SITE ASSESSMENT REPORT

VALLEY VIEW GAS MART

Time Oil Co. Facility No. 01-068
107 West Lincoln Avenue
Sunnyside, Washington

Alisto Project No. 20-025

Site # 4108 U7005

June 1997

SITE ASSESSMENT REPORT

Time Oil Co. Facility No. 01-068
107 West Lincoln Avenue
Sunnyside, Washington

Project No. 20-025-01-800

Prepared for:

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

Prepared by:

Alisto Engineering Group
7160 S.W. Hazelfern Road, Suite 700
Portland, Oregon

June 30, 1997

Craig W. Ware, R.G.
Senior Geologist

Al Sevilla, P.E.
Principal

TABLE OF CONTENTS

CONTENTS
(continued)

FIGURES

APPENDICES

1.0 INTRODUCTION

Time Oil Co. (TOC) retained Alisto Engineering Group to perform a site assessment and remedial investigation at TOC Facility No. 01-068, 107 West Lincoln Avenue, Sunnyside, Washington. A site vicinity map is shown on Figure 1 and a site plan is shown on Figure 2.

1.1 Purpose and Scope of Work

The work was conducted to assess the subsurface conditions at the site, including the nature and extent of petroleum hydrocarbons in the soil and groundwater. The activities were in accordance with the technical specifications of TOC and the guidelines and requirements of the Washington State Department of Ecology (Ecology).

The scope of work included the following tasks:

- Reviewed available maps and information.
- Conducted a drive-point survey and soil and groundwater sampling at 16 locations, and installed vapor monitoring wells (VP-1 and VP-2) in two of the borings.
- Installed eight groundwater monitoring wells (MW-1 through MW-8).
- Analyzed soil, groundwater, and light non-aqueous phase liquid (LNAPL) samples for specific hydrocarbon constituents, and for biotreatability parameters.
- Performed aquifer baildown and vapor extraction tests.
- Conducted a limited sensitive receptor survey.
- Evaluated data and prepared a technical report presenting the results of the above activities.

1.2 Site Location and Description

The site is a retail gasoline station and convenience store at the southwest corner of West Lincoln Avenue and North 1st Avenue in Sunnyside, Washington. The facility has two underground gasoline tanks and a fuel dispenser island. The underground storage tanks are covered with a concrete slab, and the remainder of property is paved with asphalt.

Properties adjacent to the site are residential and commercial development. A Laundromat is to the north, across West Lincoln Avenue, a winery (a former dairy) is to the east across North 1st Avenue. There are single family residences to the south and west. A wood frame building is on the southern portion of the winery, approximately 200 feet southeast of the TOC site. The

building may have been a repair shop, and two possible underground storage tank vent lines and a former dispenser pad were observed at the northeast corner of the building. The area around the pad is unsurfaced, and the presence of underground storage tanks on the property could not be confirmed.

1.3 Project Background

The following is a brief summary of the project background and previous activities completed at the site.

April through November 1972: TOC signed a special purpose agreement (SPA) with the former owner of the property, Gerald C. Gorence, whereby TOC leased the property and retained ownership of all petroleum product systems. Retail gasoline sales commenced in November 1972 following installation of two underground gasoline storage tanks, distribution piping, and a single pump island.

April 1995: The ownership of the property and the SPA was transferred to Soo Hwan and Hyung S. Kim.

September 1996: TOC installed cathodic protection at the site in September 1996. Approximately two cubic yards of soil were generated during drilling to install seven anodes. Gasoline-range hydrocarbons were detected at concentrations of 8.17 and 4050 milligrams per kilogram (mg/kg) in two samples collected from the stockpiled drill cuttings. Benzene, toluene, ethylbenzene, and total xylenes (BTEX) were detected at concentrations of 2.27, 31.2, 37.5, and 242 mg/kg in one soil sample, but were not detected above the reported detection limit in the second sample.

2.0 FIELD METHODS AND PROCEDURES

The field methods and procedures used during drilling, installation of vapor monitoring points and groundwater monitoring wells, and sampling of the soil and groundwater are described in this section.

2.1 Drive-Point Sampling and Vapor Observation Point Installation

Before commencing with subsurface investigation a utility survey was performed at the site. Applied Professional Services, Issaquah, Washington, provided utility locating services for the project in addition to the general locate notification. Utility maps were obtained from the City of Sunnyside Public Works Department to identify sanitary, storm, and water lines in the area. Copies of the maps obtained from the City of Sunnyside are included in Appendix A.

A total of 16 borings were completed during the two phases of drive-point sampling. The drive-point sampling was performed by Transglobal Environmental Geosciences Northwest (TEG), Lacey, Washington, using a truck-mounted Strataprobe unit. The borings were completed to

depths ranging from 14 to 20 feet below grade. Soil samples were collected at selected intervals with brass tubes in the sampler or were transferred from the sampler to laboratory-supplied glass jars.

Grab groundwater samples were also collected from each of the drive-point locations using a vacuum pump and inertia sampling tube. The groundwater samples were transferred into laboratory-supplied containers and labeled with the well number, site identification, date and time of collection, and sampler's initials. The soil and groundwater samples were transported to TOC's designated laboratory in an iced cooler following preservation and chain of custody protocol.

2.1.1 February 1997 Drive-Point Sampling

Borings DP-1 through DP-3 were drilled in the vicinity of the underground storage tanks, and DP-4 through DP-7 were drilled between the dispenser island and the southern property line on the east side of the property. Based on the results of field observations and instrument readings during drilling of DP-1 and DP-2, DP-4 through DP-7 were drilled to further assess the extent of petroleum hydrocarbons in the soil and groundwater in the anticipated downgradient direction of groundwater flow at the site. LNAPL was recovered with a peristaltic sampling pump at DP-5 and DP-6, approximately 40 and 60 feet south-southeast and south of the dispenser island, respectively. LNAPL samples were collected from DP-5 and DP-6, using a disposable bailer lowered to the bottom of the drive-point at 16 feet. DP-7 was drilled near the southern property boundary to further assess the extent of petroleum hydrocarbons in the soil and groundwater.

LNAPL samples collected from DP-5 and DP-6 were transferred to laboratory-supplied containers and transported to Inchcape Testing Services (ITS), Signal Hill, California, for Detailed Hydrocarbon Analysis (DHA). Laboratory reports and chain of custody documentation for the DHA analysis are included in Appendix F.

2.1.2 March 1997 Drive-Point Sampling

Based on the results of the February 1997 drive-point sampling, nine additional drive-point borings were completed on March 10, 1997. Before drilling in North 1st Avenue, a construction permit was obtained from the City of Sunnyside Public Works Department. A copy of the construction permit is included in Appendix A.

Seven of the borings (DP-8 through DP-14) were drilled offsite on North 1st Avenue, and two borings were drilled onsite between DP-5 and the convenience store building (VP-1 and VP-2). Soil Boring VP-1 was drilled solely for the purpose of installing a vapor observation well, and soil and groundwater samples were not collected during drilling. Borings DP-8 through DP-12 were drilled along the center line of North 1st Avenue at intervals of approximately 35 feet, and DP-13 and DP-14 were drilled in the right-of-way on the east side of North 1st Avenue. Onsite

Before backfilling Borings DP-8 through DP-14 with hydrated bentonite pellets, approximately 3 feet of Oxygen Release Compound (ORC®) powder was placed in the bottom of the borings. ORC is a mixture of magnesium peroxide (MgO_2), magnesium oxide (MgO), and magnesium hydroxide ($MgOH_2$) specifically formulated to enhance insitu biodegradation of petroleum hydrocarbons in groundwater by releasing oxygen to the water. The Material Safety Data Sheet (M.S.D.S.) for the Regenesis Bioremediation Products ORC® is included in Appendix B.

The boring logs for the drive-point sampling were prepared based on the Unified Soil Classification System, which includes descriptions of soil characteristics such as color, moisture, consistency, and field readings from an organic vapor meter (OVM). Field procedures for drilling and sampling are presented in Appendix C, and the boring logs and vapor observation point as-builts are presented in Appendix D. Analytical methods are discussed in Section 3, and laboratory results and chain of custody records are presented in Appendix F. The locations of the drive-point borings are shown on Figure 3.

2.2 Drilling and Soil Sampling

Soil Borings MW-1 through MW-5 were drilled onsite on March 11, 1997, to depths ranging from 26 to 30 feet, and Soil Borings MW-6 through MW-8 were drilled offsite on March 12, 1997, to depths of 26 feet. After installation and development of Monitoring Wells MW-1 through MW-5, as described in Sections 2.3 and 2.4, a preliminary well casing elevation survey was performed and depth to water was measured to confirm groundwater flow direction before installing additional wells. Results of the drive-point sampling and preliminary interpretation of the groundwater flow direction was the basis for locating offsite Soil Borings MW-6 through MW-8.

Each of the borings was first drilled to a depth of 4 feet using a hand auger or posthole digger. Drilling was performed by Cascade Drilling, Woodinville, Washington, using a truck-mounted drilling rig equipped with 8- and 10-inch outside diameter hollow-stem augers. Soil samples were collected for field observation, screening, and chemical analysis using a split-spoon sampler. The field procedures for drilling and sampling are presented in Appendix C.

Soil Boring MW-1, upgradient of the underground storage tank system, was drilled to a depth of 30 feet to confirm vertical lithology before completing the remainder of the borings and well installations. Based on field observations indicating that hydrogeologic conditions were consistent with that observed in the shallow drive-point borings, Boring MW-1 was terminated at 30 feet and backfilled with bentonite to a depth of 26 feet before well completion.

2.3 Monitoring Well/Vapor Observation Point Installation

Onsite Borings VP-1 and VP-2 were completed as vapor monitoring points using 1-inch-diameter slotted casing (0.010-inch) from 5 to 15 feet below grade, and solid PVC casing to approximately 6 inches below grade. The vapor monitoring points were completed at grade with flush-mount, traffic-rated well vaults set in concrete.

Onsite Soil Borings MW-1 and MW-2, and offsite Soil Borings MW-6, MW-7, and MW-8 were completed as groundwater monitoring wells using 2-inch-diameter, flush-threaded, Schedule 40 PVC with 0.010-inch slotted well casing from 5 to 25 feet below grade. Soil Borings MW-3 to MW-5 were completed using 4-inch-diameter, flush-threaded, Schedule 40 PVC with 0.010-inch slotted well casing from 5 to 25 feet below grade.

The location of the monitoring wells are shown on Figure 4. Monitoring well construction details and field procedures for monitoring well installation are included in Appendix D.

2.4 Well Construction Summary

The following is a summary of the construction details for the vapor monitoring points and groundwater monitoring wells installed during this investigation.

Well Number	Date Installed	Total Depth (feet)	Screen Interval (feet)	Diameter (inches)
VP-1	March 10, 1997	15	5-15	1
VP-2	March 10, 1997	15	5-15	1
MW-1	March 11, 1997	25	5-25	2
MW-2	March 11, 1997	25	5-25	2
MW-3	March 11, 1997	25	5-25	4
MW-4	March 11, 1997	25	5-25	4
MW-5	March 11, 1997	25	5-25	4
MW-6	March 12, 1997	25	5-25	2
MW-7	March 12, 1997	25	5-25	2
MW-8	March 12, 1997	25	5-25	2

2.5 Monitoring Well Development and Sampling

The monitoring wells were developed on March 11 and 12, 1997, after each well was observed for the presence of LNAPL. The wells were developed by removing at least 10 casing volumes, or until the water was relatively free of sediment, using a positive-displacement pump.

Groundwater samples were collected from the monitoring wells on March 13, 1997, after purging at least 3 well casing volumes while monitoring indicator parameters. Monitoring Wells MW-2, MW-3, and MW-6 were sampled on April 29, 1997, for collection of water samples for biotreatability analysis. The field procedures for well development and sampling and the field sampling forms are presented in Appendix E. The samples were transported in an iced cooler to a state-certified laboratory following chain of custody procedures.

On March 14, 1997, after monitoring and sampling of all wells for baseline petroleum hydrocarbon concentrations in the groundwater, ORC® Filter Socks were installed in

Monitoring Wells MW-2, MW-3, MW-4, and MW-6. The filter socks were installed according to manufacturer specifications, included with the M.S.D.S. in Appendix B. An Underground Injection Control (UIC) registration form was submitted to Ecology, and registration number 12027 was issued for the use of ORC® at the site. The registration form and Ecology registration documentation are also included in Appendix B.

2.6 Groundwater Monitoring and Well Surveying

The monitoring wells were surveyed by SGB Engineering, Grandview, Washington, a Washington licensed land surveyor, relative to a U.S. Geological Survey benchmark. On March 13, 1997, the depth to groundwater in the wells was measured from the top of the well casing to the nearest 0.01 foot using an electronic water level indicator. The survey data and relative groundwater elevation measurements are presented in Table 2. The well elevation survey data is included in Appendix E, and graphical interpretation of the potentiometric groundwater elevation contour and gradient beneath the site is shown on Figure 5.

3.0 ANALYTICAL METHODS

Soil and groundwater samples were analyzed by North Creek Analytical, a Washington State-certified laboratory. Selected soil and groundwater samples were analyzed using EPA and Washington test methods for the following:

- Total petroleum hydrocarbons as gasoline using Washington Method WTPH-G
- Benzene, toluene, ethylbenzene, and total xylenes using EPA Method 8020M
- Total lead using EPA Methods 7420 and 6020
- Dissolved lead using EPA Methods 7421 and 6020

LNAPL samples collected from Drive-Points DP-5 and DP-6 were submitted to ITS, Signal Hill, California, for DHA. Selected soil and groundwater samples were also submitted to American Environmental Network (AEN) and NCA for biotreatability analysis, including: nitrogen as nitrate and nitrite (soil); phosphate as orthophosphate (soil); and total heterotrophic and petroleum-degrading bacterial plate counts (soil and groundwater).

The chain of custody documentation, laboratory reports, and chain of custody records for the soil, groundwater, and LNAPL samples collected during this investigation are presented in Appendix F. The results of the soil and groundwater analyses are summarized in Tables 1 and 2, and the results of the biotreatability analyses are summarized in Table 3. Analytical results for the drive-point groundwater samples and for the samples collected from the monitoring wells are shown on Figures 3 and 4.

4.0 GEOLOGY AND HYDROGEOLOGY

Pertinent information on regional and site-specific geology and hydrogeology is summarized below.

4.1 Regional Geology and Hydrogeology

The site is on the southern flank of Harrison Hill at an elevation of approximately 760 feet, and is within the Yakima Fold Belt Subprovince of the Columbia River Basin. The Yakima Fold Belt Subprovince consists of a series of northeast-southwest trending anticlinal ridges created under north-south compression, and concurrent with the eruption of the Miocene age Columbia River Basalt Group (CRBG). The CRBG consists of flood-basalt flows deposited over a vast area of eastern Washington, Oregon, and western Idaho, and reach thicknesses of up to 4 kilometers in the central Columbia Basin.

In the vicinity of the site, Harrison Hill and Snipes Mountain overlie the CRBG, and consist of the Snipes Mountain Conglomerate. The conglomerate deposits are present in the region in a series of linear channel tracts extending from Sunnyside Gap southwesterly towards Goldendale, and represent the historic course of the Columbia River before the easterly diversion of Columbia River to the Pasco Basin.

The Snipes Mountain conglomerate ranges in thickness from 90 to 450 feet, and underlies late Pliocene lacustrine (lake) deposits consisting of laminated silt and fine-grained sandstone that reaches thicknesses of greater than 90 feet. The lacustrine deposits may be laterally correlative with the upper Ringold Formation, and represent regional gradient changes of the Columbia River drainage basin eastward (W.D.G.E.R., 1994).

The site is approximately 4 miles northeast of the Yakima River, and is within the Yakima River drainage basin (U.S.G.S., 1978). Overall drainage within the basin is southeasterly and easterly to the confluence with the Columbia River in Richland, Washington. Miocene basaltic rocks and the unconsolidated deposits are generally the two major aquifers within the Columbia Plateau Regional Aquifer System. The thickness of the unconsolidated-deposit aquifers commonly exceeds 200 feet, and reaches thicknesses of up to 2000 feet. Hydraulic conductivity varies significantly in the unconsolidated deposit aquifers; however, significant yields are common in areas of greater thickness (U.S.G.S., 1994).

Review of available water well logs within a 0.5-mile radius of the site identified two domestic wells and one municipal well. Copies of logs for each well identified within a 0.5-mile radius are included in Appendix G. The domestic wells were completed to depths ranging from 82 to 105 feet, with welded steel casing (solid) installed to within 7 feet of the total depth of each well. Gravel and sand presumed to be the Snipes Mountain Conglomerate was encountered in these wells at depths ranging from 78 to 144 feet, with confined groundwater levels stabilizing at depths ranging from 12 to 30 feet.

The municipal supply well was completed to a depth of more than 1000 feet, with a concrete seal installed from ground surface to 541 feet. According to the driller, basaltic rocks were first encountered at a depth of approximately 534 feet, extending to the total depth of the municipal well. A yield of up to 1000 gallons per minute (gpm) was measured from the municipal well during a 32 -hour pumping test with drawdown of about 31 feet.

4.2 Site Geology and Hydrogeology

Results of investigation at the site during the two drive-point sampling events and monitoring well installation indicate relatively consistent geologic and hydrogeologic conditions both laterally and vertically. Soil types encountered during drilling to the total explored depth of 30 feet consisted of interbedded sandy silt and silty sand, silt, and fine-grained sand, with occasional medium- to coarse-grained sand layers. Based on field observations, soil types are consistent with literature references indicating soils of lacustrine origin.

On March 11, 1997, depth to groundwater in Monitoring Wells MW-1 through MW-3 ranged from 10.92 to 12.88 feet. The depth to groundwater in MW-1 through MW-8, as measured on March 13, 1997, ranged from 10.79 to 17.37 feet. The groundwater gradient as interpreted from the preliminary measurements and from the March 13, 1997 monitoring data is approximately 0.07 in a southeasterly direction across the site. A graphical interpretation of the groundwater gradient, based on the March 13, 1997 data, is shown on Figure 5.

5.0 AQUIFER BAILDOWN TESTS

Aquifer baildown tests were performed on three of the monitoring wells on March 13, 1997. The field methods and results of the field tests and computer modeling are described in this section.

5.1 Field Procedures

The baildown tests were performed to provide a first-order approximation of hydraulic parameters in the shallow water-bearing zone beneath the site. Baildown testing was performed using MW-3, MW-4, and MW-5. The testing involved extracting groundwater until depleting a portion of the available drawdown in the well. Water was manually extracted from the wells using a 3-inch diameter PVC bailer. After groundwater extraction was discontinued the water column in the wells was allowed to recover to a minimum of 90 percent of the initial water column. Recovery of the drawdown was monitored with an electronic sounder to within an accuracy of 0.01 foot from the top of the well casing.

5.2 Test Results

The test data were used in an analytical computer program (Geraghty and Miller, 1991) to estimate the hydraulic conductivity (K) of the shallow water-bearing zone using techniques developed by Bower and Rice (1976). The estimates of hydrogeologic properties are summarized below.

WELL NO.	K (ft/s)	K (cm/s)	K (ft/min)	T (M^2/s)	T (ft^2/min)	b (meter)	b (feet)
MW-3	2.53e-6	7.74e-5	1.52e-4	3.09e-6	2.00e-3	4.0	13.2
MW-4	1.31e-5	4.01e-4	7.86e-4	1.24e-5	8.10e-3	3.1	10.3
MW-5	1.33e-5	4.07e-4	7.98e-4	1.26e-5	8.14e-3	3.1	10.2
AVG.	9.64e-6	2.95e-4	5.79e-4	9.37e-6	6.08e-3	3.4	11.2

ABBREVIATIONS:

K Hydraulic conductivity
T Transmissivity
b Height of water column in well

The transmissivity (T) was calculated using the equation T=Kb, where b is the saturated thickness of the water-bearing zone. For this calculation, the measured water column in each well was assumed to be the saturated thickness of the water-bearing zone. Aquifer baildown test data, including graphical analysis of baildown tests for the three wells, and graphical analysis for each well using selected data intervals, is included in Appendix H for reference.

Based on field observation, the predominant aquifer material is sandy silt and silty sand, which generally has K values ranging from approximately 1 to 1 x 10^{-7} centimeters per second (cm/s) (Driscoll, 1986). The values of the aquifer parameters calculated from the baildown tests are consistent with the characteristics of subsurface soils encountered at the site.

5.3 Well Yield

An approximation of the well yields for MW-3, MW-4, and MW-5 based on the results of the baildown tests was calculated using the following equation (Cooper and Jacob, 1946):

$$\frac{Q}{s} = \frac{T}{0.183 \log \frac{2.25Tt}{r^2 S}}$$

where,

Q = the yield of the well, in m^3/day
s = the drawdown in the well, in m
T = the transmissivity, in m^2/day
t = time, in days
r = the radius of the well, in m
S = the storage coefficient of the aquifer, dimensionless

Driscoll (1976) suggests a storage coefficient of 0.01 to 0.3 for unconfined aquifers when pumping test data are unavailable. For this site, the storage coefficient was estimated to be 0.075 based on observation of the aquifer material during drilling. The duration of pumping, "t", was assumed to be one day, and the drawdown in the well, "s", was set equal to the height of the water column in the wells before pumping.

The estimated well yields ranged from 0.6 gallons per minute (gpm) for MW-3 to 1.4 gpm for MW-4 and MW-5, with an average of 1.1 gpm. The calculated well yields are considered conservative because the saturated thickness, and therefore, the transmissivity, of an unconfined aquifer decreases while pumping. The baildown test wells do not fully penetrate the aquifer, and therefore a higher yield well could conceivably be obtained by installing a deeper well. However, based on our understanding of hydrogeologic conditions of the shallow aquifer, and on field observations during well purging and sampling, it is considered unlikely that the calculated well yields could be sustained under constant rate pumping conditions.

5.4 Groundwater Flow Velocity

The average groundwater flow velocity can be calculated using the results of the baildown tests and the following formula:

$$V = \frac{K(h_1 - h_2)}{L\eta}$$

where,

V = the groundwater flow velocity, in ft/min
K = the hydraulic conductivity, in ft/min
h_1 = the hydraulic head at the upgradient well, in feet
h_2 = the hydraulic head at the downgradient well, in feet
L = the distance along the flowpath between h_1 and h_2, in feet
η = the average porosity

To obtain an average groundwater flow velocity for the site, five well pairs were selected that were relatively parallel to the groundwater flow direction. Based on descriptions of the aquifer material in the boring logs, porosity was assumed to be 30 percent (Johnson and DeGraff, 1988). Input parameters and results are summarized below.

Wells	h_1 (feet)	h_2 (feet)	L (feet)	η (%)	K (ft/min)	V (ft/day)	V (ft/year)
MW-1 and MW-3	760.28	758.11	52	30	5.79e-4	0.116	42.33
MW-1 and MW-4	760.28	756.89	99	30	5.79e-4	0.095	34.74
MW-1 and MW-6	760.28	753.81	170	30	5.79e-4	0.106	38.61
MW-3 and MW-4	758.11	756.89	47	30	5.79e-4	0.072	26.33
MW-4 and MW-6	756.89	753.81	71	30	5.79e-4	0.120	44.01
Average						0.102	37.20

Although there are other site-specific factors that contribute to the actual rate of hydrocarbon migration in the groundwater, a first-order approximation can be obtained using the average groundwater flow velocity and an average retardation factor (R_g) of 2 (McAllister and Chiang, 1994). Using these values, the rate of petroleum hydrocarbon migration in the groundwater was estimated to be 18 feet per year. This value is consistent with the age of retail service station and petroleum hydrocarbon concentrations detected in MW-6, approximately 120 feet downgradient of the fuel tanks.

6.0 VAPOR EXTRACTION PILOT TESTING

On March 13, 1997, vapor extraction tests were performed to collect site-specific data for use in evaluating the characteristics of the vadose zone and the feasibility of vapor extraction as a remedial alternative.

6.1 Field Procedures

Vapor extraction testing was performed using a transportable unit consisting of: (1) a Rotron EN 404 regenerative blower and a moisture separation tank; (2) instrumentation for measuring air velocity, flow, and vacuum pressure; (3) PVC piping, fittings, and wellhead connections; and (4) air sample collection equipment.

For the first test Well MW-4 was used as the extraction well, and VP-1, VP-2, MW-5, and MW-3 were used as the observation wells. The horizontal distances of the observation wells to MW-4

are 9,16.5, 36, and 47 feet respectively. The screened intervals of VP-1 and VP-2 are 5 to 15 feet below grade, and the screened intervals for MW-5 and MW-3 are 5 to 25 feet below grade.

Well MW-3 was used as the extraction well for the second test, and VP-2, VP-1, MW-4, and MW-2 were used as the observation wells. The horizontal distances of the observation wells to MW-3 are 31,32, 39, and 47 feet respectively. The screened interval for MW-2 is 5 to 25 feet below grade.

Based on the depth to water measurements before the tests, the length of slotted casing exposed in the vadose zone for the vacuum pumping tests ranged from 6.7 feet in MW-3 to 9.7 in MW-5. The locations of the extraction and observation wells used during the testing are shown on Figures 3 and 4.

Vacuum pressure was measured in each observation well at predetermined time intervals using magnehelic gauges. The test on MW-4 was conducted for 131 minutes, and the test on MW-3 was conducted for 120 minutes. Influent organic vapor concentrations in the extraction well were measured using an photo-ionization detector (PID). Air samples were collected for laboratory analysis at the end of each test in a 6-liter, rigid, evacuated SUMMA canister and transported to AEN. The sample was analyzed for total non-methane hydrocarbons (TNMH) and speciated hydrocarbons using EPA Methods 600/8-91/215.

6.2 Test Results

During the first test, vacuum levels ranging from 19 to 45 inches of water were applied to MW-4. At vacuums of 19, 30, 40, and 45 inches of water, the corresponding extraction flow rates were calculated to be 5, 13, 17, and 18 cubic feet per minute (cfm). Vacuum pressure drawdown of 1.80, 0.65, 0.10, and 0.00 inches of water were measured in observation wells VP-1, VP-2, MW-5, and MW-3, respectively, at the highest extraction flow rate.

During the second test, vacuum levels ranging from 18 to 46 inches of water were applied to MW-3. At vacuums of 18, 30, 42, and 46 inches of water, the corresponding extraction flow rates were 4, 6, 13, and 17 cfm. A measurable vacuum pressure drawdown was detected only in MW-2 at a flow rate of 13 cfm, increasing to 0.10-inch of water at a flow rate of 17 cfm. There were no response in the remaining observation wells.

The pressure drawdown measured in the observation wells during the tests were plotted graphically versus distance from the vapor extraction well on a semi-logarithmic scale. Using a best-fit line, the extent of vacuum influence at 0.5 inches of water was estimated to be 21 feet for the first test and 25 feet for the second.

The analytical results of the air samples collected from MW-3 and MW-4 during the tests are summarized below. Benzene, toluene, ethylbenzene, and total xylenes concentrations are generally considered representative of typical gasoline. A complete listing of hydrocarbon constituents are presented in the laboratory report included in Appendix I.

Sample ID	TNMH (ppmv)	Benzene (ppmv)	Toluene (ppmv)	Ethylbenzene (ppmv)	Total Xylenes (ppmv)
MW-3	4,600	57	100	15	62
MW-4	450	15	16	ND<4	ND<4

Abbreviations:
ppmv parts per million volume
TNMH total non-methane hydrocarbons

Initial total hydrcarbon discharge rates were calculated for each well using the highest flow rate and TNMH concentration measured during the tests. At flow rates of 17 and 18 cfm, and TNMH concentrations of 4,600 and 450 ppmv, the total hydrocarbon discharge rates from MW-3 and MW-4 were calculated to be 30.26 and 3.13 pounds per day, respectively.

Vapor extraction test field data and graphical analysis, a copy of the chain of custody record, and the results of laboratory analysis for the air samples collected during the tests are included in Appendix I.

7.0 LIMITED SENSITIVE RECEPTOR SURVEY

A limited survey was performed to identify potential environmental receptors in the vicinity of the site. The survey included review of available water well logs within a 0.5-mile radius of the site, inquiry to the City of Sunnyside Public Works Department regarding water supply, review of available maps, and field observation of topographic features and potentially sensitive environmental features.

7.1 Groundwater Wells

Review of available water well logs obtained from Ecology identified 24 water wells within a 0.5-mile radius of the site. Of these well logs, 13 are for resource protection and installed to depths of less than 22 feet; four were installed for dewatering for development purposes; and two were for decommissioning of wells previously owned by the City of Sunny side. Based on information obtained from the City of Sunnyside Public Works Department, water supply to businesses and residences in the site vicinity is from municipal supply wells.

Two domestic and one municipal groundwater wells were identified within a 0.5-mile radius, including:

1. Domestic Well: 150 Snipes Canal Road, Sunnyside, Washington, T10N, R22E, SW1/4, SE1/4, Section 26. Completed November 14, 1988.

2. Domestic Well: T10N, R22E, SE1/4, NE1/4, Section 35. Completed November 26, 1984.

3. Municipal Well: T10N, R22E, SW1/4, NW1/4, Section 36. Completed March 13, 1974.

Copies of the logs for wells identified with a 0.5 mile radius of the site are included in Appendix G.

The domestic supply wells are approximately 0.25 mile northwest and 0.5 mile southwest of the site, and upgradient and/or cross-gradient of the site with respect to shallow groundwater flow. Both wells were drilled to depths ranging from 82 to 148 feet below grade, with steel casing installed to within 4 feet of the bottom of the wells.

The municipal supply well is owned by the Sunnyside Port District, and is approximately 0.4 mile south-southeast of the site. The well was drilled to a total depth of 1057 feet below grade, with a cement surface seal installed to 541 feet. Perforated screened intervals were installed from 887 to 927 feet, and from 986 to 1026 feet, with results of pumping tests indicating up to 1000 gallons per minute with about 31 feet of drawdown after 32 hours. Basaltic rock was first encountered at a depth of approximately 530 feet, with perforated intervals in the well corresponding to increased well yields within the basalt.

7.2 Surface Water

Overall surface water drainage in the vicinity of the site is to the south from Harrison Hill towards the Yakima River. Based on review of available maps and on site observations during field investigation, two man-made drainage canal were identified in the vicinity of the site, including: (1) Snipes Mountain Lateral approximately 350 feet to the north; and (2) an un-named storm water drainage canal approximately 1000 feet to the southeast. The man-made surface drainage canals are shown on Figure 1.

Snipes Mountain Lateral is a steep-walled, un-lined canal constructed to divert irrigation water from Sunnyside Canal, about 2.6 miles north of the site, around the base of Harrison Hill and westerly at the base of Snipes Mountain, with ultimate discharge to the Yakima River. During site investigation in March 1997, a new bridge was under construction on North 1st Street north of the site, and there was no surface flow in the canal. In the vicinity of the site, the canal is approximately 30 feet wide, and on April 10, 1997, up to 6 feet of water was observed flowing to the southwest.

The un-named storm water drainage canal southeast of the site is also un-lined, and is approximately 10 feet deep by 10 feet wide. The canal begins at Lincoln Avenue, approximately 0.2 mile east of the site, and drains southwesterly to North 1st Avenue south of the site, and then southerly along North 1st Avenue. On April 10, 1997, the depth of water in the canal was approximately 1 to 2 feet.

8.0 FINDINGS AND CONCLUSIONS

The findings and conclusions of the site assessment are as follows:

- During drilling in February and March 1997, saturated soil conditions were encountered at depths ranging from 13 to 18 feet. Soil types encountered in the drive-point and monitoring well borings consisted of interbedded sandy silt and silty sand, silt, and fine-grained sand, with occasional medium- to coarse-grained sand layers.

- Based on review of available boring logs for the area, literature references, and field observations, the soil types encountered at the site are of lacustrine origin, extending to depths of 80 to 90. These soils are underlain by the Snipes Mountain Conglomerate, which represent ancient Columbia River channel deposits, and reach a thickness of up to 450 feet.

- On March 13, 1997, the depth to groundwater in the monitoring wells ranged from 10.79 in the upgradient Well MW-1 to 17.37 feet in the downgradient Well MW-8. The groundwater gradient beneath the site, as interpreted from the March 1997 data, is 0.07 in a southeasterly direction.

- TPH-G was detected at concentrations exceeding the Model Toxics Control Act (MTCA) Method A cleanup level of 100 mg/kg in six soil samples collected from the drive-point and monitoring well borings, ranging from 110 to 1360 mg/kg in DP1-5, DP2-10.5, DP5-13, MW4-15, MW5-15, and VP2-15. The highest TPH-G concentration was detected in soil sample collected at a depth of 13 feet at DP5.

- Benzene was not detected above the reported detection limit, or was detected at concentrations below the Method A cleanup level of 0.5 mg/kg, in 15 of 28 soil samples analyzed. Benzene concentrations in the soil samples exceeding the Method A cleanup level ranged from 0.537 to 81.1 mg/kg. Toluene was detected at concentrations exceeding the Method A cleanup level of 40 mg/kg in five soil samples, ranging from 41 to 930 mg/kg; ethylbenzene exceeding the Method A cleanup level of 20 mg/kg in three samples, ranging from 60 to 251 mg/kg; and total xylenes exceeding the Method A cleanup level of 20 mg/kg in four soil samples, ranging from 51 to 1360 mg/kg.

- The soil sample collected from a depth of 5 feet at DP1, in the immediate vicinity of the fuel storage and delivery system, was analyzed for total lead. Total lead was detected at a concentration of 11.1 mg/kg in the soil sample (DP1-5), which is below the Method A cleanup level of 250 mg/kg.

- TPH-G was not detected above the reported detection limit, or was detected at concentration below the Method A cleanup level of 1000 micrograms per liter (ug/l) in groundwater samples collected from DP-3, DP-7, DP12, MW-1, MW-2, MW-7, and MW-8. TPH-G was detected at concentrations exceeding the Method A cleanup level in 10 of the drive-point water samples, ranging from 14000 to 237000 ug/l, and in MW-3

through MW-7 at concentrations ranging from 12900 to 122000 ug/l. The highest TPH-G concentrations detected in the groundwater exceed the saturation level for gasoline.

- Benzene was not detected above the reported detection limit, or was detected at concentrations below the Method A cleanup level of 5 ug/l, in water samples collected from DP-12, MW-1, MW-2, MW-7 and MW-8. Benzene was detected at concentrations exceeding the Method A cleanup level in 12 of the 13 water samples analyzed from the drive-point borings, ranging from 6.71 to 42700 ug/l. Benzene exceeding the Method A cleanup level was detected in water samples collected from MW-3 through MW-6, at concentrations ranging from 985 to 33900 ug/l. The highest benzene concentration in water samples collected from the monitoring wells was detected in MW-6.

- Total lead was not detected above the Method A cleanup level of 5 ug/l, and dissolved lead was not detected above the reported detection limit, in the water samples collected from DP1, MW-1, and MW-3.

- LNAPL was collected by peristaltic pump during drive-point sampling of DP-5 and DP-6 on February 25, 1997. LNAPL, however, was not observed in the monitoring wells during sampling on March 13, 1997. LNAPL was also not observed in the monitoring wells on April 29, 1997, during water sampling for biotreatability analysis. Results of the DHA detected 2 and 4 percent butane and pentane in the LNAPL samples. The carbon distribution and concentration in the C_4 to C_{10} range were consistent with gasoline standards.

- From review of the field and analytical results, it is apparent that the vertical extent of petroleum hydrocarbons in the soil has been delineated during this investigation. Petroleum hydrocarbons in the vadose soil (ground surface to a depth of about 10 feet) appear to be limited to the immediate vicinity of the fuel storage and delivery system. TPH-G and BTEX were not detected above the reported detection limits in the soil sample from 25 feet in Soil Boring MW-3.

- Analytical results for samples from soil borings downgradient of the source area indicate the presence of petroleum hydrocarbons in the soil at depths of about 15 to 20 feet. These data are consistent with hydrogeologic characteristics and migration of petroleum hydrocarbons in the capillary fringe.

- The lateral extent of dissolved-phase petroleum hydrocarbons in the groundwater at concentrations exceeding Method A cleanup level appears to be bounded by DP7, DP-12 and MW-8 to the south, and MW-7 to the east-southeast. The extent of petroleum hydrocarbons in the groundwater southeast and downgradient of MW-6 was not delineated during this investigation.

- Results of the baildown testing indicate an average hydraulic conductivity value of 2.95 x 10-4 cm/s, which is consistent with field observations and the soils types encountered at the site. An average well yield of 1.1 gpm was calculated using the baildown test data, assuming the saturated thickness of the aquifer remains static. As such, the well yield is considered to be conservatively high, and would not likely be sustained under constant rate pumping conditions. Results of the baildown test were also used to calculate an average groundwater flow velocity of 0.1 foot per day, or 37 feet per year. Using an average retardation factor of 2, the rate of petroleum hydrocarbon migration in the groundwater was estimated to be 18 feet per year, which is consistent with the lateral extent of petroleum hydrocarbons in the groundwater as of this investigation.

- Graphical analysis of vapor extraction test data from MW-3 and MW-4 indicates a radius of influence ranging from 21 to 25 feet, under vacuum and flow rates of up to 46 inches of water and 18 cfm. Initial total petroleum hydrocarbon discharge rates were calculated at 30.26 and 3.13 pounds per day from MW-3 and MW-4, respectively. An effective radius of influence of 20 feet is recommended for purposes of remedial design, if engineered remediation is warranted.

- Total heterotrophic plate counts of 3,200,00 and 700 colony forming units per gram (cfu/g) were reported for soil samples from depths of 19 and 20 feet in Soil Borings MW-1 and MW-6. Microbial population were not detected in the sample from 15 feet in Soil Boring MW-3. Nitrogen as nitrate and nitrite was detected at concentrations ranging from 0.07 to 0.14 mg/kg, but phosphate as orthophosphate was not detected in the same soil samples.

  Groundwater samples were also collected from MW-3 and MW-6 to further assess biodegradation in the water-bearing zone. Total heterotrophic plate counts of 800,000 and 300,000, and petroleum-degrading plate counts of 90 and 300 colony forming units per milliliter (cfu/ml), were detected in the water samples from MW-3 and MW-6.

- Dissolved oxygen (DO) levels in the groundwater samples near the source area ranged from 3.6 to 4.9 mg/l. DO concentrations of up to 7.6 mg/l were measured in the upgradient wells, and up to 6.6 mg/l in the downgradient wells. In general, DO levels exceeding 2 mg/l are considered sufficient for aerobic biodegradation of aromatic hydrocarbons. Site-specific DO measurements are consistent with reported values from case studies indicating an inverse correlation between DO and aromatic hydrocarbon concentrations, and the occurrence of aerobic biodegradation at the site. The proportionally higher concentration of petroleum-degrading bacteria in groundwater from the downgradient Well MW-6 is also consistent with reported values indicating increased bioactivity away from the source area. These data indicate that bioremediation is a feasible alternative and is occurring at the site.

- The limited sensitive receptor survey identified only three water wells of potential concern within a 0.5 mile radius of the site. Based on review of well construction details, and hydrogeologic characteristics of the area, it does not appear that groundwater quality at these wells would be impacted by petroleum hydrocarbons detected in soil and groundwater at the site. The two un-lined drainage canals in the vicinity of the site also do not appear to be likely receptors of hydrocarbon impacted soil and groundwater.

REFERENCES

Cooper, H.H., Jr. and Jacob, C.E., 1946. A Generalized Graphical Method for Evaluating Formation Constants and Summarizing Well Field History. Transactions, American Geophysical Union, Volume 27, No. 4.

Driscoll, F.G., 1986. Groundwater and Wells, Second Addition: St. Paul, Johnson Division, 1089 p.

Geraghty and Miller, 1991. AQTESOLV.

Johnson, R.B., and DeGraff, J.V., 1988. Principles of Engineering Geology: New York, John Wiley and Sons, 496 p.

McAllister, P.M., and Chiang, C.Y., 1994. A Practical Approach to Evaluating Natural Attenuation of Contaminants in Ground Water. Ground Water Monitoring and Remediation, 14: 161-173.

U.S.G.S. , 1965. Sunnyside, Washington Quadrangle, 7.5 Minute Series Quadrangle (Topographic). Photorevised 1978.

U.S.G.S., 1994. Ground Water Atlas of the United States, Segment 7, Idaho, Oregon, Washington. Hydrologic Investigation Atlas 730-H. Reston Virginia.

W.D.G.E.R., 1994. Regional Geology of Washington State. Washington Division of Geology and Earth Resources, Bulletin 80.

TABLES

TABLE 1 - SUMMARY OF RESULTS OF SOIL SAMPLING
TIME OIL CO. FACILITY NO. 01-068
107 WEST LINCOLN AVENUE, SUNNYSIDE, WASHINGTON

PROJECT NO. 20-025

SAMPLE I.D.	SAMPLE DEPTH (fbg)	DATE OF SAMPLING	WTPH-G (mg/kg)	B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	TOTAL LEAD (mg/kg)	LAB
DP1-5 (a)	5.0	02/25/97	3680	5.07	103	60.1	372	11.1	NCA
DP1-13	13.0	02/25/97	ND<5	ND<0.05	ND<0.05	ND<0.05	ND<0.1	---	NCA
DP2-19.5	19.5	02/25/97	ND<5	ND<0.05	0.0531	ND<0.05	0.116	---	NCA
DP2-10.5 (a)	10.5	02/25/97	4660	81.1	538	115	635	---	NCA
DP3-9.5	9.5	02/25/97	ND<5	ND<0.05	ND<0.05	ND<0.05	ND<0.1	---	NCA
DP4-10	10.0	02/25/97	ND<5	0.391	ND<0.05	ND<0.05	ND<0.1	---	NCA
DP4-17.5	17.5	02/25/97	137	1.02	13.7	1.56	18.0	---	NCA
DP5-13 (a)	13.0	02/25/97	11500	136	930	251	1360	---	NCA
DP6-15	15.0	02/25/97	413	10.1	41.0	8.68	51.9	---	NCA
DP7-17	17.0	02/25/97	ND<5	ND<0.05	0.0572	ND<0.05	0.112	---	NCA
DP8-17	17	03/10/97	ND<5	ND<0.05	ND<0.05	ND<0.05	ND<0.1	---	NCA
DP9-15	15	03/10/97	6.05	2.04	0.311	ND<0.05	0.290	---	NCA
DP10-18	18	03/10/97	ND<5	0.842	0.441	ND<0.05	0.324	---	NCA
DP11-18	18	03/10/97	69.3	1.25	3.45	0.884	5.55	---	NCA
DP12-15	15	03/10/97	ND<5	ND<0.05	ND<0.05	ND<0.05	ND<0.1	---	NCA
DP13-18	18	03/10/97	5.14	0.537	0.403	ND<0.05	0.562	---	NCA
DP14-18	18	03/10/97	128	9.01	15.8	1.81	12.6	---	NCA
MW1-14.5	14.5	03/11/97	ND<5	0.0793	0.215	ND<0.05	0.208	---	NCA
MW2-15	15	03/11/97	ND<5	ND<0.05	ND<0.05	ND<0.05	ND<0.1	---	NCA
MW3-25	25	03/11/97	ND<5	ND<0.05	ND<0.05	ND<0.05	ND<0.1	---	NCA
MW4-15	15	03/11/97	138	6.63	13.6	2.09	12.2	---	NCA
MW4-25	15	03/11/97	ND<5	ND<0.05	ND<0.05	ND<0.05	ND<0.1	---	NCA
MW5-15	15	03/11/97	110	0.991	4.00	1.33	8.57	---	NCA
MW5-25	25	03/11/97	ND<5	ND<0.05	0.134	ND<0.05	0.222	---	NCA
MW6-25	25	03/12/97	ND<5	ND<0.05	ND<0.05	ND<0.05	ND<0.1	---	NCA
MW7-15	15	03/12/97	ND<5	ND<0.05	ND<0.05	ND<0.05	ND<0.1	---	NCA
MW8-15	15	03/12/97	ND<5	ND<0.05	ND<0.05	ND<0.05	ND<0.1	---	NCA
VP2-15	15	03/10/97	411	12.7	34.0	7.00	39.0	---	NCA

ABBREVIATIONS:

mg/kg	Milligrams per kilogram
ND	Not detected above the indicated detection limit
---	Not analyzed/measured/applicable
WTPH-G	Total petroleum hydrocarbons as gasoline
B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
fbg	Feet below ground surface
NCA	North Creek Analytical

NOTES:

(a) Surrogate recovery not available or out of range.

TABLE 2 - SUMMARY OF RESULTS OF GROUNDWATER SAMPLING
TIME OIL CO. FACILITY NO. 01-068
107 WEST LINCOLN AVENUE, SUNNYSIDE, WASHINGTON

PROJECT NO. 20-025

Well I.D.	DATE OF SAMPLING/ MONITORING	CASING ELEVATION (a) (FEET)	DEPTH TO WATER (FEET)	GROUNDWATER ELEVATION (b) (FEET)	B (ug/l)	T (ug/l)	E (ug/l)	X (ug/l)	WTPH-G (ug/l)	TOTAL LEAD (mg/l)	DISSOLVED LEAD (mg/l)	LAB
MW-1	03/13/97	760.28	10.79	749.49	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<80.0	0.0219	ND<0.001	NCA
MW-2	03/13/97	759.43	12.54	746.89	ND<0.5	ND<0.5	ND<0.5	ND<1.0	ND<80.0	---	---	NCA
MW-3	03/13/97	758.11	11.81	746.30	985	2410	384	1540	12900	0.00195	ND<0.001	NCA
MW-4	03/13/97	756.89	14.75	742.14	19000	29900	2330	12100	122000	---	---	NCA
MW-5	03/13/97	755.81	14.84	740.97	9400	23500	1960	9950	100000	---	---	NCA
MW-6	03/13/97	753.81	15.97	737.84	33900	27100	1860	10200	108000	---	---	NCA
MW-7	03/13/97	755.44	16.64	738.80	0.793	0.685	ND<0.5	ND<1.0	ND<80.0	---	---	NCA
MW-8	03/13/97	751.46	17.37	734.09	1.29	ND<0.5	ND<0.5	ND<1.0	ND<80.0	---	---	NCA
DP1-H2O	02/25/97	---	---	---	1220	2170	192	862	14100	0.213	ND<0.002	NCA
DP2-H2O	02/25/97	---	---	---	15500	41000	3800	20900	210000	---	---	NCA
DP3-H2O	02/25/97	---	---	---	13.7	36.1	5.22	11.3	136	---	---	NCA
DP4-H2O	02/25/97	---	---	---	34300	46400	3940	22200	237000	---	---	NCA
DP7-H2O	02/25/97	---	---	---	6.71	3.92	1.36	9.24	103	---	---	NCA
DP8-H2O	03/10/97	---	---	---	37.9 (c)	15.4	ND<2.5	813	10900	---	---	NCA
DP9-H2O	03/10/97	---	---	---	36800	39400	3390	23200	235000	---	---	NCA
DP10-H2O	03/10/97	---	---	---	19700	14800	734	6970	67300	---	---	NCA
DP11-H2O	03/10/97	---	---	---	11400	17800	2130	12200	109000	---	---	NCA
DP12-H2O	03/10/97	---	---	---	ND<0.5	1.42	ND<0.5	1.26	ND<50	---	---	NCA
DP13-H2O	03/10/97	---	---	---	6790	5050	302	4880	34800	---	---	NCA
DP14-H2O	03/10/97	---	---	---	26900	31700	2300	14800	177000	---	---	NCA
VP2-H2O	03/10/97	---	---	---	42700	49800	3690	20900	220000	---	---	NCA

ABBREVIATIONS:

B	Benzene
T	Toluene
E	Ethylbenzene
X	Total xylenes
WTPH-G	Total petroleum hydrocarbons as gasoline
ug/l	Micrograms per Liter
ND	Not detected above the reported detection limit
---	Not analyzed/measured/applicable
NCA	North Creek Analytical

NOTES:

(a) Top of casing elevations surveyed relative to mean sea level.

(b) Groundwater elevations relative to mean sea level.

(c) Surrogate recovery out of range due to coeluting organic compound interference.

TABLE 3 - SUMMARY OF RESULTS OF BIOTREATABILITY ANALYSES (SOIL AND WATER)
TIME OIL CO. FACILITY NO. 01-068
107 WEST LINCOLN AVENUE, SUNNYSIDE, WASHINGTON

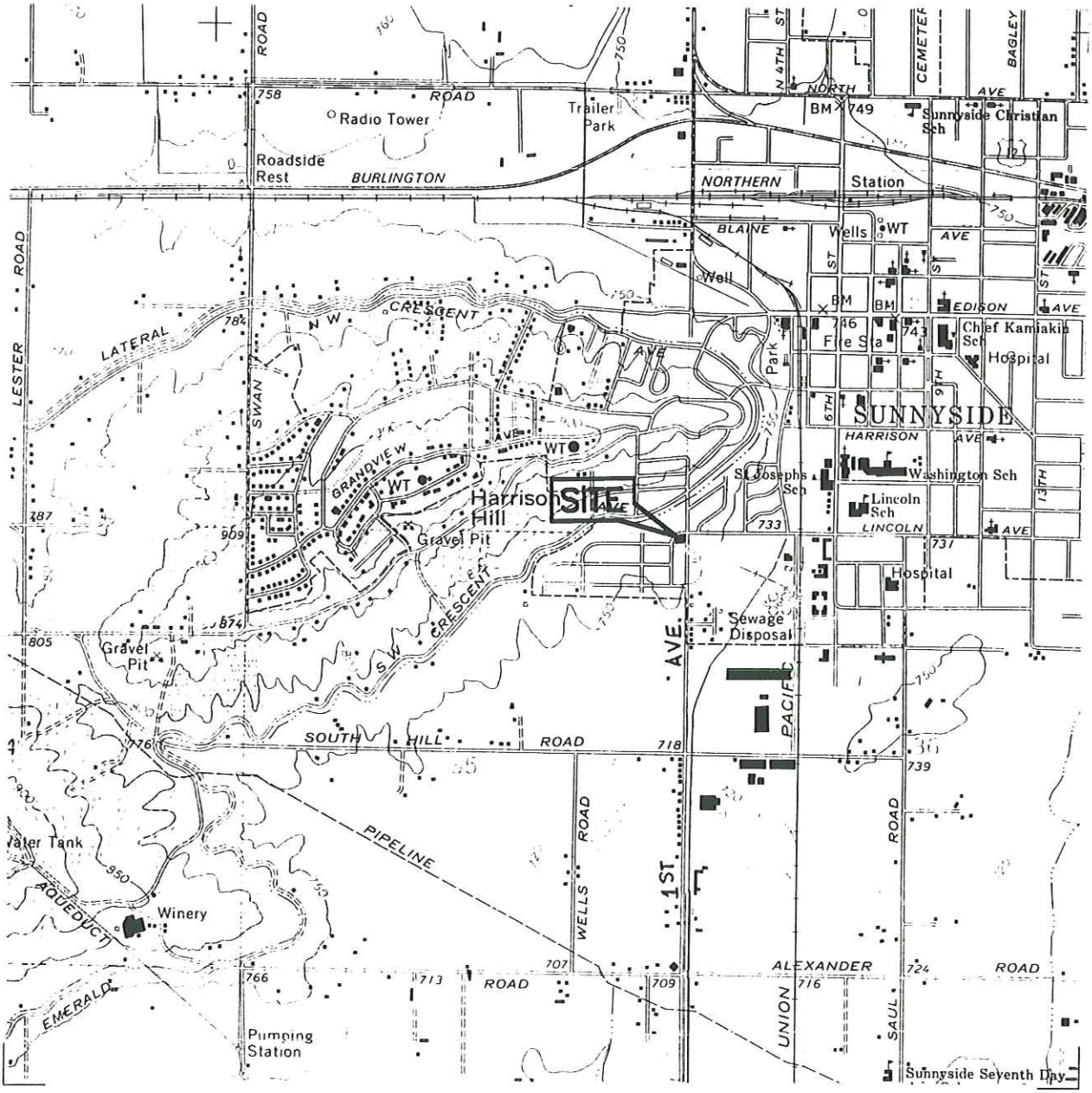
PROJECT NO. 20-025

Sample I.D.	Matrix	Date of Sampling	Depth (feet)	Nitrogen as Nitrate and Nitrite (mg/kg)	Phosphate as Orthophosphate (mg/kg)	Total Heterotrophic Plate Count (cfu/g)	Total Heterotrophic Plate Count (cfu/ml)	Petroleum-Degrading Bacteria (cfu/ml)	Lab
MW1-19	Soil	03/11/97	19	0.14	ND<1	3,200,000	---	---	AEN
MW3-15	Soil	03/11/97	15	0.08	ND<1	ND<100	---	---	AEN
MW6-20	Soil	03/11/97	20	0.07	ND<1	700	---	---	AEN
MW-3	Water	04/29/97	---	---	---	---	800,000	90	NCA
MW-6	Water	04/29/97	---	---	---	---	300,000	300	NCA

ABBREVIATIONS:

mg/kg	Milligrams per kilogram
cfu/g	Colony forming units per gram
cfu/ml	Colony forming units per milliliter
feet	Feet below ground surface
NCA	North Creek Analytical
AEN	American Environmental Network
---	Not analyzed/measured/applicable

FIGURES



SOURCE:
USGS MAP, SUNNYSIDE, WASHINGTON QUADRANGLE,
7.5 MINUTE SERIES. 1965.
PHOTOREVISED 1978.

