharge Permit

In accordance with provisions of Chapter 90.48 RCW and Chapter 173-216 WAC, Time Oil submitted an application for a discharge permit to discharge industrial wastewater to a public treatment waste facility in January 2000. As explained in the Washington State Department of Ecology transmittal dated June 5, 2000, a Temporary Permit became effective May 29, 2000. A copy of the permit application and the transmittal are provided in Appendix E. The wastewater discharge permit is currently in use and is valid for up to five years.

7.3 Building Permit

The Contractor submitted a building permit for remedial system construction to the City of Sunnyside in January 2000. A building permit was issued on April 12, 2000. Construction related permits are provided in Appendix F.

7.4 Street Excavation Permits

The Contractor submitted a construction permit for installing piping and electrical lines beneath city/county roads to the City of Sunnyside in January 2000. A permit was issued on April 13, 2000. Construction related permits are provided in Appendix F.

7.5 Electrical Permit

The Contractor obtained an electrical permit for power supply to the remediation structure. A copy of the permit is provided in Appendix F.

7.6 Landowner Permission and Agreements

Time Oil Company secured all project related private landowner permission and agreements necessary to implement the project.

APPENDIX A

SYSTEM ENGINEERING SHEETS

BIOSLURPING REMEDIATION SYSTEM CONSTRUCTION - PLAN SHEETS

TIME OIL PROPERTY/01-068 - SUNNYSIDE, WASHINGTON

BROWN AND CALDWELL
10015 N. Division St.
Suite 100
Spokane, WA 99228

Modified from Maxim Technologies, dated January 2000

Photo Source: Yakima County GIS, 1992

○ Biosluring Well

Piping Routes

N

0 Feet 50

BROWN AND CALDWELL

10015 N. Divisions St. Suite 100
Spokane, Washington 99228

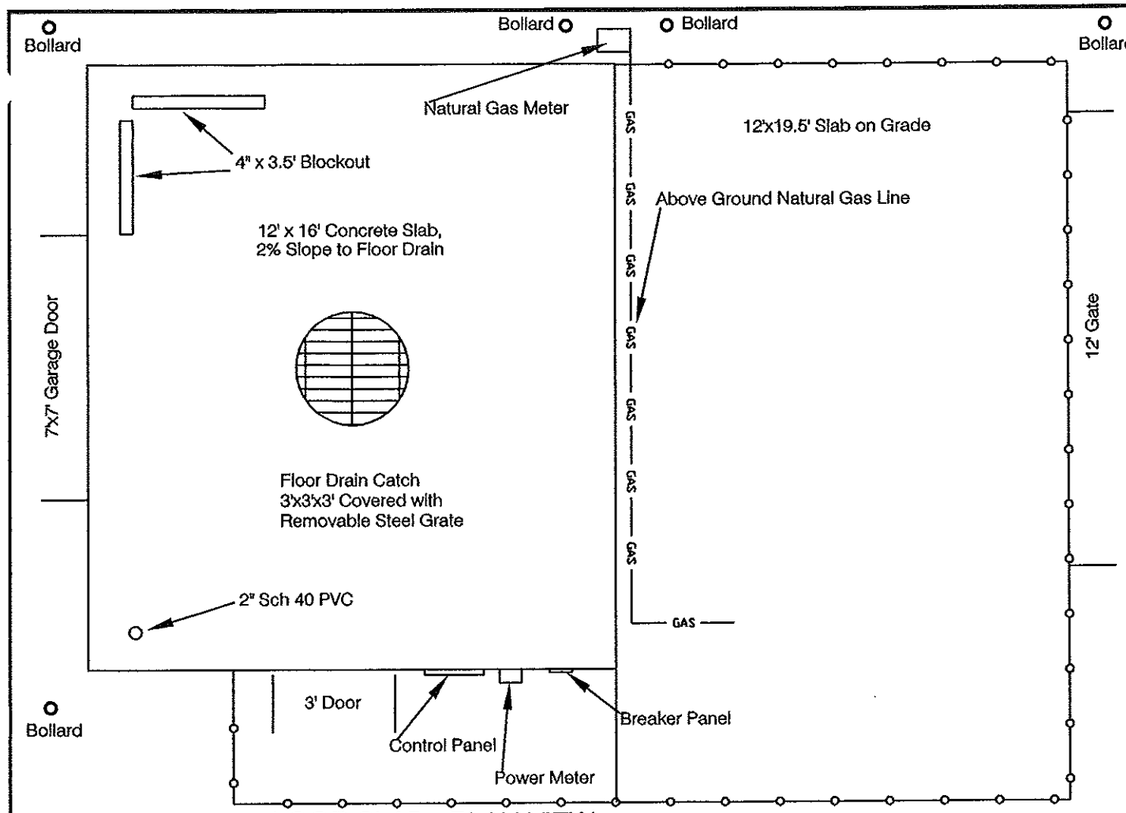
PREPARED FOR:

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

REMEDIATION SYSTEM LAYOUT

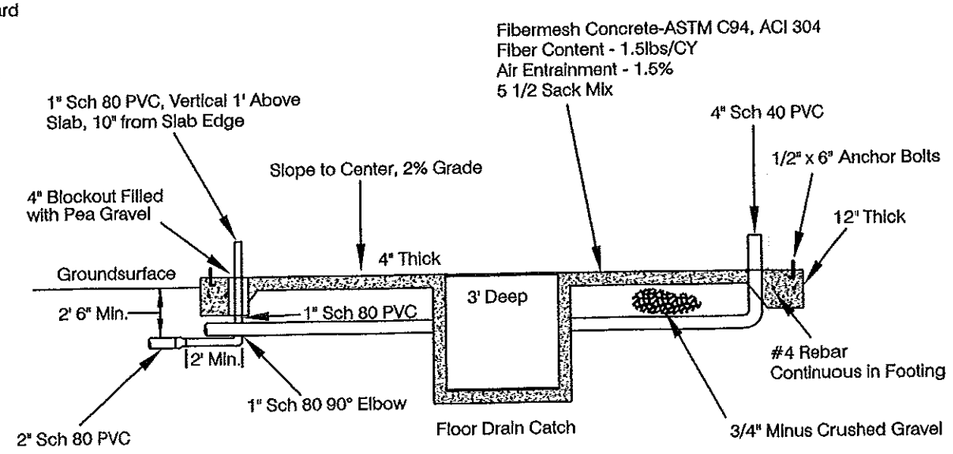
Revised By:
BROWN AND CALDWELL

DESIGNED BY: Maxim Tech, Inc.	DRAWN BY: MS	CHECKED BY: EHS
DATE: August 2000		ACAD FILE: P:/sunnyside/install/photo
PROJECT NO.: 19046.004		PLOT SCALE: 1:50
FIGURE: L1	REVISION: 8/20/00	SHEET: 2/8



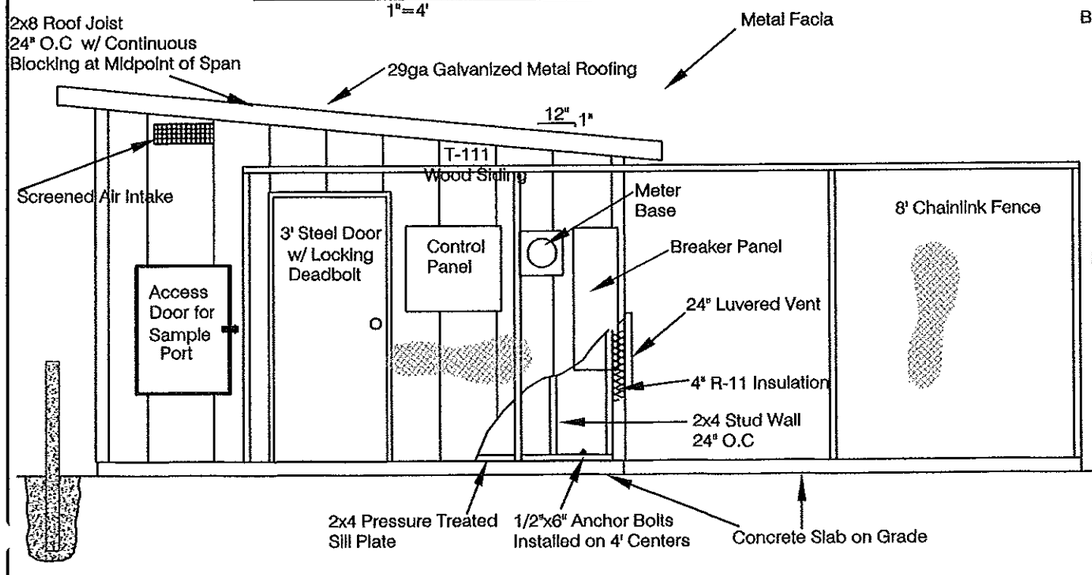
FLOOR SLAB - PLAN VIEW

1"=4'



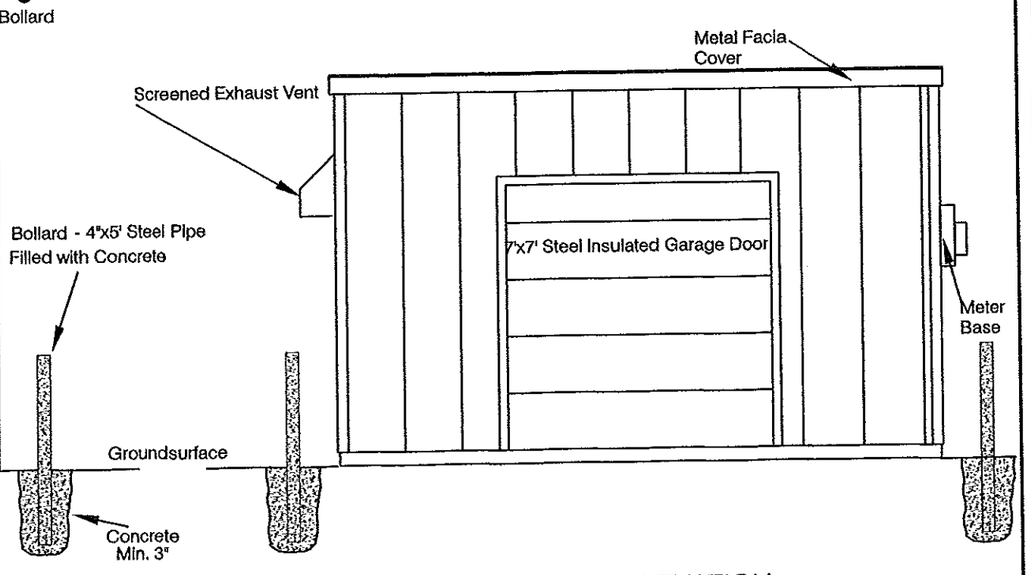
FLOOR SLAB - SECTION VIEW

1"=4'



EAST ELEVATION

1"=4'



SOUTH ELEVATION

1"=4'

BROWN AND CALDWELL

10015 N. Division St.
Suite 100
Spokane, WA 99228

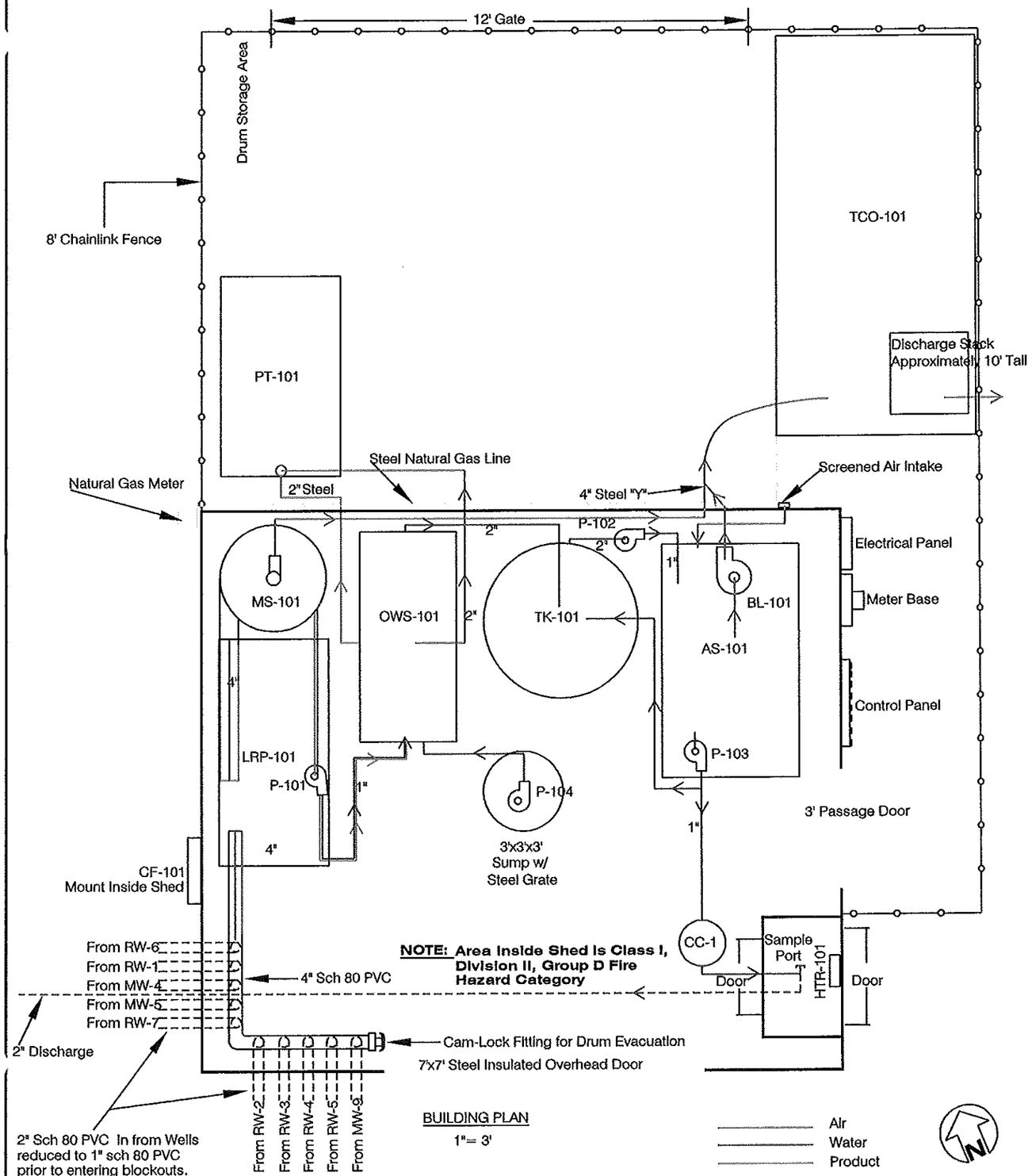
PREPARED FOR:

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

TREATMENT SHED AND
FENCED COMPOUND DETAIL

Revised By:
Brown and Caldwell

DESIGNED BY: Maxim Tech, Inc.	DETAILED BY: ME	CHECKED BY: SMS
DATE: August 2000		ACAD FILE: shdprof.dwg
PROJECT NO.: 19046.004		PLOT SCALE: 1:1
FIGURE: D1	REVISION: 8/30/00	SHEET: 3/8



BUILDING PLAN

1"= 3'

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

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

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

LRP-101
Liquid Ring Pump
MFG: Travini
Operating Point: 280 cfm @ 28" Hg
Model: H2TO400S
Rating: 25hp, 230 VAC
Class I, Division II
**Moyno Progressing Cavity Pump with 3/4 hp Motor

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

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

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

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

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

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

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

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

CC-1
Carbon Canister, Aqueous Phase (2000 lb.)