N

0 1000' 2000'

FIGURE 1

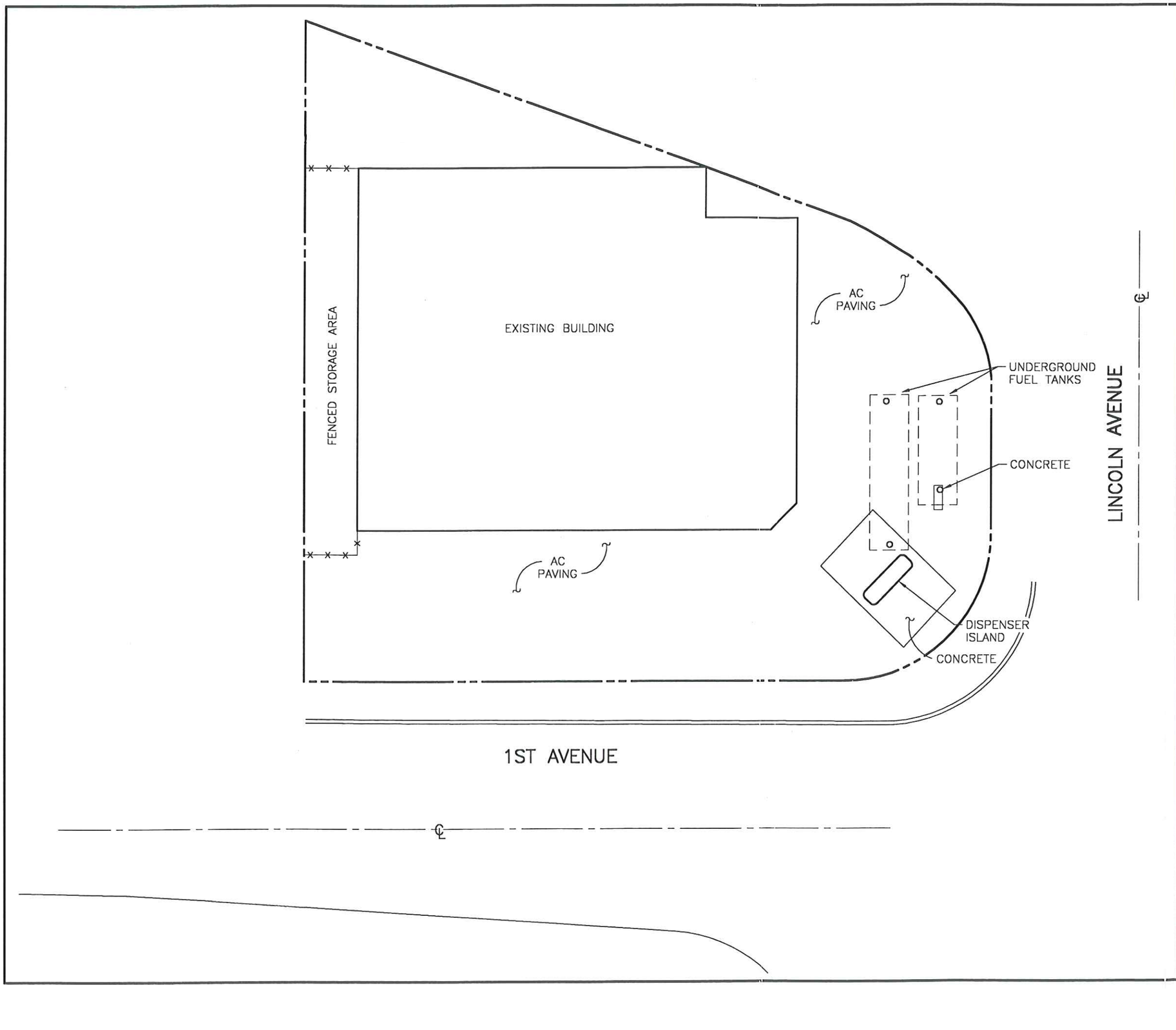
SITE VICINITY MAP

TIME OIL CO. FACILITY NO. 01–068
107 WEST LINCOLN
SUNNYSIDE, WASHINGTON

PROJECT NO. 20–025

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

20025B--.DWG 4-24-97 RKW 1=1



N

0 20 40

SCALE IN FEET

LEGEND

—x—x— EXISTING FENCE

— - - — PROPERTY LINE

—℄— CENTERLINE OF ROADWAY

ABBREVIATIONS

AC ASPHALTIC CONCRETE

FIGURE 2

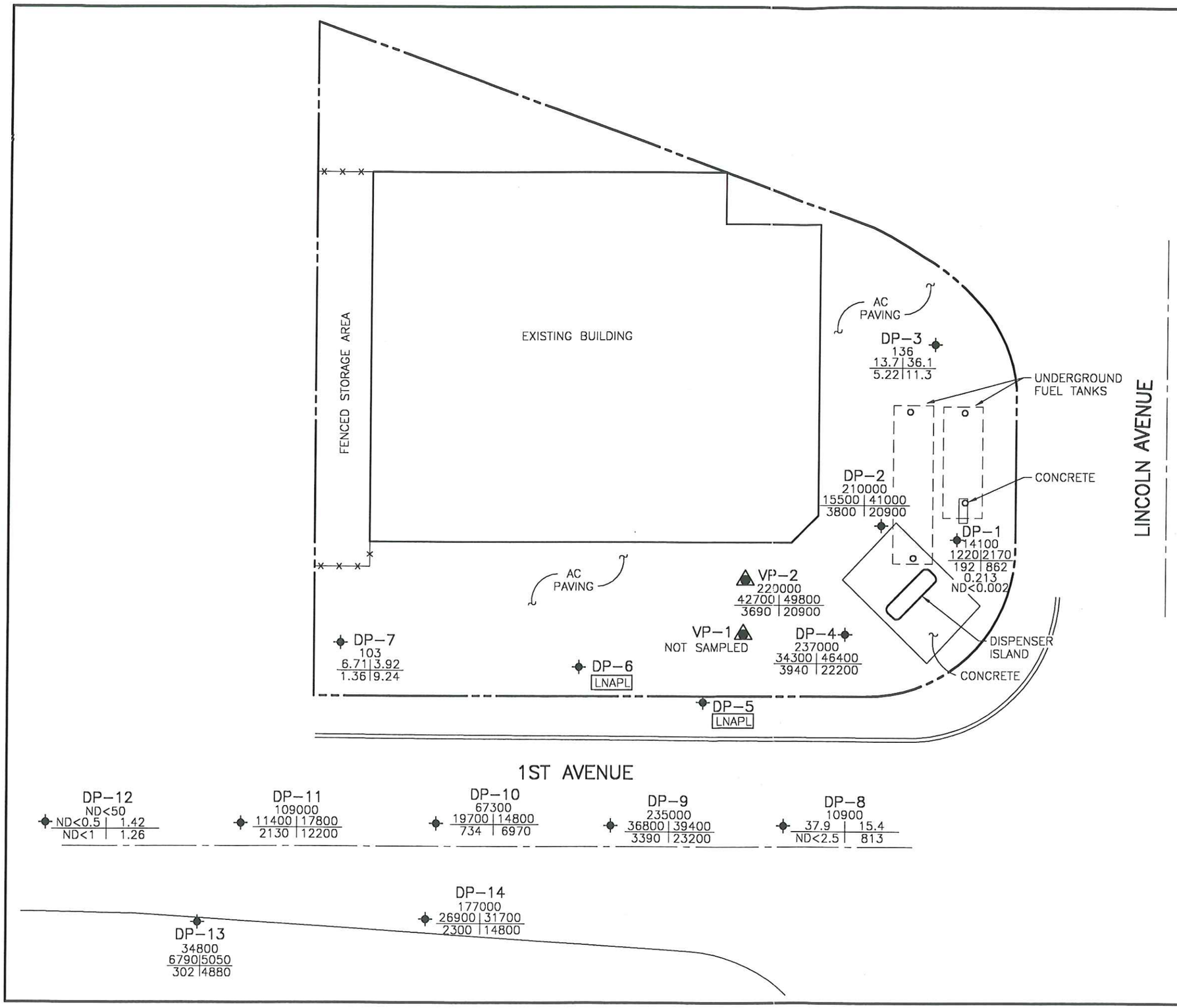
SITE PLAN

TIME OIL CO. FACILITY NO. 01–068
107 WEST LINCOLN
SUNNYSIDE, WASHINGTON

PROJECT NO. 20–025

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

20025C—.DWG 4-24-97 RKW 1=20



N

0 20 40

SCALE IN FEET

LEGEND

⌖	DRIVE POINT LOCATION
▲	VAPOR MONITORING POINT
WTPH–G / B | T / E | X / T. LEAD / D. LEAD	CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER, EXCEPT LEAD, WHICH IS IN MILLIGRAMS PER LITER
WTPH–G	WASHINGTON TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
T. LEAD	TOTAL LEAD
D. LEAD	DISSOLVED LEAD
ND	NOT DETECTED ABOVE REPORTED DETECTION LIMIT
LNAPL	LIGHT NON–AQUEOUS PHASE LIQUID

NOTE:
DP1–DP7 were sampled on 2/25/97.
DP8–DP14, VP1, AND VP2 were sampled on 3/10/97.

FIGURE 3

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER (DRIVE POINT SAMPLING)

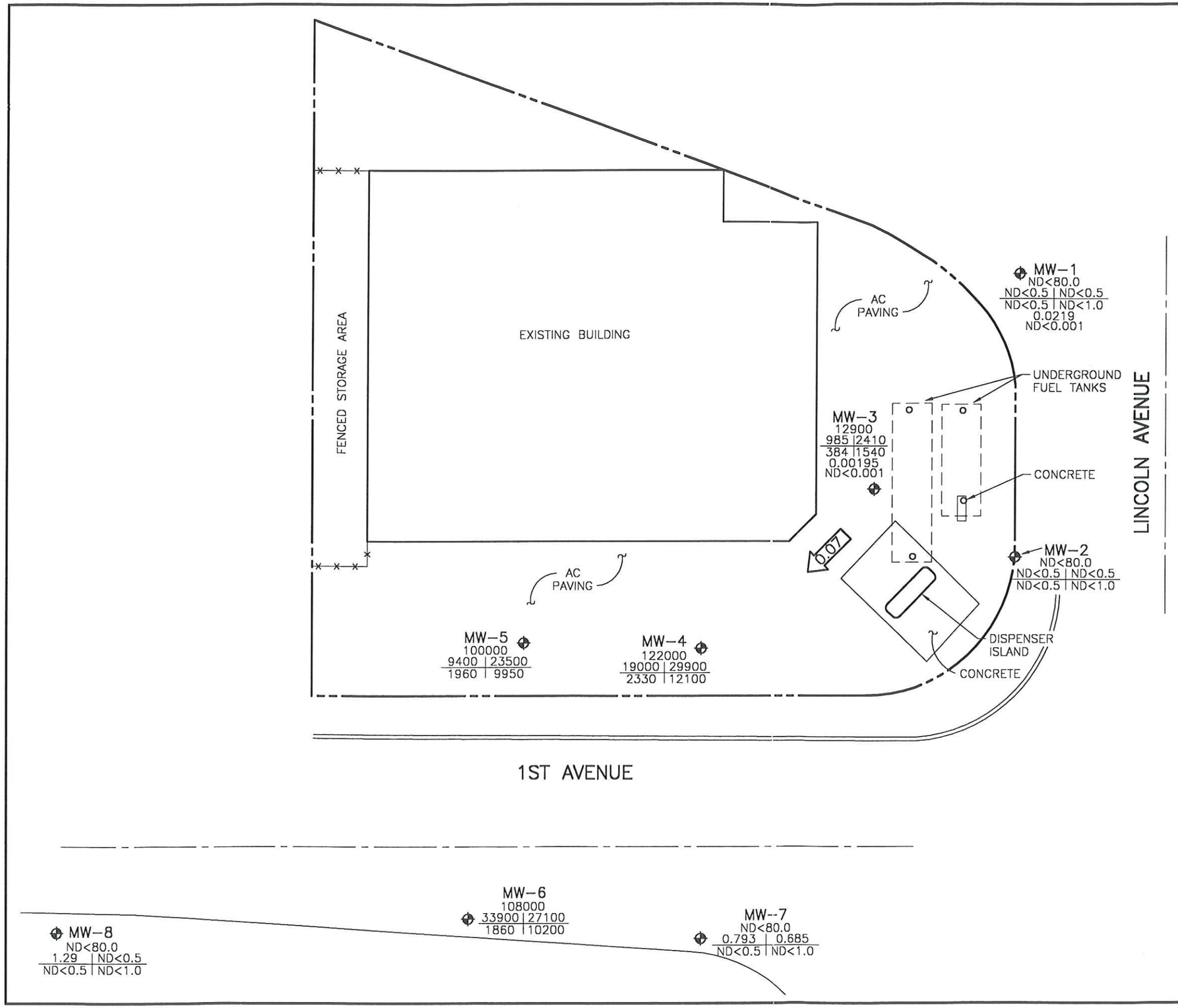
FEBRUARY 25 & MARCH 10, 1997

TIME OIL CO. FACILITY NO. 01–068
107 WEST LINCOLN
SUNNYSIDE, WASHINGTON

PROJECT NO. 20–025

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

20025SAU.DWG 4–24–97 RKW 1=20



N

0 20 40

SCALE IN FEET

LEGEND

⊕	GROUNDWATER MONITORING WELL
WTPH-G / B | T / E | X / T. LEAD / D. LEAD	CONCENTRATION OF CONSTITUENTS IN MICROGRAMS PER LITER, EXCEPT LEAD, WHICH IS IN MILLIGRAMS PER LITER
WTPH-G	WASHINGTON TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	TOTAL XYLENES
T. LEAD	TOTAL LEAD
D. LEAD	DISSOLVED LEAD
ND	NOT DETECTED ABOVE REPORTED DETECTION LIMIT
0.07	CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 4

CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER

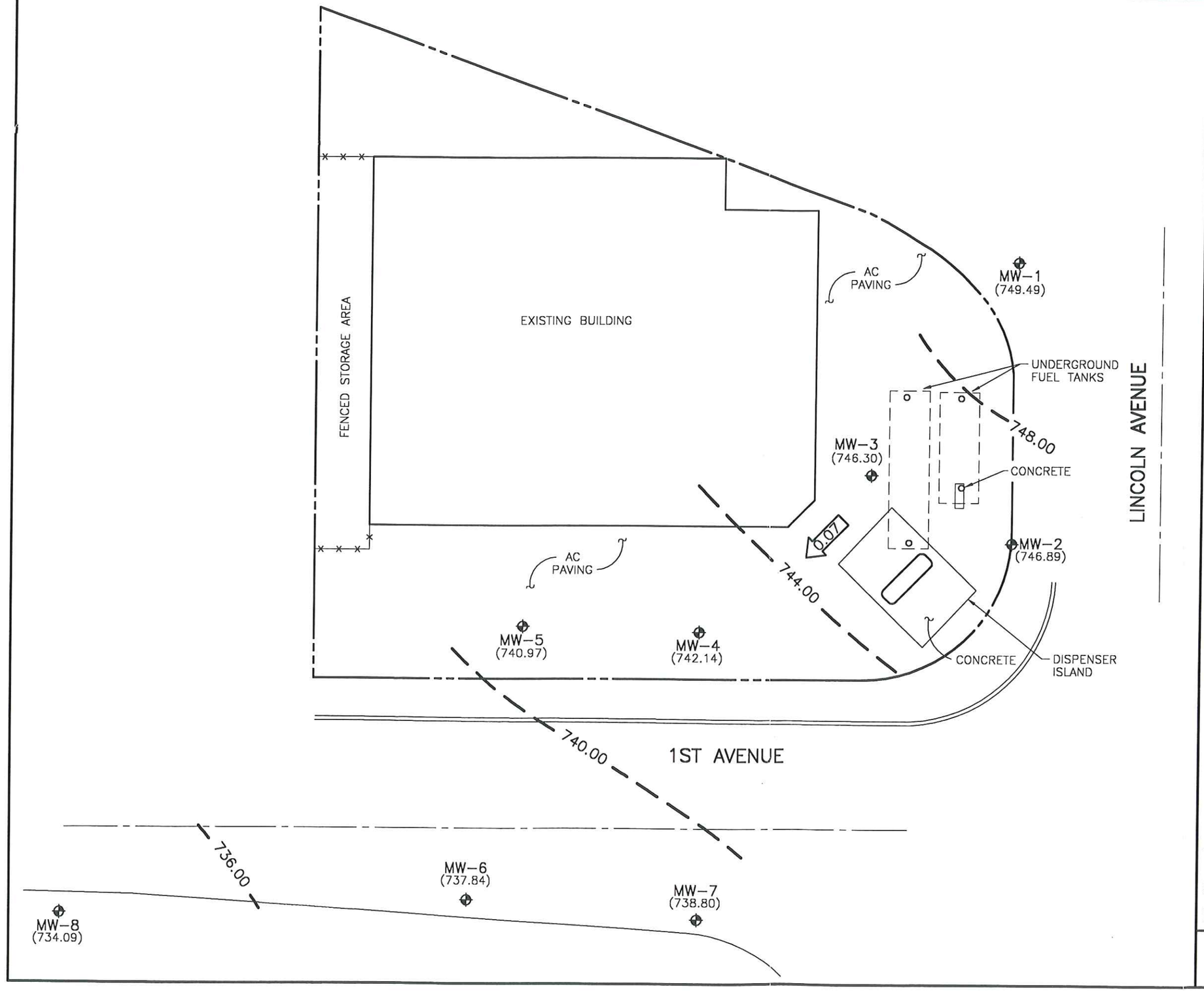
MARCH 13, 1997

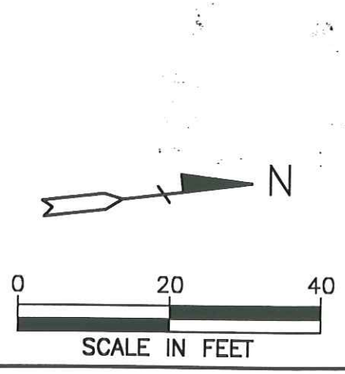
TIME OIL CO. FACILITY NO. 01-068
107 WEST LINCOLN
SUNNYSIDE, WASHINGTON

PROJECT NO. 20-025

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

20025C-U.DWG 4-24-97 RKW 1=20





LEGEND

- ⊕ GROUNDWATER MONITORING WELL
- (746.30) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 744.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL–4.00 FEET)
- 0.07 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

FIGURE 5

POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP

MARCH 13, 1997

TIME OIL CO. FACILITY NO. 01–068
107 WEST LINCOLN
SUNNYSIDE, WASHINGTON

PROJECT NO. 20–025

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

20025D-1.DWG 4-23-97 DDW 1=20

APPENDIX A

CITY OF SUNNYSIDE CONSTRUCTION PERMIT AND UTILITY MAPS

Sunnyside Building Division

818 E. EDISON AVE. SUNNYSIDE, WASHINGTON 98944 837-4229

Construction Permit

Address: **107 W LINCOLN AVE** PermitNo: **97-065PW**

Applicant: **Alisto Engineering Group 7160 SW Hazelfern Road #700, Portland, OR 97224** **(503) 620-8420**

AppNo: **4071** App Date: **3/6/97** Permit Date: **3/11/97**

SiteNo: **3226** TaxAccount: Parcel:

Rng: Twn: Sec: QSc: TaxLot: Area: Lot: Blk:

Owner: Soo Hwan Kim

Phones: ( ) 837-7172

BuildingUse:	FedNo:	Units:	Bdrms	Bath:	Public?	WorkType
STREET EXCAVATIONS	1300	0	0	0	No	EXCAV/GRADING

Permit Type / *Relation: Firm: License No:

PW-ST.EX. Cascade Drilling Inc. P.O. Box 1184, Woodinville CASCADI088KK

* Engineer Alisto Engineering Group 7160 SW Hazelfern Road #700, Portland Pend

Tenant:

Permit/Fee Type	Fee	Plan Rev	Srchrg		
PW-ST.EX.	30.00	0.00	0.00		
Assessed:	30.00	0.00	0.00	=	$30.00
Paid:	30.00	0.00	0.00	=	$30.00
Balance Due:	0.00	0.00	0.00	=	$0.00

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 within one year from the date of issue. All work shall be done in accord with the approved plans, except where such approval is in conflict with other 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 State or local law regulating construction or the performance of construction.

Date_____ Amt_____ Rcpt_____

Chk.No._____

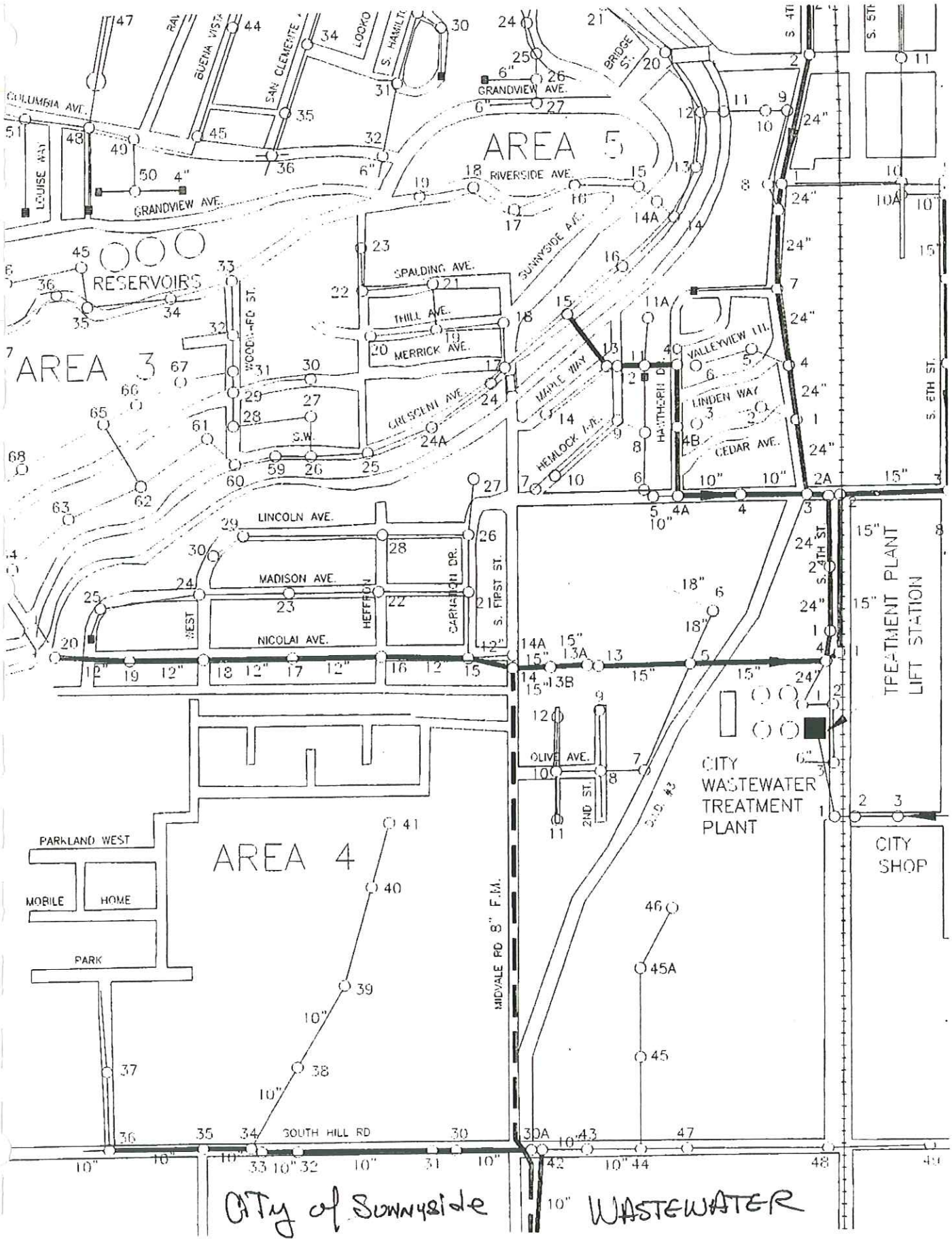
THIS PERMIT IS APPROVED FOR THE WORK DESCRIBED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS

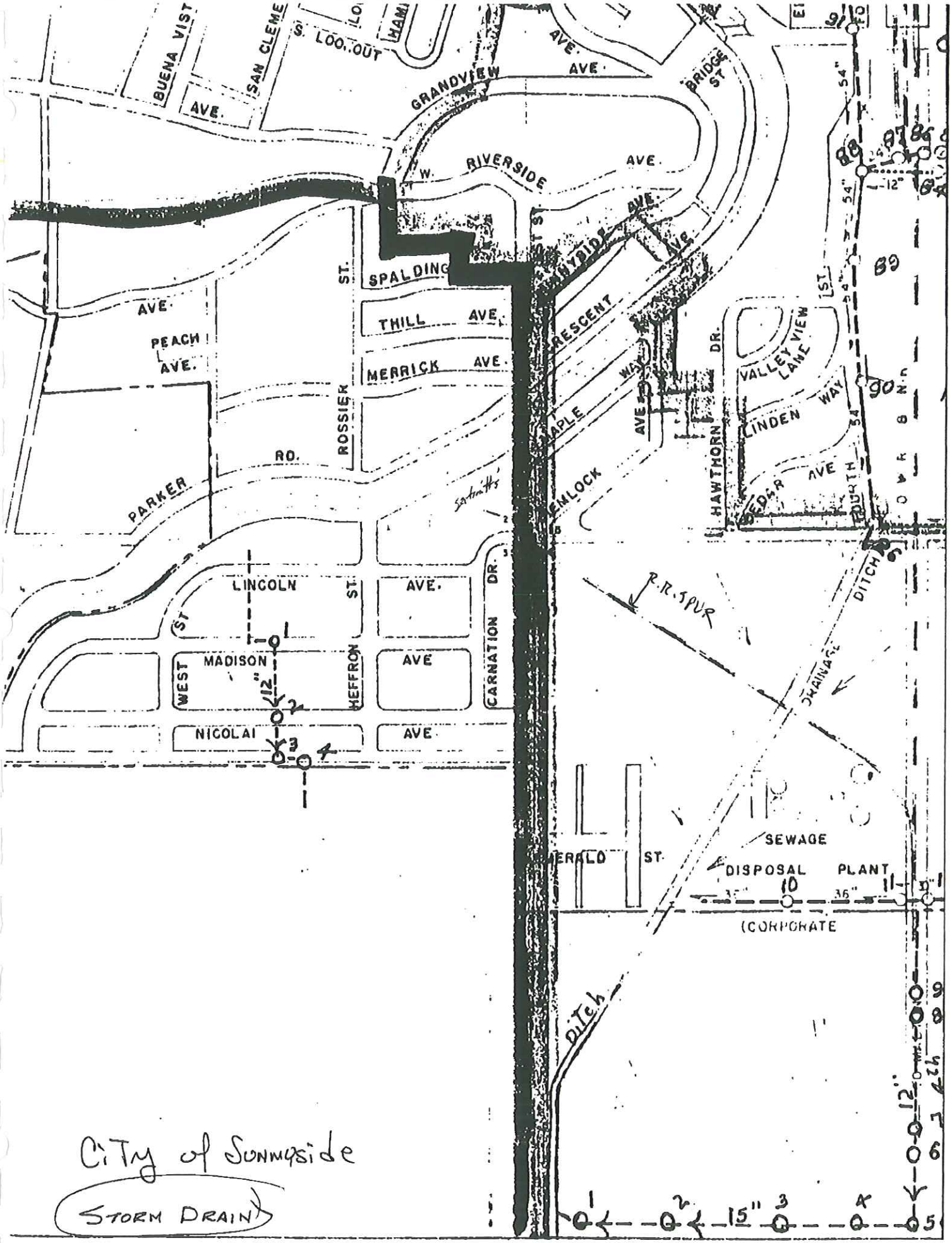
BY Gary Sotter 12/MARCH/97

3/12/97

Signature of authorized applicant Date

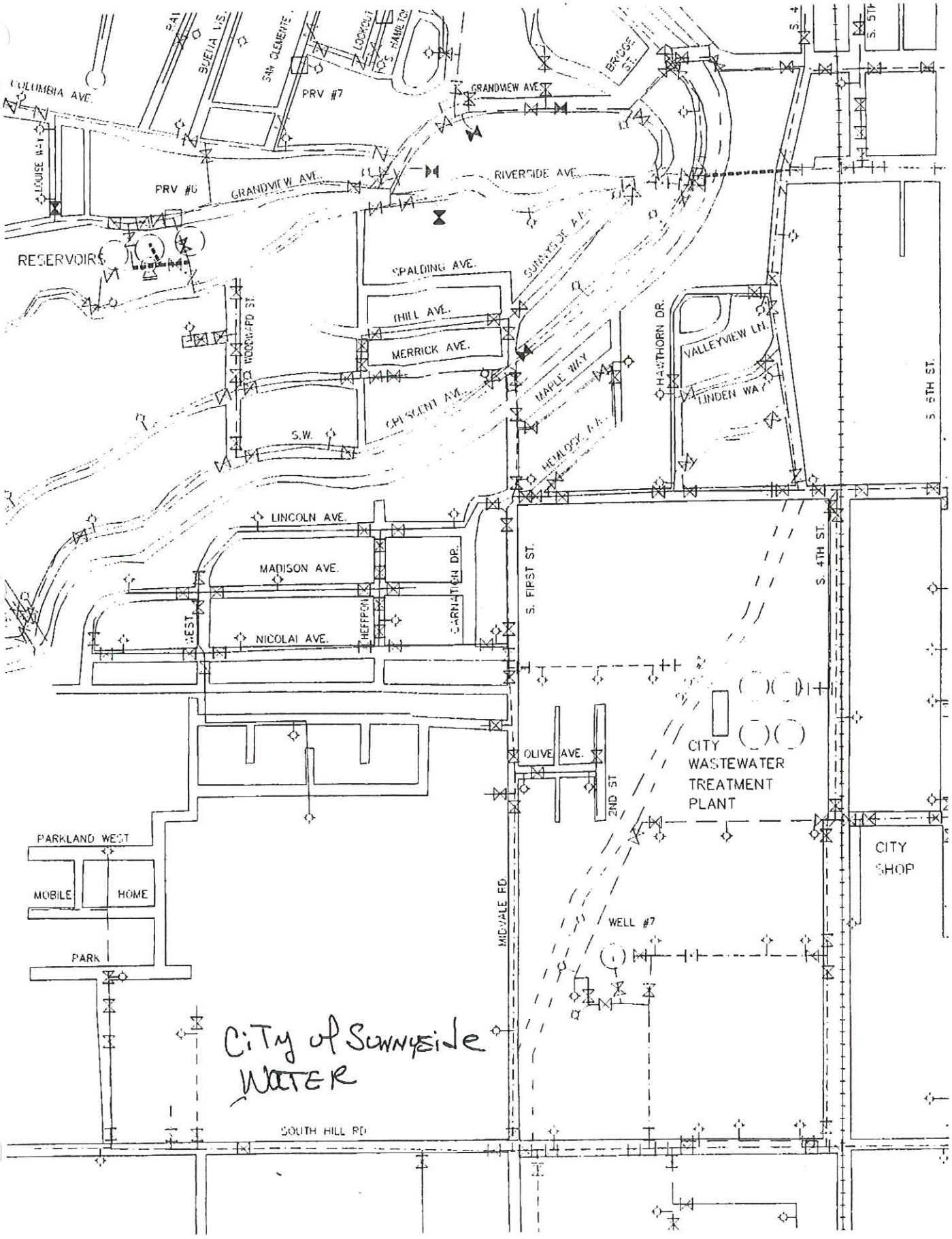
5206 - ask for Deborah





City of Sunnyside

Storm Drain


COLUMBIA AVE.
SUETA LN.
SAN CLEMENTE
LOOKOUT
HAMILTON
PRV #7
GRANDVIEW AVE.
BRUCE ST.
S. 4
S. 5TH
LOUISE AVE.
PRV #6
GRANDVIEW AVE.
RIVERSIDE AVE.
RESERVOIRS
SPALDING AVE.
SUNNYSIDE AVE.
HILL AVE.
MERRICK AVE.
WOODINFORD ST
CRESCENT AVE.
MAPLE WAY
HAWTHORN DR.
VALLEYVIEW LN.
LINDEN WAY
S. 6TH ST.
S.W.
HEDLOCK AVE.
LINCOLN AVE.
MADISON AVE.
GARFIELD DR.
WEST
HEFFRON
NICOLAI AVE.
S. FIRST ST.
S. 4TH ST.
OLIVE AVE.
2ND ST
CITY
WASTEWATER
TREATMENT
PLANT
CITY
SHOP
PARKLAND WEST
MOBILE
HOME
PARK
MIDVALE RD
WELL #7
City of Sunnyside
WATER
SOUTH HILL RD

APPENDIX B

MATERIAL SAFETY DATA SHEET AND ECOLOGY UNDERGROUND INJECTION CONTROL FORMS

ALISTO ENGINEERING GROUP

June 4, 1997

Ms. Mary Shaleen-Hansen
Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

20025-01

Subject: Underground Injection Control Registration Form
Time Oil Co. Facility No. 01-068
107 West Lincoln Avenue
Sunnyside, Washington

Dear Ms. Shaleen-Hansen:

Alisto Engineering Group, on behalf of Time Oil Co., is pleased to submit the Underground Injection Control (UIC) registration form for using oxygen release compound (ORC®) at Time Oil Facility No. 01-068, 107 West Lincoln Avenue, Sunnyside, Washington.

Thank you for your assistance, and please call if you have questions regarding this issue.

Sincerely,
ALISTO ENGINEERING GROUP

Craig W. Ware, R.G.
Senior Geologist

cc: Ms. Angela Côté - Time Oil Co.

Enclosure

7160 S.W. HAZELFERN ROAD, SUITE 700 • PORTLAND, OR 97224 • (503) 620-8420 • FAX (503) 620-1923

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

June 12, 1997

Ms. Angela Cote
Time Oil Co.
2737 West Commodore Way
Seattle, WA 98199-1233

Re: Class V Injection Well Registration No. 12027 for Time Oil Co.
Facility No. 01-068, Sunnyside, WA

Dear Ms. Cote:

This letter is to acknowledge receipt of your registration form and data mailed June 4, 1997, requesting Underground Injection Control (UIC) Program registration of an aquifer remediation project using oxygen releasing compound (ORC®). I have registered the site as UIC Site 12027.

Please contact me referring to the site number if you change the remediation program from that listed in the registration. You may reach me at (360) 407-6616. For technical questions please contact Mary Shaleen-Hansen at (360) 407-6143.

Sincerely,

Diane T. Dent-White

Diane Dent-White
Water Quality Program

cc: Craig W. Ware, Alisto Engineering Group
Lynn Coleman TCP
Mary Shaleen-Hansen, WQ

WASHINGTON STATE DEPARTMENT OF ECOLOGY

For Department of Ecology Use

UIC Site ID _____ Date Entered _____ Acknowledged _____ WRIA _____

Please complete to the best of your knowledge and return to: UIC Coordinator, Water Quality Program, Department of Ecology, PO Box 47600, Olympia, WA 98504-7600: Fax (360) 407-6426. Attachments to provide additional information are welcomed. Thank you.

REGISTRATION FORM

INJECTION WELL (CLASS 5X26)*

1. Facility: TIME OIL CO. FACILITY NO. 01-068

   Address: 107 WEST LINCOLN AVENUE City SUNNYSIDE, WA

   Zip 98944 County YAKIMA Phone 206-285-2400

   Township 10N Range 22E Section 35 $\frac{1}{4}$ Section NE¼ NE¼ $\frac{1}{4}$ $\frac{1}{4}$ Section NE¼ NE¼

   Cross Streets: North/South 1ST AVENUE NORTH (MIDVALE ROAD) East/West WEST LINCOLN AVENUE

   Latitude 46° 19' 00" Longitude 120° 01' 08"

   Other: N/A

2. Contact: TIME OIL CO. - MS. ANGELA CÔTE' Phone 206-285-2400

   Address: 2737 WEST COMMODORE WAY

   SEATTLE, WA 98199-1233

3. Owner/Operator: TIME OIL CO. Phone 206-285-2400

   Address: AS ABOVE

4. Date Started: MARCH 1997 Date Abandoned: N/A

5. Water Discharge Permit Number: N/A Issued By N/A

6. Number and Description of Wells: OXYGEN RELEASE COMPOUND (ORC) TO BE USED IN TWO 2-INCH DIAMETER AND TWO 4-INCH-DIAMETER MONITORING WELL INSTALLED TO DEPTHS OF 25 FEET BELOW GRADE AND SCREENED FROM 5 TO 25 FE

* Use EPA 32 class system if known.

7. Ground water is 9 TO 13 ft (above) / below (circle which) bottom of well. Date 3/10/97

Based on: Well Log ☐ Measurement ☒ Estimate ☐ from _____

8. Injected Fluid: Source NOT APPLICABLE Volume N/A gallons per day

Treatment/Pollution Prevention Methods ORC IS A MIXTURE OF MAGNESIUM PEROXIDE, MAGNESIUM OXIDE, AND MAGNESIUM HYDROXIDE SUSPENDED IN FILTER SOCKS WITHIN WELLS FOR REMEDIATION OF PETROLEUM HYDROCARBONS IN SOIL AND WATER. ORC HANDLING WILL BE IN ACCORDANCE WITH THE MSDS (ATTACHED). NO TREATMENT OR POLLUTION PREVENTION METHODS ARE APPLICABLE TO THIS PROCESS.

9. Property/Source Area Description: THE PROPERTY IS A RETAIL GASOLINE STATION AND CONVENIENCE STORE. THE FUEL SYSTEM INCLUDES TWO UNDERGROUND GASOLINE TANKS AND TWO DISPENSERS. THE ORC IS TO BE USED TO ENHANCE REMEDIATION OF PETROLEUM HYDROCARBONS IN SOIL AND
Contamination Sources GROUNDWATER AS A RESULT OF RELEASE FROM THE TANK SYS-

10. Geology: LACUSTRINE (LAKE) DEPOSITS CONSISTING OF LAMINATED SILT AND FINE-GRAINED SAND REACHING A THICKNESS OF UP TO 90 FEET, OVERLYING THE SNIPES MOUNTAIN CONGLOMERATE WHICH RANGES FROM 90 TO 450 FEET IN THICKNESS.

11. Comments: ORC IS NON-TOXIC (MSDS), AND UPON HYDRATION WITHIN THE WE RELEASES OXYGEN IN THE SUBSURFACE. NEW ORC MAY PERIODICALLY BE INSTALLED IN SELECTED WELLS. THE RESIDUAL MASS OF ORC, ONCE OXYGEN IS RELEASED, IS MILDLY BASIC; HOWEVER, THERE ARE NO KNOWN ENVIRONMENTAL IMPACTS ASSOCIATED WITH USE OF THE MATERIAL. THERE WERE NO IDENTIFIED BENEFICIAL USERS OF SHALLOW GROUNDWATER IN THE PROJECT VICINITY.

12. Location Sketch

REFENCE ATTACHED MAP. WELLS MW-2, MW-3, MW-4, AND MW-6 SELECTED FOR USE OF ORC.

Completed by: _____ Date: JUNE 4, 1996

MATERIAL SAFETY DATA SHEET

Last Revised : October 21, 1996

SECTION 1 - MATERIAL IDENTIFICATION

SUPPLIER:

REGENESIS Bioremediation Products
27130A Paseo Espada, Suite 1407
San Juan Capistrano, CA 92675
714-443-3136 phone
714-443-3140 fax

CHEMICAL DESCRIPTION:
A mixture of Magnesium Peroxide [MgO_2], Magnesium Oxide [MgO], and Magnesium Hydroxide [$Mg(OH)_2$]

CHEMICAL FAMILY:
Inorganic Chemicals

PRODUCT NAME:
Oxygen Release Compound (ORC®)

PRODUCT USE:
Used for environmental remediation of contaminated soil and groundwater

SECTION 2 - CHEMICAL IDENTIFICATION

CHEMICAL CHARACTERIZATION

Magnesium Peroxide [MgO_2]	CAS Reg. No.	14452-57-4	
Magnesium Oxide [MgO]:	CAS Reg. No.	1309-42-8	
Magnesium Hydroxide ($(Mg(OH)_2$):	CAS Reg. No.	1309-42-8	
FORM:	powder		
COLOR:	white		
ODOR:	odorless		
ASSAY:	25 - 35% Magnesium Peroxide (MgO_2)		

SECTION 3 - PHYSICAL AND TECHNICAL SAFETY DATA

MELTING POINT:	Not Determined
BOILING POINT:	Not Determined
DENSITY:	.6 - .8 g/cc
BULK DENSITY:	---
VAPOR PRESSURE:	Data not available

VISCOSITY:	---
SOLUBILITY:	Reacts with water. Soluble in acid
pH VALUE:	Approx. 10 in saturated solution
FLASH POINT:	Not applicable
SELF-IGNITION TEMPERATURE:	Not applicable
EXPLOSION LIMITS % BY VOLUME:	---
THERMAL DECOMPOSITION:	Spontaneous decomposition possible about 150° C
HAZARDOUS DECOMPOSITION PRODUCTS:	Not known
HAZARDOUS REACTIONS:	Hazardous polymerization will not occur
FURTHER INFORMATION:	Non-combustible, but will support combustion

SECTION 4 - REACTIVITY DATA

STABILITY:	Product is stable unless heated above 150°C. Magnesium Peroxide reacts with water to slowly release oxygen. React by product is magnesium hydroxide
CONDITIONS TO AVOID:	Heat above 150°C. Open flames
INCOMPATIBILITY:	Strong Acids Strong chemical agents
HAZARDOUS POLYMERIZATION:	None known

SECTION 5 - REGULATIONS

PERMISSIBLE EXPOSURE LIMITS IN AIR:	Not established. Should be treated as a nuisance dust.

SECTION 6 - PROTECTIVE MEASURES, STORAGE, AND HANDLING

TECHNICAL PROTECTIVE MEASURES

STORAGE:	Keep container tightly closed. Keep away from combustible material
HANDLING:	Use only in well-ventilated areas

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION:	Recommended (HEPA Filters)
HAND PROTECTION:	Wear suitable gloves
EYE PROTECTION:	Use chemical safety goggles
OTHER:	---
INDUSTRIAL HYGIENE:	Avoid contact with skin and eyes
PROTECTION AGAINST FIRE AND EXPLOSION:	---
DISPOSAL:	Dispose via sanitary landfill per state/local

	authority
FURTHER INFORMATION:	Not flammable, but may intensify fire

SECTION 7 - MEASURES IN CASE OF ACCIDENTS AND FIRE

AFTER SPILLAGE/LEAKAGE/GAS LEAKAGE:	Collect in suitable containers. Wash remainder with copious quantities of water.
EXTINGUISHING MEDIA	
SUITABLE:	Carbon dioxide, dry chemicals, foam
NOT TO BE USED:	---
FURTHER INFORMATION:	Self contained breathing apparatus or approved gas mask should be worn due to small particle size. Use extinguishing media appropriate for surrounding fire.
FIRST AID:	After contact with skin, wash immediately with plenty of water and soap. In case of contact with eyes, rinse immediately with plenty of water and seek medical attention.
FURTHER INFORMATION:	---

SECTION 8 - INFORMATION ON TOXICOLOGY

TOXICITY DATA:	Data not available

SECTION 9 - INFORMATION ON ECOLOGY

WATER POLLUTION HAZARD RATING (WGK): 0

SECTION 10 - FURTHER INFORMATION

After the reaction of magnesium peroxide to form oxygen the resulting material, magnesium hydroxide is mildly basic. The amounts of magnesium oxide (magnesia) and magnesium hydroxide in the initial product have an effect similar to lime, but with lower alkalinity.

The information contained in this document is the best available to the supplier at the time of writing, but is provided without warranty of any kind. Some possible hazards have been determined by analogy to similar classes of material. The items in this document are subject to change and clarification as more information becomes available.

ORC® FILTER SOCK INSTALLATION INSTRUCTIONS

ORC® Filter Socks are used to enhance bioremediation of petroleum hydrocarbons in groundwater. The filter sock contains ORC and an inert carrier matrix. The socks come in one foot sections. They are laced together to span the vertical polluted saturated zone in monitoring type wells. Once the socks are laced together and lowered into the wells, they become hydrated and begin releasing oxygen. The following instructions are vital to proper installation and subsequent removal of the socks.

SAFETY PRECAUTIONS

- ORC is completely non-toxic, but is composed of ultra-fine particles.
- Wear dust masks and goggles to prevent soft tissue irritation.
- Reference the Material Safety Data Sheet for specific technical and physical information.

CONDITION OF SOURCE WELLS

- Test for well deviation and smoothness before ORC installation.
    - For the test, use a 5 foot section of pipe with an outside diameter 1/2 inch smaller than the source well's inside diameter.

KEY REQUIREMENTS FOR INSTALLATION

A) **SOCKS MUST BE INSTALLED WITH BLACK GROMMETS ON TOP.**
B) Wrap socks as independent units (see page 3, figure 5).
C) A maximum of **20** 2-inch socks per section.
D) A maximum of **8** 4-inch socks per section.
E) A maximum of **6** 6-inch socks per section.
F) Make sure each sock is properly shaped (cylindrical and without bends) to facilitate ease of installation and removal.

HELPFUL HINTS

- ORC matrix hardens into a cement once hydrated.
- Minimize slack between each sock, by periodically pulling up slack while lacing.
- Tie off ORC retrieval lines to the well cap. **REGENESIS** recommends the use of a 3/8" diameter x 6" long eyebolt.
- The ORC Socks should be wetted to prevent excessive dusting prior to installation.
- Make sure your work area is clean to avoid oil and dirt deposits on the socks.

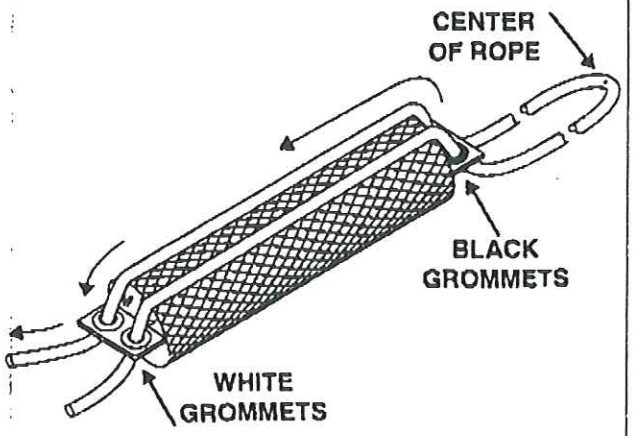
ORC REMOVAL

- ORC Socks will be approximately 20% heavier after water saturation.
- Static friction from screened casing may cause difficulty in removal.
- A winch and stanchion (or comparable equipment) may be necessary to help remove the socks due to increased weight, friction etc.

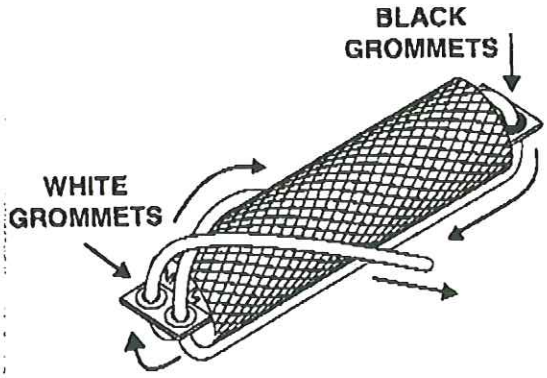
(SEE DETAILED FIGURES INSIDE)

REGENESIS
Bioremediation Products
27130A Paseo Espada - Suite 1407- San Juan Capistrano - CA 92675 - Ph (714) 443-3136 - Fax (714) 443-3140

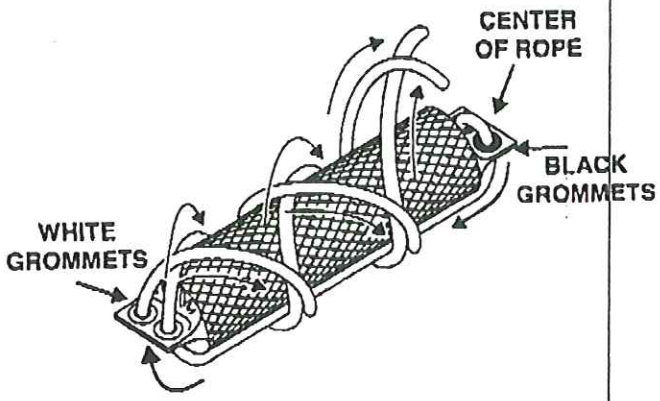
4 INCH AND 6 INCH LACING DIAGRAM



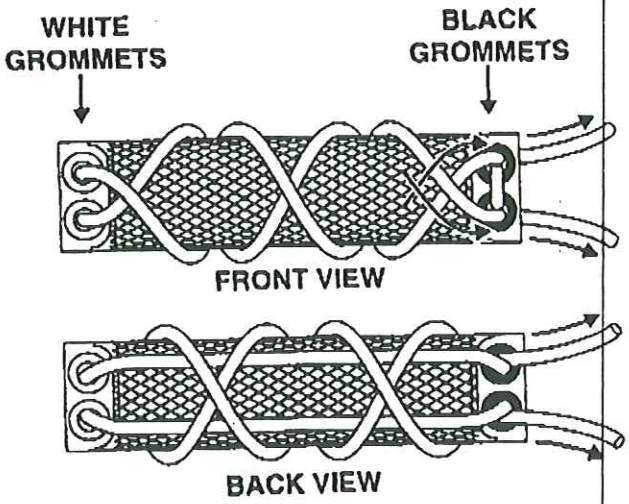
1) Find the center of the rope. Begin lacing the ORC Socks by threading the two ends of the installation rope through the black grommets and then through the white grommets at the bottom of the same side of the bottom sock.



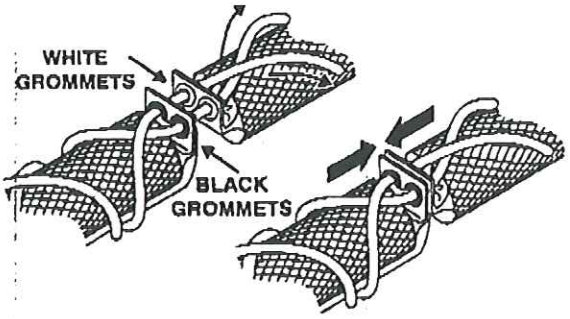
2) Pull the rope through the bottom sock, making sure the center of the rope is between the black grommets. Cross the ropes over each other.



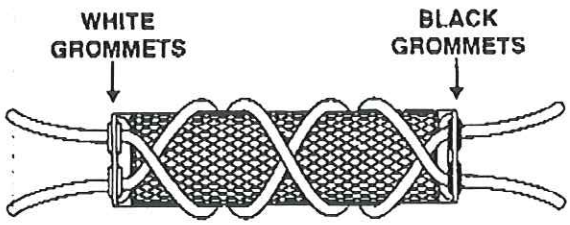
3) Loop the ends of the rope around the back of the sock and cross them. Repeat this step once again, so the rope is wrapped around the sock with two full turns.



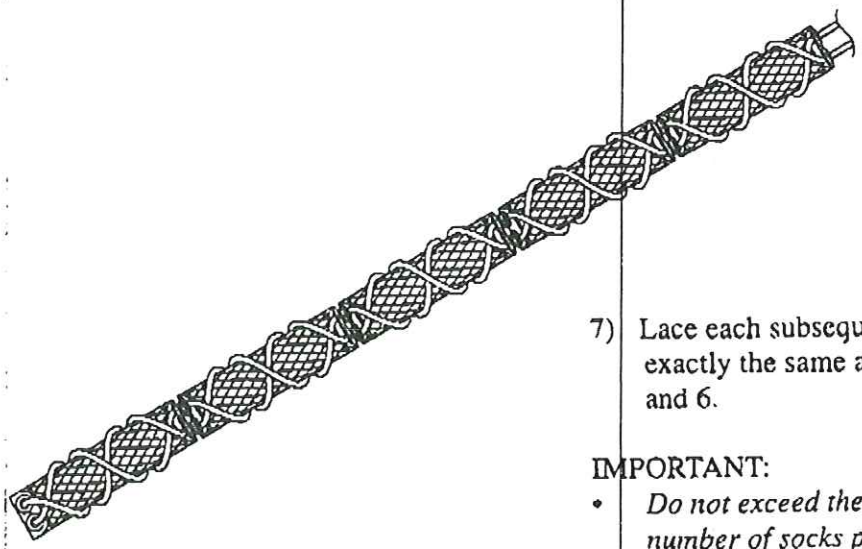
4) Bring the ends of the rope around from the back, cross them, and thread them into the black grommets. The rope ends should be inserted into the black grommets diagonally from the white ones they started from. Threading the black grommets will be tight only on the bottom sock due to the unique lacing pattern.



5) To avoid the ORC Socks slipping past each other, the socks must be laced with the grommet flaps of the bottom sock and second sock butting against each other (as shown).



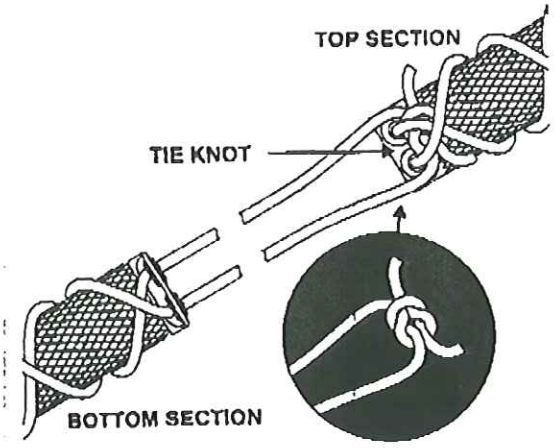
6) The remaining socks on the rope section are laced up according to Figure 6. Make sure that the rope is turned around the sock two full turns, with the grommets of each sock butting up against the next sock as shown in Figure 5.



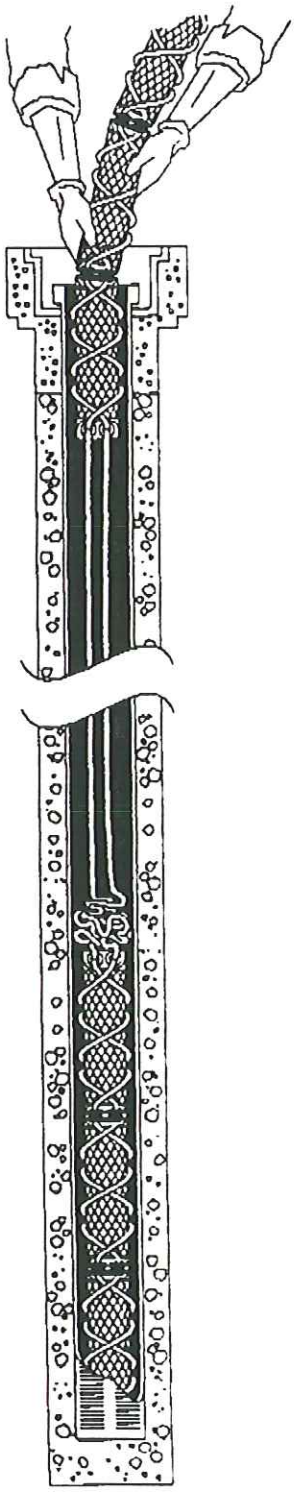
7) Lace each subsequent ORC Sock exactly the same as in Figure 5 and 6.

IMPORTANT:

- *Do not exceed the maximum number of socks per section (see "Key Requirements D & E" on page 1).*
- *Minimize the slack between the socks.*

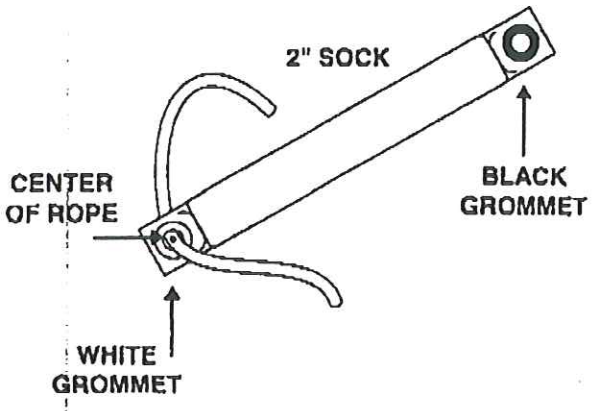


8) If you need to install more ORC Socks than the maximum allowed per well size (see "Key Requirements D & E" on page 1), then multiple sections must be installed. Each section is laced exactly the same, but they should be tied off to each other. Tie the end of the rope from the lower section to the bottom sock of the upper section; this allows each section to be installed and removed independently. (see well diagram)

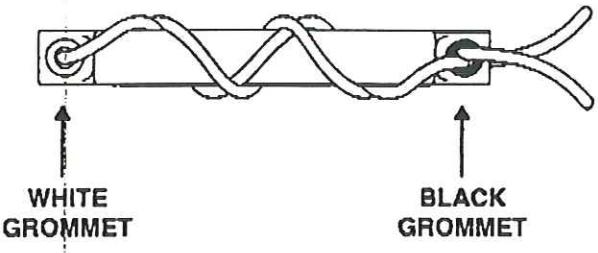


Well Diagram

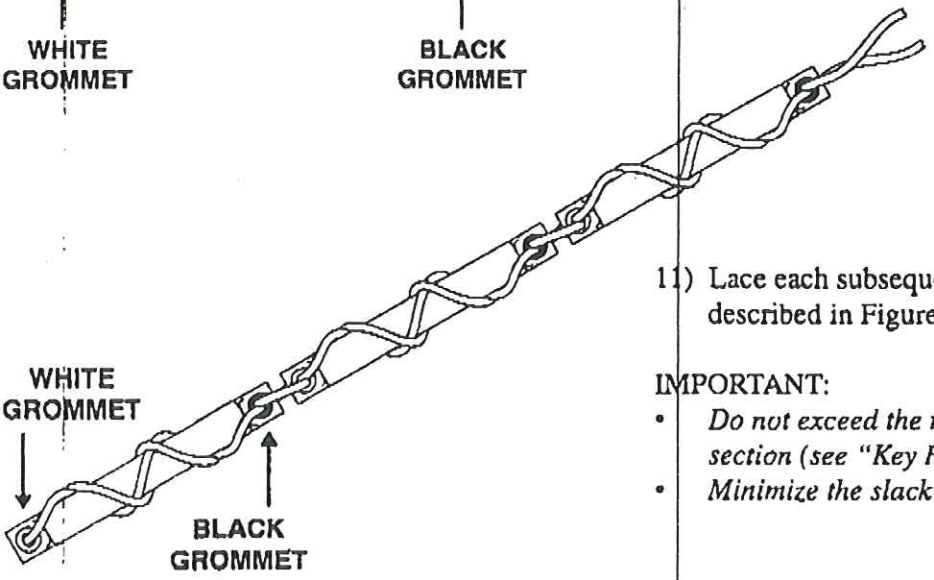
2 INCH LACING DIAGRAM



9) Find the center of the rope. Begin lacing the ORC Socks by threading one end of the installation rope through the white grommet, making sure that the center of the rope is pulled through to the center of the white grommet on the bottom sock.



10) Wrap each end of the installation rope around the sock twice and then cross them through the black grommet.



11) Lace each subsequent sock using the same method as described in Figure 2 above.

IMPORTANT:

- *Do not exceed the maximum number of socks per section (see "Key Requirements B" on page 1)*
- *Minimize the slack between socks.*

Please call our technical support personnel with any application questions at (714) 443-3136 between 8:00 a.m. and 5:00 p.m. Pacific Time.
Proper installation is critical to effective use of ORC and avoiding problems in the well.

APPENDIX C

FIELD PROCEDURES FOR DRILLING AND SOIL SAMPLING

FIELD PROCEDURES
FOR
DRILLING AND SOIL SAMPLING

Drive-Point Sampling Procedures

A total of 16 drive-point borings were completed to depths ranging from 14 to 20 feet below grade using a truck-mounted, direct-push Stataprobe sampling rig. Two of the borings were completed as vapor monitoring points (VP-1 and VP-2), and sampling was not performed at VP-1 which was drilled solely for installation of the vapor monitoring point.

During the investigation, soil samples were collected at depth intervals of 4 to 6 and 9 to 11 feet in all of the borings (except VP-1), and at two and three foot depth intervals thereafter depending on the total depth of the boring. A 2-inch-diameter steel sampling probe was advanced using the truck-mounted hydraulic ram. At the desired sampling depth, the sampling apparatus was manually released, and the steel probe and split-spoon sampler was advanced an additional two to three feet dependant on use of either the 2- or 3-foot sampling tubes.

The split-spoon sampler was then retrieved, the sample was logged, and a soil sample was collected for possible chemical analysis. When using brass sampling tubes, both ends were covered with polyurethane caps. Alternatively, and to provide increased logging capability, brass sampling tubes were not used, and a representative portion of the sample was transferred immediately to laboratory-supplied glass sample jars. The samples were labeled and immediately stored in an iced cooler. Each of the samples were labeled with the following information: Alisto Engineering Group project number, boring number, sample depth interval, sampler's initials, and data and time of collection. The remaining portion of the sample was transferred to a sealed plastic bag for field headspace analysis of volatile hydrocarbons using an OVM.

Groundwater samples were collected from each drive-point boring using a peristaltic pump and clear polyethylene tubing. The water was transferred directly from the sampling apparatus to laboratory-supplied containers, labeled, and placed into an iced cooler. The drilling equipment was cleaned, and new tubing was used, between borings. Oxygen release compound was placed in Drive-Points DP-8 through DP-14 from about 13 to 16 feet below grade. The drive-points were backfilled with bentonite pellets to within 1 foot of grade and hydrated, and asphalt patch was placed to grade. Possession of the soil and groundwater samples was documented from the field location to the laboratory by using a chain of custody record.

Soil Sampling Procedures (Monitoring Well Borings)

The monitoring well borings were drilled using a truck-mounted drilling rig equipped with 8- and 10-inch outside-diameter hollow-stem augers. During drilling, samples were collected beginning at 5 feet below grade and terminating at the total depth of each boring. Before and after each use, the sampler was washed using a phosphate-free detergent. Soil sampling was accomplished using a split-spoon sampler. A 140-pound slide hammer falling 30 inches was used to advance the sampler 18 inches ahead of the hollow-stem augers into undisturbed soil, and blow counts were recorded for every 6 inches of penetration to evaluate the consistency of the soil.

After retrieval from the augers, the sampler was split, and a soil sample was selected for possible chemical analysis. The samples were transferred into jars, sealed, and labeled with the following information: Alisto project number, boring number, sample depth interval, sampler's initials, and date and time of collection. The sample was immediately placed in a cooler containing dry ice. Possession of the soil samples was documented from the field to a state-certified analytical laboratory by using a chain of custody form.

Soil samples and, when representative, drill cuttings were described by Alisto personnel using the Unified Soils Classification System, and field estimates of soil type, color, moisture, density, and consistency were noted on the boring logs. The logs were reviewed by a civil engineer registered in the state of Washington.

APPENDIX D

BORING LOGS, WELL CONSTRUCTION DETAILS, AND FIELD PROCEDURES FOR GROUNDWATER MONITORING WELL AND VAPOR OBSERVATION POINT INSTALLATION

FIELD PROCEDURES
FOR
GROUNDWATER MONITORING WELL AND VAPOR OBSERVATION POINT INSTALLATION

Vapor Observation Point Installation

Vapor observation wells were installed in two of the drive-point soil borings (VP-1 and VP-2), and were construction based on site-specific hydrogeology. The drive-point sampling probe was removed, and 1-inch-diameter PVC well casing was installed into the borings. The screened section of the vapor observation wells consisted of 0.010-inch slotted casing from 5 to 15 feet below grade, and solid casing was installed from the top of the slotted casing to approximately 6 inches below grade. The annular space surrounding the screened portion was backfilled with sand to approximately 1 foot above the top of the screened section, and bentonite pellets were added to the annulus above the filter pack and hydrated. A traffic-rated utility box was installed around the top of the well casing and set in concrete.

Monitoring Well Installation

Construction of the groundwater monitoring wells was based on the stratigraphy in the soil borings and hydrogeologic conditions observed at the site. The well construction materials were introduced into the boring through the hollow-stem augers to centralize the well casing and minimize the possibility of native material entering the annular space of the well.

Monitoring Wells MW-1, MW-2, MW-6, MW-7, and MW-8 were completed as 2-inch-diameter wells, and Monitoring Wells MW-3, MW-4, and MW-5 were completed as 4-inch-diameter wells. The PVC well casing consisted of 0.010-inch slotted casing from 5 to 25 feet below grade. Solid casing was installed from the top of the slotted casing to approximately 0.5 foot below grade.

The annular space surrounding the screened portion was backfilled with sand (filter pack) to approximately 1 foot above the top of the screened section, and approximately 2 feet of bentonite pellets were added to the annulus above the filter pack and hydrated. The remaining annulus was sealed with concrete, and a traffic-rated well box was installed around the top of the well casing and set in concrete. An expanding, watertight well cap and lock were installed on top of the well casing to secure the well from surface fluid and tampering.

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING DP-1

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *02/25/97*

CLIENT: *Time Oil Co., Facility No. 01-068*

LOCATION: *107 W. Lincoln Ave., Sunnyside, Washington*

DRILLING METHOD: *Direct push, split spoon sampler*

DRILLING COMPANY: *TEG* CASING ELEVATION: *N/A*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*

BLOWS/6 IN.	PID VALUES	WELL DIAGRAN	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		A.C. / Bentonite	0			ML	4" asphaltic concrete
N/A	427		5				sandy SILT: olive-brown to brown, dry, very fine-grained sand.
N/A	58		10				Same: moist to wet.
N/A	195						Same: 4" fine sand layer at 12.5'.
N/A	13.1		15				Boring terminated at 14 feet. Backfilled with bentonite to within 8" of grade. Asphaltic concrete surface patch to grade.
			20				
			25				
			30				

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING DP-2

SEE SITE PLAN

ALISTO PROJECT NO: 20-025-01 DATE DRILLED: 02/25/97
CLIENT: Time Oil Co., Facility No. 01-068
LOCATION: 107 W. Lincoln Ave., Sunnyside, Washington
DRILLING METHOD: Direct push, split spoon sampler
DRILLING COMPANY: TEG CASING ELEVATION: N/A
LOGGED BY: Craig Ware APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	WELL DIAGRAN	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		A.C. / Bentonite	0			ML	4" asphaltic concrete
N/A	347		5				sandy SILT: olive-brown, moist, fine-grained sand.
N/A	671		10				Same: some medium sand lenses.
							Same: interspersed sand layers and pockets.
N/A	52					SM	silty SAND: very moist to wet, medium-grained.
						ML	SILT: olive-brown, wet, sand lenses.
N/A N/A	174 500		15				sandy SILT: very moist to wet, some sand only pockets.
N/A	127						Same: olive-brown, fine sand pockets and thin lenses.
			20				Boring terminated at 20 feet. Backfilled with bentonite to within 8" of grade. Asphaltic concrete surface patch to grade.
			25				
			30				

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING DP-3

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *02/25/97*

CLIENT: *Time Oil Co., Facility No. 01-088*

LOCATION: *107 W. Lincoln Ave., Sunnyside, Washington*

DRILLING METHOD: *Direct push, split spoon sampler*

DRILLING COMPANY: *TEG* CASING ELEVATION: *N/A*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*

BLOWS/6 IN.	PID VALUES	WELL DIAGRAN	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		A.C. / Bentonite	0			ML	4" asphaltic concrete
N/A	7.4		5				sandy SILT: olive-brown to brown, moist, interspersed sand layers to 1" thick; very fine-grained sand.
N/A	8.0		10			SM	SILT: moist to very moist above 10'. Grading to sandy silt with 4" medium sand layer at 10.5'.
N/A	0.8						SAND: moist, medium-grained.
						ML	SILT: wet to 13.5'; moist below 13.5', 1" sand layer at 13.5'.
			15				Boring terminated at 14 feet. Backfilled with bentonite to within 8" of grade. Asphaltic concrete surface patch to grade.
			20				
			25				
			30				

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING DP-4

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *02/25/97*

CLIENT: *Time Oil Co., Facility No. 01-088*

LOCATION: *107 W. Lincoln Ave., Sunnyside, Washington*

DRILLING METHOD: *Direct push, split spoon sampler*

DRILLING COMPANY: *TEG* CASING ELEVATION: *N/A*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*

BLOWS/6 IN.	PID VALUES	DEPTH feet	SOIL CLASS	GEOLOGIC DESCRIPTION
			ML	4" asphaltic concrete
N/A	2ppm	5		sandy SILT: light-brown, dry to slightly moist, 3" sand layer at 5.5'; very fine-grained sand.
N/A	245	10		SILT: olive-brown, moist to very moist, 3" sand layer at 10.5', wet in sand layer.
N/A	118			Same: sand layer at 10.5' to 11', wet in sand layer.
N/A	187	15	SM	silty SAND: olive-brown to brown, wet.
			ML	SILT: brown, very moist to wet.
		20		Boring terminated at 18 feet. Backfilled with bentonite to within 6" of grade. Asphaltic concrete surface patch to grade.
		25		
		30		

WELL DIAGRAM: A.C., Bentonite

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING DP-5

SEE SITE PLAN

ALISTO PROJECT NO: 20-025-01 DATE DRILLED: 02/25/97
CLIENT: Time Oil Co., Facility No. 01-068
LOCATION: 107 W. Lincoln Ave., Sunnyside, Washington
DRILLING METHOD: Direct push, split spoon sampler
DRILLING COMPANY: TEG CASING ELEVATION: N/A
LOGGED BY: Craig Ware APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	WELL DIAGRAN	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		A.C. / Bentonite				ML	4" asphaltic concrete
N/A	0		5				SILT: brown to yellow-brown, dry.
N/A	28		10				SILT: olive-brown, moist.
N/A	264						sandy SILT: olive-brown to brown, very moist to wet at 13'. LNAPL collected using peristaltic sump.
			15				SILT: very moist to wet; preferential water in sand, sheen in sand intervals.
							Boring terminated at 18 feet. Backfilled with bentonite to within 8" of grade. Asphaltic concrete surface patch to grade.
			20				
			25				
			30				

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING DP-6

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *02/25/97*

CLIENT: *Time Oil Co., Facility No. 01-068*

LOCATION: *107 W. Lincoln Ave., Sunnyside, Washington*

DRILLING METHOD: *Direct push, split spoon sampler*

DRILLING COMPANY: *TEG* CASING ELEVATION: *N/A*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*

BLOWS/6 IN.	PID VALUES	DEPTH feet	SOIL CLASS	GEOLOGIC DESCRIPTION
			ML	4" asphaltic concrete
N/A	5	5		SILT: yellow-brown to brown, dry to slightly moist, very fine-grained sand; some pebbles.
N/A	0.2	10		SILT: brown to green-brown, moist to very moist, 3" sand lense at 10'.
			SM	
N/A	292	15		silty SAND: very moist to wet, fine- to medium-grained at 18'.
				Boring terminated at 18 feet. Backfilled with bentonite to within 6" of grade. Asphaltic concrete surface patch to grade.
		20		
		25		
		30		

WELL DIAGRAM: A.C., Bentonite

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING DP-7

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *02/25/97*

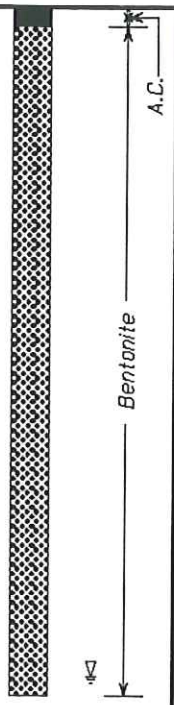
CLIENT: *Time Oil Co., Facility No. 01-068*

LOCATION: *107 W. Lincoln Ave., Sunnyside, Washington*

DRILLING METHOD: *Direct push, split spoon sampler*

DRILLING COMPANY: *TEG* CASING ELEVATION: *N/A*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*



BLOWS/6 IN.	PID VALUES	DEPTH feet	SOIL CLASS	GEOLOGIC DESCRIPTION
		0	ML	4" asphaltic concrete
N/A	5.1	5		sandy SILT: light-brown to brown, dry to slightly moist.
N/A	0.2	10		Same: moist to very moist.
N/A	0.1			
		15		Same: olive-brown, very moist to wet, very fine-grained sand.
N/A	3.2			Same: saturated, sandy layer at 18.5'.
		20		Boring terminated at 18 feet. Backfilled with bentonite to within 6" of grade. Asphaltic concrete surface patch to grade.
		25		
		30		

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING DP-8

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *03/10/97*

CLIENT: *Time Oil Co., Facility No. 01-068*

LOCATION: *107 W. Lincoln Ave., Sunnyside, Washington*

DRILLING METHOD: *Direct push, split spoon sampler*

DRILLING COMPANY: *TEG* CASING ELEVATION: *N/A*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*

BLOWS/6 IN.	PID VALUES	WELL DIAGRAN	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		A.C. / Bentonite / ORC				ML	4" asphaltic concrete
N/A	0.7		5				sandy SILT: olive-brown, dry to slightly moist, very fine-grained sand; trace of pebbles.
N/A	0.3		10				Same: brown, moist, 3" layer of medium-grained sand. at approx. 10.5'.
N/A	10.7						Same: very moist to wet, 2" layer of medium-grained sand at approx. 12.5'.
N/A	65		15				Same: wet.
			20				Boring terminated at 18 feet. Backfilled with oxygen releasing compound (ORC) from 18' to 15'. Backfilled with bentonite to within 8" of grade. Asphaltic concrete surface patch to grade.
			25				
			30				

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING DP-9

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *03/10/97*

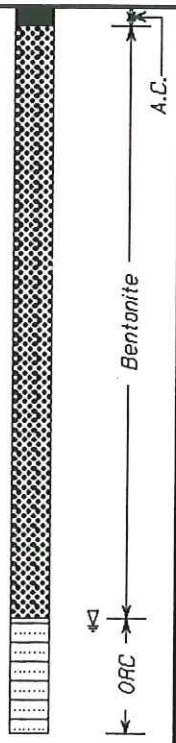
CLIENT: *Time Oil Co., Facility No. 01-068*

LOCATION: *107 W. Lincoln Ave., Sunnyside, Washington*

DRILLING METHOD: *Direct push, split spoon sampler*

DRILLING COMPANY: *TEG* CASING ELEVATION: *N/A*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*

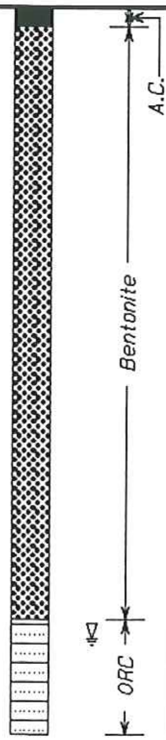


BLOWS/6 IN.	PID VALUES	DEPTH feet	SOIL CLASS	GEOLOGIC DESCRIPTION
			ML	4" asphaltic concrete
N/A	1.7	5		sandy SILT: dry, very fine-grained sand; some pebbles.
N/A	2.8	10		Same: tan to brown, very moist, fine-grained sand layers interspersed.
N/A	455	15	SM	silty SAND: brown to olive-brown, very moist to wet, medium-grained sand layers interspersed.
N/A	372			Same: olive-brown, wet, fine- to medium-grained.
		20		Boring terminated at 19 feet. Backfilled with oxygen releasing compound (ORC) from 19' to 18'. Backfilled with bentonite to within 6" of grade. Asphaltic concrete surface patch to grade.
		25		
		30		

ALISTO ENGINEERING GROUP SEATTLE, WASHINGTON	LOG OF BORING DP-10	*Page 1 of 1*

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01*	DATE DRILLED: *03/10/97*
CLIENT: *Time Oil Co., Facility No. 01-068*	
LOCATION: *107 W. Lincoln Ave., Sunnyside, Washington*	
DRILLING METHOD: *Direct push, split spoon sampler*	
DRILLING COMPANY: *TEG*	CASING ELEVATION: *N/A*
LOGGED BY: *Craig Ware*	*APPROVED BY: Al Sevilla*



BLOWS/6 IN.	PID VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
			0				4" asphaltic concrete
N/A	1.1		5	■		ML	sandy SILT: brown, dry, very fine-grained sand interbeds, trace of pebbles at 4' to 4.5'.
N/A	0.5		10	■			Same: olive-brown, moist to very moist, very fine-grained sand.
N/A	84		15	■		SM	silty SAND, olive-brown to brown, very moist to wet, fine- to medium- grained.
N/A	814			■		ML	sandy SILT: brown with mottling orange, wet, very fine-grained sand.
			20				Boring terminated at 19 feet. Backfilled with oxygen releasing compound (ORC) from 19' to 16'. Then backfilled with bentonite to within 6" of grade. Asphaltic concrete surface patch to grade.
			25				
			30				

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

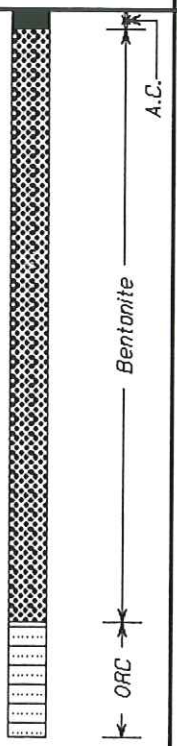
LOG OF BORING DP-11

SEE SITE PLAN

ALISTO PROJECT NO: 20-025-01 DATE DRILLED: 03/10/97
CLIENT: Time Oil Co., Facility No. 01-088
LOCATION: 107 W. Lincoln Ave., Sunnyside, Washington
DRILLING METHOD: Direct push, split spoon sampler
DRILLING COMPANY: TEG CASING ELEVATION: N/A
LOGGED BY: Craig Ware APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	DEPTH feet	SOIL CLASS	GEOLOGIC DESCRIPTION
			ML	4" asphaltic concrete
N/A	2	5		sandy SILT: olive-brown to brown, dry, very fine-grained sand.
N/A	0.8	10	SM	silty SAND, olive brown, moist, fine- to medium-grained.
N/A	1.1	15	ML	sandy SILT: olive-brown, wet, very fine-grained sand.
N/A	338			Same.
		20		Boring terminated at 19 feet. Backfilled with oxygen releasing compound (ORC) from 19' to 18'. Backfilled with bentonite to within 8" of grade. Asphaltic concrete surface patch to grade.
		25		
		30		

WELL DIAGRAM



ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING DP-12

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *03/10/97*

CLIENT: *Time Oil Co., Facility No. 01-088*

LOCATION: *107 W. Lincoln Ave., Sunnyside, Washington*

DRILLING METHOD: *Direct push, split spoon sampler*

DRILLING COMPANY: *TEG* CASING ELEVATION: *N/A*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*

BLOWS/6 IN.	PID VALUES	WELL DIAGRAN	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		A.C. / Bentonite / ORC	0			ML	4" asphaltic concrete
N/A	2.7		5				sandy SILT: brown, slightly moist, very fine-grained sand.
N/A	1.1		10				Same: moist to very moist.
N/A	0.9		15				same: olive-brown, wet.
N/A	0.5					SM	silty SAND: olive-brown to brown, wet, fine- to medium-grained.
			20				Boring terminated at 19 feet. Backfilled with oxygen releasing compound (ORC) from 19' to 18'. Backfilled with bentonite to within 6" of grade. Asphaltic concrete surface patch to grade.
			25				
			30				

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING DP-13

SEE SITE PLAN

ALISTO PROJECT NO: 20-025-01 DATE DRILLED: 03/10/97
CLIENT: Time Oil Co., Facility No. 01-088
LOCATION: 107 W. Lincoln Ave., Sunnyside, Washington
DRILLING METHOD: Direct push, split spoon sampler
DRILLING COMPANY: TEG CASING ELEVATION: N/A
LOGGED BY: Craig Ware APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	WELL DIAGRAM	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
		A.C. / Bentonite / ORC				SM	4" asphaltic concrete
N/A	0.2		5				silty SAND: brown to olive-brown, slightly moist, fine-grained.
N/A	0.3		10				SAND: light-brown to brown, slightly moist, trace of silt, fine-grained.
N/A	0.5		15				silty SAND: olive-brown, very moist to wet, fine-grained.
N/A	173						Same: increasing silt.
			20				Boring terminated at 19 feet. Backfilled with oxygen releasing compound (ORC) from 19' to 18'. Backfilled with bentonite to within 8" of grade. Asphaltic concrete surface patch to grade.
			25				
			30				

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING DP-14

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *03/10/97*

CLIENT: *Time Oil Co., Facility No. 01-068*

LOCATION: *107 W. Lincoln Ave., Sunnyside, Washington*

DRILLING METHOD: *Direct push, split spoon sampler*

DRILLING COMPANY: *TEG* CASING ELEVATION: *N/A*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*

BLOWS/6 IN.	PID VALUES	DEPTH feet	GEOLOGIC DESCRIPTION
			4" asphaltic concrete
N/A	0.2	5	sandy SILT: brown, slightly moist, very fine-grained sand.
N/A	0.5	10	Same: olive-brown, moist.
N/A	46	15	Same: wet.
N/A	902		Same.
		20	Boring terminated at 19 feet. Backfilled with oxygen releasing compound (ORC) from 19' to 18'. Backfilled with bentonite to within 8" of grade. Asphaltic concrete surface patch to grade.
		25	
		30	

WELL DIAGRAM: A.C., Bentonite, ORC

SAMPLES

GRAPHIC LOG

SOIL CLASS: ML

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING VP-1

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *03/10/97*

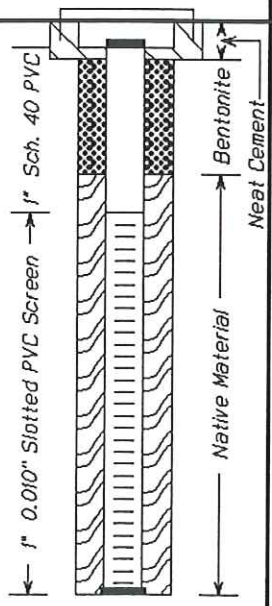
CLIENT: *Time Oil Co., Facility No. 01-068*

LOCATION: *107 West Lincoln Avenue, Sunnyside, Washington*

DRILLING METHOD: *Direct push*

DRILLING COMPANY: *TEG* CASING ELEVATION:

LOGGED BY: *Craig Ware* *APPROVED BY: Al Sevilla*

BLOWS/6 IN.	PID VALUES	WELL DIAGRAN	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
			5 10 15 20 25 30				4" Asphaltic Concrete No sampling; Vapor monitoring well installation only. Boring terminated at 15 feet. Flush mount monument set in concrete.

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING VP-2

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *03/10/97*

CLIENT: *Time Oil Co., Facility No. 01-068*

LOCATION: *107 West Lincoln Avenue, Sunnyside, Washington*

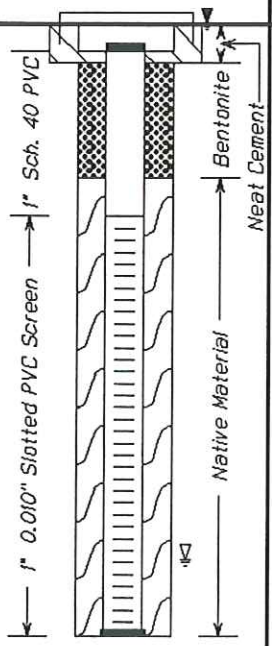
DRILLING METHOD: *Direct push*

DRILLING COMPANY: *TEG* CASING ELEVATION:

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*

BLOWS/6 IN.	PID VALUES	DEPTH feet	SOIL CLASS	GEOLOGIC DESCRIPTION
			ML	4" Asphaltic Concrete
N/A	0.9	5		sandy SILT: olive-brown to brown, dry.
			SM	
N/A	85	10		silty SAND: olive, moist to very moist, fine-grained with medium sand layers interspersed.
N/A	381	15		same, wet, fine to medium-grained sand.
				Boring terminated at 16 feet.
				Flush mount monument set in concrete.
		20		
		25		
		30		

WELL DIAGRAM



ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING MW-1

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *03/11/97*

CLIENT: *Time Oil Co., Facility No. 01-068*

LOCATION: *107 West Lincoln Avenue, Sunnyside, Washington*

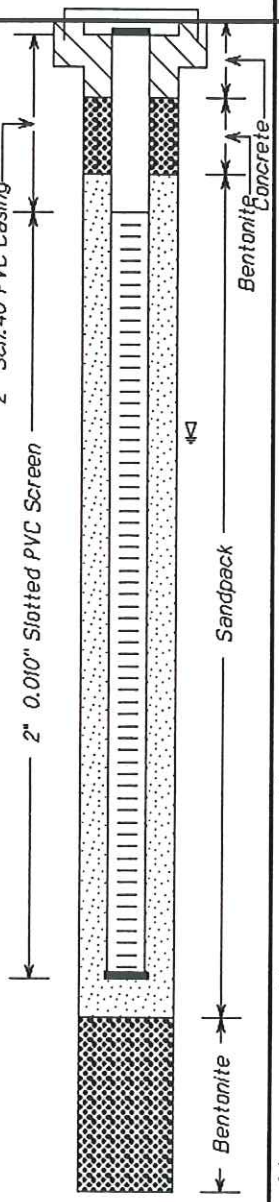
DRILLING METHOD: *Hollow-stem auger (4"); split spoon*

DRILLING COMPANY: *Cascade Drilling* CASING ELEVATION: *760.28*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*

BLOWS/6 IN.	PID VALUES	DEPTH feet	SOIL CLASS	GEOLOGIC DESCRIPTION
			ML	4" Asphaltic concrete
				Hand auger to 4 feet.
				sandy SILT: light-brown to brown, slightly moist, fine-grained sand.
				No sampling to 14 feet.
8,21,24	0.2	15		Same: olive-brown, moist, hard.
17,18,22	0.3			Same.
18,21,21	0.1		SM	silty SAND: wet, dense; fine to medium-grained.
17,18,20	0	20	ML	sandy SILT: olive, wet, very stiff.
28,30,30	0.2			
30,30,30	0.3		SM	SAND: olive, medium-grained with some coarse lenses; dense.
28,30,35	0.5		ML	sandy SILT: green-brown, wet, very stiff.
30,30,34	0.5	25	SM	SAND: green-brown to brown, wet, dense; very fine-grained.
30,30,33	0.3			Same.
29,30,33	0.3		ML	SILT: hard; trace very fine-grained sand.
30,29,30	0.4	30		Same: green-brown to brown, wet, increasing fine-grained sand.
				Boring terminated at 30.5 feet.

WELL DIAGRAN



ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING MW-2

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *03/11/97*

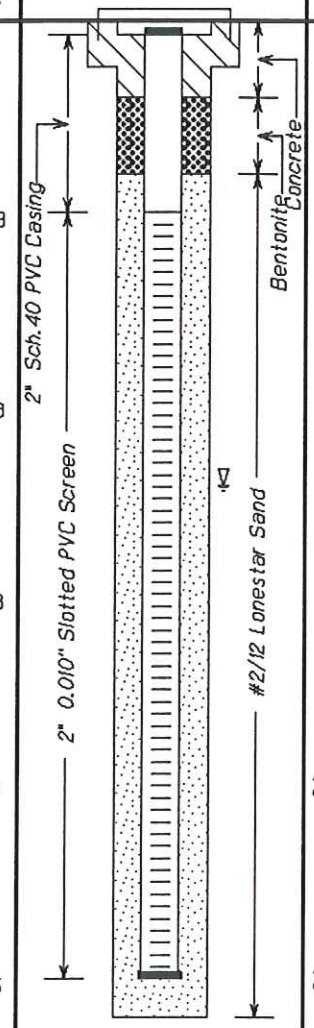
CLIENT: *Time Oil Co., Facility No. 01-068*

LOCATION: *107 West Lincoln Avenue, Sunnyside, Washington*

DRILLING METHOD: *Hollow-stem auger (4"); split spoon*

DRILLING COMPANY: *Cascade Drilling* CASING ELEVATION: *759.43*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*



BLOWS/6 IN.	PID VALUES	DEPTH feet	SOIL CLASS	GEOLOGIC DESCRIPTION
			ML	4" Asphaltic concrete
				Hand auger to 4 feet.
17,20,23	0.8	5		sandy SILT: light-brown, moist, very stiff; very fine-grained sand.
24,28,30	0.8	10		Same: increasing moisture content.
22,28,30	0.3	15		Same: wet.
28,30,30	2.7	20		Same: medium-grained sand layers interspersed.
27,30,30	0.5	25		Same:
		30		Boring terminated at 28 feet.

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

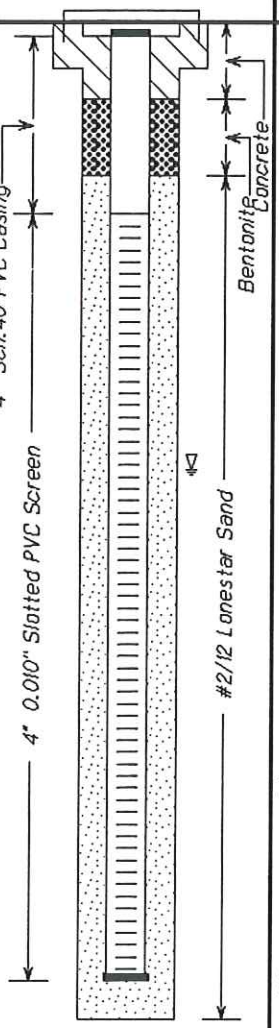
LOG OF BORING MW-3

SEE SITE PLAN

ALISTO PROJECT NO: 20-025-01 DATE DRILLED: 03/11/97
CLIENT: Time Oil Co., Facility No. 01-088
LOCATION: 107 West Lincoln Avenue, Sunnyside, Washington
DRILLING METHOD: Hollow-stem auger (6"); split spoon
DRILLING COMPANY: Cascade Drilling CASING ELEVATION: 758.11
LOGGED BY: Craig Ware APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
					ML	4" Asphaltic concrete
						Hand auger to 4 feet.
18,20,20	74	5				sandy SILT: light-brown, moist, very stiff; very fine-grained sand.
20,24,28	119	10			SM	silty SAND: olive-brown to brown, very moist, dense; fine- to medium- grained.
29,30,30	130	15			ML	sandy SILT: wet, very stiff; fine-grained sand.
28,29,30	132	20				Same:
28,30,31	2.9	25				Same:
		30				Boring terminated at 28 feet.

WELL DIAGRAM



ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING MW-4

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *03/11/97*

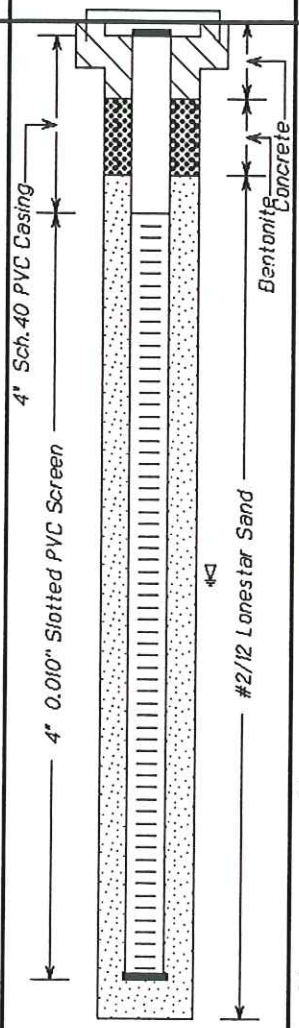
CLIENT: *Time Oil Co., Facility No. 01-068*

LOCATION: *107 West Lincoln Avenue, Sunnyside, Washington*

DRILLING METHOD: *Hollow-stem auger (6"); split spoon*

DRILLING COMPANY: *Cascade Drilling* CASING ELEVATION: *756.89*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*



BLOWS/6 IN.	PID VALUES	DEPTH feet	SOIL CLASS	GEOLOGIC DESCRIPTION
			ML	4" Asphaltic concrete
				Hand auger to 4 feet.
				No sampling to 10 feet.
N/A	N/A	5		sandy SILT: light-brown to brown, dry.
20,22,28	0.3	10	SM	silty SAND: green-brown, moist; dense; fine-grained with medium- grained sand layers interspersed.
27,30,30	328	15		SAND: olive-brown, wet, dense; irridescent sheen; fine- to medium- grained.
22,28,30	388	20	ML	sandy SILT: olive-brown, wet, very stiff; very fine-grained sand.
24,28,28	13.0	25		Same:
				Boring terminated at 28 feet.
		30		

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING MW-5

SEE SITE PLAN

ALISTO PROJECT NO: 20-025-01 DATE DRILLED: 03/11/97

CLIENT: Time Oil Co., Facility No. 01-088

LOCATION: 107 West Lincoln Avenue, Sunnyside, Washington

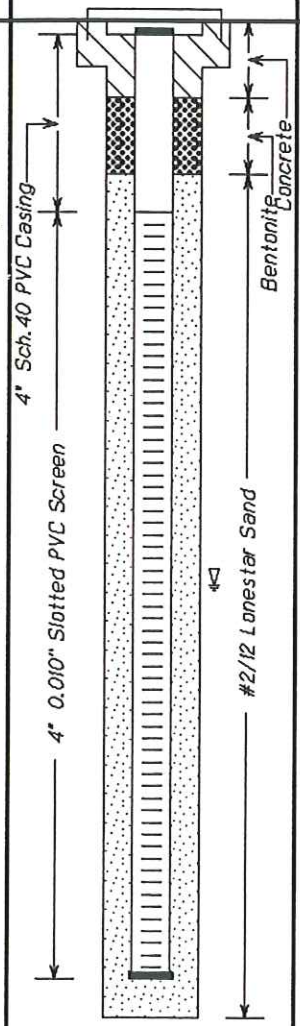
DRILLING METHOD: Hollow-stem auger (6"); split spoon

DRILLING COMPANY: Cascade Drilling CASING ELEVATION: 755.81

LOGGED BY: Craig Ware APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
					ML	4" Asphaltic concrete
						Hand auger to 4 feet.
						No sampling to 10 feet.
N/A	N/A	5				sandy SILT: brown, dry.
18,20,23	0.3	10				Same: olive-brown, very moist, very stiff; very fine-grained sand.
18,20,23	782	15				Same: wet.
23,28,29	305	20				Same:
18,23,27	4.6	25				Same:
		30				Boring terminated at 26 feet.

WELL DIAGRAM



ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

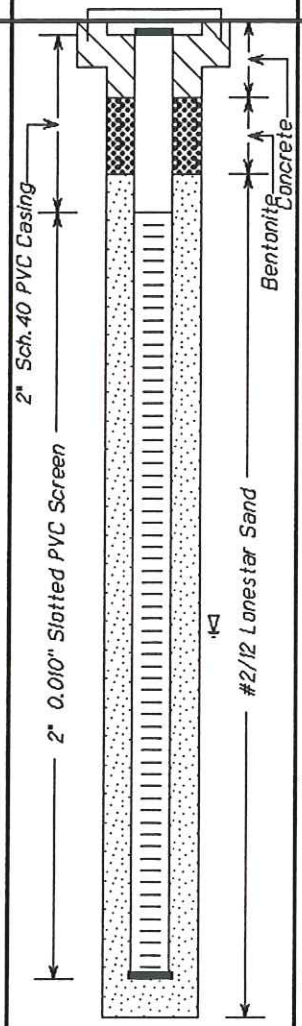
LOG OF BORING MW-6

SEE SITE PLAN

ALISTO PROJECT NO: 20-025-01 DATE DRILLED: 03/12/97
CLIENT: Time Oil Co., Facility No. 01-068
LOCATION: 107 West Lincoln Avenue, Sunnyside, Washington
DRILLING METHOD: Hollow-stem auger (4"); split spoon
DRILLING COMPANY: Cascade Drilling CASING ELEVATION: 753.81
LOGGED BY: Craig Ware APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	DEPTH feet	SOIL CLASS	GEOLOGIC DESCRIPTION
			ML	4" Asphaltic concrete
				Hand auger to 4 feet.
				silty SAND: light-brown, dry to slightly moist, fine-grained.
18,20,23	0.1	5		sandy SILT: medium-brown, dry, very stiff; fine-grained sand.
18,30,30	0.3	10		Same: olive-brown with orange-molting, slightly moist.
28,29,30	91	15	SM	SAND: olive-brown, very moist to wet, dense; very fine-grained.
30,30,30	890	20		Same: wet, trace of silt.
29,29,30	9.7	25		Same:
		30		Boring terminated at 26 feet.

WELL DIAGRAN



ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

LOG OF BORING MW-7

SEE SITE PLAN

ALISTO PROJECT NO: *20-025-01* DATE DRILLED: *03/12/97*

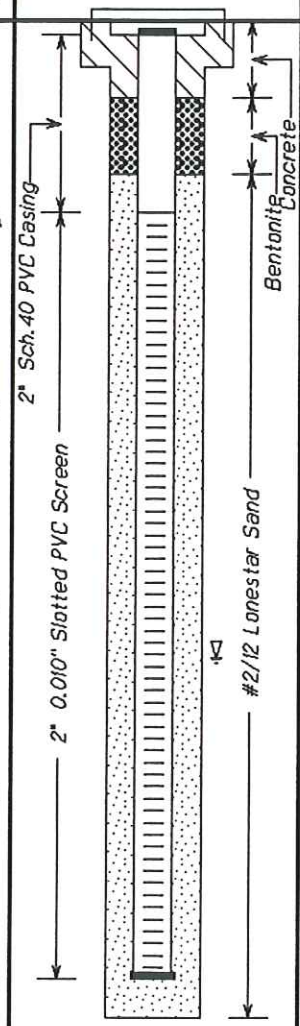
CLIENT: *Time Oil Co., Facility No. 01-068*

LOCATION: *107 West Lincoln Avenue, Sunnyside, Washington*

DRILLING METHOD: *Hollow-stem auger (4"); split spoon*

DRILLING COMPANY: *Cascade Drilling* CASING ELEVATION: *755.44*

LOGGED BY: *Craig Ware* APPROVED BY: *Al Sevilla*



BLOWS/6 IN.	PID VALUES	DEPTH feet	SAMPLES	GRAPHIC LOG	SOIL CLASS	GEOLOGIC DESCRIPTION
					ML	4" Asphaltic concrete
						Hand auger to 4 feet.
						No sampling to 10 feet.
N/A	N/A	5				sandy SILT: light-brown, dry, very fine-grained sand.
28,28,30	0.2	10			SM	SAND: olive-brown, slightly moist, dense; very fine-grained.
28,30,30	0.1	15				Same: olive-brown, moist to very moist, increasing silt.
28,28,30	0.8	20				Same: very moist to wet.
30,30,30	0.4	25				Same: wet, decreasing silt fraction.
		30				Boring terminated at 28 feet.

ALISTO ENGINEERING GROUP
SEATTLE, WASHINGTON

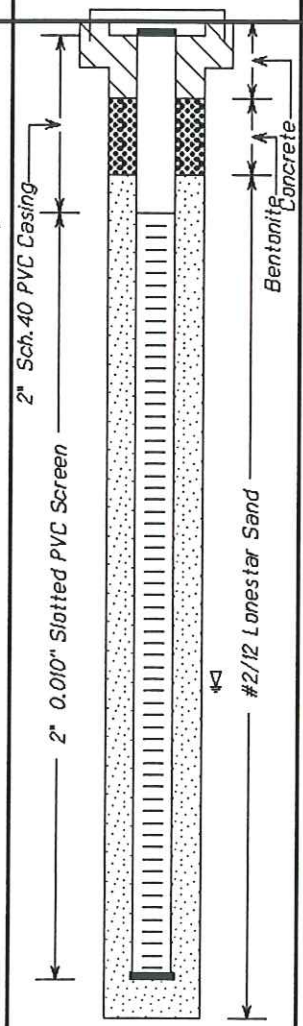
LOG OF BORING MW-8

SEE SITE PLAN

ALISTO PROJECT NO: 20-025-01 DATE DRILLED: 03/12/97
CLIENT: Time Oil Co., Facility No. 01-088
LOCATION: 107 West Lincoln Avenue, Sunnyside, Washington
DRILLING METHOD: Hollow-stem auger (4"); split spoon
DRILLING COMPANY: Cascade Drilling CASING ELEVATION: 751.46
LOGGED BY: Craig Ware APPROVED BY: Al Sevilla

BLOWS/6 IN.	PID VALUES	DEPTH feet	SOIL CLASS	GEOLOGIC DESCRIPTION
			ML	4" Asphaltic concrete
				Hand auger to 4 feet.
				No sampling to 10 feet.
N/A	N/A	5		sandy SILT: brown, dry to slightly moist.
28,28,30	0	10		Same: slightly moist, very stiff; very fine-grained sand.
			SM	
28,28,30	0.2	15		SAND: olive-brown, wet, dense; fine- to mediun-grained with a trace of silt.
30,30,30	1.1	20		silty SAND: olive-brown, wet, dense; fine- to mediun-grained.
29,29,30	0.2	25		SAND: wet, dense; fine- to coarse-grained with a trace of silt.
		30		Boring terminated at 28 feet.

WELL DIAGRAN



APPENDIX E

FIELD PROCEDURES FOR MONITORING WELL DEVELOPMENT AND SAMPLING, FIELD SURVEY FORMS, AND ELEVATION SURVEY DATA

FIELD PROCEDURES FOR GROUNDWATER MONITORING WELL DEVELOPMENT AND SAMPLING

Groundwater Monitoring Well Development

The groundwater monitoring wells were developed to consolidate and stabilize the filter pack to optimize well production and reduce the turbidity of subsequent groundwater samples. The well was developed using a positive-displacement pump to evacuate the water and sediments. Development continued until the groundwater was relatively free of sediments, and well development fluids were placed into DOT-approved drums.

Groundwater Level Measurement

Before sampling, the groundwater level in each well was measured from the permanent survey reference point at the top of the well casing. The groundwater in each well was monitored for LNAPL or sheen. The depth to groundwater was measured to an accuracy of 0.01 foot from the top of the PVC well casing using an electronic sounder.

Groundwater Monitoring Well Sampling

The wells were purged of 3 casing volumes and until stabilization of pH, conductivity, and temperature. Purging was accomplished using a pump, and groundwater samples were collected using a disposable bailer and transferred into laboratory-supplied containers. The sampling technician wore nitrile gloves at all times during purging and well sampling. The samples were labeled with well number, site identification, date and time of collection, and sampler's initials, and transported in an iced cooler to a state-certified laboratory following preservation and chain of custody protocol.