BROWN AND CALDWELL
10015 N. Division St.
Suite 100
Spokane, WA 99228

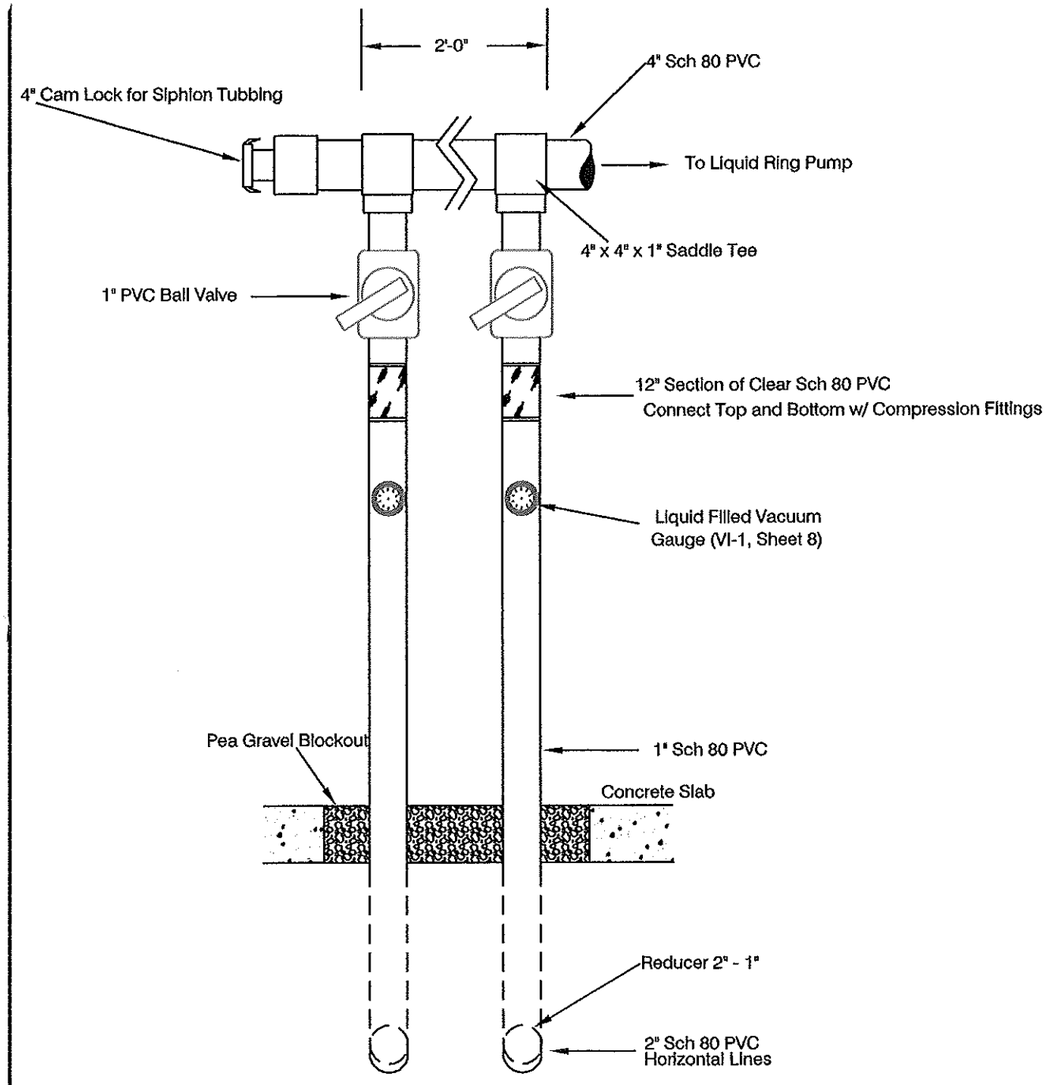
PREPARED FOR:

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

MECHANICAL PLAN

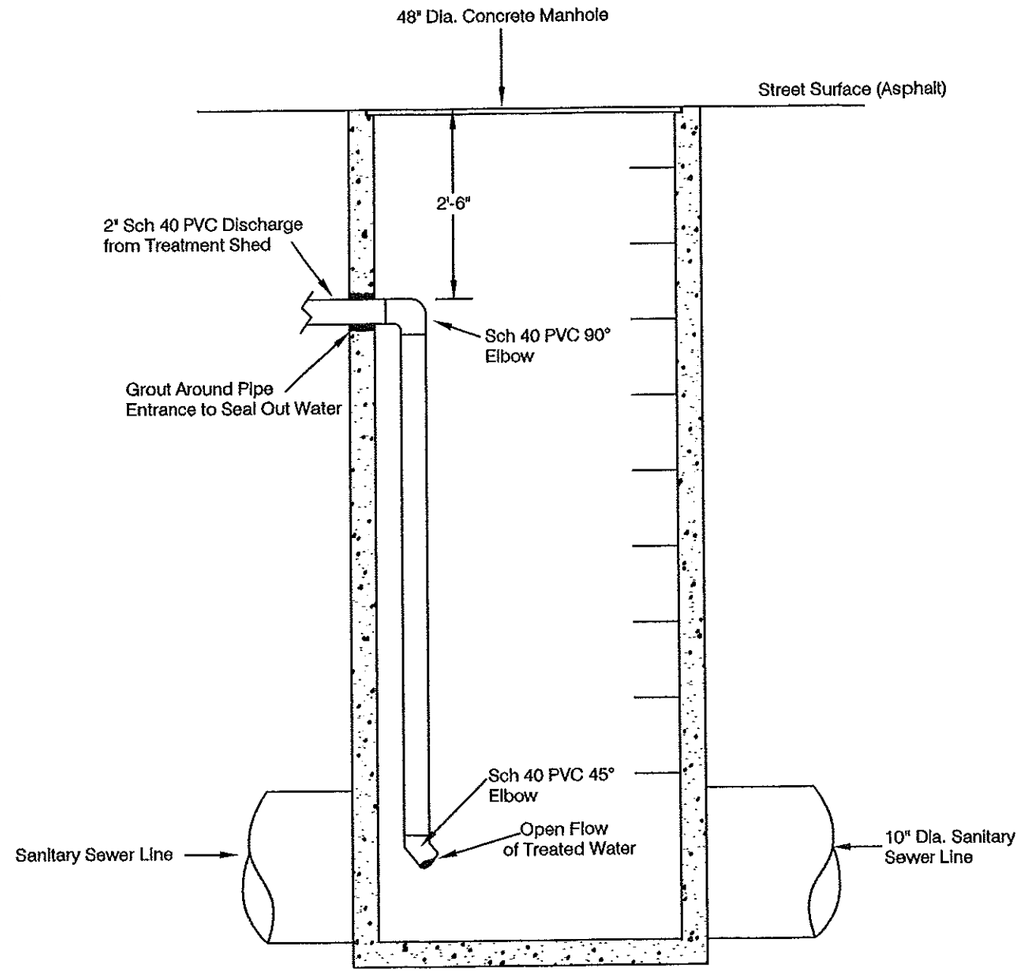
Revised By:
Brown and Caldwell

DESIGNED BY: Mostin Tech, Inc.	DETAILED BY: ME	CHECKED BY: ENJS
DATE: August 2000	ACAD FILE: blshed.DWG	
PROJECT NO.: 19345.004	PLOT SCALE: 1:1	
FIGURE: P1	REVISION: 8/30/00	SHEET: 4/8



MANIFOLD DETAIL (TYP.)

1" = 1'



EXISTING MANHOLE (Sunnyside Public Works)

1" = 2'

BROWN AND CALDWELL
10015 N. Division St.
Suite 100
Spokane, WA 99228

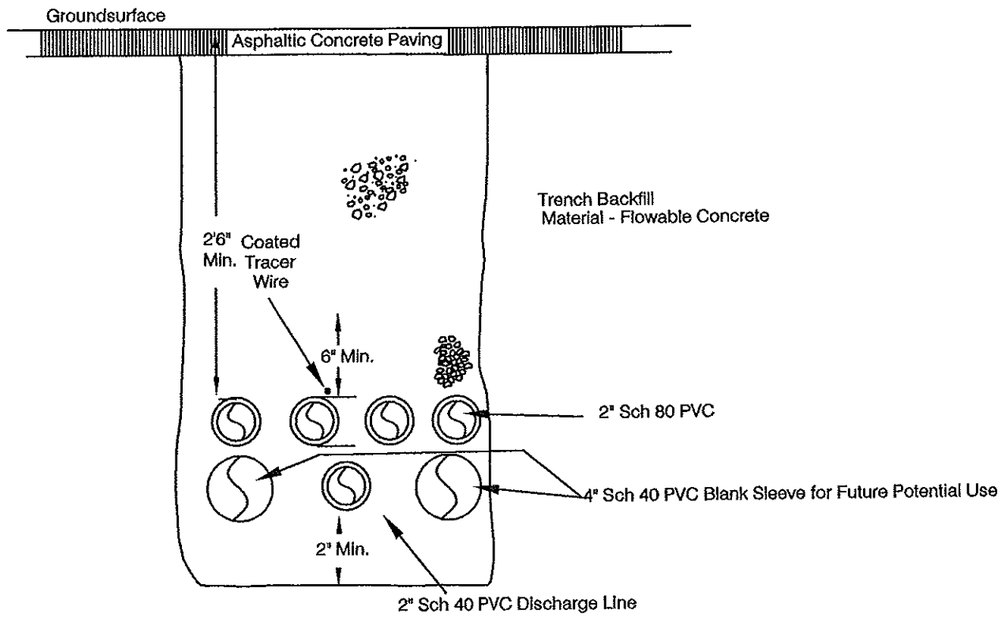
PREPARED FOR:
TIME OIL
PROPERTY 01-068
REMEDIATION SYSTEM
107 W Lincoln Avenue
Sunnyside, Washington

MANIFOLD / DISCHARGE DETAILS

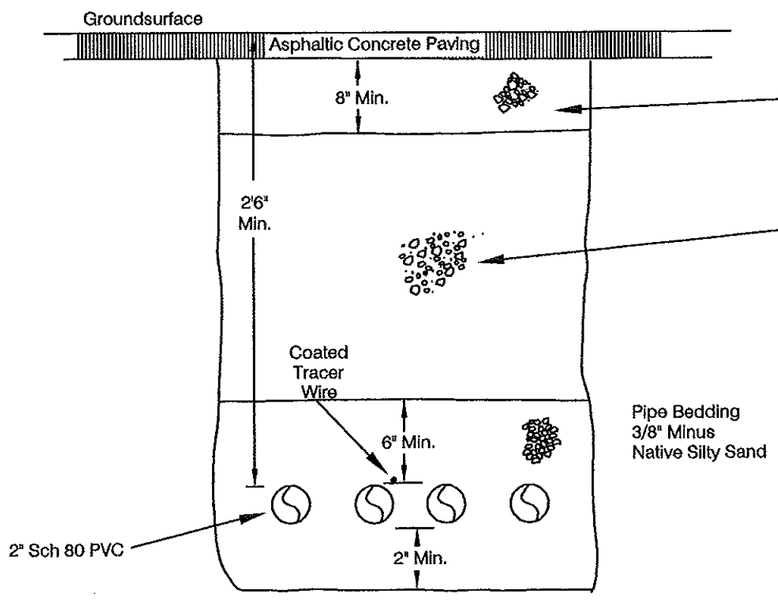
Revised By:
Brown and Caldwell

DESIGNED BY: Maxim Tech, Inc.	DETAILED BY: ME	CHECKED BY: ENJS
DATE: August 2000	ACAD FILE: MANIFLD.DWG	
PROJECT NO.: 19048.004	PLOT SCALE: 1:1	
FIGURE: D2	REVISION: 8/30/00	SHEET: 5/8