ALISTO

ENGINEERING GROUP
1575 TREAT BOULEVARD, SUITE 201
WALNUT CREEK CA 94596 (510) 295-1650 FAX 295-1823

Field Report / Sampling Data Sheet

⊗ Groundwater Sampling

Date: 3/13/97 Project No. 20025
Day: THURSDAY Station No.
Weather: CLEAR / COLD Address 107 W. LINCOLN
SAMPLER:

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
	10.79	2"	Y	N/A	N/A

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol
25 − 10.79 x .17 x 3 = 7.2

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp Baller(s)__ OSys Port

Gal.	Time	Temp °F/C	pH	E.C.	D.O.
1	12:48	14.2	8.30	4.2	5.3
5	12:52	14.9	7.40	7.3	6.3
7	12:53	15.4	7.47	4.6	4.1
10	12:55	16.0	8.13	4.3	7.4

O EPA 601____
O TPH-G/BTEX__
O TPH Diesel____
O TOG 5520__
Time Sampled: 1:40

Comments: [illegible]

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
	12.54	2"	Y	N/A	N/A

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol
25 − 12.54 x .17 x 3 = 6.3

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s)__ OSys Port

Gal.	Time	Temp °F	pH	E.C.	D.O.
1	1:00	16.7	7.79	7.6	5.1
5	1:03	16.8	7.86	8.6	7.2
[illegible]		16.9	7.90	9.6	7.6

O EPA 601____
O TPH-G/BTEX__
O TPH Diesel____
O TOG 5520__
Time Sampled: 2:05

Comments: PUMPED DRY AT 6 GALLONS

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
	17.37	2"	Y	N/A	N/A

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
25 − 17.37 x .17 x 3 = 3.9

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s)__ OSys Port

Gal.	Time	Temp °F	pH	E.C.	D.O.
1	1:35	15.9	7.61	6.4	4.4
3	1:37	16.1	7.68	6.3	4.8
5	1:45	16.4	7.69	6.8	6.6

O EPA 601____
O TPH-G/BTEX__
O TPH Diesel____
O TOG 5520__
Time Sampled: 2:35

Comments: DRY AFTER 3 GALLONS, ALLOW RECHARGE

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
	16.64	2"	Y	N/A	N/A

Total Depth - Water Level= x Well Vol. Factor= x#vol. to Purge= PurgeVol.
25 − 16.64 x .17 x 3 = 4.2

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s). __ OSys Port

Gal.	Time	Temp °F/C	pH	E.C.	D.O.
1	1:48	15.8	7.66	5.8	5.9
3	1:50	16.1	7.79	5.1	4.9
5	1:52	16.0	6.44 7.87	6.4	6.6

O EPA 601____
O TPH-G/BTEX__
O TPH Diesel____
O TOG 5520__
Time Sampled: 3:10

Comments:

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness
	15.97	2"	Y	N/A	N/A

Total Depth - Water Level= x Well Vol Factor= x#vol to Purge= PurgeVol.
25 − 15.97 x .17 x 3 = 4.6

Purge Method. OSurface Pump ODisp.Tube OWinch ODisp Baller(s)__ OSys Port

Gal.	Time	Temp °F	pH	E.C.	D.O.
1	1:57	16.0	7.51	10.5	7.6
#3	1:59	16.2	7.56	—	—
7	2:00	15.1	7.63	9.3	5.8

O EPA 601____
O TPH-G/BTEX__
O TPH Diesel____
O TOG 5520__
Time Sampled: 2:10

Comments: PUMP / DO METER FAILURE AT 3 GALLONS
DRY AT 9 GALLONS

ALISTO

ENGINEERING GROUP

1575 TREAT BOULEVARD, SUITE 201
WALNUT CREEK CA 94596 (510) 295-1650 FAX 295-1823

Field Report / Sampling Data Sheet

Groundwater Sampling

Date: 3/13/97 Project No. 20025
Day: Thursday Station No. 01-
Weather: cool/clr Address Sunnyside
SAMPLER: [illegible]

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.	Analyses
MW3	11.81					0	1140	15.5	7.24	9.5	5.7	O EPA 601
Total Depth - Water Level=	x Well Vol. Factor=		x#vol. to Purge=		PurgeVol	10	1145	14.5	7.33	9.7	6.3	O TPH-G/BTEX
25 - 11.81 x .66 x 3					= 26.	20	1152	14.4	7.5	8.6	4.9	O TPH Diesel / O TOG 5520
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp Bailer(s)__ OSys Port												Time Sampled: [illegible]
Comments:												
MW4	14.75	4	Y	N/A	—	0	1005	17.7	7.3	12.6	4.5	O EPA 601
Total Depth - Water Level=	x Well Vol. Factor=		x#vol. to Purge=		PurgeVol	15	1014	17.4	7.4	10.9	[illegible]	O TPH-G/BTEX
25 - 14.75 x .66 x 3					20.0	20	10:20	17.4	7.4	10.8	3.6	O TPH Diesel / O TOG 5520
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)__ OSys Port												Time Sampled: 5:00
Comments: PURGED DRY AT 15 GALLONS												
MW5	14.84	4	Y	N/A	N/A	1	1530	14.6	7.8	7.2 ms	4.6	O EPA 601
Total Depth - Water Level=	x Well Vol. Factor=		x#vol. to Purge=		PurgeVol.		1535	16.1	7.89	7.5	4.6	O TPH-G/BTEX
25 - 14.84 x .66 x 3					20		1545	16.2	7.90	7.7	4.7	O TPH Diesel / O TOG 5520
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)__ OSys Port												Time Sampled: 4:25
Comments:												
												O EPA 601
Total Depth - Water Level=	x Well Vol. Factor=		x#vol. to Purge=		PurgeVol.							O TPH-G/BTEX
												O TPH Diesel / O TOG 5520
Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s).__ OSys Port												Time Sampled:
Comments:												
												O EPA 601
Total Depth - Water Level=	x Well Vol Factor=		x#vol to Purge=		PurgeVol.							O TPH-G/BTEX
												O TPH Diesel / O TOG 5520
Purge Method. OSurface Pump ODisp.Tube OWinch ODisp. Bailer(s)__ OSys Port												Time Sampled:
Comments:												

ALISTO

Field Report / Sampling Data Sheet

ENGINEERING GROUP
1575 TREAT BOULEVARD, SUITE 201
WALNUT CREEK CA 94596 (510) 295-1650 FAX 295-1823

○ Groundwater Sampling

Date: 4/29/97 Project No. 20025
Day: Tuesday Station No. 67-068
Weather: Sunny Address 161 W. LINCOLN AVENUE, SUNNYSIDE, WA
SAMPLER: John King

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-[illegible]7	13.26	2"	Y	N/A	—	1	1036	16.2	7.81	5.5 mS	5.4 ppm
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge=	PurgeVol			2.5	1045	16.3	7.85	5.2	5.9 ppm
25' - 13.26	x 0.16 = 1.88	x 3 = 5.64					Dry				

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp Baller(s)__ OSys Port
Comments:

○ EPA 601____
○ TPH-G/BTEX__
○ TPH Diesel__
○ TOG 5520__
Time Sampled: 1051

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW-6	17.34	4"	Y	N/A	—	1	11:26	16.9	7.62	5.9 mS	3.2 ppm
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge=	PurgeVol			2.5	11:31	16.7	7.56	5.6 mS	3.8 ppm
25' - 17.34 = 7.66	x 0.16 = 1.23	x 3 = 3.68				4	11:38	16.7	7.58	5.5 mS	3.4 ppm

Purge Method: OSurface Pump ODisp.Tube OWinch ☒Disp. Baller(s)__ OSys Port
Comments:

○ EPA 601____
○ TPH-G/BTEX__ BTO
○ TPH Diesel__
○ TOG 5520__
Time Sampled: 1141

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
MW3	13.42	4"	Y	N/A	—	1	12:14	15.3	7.38	9.5	2.7 ppm
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge=	PurgeVol.			9	12:24	15.0	7.27	9.1	2.0
25 - 13.42 = 11.58	x 0.65 = 7.53	x 3 = 22.58					Dry				

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s)__ OSys Port
Comments:

○ EPA 601____
○ TPH-G/BTEX__ BTO
○ TPH Diesel__
○ TOG 5520__
Time Sampled: 1227

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge=	PurgeVol.								

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp. Baller(s)__ OSys Port
Comments:

○ EPA 601____
○ TPH-G/BTEX__
○ TPH Diesel__
○ TOG 5520__
Time Sampled:

Well ID	Depth to Water	Diam	Cap/Lock	Product Depth	Thickness	Gal.	Time	Temp °F	pH	E.C.	D.O.
Total Depth - Water Level=	x Well Vol. Factor=	x#vol. to Purge=	PurgeVol.								

Purge Method: OSurface Pump ODisp.Tube OWinch ODisp Baller(s)__ OSys Port
Comments:

○ EPA 601____
○ TPH-G/BTEX__
○ TPH Diesel__
○ TOG 5520__
Time Sampled:

Project: GAS Mon Mar 17 16:37:29 1997

Point statistics:

Starting point number: 1
Max point number used: 45
Min point number used: 1
Current point number: 46

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
1	5000.0000	10000.0000	.	.
2	5013.1122	10052.5900	758.87	BRASS CAP
3	4961.0667	9919.7785	.	BLD COR
4	4954.0692	9977.9487	.	BLD COR
5	4947.9536	9982.7201	.	BLD COR
6	4863.2560	9972.4586	.	BLD COR
7	4975.4674	9992.1760	.	C/L ISLAND
8	4966.1915	9999.6814	.	C/L ISLAND
9	4990.5979	10006.0491	.	TRAF LIGHT POLE
10	4966.2231	10024.5394	.	BC @ PT
11	4848.0616	10009.5784	.	BC 5' S/W
12	4972.3894	10010.1002	.	CC SLAB
13	4984.3903	9999.8989	.	CC SLAB
14	4969.4106	9981.2282	.	CC SLAB
15	5000.3185	9934.9008	760.28	MW 1
16	4992.6278	9991.4229	759.43	MW 2
17	4966.0322	9974.3243	758.11	MW 3
18	4927.5551	10001.9083	756.89	MW 4
19	4892.1662	9996.5196	755.81	MW 5
20	4874.4871	10049.6870	753.81	MW 6
21	4920.5595	10059.1952	755.44	MW 7
22	4791.5113	10042.4680	751.46	MW 8
23	4981.1769	9986.1322	.	DP 1
24	4966.3577	9981.5279	.	DP 2
25	4981.2910	9946.4332	.	DP 3
26	4956.7002	10002.4667	.	DP 4
27	4926.6474	10012.5593	.	DP 5
28	4902.5533	10002.5461	.	DP 6
29	4855.1847	9991.9296	.	DP 7
30	4941.8038	10041.7105	.	DP 8
31	4905.2997	10034.7653	.	DP 9
32	4870.0398	10030.1424	.	DP 10
33	4830.9895	10025.4104	.	DP 11
34	4791.6468	10020.5077	.	DP 12
35	4819.9737	10043.8931	.	DP 13
36	4865.6827	10048.8071	.	DP 14
37	4936.2000	9999.9431	.	VP 1
38	4937.8584	9989.1018	.	VP 2
39	4985.8943	9958.9034	.	TANK FILL
40	4974.8145	9959.3262	.	TANK FILL
41	4983.6573	9978.8606	.	TANK FILL
42	4971.8373	9990.1667	.	TANK FILL
43	4918.4345	10061.6117	.	BC @ PC
44	4807.0414	10040.5826	.	BC @ ANG PT

45	4775.6311	10036.1345	.	BC

APPENDIX F

FIELD PROCEDURES FOR CHAIN OF CUSTODY DOCUMENTATION, LABORATORY REPORTS, AND CHAIN OF CUSTODY RECORDS

FIELD PROCEDURES
FOR
CHAIN OF CUSTODY DOCUMENTATION

Samples collected were handled in accordance with the Washington Department of Ecology guidelines and the requirement of TOC. Each sample was labeled in the field and immediately stored in a cooler and preserved with blue or dry ice for transport to a state-certified laboratory for analysis.

A chain of custody record accompanied the samples and included the site and sample identification, date and time of sample collection, analysis requested, and the name and signature of the sampling technician. When transferring possession of the samples, the transferee signed and dated the chain of custody record.

ANALYTICAL REPORTS
AND
CHAIN OF CUSTODY RECORDS

American Environmental Network, Inc.

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 684-0447

Mr. John M. Day
Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

Date: 04/04/1997
AEN Account No.: 90225
AEN Job Number: 97.00854

Project: Sunnyside/1st & Lincoln
Location: 22025-01-600

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
77980	MW1-16 - HOLD	SOIL	03/11/1997	03/17/1997
77981	MW1-17.5 - HOLD	SOIL	03/11/1997	03/17/1997
77982	MW1-19	SOIL	03/11/1997	03/17/1997
77983	MW1-20.5 - HOLD	SOIL	03/11/1997	03/17/1997
77984	MW3-10 - HOLD	SOIL	03/11/1997	03/17/1997
77985	MW3-15	SOIL	03/11/1997	03/17/1997
77986	MW6-15 - HOLD	SOIL	03/11/1997	03/17/1997
77987	MW6-20	SOIL	03/11/1997	03/17/1997

Approved by:

Cindy Day
Project Manager
AEN, INC.

Technical Review
AEN, INC.

ANALYTICAL REPORT

Mr. John M. Day
Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

04/04/1997
Job No.: 97.00854

Project Name: Sunnyside/1st & Lincoln
Date Received: 03/17/1997

Sample Number: 77982 — Sample Description: MW1-19

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Nitrogen, Nitrate+Nitrite		0.14		mg/Kg	03/24/1997	
Phosphate, Ortho		ND	1.0	mg/Kg	03/28/1997	
Heterotrophic Plate Count		3,200,000	100	cfu/g	03/20/1997	

Sample Number: 77985 — Sample Description: MW3-15

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Nitrogen, Nitrate+Nitrite		0.08		mg/Kg	03/24/1997	
Phosphate, Ortho		ND	1.0	mg/Kg	03/28/1997	
Heterotrophic Plate Count		<100	100	cfu/g	03/20/1997	

Sample Number: 77987 — Sample Description: MW6-20

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED	FLAG
Nitrogen, Nitrate+Nitrite		0.07		mg/Kg	03/24/1997	
Phosphate, Ortho		ND	1.0	mg/Kg	03/28/1997	
Heterotrophic Plate Count		700	100	cfu/g	03/20/1997	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

Date: 04/04/1997

Job Number: 97.00854

Contact: Mr. John M. Day
Project: Sunnyside/1st & Lincoln

Analyte	CCV True Concentration	Concentration Found	Percent Recovery	Date Analyzed
Nitrogen, Nitrate+Nitrite	0.50	0.47	94.0	03/24/1997
Nitrogen, Nitrate+Nitrite	0.50	0.45	90.0	03/24/1997

CCV - Continuing Calibration Verification

American Environmental Network, Inc. (503)684-0447 (503)620-0393 FAX
17400 SW Upper Boones Ferry Rd., Suite 270, Portland, OR 97224

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

Date: 04/04/1997

Job Number: 97.00854

Contact: Mr. John M. Day
Project: Sunnyside/1st & Lincoln

Analyte	LCS True Concentration	Concentration Found	LCS % Recovery	Flags	Date Analyzed
Nitrogen, Nitrate+Nitrite	9.33	10.1	108.3		03/24/1997

LCS - Laboratory Control Standard

American Environmental Network , Inc. (503)684-0447 (503)620-0393 FAX
17400 SW Upper Boones Ferry Rd., Suite 270, Portland OR 97224

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

Date: 04/04/1997

Job Number: 97.00854

Contact: Mr. John M. Day
Project: Sunnyside/1st & Lincoln

Analyte	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD	Flags
Nitrogen, Nitrate+Nitrite	0.26	0.08	0.20	mg/Kg	90.0	0.26	0.20	mg/Kg	90.0	0.0	

QC Sample:

NOTE: Matrix Spike Samples may not be samples from this job.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
dil.= Diluted Out

American Environmental Network, Inc. (503)684-0447 (503)620-0393 FAX
17400 SW Upper Boones Ferry Rd., Portland, OR 97224

QUALITY CONTROL REPORT
SPIKE

Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

Date: 04/04/1997

AEN Job Number: 97.00854

Contact: Mr. John M. Day
Project: Sunnyside/1st & Lincoln

Analyte	Original Analysis	Spike Analysis	Spike Amount	Units	Percent Recovery	Flag
Phosphate, Ortho	ND	7.9	8.0	mg/Kg	98.8	

QUALITY CONTROL REPORT
BLANKS

Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

Date: 04/04/1997

Job Number: 97.00854

Contact: Mr. John M. Day
Project: Sunnyside/1st & Lincoln
Location: 22025-01-600

Analyte	Blank Analysis	Report Limit	Units	Date Analyzed
Nitrogen, Nitrate+Nitrite	ND	3.0	mg/Kg	03/24/1997
Nitrogen, Nitrate+Nitrite	ND	3.0	mg/Kg	03/24/1997
Phosphate, Ortho	ND	1.0	mg/Kg	03/28/1997

QUALITY CONTROL REPORT
DUPLICATES

Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

Date: 04/04/1997

Job Number: 97.00854

Contact: Mr. John M. Day
Project: Sunnyside/1st & Lincoln

Analyte	Original Analysis	Duplicate Analysis	Units	RPD	Date Analyzed	Flag
Phosphate, Ortho	ND	ND	mg/Kg		03/28/1997	

NOTE: Duplicates may not be samples from this job.

RPD - Relative Percent Difference

FLAG GLOSSARY

A	This sample does not have a typical gasoline pattern.
B1	This sample does not have a typical diesel pattern.
B	Analyte found in the associated blank as well as the sample.
C	The sample contains a lighter hydrocarbon than gasoline.
CS	Outside control limits or unusual matrix; see case narrative.
D	The sample extends to a heavier hydrocarbon range than gasoline.
DIL	Result was calculated from dilution.
E	The sample extends to a lighter hydrocarbon range than diesel.
F	The sample extends to a heavier hydrocarbon range than diesel.
G	The positive result for gasoline is due to single component comtamination.
I	The oil pattern for this sample is not typical.
J	The result for this compound is an estimated concentration.
L	The LCS recovery exceeded control limits. See the LCS page of this report.
LM	The LCS recovery exeeded control limits; the MS/MSD were in control validating the batch.
M	MS and/or MSD percent recovery exceeds control limits.
MD	Unable to calculate MS/MSD recovery due to high amount of analyte; greater than 4 times spike level.
MR	The MS/MSD RPD is greater than 20%. The sample was re-extracted and re-analyzed with similar results indicating a non-homogeneous sample.
MM	The Matrix Spike exceeded control limits; LCS/LCS-D were in control validating the batch.
MI	Outside control limits due to matrix interference.
N	Manual integration performed on sample for quantification.
N/A	Not Applicable.
NC	Not calcuable.
NO	Not Analyzed.
P	A post digestion spike was analyzed, and recoveries were within control limits.
Q	Detection limits elevated due to sample matrix.
R	The duplicate RPD was greater than 20%. The sample was re-extracted and re-analyzed with similar results. This indicates a matrix interference in the sample, likely a non-homogeneity of the sample.
RD	RPD not applicable for results less than five times the reporting limit.
SR	Surrogate recovery outside control limits. See the surrogate page of the report.
SD	Unable to quantitate surrogate due to sample dilution.
SC	Sample not provided to laboratory in proper sampling container.
V	Volatile analysis was requested, sample container received with headspace.
X1	The duplicate RPD was greater than 20%. Due to insufficient sample, re-analysis was not possible.
X	Sample was analyzed outside recommended holding times.
Y	The result for this parameter was greater than the TCLP regulatory limit.
Z	The pattern seen for the parameter being analyzed is not typical.

9.1.a '04

NET® NATIONAL ENVIRONMENTAL TESTING, INC.

17400 SW Upper Boones Ferry Rd.
Suite # 260
Portland, OR 97224
PH: (503) 624-5449 FAX: (503) 639-6889

CHAIN OF CUSTODY RECORD

COMPANY ALIDO ENGINEERING
ADDRESS 7160 SW HAMPTON RD #200 PDX, OR 97224
PHONE 620 8420 FAX 620 1923
PROJECT NAME/LOCATION SUNNYSIDE / 1ST & LINCOLN
PROJECT NUMBER 20025-01-600
PROJECT MANAGER JOHN DAY

REPORT TO: CRAIG WATZE
INVOICE TO: SAME
P.O. NO.
NET QUOTE NO.

SAMPLED BY CRAIG WATZE (PRINT NAME) _____ SIGNATURE _____
(PRINT NAME) _____ SIGNATURE _____

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS TYPE	MATRIX	PRESERVED Y/N	ANALYSES: EPA 300.	EPA 365.2	BACTERIA TOTAL COUNT									COMMENTS
3/11	9:25	MW1-16	X		1	SOIL	ICE				HOLD								NITRITE/NITRATE AS NITROGEN (300)
	9:28	MW1-17.5	X		1						HOLD								ORTHOPHOSPHATE AND PHOSPHOROUS (365.2)
	9:30	MW1-19	X		1			X	X	X									
	9:35	MW1-20.5	X		1						HOLD								
	12:25	MW3-10	X		1						HOLD								
	12:30	MW3-15	X		1			X	X	X									
	8:07	MW6-15	X		1						HOLD								
	8:10	MW6-20	X		1			X	X	X									

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
FIELD FILTERED? YES / NO
COC SEALS PRESENT AND INTACT? YES / NO
VOLATILES FREE OF HEADSPACE? YES / NO
TEMPERATURE UPON RECEIPT: _____

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA _____
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS _____ DATE _____

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR NET BY:
	3/11/04 9:57				

METHOD OF SHIPMENT

REMARKS: CALL IF ADD'L SAMPLE VOLUME REQUIRED

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Alisto	Project:	TOC-Sunnyside	Sampled: 4/29/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01-600	Received: 4/30/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 5/12/97 12:21

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-3	P704494-01	Water	4/29/97
MW-6	P704494-02	Water	4/29/97

North Creek Analytical, Inc.

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

Tabatha A Brochu, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Alisto	Project:	TOC-Sunnyside	Sampled: 4/29/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01-600	Received: 4/30/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 5/12/97 12:21

Microbiological Parameters per APHA Standard Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-3			**P704494-01**				**Water**	
Petroleum Degrading Bacteria	0570121	4/30/97	5/12/97	NCA-P	1.00	**90.0**	CFU/ml	
Total Heterotrophic Plate Count	0570029	"	5/5/97	SM 9215	100000	**800000**	"	
MW-6			**P704494-02**				**Water**	
Petroleum Degrading Bacteria	0570121	4/30/97	5/12/97	NCA-P	1.00	**300**	CFU/ml	
Total Heterotrophic Plate Count	0570029	"	5/5/97	SM 9215	100000	**300000**	"	

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Alisto	Project:	TOC-Sunnyside	Sampled: 4/29/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01-600	Received: 4/30/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 5/12/97 12:21

Microbiological Parameters per APHA Standard Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0570029	**Date Prepared: 4/30/97**				**Extraction Method: Aqueous Extraction**					
Blank	**0570029-BLK1**									
Total Heterotrophic Plate Count	5/5/97			**ND**	CFU/ml	**1.00**				
Batch: 0570121	**Date Prepared: 4/30/97**				**Extraction Method: Aqueous Extraction**					
Blank	**0570121-BLK1**									
Petroleum Degrading Bacteria	5/12/97			**ND**	CFU/ml	**1.00**				

North Creek Analytical, Inc.

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

Tabatha A Brochu, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Alisto	Project:	TOC-Sunnyside	Sampled: 4/29/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01-600	Received: 4/30/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 5/12/97 12:21

Notes and Definitions

#	Note
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Tabatha A Brochu, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

P704494 9°

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481 -9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

TOTAL P.02

6201923 P.02 TO FROM 04-30-1997 07:11AM

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

CHAIN OF CUSTODY REPORT

Work Order # [redacted]

REPORT TO: Alisto Engineering Group	INVOICE TO: Same
ATTENTION: Craig Ware	ATTENTION:
ADDRESS: 7160 SW Hazelfern Road, Suite 700, Portland, OR 97224	ADDRESS:
PHONE: (503) 620-8420 FAX: 620-1923	P.O. NUMBER: 20025-01-600 NCA QUOTE #:
PROJECT NAME: TOC - Sunnyside	
PROJECT NUMBER: 20025-01-600	
SAMPLED BY: John King	

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: [X] Standard 10 | 7 | 5 | 4 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analyses: [X] Standard | 3-4 | 2 | 1 | Same Day

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Total Petroleum Hydrocarbons	Plate Count	Petroleum Degrading Bacterial Count	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1	MW-3	4/29/97 12:27	[redacted]	X	X		W	1	
2	MW-6	4/29/97 11:41	[redacted]	X	X		W	1	
3			[redacted]						
4			[redacted]						
5			[redacted]						
6			[redacted]						
7			[redacted]						
8			[redacted]						
9			[redacted]						
10			[redacted]						

RELINQUISHED BY: John King	DATE: 4/30/97	RECEIVED BY: Larry Spangler	DATE: 4-30-97
PRINT NAME: John King FIRM: Alisto	TIME: 9:55	PRINT NAME: Larry Spangler FIRM: NCA	TIME: 0955
RELINQUISHED BY: Larry Spangler	DATE: 4-30-97	RECEIVED BY: Sara McClurg	DATE: 4-30-97
PRINT NAME: Larry Spangler FIRM: NCA	TIME: 1249	PRINT NAME: Sara McClurg FIRM: NCA	TIME: 1249

ADDITIONAL REMARKS:

PAGE 1 OF 1

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
DP8-H20	B703202-01	Water	3/10/97
DP9-H20	B703202-02	Water	3/10/97
DP10-H20	B703202-03	Water	3/10/97
DP11-H20	B703202-04	Water	3/10/97
DP12-H20	B703202-05	Water	3/10/97
DP13-H20	B703202-06	Water	3/10/97
DP14-H20	B703202-07	Water	3/10/97
VP2-H2O	B703202-08	Water	3/10/97
TB-1	B703202-09	Water	3/10/97
DP8-17	B703202-13	Soil	3/10/97
DP9-15	B703202-16	Soil	3/10/97
DP10-18	B703202-21	Soil	3/10/97
DP11-18	B703202-25	Soil	3/10/97
DP12-15	B703202-28	Soil	3/10/97
DP13-18	B703202-33	Soil	3/10/97
DP14-18	B703202-37	Soil	3/10/97
VP2-15	B703202-40	Soil	3/10/97
MW1-14.5	B703202-41	Soil	3/11/97
MW2-15	B703202-50	Soil	3/11/97
MW3-25	B703202-55	Soil	3/11/97

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW4-15	B703202-57	Soil	3/11/97
MW4-25	B703202-59	Soil	3/11/97
MW5-15	B703202-61	Soil	3/11/97
MW5-25	B703202-63	Soil	3/11/97
MW6-25	B703202-66	Soil	3/12/97
MW7-15	B703202-68	Soil	3/12/97
MW8-15	B703202-72	Soil	3/12/97

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
DP8-H20			**B703202-01**				**Water**	
Gasoline Range Hydrocarbons	0370391	3/17/97	3/17/97		250	**10900**	ug/l	
Benzene	"	"	"		2.50	**37.9**	"	
Toluene	"	"	"		2.50	**15.4**	"	
Ethylbenzene	"	"	"		2.50	ND	"	
Xylenes (total)	"	"	"		5.00	**813**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*NR*	*%*	*1*
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*136*	"	
DP9-H20			**B703202-02**				**Water**	
Gasoline Range Hydrocarbons	0370391	3/17/97	3/18/97		25000	**235000**	ug/l	
Benzene	"	"	"		250	**36800**	"	
Toluene	"	"	"		250	**39400**	"	
Ethylbenzene	"	"	"		250	**3390**	"	
Xylenes (total)	"	"	"		500	**23200**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*108*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*85.6*	"	
DP10-H20			**B703202-03**				**Water**	
Gasoline Range Hydrocarbons	0370391	3/17/97	3/18/97		12500	**67300**	ug/l	
Benzene	"	"	"		125	**19700**	"	
Toluene	"	"	"		125	**14800**	"	
Ethylbenzene	"	"	"		125	**734**	"	
Xylenes (total)	"	"	"		250	**6970**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*108*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*87.5*	"	
DP11-H20			**B703202-04**				**Water**	
Gasoline Range Hydrocarbons	0370391	3/17/97	3/18/97		12500	**109000**	ug/l	
Benzene	"	"	"		125	**11400**	"	
Toluene	"	"	"		125	**17800**	"	
Ethylbenzene	"	"	"		125	**2130**	"	
Xylenes (total)	"	"	"		250	**12200**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*112*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*88.1*	"	
DP12-H20			**B703202-05**				**Water**	
Gasoline Range Hydrocarbons	0370391	3/17/97	3/18/97		50.0	ND	ug/l	
Benzene	"	"	"		0.500	ND	"	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
DP12-H20 (continued)			**B703202-05**				**Water**	
Toluene	0370391	3/17/97	3/18/97		0.500	**1.42**	ug/l	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	**1.26**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*96.9*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*85.0*	"	
DP13-H20			**B703202-06**				**Water**	
Gasoline Range Hydrocarbons	0370391	3/17/97	3/18/97		5000	**34800**	ug/l	
Benzene	"	"	"		50.0	**6790**	"	
Toluene	"	"	"		50.0	**5050**	"	
Ethylbenzene	"	"	"		50.0	**302**	"	
Xylenes (total)	"	"	"		100	**4880**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*117*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*89.4*	"	
DP14-H20			**B703202-07**				**Water**	
Gasoline Range Hydrocarbons	0370391	3/17/97	3/18/97		10000	**177000**	ug/l	
Benzene	"	"	"		250	**26900**	"	
Toluene	"	"	"		250	**31700**	"	
Ethylbenzene	"	"	"		100	**2300**	"	
Xylenes (total)	"	"	"		200	**14800**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*119*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*88.7*	"	
VP2-H2O			**B703202-08**				**Water**	
Gasoline Range Hydrocarbons	0370391	3/17/97	3/18/97		50000	**220000**	ug/l	
Benzene	"	"	"		500	**42700**	"	
Toluene	"	"	"		500	**49800**	"	
Ethylbenzene	"	"	"		500	**3690**	"	
Xylenes (total)	"	"	"		1000	**20900**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*108*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*87.5*	"	
DP8-17			**B703202-13**				**Soil**	
Gasoline Range Hydrocarbons	0370314	3/13/97	3/13/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
DP8-17 (continued)			**B703202-13**				**Soil**	
Xylenes (total)	0370314	3/13/97	3/13/97		0.100	ND	mg/kg dry	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*79.8*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*85.7*	"	
DP9-15			**B703202-16**				**Soil**	
Gasoline Range Hydrocarbons	0370314	3/13/97	3/13/97		5.00	**6.05**	mg/kg dry	
Benzene	"	"	"		0.0500	**2.04**	"	
Toluene	"	"	"		0.0500	**0.311**	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	**0.290**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*80.1*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*83.5*	"	
DP10-18			**B703202-21**				**Soil**	
Gasoline Range Hydrocarbons	0370314	3/13/97	3/13/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	**0.842**	"	
Toluene	"	"	"		0.0500	**0.441**	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	**0.324**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*81.1*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*89.2*	"	
DP11-18			**B703202-25**				**Soil**	
Gasoline Range Hydrocarbons	0370314	3/13/97	3/13/97		5.00	**69.3**	mg/kg dry	
Benzene	"	"	"		0.0500	**1.25**	"	
Toluene	"	"	"		0.0500	**3.45**	"	
Ethylbenzene	"	"	"		0.0500	**0.884**	"	
Xylenes (total)	"	"	"		0.100	**5.55**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*85.5*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*84.0*	"	
DP12-15			**B703202-28**				**Soil**	
Gasoline Range Hydrocarbons	0370314	3/13/97	3/13/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*77.6*	*%*	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
DP12-15 (continued)			**B703202-28**				**Soil**	
Surrogate: 4-BFB (PID)	*0370314*	*3/13/97*	*3/13/97*	*50.0-150*		*84.9*	*%*	
DP13-18			**B703202-33**				**Soil**	
Gasoline Range Hydrocarbons	0370314	3/13/97	3/13/97		5.00	**5.14**	mg/kg dry	
Benzene	"	"	"		0.0500	**0.537**	"	
Toluene	"	"	"		0.0500	**0.403**	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	**0.562**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*80.3*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*84.4*	"	
DP14-18			**B703202-37**				**Soil**	
Gasoline Range Hydrocarbons	0370314	3/13/97	3/13/97		20.0	**128**	mg/kg dry	
Benzene	"	"	"		0.200	**9.01**	"	
Toluene	"	"	"		0.200	**15.8**	"	
Ethylbenzene	"	"	"		0.200	**1.81**	"	
Xylenes (total)	"	"	"		0.400	**12.6**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*85.5*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*86.0*	"	
VP2-15			**B703202-40**				**Soil**	
Gasoline Range Hydrocarbons	0370314	3/13/97	3/14/97		50.0	**411**	mg/kg dry	
Benzene	"	"	"		0.500	**12.7**	"	
Toluene	"	"	"		0.500	**34.0**	"	
Ethylbenzene	"	"	"		0.500	**7.00**	"	
Xylenes (total)	"	"	"		1.00	**39.0**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*101*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*97.5*	"	
MW1-14.5			**B703202-41**				**Soil**	
Gasoline Range Hydrocarbons	0370314	3/13/97	3/13/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	**0.0793**	"	
Toluene	"	"	"		0.0500	**0.215**	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	**0.208**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*77.4*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*82.9*	"	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
MW2-15			**B703202-50**				**Soil**	
Gasoline Range Hydrocarbons	0370314	3/13/97	3/13/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*77.9*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*82.7*	"	
MW3-25			**B703202-55**				**Soil**	
Gasoline Range Hydrocarbons	0370314	3/13/97	3/13/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*80.6*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*85.7*	"	
MW4-15			**B703202-57**				**Soil**	
Gasoline Range Hydrocarbons	0370349	3/14/97	3/16/97		50.0	**138**	mg/kg dry	
Benzene	"	"	"		0.500	**6.63**	"	
Toluene	"	"	"		0.500	**13.6**	"	
Ethylbenzene	"	"	"		0.500	**2.09**	"	
Xylenes (total)	"	"	"		1.00	**12.2**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*101*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*99.0*	"	
MW4-25			**B703202-59**				**Soil**	
Gasoline Range Hydrocarbons	0370349	3/14/97	3/16/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*79.7*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*83.1*	"	
MW5-15			**B703202-61**				**Soil**	
Gasoline Range Hydrocarbons	0370349	3/14/97	3/16/97		5.00	**110**	mg/kg dry	
Benzene	"	"	"		0.0500	**0.991**	"	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
MW5-15 (continued)			**B703202-61**				**Soil**	
Toluene	0370349	3/14/97	3/16/97		0.0500	**4.00**	mg/kg dry	
Ethylbenzene	"	"	"		0.0500	**1.33**	"	
Xylenes (total)	"	"	"		0.100	**8.57**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*84.3*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*80.6*	"	
MW5-25			**B703202-63**				**Soil**	
Gasoline Range Hydrocarbons	0370349	3/14/97	3/16/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	**0.134**	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	**0.222**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*81.4*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*85.0*	"	
MW6-25			**B703202-66**				**Soil**	
Gasoline Range Hydrocarbons	0370349	3/14/97	3/16/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*86.6*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*89.8*	"	
MW7-15			**B703202-68**				**Soil**	
Gasoline Range Hydrocarbons	0370349	3/14/97	3/16/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*91.3*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*95.6*	"	
MW8-15			**B703202-72**				**Soil**	
Gasoline Range Hydrocarbons	0370349	3/14/97	3/16/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
MW8-15 (continued)			**B703202-72**				**Soil**	
Xylenes (total)	0370349	3/14/97	3/16/97		0.100	ND	mg/kg dry	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*79.3*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*83.4*	"	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

BTEX by EPA Method 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
TB-1			**B703202-09**				**Water**	
Benzene	0370391	3/17/97	3/18/97		0.500	ND	ug/l	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*86.9*	*%*	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
DP8-17	B703202-13	Soil	75.5	%
DP9-15	B703202-16	Soil	75.0	%
DP10-18	B703202-21	Soil	81.3	%
DP11-18	B703202-25	Soil	76.2	%
DP12-15	B703202-28	Soil	75.4	%
DP13-18	B703202-33	Soil	77.9	%
DP14-18	B703202-37	Soil	77.5	%
VP2-15	B703202-40	Soil	72.8	%
MW1-14.5	B703202-41	Soil	75.4	%
MW2-15	B703202-50	Soil	76.0	%
MW3-25	B703202-55	Soil	75.5	%
MW4-15	B703202-57	Soil	79.1	%
MW4-25	B703202-59	Soil	76.7	%
MW5-15	B703202-61	Soil	73.8	%
MW5-25	B703202-63	Soil	76.0	%
MW6-25	B703202-66	Soil	75.7	%
MW7-15	B703202-68	Soil	77.0	%
MW8-15	B703202-72	Soil	77.2	%

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0370314	**Date Prepared: 3/13/97**					**Extraction Method: EPA 5030**				
Blank	**0370314-BLK1**									
Gasoline Range Hydrocarbons	3/13/97			**ND**	mg/kg dry	**5.00**				
Benzene	"			**ND**	"	**0.0500**				
Toluene	"			**ND**	"	**0.0500**				
Ethylbenzene	"			**ND**	"	**0.0500**				
Xylenes (total)	"			**ND**	"	**0.100**				
Surrogate: 4-BFB (FID)	"	*4.00*		*3.66*	"	*50.0-150*	*91.5*			
Surrogate: 4-BFB (PID)	"	*4.00*		*3.88*	"	*50.0-150*	*97.0*			
LCS	**0370314-BS1**									
Gasoline Range Hydrocarbons	3/13/97	25.0		23.8	mg/kg dry	75.0-125	95.2			
Surrogate: 4-BFB (FID)	"	*4.00*		*3.95*	"	*50.0-150*	*98.8*			
Duplicate	**0370314-DUP1**		**B703200-01**							
Gasoline Range Hydrocarbons	3/13/97		ND	ND	mg/kg dry			50.0		2
Surrogate: 4-BFB (FID)	"	*4.60*		*3.86*	"	*50.0-150*	*83.9*			
Duplicate	**0370314-DUP2**		**B703202-28**							
Gasoline Range Hydrocarbons	3/13/97		ND	ND	mg/kg dry			50.0		2
Surrogate: 4-BFB (FID)	"	*5.31*		*4.09*	"	*50.0-150*	*77.0*			
Matrix Spike	**0370314-MS1**		**B703202-28**							
Benzene	3/13/97	0.663	ND	0.527	mg/kg dry	60.0-140	**79.5**			
Toluene	"	0.663	ND	0.519	"	60.0-140	**78.3**			
Ethylbenzene	"	0.663	ND	0.521	"	60.0-140	**78.6**			
Xylenes (total)	"	1.99	ND	1.58	"	60.0-140	**79.4**			
Surrogate: 4-BFB (PID)	"	*5.31*		*4.43*	"	*50.0-150*	*83.4*			
Matrix Spike Dup	**0370314-MSD1**		**B703202-28**							
Benzene	3/13/97	0.663	ND	0.540	mg/kg dry	60.0-140	**81.4**	20.0	**2.36**	
Toluene	"	0.663	ND	0.527	"	60.0-140	**79.5**	20.0	**1.52**	
Ethylbenzene	"	0.663	ND	0.532	"	60.0-140	**80.2**	20.0	**2.02**	
Xylenes (total)	"	1.99	ND	1.60	"	60.0-140	**80.4**	20.0	**1.25**	
Surrogate: 4-BFB (PID)	"	*5.31*		*4.48*	"	*50.0-150*	*84.4*			
Batch: 0370349	**Date Prepared: 3/14/97**					**Extraction Method: MeOH Extraction**				
Blank	**0370349-BLK1**									
Gasoline Range Hydrocarbons	3/14/97			**ND**	mg/kg dry	**5.00**				

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	**0370349-BLK1**									
Benzene	3/14/97			**ND**	mg/kg dry	**0.0500**				
Toluene	"			**ND**	"	**0.0500**				
Ethylbenzene	"			**ND**	"	**0.0500**				
Xylenes (total)	"			**ND**	"	**0.100**				
Surrogate: 4-BFB (FID)	"	*4.00*		*3.58*	"	*50.0-150*	*89.5*			
Surrogate: 4-BFB (PID)	"	*4.00*		*3.89*	"	*50.0-150*	*97.3*			
LCS	**0370349-BS1**									
Gasoline Range Hydrocarbons	3/14/97	25.0		24.7	mg/kg dry	75.0-125	98.8			
Surrogate: 4-BFB (FID)	"	*4.00*		*3.85*	"	*50.0-150*	*96.2*			
Duplicate	**0370349-DUP1**		**B703228-02**							
Gasoline Range Hydrocarbons	3/14/97		370	417	mg/kg dry			50.0	**11.9**	
Surrogate: 4-BFB (FID)	"	*4.51*		*4.72*	"	*50.0-150*	*105*			
Duplicate	**0370349-DUP2**		**B703228-11**							
Gasoline Range Hydrocarbons	3/14/97		ND	6.58	mg/kg dry			50.0		2
Surrogate: 4-BFB (FID)	"	*4.51*		*3.68*	"	*50.0-150*	*81.6*			
Matrix Spike	**0370349-MS1**		**B703228-11**							
Benzene	3/14/97	0.564	ND	0.470	mg/kg dry	60.0-140	**83.3**			
Toluene	"	0.564	ND	0.471	"	60.0-140	**83.5**			
Ethylbenzene	"	0.564	ND	0.504	"	60.0-140	**89.4**			
Xylenes (total)	"	1.69	0.368	1.70	"	60.0-140	**78.8**			
Surrogate: 4-BFB (PID)	"	*4.51*		*4.28*	"	*50.0-150*	*94.9*			
Matrix Spike Dup	**0370349-MSD1**		**B703228-11**							
Benzene	3/14/97	0.564	ND	0.473	mg/kg dry	60.0-140	**83.9**	20.0	**0.718**	
Toluene	"	0.564	ND	0.481	"	60.0-140	**85.3**	20.0	**2.13**	
Ethylbenzene	"	0.564	ND	0.539	"	60.0-140	**95.6**	20.0	**6.70**	
Xylenes (total)	"	1.69	0.368	1.96	"	60.0-140	**94.2**	20.0	**17.8**	
Surrogate: 4-BFB (PID)	"	*4.51*		*4.24*	"	*50.0-150*	*94.0*			
Batch: 0370391	**Date Prepared: 3/17/97**					**Extraction Method: EPA 5030**				
Blank	**0370391-BLK1**									
Gasoline Range Hydrocarbons	3/17/97			**ND**	ug/l	**50.0**				
Benzene	"			**ND**	"	**0.500**				
Toluene	"			**ND**	"	**0.500**				

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	0370391-BLK1									
Ethylbenzene	3/17/97			ND	ug/l	0.500				
Xylenes (total)	"			ND	"	1.00				
Surrogate: 4-BFB (FID)	"	*16.0*		*15.3*	"	*50.0-150*	*95.6*			
Surrogate: 4-BFB (PID)	"	*16.0*		*14.2*	"	*50.0-150*	*88.7*			
LCS	0370391-BS1									
Gasoline Range Hydrocarbons	3/17/97	500		491	ug/l	80.0-120	98.2			
Surrogate: 4-BFB (FID)	"	*16.0*		*19.2*	"	*50.0-150*	*120*			
Duplicate	0370391-DUP1		B703071-01							
Gasoline Range Hydrocarbons	3/17/97		163	137	ug/l			25.0	17.3	2
Surrogate: 4-BFB (FID)	"	*16.0*		*14.7*	"	*50.0-150*	*91.9*			
Duplicate	0370391-DUP2		B703192-01							
Gasoline Range Hydrocarbons	3/17/97		ND	ND	ug/l			25.0		2
Surrogate: 4-BFB (FID)	"	*16.0*		*13.8*	"	*50.0-150*	*86.3*			
Matrix Spike	0370391-MS1		B703071-02							
Benzene	3/17/97	10.0	ND	9.82	ug/l	70.0-130	98.2			
Toluene	"	10.0	ND	9.90	"	70.0-130	99.0			
Ethylbenzene	"	10.0	ND	9.45	"	70.0-130	94.5			
Xylenes (total)	"	30.0	ND	28.5	"	70.0-130	95.0			
Surrogate: 4-BFB (PID)	"	*16.0*		*14.5*	"	*50.0-150*	*90.6*			
Matrix Spike Dup	0370391-MSD1		B703071-02							
Benzene	3/17/97	10.0	ND	9.36	ug/l	70.0-130	93.6	15.0	4.80	
Toluene	"	10.0	ND	9.37	"	70.0-130	93.7	15.0	5.50	
Ethylbenzene	"	10.0	ND	9.39	"	70.0-130	93.9	15.0	0.637	
Xylenes (total)	"	30.0	ND	28.1	"	70.0-130	93.7	15.0	1.38	
Surrogate: 4-BFB (PID)	"	*16.0*		*14.9*	"	*50.0-150*	*93.1*			

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

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

BTEX by EPA Method 8020A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes
Batch: 0370391	**Date Prepared: 3/17/97**					**Extraction Method: EPA 5030**				
Blank	**0370391-BLK1**									
Benzene	3/17/97			**ND**	ug/l	**0.500**				
Toluene	"			**ND**	"	**0.500**				
Ethylbenzene	"			**ND**	"	**0.500**				
Xylenes (total)	"			**ND**	"	**1.00**				
Surrogate: 4-BFB (PID)	"	*16.0*		*14.2*	"	*50.0-150*	*88.7*			
Matrix Spike	**0370391-MS1**		**B703071-02**							
Benzene	3/17/97	10.0	ND	9.82	ug/l	70.0-130	**98.2**			
Toluene	"	10.0	ND	9.90	"	70.0-130	**99.0**			
Ethylbenzene	"	10.0	ND	9.45	"	70.0-130	**94.5**			
Xylenes (total)	"	30.0	ND	28.5	"	70.0-130	**95.0**			
Surrogate: 4-BFB (PID)	"	*16.0*		*14.5*	"	*50.0-150*	*90.6*			
Matrix Spike Dup	**0370391-MSD1**		**B703071-02**							
Benzene	3/17/97	10.0	ND	9.36	ug/l	70.0-130	**93.6**	15.0	**4.80**	
Toluene	"	10.0	ND	9.37	"	70.0-130	**93.7**	15.0	**5.50**	
Ethylbenzene	"	10.0	ND	9.39	"	70.0-130	**93.9**	15.0	**0.637**	
Xylenes (total)	"	30.0	ND	28.1	"	70.0-130	**93.7**	15.0	**1.38**	
Surrogate: 4-BFB (PID)	"	*16.0*		*14.9*	"	*50.0-150*	*93.1*			

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 3/10/97 to 3/12/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 3/12/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/19/97 13:25

Notes and Definitions

#	Note
1	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.
2	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B703202

REPORT TO:	INVOICE TO:
ATTENTION: CRAIG WAITE - ALISTO ENGINEERING	ATTENTION: TIME OIL CO. ANGELA COTE
ADDRESS: 7160 SW HAMPTON RD #221 PTLD, OR 97224	ADDRESS:
PHONE: 503 620 5420 FAX: 503 620 1573	P.O. NUMBER: NCA QUOTE #:
PROJECT NAME: SUNNYSIDE/15T & LINCOLN	
PROJECT NUMBER: 2002-5-01	
SAMPLED BY: CRAIG WAITE	

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analyses: 5 Standard | 3-4 | 2 | 1 | Same Day

OTHER Specify

* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: NWTPH-G	BTEX	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1	DP8-H20	3/10 9:35	B703202-01	X	X	H20	2	
2	DP9-H20	10:40	02	X	X		2	
3	DP10-H20	11:50	03	X	X		2	
4	DP11-H20	1:00	04	X	X		2	
5	DP12-H20	3:10	05	X	X		2	
6	DP13-H20	4:05	06	X	X		2	
7	DP14-H20	5:05	07	X	X		2	
8	VP2-H20	5:30	08	X	X		2	
9	TB-1		09		X		2	
10								

RELINQUISHED BY (Signature):		DATE: 3/10/97	RECEIVED BY (Signature):		DATE: 3/11/97
PRINT NAME: CRAIG WAITE	FIRM: ALISTO	TIME: 1:45	PRINT NAME: ANGELA COTE	FIRM: TOC	TIME: 1445
RELINQUISHED BY (Signature):		DATE: 3/11/97	RECEIVED BY (Signature):		DATE: 3/12/97
PRINT NAME: ANGELA COTE	FIRM: TOC	TIME: 1445	PRINT NAME: Lisa Hurley	FIRM: NCA	TIME: 1445

ADDITIONAL REMARKS:

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B703202

REPORT TO:

ATTENTION: CRAIG WARE - ALSTO

ADDRESS: 7160 SW HAMPTON RD #100
PTLD OR 97223

PHONE: 503 639-9540 FAX: 639 1923

PROJECT NAME: SUNNYSIDE / 1ST & LINCOLN

PROJECT NUMBER: 7-010-5-01

SAMPLED BY: CRAIG WARE

INVOICE TO:

ATTENTION: TIME OILCO
ANGELA COTE

ADDRESS:

P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analyses: 5 Standard | 3-4 | 2 | 1 | Same Day

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: NWTPH-G	BTEX	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1	DP8-5	3/10 8:45	B703202-10					
2	DP8-10	9:00	-11					
3	DP8-12	9:05	-12					
4	DP8-17	9:20	-13	X	X			
5	DP9-5	10:00	-14					
6	DP9-10	10:05	-15					
7	DP9-15	10:20	-16	X	X			
8	DP9-18	10:35	-17					
9	DP10-5	11:10	-18					
10	DP10-10	11:20	-19					

RELINQUISHED BY (Signature): [signature] DATE: 3/12/97
PRINT NAME: CRAIG WARE FIRM: ALSTO TIME: 11:45

RELINQUISHED BY (Signature): Angela M Cote DATE: 3/12/97
PRINT NAME: ANGELA COTE FIRM: TOC TIME: 1445

RECEIVED BY (Signature): Angela Cote DATE: 3/12/97
PRINT NAME: Angela Cote FIRM: TOC TIME: 1445

RECEIVED BY (Signature): Lisa Hupler DATE: 3/12/97
PRINT NAME: LISA HUPLER FIRM: NCA TIME: 1445

ADDITIONAL REMARKS:

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B703202

REPORT TO:
ATTENTION: CRAIG WARE - ALLSTD
ADDRESS: 7160 SW HAZELFERN RD #100
PRD, OR 97224
PHONE: 503 620 8480 FAX: 620 1923
PROJECT NAME: SUNNYSIDE / 1ST & LINCOLN
PROJECT NUMBER: 2002-5-01
SAMPLED BY: CRAIG WARE

INVOICE TO:
ATTENTION: TIME OIL CO. ANGELA COTE
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: ~~5~~ Standard | 3-4 | 2 | 1 | Same Day
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: WTPH-G / BTEX	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1	DP10-15	3/10 11:30	B703202-20				
2	DP10-18	11:40	-21	X X			
3	DP11-5	12:30	-22				
4	DP11-10	12:35	-23				
5	DP11-15	12:40	-24				
6	DP11-18	12:50	-25	X X			
7	DP12-5	2:35	-26				
8	DP12-10	2:40	-27				
9	DP12-15	2:50	-28	X X			
10	DP12-18	3:00	-29				

RELINQUISHED BY (Signature): [signature] DATE: 3/12/97
PRINT NAME: CRAIG WARE FIRM: ALLSTD TIME: 1:45
RECEIVED BY (Signature): Angela M Cote DATE: 3/12/97
PRINT NAME: ANGELA COTE FIRM: TOC TIME: 1445

RELINQUISHED BY (Signature): Angela M Cote DATE: 3/12/97
PRINT NAME: ANGELA COTE FIRM: TOC TIME: 1445
RECEIVED BY (Signature): [signature] DATE: 3/12/97
PRINT NAME: LISA HURLEY FIRM: NCA TIME: 1445

ADDITIONAL REMARKS:

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B703202

REPORT TO:

ATTENTION: CRAIG WARE - ALLSTD

ADDRESS: 7160 SW HAZELFERN RD #700 RTD. OR 97224

PHONE: 503 620 5400 FAX: 620 1523

PROJECT NAME: SUNNYSIDE / 15th & LINCOLN

PROJECT NUMBER: 20025-01

SAMPLED BY: CRAIG WARE

INVOICE TO: TIME OILCO.

ATTENTION: ANGELA CÔTE'

ADDRESS:

P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analyses: X Standard | 3-4 | 2 | 1 | Same Day

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: WTPH-G / BTEX	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	DP13-5	3/10 3:30	B703202-30				
2.	DP13-10	3:40	-31				
3.	DP13-15	3:45	-32				
4.	DP13-18	3:55	-33	X X			
5.	DP14-5	4:30	-34				
6.	DP14-10	4:35	-35				
7.	DP14-15	4:45	-36				
8.	DP14-18	4:55	-37	X X			
9.	VP2-5	1:45	-38				
10.	VP2-10	1:55	-39				
	VP2-15	2:00	-40	X X			

RELINQUISHED BY (Signature): DATE: 3/12/97

PRINT NAME: CRAIG WARE FIRM: ALLSTD TIME: 11:45

RECEIVED BY (Signature): DATE: 3/12/97

PRINT NAME: ANGELA COTE FIRM: TOC TIME: 1445

RELINQUISHED BY (Signature): DATE: 3/12/97

PRINT NAME: Angela Cote FIRM: TOC TIME: 1445

RECEIVED BY (Signature): DATE: 3-12-97

PRINT NAME: LISA HARLEY FIRM: NCA TIME: 1445

ADDITIONAL REMARKS:

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B703202

REPORT TO:
ATTENTION: CRAIG WARE - ALISTO ENGINEERING
ADDRESS: 7160 SW HAZELFERN RD. #120
PTLD, OR 97223-4
PHONE: 503 620 8420 FAX: 620 1929
PROJECT NAME: SUNNYSIDE 1ST & LINCOLN
PROJECT NUMBER: 2-00025-01
SAMPLED BY: CRAIG WARE

INVOICE TO:
ATTENTION: TIME OIL CO. ANGELA COTE'
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 Standard | 3-4 | 2 | 1 | Same Day
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: NWTPH-G	BTEX	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	MW1- 14.5	3/11 9:20	B703202-41	X	X		1	
2.	~~MW1- 16~~	~~9:25~~					1	
3.	~~MW1- 19.5~~	~~9:25~~					1	
4.	~~MW1- 19~~	~~9:30~~					1	
5.	~~MW1- 20-25~~	~~9:45~~					1	
6.	MW1- 22	9:40	-42				1	
7.	MW1- 23.5	9:43	-43				1	
8.	MW1- 25	9:45	-44				1	
9.	MW1- 26.5	9:50	-45				1	
10.	MW1- 28	9:52	-46				1	

RELINQUISHED BY (Signature): [signature] DATE: 3/12/97
PRINT NAME: CRAIG WARE FIRM: ALISTO TIME: 11:45
RECEIVED BY (Signature): Angela M Cote DATE: 3/12/97
PRINT NAME: A COTE FIRM: TOC TIME: 1445

RELINQUISHED BY (Signature): Angela M Cote DATE: 3/12/97
PRINT NAME: A COTE FIRM: TOC TIME: 1445
RECEIVED BY (Signature): Lisa Hanley DATE: 3/12/97
PRINT NAME: LISA HANLEY FIRM: NCA TIME: 1445

ADDITIONAL REMARKS:

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B703202

REPORT TO:
ATTENTION: CRAIG WARE - ALASKA ENGINEERING
ADDRESS: 7160 SW HAZELFERN RD #100
PDX, OR 97223
PHONE: 503 620 5420 FAX: 620 1523
PROJECT NAME: SUNNYSIDE / 1ST & LINCOLN
PROJECT NUMBER: 2002-5-01
SAMPLED BY: CRAIG WARE

INVOICE TO:
ATTENTION: TIME OIL CO. ANGELA COTE
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 Standard | 3-4 | 2 | 1 | Same Day
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: WTPH-G	BTEX	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	MW1-29.5	3/11 9:58	B703202-47				1	
2.	MW2-5	11:05	-48				1	
3.	MW2-10	11:08	-49				1	
4.	MW2-15	11:10	-50	X	X		1	
5.	MW2-20	11:15	-51				1	
6.	MW2-25	11:20	-52				1	
7.	MW3-5	12:20	-53				1	
8.	~~MW3-10~~	~~10:55~~					1	
9.	~~MW3-15~~	~~12:30~~					1	
10.	MW3-20	12:40	-54				1	

RELINQUISHED BY (Signature): DATE: 3/12/97
PRINT NAME: CRAIG WARE FIRM: ALASCO TIME: 11:45
RECEIVED BY (Signature): DATE: 3/12/97
PRINT NAME: ANGELA COTE FIRM: TOC TIME: 1445

RELINQUISHED BY (Signature): DATE: 3/12/97
PRINT NAME: ANGELA COTE FIRM: TOC TIME: 1445
RECEIVED BY (Signature): DATE: 3/12/97
PRINT NAME: LISA HANLEY FIRM: NCA TIME: 1445

ADDITIONAL REMARKS:

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B703202

REPORT TO:
ATTENTION: CRAIG WARE - ALSTO
ADDRESS: 7160 SW Hazelfern Rd. #120
PRD, OR 97224
PHONE: 503 620 8420 FAX: 620 1273
PROJECT NAME: SUNNYSIDE / 15T & LINCOLN
PROJECT NUMBER: 20025-01
SAMPLED BY: CRAIG WARE

INVOICE TO: TIME OIL CO.
ATTENTION: ANGELA CÔTE'
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 Standard | 3-4 | 2 | 1 | Same Day
OTHER Specify
* Turnaround Requests less than standard may incur Rush Charges

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: NWTPH-G	BTEX	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1	MW3-25	3/11 12:45	B703202-55	X	X		2	
2	MW4-10	3:10	-56				2	
3	MW4-15	3:20	-57	X	X		2	
4	MW4-20	3:30	-58				2	
5	MW4-25	3:35	-59	X	X		1	
6	~~MW5-5~~	~~4:45~~						
7	MW5-10	4:45	-60				2	
8	MW5-15	4:50	-61	X	X		2	
9	MW5-20	4:55	-62				1	
10	MW5-25	4:58	-63	X	X		1	

RELINQUISHED BY (Signature): [signature] DATE: 3/12/97
PRINT NAME: CRAIG WARE FIRM: ALSTO TIME: 11:45
RECEIVED BY (Signature): [signature] DATE: 3/12/97
PRINT NAME: ANGELA CÔTE FIRM: TOC TIME: 1145

RELINQUISHED BY (Signature): [signature] DATE: 3/12/97
PRINT NAME: ANGELA CÔTE FIRM: TOC TIME: 1145
RECEIVED BY (Signature): [signature] DATE: 3/12/97
PRINT NAME: LISA HARLEY FIRM: NCA TIME: 1445

ADDITIONAL REMARKS:

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B703202

REPORT TO: ANDREW COTE (FAX TO TCC)
ATTENTION: CRAIG WARE
ADDRESS: 7160 SW HAMPTON RD #206
PTLD, OR 97224
PHONE: 503 620 3472 FAX: 624 1423
PROJECT NAME:
PROJECT NUMBER:
SAMPLED BY:

INVOICE TO: TCC
ATTENTION: ANDREW COTE
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: ~~5~~ Standard | 3-4 | 2 | 1 | Same Day
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: NWTPH-G / BTEX	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	MW6-5	3/12 8:00	B703202-64			1	
2.	MW6-10	8:03	-65			1	
3.	~~MW6-15~~	~~8:07~~				1	
4.	~~MW6-20~~	~~8:10~~				1	
5.	MW6-25	8:12	-66	X X		1	
6.	MW7-10	9:30	-67			1	
7.	MW7-15	9:35	-68	X X		1	
8.	MW7-20	9:38	-69			2	
9.	MW7-25	9:42	-70			1	
10.							

RELINQUISHED BY (Signature): DATE: 3/12/97
PRINT NAME: CRAIG WARE FIRM: AGI TIME: 11:45
RELINQUISHED BY (Signature): DATE: 3/12/97
PRINT NAME: ANDREW COTE FIRM: TCC TIME: 1445

RECEIVED BY (Signature): DATE: 3/12/97
PRINT NAME: ANDREW COTE FIRM: TCC TIME: 1445
RECEIVED BY (Signature): DATE: 3-12-97
PRINT NAME: LISA HARLEY FIRM: NCA TIME: 1445

ADDITIONAL REMARKS:

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B703202

REPORT TO: TOC ANGELA CÔTE (PAY)
ATTENTION: CRAIG WAIZE
ADDRESS: 7160 SW HAZELFERN
PTLD OR 97224
PHONE: 503 620 3402 FAX: 620 1923
PROJECT NAME: SUNSHINE / 1st + LINCOLN (GLA)
PROJECT NUMBER: 20025-01
SAMPLED BY: CRAIG WAIZE

INVOICE TO:
ATTENTION: ~~CRAIG~~ TOC ANGELA CÔTE
ADDRESS:
P.O. NUMBER:
NCA QUOTE #:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 (Standard) | 7 | 5 | 4 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analyses: [✓] 5 (Standard) | 3-4 | 2 | 1 | Same Day

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges

Analysis Request:

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	WTPH-G	BTEX									MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	MW8-10	3/12 10:55	B703202-71												1	
2.	MW8-15	11:00	-72	X	X										1	
3.	MW8-20	11:05	-73												1	
4.	MW8-25	11:10	-74												1	
5.																
6.																
7.																
8.																
9.																
10.																

RELINQUISHED BY (Signature): [signature] DATE: 3/12
PRINT NAME: CRAIG WAIZE FIRM: M.I.S.T.? TIME: 11:45
RECEIVED BY (Signature): Angela M Cote DATE: 3/12/97
PRINT NAME: ANG COTE FIRM: TOC TIME: 1445

RELINQUISHED BY (Signature): Angela M Cote DATE: 3/12/97
PRINT NAME: AM COTE FIRM: TOC TIME: 1445
RECEIVED BY (Signature): Lisa Hurley DATE: 3-12-97
PRINT NAME: LISA HURLEY FIRM: NCA TIME: 1445

ADDITIONAL REMARKS:

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
DP1-5	B702407-01	Soil	2/25/97
DP1-13	B702407-02	Soil	2/25/97
DP2-19.5	B702407-04	Soil	2/25/97
DP3-9.5	B702407-05	Soil	2/25/97
DP4-10	B702407-06	Soil	2/25/97
DP4-17.5	B702407-07	Soil	2/25/97
DP5-13	B702407-08	Soil	2/25/97
DP6-15	B702407-09	Soil	2/25/97
DP7-17	B702407-10	Soil	2/25/97
DP1-H2O	B702407-11	Water	2/25/97
DP2-H2O	B702407-12	Water	2/25/97
DP3-H2O	B702407-13	Water	2/25/97
DP4-H2O	B702407-14	Water	2/25/97
DP7-H2O	B702407-15	Water	2/25/97

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

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

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
DP1-5			**B702407-01**				**Soil**	
Gasoline Range Hydrocarbons	0370109	3/4/97	3/5/97		200	**3680**	mg/kg dry	
Benzene	"	"	"		2.00	**5.07**	"	
Toluene	"	"	"		2.00	**103**	"	
Ethylbenzene	"	"	"		2.00	**60.1**	"	
Xylenes (total)	"	"	"		4.00	**372**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*NR*	*%*	*1*
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*NR*	"	*1*
DP1-13			**B702407-02**				**Soil**	
Gasoline Range Hydrocarbons	0370109	3/4/97	3/5/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*83.6*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*86.0*	"	
DP2-19.5			**B702407-04**				**Soil**	
Gasoline Range Hydrocarbons	0370109	3/4/97	3/5/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	**0.0531**	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	**0.116**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*83.3*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*85.1*	"	
DP3-9.5			**B702407-05**				**Soil**	
Gasoline Range Hydrocarbons	0370109	3/4/97	3/5/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*74.8*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*79.2*	"	
DP4-10			**B702407-06**				**Soil**	
Gasoline Range Hydrocarbons	0370109	3/4/97	3/5/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	**0.391**	"	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
DP4-10 (continued)			**B702407-06**				**Soil**	
Toluene	0370109	3/4/97	3/5/97		0.0500	ND	mg/kg dry	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*82.6*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*88.4*	"	
DP4-17.5			**B702407-07**				**Soil**	
Gasoline Range Hydrocarbons	0370109	3/4/97	3/5/97		25.0	**137**	mg/kg dry	
Benzene	"	"	"		0.250	**1.02**	"	
Toluene	"	"	"		0.250	**13.7**	"	
Ethylbenzene	"	"	"		0.250	**1.56**	"	
Xylenes (total)	"	"	"		0.500	**18.0**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*91.8*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*91.4*	"	
DP5-13			**B702407-08**				**Soil**	
Gasoline Range Hydrocarbons	0370109	3/4/97	3/5/97		1000	**11500**	mg/kg dry	
Benzene	"	"	"		10.0	**136**	"	
Toluene	"	"	"		10.0	**930**	"	
Ethylbenzene	"	"	"		10.0	**251**	"	
Xylenes (total)	"	"	"		20.0	**1360**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*NR*	*%*	*1*
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*NR*	"	*1*
DP6-15			**B702407-09**				**Soil**	
Gasoline Range Hydrocarbons	0370109	3/4/97	3/5/97		50.0	**413**	mg/kg dry	
Benzene	"	"	"		0.500	**10.1**	"	
Toluene	"	"	"		0.500	**41.0**	"	
Ethylbenzene	"	"	"		0.500	**8.68**	"	
Xylenes (total)	"	"	"		1.00	**51.9**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*105*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*89.1*	"	
DP7-17			**B702407-10**				**Soil**	
Gasoline Range Hydrocarbons	0370109	3/4/97	3/5/97		5.00	ND	mg/kg dry	
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	**0.0572**	"	
Ethylbenzene	"	"	"		0.0500	ND	"	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
DP7-17 (continued)			**B702407-10**				**Soil**	
Xylenes (total)	0370109	3/4/97	3/5/97		0.100	**0.112**	mg/kg dry	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*68.9*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*79.8*	"	
DP1-H2O			**B702407-11**				**Water**	
Gasoline Range Hydrocarbons	0370024	3/3/97	3/3/97		1250	**14100**	ug/l	
Benzene	"	"	"		12.5	**1220**	"	
Toluene	"	"	"		12.5	**2170**	"	
Ethylbenzene	"	"	"		12.5	**192**	"	
Xylenes (total)	"	"	"		25.0	**862**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*107*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*85.6*	"	
DP2-H2O			**B702407-12**				**Water**	
Gasoline Range Hydrocarbons	0370024	3/3/97	3/3/97		25000	**210000**	ug/l	
Benzene	"	"	"		250	**15500**	"	
Toluene	"	"	"		250	**41000**	"	
Ethylbenzene	"	"	"		250	**3800**	"	
Xylenes (total)	"	"	"		500	**20900**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*109*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*86.9*	"	
DP3-H2O			**B702407-13**				**Water**	
Gasoline Range Hydrocarbons	0370024	3/3/97	3/3/97		50.0	**136**	ug/l	
Benzene	"	"	"		0.500	**13.7**	"	
Toluene	"	"	"		0.500	**36.1**	"	
Ethylbenzene	"	"	"		0.500	**5.22**	"	
Xylenes (total)	"	"	"		1.00	**11.3**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*110*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*87.5*	"	
DP4-H2O			**B702407-14**				**Water**	
Gasoline Range Hydrocarbons	0370024	3/3/97	3/3/97		50000	**237000**	ug/l	
Benzene	"	"	"		500	**34300**	"	
Toluene	"	"	"		500	**46400**	"	
Ethylbenzene	"	"	"		500	**3940**	"	
Xylenes (total)	"	"	"		1000	**22200**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*109*	*%*	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
DP4-H2O (continued)			**B702407-14**				**Water**	
Surrogate: 4-BFB (PID)	*0370024*	*3/3/97*	*3/3/97*	*50.0-150*		*83.7*	*%*	
DP7-H2O			**B702407-15**				**Water**	
Gasoline Range Hydrocarbons	0370024	3/3/97	3/3/97		50.0	**103**	ug/l	
Benzene	"	"	"		0.500	**6.71**	"	
Toluene	"	"	"		0.500	**3.92**	"	
Ethylbenzene	"	"	"		0.500	**1.36**	"	
Xylenes (total)	"	"	"		1.00	**9.24**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*123*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*95.6*	"	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

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

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
DP1-5			**B702407-01**				**Soil**	
Lead	0270568	2/28/97	3/1/97	EPA 7420	10.0	**11.1**	mg/kg dry	
DP1-H2O			**B702407-11**				**Water**	
Lead	0370041	3/4/97	3/4/97	EPA 7421	0.00200	**0.213**	mg/l	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

Dissolved Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
DP1-H2O			**B702407-11**				**Water**	
Lead	0370069	3/4/97	3/4/97	EPA 7421	0.00200	ND	mg/l	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
DP1-5	B702407-01	Soil	83.2	%
DP1-13	B702407-02	Soil	74.5	%
DP2-19.5	B702407-04	Soil	76.6	%
DP3-9.5	B702407-05	Soil	75.7	%
DP4-10	B702407-06	Soil	77.2	%
DP4-17.5	B702407-07	Soil	79.7	%
DP5-13	B702407-08	Soil	77.4	%
DP6-15	B702407-09	Soil	74.9	%
DP7-17	B702407-10	Soil	78.3	%

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes
Batch: 0370024	**Date Prepared: 3/3/97**					**Extraction Method: EPA 5030**				
Blank	**0370024-BLK1**									
Gasoline Range Hydrocarbons	3/3/97			**ND**	ug/l	**50.0**				
Benzene	"			**ND**	"	**0.500**				
Toluene	"			**ND**	"	**0.500**				
Ethylbenzene	"			**ND**	"	**0.500**				
Xylenes (total)	"			**ND**	"	**1.00**				
Surrogate: 4-BFB (FID)	"	*16.0*		*15.7*	"	*50.0-150*	*98.1*			
Surrogate: 4-BFB (PID)	"	*16.0*		*13.4*	"	*50.0-150*	*83.7*			
LCS	**0370024-BS1**									
Gasoline Range Hydrocarbons	3/3/97	500		478	ug/l	80.0-120	95.6			
Surrogate: 4-BFB (FID)	"	*16.0*		*19.2*	"	*50.0-150*	*120*			
Duplicate	**0370024-DUP1**		**B702407-11**							
Gasoline Range Hydrocarbons	3/3/97		14100	17400	ug/l			25.0	**21.0**	
Surrogate: 4-BFB (FID)	"	*16.0*		*20.3*	"	*50.0-150*	*127*			
Duplicate	**0370024-DUP2**		**B702355-03**							
Gasoline Range Hydrocarbons	3/3/97		ND	ND	ug/l			25.0		
Surrogate: 4-BFB (FID)	"	*16.0*		*14.6*	"	*50.0-150*	*91.3*			
Matrix Spike	**0370024-MS1**		**B702442-01**							
Benzene	3/3/97	10.0	ND	9.23	ug/l	70.0-130	**92.3**			
Toluene	"	10.0	ND	8.87	"	70.0-130	**88.7**			
Ethylbenzene	"	10.0	ND	8.87	"	70.0-130	**88.7**			
Xylenes (total)	"	30.0	ND	26.7	"	70.0-130	**89.0**			
Surrogate: 4-BFB (PID)	"	*16.0*		*14.1*	"	*50.0-150*	*88.1*			
Matrix Spike Dup	**0370024-MSD1**		**B702442-01**							
Benzene	3/3/97	10.0	ND	9.13	ug/l	70.0-130	**91.3**	15.0	**1.09**	
Toluene	"	10.0	ND	8.78	"	70.0-130	**87.8**	15.0	**1.02**	
Ethylbenzene	"	10.0	ND	8.79	"	70.0-130	**87.9**	15.0	**0.906**	
Xylenes (total)	"	30.0	ND	26.4	"	70.0-130	**88.0**	15.0	**1.13**	
Surrogate: 4-BFB (PID)	"	*16.0*		*14.2*	"	*50.0-150*	*88.7*			
Batch: 0370109	**Date Prepared: 3/4/97**					**Extraction Method: MeOH Extraction**				
Blank	**0370109-BLK1**									
Gasoline Range Hydrocarbons	3/4/97			**ND**	mg/kg dry	**5.00**				

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Blank (continued)	0370109-BLK1									
Benzene	3/4/97			ND	mg/kg dry	0.0500				
Toluene	"			ND	"	0.0500				
Ethylbenzene	"			ND	"	0.0500				
Xylenes (total)	"			ND	"	0.100				
Surrogate: 4-BFB (FID)	"	*4.00*		*3.98*	"	*50.0-150*	*99.5*			
Surrogate: 4-BFB (PID)	"	*4.00*		*4.04*	"	*50.0-150*	*101*			
LCS	0370109-BS1									
Gasoline Range Hydrocarbons	3/4/97	25.0		19.7	mg/kg dry	75.0-125	78.8			
Surrogate: 4-BFB (FID)	"	*4.00*		*3.95*	"	*50.0-150*	*98.8*			
Duplicate	0370109-DUP1		B703009-10							
Gasoline Range Hydrocarbons	3/5/97		ND	ND	mg/kg dry			50.0		2
Surrogate: 4-BFB (FID)	"	*4.98*		*4.55*	"	*50.0-150*	*91.4*			
Duplicate	0370109-DUP2		B702407-10							
Gasoline Range Hydrocarbons	3/5/97		ND	ND	mg/kg dry			50.0		2
Surrogate: 4-BFB (FID)	"	*5.11*		*4.16*	"	*50.0-150*	*81.4*			
Matrix Spike	0370109-MS1		B703009-03							
Benzene	3/4/97	0.542	ND	0.515	mg/kg dry	60.0-140	**95.0**			
Toluene	"	0.542	ND	0.517	"	60.0-140	**95.4**			
Ethylbenzene	"	0.542	ND	0.520	"	60.0-140	**95.9**			
Xylenes (total)	"	1.63	ND	1.57	"	60.0-140	**96.3**			
Surrogate: 4-BFB (PID)	"	*4.34*		*4.31*	"	*50.0-150*	*99.3*			
Matrix Spike Dup	0370109-MSD1		B703009-03							
Benzene	3/4/97	0.542	ND	0.521	mg/kg dry	60.0-140	**96.1**	20.0	**1.15**	
Toluene	"	0.542	ND	0.532	"	60.0-140	**98.2**	20.0	**2.89**	
Ethylbenzene	"	0.542	ND	0.532	"	60.0-140	**98.2**	20.0	**2.37**	
Xylenes (total)	"	1.63	ND	1.62	"	60.0-140	**99.4**	20.0	**3.17**	
Surrogate: 4-BFB (PID)	"	*4.34*		*4.42*	"	*50.0-150*	*102*			

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

Total Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0270568	**Date Prepared: 2/28/97**					**Extraction Method: EPA 3050**				
Blank	**0270568-BLK1**									
Lead	3/1/97			**ND**	mg/kg dry	**10.0**				
LCS	**0270568-BS1**									
Lead	3/1/97	25.0		23.5	mg/kg dry	75.0-125	94.0			
Duplicate	**0270568-DUP1**		**B702371-61**							
Lead	3/1/97		234	223	mg/kg dry			20.0	**4.81**	
Matrix Spike	**0270568-MS1**		**B702371-61**							
Lead	3/1/97	29.5	234	286	mg/kg dry	75.0-125	**176**			3
Matrix Spike Dup	**0270568-MSD1**		**B702371-61**							
Lead	3/1/97	29.5	234	264	mg/kg dry	75.0-125	**102**	20.0	**53.2**	4
Batch: 0370041	**Date Prepared: 3/4/97**					**Extraction Method: EPA 3020**				
Blank	**0370041-BLK1**									
Lead	3/4/97			**ND**	mg/l	**0.00200**				
LCS	**0370041-BS1**									
Lead	3/4/97	0.0260		0.0259	mg/l	75.0-125	99.6			
Duplicate	**0370041-DUP1**		**B702417-01**							
Lead	3/4/97		ND	ND	mg/l			20.0		
Matrix Spike	**0370041-MS1**		**B702417-01**							
Lead	3/4/97	0.0260	ND	0.0275	mg/l	70.0-130	**106**			
Matrix Spike Dup	**0370041-MSD1**		**B702417-01**							
Lead	3/4/97	0.0260	ND	0.0269	mg/l	70.0-130	**103**	20.0	**2.87**	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

Dissolved Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0370069	**Date Prepared: 3/4/97**					**Extraction Method: EPA 3020**				
Blank	**0370069-BLK1**									
Lead	3/4/97			**ND**	mg/l	**0.00200**				
LCS	**0370069-BS1**									
Lead	3/4/97	0.0260		0.0228	mg/l	75.0-125	87.7			
Duplicate	**0370069-DUP1**		**B702218-10**							
Lead	3/4/97		0.00236	0.00222	mg/l			20.0	**6.11**	
Matrix Spike	**0370069-MS1**		**B702218-10**							
Lead	3/4/97	0.0260	0.00236	0.0260	mg/l	70.0-130	**90.9**			
Matrix Spike Dup	**0370069-MSD1**		**B702218-10**							
Lead	3/4/97	0.0260	0.00236	0.0269	mg/l	70.0-130	**94.4**	20.0	**3.78**	

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/27/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/6/97 10:41

Notes and Definitions

#	Note
1	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
2	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit.
3	The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch.
4	The RPD value for this QC sample is above the established control limit. Review of associated QC indicates the high RPD does not represent an out-of-control condition for the batch.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

AEN AMERICAN ENVIRONMENTAL NETWORK

PORTLAND DIVISION, 17400 SW UPPER BOONES FERRY RD., SUITE 260, PORTLAND, OR 97224
(503) 624-5449 PHONE (503) 639-6889 FAX

CHAIN OF CUSTODY RECORD B702407

COMPANY ALSTO ENGINEERING
ADDRESS 7160 SW HAZELFERN RD. #100 PTLD, OR 97224
PHONE 503 620 8420 FAX 620 1923
PROJECT NAME/LOCATION TOC SUNNYSIDE / 1ST & LINCOLN
PROJECT NUMBER 20025-01
PROJECT MANAGER JOHN DAY

SAMPLED BY CRAIG WARE (PRINT NAME) _____ (SIGNATURE)
_____ (PRINT NAME) _____ SIGNATURE

TURNAROUND TIME ____ DAY (S)
STANDARD TOC

DATE	TIME	SAMPLE ID/DESCRIPTION		GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	ANALYSES: NWTPH-G	BTEX	TOTAL LEAD	DISSOLVED LEAD	COMMENTS
2/25	9:04	DP1-5	B702407-01	X		1	SOIL	Y	X	X	X		B7
	9:10	DP1-13	-02	X		1			X	X			
	11:30	DP2-15.5	-03	X		1			X	X			HOLD
	11:55	DP2-19.5	-04	X		1			X	X			
	11:25	DP3-9.5	-05	X		1			X	X			
	1:45	DP4-10	-06	X		1			X	X			
	2:25	DP4-17.5	-07	X		1			X	X			
	3:45	DP5-13	-08	X		1			X	X			
	5:10	DP6-15	-09	X		1			X	X			
	6:40	~~DP7~~ DP7-17	-10	X		1			X	X			
	9:35	DP1-H2O	-11	X		4	H2O	Y	X	X	X	X	1 pt container preserved, 1 container not preserved
	12:17	DP2-H2O	-12	X		2			X	X			
	1:00	DP3-H2O	-13	X		2			X	X			
	2:40	DP4-H2O	-14	X		2			X	X			
↓	6:55	DP7-H2O	-15	X		2			X	X			
RESULTS TO: CRAIG WARE		2/24 TB-1 (TRIP)	-16			2	HOLD						

INVOICE TO: TIME OIL

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY
[signature]	2/26/97 5:00	FEDEX	Fed EX	2/27/97 0930	RD Kelley NCA
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	

METHOD OF SHIPMENT: NCA FED-EX OVERNIGHT ACCT

REMARKS: TIME OIL WORK ORDER # E01-068A

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/28/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/4/97 08:21

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
DP2-10.5	B702433-01	Soil	2/25/97

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

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

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/28/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/4/97 08:21

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
DP2-10.5			**B702433-01**				**Soil**	
Gasoline Range Hydrocarbons	0370009	2/28/97	3/3/97		1000	**4660**	mg/kg dry	
Benzene	"	"	"		10.0	**81.1**	"	
Toluene	"	"	"		10.0	**538**	"	
Ethylbenzene	"	"	"		10.0	**115**	"	
Xylenes (total)	"	"	"		20.0	**635**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*NR*	*%*	*1*
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*NR*	"	*1*

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled:	2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received:	2/28/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported:	3/4/97 08:21

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
DP2-10.5	B702433-01	Soil	74.3	%

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/28/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/4/97 08:21

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0370009	**Date Prepared: 2/28/97**					**Extraction Method: MeOH Extraction**				
Blank	**0370009-BLK1**									
Gasoline Range Hydrocarbons	2/28/97			**ND**	mg/kg dry	**5.00**				
Benzene	"			**ND**	"	**0.0500**				
Toluene	"			**ND**	"	**0.0500**				
Ethylbenzene	"			**ND**	"	**0.0500**				
Xylenes (total)	"			**ND**	"	**0.100**				
Surrogate: 4-BFB (FID)	"	*4.00*		*3.99*	"	*50.0-150*	*99.8*			
Surrogate: 4-BFB (PID)	"	*4.00*		*4.00*	"	*50.0-150*	*100*			
LCS	**0370009-BS1**									
Gasoline Range Hydrocarbons	2/28/97	25.0		20.8	mg/kg dry	75.0-125	83.2			
Surrogate: 4-BFB (FID)	"	*4.00*		*4.05*	"	*50.0-150*	*101*			
Duplicate	**0370009-DUP1**	**B702440-02**								
Gasoline Range Hydrocarbons	3/1/97		ND	ND	mg/kg dry			50.0		
Surrogate: 4-BFB (FID)	"	*4.36*		*4.03*	"	*50.0-150*	*92.4*			
Matrix Spike	**0370009-MS1**	**B702380-08**								
Benzene	2/28/97	0.567	ND	0.500	mg/kg dry	60.0-140	**88.2**			
Toluene	"	0.567	ND	0.504	"	60.0-140	**88.9**			
Ethylbenzene	"	0.567	ND	0.507	"	60.0-140	**89.4**			
Xylenes (total)	"	1.70	ND	1.54	"	60.0-140	**90.6**			
Surrogate: 4-BFB (PID)	"	*4.54*		*4.17*	"	*50.0-150*	*91.9*			
Matrix Spike Dup	**0370009-MSD1**	**B702380-08**								
Benzene	2/28/97	0.567	ND	0.503	mg/kg dry	60.0-140	**88.7**	20.0	**0.565**	
Toluene	"	0.567	ND	0.511	"	60.0-140	**90.1**	20.0	**1.34**	
Ethylbenzene	"	0.567	ND	0.511	"	60.0-140	**90.1**	20.0	**0.780**	
Xylenes (total)	"	1.70	ND	1.55	"	60.0-140	**91.2**	20.0	**0.660**	
Surrogate: 4-BFB (PID)	"	*4.54*		*4.12*	"	*50.0-150*	*90.7*			

North Creek Analytical, Inc.

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

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto Engineering Group	Project:	TOC SUNNYSIDE/1ST & LINCOLN	Sampled: 2/25/97
15110 SW Boones Fy. Rd., Suite 180	Project Number:	2002S-01	Received: 2/28/97
Lake Oswego, OR 97035	Project Manager:	Craig Ware	Reported: 3/4/97 08:21

Notes and Definitions

#	Note
1	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

AEN AMERICAN ENVIRONMENTAL NETWORK

PORTLAND DIVISION, 17400 SW UPPER BOONES FERRY RD., SUITE 260, PORTLAND, OR 97224
(503) 624-5449 PHONE (503) 639-6889 FAX

CHAIN OF CUSTODY RECORD B702-13

COMPANY ALSTO ENGINEERING GROUP
ADDRESS 7150 SW HAMPTON RD. #300, PTLD, OR
PHONE 620-8420 FAX 620 1923 770
PROJECT NAME/LOCATION TOC, SUNNYSIDE/17TH & LINCOLN
PROJECT NUMBER 20025-01
PROJECT MANAGER JOHN DAY

SAMPLED BY CRAIG WARE (PRINT NAME) _____ SIGNATURE

(PRINT NAME) _____ SIGNATURE

TURNAROUND TIME ____ DAY (S)
STANDARD TOC

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	ANALYSES: WTPH-G	ANALYSES: BTEX	COMMENTS
2/25	11:00	DPZ-10.5	1		1	SOIL	ice	X	X	B702433-01

RESULTS TO: CRAIG WARE

INVOICE TO: TIME OIL (ANDREA COTE)

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY
[signature]	2/27/97 3:01	TO: FEDEX			
RELINQUISHED BY:	DATE/TIME	RECEIVED BY: 2/28/97 NCAB 11:15	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY:
METHOD OF SHIPMENT		REMARKS: TIME OIL WORK ORDER # E01-068A			

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto	Project:	SUNNYSIDE/1st & LINCOLN	Sampled:	3/13/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01	Received:	3/15/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported:	3/26/97 08:39

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
MW-1	P703240-01	Water	3/13/97
MW-2	P703240-02	Water	3/13/97
MW-3	P703240-03	Water	3/13/97
MW-4	P703240-04	Water	3/13/97
MW-5	P703240-05	Water	3/13/97
MW-6	P703240-06	Water	3/13/97
MW-7	P703240-07	Water	3/13/97
MW-8	P703240-08	Water	3/13/97

Tabatha A Brochu, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto	Project:	SUNNYSIDE/1st & LINCOLN	Sampled: 3/13/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01	Received: 3/15/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 3/26/97 08:39

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
MW-1			P703240-01				Water	
Gasoline Range Hydrocarbons	0370461	3/20/97	3/20/97		80.0	ND	ug/l	
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*90.4*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*91.2*	"	
MW-2			P703240-02				Water	
Gasoline Range Hydrocarbons	0370461	3/20/97	3/21/97		80.0	ND	ug/l	
Benzene	"	"	"		0.500	ND	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*91.6*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*90.0*	"	
MW-3			P703240-03				Water	
Gasoline Range Hydrocarbons	0370514	3/22/97	3/22/97		4000	**12900**	ug/l	
Benzene	"	"	"		25.0	**985**	"	
Toluene	"	"	"		25.0	**2410**	"	
Ethylbenzene	"	"	"		25.0	**384**	"	
Xylenes (total)	"	"	"		50.0	**1540**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*90.0*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*90.0*	"	
MW-4			P703240-04				Water	
Gasoline Range Hydrocarbons	0370514	3/22/97	3/22/97		40000	**122000**	ug/l	
Benzene	"	"	"		250	**19000**	"	
Toluene	"	"	"		250	**29900**	"	
Ethylbenzene	"	"	"		250	**2330**	"	
Xylenes (total)	"	"	"		500	**12100**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*97.6*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*93.6*	"	
MW-5			P703240-05				Water	
Gasoline Range Hydrocarbons	0370514	3/22/97	3/22/97		40000	**100000**	ug/l	
Benzene	"	"	"		250	**9400**	"	

North Creek Analytical, Inc.

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

Tabatha A Brochu, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto	Project:	SUNNYSIDE/1st & LINCOLN	Sampled: 3/13/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01	Received: 3/15/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 3/26/97 08:39

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
MW-5 (continued)			**P703240-05**				**Water**	
Toluene	0370514	3/22/97	3/22/97		250	**23500**	ug/l	
Ethylbenzene	"	"	"		250	**1960**	"	
Xylenes (total)	"	"	"		500	**9950**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*97.8*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*94.0*	"	
MW-6			**P703240-06**				**Water**	
Gasoline Range Hydrocarbons	0370514	3/22/97	3/22/97		40000	**108000**	ug/l	
Benzene	"	"	"		250	**33900**	"	
Toluene	"	"	"		250	**27100**	"	
Ethylbenzene	"	"	"		250	**1860**	"	
Xylenes (total)	"	"	"		500	**10200**	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*95.6*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*95.6*	"	
MW-7			**P703240-07**				**Water**	
Gasoline Range Hydrocarbons	0370480	3/21/97	3/21/97		80.0	ND	ug/l	
Benzene	"	"	"		0.500	**0.793**	"	
Toluene	"	"	"		0.500	**0.685**	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*104*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*95.6*	"	
MW-8			**P703240-08**				**Water**	
Gasoline Range Hydrocarbons	0370461	3/20/97	3/21/97		80.0	ND	ug/l	
Benzene	"	"	"		0.500	**1.29**	"	
Toluene	"	"	"		0.500	ND	"	
Ethylbenzene	"	"	"		0.500	ND	"	
Xylenes (total)	"	"	"		1.00	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*93.0*	*%*	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*90.0*	"	

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto	Project:	SUNNYSIDE/1st & LINCOLN	Sampled: 3/13/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01	Received: 3/15/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 3/26/97 08:39

Total Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-1			**P703240-01**				**Water**	
Lead	0370401	3/18/97	3/19/97	EPA 6020	0.00100	**0.0219**	mg/l	
MW-3			**P703240-03**				**Water**	
Lead	0370401	3/18/97	3/19/97	EPA 6020	0.00100	**0.00195**	mg/l	

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto	Project:	SUNNYSIDE/1st & LINCOLN	Sampled: 3/13/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01	Received: 3/15/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 3/26/97 08:39

Dissolved Metals per EPA 6000/7000 Series Methods
North Creek Analytical - Portland

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
MW-1			**P703240-01**				**Water**	
Lead	0370427	3/19/97	3/20/97	EPA 6020	0.00100	ND	mg/l	
MW-3			**P703240-03**				**Water**	
Lead	0370427	3/19/97	3/20/97	EPA 6020	0.00100	ND	mg/l	

North Creek Analytical, Inc.

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

Tabatha A Brochu, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto	Project:	SUNNYSIDE/1st & LINCOLN	Sampled: 3/13/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01	Received: 3/15/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 3/26/97 08:39

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0370461	**Date Prepared: 3/20/97**					**Extraction Method: EPA 5030**				
Blank	**0370461-BLK1**									
Gasoline Range Hydrocarbons	3/20/97			**ND**	ug/l	**80.0**				
Benzene	"			**ND**	"	**0.500**				
Toluene	"			**ND**	"	**0.500**				
Ethylbenzene	"			**ND**	"	**0.500**				
Xylenes (total)	"			**ND**	"	**1.00**				
Surrogate: 4-BFB (FID)	"	*50.0*		*47.0*	"	*50.0-150*	*94.0*			
Surrogate: 4-BFB (PID)	"	*50.0*		*43.2*	"	*50.0-150*	*86.4*			
LCS	**0370461-BS1**									
Gasoline Range Hydrocarbons	3/20/97	1250		1070	ug/l	50.0-150	85.6			
Surrogate: 4-BFB (FID)	"	*50.0*		*65.6*	"	*50.0-150*	*131*			
LCS	**0370461-BS2**									
Benzene	3/20/97	20.0		20.6	ug/l	67.0-130	103			
Toluene	"	20.0		20.3	"	75.0-126	101			
Ethylbenzene	"	20.0		21.0	"	76.0-124	105			
Xylenes (total)	"	60.0		63.3	"	75.0-126	105			
Surrogate: 4-BFB (PID)	"	*50.0*		*52.5*	"	*50.0-150*	*105*			
Duplicate	**0370461-DUP1**		**P703240-02**							
Gasoline Range Hydrocarbons	3/21/97		ND	ND	ug/l			50.0		
Surrogate: 4-BFB (FID)	"	*50.0*		*45.6*	"	*50.0-150*	*91.2*			
Duplicate	**0370461-DUP2**		**P703240-08**							
Gasoline Range Hydrocarbons	3/21/97		ND	ND	ug/l			50.0		
Surrogate: 4-BFB (FID)	"	*50.0*		*47.8*	"	*50.0-150*	*95.6*			
Matrix Spike	**0370461-MS1**		**P703240-01**							
Benzene	3/20/97	20.0	ND	20.3	ug/l	67.0-130	**101**			
Toluene	"	20.0	ND	19.6	"	75.0-126	**98.0**			
Ethylbenzene	"	20.0	ND	19.8	"	76.0-124	**99.0**			
Xylenes (total)	"	60.0	ND	59.9	"	75.0-126	**99.8**			
Surrogate: 4-BFB (PID)	"	*50.0*		*47.2*	"	*50.0-150*	*94.4*			
Matrix Spike Dup	**0370461-MSD1**		**P703240-01**							
Benzene	3/20/97	20.0	ND	21.6	ug/l	67.0-130	**108**	13.0	**6.70**	
Toluene	"	20.0	ND	19.8	"	75.0-126	**99.0**	13.0	**1.02**	

North Creek Analytical, Inc.

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

Tabatha A Brochu, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto	Project:	SUNNYSIDE/1st & LINCOLN	Sampled: 3/13/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01	Received: 3/15/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 3/26/97 08:39

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Matrix Spike Dup (continued)	**0370461-MSD1**		**P703240-01**							
Ethylbenzene	3/20/97	20.0	ND	20.2	ug/l	76.0-124	**101**	15.0	**2.00**	
Xylenes (total)	"	60.0	ND	60.0	"	75.0-126	**100**	13.0	**0.200**	
Surrogate: 4-BFB (PID)	"	*50.0*		*45.2*	"	*50.0-150*	*90.4*			
Batch: 0370480	**Date Prepared: 3/21/97**					**Extraction Method: EPA 5030**				
Blank	**0370480-BLK1**									
Gasoline Range Hydrocarbons	3/21/97			**ND**	ug/l	**80.0**				
Benzene	"			**ND**	"	**0.500**				
Toluene	"			**ND**	"	**0.500**				
Ethylbenzene	"			**ND**	"	**0.500**				
Xylenes (total)	"			**ND**	"	**1.00**				
Surrogate: 4-BFB (FID)	"	*50.0*		*51.6*	"	*50.0-150*	*103*			
Surrogate: 4-BFB (PID)	"	*50.0*		*49.1*	"	*50.0-150*	*98.2*			
LCS	**0370480-BS1**									
Gasoline Range Hydrocarbons	3/21/97	1250		1120	ug/l	50.0-150	89.6			
Surrogate: 4-BFB (FID)	"	*50.0*		*71.2*	"	*50.0-150*	*142*			
LCS	**0370480-BS2**									
Benzene	3/21/97	20.0		19.2	ug/l	67.0-130	96.0			
Toluene	"	20.0		19.1	"	75.0-126	95.5			
Ethylbenzene	"	20.0		19.5	"	76.0-124	97.5			
Xylenes (total)	"	60.0		58.1	"	75.0-126	96.8			
Surrogate: 4-BFB (PID)	"	*50.0*		*47.0*	"	*50.0-150*	*94.0*			
Batch: 0370514	**Date Prepared: 3/22/97**					**Extraction Method: EPA 5030**				
Blank	**0370514-BLK1**									
Gasoline Range Hydrocarbons	3/21/97			**ND**	ug/l	**80.0**				
Benzene	"			**ND**	"	**0.500**				
Toluene	"			**ND**	"	**0.500**				
Ethylbenzene	3/22/97			**ND**	"	**0.500**				
Xylenes (total)	"			**ND**	"	**1.00**				
Surrogate: 4-BFB (FID)	"	*50.0*		*47.8*	"	*50.0-150*	*95.6*			
Surrogate: 4-BFB (PID)	"	*50.0*		*46.0*	"	*50.0-150*	*92.0*			
LCS	**0370514-BS1**									
Benzene	3/22/97	20.0		18.7	ug/l	67.0-130	93.5			
Toluene	"	20.0		18.6	"	75.0-126	93.0			

North Creek Analytical, Inc.

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

Tabatha A Brochu, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto	Project:	SUNNYSIDE/1st & LINCOLN	Sampled: 3/13/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01	Received: 3/15/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 3/26/97 08:39

Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX per WTPH-G and EPA 8020A/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
LCS (continued)	**0370514-BS1**									
Ethylbenzene	3/22/97	20.0		19.4	ug/l	76.0-124	97.0			
Xylenes (total)	"	60.0		56.3	"	75.0-126	93.8			
Surrogate: 4-BFB (PID)	"	*50.0*		*45.3*	"	*50.0-150*	*90.6*			

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto	Project:	SUNNYSIDE/1st & LINCOLN	Sampled: 3/13/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01	Received: 3/15/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 3/26/97 08:39

Total Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0370401	**Date Prepared: 3/18/97**					**Extraction Method: Metals**				
Blank	**0370401-BLK1**									
Lead	3/18/97			**ND**	mg/l	**0.00100**				
LCS	**0370401-BS1**									
Lead	3/18/97	0.100		0.106	mg/l	80.0-120	106			
Duplicate	**0370401-DUP1**		**P703274-01**							
Lead	3/18/97		ND	ND	mg/l			20.0		
Matrix Spike	**0370401-MS1**		**P703274-01**							
Lead	3/18/97	0.100	ND	0.102	mg/l	75.0-125	**102**			
Matrix Spike	**0370401-MS2**		**P703218-01**							
Lead	3/18/97	0.100	0.0743	0.180	mg/l	75.0-125	**106**			

North Creek Analytical, Inc.

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

Tabatha A Brochu, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto	Project:	SUNNYSIDE/1st & LINCOLN	Sampled: 3/13/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01	Received: 3/15/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 3/26/97 08:39

Dissolved Metals per EPA 6000/7000 Series Methods/Quality Control
North Creek Analytical - Portland

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0370427	**Date Prepared: 3/19/97**					**Extraction Method: EPA 200/3005**				
Blank	**0370427-BLK1**									
Lead	3/20/97			**ND**	mg/l	**0.00100**				
LCS	**0370427-BS1**									
Lead	3/20/97	0.100		0.101	mg/l	80.0-120	101			
Duplicate	**0370427-DUP1**		**P703240-01**							
Lead	3/20/97		ND	ND	mg/l			20.0		
Matrix Spike	**0370427-MS1**		**P703240-01**							
Lead	3/20/97	0.100	ND	0.103	mg/l	75.0-125	**103**			

North Creek Analytical, Inc.

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

Tabatha A Brochu, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Alisto	Project:	SUNNYSIDE/1st & LINCOLN	Sampled: 3/13/97
7160 SW Hazelfern Rd., #700	Project Number:	20025-01	Received: 3/15/97
Portland, OR 97224	Project Manager:	Craig Ware	Reported: 3/26/97 08:39

Notes and Definitions

#	Note

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # P703240

REPORT TO:
ATTENTION: CRAIG WARE - ALISTO
ADDRESS: 7160 SW HAZELFERN RD #700
PORTLAND, OR 97224
PHONE: 620 8420 FAX: 620 1923
PROJECT NAME: SUNNYSIDE / 1ST & LINCOLN
PROJECT NUMBER: 7D025-01
SAMPLED BY: CRAIG WARE

INVOICE TO: TIME OIL
ATTENTION: ANDREA CÔTÉ
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: [10] Standard | [7] | [5] | [4] | [3] | [2] | [1] | [Same Day]
Fuels & Hydrocarbon Analyses: [X] Standard | [3-4] | [2] | [1] | [Same Day]
[OTHER] Specify:
* *Turnaround Requests less than standard may incur Rush Charges.*

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	BTEX	NWTPH-G	TOTAL Pb	DISSOLVED Pb	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1. MW-1	3/13 1:40		X	X	X	X	H2O	5	
2. MW-2	2:05		X	X				3	
3. MW-3	2:45		X	X	X	X		5	
4. MW-4	3:05		X	X				3	
5. MW-5	2:25		X	X				3	
6. MW-6	3:20		X	X				3	
7. MW-7	3:10		X	X				3	
8. MW-8	2:35		X	X				3	
9.									
10.									

RELINQUISHED BY (Signature): DATE: 3/15/97
PRINT NAME: CRAIG WARE FIRM: ALISTO TIME: 10.37

RECEIVED BY (Signature): M Caroopi DATE: 3 15 97
PRINT NAME: MUSTAHSAN R FAROOQUI FIRM: NCA TIME: 10.37

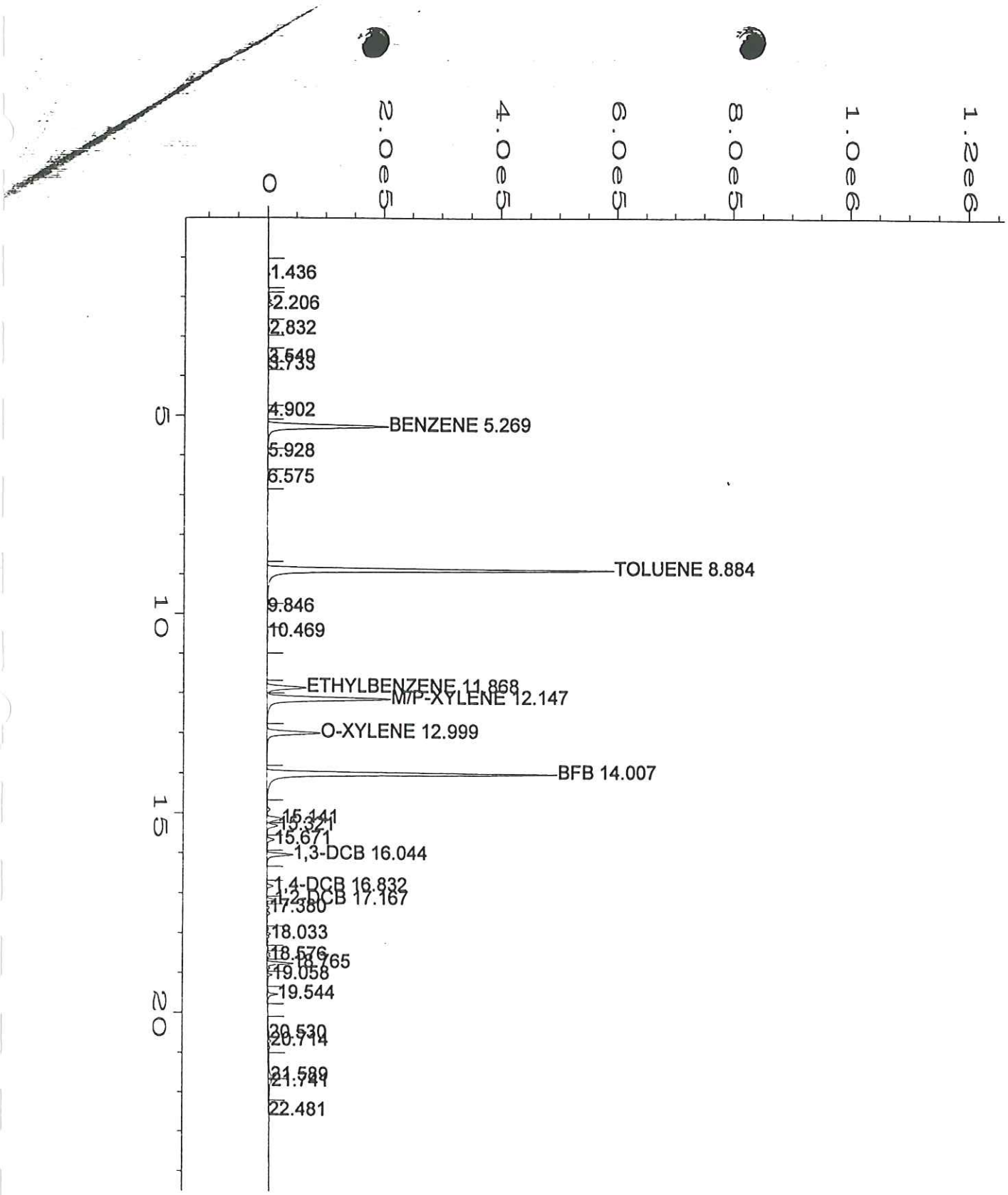
RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

PAGE OF

COC Rev 8, 1/96

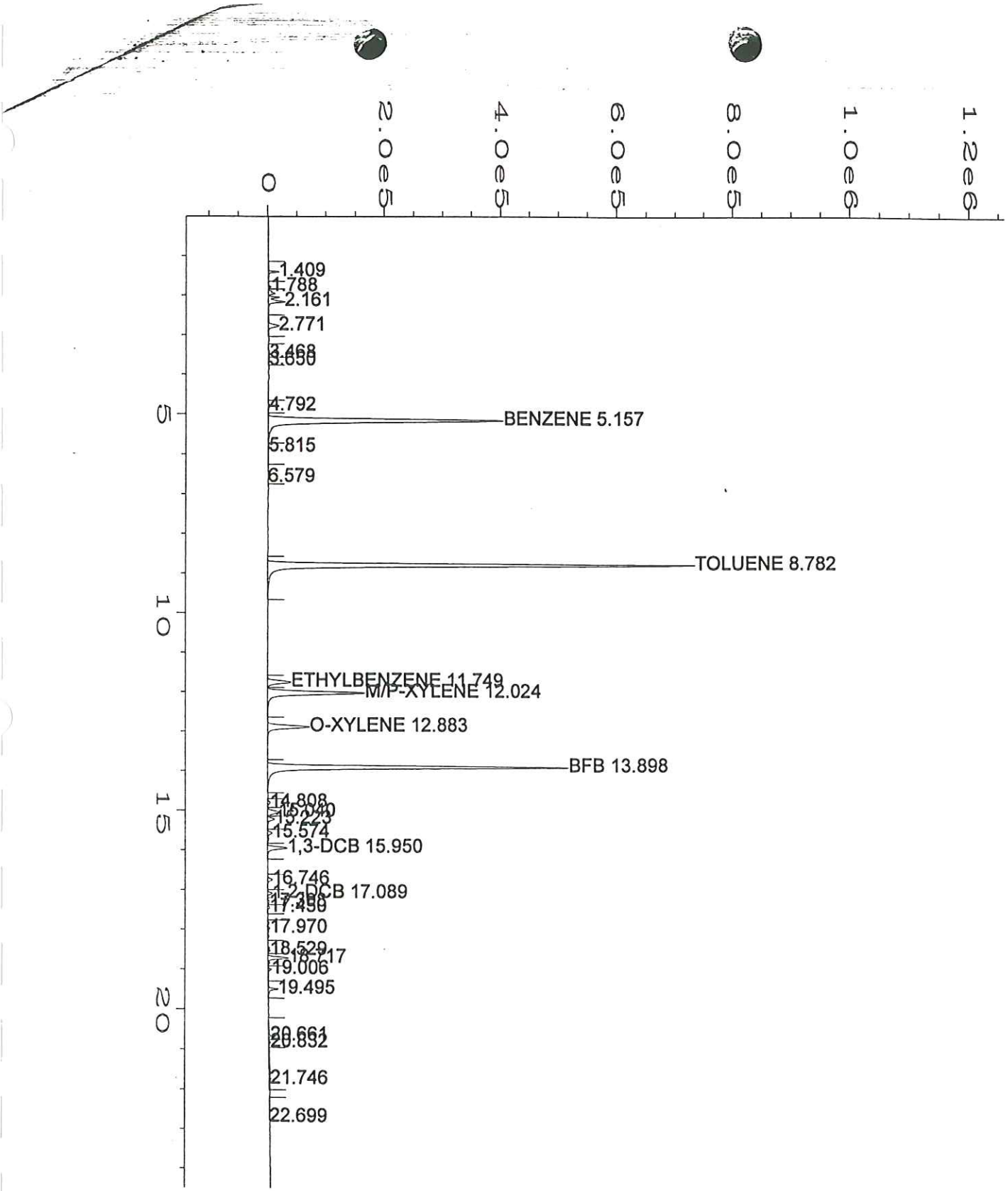


Data File Name : C:\HPCHEM\3\DATA\NV-R0112.D
Operator : NMS
Instrument : GC3
Sample Name : P703240-3c R-2
Run Time Bar Code:
Acquired on : 22 Mar 97 01:09 PM
Report Created on: 24 Mar 97 06:16 PM
Last Recalib on : 20 MAR 97 03:33 PM
Multiplier : 1
Sample Info : ALISTO
MW-3