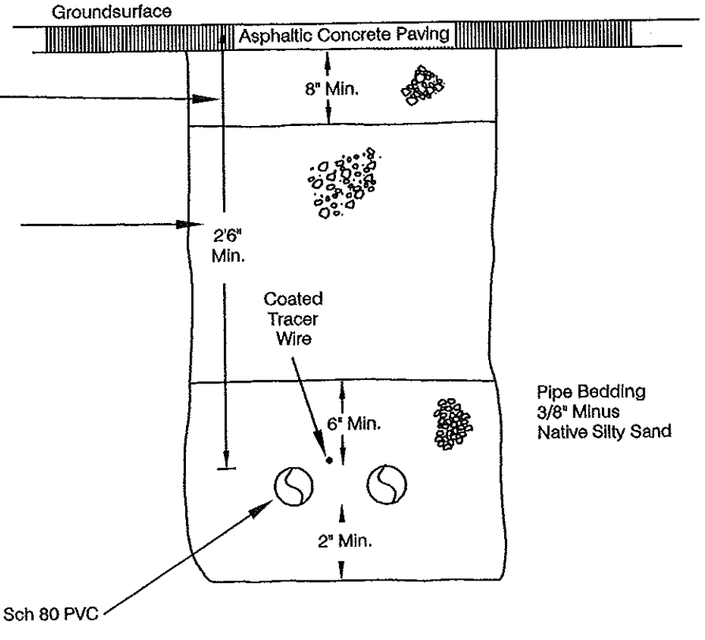
A-A' (First Avenue Crossing)



B-B'



C-C' & D-D'



BROWN AND CALDWELL

10015 N. Division St.
Suite 100
Spokane, WA 99228

PREPARED FOR:

TIME OIL
PROPERTY 01-068
REMEDIATION SYSTEM

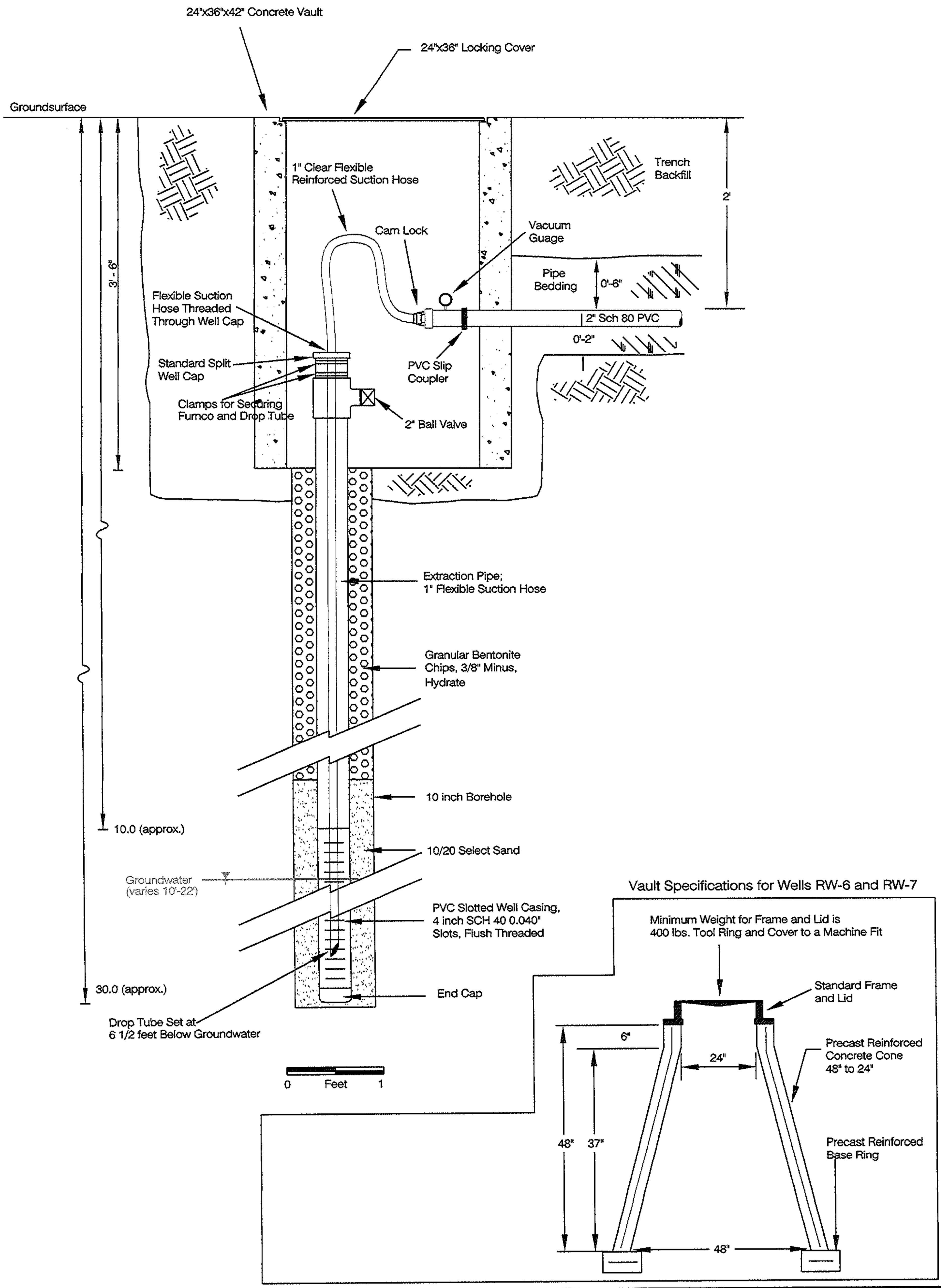
107 W Lincoln Avenue
Sunnyside, Washington

TRENCH DETAILS
Underground Piping

Revised By:
Brown and Caldwell

DESIGNED BY: Maxim Tech, Inc.	DETAILED BY: ME	CHECKED BY: ENJS
DATE: August 2000	ACAD FILE: roodsing.DWG	
PROJECT NO.: 10048.004	PLOT SCALE: 1:1	
FIGURE: D3	REVISION: 8/30/00	SHEET: 6/8

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



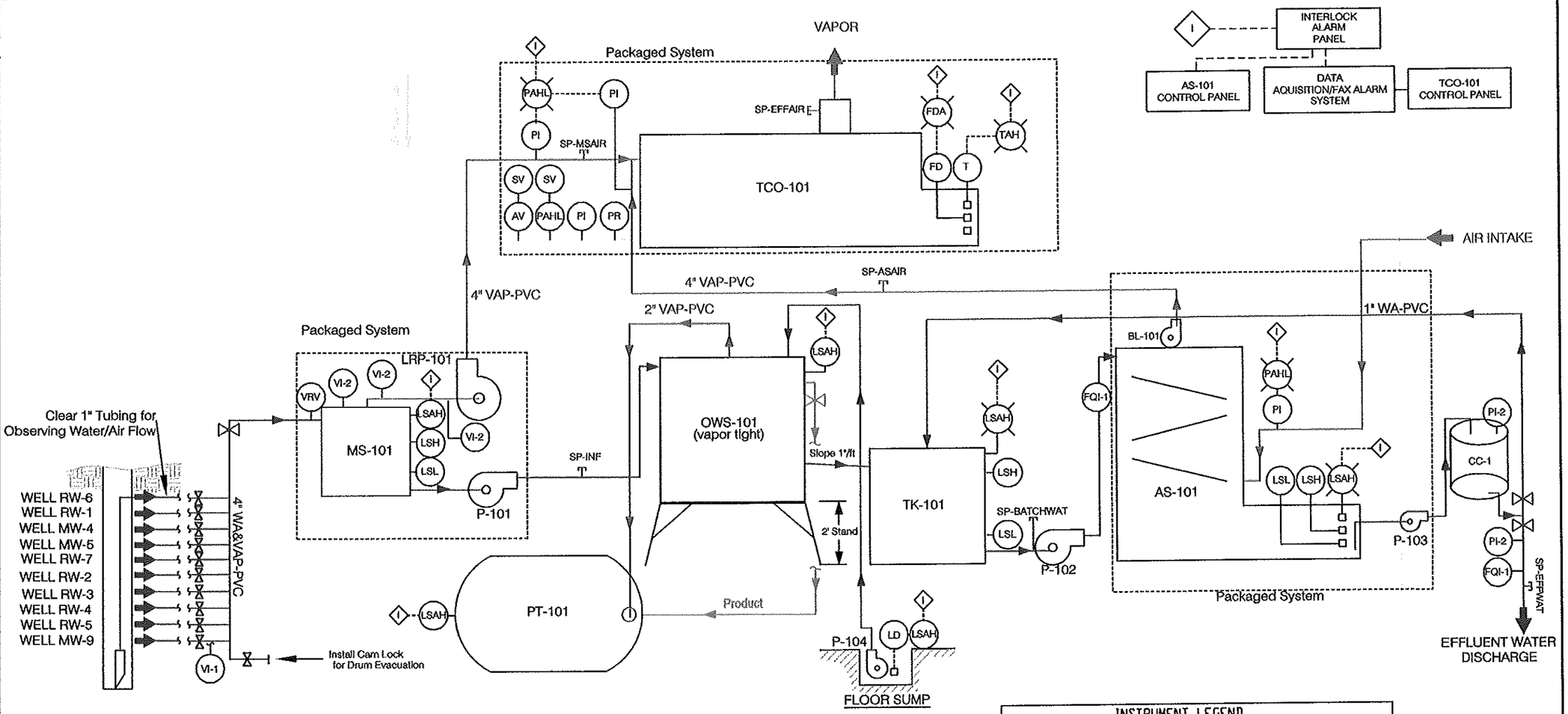
BROWN AND CALDWELL
10015 N. Division St.
Suite 100
Spokane, WA 99228

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

EXTRACTION
WELL DETAIL

Revised By:
Brown and Caldwell

DESIGNED BY: Maxim Tech, Inc.	DETAILED BY: MC	CHECKED BY: EM/S
DATE: August 2000		ACAD FILE: WELLSCH.DWG
PROJECT NO.: 10048.004		PLOT SCALE: 1:1
FIGURE: D4	REVISION: 8/30/00	SHEET: 7/8



SYMBOL LEGEND

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

Piping line numbers

3"- WA- PVC
- Material
- Fluid Type
- Diameter

Fluids

WA- Water AS- Air supply
G-Product 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
LRP-101	Vapor	Liquid Ring Pump
P-101,102,103	Fluid	Transfer Pump
P-104	Fluid	Sump Pump
CC-1	Fluid	Carbon Vessel

INSTRUMENT LEGEND

TAG NO.	SERVICE	DESCRIPTION
VI-1	Fluid/Vapor	Liquid Filled Vacuum Indicator (0-20" Hg)
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)
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

BROWN AND CALDWELL
10015 N. Division St.
Suite 100
Spokane, WA 99228

PREPARED FOR:

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

FLOW DIAGRAM
Piping and Instruments

Revised By:
Brown and Caldwell

DESIGNED BY: Maslin Tech, Inc.	DETAILED BY: ME	CHECKED BY: RMS
DATE: August 2000		ACAD FILE: flowshtl.dwg
PROJECT NO.: 10048.004		PLOT SCALE: 1:1
FIGURE: F1	REVISION: 8/30/00	SHEET: 8/8

APPENDIX B

AS-BUILT WELL LOGS

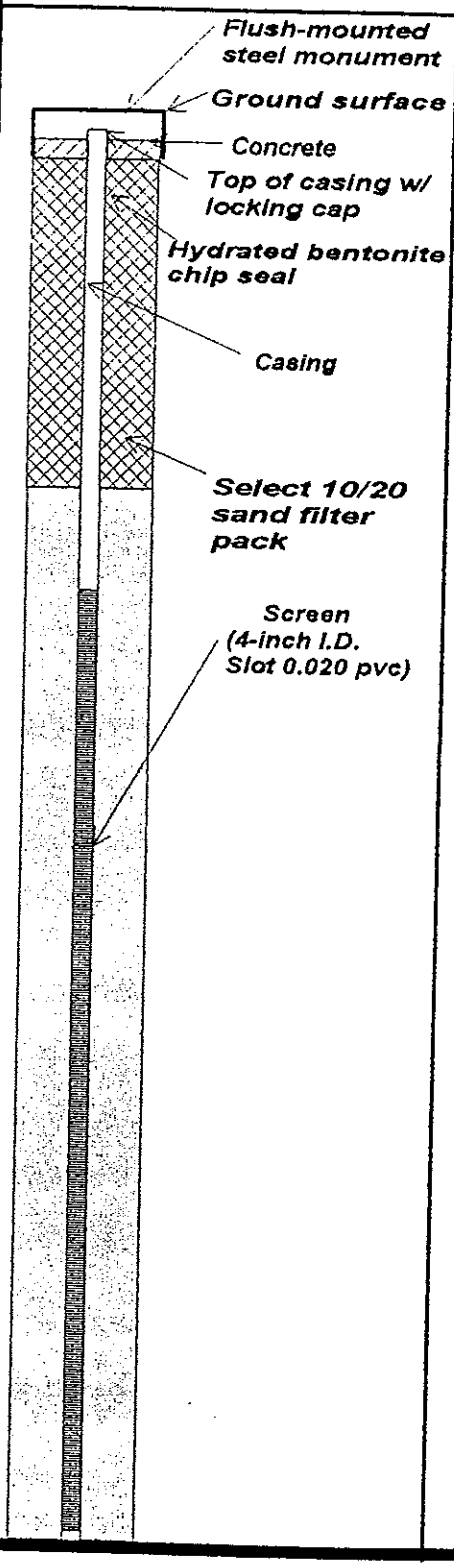
PROJECT *Sunnyside* W.O. *19046* WELL NO. *RW-1*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0						
5						
10						
15						ATD
	Stiff, wet, brown/gray, CLAY with silt					
	Wet, brown/gray SAND with little silt		S-1	8/12 20/30	1218	
20						
25						
30						

Well terminated at approxiamtely 35 feet

AS-BUILT DESIGN



TESTING

LEGEND

BROWN AND CALDWELL
Environmental Consulting
10015 North Division Street, Suite 100
Spokane, WA 99218
Tel: 509-777-1126/Fax: 509-777-1133