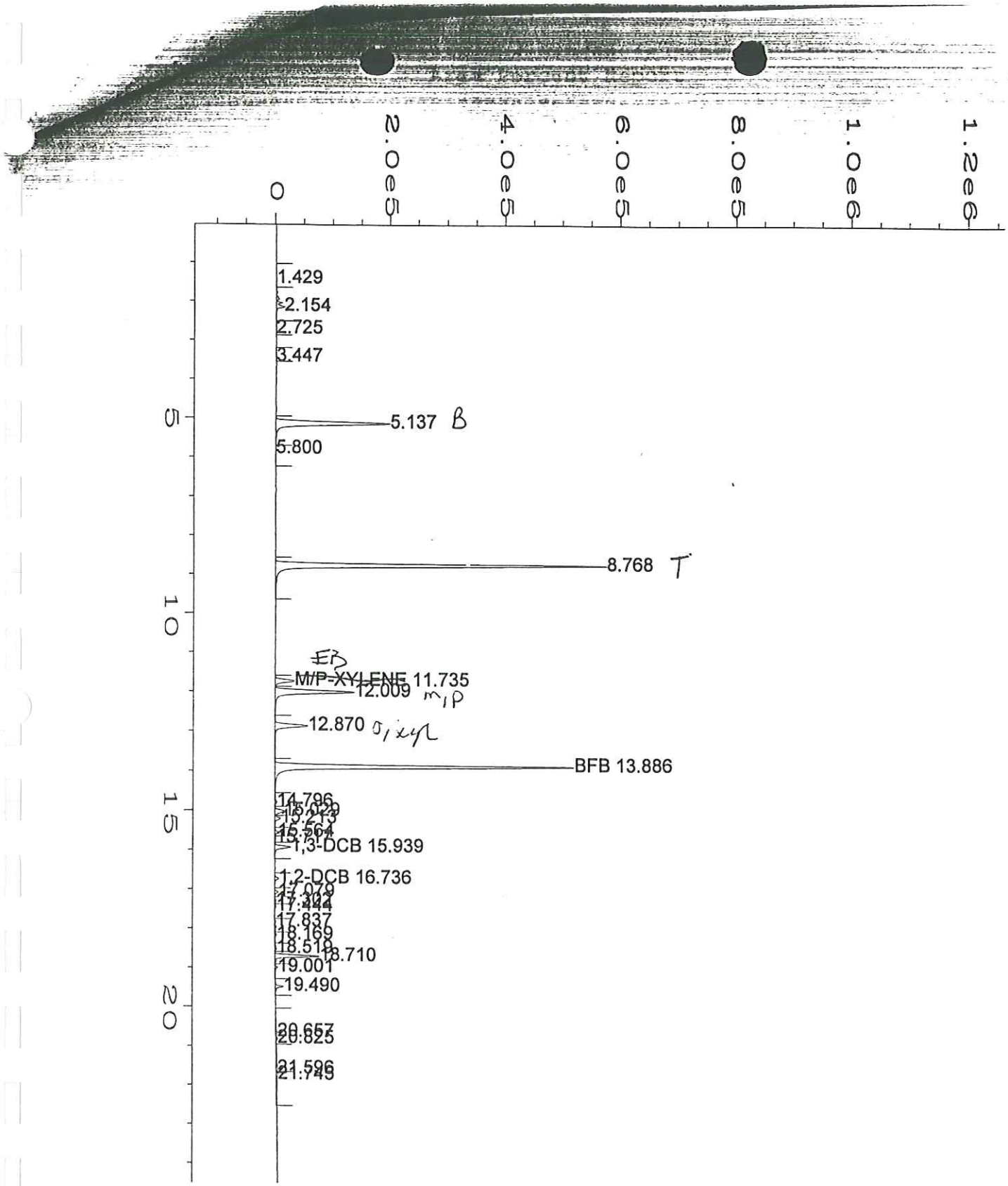
Page Number : 1
Vial Number :
Injection Number :
Sequence Line :
Instrument Method: WTPH-G3.MTH
Analysis Method : TPH-G3.MTH
Sample Amount : 0
ISTD Amount :

100UL

BTEX/WA-G

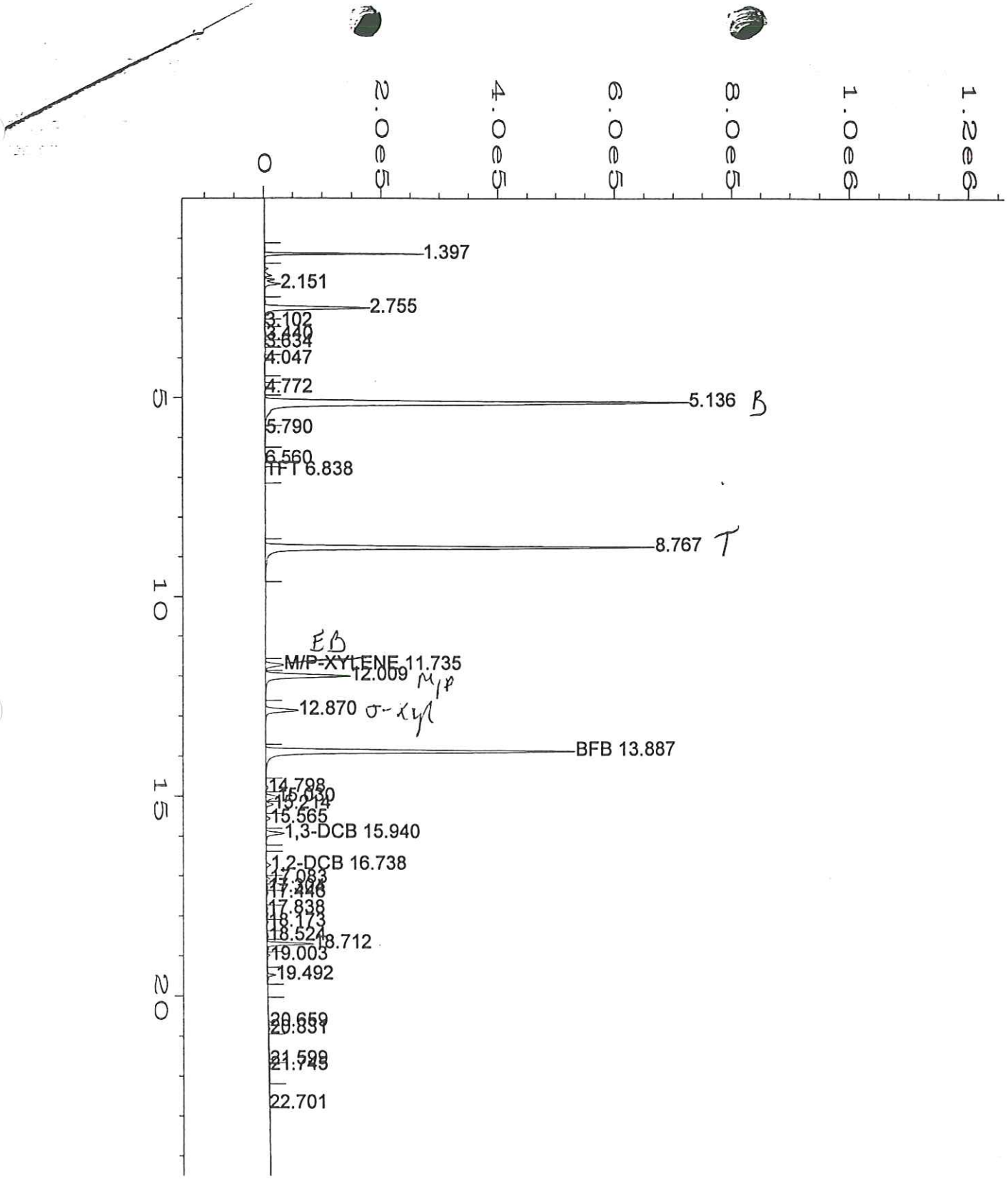


Data File Name	: C:\HPCHEM\3\DATA\S032297\007R0101.D		
Operator	: NMS	Page Number	: 1
Instrument	: GC3	Vial Number	: 7
Sample Name	: P703240-4c R-2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Mar 97 01:41 PM	Instrument Method	: WTPH-G3.MTH
Report Created on	: 24 Mar 97 09:58 AM	Analysis Method	: TPH-G3.MTH
Last Recalib on	: 20 MAR 97 03:33 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:
Sample Info	: ALISTO		BTEX/WA-G



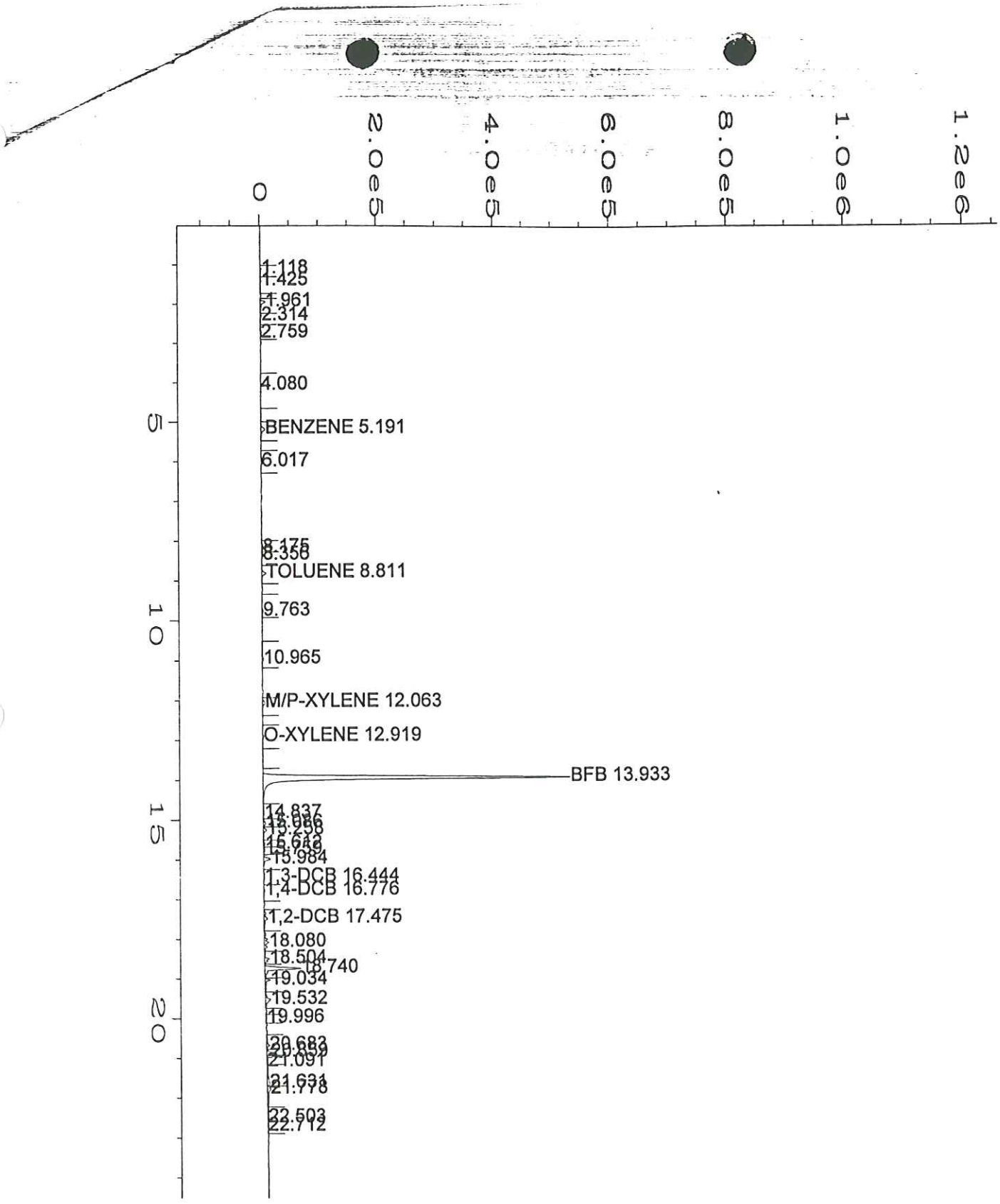
Data File Name	: C:\HPCHEM\3\DATA\S032297\008R0101.D		
Operator	: NMS	Page Number	: 1
Instrument	: GC3	Vial Number	: 8
Sample Name	: P703240-5c R-2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Mar 97 02:14 PM	Instrument Method	: WTPH-G3.MTH
Report Created on	: 22 Mar 97 02:39 PM	Analysis Method	: TPH-G3.MTH
Last Recalib on	: 20 MAR 97 03:33 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:
Sample Info	: ALISTO		BTEX/WA-G

MW-5 10UL



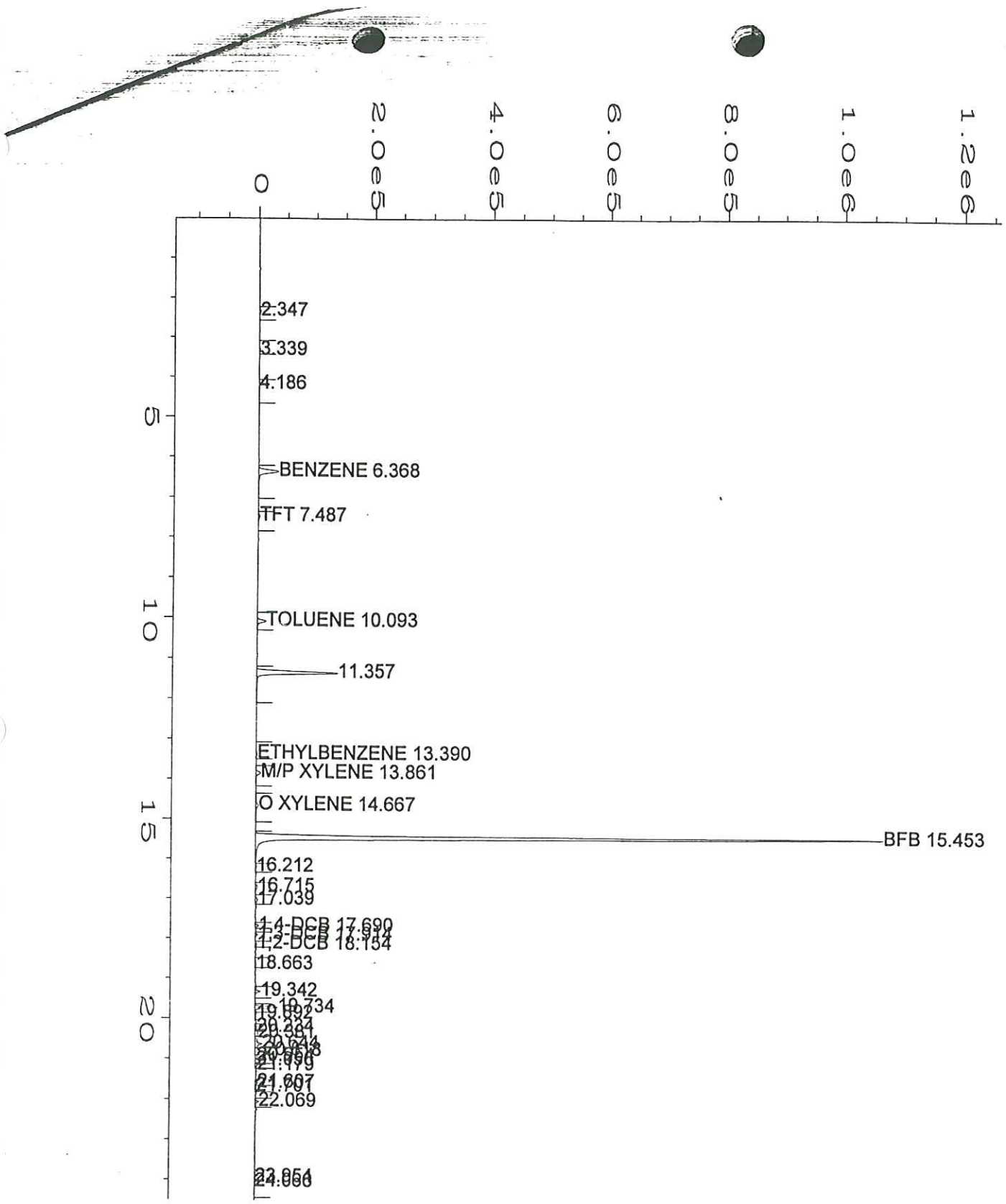
Data File Name	: C:\HPCHEM\3\DATA\S032297\009R0101.D		
Operator	: NMS	Page Number	: 1
Instrument	: GC3	Vial Number	: 9
Sample Name	: P703240-6c R-2	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 22 Mar 97 02:46 PM	Instrument Method	: WTPH-G3.MTH
Report Created on	: 22 Mar 97 03:12 PM	Analysis Method	: TPH-G3.MTH
Last Recalib on	: 20 MAR 97 03:33 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:
Sample Info	: ALISTO		BTEX/WA-G

MW-6 10UL



Data File Name	: C:\HPCHEM\3\DATA\S032197\023R0101.D		
Operator	: BSJ	Page Number	: 1
Instrument	: GC3	Vial Number	: 23
Sample Name	: P703240-7b C-1	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 21 Mar 97 11:55 PM	Instrument Method	: WTPH-G3.MTH
Report Created on	: 22 Mar 97 00:21 AM	Analysis Method	: TPH-G3.MTH
Last Recalib on	: 20 MAR 97 03:33 PM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:
Sample Info	: ALISTO		BTEX

MW-7 5.0mL



Data File Name : C:\HPCHEM\1\DATA\S032097\036R0101.D
Operator : BSJ
Instrument : GC1
Sample Name : P703240-8a
Run Time Bar Code:
Acquired on : 21 Mar 97 07:56 AM
Report Created on: 21 Mar 97 08:22 AM
Last Recalib on : 16 JAN 97 11:40 AM
Multiplier : 1
Sample Info : ALISTO
MW-8

Page Number : 1
Vial Number : 36
Injection Number : 1
Sequence Line : 1
Instrument Method: WTPH-G1.MTH
Analysis Method : TPH-G1.MTH
Sample Amount : 0
ISTD Amount :

WAG/BTEX

5.0mL

ITS Intertek Testing Services
Caleb Brett

Charles M. Dean
1941 Freeman Ave Suite A
Signal Hill, California 90804

March 6, 1997

Alisto Engineering
Attn : Craig Ware
7160 S.W. Hazelfern Road Suite 700
Portland, Or 97224

Craig

On March 4, we received two samples for Detailed Hydrocarbon Analysis (DHA). The samples were dark with an odor of gasoline. Both samples had a light colored sediment at the bottom of the container. The samples were frozen and passed through a fast filter to remove any suspended solids. Both samples were analyzed by DHA and a duplicate sample was spiked with approximately 1% of Trichloroethylene (TCE).

The results for the analysis follows:

Both samples were found to contain approximately 2% of butane and 4% pentane. Sample 1654 "DPLPH" contained slightly less C4 and C5. The carbon number distribution (C4 to C10) and relative amounts are consistent with a gasoline sample. In addition, the samples were compared to the spiked sample, and no TCE was detected in the samples.

Thank You

C M Dean

Charles M. Dean
Laboratory Manager

Detailed Hydrocarbon Analysis (DHAX)
Inchcape Testing Services - Signal Hill

File: 001R0101 Sample: 97-1564 DP5LPH Analyzed: 04 Mar 97 01:20 PM
Method: CRYODHA.MTH Processed 400 Peaks Reported: 03-04-1997 17:15:28
DHA DBase File: QCDBASE.CSV Normalized to 100.00%

Comments: Alisto

Composite Report
Totals by Group Type & Carbon Number
(in Volume Percent)

	Paraffins:	I-paraffins:	Aromatics:	Naphthenes:	Olefins:	Total:
C1:	0.000	0.000	0.000	0.000	0.000	0.074
C2:	0.010	0.000	0.000	0.000	0.000	0.010
C3:	0.032	0.000	0.000	0.000	0.041	0.073
C4:	2.272	0.331	0.000	0.000	0.219	2.828
C5:	4.637	7.339	0.000	0.577	2.672	15.420
C6:	3.533	9.227	2.291	2.780	2.329	20.160
C7:	1.501	5.368	8.369	1.667	1.556	18.461
C8:	0.715	6.044	11.028	1.513	0.300	19.600
C9:	0.286	1.948	7.900	0.679	0.151	10.964
C10:	0.154	0.942	3.701	0.248	0.013	5.058
C11:	0.000	0.259	0.895	0.068	0.000	1.222
C12:	0.054	0.181	0.416	0.000	0.000	0.651
C13:	0.041	0.000	0.000	0.000	0.000	0.041
Total:	13.236	31.640	34.601	7.532	7.281	94.290

Oxygenates: 0.275 Total C14+: 0.648 Total Unknowns: 4.787
Grand Total: 100.000

(in Mole Percent)

	Paraffins:	I-paraffins:	Aromatics:	Naphthenes:	Olefins:	Total:
C1:	0.000	0.000	0.000	0.000	0.000	0.235
C2:	0.015	0.000	0.000	0.000	0.000	0.015
C3:	0.047	0.000	0.000	0.000	0.063	0.110
C4:	2.899	0.407	0.000	0.000	0.306	3.619
C5:	5.157	8.074	0.000	0.785	3.223	17.449
C6:	3.463	9.021	3.303	3.197	2.488	21.472
C7:	1.312	4.682	10.089	1.647	1.444	19.175
C8:	0.564	4.766	11.546	1.335	0.245	18.456
C9:	0.205	1.405	7.339	0.538	0.107	9.594
C10:	0.101	0.622	3.207	0.181	0.009	4.121
C11:	0.000	0.158	0.738	0.045	0.000	0.941
C12:	0.031	0.103	0.292	0.000	0.000	0.426
C13:	0.022	0.000	0.000	0.000	0.000	0.022
Total:	13.815	29.238	36.515	7.730	7.884	95.182

Oxygenates: 0.452 Total C14+: 0.319 Total Unknowns: 4.046
Grand Total: 100.000

Components Listed in Chromatographic Order

Min.	INDEX	Component	Mass%	Vol%	Mol%
12.896	577.2	4-methyl-t-pentene-2	0.129	0.144	0.148
13.454	586.7	3-methylpentane	2.653	2.993	2.956
13.718	591.0	2-methylpentene-1	0.192	0.210	0.219
13.767	591.7	hexene-1	0.166	0.183	0.189
13.900	593.8	i-butanol	0.006	0.005	0.007
13.976	595.0	?	0.010	0.009	0.013
14.125	597.3	1c/t,4-hexadiene	0.012	0.013	0.014
14.300	600.0	n-hexane	3.108	3.533	3.463
14.435	602.8	t-hexene-3	0.182	0.200	0.208
14.556	605.3	t-hexene-2	0.266	0.292	0.304
14.675	607.7	2-methylpentene-2	0.383	0.416	0.437
14.802	610.3	3-methyl-c-pentene-2	0.228	0.245	0.260
15.010	614.4	c-hexene-2	0.154	0.166	0.175
15.132	616.7	?	0.013	0.014	0.014
15.329	620.5	?	0.296	0.321	0.338
15.495	623.7	2,2-dimethylpentane	0.151	0.168	0.145
15.580	625.2	methylcyclopentane	2.155	2.157	2.458
15.842	630.1	2,4-dimethylpentane	0.758	0.844	0.726
15.964	632.3	2,3,3-trimethylbutene-1	0.012	0.013	0.012
16.069	634.2	2,2,3-trimethylbutane	0.050	0.054	0.048
16.159	635.8	?	0.012	0.013	0.011
16.263	637.6	cyclic diolefin or triolefin	0.013	0.013	0.015
16.475	641.3	O17	0.014	0.014	0.015
16.528	642.2	3,4-dimethylpentene-1	0.023	0.024	0.022
16.755	646.1	4,4-dimethyl-c-pentene-2	0.026	0.028	0.025
16.807	646.9	2,4-dimethylpentene-1	0.021	0.023	0.021
16.874	648.1	1-methylcyclopentene	0.291	0.280	0.340
16.943	649.2	benzene	2.687	2.291	3.303
17.118	652.1	3-methylhexene-1	0.016	0.017	0.015
17.221	653.8	3,3-dimethylpentane	0.144	0.155	0.138
17.306	655.2	5-methylhexene-1	0.037	0.040	0.036
17.429	657.1	cyclohexane	0.648	0.624	0.739
17.648	660.6	2-methyl-t-hexene-3	0.055	0.060	0.054
17.740	662.1	2-ethyl-3-methylbutene-1	0.013	0.013	0.013
17.819	663.3	4-methylhexene-1	0.043	0.046	0.042
17.979	665.8	4-methyl-t/c-hexene-2	0.087	0.093	0.085
18.072	667.2	2-methylhexane	1.696	1.872	1.625
18.149	668.4	?	1.343	1.483	1.287
18.303	670.7	1,1-dimethylcyclopentane	0.067	0.067	0.066
18.466	673.1	cyclohexene	0.053	0.049	0.062
18.630	675.5	3-methylhexane	1.863	2.032	1.785
18.873	679.1	3,4-dimethyl-c-pentene-2	0.040	0.042	0.039
19.025	681.3	1c,3-dimethylcyclopentane	0.321	0.323	0.314
19.217	684.0	1t,3-dimethylcyclopentane	0.282	0.282	0.276
19.333	685.6	3-ethylpentane	0.226	0.242	0.216
19.412	686.7	1t,2-dimethylcyclopentane	0.260	0.259	0.254
19.516	688.2	2,2,4-trimethylpentane	1.559	1.689	1.310
19.998	694.7	3-methyl-c-hexene-3	0.059	0.061	0.058
20.272	698.4	t-heptene-3	0.201	0.215	0.197
20.395	700.0	n-heptane	1.369	1.501	1.312
20.569	702.0	3-methyl-c-hexene-2	0.221	0.232	0.216
20.654	703.0	3-methyl-t-hexene-3	0.081	0.087	0.079

ICE Region

Detailed Hydrocarbon Analysis (DHAX)
Inchcape Testing Services - Signal Hill

File: 001R0101 Sample: 97-1565 DP6LPH Analyzed: 04 Mar 97 10:48 AM
Method: CRYODHA.MTH Processed 392 Peaks Reported: 03-04-1997 17:13:35
DHA DBase File: QCDBASE.CSV Normalized to 100.00%

Comments: Alisto

Composite Report
Totals by Group Type & Carbon Number
(in Volume Percent)

	Paraffins:	I-paraffins:	Aromatics:	Naphthenes:	Olefins:	Total:
C1:	0.000	0.000	0.000	0.000	0.000	0.000
C2:	0.000	0.000	0.000	0.000	0.000	0.000
C3:	0.014	0.000	0.000	0.000	0.002	0.015
C4:	3.700	0.613	0.000	0.000	0.305	4.623
C5:	5.051	8.501	0.000	0.582	2.977	17.209
C6:	3.496	9.212	2.039	2.718	2.363	19.828
C7:	1.451	5.201	7.943	1.622	1.595	17.811
C8:	0.691	5.869	10.470	1.396	0.289	18.716
C9:	0.260	1.789	7.404	0.642	0.121	10.217
C10:	0.133	0.811	3.393	0.205	0.009	4.551
C11:	0.000	0.232	0.836	0.055	0.000	1.123
C12:	0.050	0.169	0.457	0.000	0.000	0.675
C13:	0.036	0.000	0.000	0.000	0.000	0.036
Total:	14.882	32.395	32.543	7.221	7.661	94.703

Oxygenates: 0.102 Total C14+: 0.965 Total Unknowns: 4.230
Grand Total: 100.000

(in Mole Percent)

	Paraffins:	I-paraffins:	Aromatics:	Naphthenes:	Olefins:	Total:
C1:	0.000	0.000	0.000	0.000	0.000	0.000
C2:	0.000	0.000	0.000	0.000	0.000	0.000
C3:	0.020	0.000	0.000	0.000	0.002	0.022
C4:	4.700	0.750	0.000	0.000	0.421	5.878
C5:	5.592	9.310	0.000	0.789	3.571	19.366
C6:	3.412	8.965	2.926	3.111	2.518	20.932
C7:	1.263	4.516	9.532	1.596	1.475	18.381
C8:	0.542	4.609	10.914	1.227	0.236	17.527
C9:	0.185	1.286	6.847	0.506	0.086	8.911
C10:	0.087	0.533	2.928	0.149	0.006	3.704
C11:	0.000	0.141	0.687	0.036	0.000	0.864
C12:	0.028	0.095	0.319	0.000	0.000	0.443
C13:	0.019	0.000	0.000	0.000	0.000	0.019
Total:	15.847	30.204	34.153	7.416	8.315	95.935

Oxygenates: 0.111 Total C14+: 0.473 Total Unknowns: 3.481
Grand Total: 100.000

Components Listed in Chromatographic Order

Min.	INDEX	Component	Mass%	Vol%	Mol%
14.114	597.1	1c/t,4-hexadiene	0.008	0.008	0.009
14.302	600.0	n-hexane	3.106	3.496	3.412
14.435	602.8	t-hexene-3	0.186	0.202	0.209
14.557	605.3	t-hexene-2	0.272	0.296	0.306
14.676	607.7	2-methylpentene-2	0.390	0.418	0.438
14.803	610.2	3-methyl-c-pentene-2	0.186	0.198	0.210
14.852	611.2	3-methylcyclopentene	0.047	0.045	0.054
15.012	614.4	c-hexene-2	0.155	0.167	0.175
15.131	616.7	?	0.006	0.006	0.007
15.330	620.5	?	0.291	0.312	0.328
15.399	621.8	3,3-dimethylpentene-1	0.007	0.007	0.006
15.497	623.7	2,2-dimethylpentane	0.151	0.166	0.143
15.582	625.2	methylcyclopentane	2.135	2.117	2.402
15.844	630.1	2,4-dimethylpentane	0.749	0.826	0.708
15.966	632.3	2,3,3-trimethylbutene-1	0.011	0.012	0.011
16.072	634.2	2,2,3-trimethylbutane	0.047	0.050	0.044
16.165	635.8	?	0.011	0.012	0.010
16.264	637.6	cyclic diolefin or triolefin	0.014	0.015	0.016
16.478	641.3	O17	0.008	0.008	0.009
16.535	642.3	3,4-dimethylpentene-1	0.015	0.016	0.015
16.758	646.1	4,4-dimethyl-c-pentene-2	0.028	0.029	0.027
16.809	646.9	2,4-dimethylpentene-1	0.019	0.021	0.019
16.876	648.1	1-methylcyclopentene	0.298	0.284	0.344
16.945	649.2	benzene	2.414	2.039	2.926
17.010	650.3	3-ethylpentene-1	0.028	0.029	0.027
17.117	652.0	3-methylhexene-1	0.014	0.015	0.013
17.223	653.8	3,3-dimethylpentane	0.140	0.150	0.132
17.309	655.2	5-methylhexene-1	0.035	0.037	0.034
17.431	657.1	cyclohexane	0.631	0.601	0.709
17.650	660.6	2-methyl-t-hexene-3	0.049	0.053	0.048
17.746	662.1	2-ethyl-3-methylbutene-1	0.012	0.012	0.011
17.822	663.3	4-methylhexene-1	0.041	0.043	0.040
17.981	665.8	4-methyl-t/c-hexene-2	0.085	0.090	0.082
18.075	667.2	2-methylhexane	1.661	1.817	1.569
18.152	668.4	?	1.311	1.434	1.239
18.305	670.7	1,1-dimethylcyclopentane	0.059	0.058	0.057
18.468	673.1	cyclohexene	0.049	0.045	0.056
18.632	675.5	3-methylhexane	1.813	1.959	1.713
18.745	677.2	1,6-heptadiene	0.004	0.004	0.004
18.874	679.1	3,4-dimethyl-c-pentene-2	0.037	0.039	0.036
19.027	681.3	1c,3-dimethylcyclopentane	0.310	0.309	0.299
19.219	684.0	1t,3-dimethylcyclopentane	0.272	0.269	0.262
19.335	685.6	3-ethylpentane	0.219	0.232	0.207
19.414	686.7	1t,2-dimethylcyclopentane	0.251	0.248	0.242
19.518	688.2	2,2,4-trimethylpentane	1.475	1.582	1.222
19.605	689.4	?	0.038	0.041	0.032
19.840	692.6	1,5-heptadiene	0.003	0.003	0.003
20.000	694.7	3-methyl-c-hexene-3	0.055	0.057	0.053
20.275	698.4	t-heptene-3	0.201	0.212	0.193
20.397	700.0	n-heptane	1.336	1.451	1.263
20.571	702.0	3-methyl-c-hexene-2	0.219	0.228	0.211
20.656	703.0	3-methyl-t-hexene-3	0.079	0.085	0.076

CE region

APPENDIX G

WASHINGTON DEPARTMENT OF ECOLOGY WATER WELL LOGS

110 File Original and First Copy with the Division of Water Management
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

Application No. ....

STATE OF WASHINGTON

Permit No. ....

(1) OWNER: Name Sunnyside Port District Address Box 353; Sunnyside, Washington

(2) LOCATION OF WELL: County Yakima SW ¼ NW ¼ Sec. 36 T. 10 N., R. 22E. W.M.

Bearing and distance from section or subdivision corner 750' NNE of W ¼ Corner Sec. 36

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☒ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 24" - 8" inches.
Drilled 1,057 ft. Depth of completed well 1,057 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 24 " Diam. from 0 ft. to 98'7" ft.
Threaded ☐ 20 " Diam. from 0 ft. to 421'6" ft.
Welded ☒ 16 " Diam. from 0 ft. to 541'2" ft.

Perforations: Yes ☒ No ☐
Type of perforator used ....
SIZE of perforations .... in. by .... in.
.... perforations from .... ft. to .... ft.
.... perforations from .... ft. to .... ft.
.... perforations from .... ft. to .... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ....
Type .... Model No. ....
Diam. .... Slot size .... from .... ft. to .... ft.
Diam. .... Slot size .... from .... ft. to .... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ....
Gravel placed from .... ft. to .... ft.

Surface seal: Yes ☒ No ☐ To what depth? 541 ft.
Material used in seal Cement
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? .... Depth of strata ....
Method of sealing strata off ....

(7) PUMP: Manufacturer's Name ....
Type: .... H.P. ....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... 720 ft.
Static level .... ft. below top of well Date ....
Artesian pressure 4 lbs. per square inch Date 3-13-74
Artesian water is controlled by Cap and Valve (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? driller
Yield: 458 gal./min. with 300 ft. drawdown after 8 hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 7 Nov 73
Bailer test .... gal./min. with .... ft. drawdown after .... hrs.
Artesian flow 30 g.p.m. Date 7 Nov 73
Temperature of water 75 Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Soil	0	5
Gray Sand and Silt	5	11
Brown Silt, Trace Fine Sand	11	52
Brown Silt and Coarse Sand	52	69
Brown Silt	69	71
Brown Silt and Coarse Sand	71	88
Red Sand and Silt	88	91
Brown Silt, Sand & Small Gravel	91	118
Light Brown Clay, Sand, and	118	
Small Gravel		186
Light Brown Sticky Clay and	186	
Small Gravel		216
Blue Clay	216	249
Brown Clay	249	257
Green Brown Clay and Sand	257	280
Hard Green Brown Sandstone	280	299
Soft Brown Sandstone	299	321
Green Brown Clay	321	354
Blue Clay	354	389
Dark Brown Clay	389	445
Blue Clay	445	534
Gray Basalt Rock	534	540
Hard Gray Basalt Rock	540	678
Hard, Sticky Blue Clay	678	731
White fine Sand	731	
(Well started flowing)		739
Gray Sticky Clay	739	818
Hard Gray Basalt Rock	818	903
Cracks in Gray Basalt Rock	903	
(Well started flowing over		
12" Pipe)		906
Very Hard Gray Basalt Rock	906	941
Gray-Black Hard Rock and Cinders	941	
(Caving Formation)		967
Very Hard Gray Basalt Rock	967	1010

Work started 24 Nov, 19 72 Completed 13 Mar, 19 74

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME .... (Person, firm, or corporation) (Type or print)

Address ....

[Signed] .... (Well Driller)

License No. .... Date ...., 19..........

(USE ADDITIONAL SHEETS IF NECESSARY)

3/25/74

S. F. No. 7356—OS—(Rev. 5-69)—5-69.

File Original and First Copy with the Division of Water Management
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT Page 2 of 2

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Sunnyside Port District Address Box 353 Sunnyside, Washington

LOCATION OF WELL: County ..... SW¼ NW¼ Sec. 36 T. [illegible] N., R. 22 W.M.

...ing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☐ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well ..... inches.
Drilled ..... ft. Depth of completed well ..... ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 12 " Diam. from 0 ft. to 828 ft.
Threaded ☐ 10 " Diam. from 767 ft. to 967 ft.
Welded ☒ 8 " Diam. from 926 ft. to 1026 ft.

Perforations: Yes ☒ No ☐
Type of perforator used Torch
SIZE of perforations ½ in. by 4 in.
4 per/ft perforations from 887 ft. to 927 ft.
6 per/ft perforations from 986 ft. to 1026 ft.
..... perforations from ..... ft. to ..... ft.

Screens: Yes ☐ No ☐
Manufacturer's Name .....
Type ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

Gravel packed: Yes ☐ No ☐ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

Surface seal: Yes ☐ No ☐ To what depth? ..... ft.
Material used in seal .....
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

(7) PUMP: Manufacturer's Name .....
Type: ..... H.P. .....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level ..... ft. below top of well Date .....
Artesian pressure ..... lbs. per square inch Date .....
Artesian water is controlled by ..... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☒ No ☐ If yes, by whom? driller
Yield: 600 gal./min. with 6' 10½" ft. drawdown after 10 hrs.
" 800 " " 18' 6½" " " 18 "
" 1000 " " 31' 2½" " " 32 hr. 30 Min

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
0	32' 5"	10 mn.	3' 2"	1 hr.	1' 11"
1 mn.	5' 0"	20 mn.	2' 7"	1 hr 15mn	1' 83/4"
2 mn.	4' 4"	30mn .	2' 4"	Flowing	

Date of test 2 Mar 74
Bailer test ..... gal./min. with ..... ft. drawdown after ..... hrs.
Artesian flow 500 g.p.m. Date 13 Mar 74
Temperature of water 75 Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Soft Black Basalt Cinders	1010	
(Increased fron 30 GPM to 500 GPM) Flowing		1022
Porous Black Basalt Rock	1022	1057

Work started 24 Nov. 19 72 Completed 13 Mar 19 74

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Chas. Jungmann Drilling Co.
(Person, firm, or corporation) (Type or print)

Address 115 Rees - P.O.Box 624 Walla Walla, Wa.

[Signed] [signature] (Well Driller)

License No. 428 Date 18 Mar. 19 74

8. F. No. 7356—OS—(Rev. 5-69)—5-69. (USE ADDITIONAL SHEETS IF NECESSARY)

start card # 025297

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) **OWNER:** Name ED BROERS Address 150 SNIPES CANAL RD SUNNYSI.

LOCATION OF WELL: County YAKIMA NE¼-SW¼ SE¼ Sec. 26 T. 10 N., R. 22 E W.M.

Bearing and distance from section or subdivision corner

(3) **PROPOSED USE:** Domestic [X] Industrial [ ] Municipal [ ] Irrigation [ ] Test Well [ ] Other [ ]

(4) **TYPE OF WORK:** Owner's number of well (if more than one) ....
New well [X] Method: Dug [ ] Bored [ ]
Deepened [ ] Cable [X] Driven [ ]
Reconditioned [ ] Rotary [ ] Jetted [ ]

(5) **DIMENSIONS:** Diameter of well 6 inches.
Drilled 148 ft. Depth of completed well 146 ft.

(6) **CONSTRUCTION DETAILS:**
Casing installed: 6 " Diam. from +1 ft. to 146 ft.
Threaded [ ] " Diam. from ... ft. to ... ft.
Welded [X] " Diam. from ... ft. to ... ft.

Perforations: Yes [ ] No [X]
Type of perforator used ...
SIZE of perforations ... in. by ... in.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.

Screens: Yes [ ] No [X]
Manufacturer's Name ...
Type ... Model No ...
Diam. ... Slot size ... from ... ft. to ... ft.
Diam. ... Slot size ... from ... ft. to ... ft.

Gravel packed: Yes [ ] No [X] Size of gravel: ...
Gravel placed from ... ft. to ... ft.

Surface seal: Yes [X] No [ ] To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes [ ] No [ ]
Type of water? ... Depth of strata ...
Method of sealing strata off ...

(7) **PUMP:** Manufacturer's Name ...
Type: ... H.P. ...

(8) **WATER LEVELS:** Land-surface elevation above mean sea level .... ft.
Static level 12 ft. below top of well Date 11-14-88
Artesian pressure ... lbs. per square inch Date ...
Artesian water is controlled by ... (Cap, valve, etc.)

(9) **WELL TESTS:** Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [ ] If yes, by whom? ...
Yield: ... gal./min. with ... ft. drawdown after ... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 11-11-88
Bailer test 20 gal./min. with 5 ft. drawdown after 4 hrs.
Artesian flow ... g.p.m. Date ...
Temperature of water ... Was a chemical analysis made? Yes [ ] No [ ]

(10) **WELL LOG:**

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
light Brown sandy soil water from 12 feet to 22 feet	0	22
light Brown sticky clay No water	22	100
light Brown fine sand water	100	144
multi Colored Gravel core fine sand water	144	148

RECEIVED
DEC - 6 1988
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

Work started 11-2, 19 88 Completed 11-14, 19 88

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME GENE THOMAS WELL DRILLING
(Person, firm, or corporation) (Type or print)

Address 173 LIBERTY RD GRANGER

[Signed] R. Gene Thomas
(Well Driller)

License No. 867 Date 11-14, 19 88

(USE ADDITIONAL SHEETS IF NECESSARY)

95

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. ....
Permit No. ....

(1) OWNER: Name Bleyhl Farm Service Address P.O. Box 1083 Grandview 98930

(2) LOCATION OF WELL: County .... SE ¼ NE ¼ Sec. 35 T. 10 N., R. 22 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☑ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 82 ft. Depth of completed well 82 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from +1 ft. to 78 ft.
Threaded ☐ ....” Diam. from .... ft. to .... ft.
Welded ☑ ....” Diam. from .... ft. to .... ft.

Perforations: Yes ☐ No ☑
Type of perforator used ....
SIZE of perforations .... in. by .... in.
.... perforations from .... ft. to .... ft.
.... perforations from .... ft. to .... ft.
.... perforations from .... ft. to .... ft.

Screens: Yes ☐ No ☑
Manufacturer's Name ....
Type .... Model No. ....
Diam. .... Slot size .... from .... ft. to .... ft.
Diam. .... Slot size .... from .... ft. to .... ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: ....
Gravel placed from .... ft. to .... ft.

Surface seal: Yes ☑ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? .... Depth of strata ....
Method of sealing strata off ....

(7) PUMP: Manufacturer's Name ....
Type: .... H.P. ....

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 30 ft. below top of well Date ....
Artesian pressure .... lbs. per square inch Date ....
Artesian water is controlled by .... (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? ....
Yield: 20 gal./min. with .... ft. drawdown after .... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ....
Bailer test .... gal./min. with .... ft. drawdown after .... hrs.
Artesian flow .... g.p.m. Date ....
Temperature of water .... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Top Soil Brown	0	20
Clay Layers Brown	20	70
~~[illegible]~~ Clay	70	78
Gravel & clay	78	82

RECEIVED
OCT 22 1985
DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started 11/26, 1984 Completed 11/26, 1984

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Poulin McGuire Drilling (Person, firm, or corporation) (Type or print)

Address Rt 3 Bx 3356

[Signed] [signature] (Well Driller)

License No. 942 Date 12/15, 1984

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20

77

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

3537 Start Card No. 033769

Water Right Permit No. M

(1) OWNER: Name Sunnyside Pool Address 559 S. 4th St. Sunnyside

(2) LOCATION OF WELL: County Benton Parcel # 221026 32492 ¼ ¼ Sec. 25 T. 10 N., R. 22 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 559 S. 4th St. NW SW

(3) PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ ☐ Irrigation ☒ DeWater ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) #4

Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches. Drilled 30 feet. Depth of completed well 30 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8" PVC Diam. from 0 ft. to 30 ft.
Welded ☐ _____" Diam. from _____ ft. to _____ ft.
Liner installed ☐
Threaded ☐ _____" Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Wesco
Type 5' 8" PVC 12 slot Model No. _____
Diam. 8" Slot size 12 from 15 ft. to 20 ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☐ No ☒ To what depth? _____ ft.
Material used in seal _____
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____
Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 16 ft. below top of well Date 8-8-90
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.))

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest 2 gal./min. with stem set at 28 ft. for ½ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Fill	0	2
Topsoil	2	4
Silty sand	4	18
Silty clay w/gravel	18	20
Silty clay	20	30

RECEIVED
AUG 1 8 1990
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

ENTERED

Work started 8-8 , 19. Completed 8-8- , 1990

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Bach Well Drilling Co. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 2111 Birchfield Rd. Yakima, Wa.

(Signed) _____ (WELL DRILLER) License No. 1436

Contractor's Registration No. BACHWDC137NU Date 8-8 , 1990

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1329- 3

76

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

3534 Start Card No. 033769

Water Right Permit No. M

(1) OWNER: Name Sunnyside Pool Address 559 S. 4th St. Sunnyside

(2) LOCATION OF WELL: County Benton Parcel # 221025 32492 ¼ ¼ Sec. 25 T. 10 N., R. 22 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 559 S. 4th St. NW SW

(3) PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ ☐ Irrigation ☒ DeWater Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) #3

Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches. Drilled 30 feet. Depth of completed well 30 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8" PVC Diam. from 0 ft. to 30 ft.

Welded ☐ Liner installed ☐ Threaded ☐ " Diam. from ft. to ft.

" Diam. from ft. to ft.

Perforations: Yes ☐ No ☒

Type of perforator used

SIZE of perforations in. by in.

perforations from ft. to ft.

perforations from ft. to ft.

perforations from ft. to ft.

Screens: Yes ☒ No ☐

Manufacturer's Name Wesco

Type 5' 8" PVC 12 slot Model No.

Diam. 8" Slot size 12 from 15 ft. to 20 ft.

Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel

Gravel placed from ft. to ft.

Surface seal: Yes ☐ No ☒ To what depth? ft.

Material used in seal

Did any strata contain unusable water? Yes ☐ No ☐

Type of water? Depth of strata

Method of sealing strata off

(7) PUMP: Manufacturer's Name

Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.

Static level 18 ft. below top of well Date 8-8-90

Artesian pressure lbs. per square inch Date

Artesian water is controlled by (Cap, valve, etc.))

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☒ If yes, by whom?

Yield: gal./min. with ft. drawdown after hrs.

" " " "

" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test

Bailer test gal./min. with ft. drawdown after hrs.

Airtest 2 gal./min. with stem set at 28 ft. for ½ hrs.

Artesian flow g.p.m. Date

Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Topsoil	0	2
Silty sand	2	18
" clay	18	30

RECEIVED
AUG 1 1990
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

ENTERED

Work started 8-8, 19. Completed 8-8, 19 90

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Bach Well Drilling CO. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 2111 Birchfield Rd. Yakima, Wa.

(Signed) Scott DeVay (WELL DRILLER) License No. 1436

Contractor's Registration No. BACHWBC137NU Date 8-8, 19 90

(USE ADDITIONAL SHEETS IF NECESSARY)

75

3536

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 033769

Water Right Permit No. NA

) OWNER: Name Sunnyside Pool Address 559 S. 4th St. Sunnyside, Wa.

(2) LOCATION OF WELL: County Benton Parcel # 221025 32492 ¼ ¼ Sec 25 T. 10 N., R. 22 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 559 S. 4th St. NW SW

(3) PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ ☐ Irrigation ☐ Test Well ☐ Other ☐ ☒ DeWater

(4) TYPE OF WORK: Owner's number of well (if more than one) #1

Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches. Drilled 30 feet. Depth of completed well 28 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8" PVC Diam. from 0 ft. to 28 ft.
Welded ☐ " Diam. from ft. to ft.
Liner installed ☐ " Diam. from ft. to ft.
Threaded ☐

Perforations: Yes ☒ No ☐
Type of perforator used Skill saw
SIZE of perforations 1/8 in. by 12 in.
approx. 30 perforations from 18 ft. to 28 ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Wesco
Type 5' - 8" PVC 12 slot Model No.
Diam. 8" Slot size 12 from 13 ft. to 18 ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel
Gravel placed from ft. to ft.

Surface seal: Yes ☐ No ☒ To what depth? ft.
Material used in seal
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level 14 ft. below top of well Date 8-8-90
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test

Bailer test gal./min. with ft. drawdown after hrs.
Airtest 10 gal./min. with stem set at 26 ft. for ½ hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Pavement (ashpalt)	0	4"
Gravel fill	4"	2'
Silty loam	2'	16'
" clay	16'	30'

RECEIVED
AUG 14 1990
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

ENTERED

Work started 8-7 19. Completed 8-8 19 90

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Bach Well Drilling Co. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 2111 Birchfield Rd. Yakima, Wa.

(Signed) Scott DeVaney (WELL DRILLER) License No. 1436

Contractor's Registration No. BACHWDC137NU Date 8-8 19 90

(USE ADDITIONAL SHEETS IF NECESSARY)

74

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

3536

Start Card No. 033769

Water Right Permit No. M

OWNER: Name Sunnyside Pool Address 559 S. 4th St. Sunnyside

(2) LOCATION OF WELL: County Benton Parcel # 221025 32492 ¼ ¼ Sec. 25 T. 10 N., R. 22 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 559 S. 4th St. NW SW

(3) PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ ☐ Irrigation ☒ DeWater ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) #2

Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☐ Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches. Drilled 30 feet. Depth of completed well 30 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 8" PVC Diam. from 0 ft. to 30 ft.
Welded ☐ Liner installed ☐ Threaded ☐ ____" Diam. from ____ ft. to ____ ft.
____" Diam. from ____ ft. to ____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used ____
SIZE of perforations ____ in. by 12 in.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Wesco
Type 5' 8" PVC 12 slot Model No. ____
Diam. 8 Slot size 12 from 15 ft. to 20 ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel ____
Gravel placed from ____ ft. to ____ ft.

Surface seal: Yes ☐ No ☒ To what depth? ____ ft.
Material used in seal ____
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ____ Depth of strata ____
Method of sealing strata off ____

(7) PUMP: Manufacturer's Name ____
Type: ____ H.P. ____

(8) WATER LEVELS: Land-surface elevation above mean sea level ____ ft.
Static level 18 ft. below top of well Date 8-8-90
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ____ (Cap, valve, etc.))

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? ____
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ____

Bailer test ____ gal./min. with ____ ft. drawdown after ____ hrs.
Airtest 2 gal./min. with stem set at 28 ft. for ½ hrs.
Artesian flow ____ g.p.m. Date ____
Temperature of water ____ Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Topsoil	0	2
Silty sand	2	18
" clay	18	30

RECEIVED
AUG 14 1990
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

ENTERED

Work started 8-8, 19. Completed 8-8, 19 90

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Bach Well Drilling Co. (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 2111 Birchfield Rd. Yakima, Wa.

(Signed) Scott Bach (WELL DRILLER) License No. 1436

Contractor's Registration No. BACHWDC137NU Date 8-8-90

(USE ADDITIONAL SHEETS IF NECESSARY)

11e14

RESOURCE PROTECTION WELL REPORT

START CARD NO. 032049

PROJECT NAME: YAKIMA WASTE TREATMENT PLANT
WELL INDENTIFICATION NO: BH-2
DRILLING METHOD: HOLLOW STEM AUGER
DRILLER: HAROLD PRODZINSKI #1512
FIRM: ASSOCIATED DRILLING INC
SIGNATURE: Harold Prodzinski
CONSULTING FIRM: LANDAU ASSOC
REPRESENTATIVE: TED HAMMER

LOCATION: T 10 N, R 22, SEC. 36 D
DISTANCE: NW ¼ ~~FT. FROM~~ N/S SECTION LINE
NW ¼ ~~FT. FROM~~ E/W SECTION LINE
DATUM: —
WATER LEVEL ELEVATION: 115'
INSTALLED: NO
DEVELOPED: NO

AS-BUILT	WELL DATA	FORMATION DESCRIPTION
NO PIPE INSTALLED	GROUTED HOLE BOTTOM TO TOP	BROWN FINE SILTY SAND TO SANDY SILT

0
5 WATER
10
15
20
BOTTOM OF HOLE 24'
25

SCALE: 1"= 5

PAGE 1 OF 1

ECY 050-12

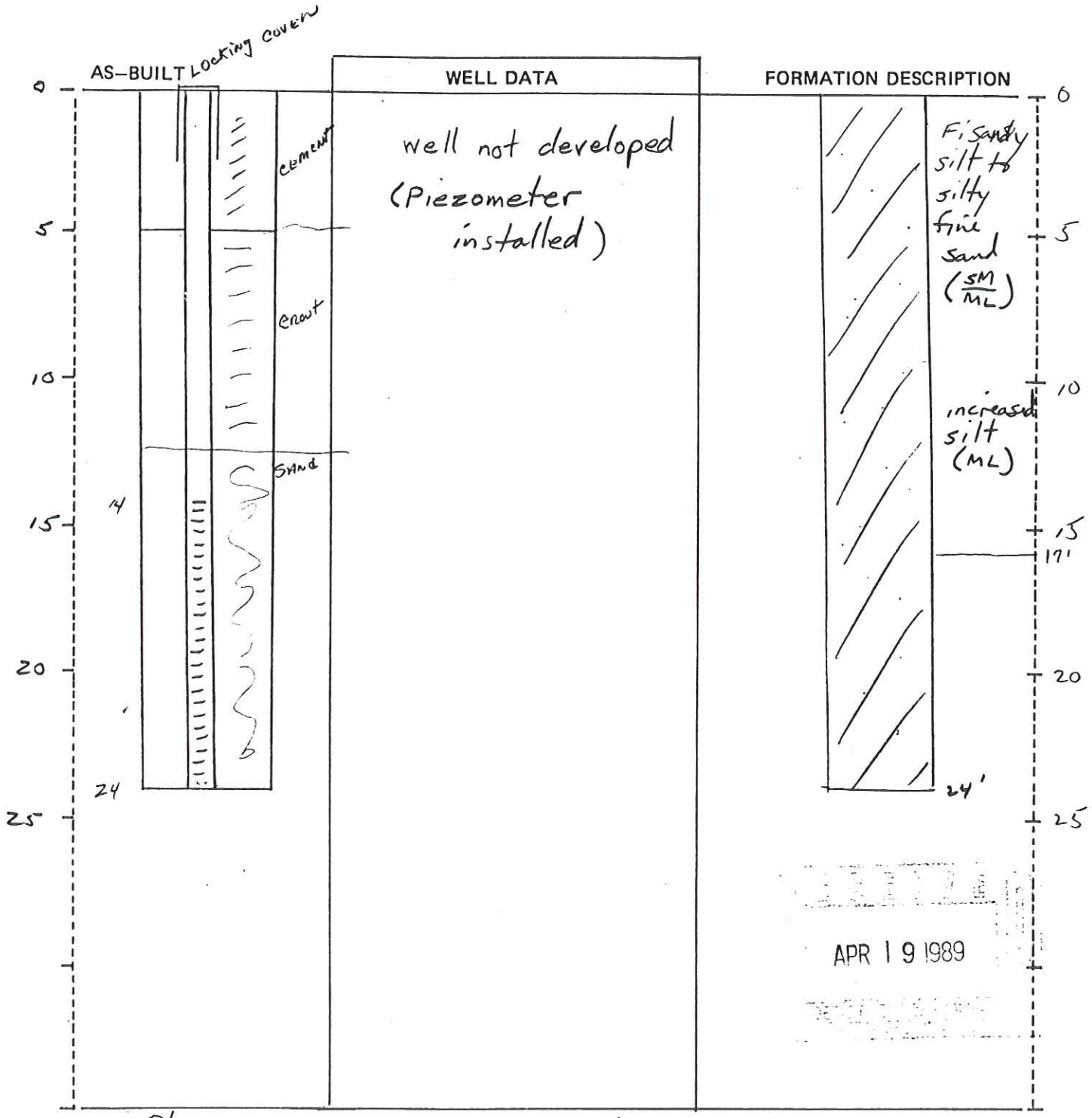
108
413

RESOURCE PROTECTION WELL REPORT

03204
START CARD NO. ~~033054~~

PROJECT NAME: Sunnyside Wastewater Treatment Plant
WELL INDENTIFICATION NO. BH-4
DRILLING METHOD: Hollow Stem Auger
DRILLER: Harold Prodzinsk ID512
FIRM: Associated Drilling
SIGNATURE: Harold Prodzinski
CONSULTING FIRM: Landau Assoc.
REPRESENTATIVE: Ted Hammer

LOCATION: T 10N, R 22, SEC. 36
DISTANCE: NW 1/4 ~~FT. FROM~~ N/S SECTION LINE
NW 1/4 ~~FT. FROM~~ E/W SECTION LINE
DATUM: ~~4-3-89~~
WATER LEVEL ELEVATION: 17' Dump
INSTALLED: 4-3-89
DEVELOPED: Not Developed.



APR 19 1989

SCALE: 1"= 5'

PAGE 1 OF 1

ECY 050-12

68

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. A21255
Unique Well I.D. #
Water Right Permit No.

(1) OWNER: Name **CITY OF SUNNYSIDE** Address **818 EAST EDISON SUNNYSIDE, WA 98944-**

(2) LOCATION OF WELL: County **YAKIMA** -NW 1/4 SW 1/4 Sec 25 T 10 N., R 22 WM

(2a) STREET ADDRESS OF WELL (or nearest address) **CORNER OF GRANT & 5TH AVE,**

M

(3) PROPOSED USE:

(4) TYPE OF WORK: Owner's Number of well (If more than one) 1

DECOMMISSIONED Method: **ROTARY**

(5) DIMENSIONS: Diameter of well **12** inches
Drilled **166** ft. Depth of completed well **166** ft.

(6) CONSTRUCTION DETAILS:
Casing installed: " Dia. from ft. to ft.
" Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: **NO**
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: **NO**
Manufacturer's Name
Type Model No.
Diam. slot size from ft. to ft.
Diam. slot size from ft. to ft.

Gravel packed: **NO** Size of gravel
Gravel placed from ft. to ft.

Surface seal: **NO** To what depth? ft.
Material used in seal
Did any strata contain unusable water? **NO**
Type of water? Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level ft. below top of well Date **08/31/95**
Artesian Pressure lbs. per square inch Date
Artesian water controlled by

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? **NO** If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.

Recovery data

Time	Water Level	Time	Water Level	Time	Water Level

Date of test / /
Bailer test gal/min. ft. drawdown after hrs.
Air test gal/min. w/ stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? **NO**

(10) WELL LOG

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change in formation.

MATERIAL	FROM	TO
	0	

Well Abandonment:

Removed Line Shaft Pump

Pressure Grouted well with 7 yards cement grout

Capped Well with concrete at pump house floor level

SEP 2 1 1995

Work started **08/31/95** Completed **08/31/95**

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME **PONDEROSA DRILLING**
(Person, firm, or corporation) (Type or print)

ADDRESS **E 6010 BROADWAY**

[SIGNED] Dan O'Connell License No. **0358**

Contractor's
Registration No. **PO-ND-EI*248JE** Date **09/18/95**

70

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. A21255
Unique Well I.D. #
Water Right Permit No.

(1) OWNER: Name CITY OF SUNNYSIDE Address 818 EAST EDISON SUNNYSIDE, WA 98944-

(2) LOCATION OF WELL: County YAKIMA NW 1/4 SW 1/4 Sec 25 T 10 N., R 22 WM

(2a) STREET ADDRESS OF WELL (or nearest address) CORNER OF GRANT & 5TH AVE, LOT 14 BLOCK 41

M

(3) PROPOSED USE:

(4) TYPE OF WORK: Owner's Number of well (If more than one) 2

DECOMMISSIONED Method: ROTARY

(5) DIMENSIONS:
Drilled 833 ft. Diameter of well 12 inches
Depth of completed well 833 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: " Dia. from ft. to ft.
" Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: NO
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: NO
Manufacturer's Name
Type Model No.
Diam. slot size from ft. to ft.
Diam. slot size from ft. to ft.

Gravel packed: NO Size of gravel
Gravel placed from ft. to ft.

Surface seal: NO To what depth? ft.
Material used in seal
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level ft. below top of well Date 08/31/95
Artesian Pressure lbs. per square inch Date
Artesian water controlled by

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? NO If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.

Recovery data

Time	Water Level	Time	Water Level	Time	Water Level

Date of test / /
Bailer test gal/min. ft. drawdown after hrs.
Air test gal/min. w/ stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? NO

(10) WELL LOG

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change in formation.

MATERIAL	FROM	TO
	0	

WELL ABANDONMENT:

removed line shaft pump

pressure grouted well with 29 yards cement grout

capped well with concrete at pump house floor level

SEP 2 1 1995

Work started 08/31/95 Completed 08/31/95

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME PONDEROSA DRILLING
(Person, firm, or corporation) (Type or print)

ADDRESS E 6010 BROADWAY

[SIGNED] Dan O'Connell License No. 0358

Contractor's Registration No. PO-ND-EI*248JE Date 09/20/95

RESOURCE PROTECTION WELL REPORT

4023 (A)

START CARD NO. 029998

PROJECT NAME: _____

WELL INDENTIFICATION NO. NW 9

DRILLING METHOD: Hand Auger

DRILLER: DE Gostovich #1829

FIRM: ROZA

SIGNATURE: DE Gostovich

CONSULTING FIRM: _____

REPRESENTATIVE: _____

LOCATION: T 10N, R 22E, SEC. 25

DISTANCE: 2590 FT. FROM N/S SECTION LINE

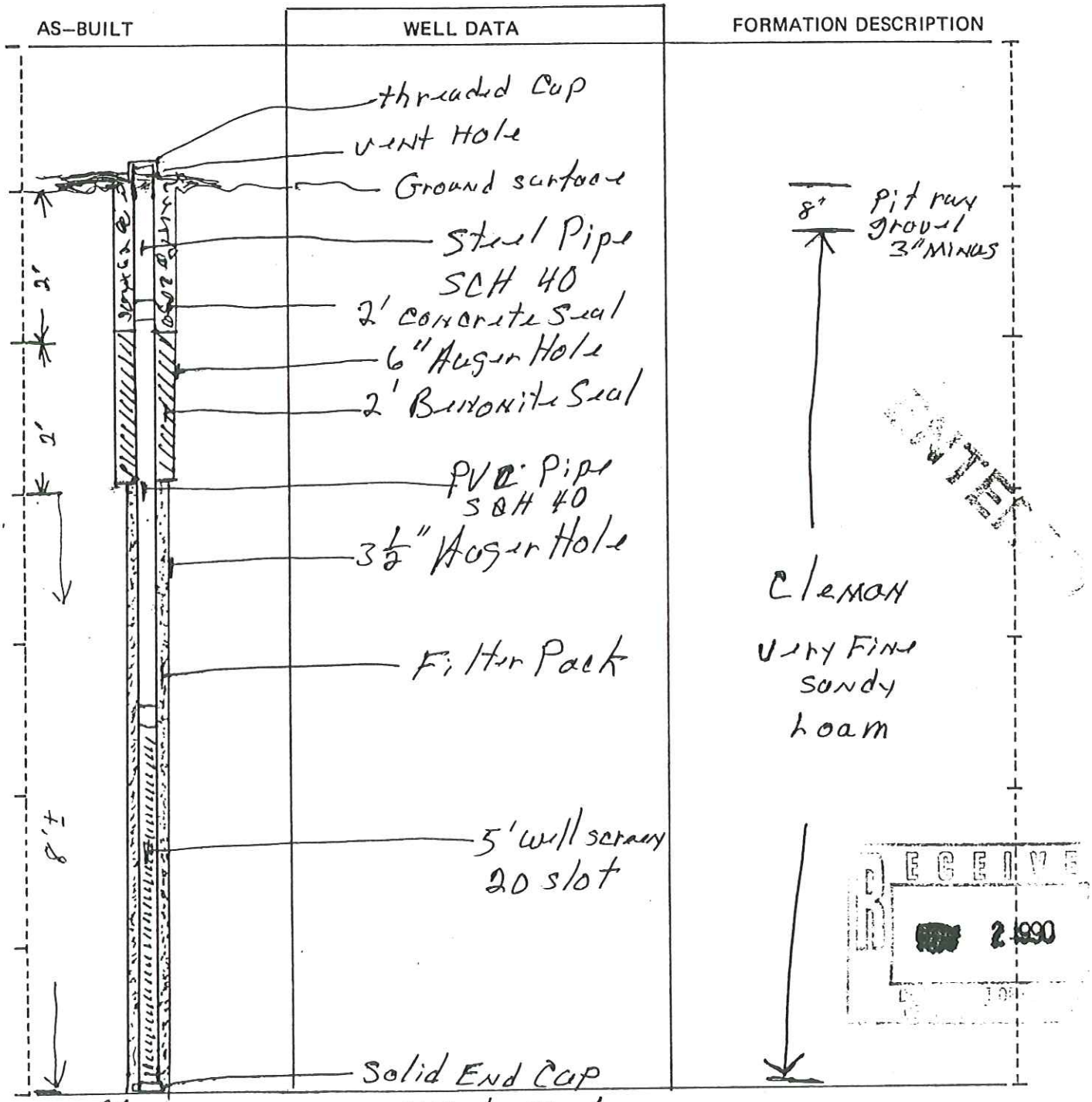
1192 FT. FROM E/W SECTION LINE

DATUM: 100.00

WATER LEVEL ELEVATION: 89.93

INSTALLED: 10-24-90

DEVELOPED: _____



SCALE: 1"= 2'

PAGE 1 OF 1

ECY 050-12

RESOURCE PROTECTION WELL REPORT

4028 (A)

START CARD NO. 07999

PROJECT NAME: _____

WELL INDENTIFICATION NO. MW 17

DRILLING METHOD: Hand Auger

DRILLER: D E Gostovich # 1829

FIRM: ROZA

SIGNATURE: DE Gostovich

CONSULTING FIRM: _____

REPRESENTATIVE: _____

LOCATION: T 10N, R 22E, SEC. 25

DISTANCE: 2584 FT. FROM N/S SECTION LINE

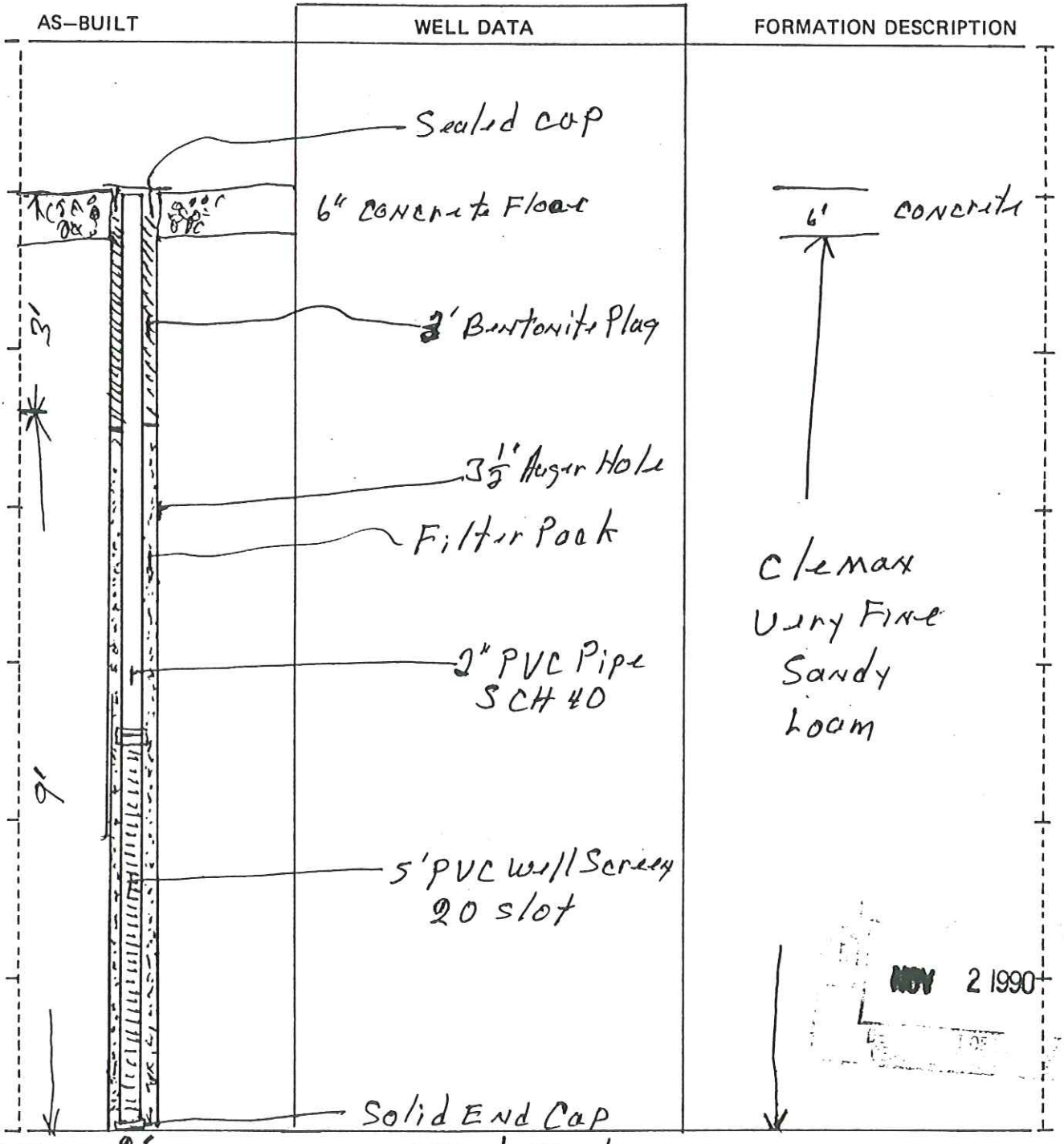
1152 FT. FROM E/W SECTION LINE

DATUM: 100.00

WATER LEVEL ELEVATION: 90.05

INSTALLED: 10-24-90

DEVELOPED: NA



SCALE: 1"= 2'

PAGE 1 OF 1

ECY 050-12

RESOURCE PROTECTION WELL REPORT

4027 (A)

START CARD NO. 079997

PROJECT NAME: _____

WELL INDENTIFICATION NO. MW #16

DRILLING METHOD: Hand Auger

DRILLER: D E Gostovich #1829

FIRM: ROZA

SIGNATURE: D E Gostovich

CONSULTING FIRM: _____

REPRESENTATIVE: _____

LOCATION: T 10N, R 22E, SEC. 25

DISTANCE: 9503 FT. FROM N/S SECTION LINE

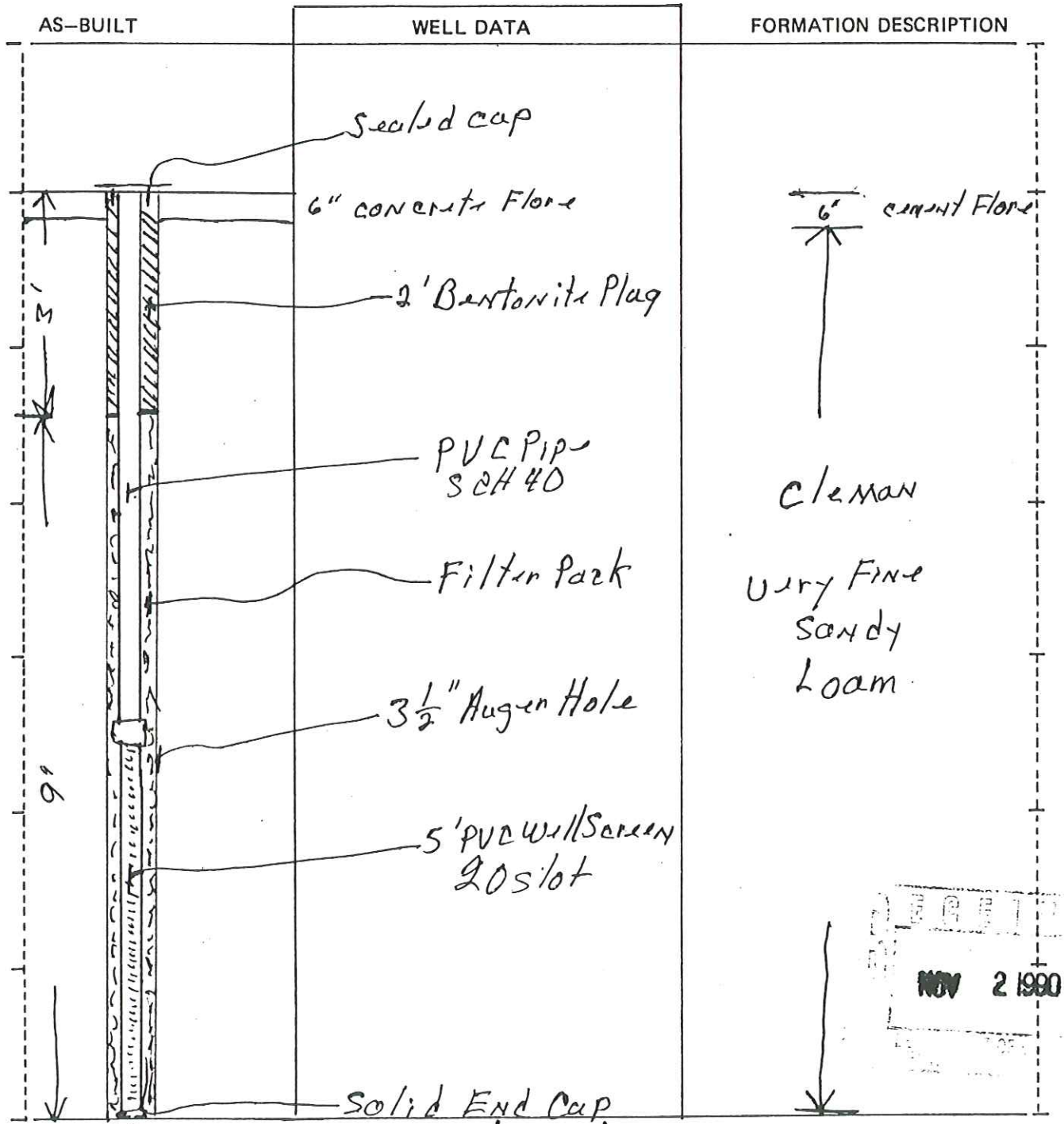
1156 FT. FROM E/W SECTION LINE

DATUM: 100.00

WATER LEVEL ELEVATION: 90.25

INSTALLED: 10-24-90

DEVELOPED: NA



SCALE: 1"= 2'

PAGE 1 OF 1

ECY 050-12

8

RESOURCE PROTECTION WELL REPORT

4026

(A) 019995

START CARD NO. [redacted]

PROJECT NAME: _____

WELL INDENTIFICATION NO. MW 15

DRILLING METHOD: Hand Auger

DRILLER: DE Gostovich # 1829

FIRM: ROZA

SIGNATURE: DE Gostovich

CONSULTING FIRM: _____

REPRESENTATIVE: _____

LOCATION: T 10N, R 22E, SEC. 25

DISTANCE: 2560 FT. FROM N/S SECTION LINE

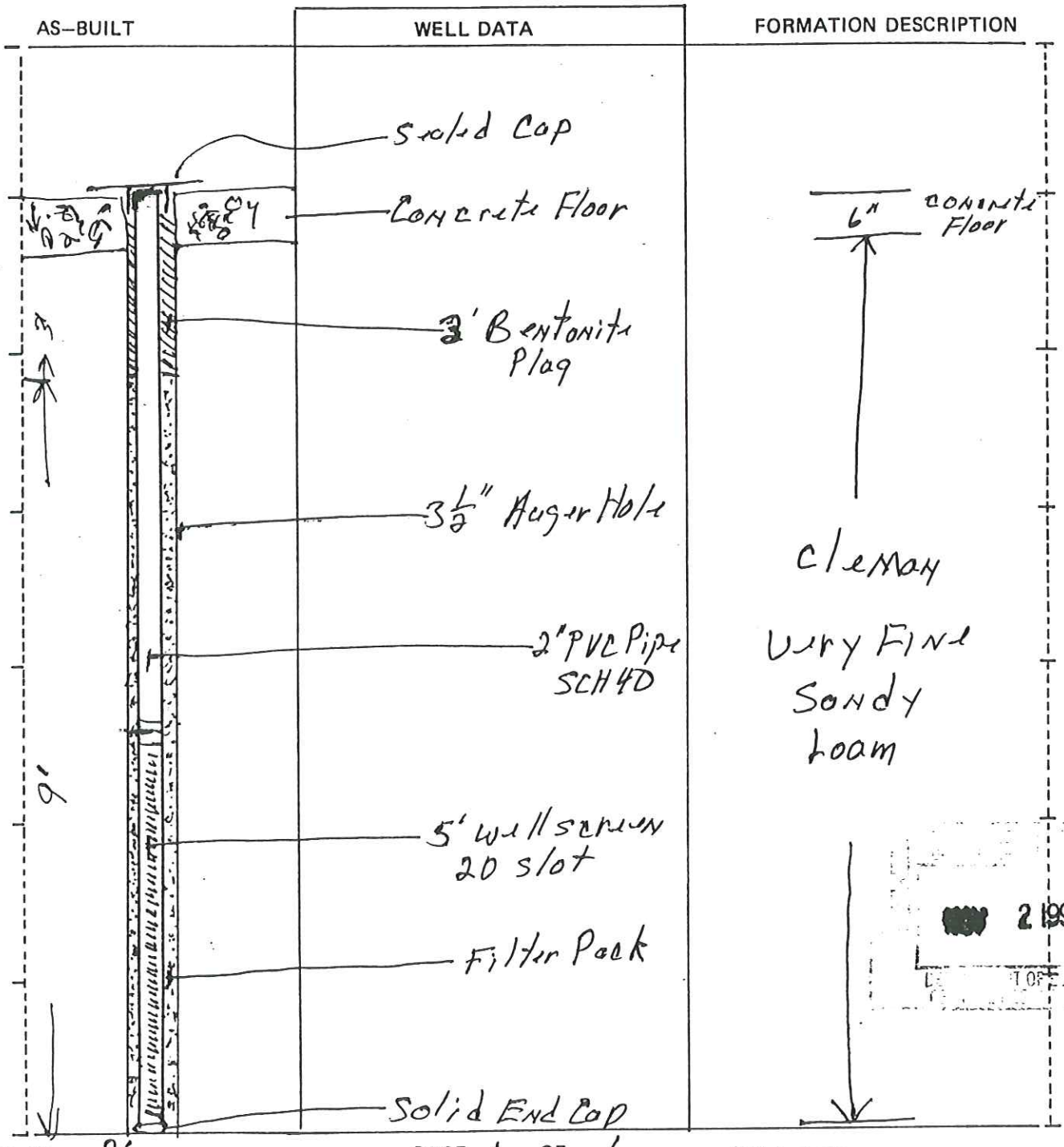
1158 FT. FROM E/W SECTION LINE

DATUM: 100.00

WATER LEVEL ELEVATION: 90.17

INSTALLED: 10-24-90

DEVELOPED: NA



SCALE: 1"= 2'

PAGE 1 OF 1

[redacted] 1990

ENTERED

ECY 050-12

RESOURCE PROTECTION WELL REPORT

4025

(A)

START CARD NO. 07917

PROJECT NAME: _____

WELL INDENTIFICATION NO. MW #7 11

DRILLING METHOD: Hand Auger

DRILLER: D E Gostovich #1829

FIRM: RCEA

SIGNATURE: DE Gostovich

CONSULTING FIRM: _____

REPRESENTATIVE: _____

LOCATION: T 10N, R 22E, SEC. 25

DISTANCE: 2605 FT. FROM N/S SECTION LINE

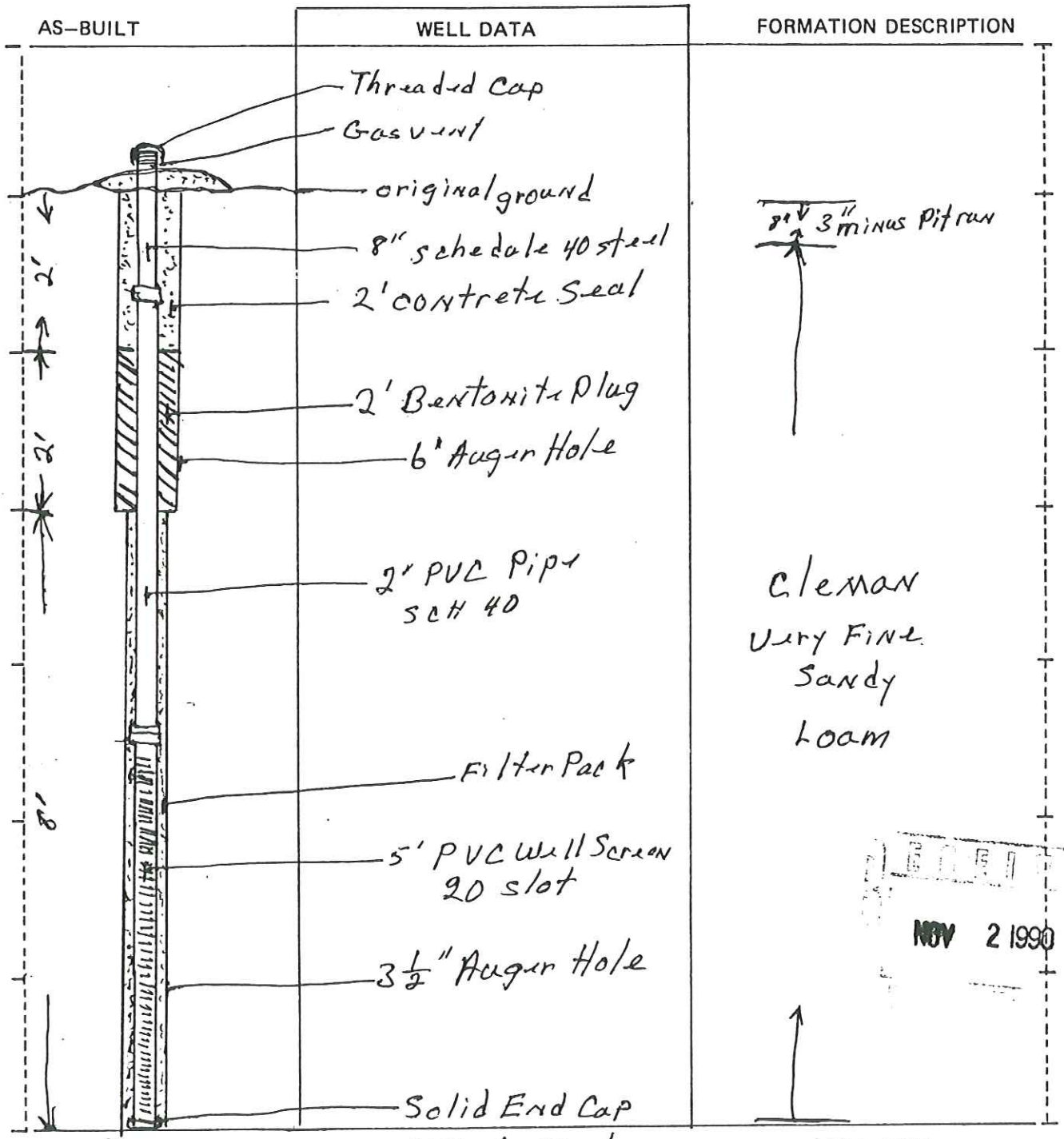
1126 FT. FROM E/W SECTION LINE

DATUM: 100.00

WATER LEVEL ELEVATION: ~~90.05~~ 89.94

INSTALLED: 10-24-90

DEVELOPED: NA



SCALE: 1"= 2'

PAGE 1 OF 1

NOV 2 1990

ENTERED

ECY 050-12

64

4297

L

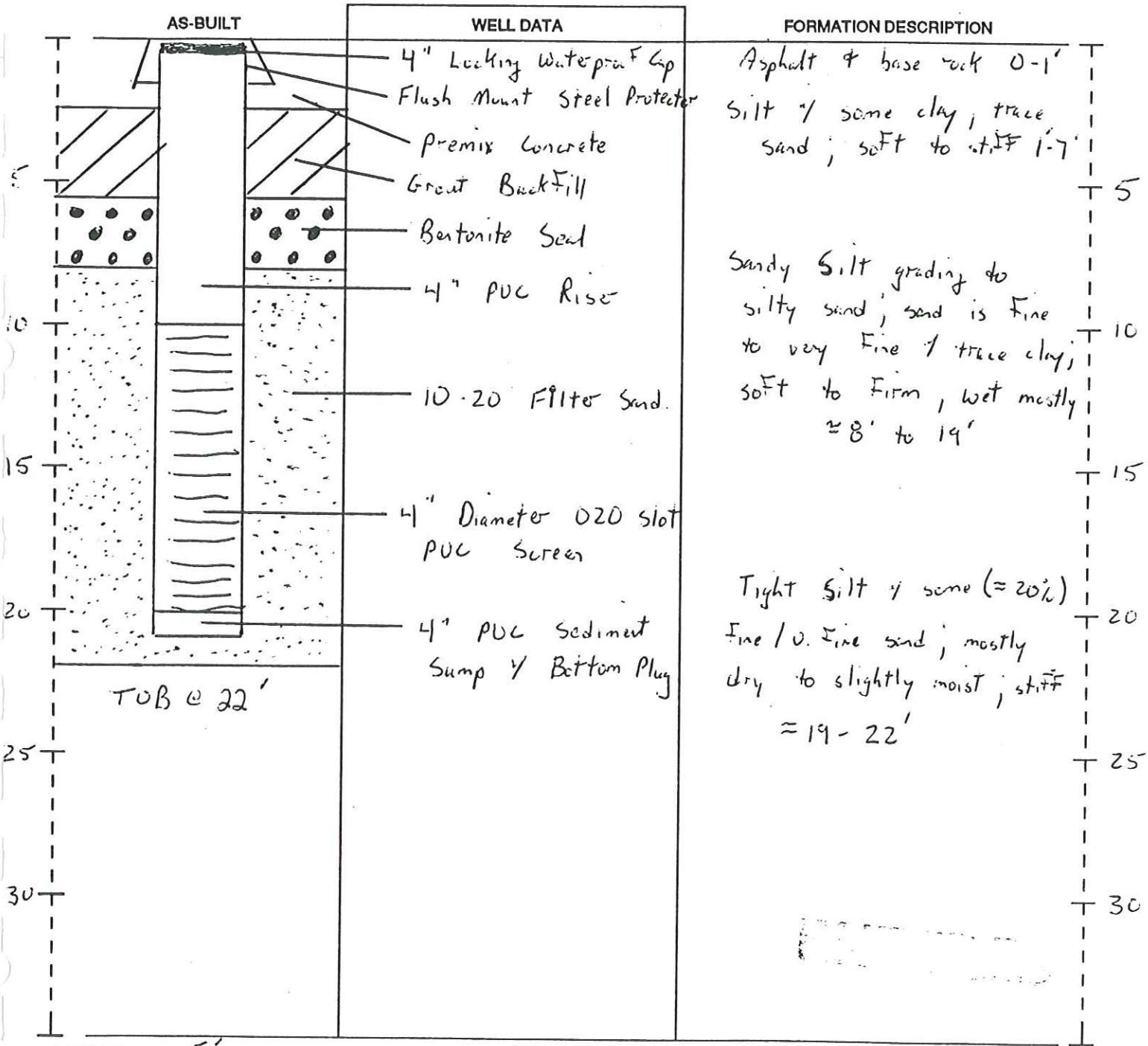
RECEIVED
JAN 3 1991
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

RESOURCE PROTECTION WELL REPORT

START CARD NO. 025187

PROJECT NAME: SAIC - Sunnyside
WELL IDENTIFICATION NO. GW-7
DRILLING METHOD: Hollow Stem Auger
DRILLER: John W Dolan
FIRM: John Mathes & Assoc. Inc.
SIGNATURE:
CONSULTING FIRM: SAIC
REPRESENTATIVE: Thomas Dubé

COUNTY: Yakima
LOCATION: NE¼ SW¼ Sec 25 Twn 10N R 22E
STREET ADDRESS OF WELL: Grant Ave (between 6th & 7th Street) Sunnyside, Wa.
WATER LEVEL ELEVATION: 111' BGS
GROUND SURFACE ELEVATION: N/A
INSTALLED: 11-27-90
DEVELOPED: 12-10-90



SCALE: 1" = 5'

PAGE 1 OF 1

ECY 050-12 (Rev. 11/89)

65

RECEIVED
JAN 3 1991

4299

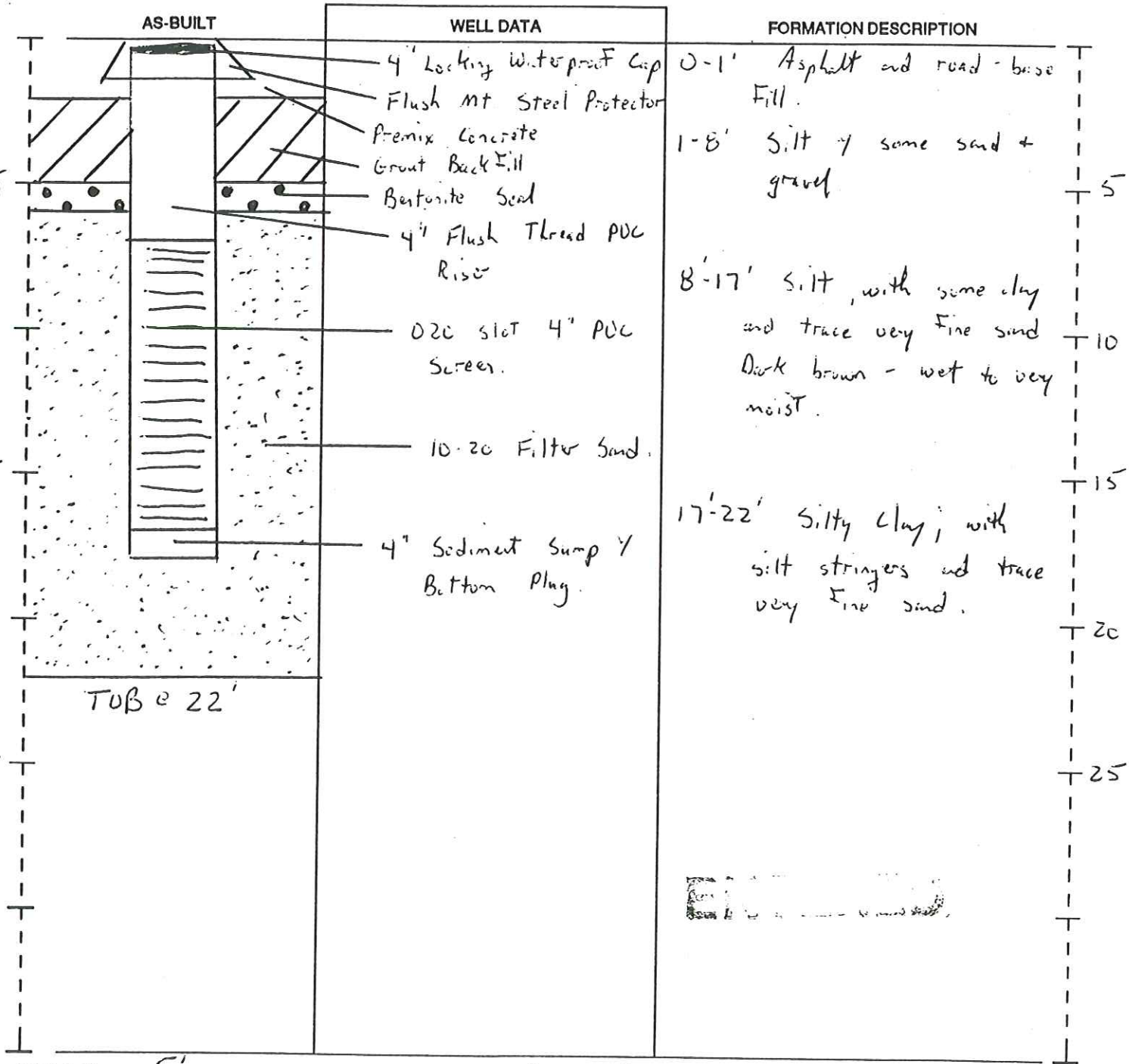
L

RESOURCE PROTECTION WELL REPORT

START CARD NO. 025187

PROJECT NAME: SAIC - Sunnyside
WELL IDENTIFICATION NO. GW-6
DRILLING METHOD: Hollow Stem Augers
DRILLER: John W Dolan
FIRM: John Matles & Assoc. Inc.
SIGNATURE:
CONSULTING FIRM: SAIC
REPRESENTATIVE: Thomas Dubé

COUNTY: Yakima
LOCATION: NE¼ SW¼ Sec 25 Twn 10N R 22E
STREET ADDRESS OF WELL: Seventh Street (near Franklin Ave) Sunnyside, Wa.
WATER LEVEL ELEVATION: 11.2' BGS
GROUND SURFACE ELEVATION: N/A
INSTALLED: 11-29-90
DEVELOPED: 12-10-90



SCALE: 1" = 5'

PAGE 1 OF 1

ECY 050-12 (Rev. 11/89)

66

4300

L

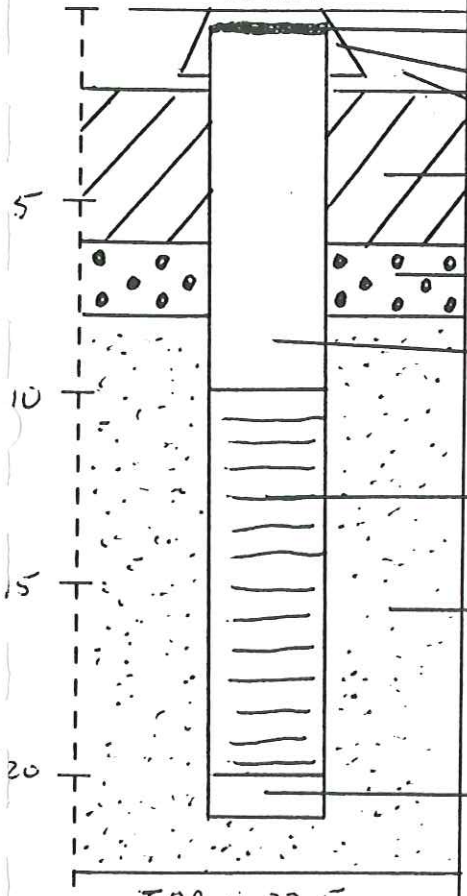
RECEIVED
JAN 3 1991
DEPARTMENT OF ECOLOGY

RESOURCE PROTECTION WELL REPORT

START CARD NO. 325187

PROJECT NAME: SAIC - Sunnyside
WELL IDENTIFICATION NO. GW-8
DRILLING METHOD: Hollow Stem Auger
DRILLER: John W. Nolan
FIRM: John Mathes and Assoc Inc.
SIGNATURE:
CONSULTING FIRM: SAIC
REPRESENTATIVE: Thomas Dubé

COUNTY: Yakima
LOCATION: NE¼ SW ¼ Sec 25 Twn 10N R 22E
STREET ADDRESS OF WELL: Grant Ave & 6th Street Sunnyside, Wa.
WATER LEVEL ELEVATION: 12.1'
GROUND SURFACE ELEVATION: N/A.
INSTALLED: 11-28-90
DEVELOPED: 12-10-90



WELL DATA

- 4" Locking Waterproof Cap
- Flush Mt. Steel Protector
- Premix Concrete
- Grout BackFill
- Bentonite Seal
- 4" Flush Thread PVC Riser
- 4" Flush Thread 020 Slot PVC Screen
- 10-20 Filter Sand
- 4" Sediment Sump w/ Button Plug

FORMATION DESCRIPTION

0-1' Asphalt & road base gravel.
1'-5' Sandy Silt w/ trace clay
5'-18' Very fine sand w/ some silt. Olive brown to brown wet below 12'
18-21' Sandy silt w/ trace clay. very wet - dark brown.
21.5'-22.5' Tight silt w/ some very fine sand. Dry to slightly moist.

ENTERED

SCALE: 1" = 5'

PAGE 1 OF 1

ECY 050-12 (Rev. 11/89)

67

4298

L

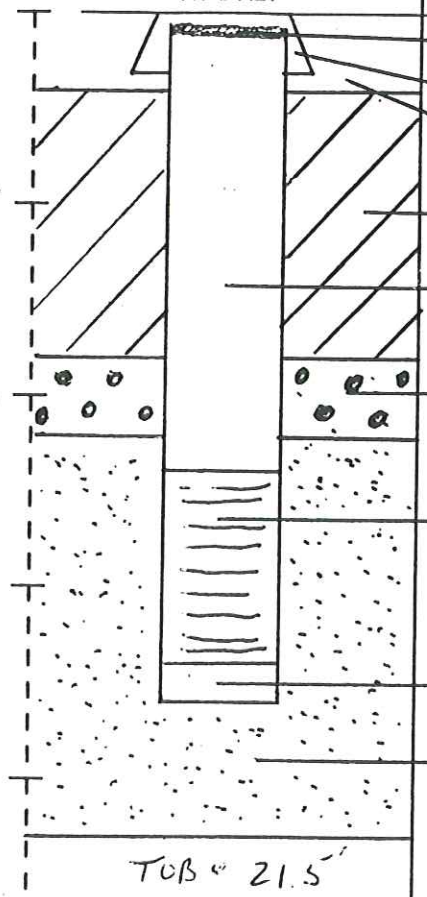
RECEIVED
JAN 3 1991
DEPARTMENT OF ECOLOGY

RESOURCE PROTECTION WELL REPORT

START CARD NO. 025187

PROJECT NAME: SAIC - Sunnyside
WELL IDENTIFICATION NO. GW-5
DRILLING METHOD: Hollow Stem Auger
DRILLER: John W Dolan
FIRM: John Mathes and Assoc. Inc.
SIGNATURE:
CONSULTING FIRM: SAIC
REPRESENTATIVE: Thomas Dubé

COUNTY: Yakima
LOCATION: NE¼ SW¼ Sec 25 Twn 10.0 R 22E
STREET ADDRESS OF WELL: Seventh Street (near Franklin Ave) Sunnyside, Wa
WATER LEVEL ELEVATION: ≈ 12'
GROUND SURFACE ELEVATION: N/A.
INSTALLED: 11-30-90
DEVELOPED: 12-10-90



WELL DATA	FORMATION DESCRIPTION
4" Locking Water Proof Cap Flush Mt. Steel Protector Premix Concrete	0-1' Asphalt - Road Base 1-4.5' Silt, some Fine sand & clay
Grout BackFill	4.5-14' silty, very Fine Sand, gray brown; slightly to very moist.
4" Flush Thread PVC Riser	
Bentonite Seal	
4" Flush Thread 020 Slot PVC Screen	14'-17' clean Silty some very Fine sand
4" Sediment Sump & Bottom Plug	17'-19' Silty Clay; olive gray, soft, wet.
10-20 Filter Sand.	19'-21.5' clean Silt y trace very Fine sand.

SCALE: 1" = 5'

PAGE 1 OF 1

ECY 050-12 (Rev. 11/89)

71

8709

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 209073

Water Right Permit No. NA

(1) OWNER: Name UPRR Address 5665 Flatiron Parkway, Bolder, Co. 80301

(..) LOCATION OF WELL: County Yakima NW ¼ SW ¼ Sec 25 T. 10 N., R 22 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) Alley South of S. 5th street Sunnyside, Wa

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater ☐ Industrial ☐ Test Well ☒ Municipal ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) mw # 1

Abandoned ☐ New well ☒ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☐ Bored ☒ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches. Drilled 17 feet. Depth of completed well 17 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 2in " Diam. from +3 ft. to 17 ft.
Welded ☐ Liner installed ☐ Threaded ☒ _____ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type PVC Model No. _____
Diam. 2in Slot size .020 from 17 ft. to 7 ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☒ No ☐ Size of gravel 8/12 sand
Gravel placed from 17 ft. to 5 ft.

Surface seal: Yes ☒ No ☐ To what depth? 5 ft.
Material used in seal Bentonite chips
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name N/A
Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level _____ ft. below top of well Date _____
Artesian pressure 0 lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.))

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

mw #1 MATERIAL	FROM	TO
½ in. - gravel, backfill	0	12
silty sand & gravel, dark brn.	12	17

MAY 12 1993

Work started 4-22, 19 93 completed 4-22, 19 93

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME ENVIRONMENTAL WEST EXP, INC (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address P.O. Box 11095 Spo, WA 99211

(Signed) Dan Classen (WELL DRILLER) License No. 1827

Contractor's Registration No. ENVIRWE101PP Date 5-10, 19 93

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1329-

72

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

8710 Start Card No. 209074

Water Right Permit No. WA

(1) OWNER: Name UPRR Address 5665 Flatiron Parkway, Bolder, Co. 80301

(2) LOCATION OF WELL: County Yakima NW ¼ SW ¼ Sec 25 T. 10 N., R. 22 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) Alley South of 5th Street Sunnyside, wa

(3) PROPOSED USE: ☐ Domestic ☐ Industrial ☐ Municipal ☐ ☐ Irrigation ☒ Test Well ☐ Other ☐ ☐ DeWater

(4) TYPE OF WORK: Owner's number of well (if more than one) mw#2

Abandoned ☐ New well ☒ Method: Dug ☐ Bored ☒ Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches. Drilled 15 feet. Depth of completed well 15 ft.

(6) CONSTRUCTION DETAILS:

Casing Installed: 2in " Diam. from +3 ft. to 15 ft.
Welded ☐ Liner installed ☐ Threaded ☒ " Diam. from ft. to ft.
" Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type PVC Model No.
Diam. 2in Slot size .020 from 15 ft. to 5 ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☒ No ☐ Size of gravel 8/12 sand
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 5 ft.
Material used in seal Bentonite chips
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name N/A
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level ft. below top of well Date
Artesian pressure 0 lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Airtest gal./min. with stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

mw#2 MATERIAL	FROM	TO
silty sand, some gravel, drk brown	0	15

MAY 12 1993

Work started 4-22, 19 93 completed 4-22, 19 93

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME ENVIRONMENTAL WEST EXP., INC (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address P.O. Box 11095 Spo, WA 99211

(Signed) Dan Claassen (WELL DRILLER) License No. 1827

Contractor's Registration No. ENVIRWE101PP Date 5-10, 19 93

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1329- 18

73

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

8711 Start Card No. 209072

Water Right Permit No. NA

(1) OWNER: Name UPRR Address 5665 Flatiron Parkway, Bolder, CO. 80301

(2) LOCATION OF WELL: County Yakima NW ¼ SW ¼ Sec. 25 T. 10 N., R. 22 W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) Alley South of 5th street Sunnyside, wa

(3) PROPOSED USE: ☐ Domestic ☐ Irrigation ☐ DeWater ☐ Industrial ☐ Test Well ☒ Municipal ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) mw#3

Abandoned ☐ New well ☒ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☐ Bored ☒ Driven ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches. Drilled 15 feet. Depth of completed well 15 ft.

(6) CONSTRUCTION DETAILS:

Casing Installed: 2in • Diam. from +3 ft. to 15 ft.
Welded ☐ Liner installed ☐ Threaded ☒ • Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type PVC Model No.
Diam. 2in Slot size .020 from 15 ft. to 5 ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☒ No ☐ Size of gravel 8/12 sand
Gravel placed from 15 ft. to 4 ft.

Surface seal: Yes ☒ No ☐ To what depth? 4 ft.
Material used in seal Bentonite chips
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: N/A H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level ft. below top of well Date
Artesian pressure 0 lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test

Bailer test gal./min. with ft. drawdown after hrs.
Airtest gal./min. with stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

mw#3 MATERIAL	FROM	TO
silty sand, some gravel, dk brown	0	15

MAY 12 1993

Work started 4-22- , 19 93 Completed 4-22 , 19 93

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME ENVIRONMENTAL WEST EXP., INC (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address P.O.BOX 11095 Spo, WA 99211

(Signed) Dan Claussen (WELL DRILLER) License No. 1827

Contractor's Registration No. ENVIRWE101PP Date 5-10 , 19 93

(USE ADDITIONAL SHEETS IF NECESSARY)

ECY 050-1-20 (10/87) -1329- 18

1546

SOIL SAMPLING SERVICE, INC.