Drilling started: *2 May 2000* Drilling completed: *2 May 2000* Logged by: *ME*

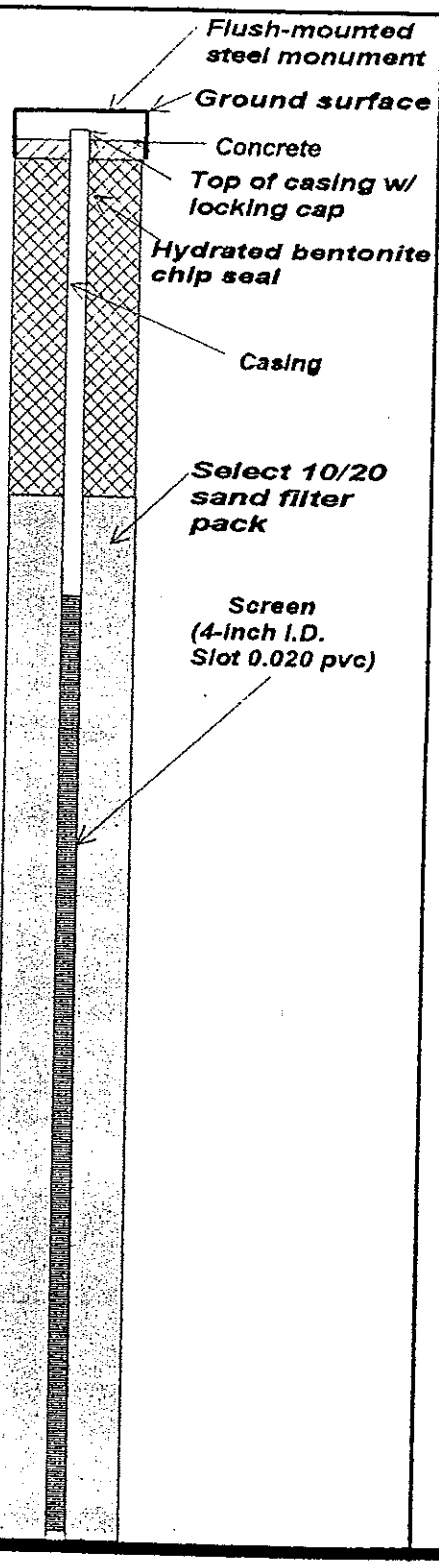
PROJECT *Sunnyside* W.O. *19046* WELL NO. *RW-2*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0						
5						
10						
15						
20	*Medium stiff, saturated, grav, SILT with fine sand*	S-1	8/18 18/28	1930	AID	
	Mdium stiff, saturated, gray,fine SAND with silt					
25						
30						

Well terminated at approxiamtely 35 feet

AS-BUILT DESIGN



TESTING

LEGEND

BROWN AND CALDWELL
Environmental Consulting
10015 North Division Street, Suite 100
Spokane, WA 99218
Tel: 509-777-1126/Fax: 509-777-1133

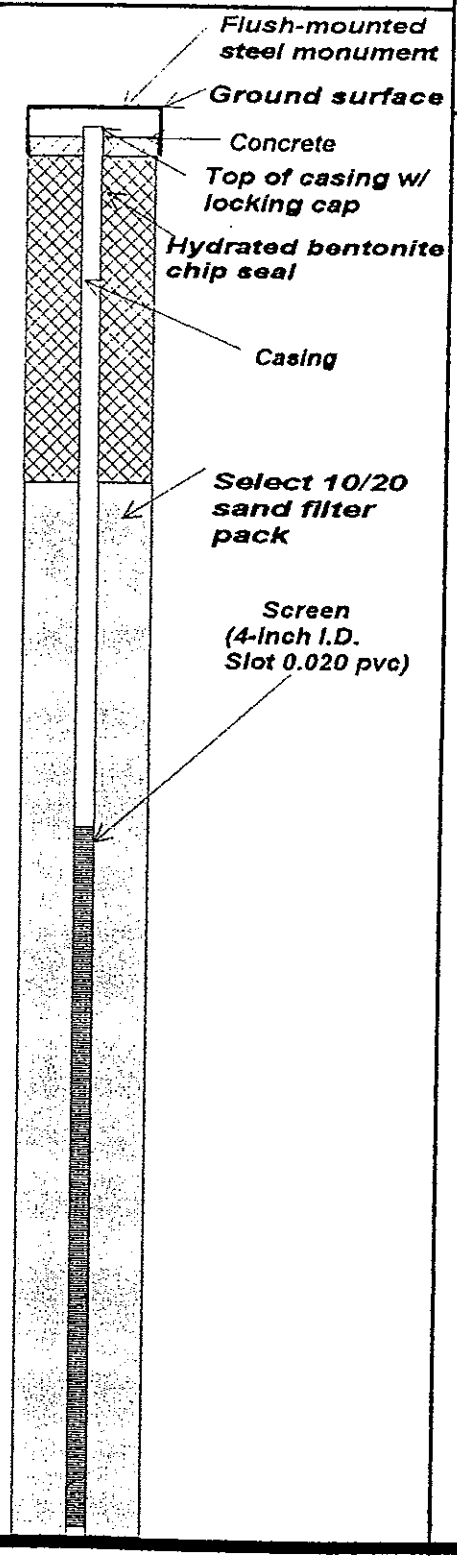
Drilling started: *2 May 2000* **Drilling completed:** *2 May 2000* **Logged by:** *ME*

PROJECT *Sunnyside* W.O. *19046* WELL NO. *RW-3*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0						
5						
10						
15						
20	*Stiff, wet, gray SILT with fine grained sand layers of wet, gray, fine grained SAND with little silt*		S-1	6/14 25/35	2938	ATD
25						
30						

AS-BUILT DESIGN



TESTING

Well terminated at approxiamtely 30 feet

LEGEND

BROWN AND CALDWELL
Environmental Consulting
10015 North Division Street, Suite 100
Spokane, WA 99218
Tel: 509-777-1126/Fax: 509-777-1133

Drilling started: *1 May 2000* Drilling completed: *1 May 2000* Logged by: *ME*

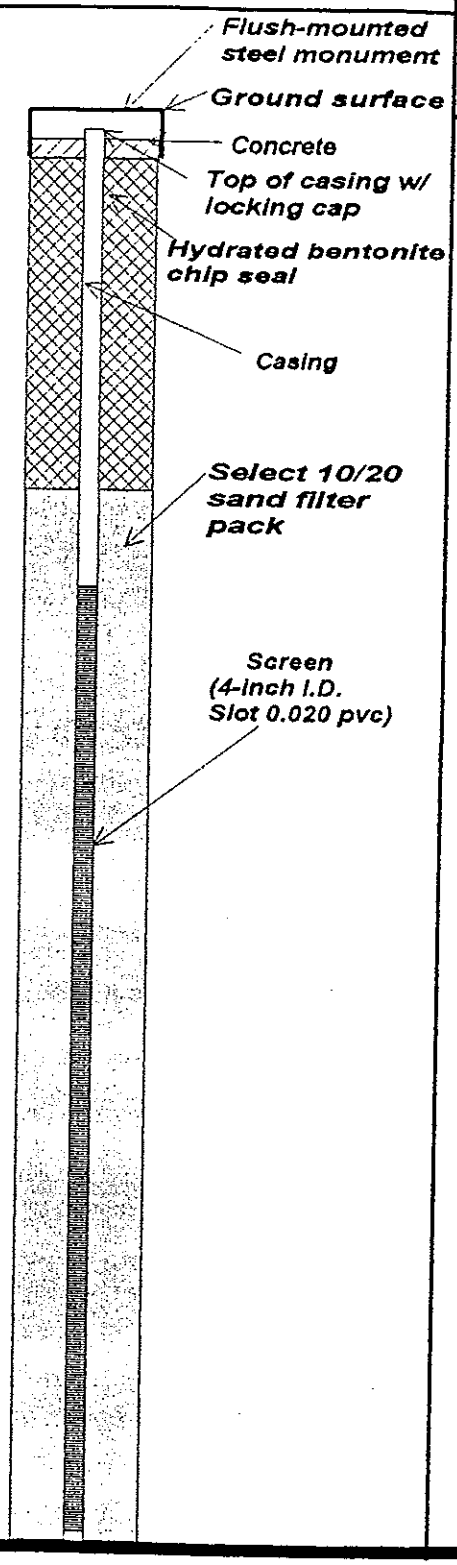
PROJECT *Sunnyside* W.O. *19046* WELL NO. *RW-4*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0						
5						
10						
15						
20	*Stiff, wet, gray SILT with moderate fine grained SAND*		S-1	8/16 18/24	548	AD
25						
30						

Well terminated at approxiamtely 35 feet

AS-BUILT DESIGN



TESTING

LEGEND

BROWN AND CALDWELL
Environmental Consulting
10015 North Division Street, Suite 100
Spokane, WA 99218
Tel: 509-777-1126/Fax: 509-777-1133

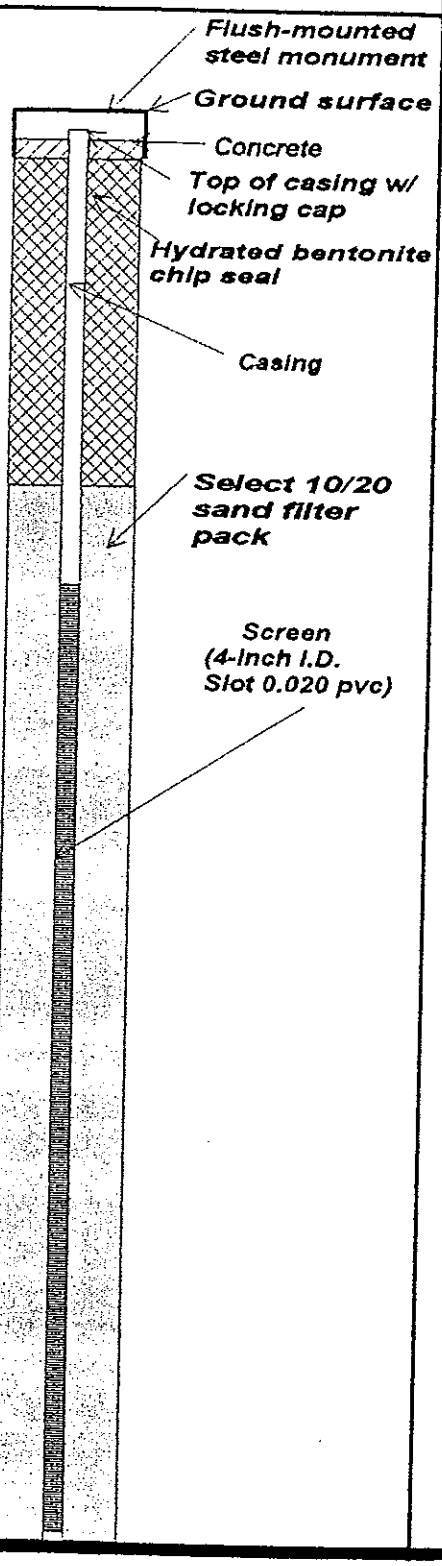
Drilling started: *1 May 2000* **Drilling completed:** *1 May 2000* **Logged by:** *ME*

PROJECT *Sunnyside* W.O. *19046* WELL NO. *RW-5*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0						
5						
10						
15						
20	*Stiff, wet, gray SILT with fine grained SAND*	S-1		10/16 28/32	3.4	ATD
25						
30						

AS-BUILT DESIGN



TESTING

Well terminated at approxiamtely 35 feet

LEGEND

BROWN AND CALDWELL
Environmental Consulting
10015 North Division Street, Suite 100
Spokane, WA 99218
Tel: 509-777-1126/Fax: 509-777-1133

Drilling started: *1 May 2000* Drilling completed: *1 May 2000* Logged by: *ME*

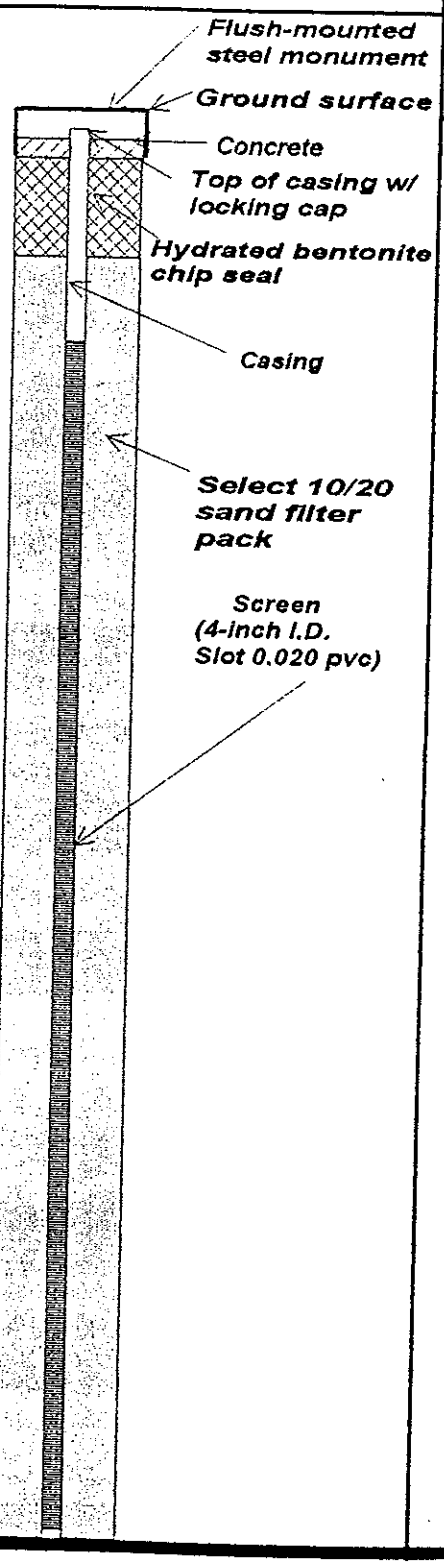
PROJECT *Sunnyside* W.O. *19046* WELL NO. *RW-6*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0						
5						
10						
15						
20	*Medium stiff, wet, brown/gray SILT with fine grained SAND* / *Saturated, brown/gray, fine SAND with silt*		S-1	8/20 22/25	876	AID
25						
30						

Well terminated at approxiamtely 35 feet

AS-BUILT DESIGN



TESTING

LEGEND

BROWN AND CALDWELL
Environmental Consulting
10015 North Division Street, Suite 100
Spokane, WA 99218
Tel: 509-777-1126/Fax: 509-777-1133

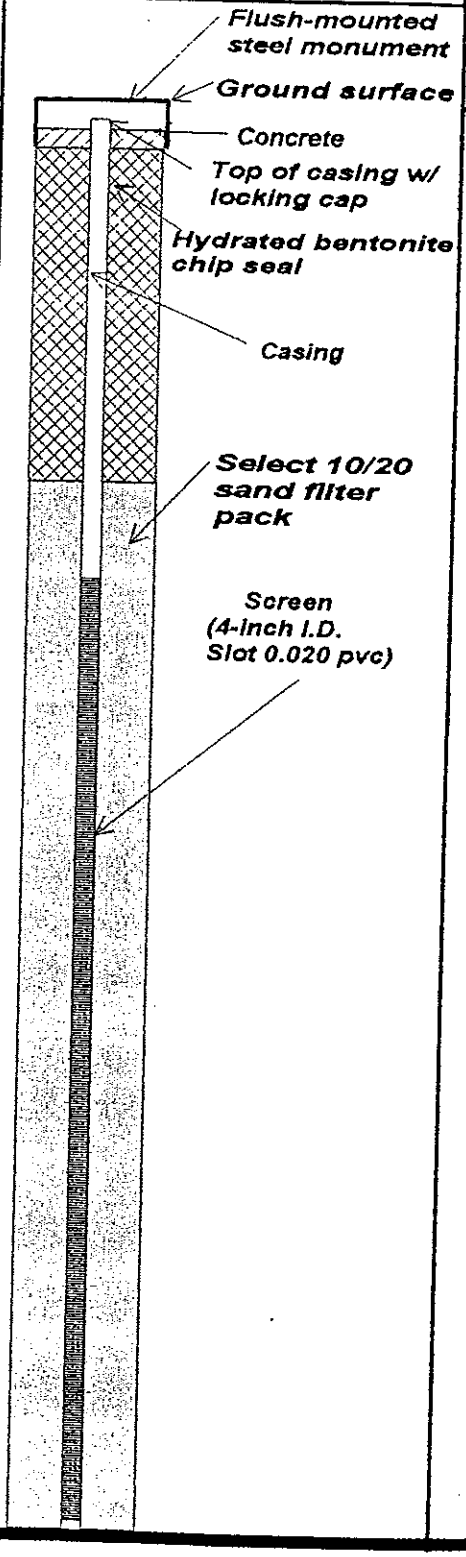
Drilling started: *2 May 2000* Drilling completed: *2 May 2000* Logged by: *ME*

PROJECT *Sunnyside* W.O. *19046* WELL NO. *RW-7*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0						
5						
10						
15						
20	*Stiff, wet, brown/gray SILT with fine grained SAND*		S-1	9/12 18/32		ATD
25						
30	Well terminated at approxiamtely 35 feet					

AS-BUILT DESIGN



TESTING

LEGEND

BROWN AND CALDWELL
Environmental Consulting
10015 North Division Street, Suite 100
Spokane, WA 99218
Tel: 509-777-1126/Fax: 509-777-1133

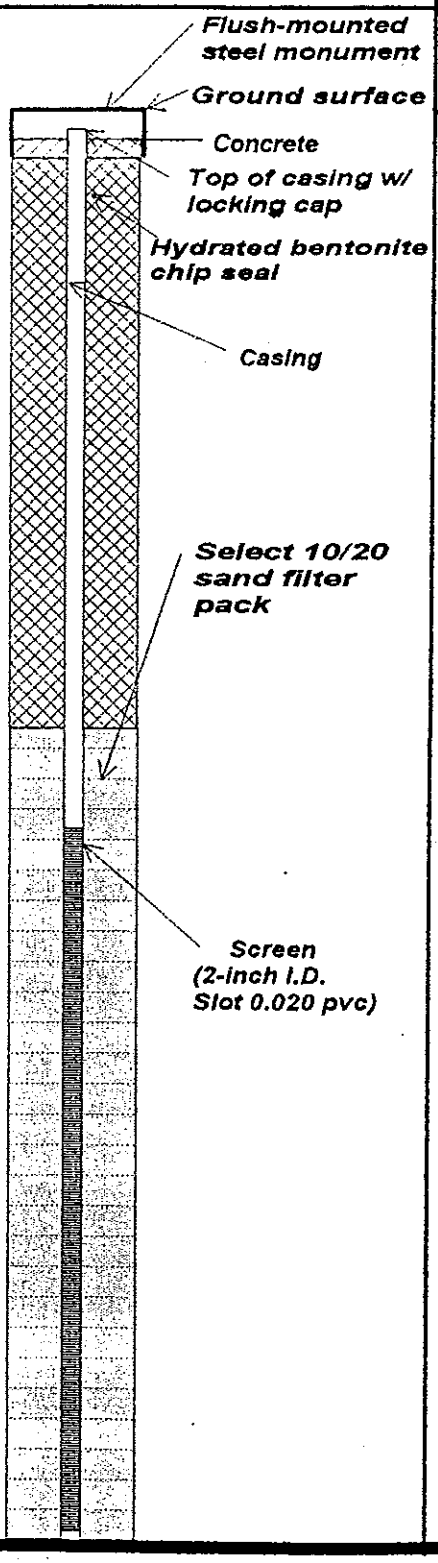
Drilling started: *2 May 2000* Drilling completed: *2 May 2000* Logged by: *ME*

PROJECT *Sunnyside* W.O. *19046* WELL NO. *MW-17*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0						
5						
10						
15	*Stiff, wet, gray SILT with fine sand*					
	3" layer of fine SAND with silt					
	Stiff, saturated, gray, SILT with fine		S-1	8/27 30/34	5.3	
20						ATD
25						
30						

AS-BUILT DESIGN



TESTING

Well terminated at approxiamtely 30 feet

LEGEND

BROWN AND CALDWELL
Environmental Consulting
10015 North Division Street, Suite 100
Spokane, WA 99218
Tel: 509-777-1126/Fax: 509-777-1133

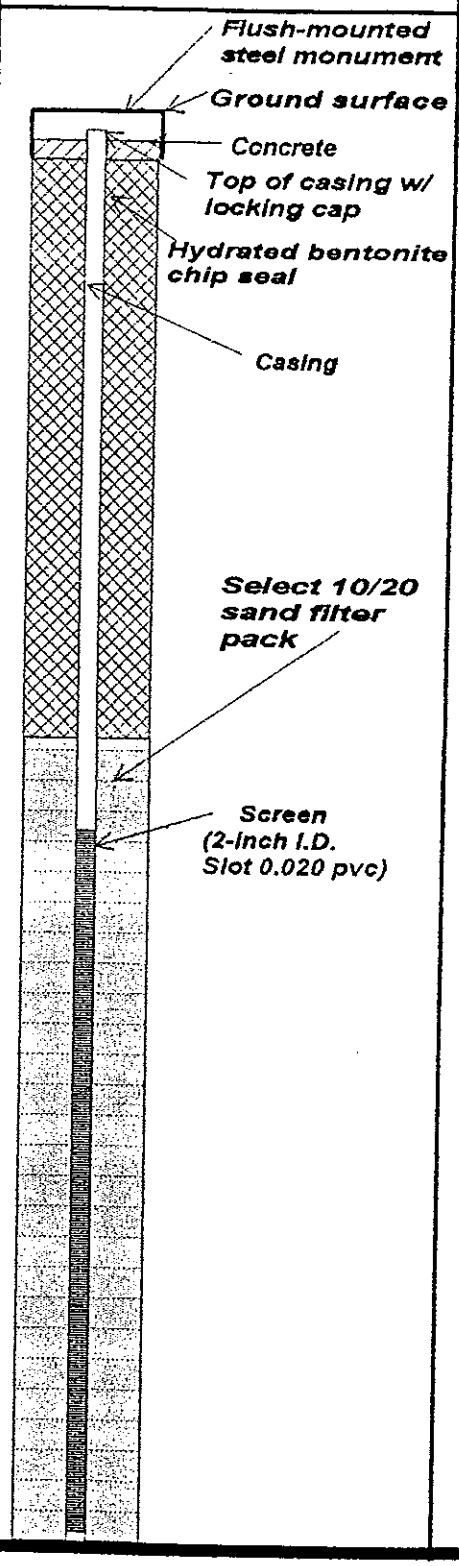
Drilling started: *1 May 2000* **Drilling completed:** *1 May 2000* **Logged by:** *ME*

PROJECT *Sunnyside* W.O. *19046* WELL NO. *MW-18*

Elevation reference:
Ground surface elevation: Casing elevation:

DEPTH (feet)	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING (ppm)	GROUND WATER
0						
5						
10						
15						
	Stiff, set, gray, SILT with fine grained sand		S-1	10/18 30/30	0.8	
20						ATD
25						
30						

AS-BUILT DESIGN



TESTING

Well terminated at approxiamtely 30 feet

LEGEND

BROWN AND CALDWELL
Environmental Consulting
10015 North Division Street, Suite 100
Spokane, WA 99218
Tel: 509-777-1126/Fax: 509-777-1133

Drilling started: *1 May 2000* Drilling completed: *1 May 2000* Logged by: *ME*

APPENDIX C

REGULATED WASTE DISPOSAL INFORMATION

REMTECH
GENERAL CONSTRUCTION &
ENVIRONMENTAL REMEDIATION

8 August, 2000

Gene St. Goddard
Brown & Caldwell
10015 N. Division, Suite 100
Spokane, WA 99218

RE: Soil Treatment

Mr. St. Goddard:

Remtech received 29 55-gallon drum of Petroleum Contaminated Soil on 17 May 2000. Remtech transported this material to Remtech for your client Time Oil Company.

Our Low Temperature ermal Disorption plant has been in operation since early June of this year. This material has been successfully treated as of today's date.

Please feel free to contact me if you have any further questions or concerns.

Sincerely,

Donald B. Airey
Senior Project Manager

8924 W. Electric Ave. ▮ Spokane, WA 99224 ▮ Phone: 509-624-0210 ▮ Fax: 509-624-6763

APPENDIX D

CLEAN AIR AUTHORITY – NOTICE OF CONSTRUCTION

FEE: $75.00 Filing + Surcharge ($) = total due $
(surcharge calculated by fee schedule as listed in YRCAA Restated Reg. 1,13.02)

YRCAA NOC No:_____
Date Fee Paid: _____
Received By: _____

YAKIMA REGIONAL CLEAN AIR AUTHORITY

Mailing Address: Six So. Second St., Suite 1016
Yakima, WA 98901
Phone: (509) 574-1410
Fax: (509) 574-1411

NOTICE OF CONSTRUCTION

INSTALLATION OR ESTABLISHMENT OF NEW AIR CONTAMINANT SOURCES

BUSINESS NAME: Time Oil Company

MAILING ADDRESS: 2737 West Commodore Way, Seattle, WA 98199-1233

NATURE OF BUSINESS: Retail Gasoline Distribution located at 107 W. Lincoln Avenue in Sunnyside Washington. Fuel dispensing facility consist of: Underground storage system of 2 tanks, dispensing island and associated underground piping.

TYPE OF PROCESS, EQUIPMENT, OR APPARATUS: Bioslurp (high vacuum multi-phase extraction system to be constructed. Vapors recovered from subsurface to be treated with Thermal Catalytic Oxidizer manufactured by H2Oil Technologies (Model H2CO500G)

LIST AIR CONTAMINANT(S) WHICH WILL BE PRODUCED AND/OR CONTROLLED:
Benzene, Toluene, Ethylbenzene, Xylenes, Total Petroleum Hydrocarbons-Gasoline

ESTIMATED COST: OF BASIC SOURCE EQUIPMENT $ 185,000
OF CONTAMINANT CONTROL APPARATUS $ 55,000

ESTIMATED STARTING DATE April-May 2000

ESTIMATED COMPLETION DATE April 2005

ADDRESS WHERE EQUIPMENT WILL BE LOCATED: Washington Hills Cellars
111 E Lincoln, Sunnyside, WA

SEPA: *I certify that the State Environmental Policy Act (SEPA) has been satisfied for this project (that is, either a final Declaration of Non-significance or Environmental Impact Statement has been issued) on_____ by _____.*
Governmental Agency

APPLICANT: I hereby certify that the information contained in this application, including supplemental forms and data, when required, is, to the best of my knowledge, complete and correct.

Signature Jim M St Jean Date 3/15/00

Title Sr. Hydrogeologist - Maxim Phone 509 465 2188

PROVIDE ALL PERTINENT INFORMATION REGARDING AIR EMISSIONS AND THEIR CONTROLS WITH THIS APPLICATION. PLEASE CONTACT YRCAA FOR DETAILS ON SPECIFIC PROJECT REQUIREMENTS.

YAKIMA REGIONAL CLEAN AIR AUTHORITY

INFORMATION REQUEST
for
DECLARING INTENT TO CONSTRUCT, INSTALL, OR ESTABLISH A NEW AIR CONTAMINANT SOURCE
or
REPLACEMENT OR SUBSTANTIAL ALTERATION OF EMISSION CONTROL TECHNOLOGY ON AN EXISTING STATIONARY SOURCE

I. General Information:

1. Business Name Valley View Mart (location of release) Remedial equipment to be located across street at Washington Hills Cellars Property.
2. Business Address 107 W Lincoln, Sunnyside WA
3. Business Phone Number (206) 286-6457
4. Location of Source leaking underground storage tanks owned by Time Oil at Valley View Market
5. Nature of Business Gasoline Distribution and Convenience Store (Valley View Mart)
6. Construction Starting Date April - May 2000
7. Construction Completion Date Late May/June 2000
8. Describe Input to Output Process (Attach drawings, schematics, prints, or block diagrams Vapors are distributed to thermal catalytic oxidizer from moisture separator and air stripper. Thermal catalytic oxidizer is designed to reduce petroleum hydrocarbon concentrations (effective destruction to 99.5% efficiency).
9. General Location Remedial equipment to be located in parking lot West of Washington Hills Cellars to the East of First Avenue
10. Process:
    - Production Output per Year (tons pounds) approximately 660 pounds/year
    - Based on average TNMH output of 1.808 lbs/day after treatment with catalytic oxidizer. Vapors to be treated directly from subsurface and from air stripper installed for groundwater treatment.
    - Maximum Output per Hour (tons pounds) 0.075 lbs/hour
    - Percentage of Production (%) Dec - Feb 100% Mar - May 100% /Jun - Aug 100% /Sep - Nov 100%
    - Operation Schedule Hrs/Day 24 Day/Wk 7 Wks/Yr 52

11. Compliance with SEPA (State Environmental Policy Act) - Check One of the Options Below: ***Note: A SEPA Checklist was submitted to Washington State Department of Ecology and The City of Sunnyside.***

√☐ A DNS or EIS has been Issued by Another Agency for this Project and a Copy is Attached. ***Completed by Maxim 1/2000: No DNS issued to date***

☐ If no DNS or EIS Exists for this Project, a Completed Checklist for this Project is Attached.

II. Emissions Estimations and Calculations:

1. Criteria Pollutants (gr/dscf, tons/yr, lbs/hr. ppm, etc.)
   - Particulate _____
   - Volatile Organic Compounds __TNMH = 1.808 lbs/day_____
   - Sulfur Oxides _____
   - Nitrogen Oxides _____
   - Carbon Monoxide _____
   - Lead _____

2. Toxic Pollutants (Name) Quantity (in gr/dscf, tons/yr, lbs/hr. ppm, etc.)

Benzene___*post treatment values____	_99.5% eff. Average=0.0304 lbs/day
Toluene___*post treatment values____	_99.5% eff. Average=0.0431 lbs/day
Ethylbenzene__*post treatment values_	_99.5% eff. Average=0.0037 lbs/day
Xylenes__*post treatment values_____	_99.5% eff. Average=0.0194 lbs/day
Total Petroleum Hydrocarbons_*post treatment values____	_99.5% eff. Average=1.808 lbs/day

3. Fugitive Pollutants (Source) Quantity (in gr/dscf, tons/yr, lbs/hr. ppm, etc.)

_____NONE_____ _____NONE_____

4. Air Pollution Modeling
   1. Results __NONE_____
   2. Computer Printout Attached? ☐ Yes ☐ No

III. Emission Data:

1. Stack Height
   (Feet)__>15'
   Inside Diameter (feet) __0.33
   Gas Exit Temp (degrees F) _____
   Gas Exit Velocity (ft/min) _____
   Flow Rate (cfm) __estimated 250 cfm (25 cfm for each of 10 wells)_
   Shared Stack? _____No_____
   Distance from Stack to Property Line ___~25'_____

2. Discharge Point or points (if no stack or other than stack)
   Height (feet) _____NA_____
   Inside Diameter (feet) _____NA_____
   Gas Exit Temp (degrees F) ____NA_____
   Gas Exit Velocity (ft/min) _____NA_____
   Flow Rate (cfm) ___NA_____
   Shared Stack? _____NA_____
   Distance from Stack to Property Line ____NA_____

3. Fuel
   Type ____Natural Gas_____
   % Sulfur ___NA_____
   % Ash _____NA_____
   Unit of Measure (gal./cu.ft./etc.) ___Therms_____
   BTU per Unit of Measure __100,000 BTU/Therms_____
   Consumption Units per Year ____6,400 Terms/year_____
   Maximum Consumption Units per Hour _1.215 Terms_____

4. Building Dimensions
   Height (feet) ___10'_____
   Length (feet) _____16'_____
   Width (feet) ___16'_____

IV. Air Pollution Control Equipment:

Baghouse

Type _____
Efficiency _____NA_____
Bag Height (feet) _____
Bag Diameter (feet) _____
Filter Area (feet squared) _____
Blower Flow Rate (cfm) _____
Filter Media _____
Dimensions (feet) _____
Discharge Area Dimensions (feet) _____
Cleaning Mechanism (shake) (air psi) _____
Other Data _____

Scrubber

Type _____Air Stripper for extracted groundwater_____
Efficiency _____
Gas Differential Pressure (psi) _____
Liquor Differential Pressure (psi) _____
Liquor Flow (gpm) _____
Discharge Area Dimensions (feet) _____
Gas Flow (cfm) __150 scfm_____
Other Data _____air stripper - tray type_____

Cyclone

Type _____NA_____
Efficiency _____
Gas Flow (cfm) _____
Discharge Area Dimensions (feet) _____
Other Data _____

Precipitator

Type ___NA_____
Efficiency _____
Gas Flow (cfm) _____
Gas Velocity (ft/sec) _____
Residence Time _____
Gas Differential Pressure (psi) _____
Precipitation Rate (ft/sec) _____
Discharge Area Dimensions (feet) _____
Other Data _____

Ad/Absorp

Type _____NA_____
Efficiency _____
Gas Flow (cfm) _____
Gas Velocity (ft/sec) _____
Gas Temp (degree F) _____
Bed Volume (ft3) _____
Bed Dimensions (feet) _____
Capacity (hours) _____
Contaminant (lb/day) _____
Regeneration Time (hours) _____

Other

Type _Thermal Catalytic Oxidizer_____
Efficiency __99.5%_____
Gas Flow (cfm) __100-500 scfm_____
Discharge Area Dimensions (feet) ___to atmosphere_____

Additional Information:

1. Fugitive Dust Control Plan (Attach if Necessary) _NA_____

Yakima Regional Clean Air Authority

Six South 2nd Street, Suite 1016, Yakima, WA 989

(509) 574-1410 • Fax: (509) 574-14

June 1, 2000

Time Oil company
Attn: Mr. Scott B. Sloan
2737 West Commodore Way
P.O. Box 24447
Seattle, WA 98199-1233

Re: Notice of Construction for a remediation project at Property 01-068 of Time Oil Company located at 107 W. Lincoln Avenue, Sunnyside, Washington

Dear Mr. Sloan,

Thank you for submitting the referenced Notification. We have reviewed your remediation proposal further and based on the information you provided in your letter signed and received in our office 3-31-00, the subject notification is approved with the following conditions:

a) This remediation project is for the referenced activity and site with an effective date of June 15, 2000 ending on June 16, 2001.

b) At no time Bio-slurping shall be conducted when the Catalytic Oxidizer is not in operation.

c) A compliance source test shall be conducted to demonstrate the destruction efficiency of the Catalytic Oxidizer at 99.5 % for Benzene, Toluene, and Xylenes. Source tests shall be conducted in accordance with 40CFR part 60, Appendix A, Method 18 or equivalent method approved by YRCAA. Source tests shall be conducted within 30 days after complete installation of the Catalytic Oxidizer and results reported to YRCAA within 15 days after the source tests are completed.

d) The project shall comply with all applicable standards and requirements of RCW 70.94 and the Yakima Regional Clean Air Authority Regulation 1.

e) A site inspection may be conducted by YRCAA to verify compliance to the requirements of this review process.

f) Adequate dust suppression methods shall be available at all times to abate potential dust impacts. The operation may be suspended if dust emission problems persist.

g) Equipment shall be operated and maintained by personnel properly trained in its operation.

Please call Tom Silva of our office at (509) 574-1410, Ext. 11, if you have any other specific questions about the provisions of this review process.

Sincerely,

Les Ornelas
Director - APCO

cc: Richard Yanez, YRCAA

APPENDIX E

STATE WASTE DISCHARGE PERMIT

7. Check One:

☐ **Permit Renewal** (including renewal of temporary permits authorized by RCW 90.48.200)

Does this application request a greater amount of wastewater discharge, a greater amount of pollutant discharge, or a discharge of different pollutants than specified in the last permit application for this facility? ☐Yes ☐No

For permit renewals, the current permit is an attachment, by reference, to this application.

☐ **Permit Modification**

☐ **Existing Unpermitted Discharge**

✠ **Proposed Discharge**

Anticipated date of discharge:

Begin April or May 1999 and continue until remediation is complete._____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and/or imprisonment for knowing violations.

_____ _____ _____

Signature* Date Title

_____

Printed Name

*Applications must be signed as follows: Corporations, by a principal executive officer of at least the level of vice-president; partnership, by a general partner; sole proprietorship, by the proprietor. If these titles do not apply to your organization, the application is to be signed by the person who makes budget decisions for this facility.

The Department of Ecology is an equal opportunity agency and does not discriminate on the basis of race, creed, color, disability, age, religion, national origin, sex, marital status, disabled veteran's status, Vietnam Era veteran's status or sexual orientation.

If you have special accommodation needs or require this document in alternative format, please contact Gloria Bernhardt at (206) 407-6401 (voice). Ecology's telecommunications devise for the deaf (TDD) is (206) 407-6006.

SECTION B. PRODUCT INFORMATION

1. Briefly describe all manufacturing processes and products, and/or commercial activities at this facility. Provide the applicable Standard Industrial Classification (SIC) Code(s) for each activity (see *Standard Industrial Classification Manual,* 1987 ed.).

Description: Site consists of a convenience store (minimart) one fuel dispensing island and two underground storage tanks that are covered with a concrete slab. A remediation system has been designed for the site to remove petroleum hydrocarbons from the groundwater. The treated groundwater will meet Washington State Department of Ecology's Level 1 standards for discharge.

2. List raw materials and products:

Type	RAW MATERIALS	Quantity
Hydrocarbon/impacted GW		To be extracted from subsurface at ~ 13 gpm

Type	PRODUCTS	Quantity
Treated groundwater		to be discharges to POTW ~ 13gpm

SECTION C. PLANT OPERATIONAL CHARACTERISTICS

1. For each process listed in B.1. that generates wastewater, list the process, assign the waste stream a name and an ID # and describe whether it is a batch or continuous flow.

Process	Waste Stream Name	Waste Stream ID#	Batch or Continuous Process
Air stripping	Treated groundwater	1	continuos

2. On a separate sheet, produce a schematic drawing showing production processes, water flow through the facility, wastewater treatment devices and waste streams as named above. The drawing should indicate the source of intake water and show the operations contributing wastewater to the effluent. The treatment units should be labeled. Construct a water balance by showing average flows between intakes, operations, treatment units, and points of discharge to the POTW. (*See the example on the last page of this application form.)*

   Engineering plans attached

3. What is the maximum daily discharge flow: approximately 20,000 gallons/day

   Estimated 1.3 gpm/well – 10 extraction wells

What is the maximum average monthly discharge flow:
600,000 gallons

4. Describe any planned wastewater treatment improvements or changes in wastewater disposal methods and the schedule for the improvements. *(Use additional sheets, if necessary and label as attachment C4.)*

Extracted groundwater will be treated in remediation compound by air stripping technologies. System is constructed to allow recirculation of water for additional air stripping if required prior to discharge. In addition, optional carbon scrub unit can also be placed in line to further clean water prior to discharge. Monitoring of discharge for hydrocarbon concentrations will be conducted to ensure that Level I discharge criteria are being met for discharge to a POTW (Attachment A). Information from the remedial pilot test discharge is also included in Attachment B.

5. If production processes are subject to seasonal variations, provide the following information. List discharge for each waste stream in gallons per day (GPD). The combined value for each month should equal the estimated total monthly flow.

Waste Stream ID#	MONTHS											
	J	F	M	A	M	J	J	A	S	O	N	D
1-treated groundwater	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Estimated Total Monthly Flow (GPD)	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000

6. How many hours a day does this facility typically operate? 24
How many days a week does this facility typically operate? 7
How many weeks per year does this facility typically operate? 52

7. List all incidental materials like oil, paint, grease, solvents, and cleaners that are used or stored on site (*List only those with quantities greater than 10 gallons for liquids and 50 pound quantities for solids).* For solvents and solvent-based cleaners include a copy of the material safety data sheet for each material and estimate the quantity used. *(Use additional sheets, if necessary and label as attachment C.7.)*

Materials/Quantity Stored: Gasoline stored in UST's at the retail facility. Within remediation system LNAPL (gasoline) recovered from the shallow aquifer will be stored in a holding tank and emptied periodically. No other chemicals will be stored in remediation building.

8. Some types of facilities are required to have spill or waste control plans. Does this facility have: NA for remediation compound. For service station:

a. A Spill Prevention, Control, and Countermeasure Plan (40 CFR 112)? ☐ Yes ✠ No
b. An Emergency Response Plan (per WAC 173-303-350)? ✠ Yes ☐ No
c. A Runoff, spillage, or leak control plan (per WAC 173-216-110(f))? ☐ Yes ✠ No

d. Any spill or pollution prevention plan required by local, State or Federal authorities?
☐ Yes ✠ No If yes specify:_____

e. A Solid Waste Management Plan? ☐ Yes ✠ No

f. Slug Discharge Control Plan (40 CFR 403.8(f)(2)(v))? ☐ Yes ✠No

SECTION D. WATER CONSUMPTION AND WATER LOSS

1. Water source(s):Groundwater recovery wells for remediation system

☐ Public System (Specify)_____
✠ Private Well ☐ Surface Water

a. Water Right Permit Number: N/A_____

b. Legal Description of Water Source:

NW ¼S,NW ¼S,36, Section, 10 TWN, 22E R

2. Water use

a. Indicate total water use: Gallons per day (average) 18,720_____
Gallons per day (maximum) 20,000_____

b. Is water metered? ✠ Yes ☐ No

flow meter

SECTION E. WASTEWATER INFORMATION

1. How are the water intake and effluent flows measured?

   Intake: flow meter

   Effluent: flow meter

2. Provide measurements or range of measurements for treated wastewater prior to discharge to the POTW for the parameters with a check in the left column. Use the analytical methods given in the table unless an alternate method is approved by Ecology. All analyses, except pH, must be conducted by a laboratory registered or accredited by the Department of Ecology (WAC 173-216-125). If this is an application for permit renewal provide data for the last year for those parameters that are routinely measured. For parameters measured only for this application place the values under maximum.

✓	Parameter	Concentrations Measured Minimum	Maximum	Average	Analytical Method Std. Methods 19th edition	Detection Limit
	BOD (5 day)				5210	2 mg/l
	COD				5220 B, C, or D	5 mg/l
	Total Suspended Solids				2540D	1 mg/l
	Total Dissolved Solids				2540 C	
	Conductivity				2510 B	
	Ammonia-N				4500-NH_3 C	20 µg/l
✓	pH (MWs 10/25/99)	7.2	8.4	7.6	meter	
	Total Residual Chlorine				4500-Cl E	1 mg/l
	Fecal Coliform				9222 D	
	Total Coliform				9221 B or 9222 B	
	Dissolved Oxygen				4500-O C or 4500-O G	
	Nitrate + Nitrite-N				4500-NO_3 E	0.5 mg/l

	Total Kjeldahl N				4500-N_{org}	20 µg/l
	Ortho-phosphate-P				4500-P E or 4500-P F	1 µg/l

✓	Parameter	Concentrations Measured Minimum	Average	Maximum	Analytical Method Std. Methods 19th edition	Detection Limit
	Total-phosphate-P				4500-P B.4.	1 µg/l
	Total Oil & Grease				5520 C	0.2 mg/l
	Total Petroleum Hydrocarbon (gas)		<50.0		8020A,5520 D, F, WTPH-G	50µg/l
✓	BTEX		7.15			
✓	Benzene		<0.500		8020A	0.500µg/l
✓	Toluene		<0.500		8020A	0.500µg/l
✓	Ethylbenzene		<0.500		8020A	0.500µg/l
✓	Xylenes		7.15		8020A	1.0µg/l
					3500-K B	5 µg/l
					3500-Na B	2 µg/l
					4500-SO_4 E	1 mg/l
	Arsenic (total)				3114 B	2 µg/l
	Barium (total)				3500-Ba B	30 µg/l
	Cadmium (total)				3500-Cd B	5 µg/l
	Chromium (total)				3500-Cr B	50 µg/l
	Copper (total)				3500-Cu B	20 µg/l
✓	Lead (total)		<0.030		EPA 6010	0.030µg/l
	Mercury				3500-Hg B	0.2 µg/l
	Molybdenum (total)				3500-Mo	1 µg/l
	Nickel (total)				3500-Ni	20 µg/l
	Selenium (total)				3500-Se C	2 µg/l
	Silver (total)				3500-Ag B	10 µg/l

	Zinc (total)				3500-Zn B	5 µg/l

3. Describe the collection method for the samples which were analyzed above (i.e.,. grab, 24 hour composite).

Grab sample from discharge

4. Has the effluent been analyzed for any other parameters than those identified in question E.1.? ☐ Yes ✠ No If yes, attach results and label as attachment E.4. This data must clearly show the date, method and location of sampling. *(Note: Ecology may require additional effluent testing based on information submitted in this application.)*

5. Does this facility use any of the following chemicals as raw materials in production, produce them as part of the manufacturing process, or are they present in the wastewater? (*The number following the chemical name is the Chemical Abstract Service (CAS) reference number to aid in identifying the compound.*) ✠Yes ☐No

If yes, specify how the chemical is used and the quantity used or produced: Site is an active retail gasoline service station with gasoline stored in UST's. Chemicals in gasoline are in bold.

VOLATILE COMPOUNDS

Acrolein (107-02-8)
Acrylonitrile (107-13-1)
Benzene (71-43-2)
Bis (*chloromethyl*) Ether (542-88-1)
Bromoform (75-25-2)
Carbon Tetrachloride (108-90-7)
Chlorobenzene (108-90-7)
Chlorodibromomethane (124-48-1)
Chloroethane (75-00-3)
2-Chloroethylvinyl Ether (110-75-8)
Chloroform (67-66-3)
Dichlorobromomethane (75-27-4)
Dichlorodifluromethane (75-71-8)
1,1-Dichloroethane (75-34-3)
1,2-Dichloroethane (107-06-2)
Vinyl Chloride (75-01-4)
1,1-Dichloroethylene (75-35-4)
1,2-Dichloropropane (78-87-5)
1,3-Dichloropropene (542-75-6)
Ethylbenzene (100-41-4)
Methyl Bromide (74-83-9)
Methyl Chloride (74-87-3)
Methylene Chloride (75-09-2)
1,1,2,2-Tetrachloroethane (79-34-5)
Tetrachloroethylene (127-18-4)
Toluene (108-88-3)
1,2-Trans-Dichloroethylene (156-60-5)
2. 1,1,1-Trichloroethane (71-55-6)
2. 1,1,2-Trichloroethane (79-00-5)
2. Trichloroethylene (79-01-6)
Trichlorofluromethane (75-69-4)

ACID COMPOUNDS

2-Chlorophenol 95-57-8
2,4-Dichlorophenol 120-83-2
2,4-Dimethylphenol 105-67-9
4,6-Dinitro-o-cresol 534-52-1
2,4-Dinitrophenol 51-28-5
2-Nitrophenol 88-75-5
4-Nitrophenol 100-02-7
p-Chloro-m-cresol 59-50-7
Pentachlorophenol 87-86-5
Phenol 108-95-2
2,4,6-Trichlorophenol 88-06-2

METALS

Antimony 7440-36-0
Arsenic 7440-38-2
Beryllium 7440-41-7
Cadmium 7440-43-9
Chromium 7440-47-3
Copper 7440-50-8
Lead 7439-92-1
Mercury 7439-97-6
Nickel 7440-02-0
Selenium 7782-49-2

Silver 7440-22-4
Thallium 7440-28-0
Zinc 7440-66-6
Cyanide 57-12-5

PESTICIDES

Aldrin 309-00-2
alpha-BHC 319-84-6
beta-BHC 319-85-7
gamma-BHC 58-89-9
delta-BHC 319-86-8
Chlordane 57-74-9
4,4'-DDD 72-54-8
4,4'-DDE 72-55-9
4,4'-DDT 50-29-3
Dieldrin 60-57-1
Endosulfan I 115-29-7
Endosulfan II 115-29-7
Endosulfan Sulfate 1031-07-8
Endrin 72-20-8
Endrin Aldehyde 7421-93-4
Heptachlor 76-44-8
Heptachlor Epoxide 1024-57-3
PCB (7 Aroclors)
Toxaphene 8001-35-2

BASE/NEUTRAL COMPOUNDS

Acenaphthene 83-32-9
Acenapthylene 208-96-8
Anthracene 120-12-7
Benzidine 92-87-5
Benzo (a)anthracene 56-55-3
Benzo(a)pyrene 50-32-8
3,4 Benzofluoranthene 205-99-2
Benzo(ghi)Perylene 191-24-2
Benzo(k)fluoranthene 207-08-9
Bis(2-chloroethoxy) Methane 111-91-1
Bis(2-chloroethyl) Ether 111-44-4
Bis(2-chloroisopropyl) Ether 102-60-1
Bis(2-ethylhexyl) Phthalate 117-81-7
4-Bromophenyl Phenyl Ether 101-55-3
Butyl Benzyl Phthalate 85-68-7
2-Chloronaphthalene 91-58-7
4-Chlorophenyl Phenyl Ether 7005-72-3
Chrysene 218-01-9
Dibenzo(a,h)anthracene 53-70-3
1,2-Dichlorobenzene 95-50-1
1,3-Dichlorobenzene 541-73-1
1,4-Dichlorobenzene 106-46-7
3,3' Dichlorobenzidine 91-94-1
Diethyl Phthalate 84-66-2
Dimethyl Phthalate 131-11-3
Di-n-butyl Phthalate 84-74-2
2,4-Dinitrotoluene 121-14-2
2,6-Dinitrotoluene 606-20-2
Di-n-octyl Phthalate 117-84-0
1,2-Diphenylhydrazine 122-66-7
Fluoranthene 206-44-0
Fluorene 86-73-7
Hexachlorobenzene 118-74-1
Hexachlorobutadiene 87-68-3
Hexachlorocyclopentadiene 77-47-4
Hexachloroethane 67-72-1
Indeno(1,2,3-cd)pyrene 193-39-5
Isophorone 78-59-1
Naphthalene 91-20-3
Nitrobenzene 98-95-3
N-nitrosodimethylamine 62-75-9
N-nitrosodi-n-propylamine 621-64-7
N-nitrosodiphenylamine 86-30-6
Phenanthrene 85-01-8
Pyrene 129-00-0
1,2,4-Trichlorobenzene 120-82-1

6. Are any other pesticides, herbicides or fungicides used at this facility? ☐Yes ✠ No
If yes, specify the material and quantity used._____

7. Are there other pollutants that you know of or believe to be present?
☐Yes ✠No

If yes, specify the pollutants and their concentration if known (attach laboratory analyses if available).

8. Does the wastewater being discharged, or proposed for discharge to the POTW designate as a dangerous waste according to the procedures in Chapter 173-303 WAC ?

9.

☐ Yes ✠No ☐Don't Know

9. If the answer to question 8 above is yes, how did the waste designate as a dangerous waste? For Listed and TCLP Characteristic Wastes only, also provide the Dangerous Waste Number(s). N/A

Listed Waste ____ Dangerous Waste Number(s) _____

Characteristic Wastes
Ignitable ____
Reactive ____
Corrosive ____
TCLP ____ Dangerous Waste Number(s) _____

State Only Dangerous Wastes
Toxicity ____
Persistent ____

For Questions about waste designation under the *Dangerous Waste Regulations*, Chapter 173-303 WAC, contact Ecology's Hazardous Waste and Toxics Program at:

Northwest Regional Office - Bellevue	(425) 649-7000
Southwest Regional Office - Lacey	(360) 407-6300
Central Regional Office - Yakima	(509) 575-2490
Eastern Regional Office - Spokane	(509) 456-2926

SECTION F. SEWER INFORMATION

1. Is an inspection and sampling manhole or similar structure available on-site? ✠ Yes ☐ No
If yes, attach a map or hand drawing of the facility which shows the location of these structures (this may be combined with map in H8 if H8 is applicable to your facility.)

Closest discharge to manhole located on Carnation Drive (see engineering plans)

Accessible sampling port to be installed on on-site discharge line.

SECTION G. OTHER PERMITS

1. List all environmental control permits or approvals needed for this facility; for example, air emission permits.

SEPA checklist with Ecology and City of Sunnyside. Air discharge permit with Yakima Regional Clean Air Authority, building permit with City of Sunnyside.

SECTION H. STORMWATER

For remediation system: Please see Addendum H for narrative

1. Do you have a Washington State Stormwater Baseline General Permit? If yes, please list the permit number here._____ ☐ Yes ✠ No
2. Have you applied for a Washington State Stormwater Baseline General Permit? ☐ Yes ✠ No
3. Do you have any stormwater quality or quantity data? ☐ Yes ✠ No

Note: If you answered "no" to questions 1 or 2 above, complete questions 4 through 8.

4. Describe the size of the stormwater collection area. N/A (see Addendum H)

   a. Unpaved Area _____ sq.ft.
   b. Paved Area _____ sq.ft.
   c. Other Collection Areas (Roofs) _____ sq.ft.

5. Does your facility's stormwater discharge to: *(Check all that apply)* N/A (see Addendum H)

   ☐ Storm sewer system; name of storm sewer system *(operator)*:_____
   ☐ Directly to surface waters of Washington State *(e.g., river, lake, creek, estuary, ocean).*
   Specify waterbody name _____
   ☐ Indirectly to surface waters of Washington State *(i.e., flows over adjacent properties first).*
   ☐ Directly to ground waters of Washington State:
      ☐ dry well
      ☐ drainfield
      ☐ other
   ☐ Sanitary Sewer

6. Areas with industrial activities at facility: *(check all that apply)*

For remediation system:

   ☐ Manufacturing Building
   ✠ Material Handling - Gasoline
   ✠ Material Storage - Gasoline
   ☐ Hazardous Waste Treatment, Storage, or Disposal *(Refers to RCRA, Subtitle C Facilities Only)*
   ✠ Waste Treatment, Storage, or Disposal
   ✠ Application or Disposal of Wastewaters
   ☐ Storage and Maintenance of Material Handling Equipment
   ☐ Vehicle Maintenance

- ☐ Areas Where Significant Materials Remain
- ☐ Access Roads and Rail Lines for Shipping and Receiving
- ☐ Other _____

7. Material handling/management practices

For remediation system:

a. Types of materials handled and/or stored outdoors: *(check all that apply)*

- ☐ Solvents
- ☐ Scrap Metal
- ✠ Petroleum or Petrochemical Products
- ☐ Plating Products
- ☐ Pesticides
- ☐ Hazardous Wastes
- ☐ Acids or Alkalis
- ☐ Paints/Coatings
- ☐ Woodtreating Products
- ☐ Other *(please list)*:

b. Identify existing management practices employed to reduce pollutants in industrial storm water discharges: *(check all that apply)*

Within remediation compound: N/A (see Addendum H)

- ☐ Oil/Water Separator
- ☐ Containment
- ☐ Spill Prevention
- ☐ Surface Leachate Collection
- ☐ Overhead Coverage
- ☐ Detention Facilities
- ☐ Infiltration Basins
- ☐ Operational BMPs
- ☐ Vegetation Management
- ☐ Other *(please list)*:

8. Attach a facility site map showing stormwater drainage/collection areas, disposal areas and discharge points. This may be a hand drawn map if no other site map is available *(See example on the last page of this application)*. Label this as attachment H.8.

See attached engineering plans.

SECTION I. OTHER INFORMATION

1. Describe liquid wastes or sludges being generated that are not disposed of in the waste stream(s) and how they are being disposed. For each type of waste, provide type of waste, name, address, and phone number of hauler.

LNAPL (gasoline) recovered from the sallow aquifer will be stored in 400 gallon double wall tank. Product will be hauled to: Oil Re-Refining
4150 North Suttle Road
Portland, OR 97217

2. Describe storage areas for raw materials, products, and wastes.

- 2 UST's for gasoline at service station

- Above ground holding tanks for remediation system to include 400 gallon product tank and 330 gallon water batch tank (see engineering plans)

3. Have you designated the wastes described above according to the applicable procedures of Dangerous Waste Regulations, Chapter 173-303 WAC? ✠ Yes ☐ No

SECTION J. CERTIFICATIONS

1. Approval by POTW [required by WAC 173-216-070(4)(b)]

I approve of the discharge as described in this application.

Name and location of sewer system to which this project will be tributary:

_____

_____

Treatment Works Owner:

Street: _____

City/State:_____ Zip:_____

_____ _____ _____

Signature Date Title

_____

Printed Name

2. Application review by Intermediate Sewer Owner at point of discharge (if applicable)

I hereby acknowledge that I have reviewed the application for discharge to this sewer system.

Name and location of sewer system to which this project will be tributary:

_____

_____

Sewer System Owner: _____

Street: _____

City/State:_____ Zip:_____

_____ _____ _____

Signature Date Title

Printed Name

Summary of Attachments That May be Required for This Application:
(Please check those attachments which are included)

- ☐ C.1. Production schematic flow diagram and water balance
- ☐ C.4. Wastewater treatment improvements
- ☐ C.7. Additional incidental materials
- ☐ E.5. Additional results of effluent testing
- ☐ F.1. Facility site map
- ☐ H.8. Stormwater drainage map

Addendum H
Figure 1: Site Vacinity Map
Attachment A: Proposed Discharge Criteria for Remediation System
Attachment B: Pilot Test Discharge Information
Attachment C: Operation and Maintenance Plan for Remediation System
Engineering Plans

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
15 West Yakima, Suite 200 • Yakima, Washington 98902-3452 • (509) 575-2490

June 5, 2000

CERTIFIED MAIL
P 148 987 052

Mr. Scott Sloan, R.G.
Time Oil Co.
P.O. Box 24447
Seattle, WA 98124-0447

Dear Mr. Sloan:

RE: **Notice of Temporary State Waste Discharge Permit No. ST-9219 for the Time Oil Company, Effective May 29, 2000**

Your application for State Waste Discharge Permit No.ST-9219 was received by this office on March 31, 2000. It was reviewed and accepted April 1, 2000.

Public notice of application was completed April 28, 2000 and the public comment period ended May 28, 2000, with no comments being received.

Given our limited resources, we are unable to process your application at this time. **RCW 90.48.200 states, "In the event of failure of the Department to act upon an application within sixty days after it has been filed, the applicant shall be deemed to have a temporary permit. Said permit shall authorize the applicant to discharge waste into waters of the State as requested in its application only until such time as the Department shall have taken action upon said application."**

Therefore, as RCW 90.48.200 and WAC 173-216-090 provide, your new Temporary Permit became effective May 29, 2000, the day following completion of the public notice comment period. It will remain in force for up to five years or until further notice by the Department, whichever occurs first. **Your temporary permit consists of the permit application and all appendices submitted with it. This includes the proposed operations and maintenance plan, which details a quarterly discharge report to be submitted to the City and Ecology.**

Submission of quarterly discharge reports shall commence the fourth month following startup. Please contact this office with any questions regarding monitoring requirements or this temporary permit. Compliance with the application and the appendices will constitute compliance with the temporary permit.

This authorization does not allow you to discharge pollutants not specified in your application or appendices, or in quantities exceeding those specified. You are also required to comply with all water pollution laws and regulations. A new application is required in five years.

Your permit fee is subject to the fee schedule in Chapter 173-224 WAC. Permit fee billing will be in a separate mailing from the Ecology Fee Unit.

Fee category: Hazardous Waste Clean Up Sites
Subcategory (a): Leaking Underground Storage Tanks
1) State Permit FY 2000 fee $3208

If you have any further questions, please contact Rick Frye at (509) 575-2821.

Sincerely,

Max Linden
Acting Section Manager
Water Quality Program

ML:RJF:ch
000603

cc: Joe Ortiz, Ecology-Yakima
Bev Poston, Ecology-Olympia

APPENDIX F

CONSTRUCTION PERMITS

Sunnyside Building Division

418 E. EDISON AVE SUNNYSIDE, WASHINGTON 98944 837-4220

Construction Permit

Address: 711 E LINCOLN AV

Applicant: Custom Backhoe & DumpTruck Service, Inc 13032 SE 48th Court, Bellevue, WA 98006

Permit No: [illegible]

App Date: [illegible]

Permit Date: [illegible]

Parcel: [illegible]

Owner: [illegible]

Permit Type / Status: Firm: Custom Backhoe & DumpTruck Service, Inc 13032 SE 48th Court, Bellevue

License No: CUSTOM[illegible]

Tenant:

Permit/Fee Type	Fee	Plan Rev	Surcharge
[illegible]	[illegible]	0.00	0.00

Assessed:	[illegible]	0.00	0.00	[illegible]
Paid:	[illegible]	0.00	0.00	[illegible]
Balance Due:	0.00	0.00	0.00	[illegible]

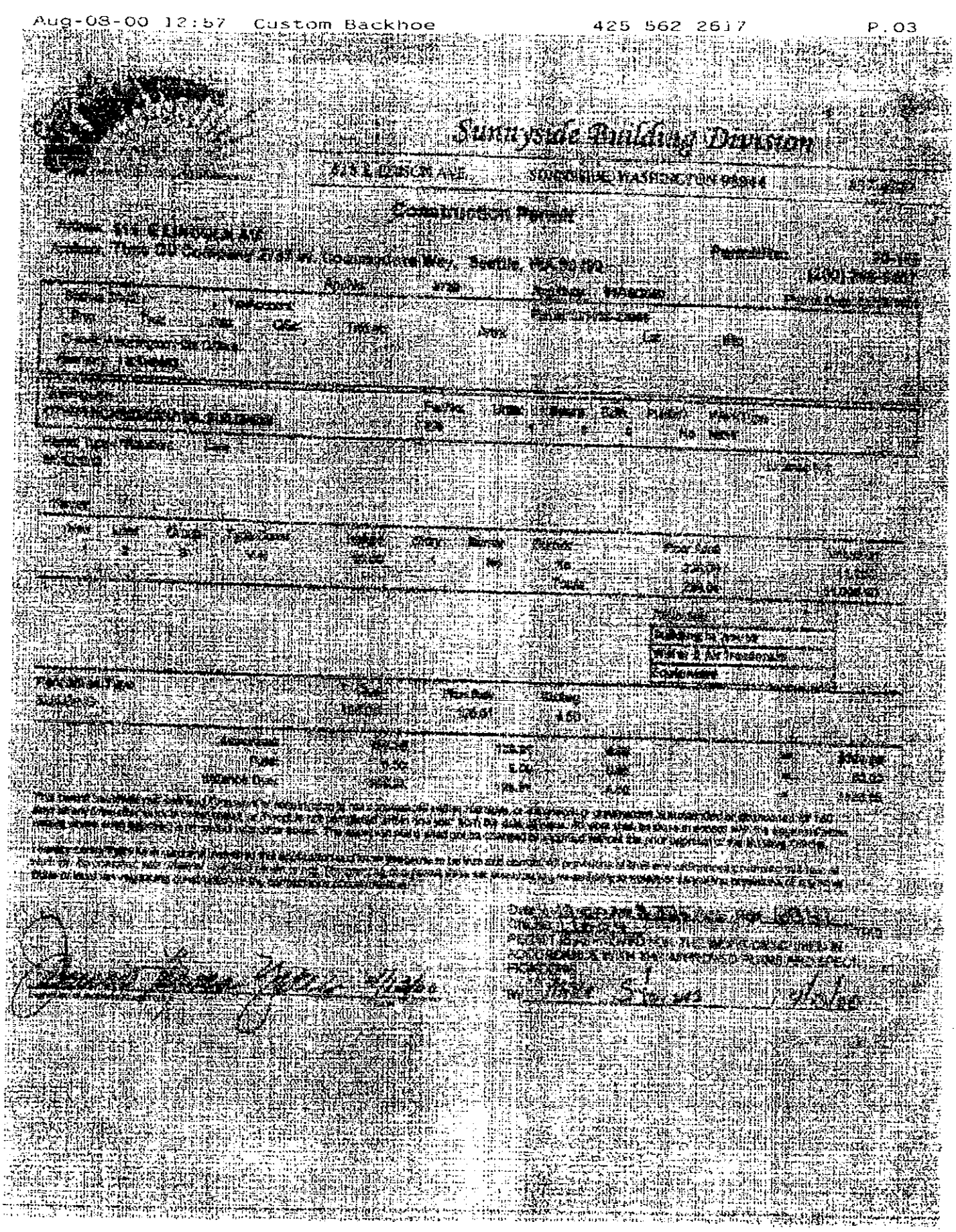
This permit becomes null and void if the work or construction is not commenced within 180 days, or if the work or construction is suspended or abandoned for 180 days at any time after work is commenced, or if work is not completed before one year from the date of issue. All work shall be done in accord with the approved plans [illegible] codes. The approved plans shall not be changed or modified without the prior approval of the Building Official.

I hereby certify that I have read and examined this application and know the same to be true and correct. All provisions of laws and ordinances governing this type of work will be complied with whether specified herein or not. The granting of a permit does not presume to give authority to violate or cancel the provisions of any other [illegible] for the performance of construction.

Date: [illegible]

PERMIT IS AUTHORIZED FOR THE WORK DESCRIBED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.

BY: [illegible]


Sunnyside Building Division

Aug-09-00 12:33 Custom Backhoe 425 562 2617 P.02
AUG-09-2000 10:59 FROM: JACK HORNOR 5094578133

Check one → [x] COMMERCIAL [ ] ANNUAL PERMIT [ ] RESIDENTIAL

ELECTRICAL WORK PERMIT APPLICATION

1455706

Please bring hard–4th copy is posted

Today's date: 6-26-00

Job wired by: [x] Electrical contractor [ ] Owner | Telephone number: 453-8520

Address of inspection: 111 E. LINCOLN AVE.

City: SUNNYSIDE | County: YAKIMA

WASHINGTON HILLS WINERY

Electrical contractor name: JACK HORNOR ELECTRIC | License number: JACKHEI207SH

Purchaser's mailing address: 1212 NORTH 16TH AVE.

YAKIMA | State ZIP: WA. 98902

Power company: PP & L

I hereby certify that I am the owner (or authorized agent) of the above named property or a licensed electrical contractor (or the firm's authorized agent) and am making the electrical installation or alteration in compliance with the electrical law, Chapter 19.28 RCW.

[x] Charge my contractor's account.

Signature of home owner or administrator
X Steve Crevette

Installation description: 200 amp commercial service

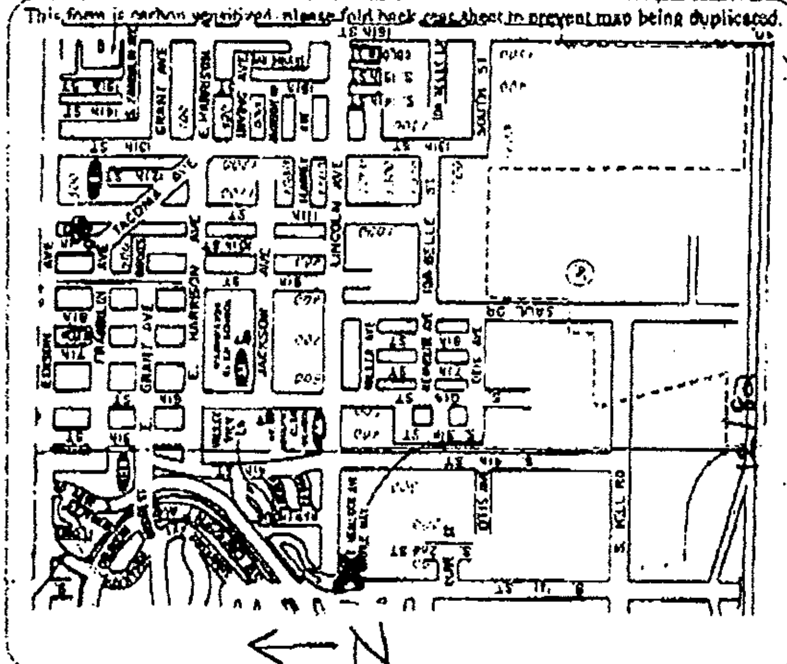
Please FAX correction to: 457-8133 | Inspection fee: $ 89.75

Becomes permit when properly validated.
Expires one (1) year from date of issue.
Department of Labor & Industries use only

Electrical inspections are for safe wiring methods. Inspections do not certify Y2K compliance.

Please Draw Map Below from the Nearest Main Street or Highway

This form is carbon sensitized, please fold back rear sheet to prevent map being duplicated.



To assist us in providing better service to you, please fill out the application paying particular attention to the following items:

1. Complete all appropriate blanks.
2. Provide detailed description of installation.
3. Provide detailed map to jobsite.
4. If no home phone number is available, please provide message number.
5. Make check payable to the Dept. of Labor & Industries.
6. If you are mailing this in, please remove hard copy to post on the jobsite and send the top 3 copies to the appropriate service location.
7. Signer is homeowner only if not wired by an electrical contractor.
8. If wired by an electrical contractor, must be signed by administrator or authorized designee.

If you have questions, please feel free to ask us!

Department of Labor & Industries
Electrical Section

F500-001-000 electrical work permit application rev 4-99

INSPECTOR