1415 MERIDIAN EAST, PUYALLUP, WA 98371-1399

FEDERAL ID #: 91-0762274 WA CONT. #SOIL SS*344LO

Geotechnical, Engineering & Mineral Exploration Drilling • Instrumentation • Horizontal Drains

Ground Water Monitoring • Hazardous Waste Identification • Well Abandonments

(206) 927-3173
(206) 838-9494
TELEX: 466762
FAX: (206) 927-3478

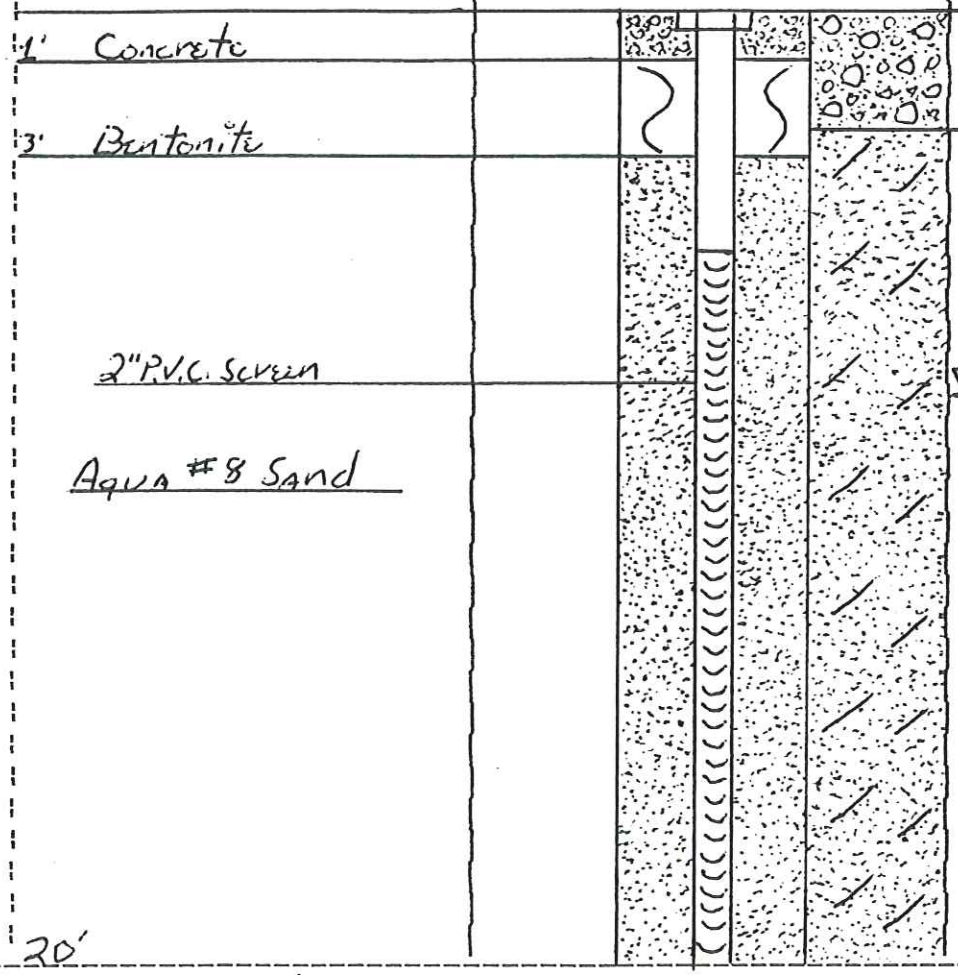
RESOURCE PROTECTION WELL REPORT

PROJECT NAME: Unocal Bulk Plant
WELL IDENTIFICATION NO: MW-1
DRILLING METHOD: 4" H.S.A.
DRILLER: Paul Montgomery # 1324
SIGNATURE:
CONSULTING FIRM: Geo Engineers Inc.
REPRESENTATIVE: Steve Lewis

JOB #: 2-2640 START CARD NO: 624527
LOCATION: Sunnyside ¼ NE ¼ NW ¼
SEC: 36 TOWN: 10N RANGE 22E
DATUM: 724.29' A.S.L.
WATER LEVEL ELEVATION: 717.15' A.S.L.
INSTALLED: March 6, 1989
DEVELOPED:

~~Well Data~~ As Built ~~Well Data~~

FORMATION DESCRIPTION



RECEIVED
MAR 27 1989
DEPARTMENT OF ECOLOGY
CENTRAL REGION OFFICE

SCALE: 1" = 4' vertically

PAGE 1 OF 1

APPENDIX H

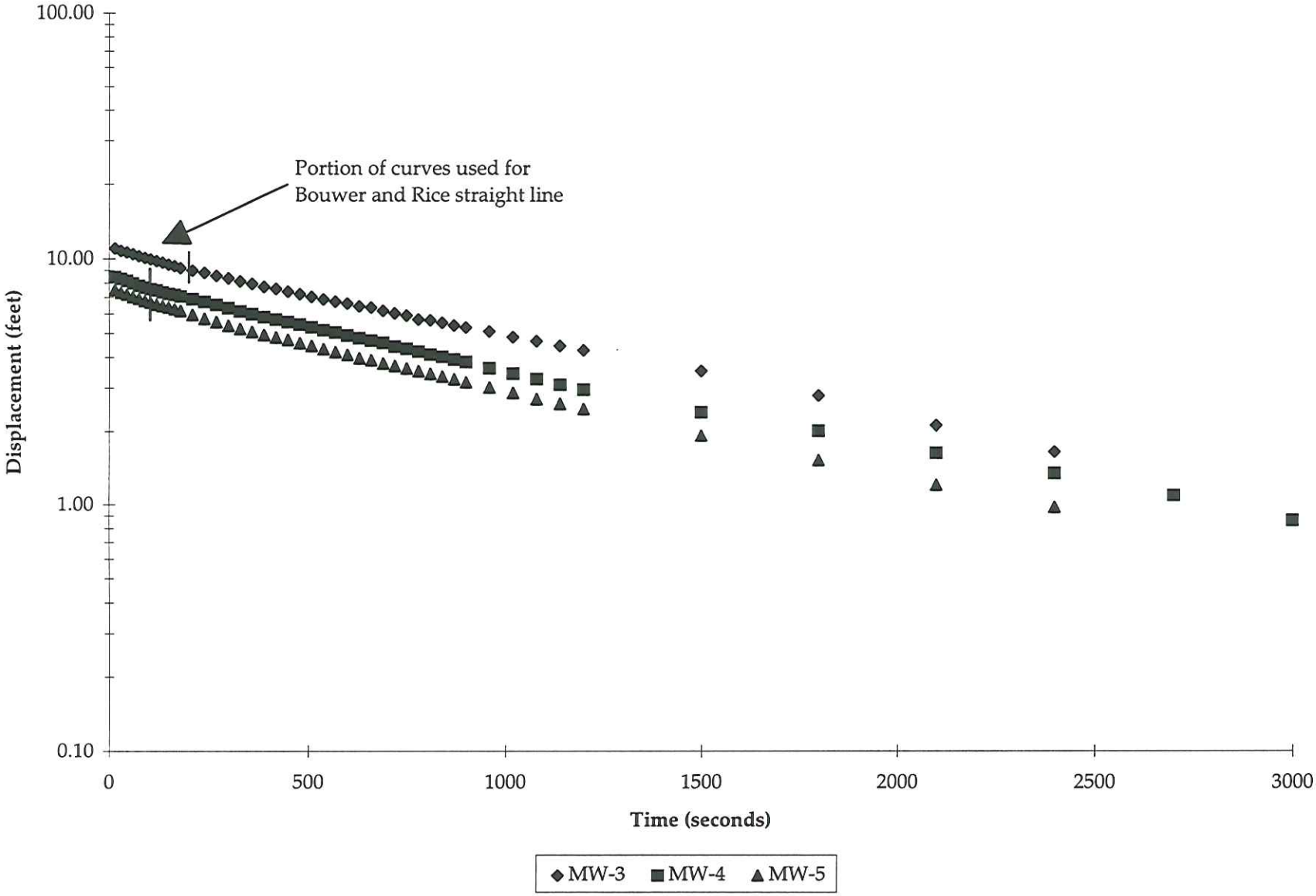
AQUIFER BAILDOWN TEST DATA

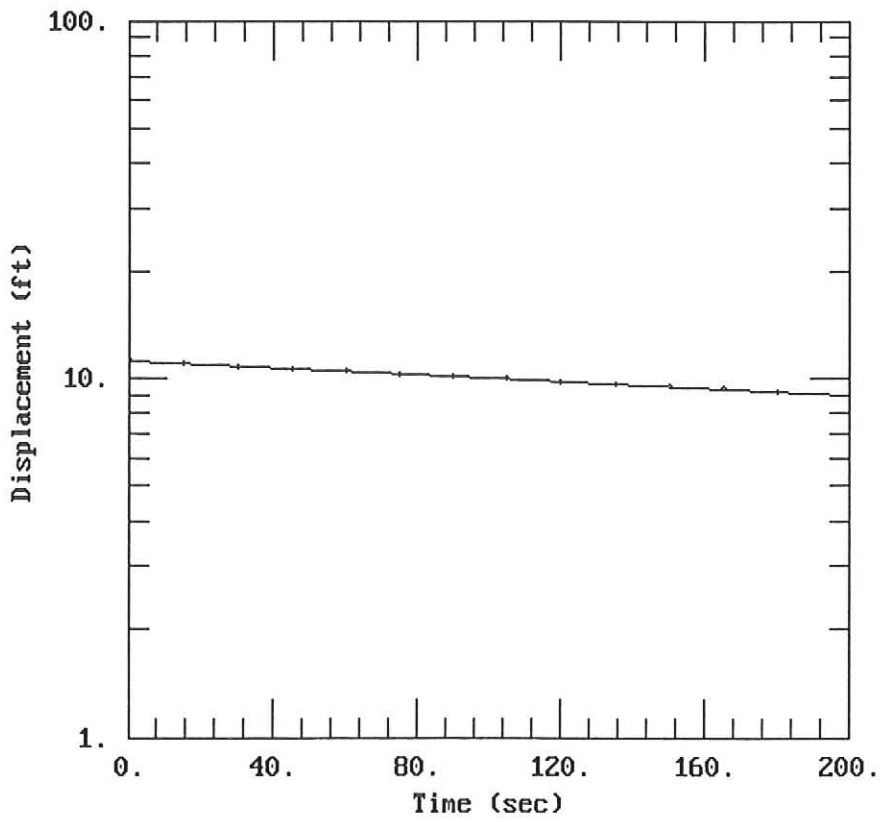
SUMMARY OF RESULTS OF MARCH 13, 1997 BAILDOWN TESTING
TIME OIL COMPANY SERVICE STATION 01-068
107 WEST LINCOLN, SUNNYSIDE, WASHINGTON

ALISTO PROJECT NO. 20-025

MW-3		MW-4		MW-5	
TIME (seconds)	DISPLACEMENT (feet)	TIME (seconds)	DISPLACEMENT (feet)	TIME (seconds)	DISPLACEMENT (feet)
pre-bail	0.00	pre-bail	0.00	pre-bail	0.00
15	11.03	15	8.45	15	7.49
30	10.79	30	8.31	30	7.30
45	10.64	45	8.15	45	7.18
60	10.47	60	7.97	60	7.02
75	10.27	75	7.79	75	6.90
90	10.10	90	7.67	90	6.76
105	9.95	105	7.56	105	6.65
120	9.80	120	7.47	120	6.53
135	9.66	135	7.34	135	6.44
150	9.49	150	7.23	150	6.36
165	9.35	165	7.16	165	6.26
180	9.19	180	7.07	180	6.16
210	8.97	210	6.89	210	5.94
240	8.79	240	6.71	240	5.72
270	8.55	270	6.53	270	5.55
300	8.35	300	6.34	300	5.36
330	8.13	330	6.15	330	5.20
360	7.94	360	5.99	360	5.06
390	7.71	390	5.83	390	4.92
420	7.58	420	5.69	420	4.81
450	7.39	450	5.56	450	4.70
480	7.21	480	5.44	480	4.56
510	7.04	510	5.30	510	4.44
540	6.87	540	5.15	540	4.31
570	6.73	570	5.05	570	4.19
600	6.60	600	4.91	600	4.09
630	6.44	630	4.78	630	3.96
660	6.37	660	4.67	660	3.88
690	6.18	690	4.58	690	3.77
720	6.04	720	4.42	720	3.68
750	5.91	750	4.33	750	3.60
780	5.70	780	4.22	780	3.51
810	5.65	810	4.11	810	3.42
840	5.53	840	4.02	840	3.33
870	5.39	870	3.92	870	3.25
900	5.29	900	3.83	900	3.16
960	5.09	960	3.61	960	3.01
1020	4.83	1020	3.43	1020	2.86
1080	4.65	1080	3.26	1080	2.70
1140	4.45	1140	3.09	1140	2.58
1200	4.27	1200	2.95	1200	2.46
1500	3.52	1500	2.39	1500	1.92
1800	2.79	1800	2.01	1800	1.52
2100	2.12	2100	1.63	2100	1.21
2400	1.65	2400	1.35	2400	0.98
		2700	1.10		
		3000	0.87		

AQUIFER BAILDOWN TEST RESULTS FOR MW-3, MW-4, AND MW-5
TIME OIL COMPANY SERVICE STATION 01-068
107 WEST LINCOLN, SUNNYSIDE, WASHINGTON





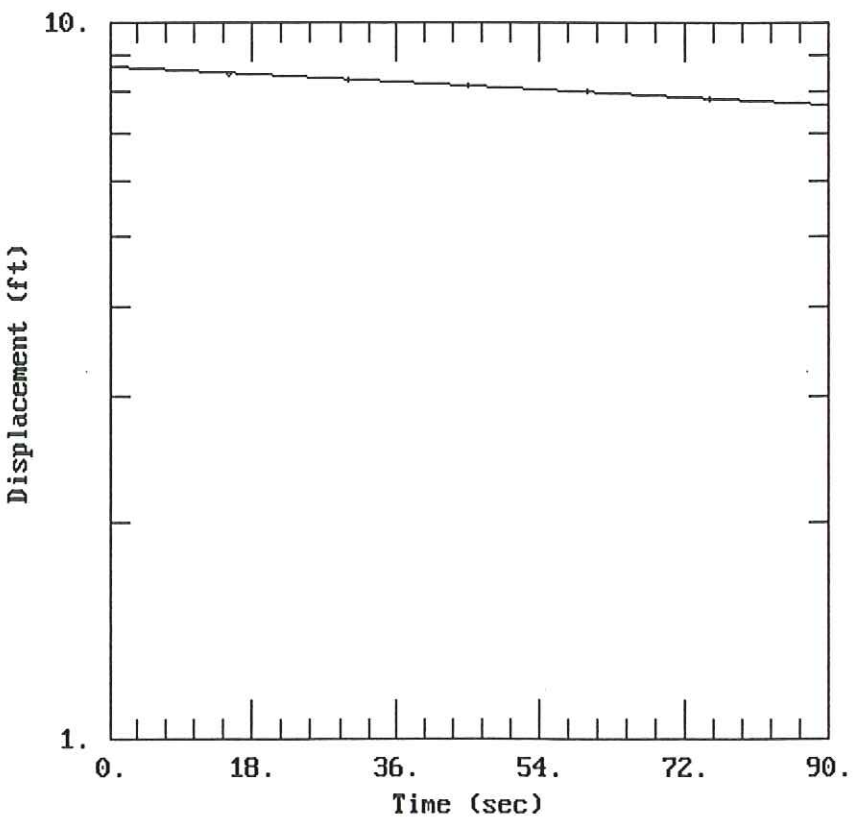
DATA SET:
MW3-TST.DAT
05/12/97

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 11.35 ft
r_c= 0.1667 ft
r_w= 0.6667 ft
L = 13.19 ft
b = 13.19 ft
H = 13.19 ft

PARAMETER ESTIMATES:
K = 2.533E-06 ft/sec
y0 = 11.17 ft



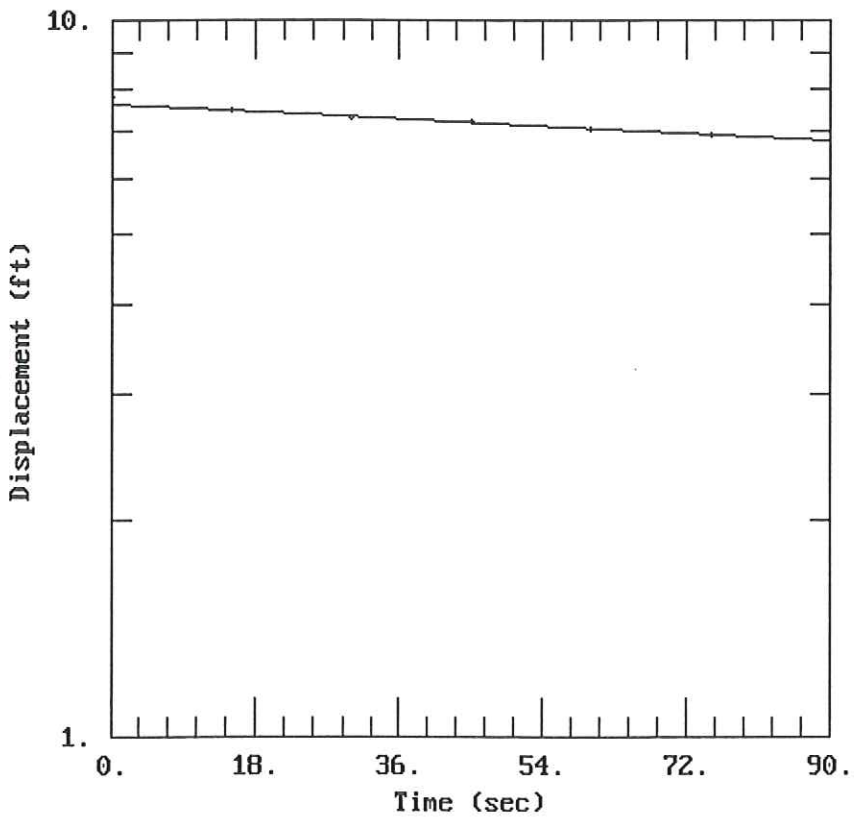
DATA SET:
MW4-TST.DAT
05/12/97

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 8.67 ft
r_c= 0.3333 ft
r_w= 0.8333 ft
L = 10.25 ft
b = 10.25 ft
H = 10.25 ft

PARAMETER ESTIMATES:
K = 1.31E-05 ft/sec
y0 = 8.636 ft



DATA SET:
MW5-TST.DAT
05/12/97

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Bouwer-Rice

TEST DATA:
H0= 7.79 ft
r_c= 0.3333 ft
r_w= 0.8333 ft
L = 10.16 ft
b = 10.16 ft
H = 10.16 ft

PARAMETER ESTIMATES:
K = 1.327E-05 ft/sec
y0 = 7.624 ft

APPENDIX I

VAPOR EXTRACTION TEST DATA

VAPOR EXTRACTION TEST FIELD DATA

TIME OIL COMPANY PROPERTY NO. 01-068
SUNNYSIDE, WASHINGTON

PROJECT NO. 20-025-01

TIME (min)	VAPOR EXTRACTION WELL MW-4				MONITORING WELLS VACUUM			
	PID READING (ppm)	FLOW RATE (cfm)	VACUUM (in. water)	O_2 (%)	VP-1 (in. water) (9')	VP-2 (in. water) (16.5')	MW-5 (in. water) (36')	MW-3 (in. water) (47')
0	22	5	19		0.50	0.15	0.00	0.00
21	40	13	30		1.20	0.40	0.05	0.00
36	102	13	30		1.20	0.45	0.05	0.00
46	112	17	40		1.60	0.60	0.05	0.00
51	209	18	45		1.80	0.65	0.05	0.00
66	215	18	45		1.80	0.65	0.10	0.00
81	164	18	45	17.7	1.80	0.65	0.10	0.00
96	138	18	45		1.80	0.65	0.10	0.00
111	126	18	45		1.80	0.65	0.10	0.00
126	129	18	45	17.7	1.80	0.65	0.10	0.00
131		18	45		1.80	0.65	0.10	0.00

TIME (min)	VAPOR EXTRACTION WELL MW-3				MONITORING WELLS VACUUM			
	PID READING (ppm)	FLOW RATE (cfm)	VACUUM (in. water)	O_2 (%)	MW-2 (in. water) (31')	VP-2 (in. water) (32')	VP-1 (in. water) (39')	MW-4 (in. water) (47')
0	18	4	18		0.00	0.00	0.00	0.00
10	48	6	30		0.00	0.00	0.00	0.00
15	172	13	42		0.05	0.00	0.00	0.00
20	358	17	46		0.10	0.00	0.00	0.00
35	658	17	45		0.10	0.00	0.00	0.00
45	743	17	45	11.8	0.10	0.00	0.00	0.00
60	460	17	46		0.10	0.00	0.00	0.00
75	403	17	46		0.10	0.00	0.00	0.00
90	640	17	46		0.10	0.00	0.00	0.00
105	735	17	46		0.10	0.00	0.00	0.00
120	731	17	46	15.3	0.10	0.00	0.00	0.00

ABBREVIATIONS:

PID	Photo-ionization detector
ppm	Parts per million
cfm	Cubic feet per minute
in. water	Inches of water column

FIGURE 3 - VAPOR EXTRACTION TEST ON MW-4
RADIUS OF INFLUENCE

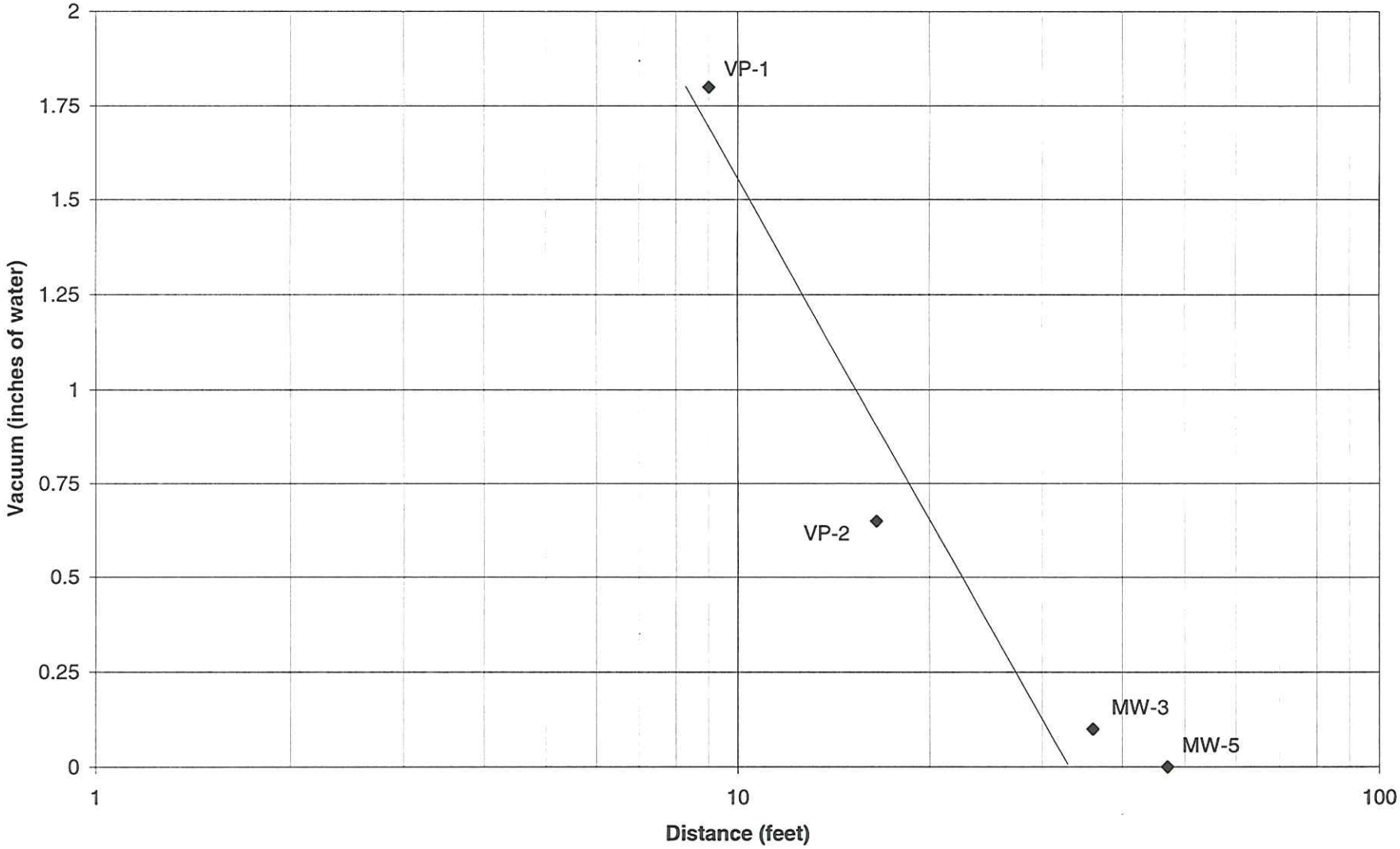
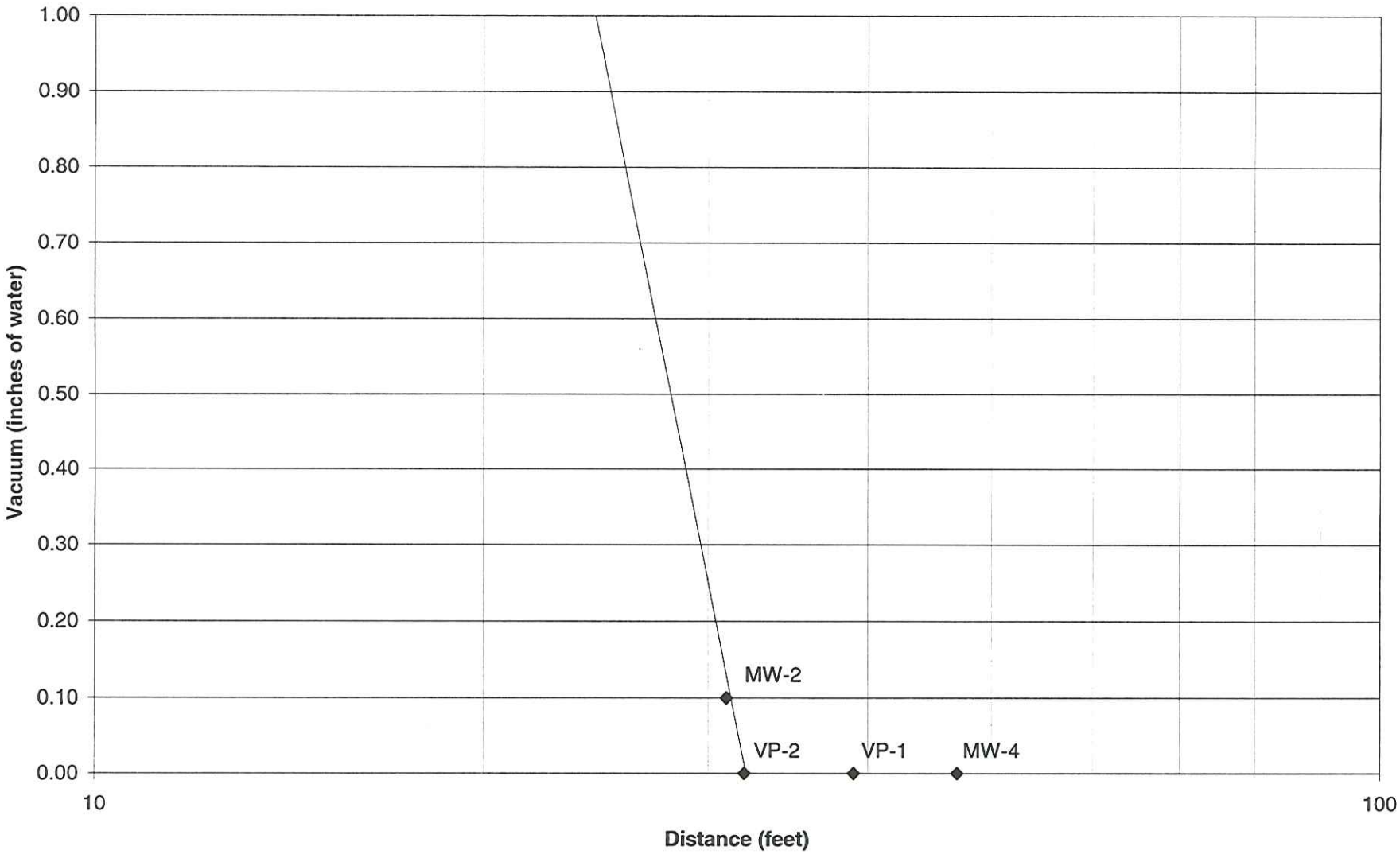


FIGURE 4 - VAPOR EXTRACTION TEST ON MW-3
RADIUS OF INFLUENCE



American Environmental Network, Inc.

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 684-0447

Mr. John M. Day
Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

Date: 04/23/1997
AEN Account No.: 90225
AEN Job Number: 97.00848

Project: Time Oil - Sunnyside
Location: 20025

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
77955	MW-4	Air	03/13/1997	03/14/1997
77956	MW-3	Air	03/13/1997	03/14/1997

Approved by:

Cindy Day
Project Manager
AEN, INC.

Technical Review
AEN, INC.

ANALYTICAL REPORT

Mr. John M. Day
Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

04/23/1997
Job No.: 97.00848

Project Name: Time Oil - Sunnyside
Date Received: 03/14/1997

Sample Number	Sample Description
77955	MW-4

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED
OZONE PRECURSORS					
Ethylene	600/8-91/215	ND	7,900	ppbv	04/11/1997
Acetylene	600/8-91/215	ND	7,900	ppbv	04/11/1997
Ethane	600/8-91/215	ND	7,900	ppbv	04/11/1997
Propylene	600/8-91/215	ND	4,000	ppbv	04/11/1997
Propane	600/8-91/215	ND	4,000	ppbv	04/11/1997
Methylacetylene	600/8-91/215	ND	4,000	ppbv	04/11/1997
Isobutane	600/8-91/215	12,000	4,000	ppbv	04/11/1997
Isobutylene	600/8-91/215	ND	4,000	ppbv	04/11/1997
1-Butene	600/8-91/215	ND	4,000	ppbv	04/11/1997
1,3-Butadiene	600/8-91/215	ND	4,000	ppbv	04/11/1997
n-Butane	600/8-91/215	67,000	4,000	ppbv	04/11/1997
trans-2-Butene	600/8-91/215	ND	4,000	ppbv	04/11/1997
2,2-Dimethylpropane	600/8-91/215	ND	4,000	ppbv	04/11/1997
Ethylacetylene	600/8-91/215	ND	4,000	ppbv	04/11/1997
cis-2-Butene	600/8-91/215	ND	4,000	ppbv	04/11/1997
3-Methyl-1-butene	600/8-91/215	ND	4,000	ppbv	04/11/1997
Isopentane	600/8-91/215	120,000	4,000	ppbv	04/11/1997
Dimethylacetylene	600/8-91/215	ND	4,000	ppbv	04/11/1997
1-Pentene	600/8-91/215	ND	4,000	ppbv	04/11/1997
2-Methyl-1-butene	600/8-91/215	ND	4,000	ppbv	04/11/1997
n-Pentane	600/8-91/215	63,000	4,000	ppbv	04/11/1997
Isoprene	600/8-91/215	ND	4,000	ppbv	04/11/1997
trans-2-Pentene	600/8-91/215	7,800	4,000	ppbv	04/11/1997
cis-2-Pentene	600/8-91/215	4,200	4,000	ppbv	04/11/1997
2-Methyl-2-butene	600/8-91/215	11,000	4,000	ppbv	04/11/1997
2,2-Dimethylbutane	600/8-91/215	ND	4,000	ppbv	04/11/1997
Cyclopentene	600/8-91/215	40,000	4,000	ppbv	04/11/1997
4-Methyl-1-pentene	600/8-91/215	ND	4,000	ppbv	04/11/1997
Cyclopentane	600/8-91/215	6,800	4,000	ppbv	04/11/1997
2,3-Dimethylbutane	600/8-91/215	8,600	4,000	ppbv	04/11/1997
Methyl tert-Butyl Ether	600/8-91/215	ND	4,000	ppbv	04/11/1997

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

ANALYTICAL REPORT

Mr. John M. Day
Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

04/23/1997
Job No.: 97.00848

Project Name: Time Oil - Sunnyside
Date Received: 03/14/1997

Sample Number	Sample Description
77955	MW-4

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED
2-Methylpentane	600/8-91/215	20,000	4,000	ppbv	04/11/1997
3-Methylpentane/2-Methyl-1-pentene	600/8-91/215	ND	4,000	ppbv	04/11/1997
1-Hexane	600/8-91/215	ND	4,000	ppbv	04/11/1997
n-Hexane	600/8-91/215	20,000	4,000	ppbv	04/11/1997
trans-2-Hexane	600/8-91/215	ND	4,000	ppbv	04/11/1997
2-Methyl-2-pentene	600/8-91/215	ND	4,000	ppbv	04/11/1997
cis-2-Hexane	600/8-91/215	ND	4,000	ppbv	04/11/1997
Methylcyclopentane	600/8-91/215	14,000	4,000	ppbv	04/11/1997
2,4-Dimethylpentane	600/8-91/215	ND	4,000	ppbv	04/11/1997
2,2,3-Trimethylbutane	600/8-91/215	ND	4,000	ppbv	04/11/1997
Benzene	600/8-91/215	15,000	4,000	ppbv	04/11/1997
Cyclohexane	600/8-91/215	ND	4,000	ppbv	04/11/1997
2-Methylhexane	600/8-91/215	5,400	4,000	ppbv	04/11/1997
2,3-Dimethylpentane	600/8-91/215	4,600	4,000	ppbv	04/11/1997
Cyclohexene	600/8-91/215	ND	4,000	ppbv	04/11/1997
3-Methylhexane	600/8-91/215	5,700	4,000	ppbv	04/11/1997
1-Heptene/Isooctane*	600/8-91/215	4,400	4,000	ppbv	04/11/1997
n-Heptane	600/8-91/215	ND	4,000	ppbv	04/11/1997
Methylcyclohexane	600/8-91/215	ND	4,000	ppbv	04/11/1997
2,4-Dimethylhexane	600/8-91/215	ND	4,000	ppbv	04/11/1997
2,3,4-Trimethylpentane	600/8-91/215	ND	4,000	ppbv	04/11/1997
Toluene	600/8-91/215	16,000	4,000	ppbv	04/11/1997
2-Methylheptane	600/8-91/215	ND	4,000	ppbv	04/11/1997
1-Octene	600/8-91/215	ND	4,000	ppbv	04/11/1997
n-Octane	600/8-91/215	ND	4,000	ppbv	04/11/1997
Ethylbenzene	600/8-91/215	ND	4,000	ppbv	04/11/1997
m-Xylene	600/8-91/215	ND	4,000	ppbv	04/11/1997
p-Xylene	600/8-91/215	ND	4,000	ppbv	04/11/1997
Styrene	600/8-91/215	ND	4,000	ppbv	04/11/1997
o-Xylene	600/8-91/215	ND	4,000	ppbv	04/11/1997
1-Nonene	600/8-91/215	ND	4,000	ppbv	04/11/1997

* 1-Heptene and Isooctane coelute. Peak is referenced to 1-Heptene.

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

ANALYTICAL REPORT

Mr. John M. Day
Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

04/23/1997
Job No.: 97.00848

Project Name: Time Oil - Sunnyside
Date Received: 03/14/1997

Sample Number	Sample Description
77955	MW-4

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED
n-Nonane	600/8-91/215	ND	4,000	ppbv	04/11/1997
Cumene	600/8-91/215	ND	4,000	ppbv	04/11/1997
a-Pinene	600/8-91/215	ND	4,000	ppbv	04/11/1997
n-Propylbenzene	600/8-91/215	ND	4,000	ppbv	04/11/1997
m-Ethyltoluene	600/8-91/215	ND	4,000	ppbv	04/11/1997
p-Ethyltoluene	600/8-91/215	ND	4,000	ppbv	04/11/1997
Methylstyrene	600/8-91/215	ND	4,000	ppbv	04/11/1997
1,3,5-Trimethylbenzene	600/8-91/215	ND	4,000	ppbv	04/11/1997
o-Ethyltoluene	600/8-91/215	ND	4,000	ppbv	04/11/1997
b-Pinene	600/8-91/215	ND	4,000	ppbv	04/11/1997
1,2,4-Trimethylbenzene	600/8-91/215	ND	4,000	ppbv	04/11/1997
n-Decane	600/8-91/215	ND	4,000	ppbv	04/11/1997
p-Cymene	600/8-91/215	ND	4,000	ppbv	04/11/1997
d-Limonene	600/8-91/215	ND	4,000	ppbv	04/11/1997
1,4-Diethylbenzene	600/8-91/215	ND	4,000	ppbv	04/11/1997
n-Butylbenzene	600/8-91/215	ND	4,000	ppbv	04/11/1997
Total Non-Methane Hydrocarbons	600/8-91/215	450,000	40,000	ppbv	04/11/1997

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

ANALYTICAL REPORT

Mr. John M. Day
Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

04/23/1997
Job No.: 97.00848

Project Name: Time Oil - Sunnyside
Date Received: 03/14/1997

Sample Number	Sample Description
77956	MW-3

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED
OZONE PRECURSORS					
Ethylene	600/8-91/215	ND	9,000	ppbv	04/11/1997
Acetylene	600/8-91/215	ND	9,000	ppbv	04/11/1997
Ethane	600/8-91/215	ND	9,000	ppbv	04/11/1997
Propylene	600/8-91/215	ND	4,500	ppbv	04/11/1997
Propane	600/8-91/215	ND	4,500	ppbv	04/11/1997
Methylacetylene	600/8-91/215	ND	4,500	ppbv	04/11/1997
Isobutane	600/8-91/215	96,000	4,500	ppbv	04/11/1997
Isobutylene	600/8-91/215	ND	4,500	ppbv	04/11/1997
1-Butene	600/8-91/215	4,900	4,500	ppbv	04/11/1997
1,3-Butadiene	600/8-91/215	ND	4,500	ppbv	04/11/1997
n-Butane	600/8-91/215	890,000	4,500	ppbv	04/11/1997
trans-2-Butene	600/8-91/215	11,000	4,500	ppbv	04/11/1997
2,2-Dimethylpropane	600/8-91/215	ND	4,500	ppbv	04/11/1997
Ethylacetylene	600/8-91/215	ND	4,500	ppbv	04/11/1997
cis-2-Butene	600/8-91/215	11,000	4,500	ppbv	04/11/1997
3-Methyl-1-butene	600/8-91/215	8,800	4,500	ppbv	04/11/1997
Isopentane	600/8-91/215	730,000	4,500	ppbv	04/11/1997
Dimethylacetylene	600/8-91/215	ND	4,500	ppbv	04/11/1997
1-Pentene	600/8-91/215	30,000	4,500	ppbv	04/11/1997
2-Methyl-1-butene	600/8-91/215	11,000	4,500	ppbv	04/11/1997
n-Pentane	600/8-91/215	320,000	4,500	ppbv	04/11/1997
Isoprene	600/8-91/215	ND	4,500	ppbv	04/11/1997
trans-2-Pentene	600/8-91/215	59,000	4,500	ppbv	04/11/1997
cis-2-Pentene	600/8-91/215	32,000	4,500	ppbv	04/11/1997
2-Methyl-2-butene	600/8-91/215	83,000	4,500	ppbv	04/11/1997
2,2-Dimethylbutane	600/8-91/215	38,000	4,500	ppbv	04/11/1997
Cyclopentene	600/8-91/215	390,000	4,500	ppbv	04/11/1997
4-Methyl-1-pentene	600/8-91/215	5,100	4,500	ppbv	04/11/1997
Cyclopentane	600/8-91/215	40,000	4,500	ppbv	04/11/1997
2,3-Dimethylbutane	600/8-91/215	ND	4,500	ppbv	04/11/1997
Methyl tert-Butyl Ether	600/8-91/215	110,000	4,500	ppbv	04/11/1997

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

ANALYTICAL REPORT

Mr. John M. Day
Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

04/23/1997
Job No.: 97.00848

Project Name: Time Oil - Sunnyside
Date Received: 03/14/1997

Sample Number	Sample Description
77956	MW-3

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED
2-Methylpentane	600/8-91/215	210,000	4,500	ppbv	04/11/1997
3-Methylpentane/2-Methyl-1-pentene	600/8-91/215	16,000	4,500	ppbv	04/11/1997
1-Hexane	600/8-91/215	12,000	4,500	ppbv	04/11/1997
n-Hexane	600/8-91/215	200,000	4,500	ppbv	04/11/1997
trans-2-Hexane	600/8-91/215	19,000	4,500	ppbv	04/11/1997
2-Methyl-2-pentene	600/8-91/215	29,000	4,500	ppbv	04/11/1997
cis-2-Hexane	600/8-91/215	ND	4,500	ppbv	04/11/1997
Methylcyclopentane	600/8-91/215	160,000	4,500	ppbv	04/11/1997
2,4-Dimethylpentane	600/8-91/215	58,000	4,500	ppbv	04/11/1997
2,2,3-Trimethylbutane	600/8-91/215	ND	4,500	ppbv	04/11/1997
Benzene	600/8-91/215	57,000	4,500	ppbv	04/11/1997
Cyclohexane	600/8-91/215	46,000	4,500	ppbv	04/11/1997
2-Methylhexane	600/8-91/215	95,000	4,500	ppbv	04/11/1997
2,3-Dimethylpentane	600/8-91/215	89,000	4,500	ppbv	04/11/1997
Cyclohexene	600/8-91/215	ND	4,500	ppbv	04/11/1997
3-Methylhexane	600/8-91/215	100,000	4,500	ppbv	04/11/1997
1-Heptene/Isooctane*	600/8-91/215	110,000	4,500	ppbv	04/11/1997
n-Heptane	600/8-91/215	58,000	4,500	ppbv	04/11/1997
Methylcyclohexane	600/8-91/215	32,000	4,500	ppbv	04/11/1997
2,4-Dimethylhexane	600/8-91/215	19,000	4,500	ppbv	04/11/1997
2,3,4-Trimethylpentane	600/8-91/215	30,000	4,500	ppbv	04/11/1997
Toluene	600/8-91/215	100,000	4,500	ppbv	04/11/1997
2-Methylheptane	600/8-91/215	17,000	4,500	ppbv	04/11/1997
1-Octene	600/8-91/215	ND	4,500	ppbv	04/11/1997
n-Octane	600/8-91/215	11,000	4,500	ppbv	04/11/1997
Ethylbenzene	600/8-91/215	15,000	4,500	ppbv	04/11/1997
m-Xylene	600/8-91/215	36,000	4,500	ppbv	04/11/1997
p-Xylene	600/8-91/215	14,000	4,500	ppbv	04/11/1997
Styrene	600/8-91/215	ND	4,500	ppbv	04/11/1997
o-Xylene	600/8-91/215	12,000	4,500	ppbv	04/11/1997
1-Nonene	600/8-91/215	ND	4,500	ppbv	04/11/1997

* 1-Heptene and Isooctane coelute. Peak is referenced to 1-Heptene.

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

ANALYTICAL REPORT

Mr. John M. Day
Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

04/23/1997
Job No.: 97.00848

Project Name: Time Oil - Sunnyside
Date Received: 03/14/1997

Sample Number	Sample Description
77956	MW-3

PARAMETERS	METHODS	RESULTS	REPORT LIMIT	UNITS	DATE ANALYZED
n-Nonane	600/8-91/215	ND	4,500	ppbv	04/11/1997
Cumene	600/8-91/215	ND	4,500	ppbv	04/11/1997
a-Pinene	600/8-91/215	ND	4,500	ppbv	04/11/1997
n-Propylbenzene	600/8-91/215	ND	4,500	ppbv	04/11/1997
m-Ethyltoluene	600/8-91/215	5,400	4,500	ppbv	04/11/1997
p-Ethyltoluene	600/8-91/215	ND	4,500	ppbv	04/11/1997
Methylstyrene	600/8-91/215	ND	4,500	ppbv	04/11/1997
1,3,5-Trimethylbenzene	600/8-91/215	ND	4,500	ppbv	04/11/1997
o-Ethyltoluene	600/8-91/215	ND	4,500	ppbv	04/11/1997
b-Pinene	600/8-91/215	ND	4,500	ppbv	04/11/1997
1,2,4-Trimethylbenzene	600/8-91/215	5,600	4,500	ppbv	04/11/1997
n-Decane	600/8-91/215	ND	4,500	ppbv	04/11/1997
p-Cymene	600/8-91/215	ND	4,500	ppbv	04/11/1997
d-Limonene	600/8-91/215	ND	4,500	ppbv	04/11/1997
1,4-Diethylbenzene	600/8-91/215	ND	4,500	ppbv	04/11/1997
n-Butylbenzene	600/8-91/215	ND	4,500	ppbv	04/11/1997
Total Non-Methane Hydrocarbons	600/8-91/215	4,600,000	40,000	ppbv	04/11/1997

A sample result of ND indicates the parameter was Not Detected at the reporting limit.

QUALITY CONTROL REPORT
BLANKS

Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

Date: 04/23/1997

Job Number: 97.00848

Contact: Mr. John M. Day
Project: Time Oil - Sunnyside
Location: 20025

Analyte	Blank Analysis	Report Limit	Units	Date Analyzed
OZONE PRECURSORS				
Ethylene	ND	5,000	ppbv	04/11/1997
Acetylene	ND	5,000	ppbv	04/11/1997
Ethane	ND	5,000	ppbv	04/11/1997
Propylene	ND	2,500	ppbv	04/11/1997
Propane	ND	2,500	ppbv	04/11/1997
Methylacetylene	ND	2,500	ppbv	04/11/1997
Isobutane	ND	2,500	ppbv	04/11/1997
Isobutylene	ND	2,500	ppbv	04/11/1997
1-Butene	ND	2,500	ppbv	04/11/1997
1,3-Butadiene	ND	2,500	ppbv	04/11/1997
n-Butane	ND	2,500	ppbv	04/11/1997
trans-2-Butene	ND	2,500	ppbv	04/11/1997
2,2-Dimethylpropane	ND	2,500	ppbv	04/11/1997
Ethylacetylene	ND	2,500	ppbv	04/11/1997
cis-2-Butene	ND	2,500	ppbv	04/11/1997
3-Methyl-1-butene	ND	2,500	ppbv	04/11/1997
Isopentane	ND	2,500	ppbv	04/11/1997
Dimethylacetylene	ND	2,500	ppbv	04/11/1997
1-Pentene	ND	2,500	ppbv	04/11/1997
2-Methyl-1-butene	ND	2,500	ppbv	04/11/1997
n-Pentane	ND	2,500	ppbv	04/11/1997
Isoprene	ND	2,500	ppbv	04/11/1997
trans-2-Pentene	ND	2,500	ppbv	04/11/1997
cis-2-Pentene	ND	2,500	ppbv	04/11/1997
2-Methyl-2-butene	ND	2,500	ppbv	04/11/1997
2,2-Dimethybutane	ND	2,500	ppbv	04/11/1997
Cyclopentene	ND	2,500	ppbv	04/11/1997
4-Methyl-1-pentene	ND	2,500	ppbv	04/11/1997

QUALITY CONTROL REPORT
BLANKS

Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

Date: 04/23/1997

Job Number: 97.00848

Contact: Mr. John M. Day
Project: Time Oil - Sunnyside
Location: 20025

Analyte	Blank Analysis	Report Limit	Units	Date Analyzed
Cyclopentane	ND	2,500	ppbv	04/11/1997
2,3-Dimethylbutane	ND	2,500	ppbv	04/11/1997
Methyl-tert-Butyl Ether	ND	2,500	ppbv	04/11/1997
2-Methylpentane	ND	2,500	ppbv	04/11/1997
3-Methylpentane/2-Methyl-1-pentene	ND	2,500	ppbv	04/11/1997
1-Hexene	ND	2,500	ppbv	04/11/1997
n-Hexane	ND	2,500	ppbv	04/11/1997
trans-2-Hexene	ND	2,500	ppbv	04/11/1997
2-Methyl-2-pentene	ND	2,500	ppbv	04/11/1997
cis-2-Hexene	ND	2,500	ppbv	04/11/1997
Methylcyclopentane	ND	2,500	ppbv	04/11/1997
2,4-Dimethylpentane	ND	2,500	ppbv	04/11/1997
2,2,3-Trimethylbutane	ND	2,500	ppbv	04/11/1997
Benzene	ND	2,500	ppbv	04/11/1997
Cyclohexane	ND	2,500	ppbv	04/11/1997
2-Methylhexane	ND	2,500	ppbv	04/11/1997
2,3-Dimethylpentane	ND	2,500	ppbv	04/11/1997
Cyclohexane	ND	2,500	ppbv	04/11/1997
3-Methylhexane	ND	2,500	ppbv	04/11/1997
1-Heptene/Isooctane*	ND	2,500	ppbv	04/11/1997
n-Heptane	ND	2,500	ppbv	04/11/1997
Methylcyclohexane	ND	2,500	ppbv	04/11/1997
2,4-Dimethylhexane	ND	2,500	ppbv	04/11/1997
2,3,4-Trimethlypentane	ND	2,500	ppbv	04/11/1997
Toluene	ND	2,500	ppbv	04/11/1997
2-Methylheptane	ND	2,500	ppbv	04/11/1997
1-Octene	ND	2,500	ppbv	04/11/1997

* 1-Heptene and Isooctane coelute. Peak is referenced to 1-Heptene.

QUALITY CONTROL REPORT
BLANKS

Alisto Engineering Group
7160 SW Hazelfern
Suite 700
Portland, OR 97224

Date: 04/23/1997

Job Number: 97.00848

Contact: Mr. John M. Day
Project: Time Oil - Sunnyside
Location: 20025

Analyte	Blank Analysis	Report Limit	Units	Date Analyzed
n-Octane	ND	2,500	ppbv	04/11/1997
Ethylbenzene	ND	2,500	ppbv	04/11/1997
m-Xylene	ND	2,500	ppbv	04/11/1997
p-Xylene	ND	2,500	ppbv	04/11/1997
Styrene	ND	2,500	ppbv	04/11/1997
o-Xylene	ND	2,500	ppbv	04/11/1997
1-Nonene	ND	2,500	ppbv	04/11/1997
n-Nonene	ND	2,500	ppbv	04/11/1997
Cumene	ND	2,500	ppbv	04/11/1997
a-Pinene	ND	2,500	ppbv	04/11/1997
n-Propylbenzene	ND	2,500	ppbv	04/11/1997
m-Ethyltoluene	ND	2,500	ppbv	04/11/1997
p-Ethyltoluene	ND	2,500	ppbv	04/11/1997
Methylstyrene	ND	2,500	ppbv	04/11/1997
1,3,5-Trimethylbenzene	ND	2,500	ppbv	04/11/1997
o-Ethyltoluene	ND	2,500	ppbv	04/11/1997
b-Pinene	ND	2,500	ppbv	04/11/1997
1,2,4-Trimethylbenzene	ND	2,500	ppbv	04/11/1997
n-Decane	ND	2,500	ppbv	04/11/1997
p-Cymene	ND	2,500	ppbv	04/11/1997
d-Limonene	ND	2,500	ppbv	04/11/1997
1,4-Diethylbenzene	ND	2,500	ppbv	04/11/1997
n-Butylbenzene	ND	2,500	ppbv	04/11/1997
Total Non-Methane Hydrocarbons	ND	40,000	ppbv	04/11/1997

FLAG GLOSSARY

A	This sample does not have a typical gasoline pattern.
B1	This sample does not have a typical diesel pattern.
B	Analyte found in the associated blank as well as the sample.
C	The sample contains a lighter hydrocarbon than gasoline.
CS	Outside control limits or unusual matrix; see case narrative.
D	The sample extends to a heavier hydrocarbon range than gasoline.
DIL	Result was calculated from dilution.
E	The sample extends to a lighter hydrocarbon range than diesel.
F	The sample extends to a heavier hydrocarbon range than diesel.
G	The positive result for gasoline is due to single component comtamination.
I	The oil pattern for this sample is not typical.
J	The result for this compound is an estimated concentration.
L	The LCS recovery exceeded control limits. See the LCS page of this report.
LM	The LCS recovery exeeded control limits; the MS/MSD were in control validating the batch.
M	MS and/or MSD percent recovery exceeds control limits.
MD	Unable to calculate MS/MSD recovery due to high amount of analyte; greater than 4 times spike level.
MR	The MS/MSD RPD is greater than 20%. The sample was re-extracted and re-analyzed with similar results indicating a non-homogeneous sample.
MM	The Matrix Spike exceeded control limits; LCS/LCS-D were in control validating the batch.
MI	Outside control limits due to matrix interference.
N	Manual integration performed on sample for quantification.
N/A	Not Applicable.
NC	Not calcuable.
NO	Not Analyzed.
P	A post digestion spike was analyzed, and recoveries were within control limits.
Q	Detection limits elevated due to sample matrix.
R	The duplicate RPD was greater than 20%. The sample was re-extracted and re-analyzed with similar results. This indicates a matrix interference in the sample, likely a non-homogeneity of the sample.
RD	RPD not applicable for results less than five times the reporting limit.
SR	Surrogate recovery outside control limits. See the surrogate page of the report.
SD	Unable to quantitate surrogate due to sample dilution.
SC	Sample not provided to laboratory in proper sampling container.
V	Volatile analysis was requested, sample container received with headspace.
X1	The duplicate RPD was greater than 20%. Due to insufficient sample, re-analysis was not possible.
X	Sample was analyzed outside recommended holding times.
Y	The result for this parameter was greater than the TCLP regulatory limit.
Z	The pattern seen for the parameter being analyzed is not typical.

AEN AMERICAN ENVIRONMENTAL NETWORK

PORTLAND DIVISION, 17400 SW UPPER BOONES FERRY RD., SUITE 260, PORTLAND, OR 97224
(503) 624-5449 PHONE (503) 639-6889 FAX

CHAIN OF CUSTODY RECORD 97_00848

COMPANY Aliro Eng Group
ADDRESS 7160 S.W. Hazelfern Dr. ste 700/PTLD
PHONE 620-8420 FAX 620-1927
PROJECT NAME/LOCATION Time Oil - Sunnyside
PROJECT NUMBER 2002
PROJECT MANAGER John Day

SAMPLED BY John Day (PRINT NAME) _____ SIGNATURE _____
(PRINT NAME) _____ SIGNATURE _____

ANALYSES

TURNAROUND TIME ____ DAY (S)

DATE	TIME	SAMPLE ID/DESCRIPTION	GRAB	COMP	# OF CONTAINERS	MATRIX	PRESERVED Y/N	TPH-HCID + SPECIATED HYDROCARBONS	COMMENTS
3/13/97	1400	MW-4			1	AIR	N	X	
"	1702	MW-3			1	AIR	N	X	

RESULTS TO: JMD/A.C.

INVOICE TO: Angela Côté / T.O.C.

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
	3/4/97 1745				
RELINQUISHED BY:	DATE/TIME	RECEIVED BY:	RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LABORATORY BY:
				3/14/97 17:45	Cindy Day

METHOD OF SHIPMENT

REMARKS:

PT 1 - ORIGINAL - WHITE PT 2 - AEN PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK