DRAFT VOLUME I REMEDIAL INVESTIGATION REPORT NEW CITY CLEANERS 747 STEVENS BLVD. RICHLAND, WASHINGTON

Prepared for

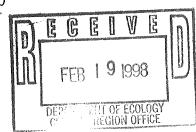
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1 INTRODUCTION

1.1 Purpose of Investigation

Paul and Bettie Haverluk, dba New City Cleaners, entered into Order No. 92TC-C180 ("Order") with the Washington Department of Ecology ("Ecology") to conduct environmental investigations at the New City Cleaners ("Site") at 747 Stevens Drive in Richland, Washington (Figure 1-1). The scope of the Order, issued pursuant to the Model Toxics Control Act (MTCA)¹, includes the following primary tasks: (1) a facility background history review, and (2) a remedial investigation study.

Specific to the remedial investigation, the Order requires the Haverluks to conduct an investigation of the Site in accordance with the scope and contents specified in WAC 173-340-350.

The Remedial Investigation (RI) Work Plan, including the Sampling and Analysis plan (the Work Plan) was completed and transmitted to Ecology on February 13, 1997 (EMCON, 1997a). The Work Plan was approved by Ecology by letter dated February 19, 1997. Additional interim deliverables specified in the Order have also been completed and submitted to Ecology as follows:

- The Public Participation Plan, March 6, 1997 (EMCON, 1997b).
- The Pre-investigation Evaluation of Cleanup Action Technologies Report, March 18, 1997 (EMCON, 1997c).
- The Site History Report, April 24, 1997 (EMCON, 1997d).
- Preliminary Phase 1 Investigation Results and Proposed Monitoring Well Locations, April 18, 1997 (EMCON, 1997e).
- Preliminary Data Transmittal, Phase 1 soil and groundwater, Phase 2 soil, July 17, 1997 (EMCON, 1997f).

¹ Chapter 173-340 WAC, The Model Toxics Control Act.

- Preliminary Data Transmittals, Phase 2 groundwater, July 25, 1997, October 22, 1997 (EMCON, 1997f,g).
- Monthly Status Reports, April through November, 1997.

This report summarizes the RI work performed and presents the results of the data obtained. Results presented herein include soil quality data, groundwater quality data, groundwater levels, and aquifer characterization test results.

1.2 Project Objectives

The RI was performed to provide information on soil and aquifer characteristics, investigate soil and groundwater quality, and identify indicator hazardous substances and their migration and fate. The overall project data quality objectives (DQOs) were to:

- Determine the nature and extent of contamination in soil and groundwater.
- Perform a baseline exposure evaluation covering human health and the environment.
- Assess compliance with MTCA and applicable, or relevant and appropriate requirements (ARARs).
- Evaluate potential remedial technologies and alternatives.

The soil RI objectives were to: (1) assess the nature and extent of potential surface and subsurface soil contamination from historic activities at the Site; (2) assess the soil and geology of the Site; and (3) characterize the physical parameters (e.g., soil types and grain size).

The groundwater RI objectives were to: (1) assess the nature and extent of potential groundwater contamination at the Site; and (2) further characterize the Site hydrogeology (e.g., occurrence of groundwater, flow direction, and aquifer characteristics).

1.3 Report Organization

The report is organized as follows:

 Section 2 provides a description of the Site and surrounding properties, a Site history review, an operations overview, and a brief summary of previous investigations.

- Section 3 describes the environmental setting of the area, including climate, surface water hydrology, regional geology and hydrogeology, and area water supply wells.
- Section 4 summarizes the RI site investigations.
- Section 5 discusses Site physical and ecological characteristics, including air, topography and features, geology, hydrogeology, surface water hydrology, and the stormwater drainage system.
- Section 6 summarizes the nature and extent of chemicals in soil and groundwater.
- Section 7 provides a conceptual site model, including contaminant sources, migration routes, and fate.
- Section 8 presents the results of the baseline exposure evaluation including both human health and environmental evaluations.
- Appendix A contains the sampling alteration checklists.
- Appendix B contains the lithologic logs.
- Appendix C provides field sampling data sheets for soil and groundwater
- Appendix D presents the soil chemistry and physical data.
- Appendix E presents survey and well development data.
- Appendix F presents the hydraulic conductivity test results.
- Appendix G contains the data validation reports.
- Appendix H contains the interim TPH evaluation.

2.1 Site Description

The Site address is 747 Stevens Drive in the city of Richland, in Benton County, Washington (Figure 1). The Site consists of a 0.5-acre parcel of land including a one-level cinder block structure (approximate dimensions 100 feet by 40 feet) used as a dry cleaning business.

The Site is bounded on the east by Stevens Drive, on the north by a vacant lot, and on the south by a vehicle maintenance facility for the Richland School District. A former railroad spur, identified as the Hanford Works Railroad, is located on the west property line. A small drainage canal is located off-site immediately west of the railroad spur and flows to the north. The canal empties into the Columbia River approximately 1 mile from the Site. Across the canal to the west is a parking lot and baseball field associated with Carmichael Junior High School and Columbia High School. Across Stevens Drive, east of the Site, is a retail shopping center and mini-mart/service station. The Site is currently zoned for general commercial use, and, as such, is designated as "C2" by the city of Richland.

2.2 Site History and Ownership

Based on interviews with Paul Haverluk, review of records on file at the City of Richland Building Inspection Department, and review of aerial photos, the Site was developed sometime between 1948 and 1957. Based on discussions between EMCON and Hanford site historian Mary Kay Campbell (Mack Tech Co.) (June 1996), the facility was constructed as part of the Hanford Works project and was noted in the records as a "cleaner." The earliest records at the city of Richland available for the Site are dated April 1957; however, no building permit was available for the initial Site development.

Historical use of the property to the north of the Site includes use as a theater, coin shop, bookstore, and carpet store. Historical use of the property to the south of the Site since 1953 has included four auto dealership and service facilities, a tile company, and a vehicle maintenance facility for the Richland School District. Historical use of the property to the west has been the baseball field and parking for the high school; property to the east was formerly utilized as barracks as part of the Hanford Works Project.

2.3 Operations Overview

Historic management and handling of hazardous materials at the Site is summarized below, based on a review of Ecology's files for the Site and interviews with Mr. and Mrs. Haverluk (EMCON 1996, 1997).

The dry cleaning process at the Site used stoddard solvent, a petroleum-based fluid, as the primary cleaning agent from the time of Site development (approximately 1950) until 1974 when an additional process using tetrachloroethene (PCE) came into use. The stoddard solvent was stored in two underground storage tanks (USTs) located near the southwest corner of the building. The PCE was delivered and stored on site in drums. The drums were stored outside of the building on a rack near the southwest corner of the property on the south fence line (Figure 2-1). The drum rack was moved inside the facility in early 1975, following a release of an unknown quantity of PCE to the ground. At the time of the release, a valve on a drum on the rack was observed to be open. Mr. Haverluk's belief is the open valve was due to vandalism. Students from the adjacent school had been observed walking through the area prior to the observation of the open valve.

Waste generated from the stoddard solvent process included filtrate cake from a filter system using diatomaceous earth and/or carbon canisters from an in-line, continuous filtering process. Wastes generated from the PCE process also included filtrate cake from a centrifugal filter system and carbon canisters from an in-line, continuous filtering process. According to Mr. Haverluk, waste generated as part of the dry cleaning process prior to the early 1980s was typically placed in the on-site dumpster and taken to the local landfill for disposal. According to Mr. Haverluk, the dumpster was located in various areas behind (west) of the building. Mr. Haverluk also noted that stilling was seldom used to reclaim either the stoddard solvent or PCE during the period of his ownership and operation; on-site filtering was the preferred operation. Mr. Haverluk stated that, when generated, the still bottoms were typically placed in the dumpster.

Since the early 1980s, all process wastes have been handled under a contract with a waste handling and disposal firm (e.g., Safety Kleen). Mineral spirits are currently delivered to the Site in 55-gallon drums and stored in a locked shed behind the main building. PCE is delivered to the Site in 5-gallon containers and stored inside the building. The US EPA ID Number for the Site is WAD027332238. Based on a 1994 Form 2, Washington State Notification of Dangerous Waste Activities Report, on file with Ecology, waste types identified for the Site include mineral spirits and perchloroethylene. The Small Quantity Generators list identifies the wastes as spent halogenated solvents and other state-regulated wastes.

2.4 Previous Investigations

Two 1,200-gallon stoddard solvent USTs were removed from the Site on April 21, 1992. In addition, one 10,000-gallon UST, reportedly containing Bunker C fuel, and one 500-gallon UST, containing unknown substances (likely kerosene), were removed from the Site at the same time. Tank removal records on file with the Richland Fire Department identify the contents of the 500-gallon UST as kerosene. Approximate UST locations are shown on Figure 2-1.

As part of the UST removal work at the New City Cleaners site, soil and groundwater samples were collected from the UST excavations and other locations. Based on the findings of the assessments, the following hazardous substances were identified in soil and groundwater beneath the Site: PCE; trichloroethene (TCE); 1,2-dichloroethene (DCE); 1,2-dichloroethane; benzene, toluene, ethylbenzene, and total xylenes (BTEX); and total petroleum hydrocarbons (TPH).

Stockpiled soil (approximately 75 to 100 cubic yards), reportedly associated with the UST removals and additional investigations during April 1992, remain on plastic sheeting behind the building. The stockpiles occupy the majority of the area behind the building. A small stockpile (approximately 10 cubic yards) of broken asphalt is near the northwest corner of the Site. A minor amount of debris, including plastic sheeting, steel wire, and wood pallets is located on the southern property line behind the building.

Table 2-1 summarizes the analytical data generated by previous investigations at the Site (Technico, 1992; Novatech, 1992). Figure 2-2 shows the general locations where existing data were collected. Precise sampling locations have not been identified. Soil and groundwater samples were analyzed for volatile organic compound (VOC) analyses by EPA Methods 8260 and 624, and TPH by EPA Method 418.1.

Prior to and concurrent with UST removal activities at the Site, an environmental investigation was underway at the adjacent site to the south (former Spectrum property). This property is now owned by the Richland School District (RSD). The Spectrum property investigation involved the removal by RSD of four on-site USTs and the installation of five groundwater monitoring wells (MW-A through MW-E). Analysis of groundwater samples collected from those wells in 1991 and 1992 indicated the presence of PCE and TCE at concentrations exceeding MTCA Method A cleanup levels.

3.1 Climate

The climate of the Richland area is arid. Based on National Oceanic and Atmospheric Administration (NOAA) data for the city of Richland, the average annual precipitation at the Site is approximately 6 inches. The mean annual temperature is approximately 51 degrees Fahrenheit (F), with the winter months of December, January, and February being the coldest (average of 36 degrees F). Temperatures in the summer months routinely exceed 100 degrees F.

3.2 Surface Water Hydrology

A drainage canal currently parallels the western Site boundary, and is located west of the former railroad alignment (Figure 2-1). Based on historical photos (circa 1948), the canal bisected the Site and the adjacent site to the south prior to development (approximately 1950). The canal was relocated west of the site, presumably at the time of development, into the current location. The canal carries surface water runoff collected from upland areas to the south and west of the facility, including storm drains installed on Wellsian Way. The canal flows north past the site and empties into the Columbia River approximately 1 mile north of the Site.

3.3 Regional Geology

The area is underlain by three regionally extensive geologic units associated with the Columbia River: recent sandy silt alluvium, Quaternary glacial outburst flood deposits, and lacustrine silt and clay (Reidel and Fecht, 1994; Huntingdon, 1993). Figure 3-1 presents a generalized geologic cross-section of the area (Huntingdon, 1993). The alluvial silt and fine sand ranges from 12 to 25 feet thick. The outburst flood deposits, consisting of sand and gravel, typically bedded, with grain sizes ranging from medium sand to boulders, ranges from 25 to 40 feet thick. The lacustrine silt is at least 40 feet thick.

3.4 Regional Hydrogeology

Based on a review of well drillers' logs and environmental reports prepared by others in the vicinity of the Site, groundwater is encountered throughout the area in the gravelly sand unit at depths approximately 10 to 30 feet below ground surface (bgs). Portions of the upper sandy silt unit may partially confine the gravelly sand aquifer, and are likely saturated below 8 to 12 feet bgs. Due to the confining condition, water levels in wells installed in the gravelly sand unit typically rise to 10 to 15 feet bgs.

Based on a review of environmental reports (by others) in the vicinity of the Site, the regional groundwater flow direction has been variously reported to be to the south, southeast, east, and northeast. Previous studies by the city of Richland indicate that groundwater in the aquifer flows generally from north to south (Huntingdon, 1993) in the vicinity of the Wellsian Way well field (see below). The historical groundwater flow direction(s) in the vicinity of the Site may have been influenced by the elevation of Columbia River and the pumping of the Wellsian Way well field.

3.5 Water Supply Wells

The Wellsian Way well field is comprised of several wells that serve as water supply wells for the city of Richland. The well field is located west of Wellsian Way beginning approximately 300 feet west-southwest of the Site and extends approximately 1 mile to the south. Well locations are shown on Figure 1-1.

Based on discussions with Roger Wright, city of Richland environmental engineer (March 1997), one or more wells in the Wellsian Way well field have operated on a continual basis from the 1940s to 1992. Between 1988 and 1992, only one well (D-5) was in service. Well D-5 is located approximately 1 mile south of the Site. In August 1992, Well D-5 was shut down due to the presence of PCE at concentrations up to 2.9 micrograms per liter (µg/L; equivalent to parts per billion [ppb]). Well D-5 is 76 feet deep, and is screened between 46 and 68 feet bgs. The well field was inactive until December 1996, when a groundwater treatment system was installed and well D-5 was reactivated. Water is currently extracted from the well at a rate of approximately 1,100 gallons per minute and treated in a air stripping unit located near Columbia High School. The well supplies potable water to the city of Richland. All other wells in the well field are either capped or currently inactive.

Ecology's files indicate that a release of unknown quantity occurred from a solvent tank in the vicinity of 500 Wellsian Way, located approximately one-half mile southwest of the Site and one-half mile northeast of D-5. The leak is believed to have occurred in 1993. Analysis of fluids from the tank in June 1993, indicated the presence of 1,1,1-trichloroethane (TCA), PCE, mineral spirits, and TPH.

4 SITE INVESTIGATION

The RI field work began in April 1997 and included investigations of the nature and extent of dry cleaning chemicals and petroleum fuels in soil and groundwater.

Ten GeoprobeTM borings were advanced, two deep soil borings were drilled, and four monitoring wells were drilled and installed as part of the investigation. In addition, 25 surface and 35 subsurface soil samples were collected for soil classification and chemical and physical analyses. Ten groundwater samples were collected from the Geoprobe borings and analyzed. The four new monitoring wells were developed and surveyed. Two existing off-site monitoring wells at the Richland School District property to the south were developed and surveyed at the same time as the new wells. Three quarterly groundwater sampling events (May, August, and November 1997) were conducted. Groundwater samples were collected and analyzed from each of the four new and two existing monitoring wells. An aquifer characterization study consisted of slug testing of two new monitoring wells and seven rounds (monthly) of water level measurements. Physical analyses including total organic carbon (TOC), grain size and vertical hydraulic conductivity were performed on select soil samples.

Work was performed consistent with the procedures described in the Work Plan and addendum, unless otherwise noted. Deviations from the general sampling procedures were brought to the attention of the EMCON project manager, and a sample alteration checklist was completed. Copies of the checklists are provided in Appendix A.

4.1 Soil

A total of 25 surface and 35 subsurface soil samples were collected. Surface samples were collected based on a grid pattern specified in the Work Plan at depths ranging from 0.5 to 1 foot bgs. Subsurface soil samples were collected from Geoprobe borings, drilled soil borings, and monitoring well boreholes. Subsurface soil samples were screened and logged consistent with the Work Plan. Boring logs, including screening results, are included in Appendix B.

Sampling locations were selected based on historic on-site uses and operations, data from previous investigations, the need to spatially distribute borings for statistical analyses, and the need to further characterize soil types and properties. Detailed rationale for soil

sampling location, frequency, and analyses is described in the Work Plan. Soil sample, soil boring, and monitoring well locations are shown on Figure 4-1.

4.1.1 Surface Soil

Surface soil samples were collected from 0 to 0.5 feet bgs at 25 locations at the Site. Field sampling data sheets for the soil samples are presented in Appendix C. All samples were collected at locations consistent with the Work Plan, except as noted below:

- Because of interferences with site structures (the shed and main building), the two southeasterly surface samples in the vicinity of GP-10 were deleted and replaced with sample B-7, located approximately 10 feet west of GP-10.
- The proposed surface samples identified in the Work Plan as GP-2, GP-6, and GP-9 were collected in the locations shown but were labeled as surface sample locations A-4, C-6, and E-4, respectively, and are reported as such in this report. Because of limited access in portions of the Site, the Geoprobe boring locations identified as GP-2, GP-6, and GP-9 were adjusted slightly from the proposed locations (see Section 4.1.2, below).

4.1.2 Subsurface Soil

Geoprobe Borings. Ten Geoprobe borings were advanced to approximately 25 feet bgs, in accordance with the Work Plan. The Geoprobe soil borings were advanced using a hydraulically driven 1.5-inch-diameter steel rod with carbide tip. Soil samples were collected using a lined, 24-inch-long polyethylene tube sampler. The samplers were driven using the hydraulic ram.

All Geoprobe borings locations, as well as sampling intervals and methods, were consistent with the Work Plan, except as noted below:

 Because of limited access in portions of the Site, the Geoprobe boring locations identified as GP-2, GP-6, and GP-9 were adjusted slightly (approximately 5 feet) to allow for rig access.

Soil Borings/Monitoring Wells. Four monitoring well boreholes were drilled to approximately 32 feet bgs and two soil borings were drilled to approximately 47 feet bgs. Soil boring and monitoring well boreholes were advanced using a hollow stem auger and Tubex (air-assisted) drilling rig. The Work Plan proposed three monitoring well borings. Based on the findings of the Geoprobe borings (Phase 1), and in accordance with the Work Plan, the following alterations occurred:

- One additional well (MW-4) was proposed and approved by Ecology, based on the findings of the Geoprobe borings, to further assess the soil and groundwater quality in the northeast corner of the Site. The proposed well locations and modifications were submitted to Ecology on April 18, 1997, and were approved per letter dated April 29, 1997.
- Two additional borings (SB-1, SB-2) were proposed and approved by Ecology, based on the findings of the Geoprobe borings, to further assess soil quality in locations of the former USTs. The proposed boring locations and modifications were submitted to Ecology on April 18, 1997, and were approved per letter dated April 29, 1997.

4.1.3 Soil Sampling and Analyses

Sample types, sampling frequency, and analyses performed for each sample were specified in the Work Plan. Laboratory parameters were selected based on historic Site activities and previously collected soil and groundwater data in the vicinity.

Surface and subsurface soil samples from the soil borings and monitoring well boreholes were submitted for chemical analyses. Per the Work Plan, all surface and subsurface soil samples were analyzed for VOCs, including BTEX. Twenty-three of the 35 subsurface samples were analyzed for TPH as gasoline (TPH-G), as diesel (TPH-D), as oil (TPH-O).

Four surface and seven subsurface soil samples were analyzed for TOC, two subsurface soil samples were analyzed for grain size distribution, and one subsurface soil sample was analyzed for vertical hydraulic conductivity.

Soil sample laboratory reports are presented in Appendix D.

4.2 Groundwater

4.2.1 Temporary Well Points

Ten Geoprobe borings were advanced at the Site during Phase 1 of the RI. Water samples were collected from temporary well points in accordance with the Work Plan, with the following exceptions:

• Based on the limited capacity of the small-diameter polyethylene bailer, the required sample quantities, and the total number of samples, a peristaltic pump was used to extract water samples from the temporary well points.

Representatives from Ecology were on-site during this phase of work and approved the alternative methodology.

4.2.2 Well Installation

Four monitoring wells were installed during RI activities ranging in depths of 31.75 to 32.5 feet bgs. Appendix B presents graphical well completion details. Survey data and well development data are presented in Appendix E.

Wells and piezometers were installed and developed consistent with procedures described in the Work Plan. The wells were surveyed for horizontal and vertical elevations as described in the Work Plan.

4.2.3 Groundwater Monitoring

The four on-site wells and two off-site (RSD) monitoring wells were used for monthly groundwater elevation monitoring as described in the Work Plan. Groundwater levels were measured monthly from May to November 1997. Monitoring well elevation data are summarized on Table 4-1.

4.2.4 Groundwater Sampling and Analyses

Three quarterly groundwater sampling events were conducted in May, August, and November 1997. Sample types, sampling frequency, and analyses performed for each sample were specified in the Work Plan. Groundwater Field Sampling Data Sheets are included in Appendix C.

Groundwater samples were collected from four on-site and two off-site monitoring wells during each sampling event. All groundwater samples were analyzed for VOCs, BTEX, TPH-G, TPH-D, TPH-O and field parameters (specific conductance, pH, temperature, dissolved oxygen, and turbidity).

Groundwater samples were collected consistent with procedures described in the Work Plan, with the following modifications:

• Because of equipment malfunction, turbidity measurements were not collected during the August 1997 groundwater sampling event

Groundwater sample laboratory reports are presented in Appendix D.

4.3 Aquifer Characterization

Horizontal hydraulic conductivity of the gravel and sand aquifer was estimated using the rising head slug test method in two monitoring wells, MW-1 and MW-4. Water levels were monitored with pressure transducers and programmable data loggers. The results were analyzed by methods presented in Cooper et al (1967) and Hvorslev (1951). Aquifer characterization information is presented in Appendix F.

4.4 Investigation Derived Waste

Residuals generated during the RI field activities were soil cuttings, decontamination rinsate water, and groundwater extracted during well development and purging. Ten 55-gallon drums of soil cuttings were generated and are currently stored on-site. Approximately 550 gallons of water were generated and placed in labeled and sealed 55-gallon drums, and are currently stored on-site.

5.1 Surface Topography and Features

The Site is relatively flat, with an elevation of approximately 355 feet above mean sea level. Asphalt pavement exists east of the fence on the south side of the main building, and along the east property line in front of the building. Water service is provided via buried piping along the north side of the main building. Sanitary sewer service is provided via buried piping from Stevens Drive to the southeast corner of the main building. No storm sewer facilities or dry wells were observed at the Site. Site features are shown on Figure 2-1.

5.2 Site Geology

Three geologic units were identified at the Site. A fourth geologic unit (Lower Silt Unit) likely exists below the site but was not encountered during the investigation. Figures 5-1 and 5-2 present generalized geologic cross sections of the Site. Cross section locations are shown on Figure 4-1. The four units are discussed below.

Fill and Silty Sand Unit. Surficial fill and native silty sand consisting of various mixtures of sand, gravel, and silt were encountered everywhere beneath the Site at a depth of 2 to 7 feet bgs. Backfilled excavations of former USTs consisted of sand and silt mixtures to depths of approximately 12 feet.

Upper Silt Unit. Native, brown to olive silt and sandy silt was encountered in every boring from approximately 2 to 7 feet bgs to approximately 25 feet bgs. The massive silt unit is interpreted as alluvial and fluvial sediment related to overbank deposits of the Columbia River.

Gravelly Sand Unit. Gray gravelly sand was encountered in every boring at approximately 25 feet bgs to a maximum depth of 47 feet bgs. According to Riedel and Fecht (1994), this regionally extensive unit is assumed to be 40 feet thick. The gravelly sand unit is interpreted as sediment related to fluvial and glacial outburst deposits related to the Columbia River. A poorly sorted, medium-grained 2- to 3-foot-thick sand with silt sub-unit lies at the top of the gravelly sand unit.

Lower Silt Unit. A regionally extensive silt and clay of unknown thickness is reported to lie beneath the gravel and sand unit (Riedel and Fecht, 1994).

5.2.1 Physical and Chemical Soil Parameters

Results of physical parameters soil testing are summarized in Table 5-1. Vertical hydraulic conductivities of the Site soils are discussed in Section 5.3.4. TOC values in surface soil samples ranged from 0.06 to 0.84 percent and subsurface soil samples ranged from 0.06 to 0.13 percent.

5.3 Site Hydrogeology

5.3.1 Hydrostratigraphic Units

Four hydrostratigraphic units have been identified at the Site: unsaturated fill and silty sand, upper silt aquitard, gravelly sand aquifer, and lower sand aquitard (Figures 5-1 and 5-2).

Unsaturated Fill and Silty Sand. The fill and silty sand units comprise the majority of the unsaturated soil beneath the Site. Portions of excavated backfill may be saturated below 8 feet bgs.

Upper Silt Aquitard. The upper silt aquitard is a low permeability layer that partially confines underlying aquifer. The upper silt aquitard is saturated below 8 feet bgs. Downward vertical migration of surface precipitation is impeded by the aquitard. Limited quantities of groundwater exist, and groundwater flow velocities are expected to be low (less than 0.1 ft/day).

Gravelly Sand Aquifer. The gravelly sand aquifer is partially confined by the overlying aquitard. The majority of groundwater beneath the Site occurs in the aquifer. The aquifer likely is hydraulically connected to the Columbia River, and is the same aquifer used for domestic water supply at the Wellsian Way well field.

Lower Silt Aquitard. The lower silt aquitard forms an impermeable base to the overlying aquifer, impeding downward vertical flow from the aquifer. The lower silt aquitard was not encountered during the RI, but reportedly is regionally extensive (Huntingdon, 1993).

5.3.2 Hydraulic Conductivity

A short-term, in situ, rising head test (slug test) was used to estimate the horizontal hydraulic conductivity of the gravelly sand aquifer at monitoring well. The results of slug test data and calculations used to estimate the hydraulic conductivity are presented in Appendix F. A sample of the upper silt unit was tested for vertical permeability.

Slug Tests. Slug tests were performed on monitoring wells MW-1 and MW-4 to estimate the hydraulic conductivity of the site-wide aquifer. The average hydraulic conductivity estimated from the slug tests was 1 x 10⁻². This value falls within the range of expected values for sandy aquifers (Freeze and Cherry, 1979).

Laboratory Permeameter Tests. Laboratory permeameter tests were performed on one undisturbed core samples from Geoprobe boring GP-1 to estimate the vertical permeability of the upper silt unit. The vertical permeability was estimated at 9.3×10^{-7} centimeters per second (cm/sec).

5.3.3 Groundwater Elevations, Flow Direction, and Flow Velocity

Groundwater elevations in monitoring wells installed in the gravelly sand aquifer rise to approximately 8 feet bgs, and appear to fluctuate at least 1 foot seasonally. Groundwater level measurements obtained from May 1997 through November 1997 are presented in Table 4-1.

Groundwater flow directions in the gravelly sand aquifer were based on monthly groundwater elevations measured in the four on-site and two off-site monitoring wells during May to November 1997. Groundwater elevation maps for June and November 1997 (Figures 5-3 and 5-4, respectively) indicate a general northeasterly groundwater flow direction during periods of both seasonally high and seasonally low groundwater elevations. Based on these elevations, the average horizontal hydraulic gradient for the Site is 0.0033 ft/ft.

Based on the horizontal hydraulic conductivity and gradient data, the average horizontal groundwater velocity in the gravelly sand aquifer is 0.3 ft/day.

6 NATURE AND EXTENT OF CONTAMINATION

6.1 Soil Quality

The following discussion addresses the surface and subsurface soil samples collected at the Site.

6.1.1 Surface Soil

Following is a discussion of the surface soil results by chemical class. (A comparison of soil results to Method B residential cleanup levels is provided in Section 6.4.4.)

6.1.1.1 TPH/BTEX

No surface soil samples contained detectable concentrations of BTEX. Surface soil samples were not analyzed for TPH-G, TPH-D, or TPH-O. Results are summarized in Table 6-1.

6.1.1.2 VOCs

Only two chemicals were detected in the 25 surface soil samples analyzed for (non-BTEX) VOCs: 14 samples contained PCE and 6 samples contained acetone, at maximum concentrations of 27 and 0.2 mg/kg, respectively. The highest PCE concentrations were detected west of the building at E-3, E-4, and G-4. The acetone was detected near the southwest of the building and approximately 40 feet northwest of the northwest building corner. Figure 6-1 presents the general distribution of VOCs in surface soil samples. Results are summarized in Table 6-2.

6.1.2 Subsurface Soil

Following is a discussion of the subsurface soil results by chemical class. (A comparison of soil results to Method B residential cleanup levels is provided in Section 6.4.4.)

6.1.2.1 TPH/BTEX

Hydrocarbon odors and possible sheens were noted at GP-5, GP-6, and GP-7. TPH-G, TPH-D, and TPH-O were detected in 4 of the 23 subsurface soil samples analyzed for TPH

with maximum concentrations of 2,300, 1,040, and 1,450 mg/kg, respectively. Results are summarized in Table 6-3.

The highest concentrations of TPH-G (GP-5 and GP-6) and TPH-D and TPH-O (SB-1) were found next to the former 1,200-gal USTs. TPH was detected in subsurface soil samples ranging in depth from 5 to 21.5 feet bgs and primarily in the upper silt unit at depths of 5 to 11 feet bgs. Figure 6-2 presents the general distribution of TPH in subsurface soil samples.

Benzene, toluene, and ethylbenzene were not detected in any of the samples analyzed. Total xylenes were detected in only one sample; GP-5-11 at an estimated concentration of 12 mg/kg.

6.1.2.2 VOCs

A total of 11 chemicals were detected in the 35 subsurface soil samples analyzed for (non-BTEX) VOCs. The chlorinated hydrocarbons PCE (27 detections), TCE (10 detections), and cis-1,2-DCE (4 detections) were detected at maximum concentrations of 7.5, 0.95, and 26 mg/kg, respectively. The other six chemicals (acetone and five alkene-aromatic complexes) were detected in only one or two samples, generally at concentrations in the low mg/kg range. These other chemicals may be attributed to impurities present in stoddard solvent. Results are summarized in Table 6-4.

The maximum concentrations of PCE detected in subsurface soil samples were collected near the former drum rack area (MW-1, GP-1) and near the former 1,200-gal USTs (GP-5, GP-6) hydraulically downgradient of former drum rack area (Figure 6-3). Their vertical and lateral migration from the suspected source area (former drum rack area) is likely related to groundwater transport (Section 8).

6.1.3 Statistical Summary of Soil Results

Table 6-5 provides a statistical summary of the surface and subsurface soil results, including number of samples analyzed, detections, MDLs, average, minimum, maximum, the statistical distribution, and the upper 95 percent confidence limit on mean soil concentrations (UCL95).

6.2 Groundwater

The following discussion includes the groundwater samples collected from Geoprobe borings and from the first two quarterly RI groundwater sampling events.

6.2.1 TPH/BTEX

6.2.1.1 Geoprobe Samples

TPH-G was detected in the six samples analyzed and TPH-D was detected in two of the six samples analyzed. Maximum TPH-G and TPH-D concentrations were 6.4 and 0.5 mg/L, respectively. The highest TPH detections were found near the former 1,200-gal USTs (GP-5, GP-6, GP-7). Benzene, toluene, and ethylbenzene were not detected in any of the 10 samples analyzed. Total xylenes were detected in one sample at a concentration of 0.26 mg/L (GPW-5).

6.2.1.2 Monitoring Well Samples

None of the monitoring well samples collected in either sampling round contained detectable concentrations of TPH-G, TPH-D, TPH-O, or BTEX. Results are summarized in Table 6-6. Figure 6-4 presents the TPH-G detections in Geoprobe boring groundwater samples.

6.2.2 VOCs

6.2.2.1 Geoprobe Samples

Four chemicals were detected in the Geoprobe groundwater samples analyzed for (non-BTEX) VOCs. Chlorinated hydrocarbons PCE (10 detections), TCE (4 detections), and cis-1,2-DCE (2 detections) were detected at maximum concentrations of 4.3, 3.5, and 2.3 mg/L, respectively. The highest concentrations of PCE were found near or hydraulically downgradient of the former drum rack area. TCE and cis-1,2-DCE were detected hydraulically downgradient of the former drum rack area. One other chemical (1,2,4-trimethylbenzene) was detected in only one sample (GPW-5) at a concentration of 0.49 mg/L. This chemical may be attributed to impurities present in stoddard solvents. Results are summarized in Table 6-7.

Figure 6-4 presents Geoprobe groundwater sampling results.

6.2.2.2 Monitoring Well Samples

Four chemicals were detected in the monitoring well groundwater samples analyzed for (non-BTEX) VOCs. Only the chlorinated hydrocarbons PCE, TCE, and cis-1,2-DCE were detected in two or more wells during each round. The other chemicals (cis-1,2-DCE and chloroform) were detected in only one well. PCE was detected at all on-site monitoring wells samples from both sampling events. Cis-1,2-DCE was detected in both rounds in the sample from off-site well MW-E at concentrations of 0.0006 to

0.0008 mg/L. Chloroform was only detected in the August sampling round in well MW-D at 0.0009 mg/L. Results are summarized in Table 6-8.

Maximum PCE and TCE concentrations in on-site monitoring well samples were 0.065 (MW-2), and 0.0058 mg/L (MW-2), respectively. None of the on-site well samples contained detectable concentrations of cis-1,2-DCE.

Maximum PCE, TCE, and cis-1,2-DCE concentrations in off-site monitoring well samples were 0.039 (MW-E), 0.0061 (MW-E), and 0.0008 mg/L (MW-E), respectively.

Figure 6-5 presents on-site monitoring well sampling results for PCE and TCE.

6.2.3 Field Parameters

6.2.3.1 Geoprobe Samples

Specific conductance ranged from 1,110 to 1,542 μ S/cm. Turbidity (which reflects the amount of particulate matter in a sample) ranged from 56.6 to greater than 1,000 NTU. Measurements generally exceeded 1,000 NTU, indicating significant particulate matter in the Geoprobe samples. Measurements of pH ranged from 6.98 to 7.45. Dissolved oxygen (DO) measurements ranged from 0.89 to 6.58 mg/L. The DO measurements indicated generally aerobic conditions in groundwater at the Geoprobe sampling locations, except at GP-5. Strong hydrocarbon odors were noted at this location. Temperature measurements ranged from 11.0 to 17.0 °C.

6.2.3.2 Monitoring Well Samples

Specific conductance in on-site and off-site monitoring well samples ranged from 813 to 1,725 μ S/cm. Turbidity ranged from 2.0 to 101 NTU. Measurements of pH ranged from 7.03 to 7.60. Dissolved oxygen was not measured in the monitoring well samples. Temperature measurements ranged from 14.2 to 19.1 °C.

6.2.4 Statistical Summary of Groundwater Results

Table 6-9 provides a statistical summary of the monitoring well groundwater results.

6.3 Discussion of Results

Remedial investigation field explorations and laboratory analyses indicate that the primary environmental impacts at the New City Cleaners site include: 1) petroleum hydrocarbons in subsurface soil and groundwater related to releases of stoddard dry cleaning solvent and possibly from releases of heating fuel (Bunker C and kerosene), and 2) chlorinated

hydrocarbons in surface soil, subsurface soil, and groundwater related to releases of PCE. Acetone and alkene-aromatic complexes were detected in a limited extent and at generally low concentrations (<0.2 mg/kg). No free product was observed in any soil or groundwater samples. Petroleum hydrocarbon-like odors and sheens were noted at GP-5, GP-6, and GP-7 near the former 1,200-gal USTs. These hydrocarbons likely are the result of releases from these USTs. None of the chlorinated hydrocarbon concentrations detected in RI soil or groundwater samples indicated free product from the suspected PCE release at the former drum storage area. PCE is highly mobile and likely volatilized to the atmosphere and dispersed in the subsurface following the suspected release. Existing PCE concentrations indicate a release of PCE from one or several locations at the Site.

The highest concentrations of petroleum hydrocarbons in soil and dissolved in groundwater were primarily found near or downgradient of the former 1,200-gal USTs. The highest concentrations of VOCs, primarily PCE, in soil and dissolved in groundwater were primarily found near or downgradient of the former drum rack storage area and west of the building. Dissolved VOCs, primarily PCE, were detected in every Geoprobe and monitoring well groundwater sample at the Site, indicating dispersion of PCE from one or several sources. TCE and cis-1,2-DCE detected in soil and groundwater samples collected downgradient of the former drum rack storage area at GP-5 and GP-6 likely are derived from the natural biodegradation of PCE.

7.1 Conceptual Site Model

The conceptual site model (CSM), which was first developed based on historic Site operations and data from previous site investigations, was re-evaluated in light of the RI results. The updated model, shown in Figure 7-1, summarizes potential contaminant sources, release mechanisms, routes of exposure, and receptors. Primary model components and updates are discussed below.

7.2 Chemicals of Concern

Primary chemicals of concern for the Site are petroleum hydrocarbons (gasoline, diesel, and oil range), PCE, and TCE. These constituents are elevated in both soil and groundwater. The gasoline-range hydrocarbons are attributed to stoddard dry cleaning solvent because gasoline was reported not to have been used at the Site. Diesel and oil-range hydrocarbons are attributed to heating fuels stored in USTs.

7.2.1 Contaminant Sources

Potential contaminant sources are as indicated on the CSM. The Site is active, but potential sources of contamination from dry cleaning operations are currently strictly managed. Based on the results of the RI, it appears that historic releases of stoddard solvent from the former 1,200-gal USTs and releases of PCE from the former drum storage rack area are the most significant sources of contamination. Releases of petroleum hydrocarbons from the former Bunker C and kerosene USTs are considered secondary sources of TPH.

7.3 Contaminant Migration

Free product was not observed during the investigation. Chemical concentrations detected in RI groundwater samples are relatively low, suggesting the absence of residual product beneath the Site, although samples from test pits excavated in 1992 contained PCE concentrations suggesting the presence of product. The low permeability of the upper silt unit typically attenuates downward vertical migration of VOCs. Releases of VOCs likely were limited in quantity, based on descriptions of past practices and site

history. Site hydrogeology, historical site operations, and chemical and product characteristics, therefore, all contributed to limit chemical migration from the Site.

Contaminants in the subsurface migrated historically and currently migrate predominantly as a dissolved phase by advection with unsaturated soil pore water and with groundwater. Volatilization of the VOCs and migration as a vapor in unsaturated soil is considered limited.

7.3.1 Migration Routes and Receptors

Field observations and laboratory results indicate that chemicals have migrated into and through the soil, reaching groundwater. Chemical movement to soil and groundwater represents a primary migration pathway. Infiltration and percolation of precipitation to groundwater in the past was a significant pathway for the transport of VOCs based on their relatively high leachability and mobility in subsurface soil and groundwater.

Groundwater flow, and therefore chemical transport, during non- or limited pumping periods of the Wellsian Way well field, is northeasterly, primarily towards the Columbia River (Lake Wallula). Contaminant concentrations in monitoring well MW-4 and the general non-pumping groundwater flow direction indicate that chlorinated hydrocarbons have migrated to the northeast.

Storm water runoff from the Site is conveyed to off-site surface water, though RI results indicate that this is not a significant pathway in part due to the high volatility of chemicals on-site. Water levels in the stormwater ditch west of the Site approximates those of the potentiometric surface. It is unknown if the ditch is hydraulically connected to the sand aquifer beneath the Site, or if the ditch contributes to, or receives subsurface chemicals at the Site. The ditch ultimately discharges into the Columbia River

Entrainment and transport of chemicals in air can occur through volatilization or dust emissions. Due to the limited extent and concentration of VOCs in surface soil, this is not considered a significant migration route for the Site.

7.4 Contaminant Fate

Both petroleum and chlorinated hydrocarbons are subject to natural attenuation processes that tend to decrease their concentrations at the surface and in the subsurface. The reduction of concentrations by mass transfer (volatilization, dispersion, dilution by mixing with infiltrating precipitation), chemical breakdown (biodegradation, photolysis), and chemical isolation (adsorption to soil) are all indicated in the distribution and concentration of contamination at the Site to a limited or to a significant degree. Reduction rates, however, have not been quantified. These processes will continue to operate at the Site.

8 BASELINE EXPOSURE EVALUATION

The soil and groundwater data were evaluated for human health and ecological risks consistent with MTCA and with the land and water uses at the Site. The human health evaluation was quantitative, and it consisted of the following components:

- Selection of indicator hazardous substance (IHSs)
- Evaluation of exposure pathways for the reasonable maximum exposure (RME) scenario
- Toxicity assessment for IHSs
- Characterization of risks for selected IHSs and completed exposure pathways

The environmental evaluation was semi-quantitative, and it consisted of the following components:

- Selection of IHSs
- Evaluation of exposure pathways

8.1 Land and Water Use

The Site is zoned and used for commercial purposes: a dry cleaning facility. Surrounding properties to the south, east, and north are also used for commercial purposes, including motor car agencies, service stations, a grocery store, and a retail store. The property directly west of the Site, however, is a public high school, and students have been observed trespassing on the Site. Method B residential soil cleanup levels (CULs) were used for evaluating soil conditions on site.

Groundwater occurs approximately 10 feet bgs and it appears to flow generally northeast toward Lake Wallula, part of the Columbia River, approximately a half mile east of the Site. The aquifer is used for drinking water, though there are no drinking water wells currently in use within a half mile of the Site. Well D-5 of the Wellsian Way public water supply field, located a mile south of the Site, is being used, and the water is treated for VOCs with an air stripper prior to distribution to consumers. Method B residential groundwater CULs were used for evaluating groundwater conditions on site.

A seasonal stormwater drainage ditch, located west of the Site, leads to Lake Wallula. The drainage ditch supports a limited community of terrestrial vegetation, but it is ephemeral and is not expected to support aquatic life. Lake Wallula is a Class A water body, which can be used for domestic water supply, stock watering, fish and shellfish habitat, wildlife habitat, recreation, commerce, and navigation. A search of the Washington Department of Fish and Wildlife's Priority Habitat and Species Database identified no threatened or endangered species in the vicinity of the Site. Federal water quality criteria (WQC) were used for evaluating the impacts to the aquatic community from groundwater discharges to surface water.

8.2 Human Health Evaluation

8.2.1 Indicator Hazardous Substances

IHS selection considered the following criteria consistent with MTCA:

- Toxicological characteristics
- Chemical and physical characteristics governing mobility and persistence
- Natural background concentrations
- Thoroughness of testing
- Frequency of detection
- Degradation by-products

8.2.1.1 Indicator Hazardous Substances in Soil

Soil IHSs were selected by comparing the maximum concentration of each analyte detected in surface soil and in subsurface soil to its MTCA Method B soil CUL for protection of groundwater, provided in CLARC² (Table 8-1). The soil CUL for protection of groundwater is derived by multiplying the Method B groundwater CUL by a dilution/attenuation factor of 100, and it is always lower than the soil CUL for direct contact. Using the soil CUL for protection of groundwater, therefore, is protective for both exposure pathways. If the maximum value detected in soil exceeded the CUL for protection of groundwater, the analyte was selected as a preliminary IHS in soil. Otherwise, the analyte was eliminated as an IHS in soil.

² Ecology. 1996. Model Toxics Control Act Cleanup Levels and Risk Calculations (CLARC II) Update. Publication #94-145 (updated 1/96). Washington State Department of Ecology, Olympia, Washington.

CULs are not available for the following analytes detected in soil due to lack of toxicity data:

- n-Propylbenzene
- 1,3,5-Trimethylbenzene
- tert-Butylbenzene
- 1,2,4-Trimethylbenzene
- sec-Butylbenzene
- 4-Isopropyltoluene
- n-Butylbenzene.

These analytes were eliminated as IHSs because no toxicity data appears in the literature. Their detection frequencies were low, either 3 percent (for n-propylbenzene and tert-butylbenzene) or 6 percent (for the other analytes), so their elimination as IHSs is not expected to substantially affect the assessment of impacts at the Site.

Method B CULs are not provided for petroleum analytes in CLARC, so the maximum concentrations of TPH-G, TPH-D, and TPH-O were compared to Method A CULs, which are intended to protect both direct contact and groundwater (Table 8-1).

The maximum concentrations of cis-1,2-DCE, PCE, TCE, TPH-G, TPH-D, and TPH-O exceeded their respective soil CULs for protection of groundwater. These analytes comprised the list of preliminary IHSs, which were evaluated for the additional criteria for IHS selection. Since the preliminary list of IHSs was relatively short, no IHSs were eliminated on the basis of chemical or physical characteristics governing mobility or persistence. Natural background concentrations are relevant to metals, but not to VOCs. No IHSs were eliminated on the basis of natural background concentrations. The sampling plan was designed for evaluating the nature and extent of contamination and for selecting IHSs, so thoroughness of testing was not considered an issue. The frequencies of detection for the preliminary IHSs range from 13 percent (TPH-O) to 77 percent (PCE in subsurface soil), so no IHSs were eliminated on the basis of frequency of detection. TCE and cis-1,2-DCE are typical breakdown products of PCE. No IHSs were eliminated or added on the basis of degradation by-products.

The following analytes were selected as human health IHSs for soil:

- Cis-1,2-DCE
- PCE
- TCE
- TPH-G
- TPH-D

• TPH-O

PCE was selected as an IHS in both surface soil and subsurface soil. The other analytes were selected as IHSs in subsurface soil only.

8.2.1.2 Indicator Hazardous Substances in Groundwater

Groundwater IHSs were selected by comparing the maximum concentration of each analyte detected in groundwater samples from monitoring wells to its MTCA Method B groundwater CUL, provided in CLARC (Table 8-2). Geoprobe samples were not used, because they were not collected from properly developed wells and were collected for screening purposes only. If the maximum value detected in groundwater exceeded the CUL, the analyte was selected as an IHS in groundwater. Otherwise, the analyte was eliminated as a preliminary IHS in groundwater.

Although upper 95 percent confidence limits on the means (UCL95s) were calculated for most of the analytes detected in groundwater, maximum concentrations were used for selecting IHSs because the calculated UCL95s exceeded the maximum detected values. (UCL95s were not calculated for analytes detected in soil). The UCL95 is often greater than the maximum detected value when most of the results are near or below the detection limit and there is one large value. In such cases, the distribution might fit the criteria for a lognormal distribution, but the statistics are unreliable. The UCL95 calculated for PCE from monitoring well data was less than the maximum detected value, so its UCL95 was used for IHS screening. The distribution of PCE results is normal, with many detected values, so the statistics are reliable for this analyte.

The maximum detected concentrations of PCE and TCE exceeded their respective groundwater CULs. These analytes comprised the list of preliminary IHSs, which were evaluated for the additional criteria for IHS selection. For the same reasons discussed above for soil, no IHSs were eliminated (or added) on the basis of chemical or physical characteristics governing mobility or persistence, natural background concentrations, thoroughness of testing, frequency of detection, or degradation by-products.

The following analytes were selected as human health IHSs for groundwater:

- PCE
- TCE

8.2.2 Reasonable Maximum Exposure Assessment

The IHSs selected for soil and groundwater were evaluated to determine which exposure pathways are or could be complete for human receptors (Table 8-3). The conceptual site

model (Figure 7-1) summarizes the exposure pathways for both human health and ecological receptors. Exposures were evaluated for Site workers, area workers, trespassers, and groundwater consumers.

PCE was selected as an IHS in surface soil. Since the Site is largely unpaved and unvegetated, Site workers and trespassers could be exposed through direct contact (i.e., incidental ingestion and dermal absorption) with the soil. Site workers who are at the Site on a daily basis likely receive larger exposures than trespassers, who are not at the Site regularly. Dermal absorption from soil is difficult to evaluate; MTCA does not address this exposure pathway. Site workers, area workers, and trespassers could be exposed through inhalation of airborne dust raised from the uncovered soil. Since PCE is volatile, Site workers, area workers, and trespassers could also be exposed to vapors from the soil. Inhalation of dust and vapors in an outdoor setting are usually considered to contribute a negligible portion of exposure compared to direct contact with soil, so inhalation pathways were not evaluated quantitatively.

Cis-1,2-DCE, PCE, TCE, TPH-G, TPH-D, and TPH-O were selected as IHSs in subsurface soil. Site workers and trespassers could come into contact with subsurface soil if the soil was disturbed (e.g., by excavation or trenching). Site workers, area workers, and trespassers could inhale dust raised from disturbed subsurface soil. Otherwise, the surface soil acts as a barrier for these two routes of exposure. Because most of the IHSs (with the exception of TPH-D and TPH-O) are volatile, site workers, area workers, and trespassers could be exposed to vapors from the subsurface soil. As discussed above for surface soil, inhalation pathways were not evaluated quantitatively.

PCE and TCE were selected as IHSs in groundwater. No drinking water well is present at the Site, but the northern limit of the Wellsian Way public water supply well field is 0.25 mile southwest of the site. At present, only the southern-most well in the well field is being used, and no influence from that well has been observed at the Site. Groundwater flow beneath the Site appears to be in a northeasterly direction away from the well field, so it is unlikely that the plume at the Site could intersect the well field. There are no exposure pathways to the groundwater at present.

In the future, if the wells at the northern end of the well field were used, the radius of influence could change so that the plume beneath the Site could be drawn toward the well field. Even if this was to occur, however, the water from the well field is being treated with an air stripper that removes VOCs. Given the operation of this treatment, there appears to be no potential future exposure pathways to VOCs in the groundwater for consumers of the Wellsian Way public water supply.

If a well was drilled on the Site, however, users could be exposed through ingestion of the water, inhalation of vapors from the water, and dermal absorption of chemicals during skin contact with the water. Vapor formation would be highest when the water was heated

(e.g., for cleaning or bathing activities). Skin contact would be greatest during bathing. If Site use remained consistent with the current commercial use, ingestion and inhalation would likely be the most important exposure pathways. The CULs for groundwater are based on residential use, including ingestion of the water and, for VOCs, inhalation of vapors from the water.

Human health risks were calculated for the following exposure pathways:

- Current pathway: incidental ingestion of surface soil by Site workers
- Potential future pathway: incidental ingestion of subsurface soil by Site workers during excavation or trenching activities
- Potential future pathway: ingestion of, and inhalation of vapors from, groundwater from a well drilled on the Site

8.2.3 Toxicity Assessment

Toxicity values for cancer and noncancer health effects are listed in CLARC. The toxicity values listed in CLARC for the soil and groundwater IHSs were checked in USEPA's Integrated Risk Information System (IRIS) database to ensure they were current. None of the toxicity values had been updated in IRIS since CLARC was published, so the CULs listed in CLARC are still valid.

8.2.4 Risk Characterization

The noncancer risk result for an individual chemical is called the hazard quotient (HQ). MTCA defines an acceptable HQ as 1 or less. The total noncarcinogenic risk result for multiple chemicals is called the hazard index (HI). The acceptable HI is also 1 or less. An HQ or HI greater than 1 does not necessarily mean that noncancer health effects will occur, but it does indicate concern for potential effects.

Cancer risk results are expressed as excess lifetime cancer risk: the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a carcinogen. This incremental excess risk is in addition to the nationally observed risk of cancer (2.5×10^{-1}) , or one person in four)³, which is due to such factors as diet, smoking, and natural radiation. Cancer risks are usually presented in scientific notation; the notation 1×10^{-6} means 0.000001 or 1 in a million. MTCA defines an acceptable cancer risk in a

³ National Toxicology Program. 1991. Sixth Annual Report on Carcinogens. Summary. U.S. Department of Health and Human Services, National Toxicology Program, Research Triangle Park, North Carolina.

residential setting as 1×10^{-6} or less for an individual chemical and 1×10^{-5} total risk for multiple chemicals.

8.2.4.1 Calculation Method

There is a one-to-one correspondence between the CULs listed in CLARC and both noncancer and cancer risks. The Method B CULs for soil and groundwater listed in the "Carcinogen" column are based on a cancer risk of 1 x 10⁻⁶, while the Method B CULs listed in the "Noncarcinogen" column are based on a noncancer HQ of 1.0.

The cancer risk for each IHS was calculated as follows:

Risk = Site Concentration x (1×10^{-6}) / Carcinogen CUL

where:

Risk = Cancer risk associated with Site concentration (unitless)

Site Concentration = Concentration of chemical on Site (mg/kg for soil or mg/L for groundwater)

Carcinogen CUL = Carcinogen CUL listed in CLARC (mg/kg for soil or mg/L for groundwater)

The noncancer HQ for each IHS was calculated as follows:

 $HQ = Site Concentration \times 1.0 / Noncarcinogen CUL$

where:

HQ = Hazard quotient associated with Site concentration (unitless)

Site Concentration = Concentration of chemical on Site (mg/kg for soil or mg/L for groundwater)

Noncarcinogen CUL = Noncarcinogen CUL listed in CLARC (mg/kg for soil or mg/L for groundwater)

Method B CULs are not available for TPH analytes, so their risks were evaluated using Ecology's Interim TPH Policy (Policy).⁴ The evaluation is explained in Appendix H. The Policy requires evaluation of benzene, toluene, ethylbenzene, xylenes, and benzo(a)pyrene

⁴ Ecology. 1997. Interim Interpretive and Policy Statement Cleanup of Total Petroleum Hydrocarbons (TPH). Publication no. ECY97-600. Washington State Department of Ecology, Olympia, Washington. January.

in addition to the TPH analytes. Benzene, ethylbenzene, toluene, and benzo(a)pyrene were not detected on the Site, but xylenes were. Although xylenes had not been selected as an IHS, they were included in the risk evaluation, according to the Policy.

8.2.4.2 Results

The risk results for direct contact with soil are summarized in Table 8-4, and the risk results for consumption of groundwater are summarized in Table 8-5.

The only exposure pathway currently present is direct contact with surface soil. PCE was the only IHS selected for surface soil. The HQ for direct contact with PCE in surface soil is 0.03, and the cancer risk is 1×10^{-6} . Both of these results are acceptable according to MTCA.

A potential future exposure pathway is direct contact with subsurface soil as a result of excavation or trenching activities. Cis-1,2-DCE, PCE, TCE, TPH-G, TPH-D, and TPH-O were selected as IHSs in subsurface soil. The HI for direct contact with subsurface soil is 1.5, which is above the level of 1 set by MTCA. The contributions from TPH-G (0.7), TPH-O (0.5), and TPH-D (0.3) are roughly equal. The total cancer risk is 4 x 10⁻⁷, which is acceptable according to MTCA.

Another potential future exposure pathway is consumption of groundwater from a well drilled on Site. PCE and TCE were selected as IHSs in groundwater. The HI for consumption of groundwater is 0.4, which is acceptable according to MTCA. The total cancer risk is 4×10^{-5} , which is above the level of 1×10^{-5} set by MTCA. The cancer risk is dominated by PCE (4×10^{-5}) .

8.3 Environmental Evaluation

8.3.1 Indicator Hazardous Substances

Since there are no soil CULs designed to protect terrestrial wildlife, only groundwater was evaluated to select IHSs. The federal WQC⁵ were reviewed for the chemicals detected in groundwater. There are no WQC available for the chemicals detected in groundwater, but there are advisory values called lowest observed effect levels (LOELs).⁶ An LOEL is presented when there are insufficient data to develop a criterion. The LOEL is the lowest concentration reported in the literature that produced an effect in any species tested. The effect might have been either an adverse, toxic effect or a benign effect indicating simply

⁵ FR 57(246):60911. December 22, 1992.

⁶ EPA. 1991. Water Quality Criteria Summary. Poster produced by USEPA, Office of Science and Technology, Health and Ecological Criteria Division, Washington DC. May 1.

that the organism had a physiological response to the exposure. Since an LOEL is not necessarily as protective as a WQC, the LOELs were divided by 10 for IHS screening purposes.

Groundwater IHSs were selected by comparing the maximum concentration of each analyte detected in groundwater samples from monitoring wells to its LOEL/10 (Table 8-6). Geoprobe samples were not used, because they were not collected from properly developed wells and were collected for screening purposes only. If the maximum value detected in groundwater exceeded the LOEL/10, the analyte was selected as an IHS. Otherwise, the analyte was eliminated as an IHS.

Although UCL95s were calculated for most of the analytes detected in groundwater, maximum concentrations were used for selecting IHSs because the calculated UCL95s exceeded the maximum detected values. The UCL95 is often greater than the maximum detected value when most of the results are near or below the detection limit and there is one large value. In such cases, the distribution might fit the criteria for a lognormal distribution, but the statistics are unreliable. The UCL95 calculated for PCE from monitoring well data was less than the maximum detected value, so its UCL95 was used for IHS screening. The distribution of PCE results is normal, with many detected values, so the statistics are reliable for this analyte.

Since none of the maximum detected concentrations exceeded their respective LOEL/10s, no groundwater IHSs were selected for ecological receptors.

8.3.2 Exposure Pathways

The conceptual site model (Figure 7-1) summarizes the exposure pathways for both human health and ecological receptors.

The seasonal stormwater drainage ditch supports a limited community of terrestrial vegetation. Terrestrial wildlife could be exposed to contaminated surface soils through direct contact (i.e., incidental ingestion and dermal contact). They could also inhale dust and vapor from surface soils and vapor from subsurface soils. Any wildlife present are expected to remain primarily in the vegetated area away from contaminated soils, which would minimize exposures. The drainage ditch is not expected to support any aquatic life.

Aquatic life in Lake Wallula could be exposed to contaminants entering through stormwater runoff from the ditch or through infiltration of groundwater. Since no groundwater IHSs were selected for ecological receptors, the exposures to aquatic life are not expected to present a problem.

8.4 Summary

The chemicals detected on Site were evaluated to identify IHSs for human health and ecological receptors. Potential exposure pathways to both human and ecological receptors were evaluated to determine which pathways are complete or could become complete.

No IHSs were selected for ecological receptors.

Human health risks were calculated for the following IHSs and exposure scenarios:

- Current: Direct contact with PCE in surface soil.
- Potential future: Direct contact with PCE, TCE, TPH-G, TPH-D, TPH-O, and xylenes in subsurface soils during excavation or trenching activities.
- Potential future: Consumption of PCE and TCE in groundwater from a well drilled on Site.

The risks for the Site in its present state are acceptable. This conclusion is consistent with the Department of Health's finding that the "Site does not present a significant hazard to public health at this time (Washington Department of Health, 1994).

In the future, if excavation or trenching activities exposed contaminated subsurface soils to direct contact, exposure to petroleum-contaminated soils could present a potentially unacceptable risk if not controlled. Such exposure could be prevented by providing the workers involved in the soil work with appropriate protective equipment, by minimizing any dust raised during the soil work, and by handling the petroleum-contaminated soils so as not to leave any at the surface at the completion of the project.

Also in the future, if a well was drilled on Site, exposure to PCE in the groundwater would present an unacceptable risk to the users of the well. If the Site continues to be served by the public water supply, which is treated for VOCs, this exposure is prevented.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

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TABLES

Table 2-1

Previous Analytical Data New City Cleaners Richland, Washington

							AN	ANALYSES					
Sample Name	Date Collected	Sample Matrix	Location	EPA Method (Units)	Trichloroethene (TCE)	Tetrachloroethene (PCE)	1,2 - dichloro- ethane	1,2 - dichloro- ethene	benzene	toluene	ethyl- benzene	total xylenes	ТРН
NTS-1-92	ć	soil	area of T1, T2	8260 (ug/Kg)	ND	ND	ND	707	146	ND	ND	ND	t
NTS-2-92	۲.	soil	area of T1, T2	8260 (ug/Kg)	ND	597	QN	437	QN	51	ND	116	ı
NTS-3-92	<i>د</i> ٠	water	area of T1, T2	624 (ug/Kg)	ND	ND	842	ND	726	1,590	117	357	:
NTS-4-92	4/28/92	lios	under T4	418.1 mg/Kg	ı	ı	ı	ı	ı	ı	ı	i	1200
NTS-5-92	4/28/92	soil	T3	418.1 mg/Kg	ı	ı	ı	I	1	ı	ı	ŧ	13
NTS-6-92	4/28/92	soil	T4	418.1 mg/Kg	1	ı	ı	ı	ı	:	ı	ı	436
NTS-7-92	4/28/92	water	exc. of T1, T2	624 (ug/Kg)	77	, 07	N Q	34	QN	ND	N	QN,	ı
NTS-8-92	4/28/92	water	pits	8260 (ug/L)	982	5,887	N Q	ND	QN	ND	ND	ND	ı
NTS-9-92	4/10/92	water	pits	8260 (ug/L)	254	15,280	ND	ND	QN	ND	ND	ND	ı
NTS-10-92	4/10/92	water	pits	8260 (ug/L)	982	5,887	ND	ND	QN	NO	ND	QN·	ı
NTS-11-92	4/10/92	water	ditch upstream	8260 (ug/L)	Q	ND	NO	ND	QN	ND	ND	ND	ł
NTS-12-92	4/10/92	water	downstream	8260 (ug/L)	QN	ND	ND	QN	QN	ND	ΩN	ND	ı
NTS-13-92	3	i	٠.	418.1 mg/Kg	ì	ı	ı	l	1	ı	ŀ	ı	ND
				volatile organic									
PCE Pit	6/23/92	lios	pit by fence	halocarbons volatile organic	Q	1,100	ΩN	ΩN	i	ı	1	ı	ı
PCE Water	6/23/92	water	pit by fence	halocarbons volatile organic	15	23,200	ΩN	QN	ı	ı	:	ì	ı
PCE Pit Din	6/23/92	soil	pit by fence tank pit. T1.	halocarbons volatile organic	Q	2,120,000	ΩN	ND 71.8cis	1	ı	;	i	1
PET tankslt	6/23/92	water	T2	halocarbons	32.5	80	ND	2.2 - trans	1	:	i	ı	ı
ND = Not de	tected at or above	the Meth	ND = Not detected at or above the Method Reporting 1 init	Ę			44.5						
4		111111111111111111111111111111111111111	non treporting and										

- = Not analyzed.

Table 4-1

Groundwater Elevation Summary New City Cleaners Richland, Washington

Page 1 of 2

Monitoring Date Top of C	
	On I Denth to Water I Elevation
337-11 Managed (Cont.	• • • • • • • • • • • • • • • • • • • •
Well Measured (feet	
MW-1 05/08/97 355.7	
06/19/97	7.95 347.75
07/17/97	7.99 347.71
08/12/97	8.10 347.60
08/20/97	8.14 347.56
09/25/97	8.36 347.34
10/21/97	8.45 347.25
11/13/97	8.52 347.18
MW-2 05/08/97 355.6	8.13 347.54
06/19/97	8.05 347.62
07/17/97	8.15 347.52
08/12/97	8.28 347.39
08/20/97	8.32 347.35
09/25/97	8.52 347.15
10/21/97	8.62 347.05
11/13/97	8.66 347.01
MW-3 05/08/97 356.1	8.79 347.40
06/19/97	8.72 347.47
07/17/97	8.80 347.39
08/12/97	8.91 347.28
08/20/97	8.95 347.24
09/25/97	9.12 347.07
10/21/97	9,24 346,95
11/13/97	9.27 346.92
MW-4 05/18/97 356.39	9.25 347.14
06/19/97	9.12 347,27
07/17/97	9.22 347.17
08/12/97	9.32 347.07
08/20/97	9.40 346.99
09/25/97	9.59 346.80
10/21/97	9.69 346.70
11/13/97	9.72 346.67
Well D 05/08/97 354.74	7.07 347.67
06/19/97	7.07 347.07 347.72
07/17/97	7.10
08/12/97	7.27 347.47
08/20/97	7.31 347.43
09/25/97	7.51 347.23
10/21/97	7.60 347.14
11/13/97	7.71 347.03

Table 4-1

Groundwater Elevation Summary New City Cleaners Richland, Washington

Page 2 of 2

Monitoring Well	Date Measured	Top of Casing Elevation (feet)	Depth to Water (feet)	Groundwater Surface Elevation (feet)
Well E	05/18/97	354.40	6.78	347.62
	06/19/97		6.82	347.58
	07/17/97		6.88	347.52
	08/12/97		7.00	347.40
	08/20/97		7.06	347.34
	09/25/97		7.27	347.13
	10/21/97		7.39	347.01
	11/13/97		7.43	346.97
NOTE: Top of casing elev	rations surveyed relative	e to mean sea level datum (NAV	D 1929).	

Table 5-1

Physical Parameters - Soil Samples
New City Cleaners Site
Richland, Washington

	Sample Name	Total Organic Carbon(percent)
Surface Soil	SS-A1	0.06
	SS-B7	0.06
	SS-C4	0.24
	SS-E3	0.84
Subsurface Soil	GP-8-1	0.13
	GP-8-15	0.05
	GP-8-21	0.13
	GP-9-12	0.06
	GP-9-23	0.07
	GP-10-17	0.06
	GP-10-21	0.07
		Vertical Hydraulic Conductivity (cm/sec)
	GP-1-11	9.3 x 10 ⁻⁷
		Sieve Analysis Results (percent)
	GP-1-11	Gravel - 0.0
		Sand - 1,1
		Fines - 98.9
	GP-1-15	Gravet - 0.0
		Sand - 4.1
		Fines - 95.9

TPH and BTEX in Surface Soil Samples New City Cleaners Site Richland, Washington Table 6-1

_																	_		_											_
Total	Xylenes	(mg/kg)	< 0.005	< 0.005	< 0.005 E	< 0.005	< 0.005 E	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005 E	< 0.005	< 0.005	< 0.005	<0.005 E	< 0.005	< 0.005 E	< 0.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.5	< 0.005	< 0.005	< 0.005 E	< 0.005	
	Ethylbenzene	(mg/kg)	< 0.005	< 0.005	< 0.005 E	< 0.005	< 0.005 E	< 0.005	< 0.005	< 0.005	< 0.005	<0.005 E	< 0.005	< 0.005	< 0.005	< 0.005 E	< 0.005	< 0.005 E	< 0.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.5	< 0.005	< 0.005	<0.005 E	< 0.005	
	Toluene	(mg/kg)	< 0.005	< 0.005	<0.005 E	< 0,005	< 0.005 E	< 0.005	< 0.005	< 0.005	< 0.005	<0.005 E	< 0.005	< 0.005	< 0.005	< 0.005 E	< 0.005	< 0.005 E	< 0.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	≥0,5	< 0.005	< 0.005	< 0.005 E	< 0.005	
	Benzene	(mg/kg)	< 0.005	< 0.005	< 0.005 E	< 0.005	< 0.005 E	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005 E	< 0.005	< 0.005	< 0.005	< 0.005 E	< 0.005	< 0.005 E	< 0.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.5	< 0.005	< 0.005	< 0.005 E	< 0.005	
	TPH-0	(mg/kg)	l						1		-											1								
	TPH-D	(mg/kg)	1						1		1																			
	TPH-G	(mg/kg)	-		1		-		1		1				1			1		1		1		1					1	
	Depth	(teet)																										-		
		Date	03/10/97	03/10/97	03/10/97	03/12/97	03/12/97	03/12/97	03/10/97	03/13/97	03/10/97	03/10/97	03/10/97	03/10/97	03/13/97	03/10/97	03/10/97	03/10/97	03/11/97	03/12/97	03/12/97	03/12/97	03/10/97	03/10/97	03/10/97	03/13/97	03/10/97	03/10/97	03/12/97	
	Sample	Name	SS-A1	SS-A2	SS-A3	SS-A4	SS-A6	SS-J4 (dup)	SS-B5	SS-B7	SS-C1	SS-C2	SS-C3	SS-C4	· SS-C6	SS-D5	SS-E2	SS-E3	SS-E4	SS-E6	SS-F6 (dup)	SS-F5	SS-G2	SS-G3	SS-G4	SS-G6	SS-I3	SS-14	SS-I6	NOTE

= Not analyzed.
 E = The associated numerical value is an estimated quantity.

Table 6-2 VOCs in Surface Soil Samples New City Cleaners Site Richland, Washington

Sample Name	Date	Depth (feet)	Acetone (mg/kg)	Tetrachloro- ethene (mg/kg)
SS-A1	03/10/97	0.5	< 0.05	< 0.005
SS-A2	03/10/97	0.5	< 0.05	0.290
SS-A3	03/10/97	2.0	< 0.05 E	0.610 E
SS-A4	03/12/97	0.5	< 0.05	< 0.005
SS-A6	03/12/97	0.5	<0.05 E	0.180 E
SS-J4 (dup)	03/12/97	0.5	< 0.05	0.130
SS-B5	03/10/97	0.8	0.062	< 0.005
SS-B7	03/13/97	0.5	0.20	< 0.005
SS-C1	03/10/97	0.5	< 0.05	< 0.005
SS-C2	03/10/97	0.5	< 0.05 E	0.250 E
SS-C3	03/10/97	0.5	< 0.05	0.028
SS-C4	03/10/97	0.5	0.052	< 0.005
SS-C6	03/13/97	0.5	< 0.050	0.005
SS-D5	03/10/97	0.5	0.069 E	0.570 E
SS-E2	03/10/97	0.5	< 0.05	0.009
SS-E3	03/10/97	0.5	< 0.05 E	8,30 E
SS-E4	03/11/97	0.2	< 5	10
SS-E6	03/12/97	0.5	< 0.05	0.006
SS-F6 (dup)	03/12/97	0.5	< 0.05	0.005
SS-F5	03/12/97	0.5	< 0.05	0,023
SS-G2	03/10/97	0.5	< 0.05	< 0.005
SS-G3	03/10/97	0.5	< 0.05	< 0.005
SS-G4	03/10/97	0.5	< 5	27
SS-G6	03/13/97	0.5	< 0.05	0,049
SS-I3	03/10/97	0.5	0.057	< 0.005
SS-I4	03/10/97	0.5	0.069 E	< 0.005 E
SS-I6	03/12/97	0.5	< 0.05	< 0.005
NOTES	L			

NOTES:

^{--- =} Not analyzed.

E = The associated value is an estimated quantity.

Table 6-3

TPH and BTEX in Subsurface Soil Samples New City Cleaners Site Richland, Washington

													<u> </u>															
Total Xylenes (mg/kg)	< 0.5	< 0.030	< 0.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	12 E	< 0.005	<0.5 E	<0.5 E	< 0.035	< 0.030	< 0.035	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	-		<0.03 E	< 0.5		< 0.005
Ethylbenzene (mg/kg)	<0.5	< 0.030	< 0.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<1.0 E	< 0.005	<0.5 E	<0.5 E	< 0.035	< 0.030	< 0.035	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1		<0.03 E	< 0.5	1	< 0.005
Toluene (mg/kg)	<0.5	< 0.030	< 0.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<1.0 E	< 0.005	<0.5 E	<0.5 E	< 0.035	< 0.030	< 0.035	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005			<0.03 E	< 0.5	1	< 0.005
Benzene (mg/kg)	< 0.5	< 0.030	< 0.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<1.0 E	< 0.005	<0.5 E		< 0.035	< 0.030	< 0.035	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005			< 0.03 E	<0.5	any any any and any	< 0.005
TPH-O (mg/kg)	ı		512 E	<100 E	1		-		< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	< 100	1,450 E, a ¹	< 100	: 1		-	
TPH-D (mg/kg)	İ			<25 E	***************************************		1		43 0	<25	< 25	< 25	< 25	<25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	<25	1,040 E, a ¹	< 25	1			
TPH-G (mg/kg)	1			<5 E					2,300 E	× 5	470 N	510 N	19	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	\$	8 a ²	< 5	ı			
Depth (feet)	S	19	5	21	15	61	7	19	11	21.5	15	15	21.5	15	21.5	-	15	21	12	23	17	21	7	6	12.5	27	35	40
Date	03/12/97	03/12/97	03/13/97	03/13/97	03/13/97	03/13/97	03/13/97	03/13/97	03/11/97	03/11/97	03/12/97	03/12/97	03/12/97	03/12/97	03/12/97	03/11/97	03/11/97	03/11/97	03/11/97	03/11/97	03/12/97	03/12/97	05/01/97	05/01/97	05/01/97	05/01/97	05/02/97	05/02/97
Sample Name	GP-1-5	GP-1-19	GP-2-5	GP-2-21	GP-3-15	GP-3-19	GP-4-7	GP-4-19	GP-5-11	GP-5-21,5	GP-6-11-15	GP-6-25 (dup)	GP-6-21.5	GP-7-15	GP-7-21.5	GP-8-1	GP-8-15	GP-8-21	GP-9-12	GP-9-23	GP-10-17	GP-10-21	SB-1-7	SB-1-9	SB-1-12.5	SB-1-27	SB-1-35	SB-1-40

Table 6-3

TPH and BTEX in Subsurface Soil Samples New City Cleaners Site Richland, Washington

Total e Xylenes (mg/kg)	<<	< 0.005 < 0.035	< 0.06 < 0.005		< 0.005	< 0.005	< 0.005	< 0.005	1	< 0.005	< 0.005
Ethylbenzene (mg/kg)	- - - - -	< 0.005 < 0.035	< 0.06 < 0.005		< 0.005	< 0.005 < 0.005	< 0.005	< 0.005 < 0.005	1	< 0.005	< 0.005
Toluene (mg/kg)	< 0.03	< 0.005	< 0.06 < 0.005		< 0.005	< 0.005 < 0.005	< 0.005	< 0.005 < 0.005	1	< 0.005	< 0.005
Benzene (mg/kg)	- - 0:00	< 0.005 < 0.035	< 0.005	1 1	< 0.005	< 0.005 < 0.005	< 0.005	< 0.005 < 0.005	1	< 0.005	< 0.005
TPH-O (mg/kg)	303 < 100 E	 < 100		< 100 < 100	Landard Control of the Control of th			00 V	5	001 /	
TPH-D (mg/kg)	70 b <25 E	 <25	1 1	<25 E	-			< 25	'	C7\.	
TPH-G (mg/kg)	< < < < < < < < < < < < < < < < < < <	1		< > 5 < 5				Ç I	1 %	7 1	
Depth (feet)	7	35 7	17.5	7	12.5	12.5 27	27	27	1	17.5	29
Date	05/01/97	05/01/97 05/01/97	05/01/97	04/30/97	04/30/97	04/30/97 04/30/97	04/30/97	04/30/97 04/30/97	04/30/97	04/30/97	04/30/97
Sample Name	SB-2-7 SB-2-9	SB-2-35 MW-1-7	MW-1-17.5 MW-1-27	MW-2-7 MW-10-7 (dup)	MW-2-12.5	MW-10-12,5 (dup) MW-2-27	MW-10-27 (dup)	MW-3-9 MW-3-27	MW-4-1	MW-4-17.5	MW-4-29

-- = Not analyzed.

E = The associated numerical value is an estimated quantity.

N = Quantitated as gasoline. Sample contained components that eluted in the gasoline range, but the chromatogram did not match the typical gasoline fingerprint.

O = Quantitated as diesel. Sample contained a lighter than diesel component that partially eluted in the diesel range.

a = Quantified as diesel/oil. Sample contained components that cluted in diesel/oil range, but chromatogram did not match the typical diesel/oil fingerprint.

a = Quantified as gas. Sample contained components that eluted in gas range, but chromatogram did not match the typical gas fingerprint.

b = Result is primarily due to the beginning of oil, which elutes in the diesel region.

Table 6-4
VOCs in Subsurface Soil Samples
New City Cleaners Site
Richland, Washington

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	n-Butyl-	benzene	(mg/kg)	< 2.0	< 0.120	< 2.0	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	8.0	< 0.02	< 2.0	< 2.0	< 0.140	< 0.120	< 0.140	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	1	-	0.150	< 2.0	1	< 0.02		00100
4-Iso-	propyl-	toluene	(mg/kg)	< 2.0	< 0.120	< 2.0	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	9.0 E	< 0.02	<2.0 E	< 2.0 E	< 0.140	< 0.120	< 0.140	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	1	1	0.190 E	< 2.0		< 0.02	ļ	0010
	sec-Butyl-	benzene	(mg/kg)	< 2.0	< 0.120	< 2.0	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	7.0 E	< 0.02	<2.0 E	<2.0 E	< 0.140	< 0.120	< 0.140	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02			0.180 E	< 2.0	:	< 0.02	-	< 0.120 <
1,2,4-Tri-	methyl-	benzene	(mg/kg)	< 2.0	< 0.120	< 2.0	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	51.0 E	< 0.02	<2.0 E	<2.0 E	< 0.140	< 0.120	< 0.140	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02		1	0.430 E	< 2.0		< 0.02	***************************************	< 0.120
tert -	Butyl-	benzene	(mg/kg)	<2.0	< 0.120	< 2.0	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	7.0 E	< 0.02	<2.0 E	<2.0 E	< 0.140	< 0,120	< 0.140	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02			<0.120 E	< 2.0	1	< 0.02		< 0.120
1,3,5-Tri-	methyl-	benzene	(mg/kg)	< 2.0	< 0.120	< 2.0	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	16.0 E	< 0.02	<2.0 E	< 2.0 E	< 0.140	< 0.120	< 0.140	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02			0.180 E	< 2.0	1	< 0.02		< 0.120
	n-Propyl-	benzene	(mg/kg)	< 2.0	< 0.120	< 2.0	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	10.0 E	< 0.02	<2.0 E	<2.0 E	< 0.140	< 0.120	< 0.140	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	1		<0.120 E	< 2.0		< 0.02		< 0.120
	Tetrachloro-	ethene	(mg/kg)	7.5	0.440	< 0.5	600:0	0.085	0.150	0.190	0.150	1.0 E	0.980	0.6 E	1.0 E	6.50	0.700	0.350	0.011	0.072	0.200	0.480	0.088	0.640	0.460			<0.03 E	< 0.5		< 0.005		1.50
	Trichloro-	cthene	(mg/kg)	< 0.5	< 0.03	< 0.5	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	<1.0 E	0.1	0.6 E	1.3 E	0.210	< 0.03	< 0.035	< 0.005	< 0.005	0.012	< 0.005	0.023	0.027	0.026			0.350 E	< 0.5		< 0.005		< 0.03
cis-1,2-	Dichloro-	ethene	(mg/kg)	<0.5		:	< 0.005					<1.0 E	< 0.005		<0.5 E	< 0.035	< 0.03	< 0.035	< 0.005				< 0.005		< 0.005			0.560 E	< 0.5		< 0.005		< 0.03
	Carbon	Disulfide	(mg/kg)	< 0.5	< 0.03	< 0.5		< 0.005		< 0.005		<1.0 E	0.008		<0.5 E	< 0.035	< 0.03	< 0.035	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005			<0.03 E	< 0.5	1	< 0.005		< 0.03
		Acetone	(mg/kg)	< 5	< 0.300	< 5	< 0.05	< 0.05	< 0.05	< 0.05		< 10.0 E		<5 E	<5 E	< 0.350	< 0.300	< 0.350	-3		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05			<0.300 E	< 5.		< 0.05		< 0.300
		Depth	(feet)	S	61	'n	21	15	19	7	- 19	=	21.5	15	15	21.5	15	21.5	_	15	21	12	23	17	21	7	6	12.5	27	35	40		6
			Date	03/12/97	03/12/97	03/13/97	03/13/97	03/13/97	03/13/97	03/13/97	03/13/97	03/11/97	03/11/97	03/12/97	03/12/97	03/12/97	03/12/97	03/12/97	03/11/97	03/11/97	03/11/97	03/11/97	03/11/97	03/12/97	03/12/97	05/01/97	05/01/97	05/01/97	05/01/97	05/02/97	05/02/97	05/01/97	05/01/97
		Sample	Name	GP-1-5	GP-1-19	GP-2-5	GP-2-21	GP-3-15	GP-3-19	GP-4-7	GP-4-19	GP-5-11	GP-5-21.5	GP-6-11-15	GP-6-25 (dup)	GP-6-21.5	GP-7-15	GP-7-21.5	GP-8-1	GP-8-15	GP-8-21	GP-9-12	GP-9-23	GP-10-17	GP-10-21	SB-1-7	SB-1-9	SB-1-12.5	SB-1-27	SB-1-35	SB-1-40	SB-2-7	SB-2-9

VOCs in Subsurface Soil Samples New City Cleaners Site Richland, Washington Table 6-4

	"-Butyl-	benzene	(mg/kg)	< 0.02	< 0.140	< 0.240	< 0.02			< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02			< 0.00	<0.02	
4-Iso-	propyl-	toluene	(mg/kg)	< 0.02	< 0.140	< 0.240	< 0.02	. 1		< 0.02	< 0.02	< 0.02	< 0,02	< 0.02	< 0.02	:	1	< 0.02	< 0.02	
	sec-Butyl-	benzene	(mg/kg)	< 0.02	< 0.140	< 0.240	< 0.02	:	1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02			< 0.02	< 0,02	
1,2,4-Tri-	methyl-	benzene	(mg/kg)	< 0.02	< 0.140	< 0.240	< 0.02		the same	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	.	-	< 0.02	< 0.02	
tert -	Butyl-	benzene	(mg/kg)	< 0.02	< 0.140	< 0.240	< 0.02	-	1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02		ı	< 0.02	< 0.02	
1,3,5-Tri-	methyl-	benzene	(mg/kg)	< 0.02	< 0.140	< 0.240	< 0.02			< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02			< 0.02	< 0.02	
	n -Propyl-	benzene	(mg/kg)	< 0.02	< 0.140	< 0.240	< 0.02			< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02		1	< 0.02	< 0.02	
	Tetrachloro-	ethene	(mg/kg)	< 0.005	4.4	0.095	< 0.005	-		0.068 E	0.016	900.0	900.0	0.65	< 0.005			.0.063	< 0,005	
	Trichloro-	ethene	(mg/kg)	< 0.005	0.09	> 0.06	< 0.005	1		< 0.005	< 0.005	< 0.005	< 0.005	900.0	< 0.005	1		< 0.005	< 0.005	
cis-1,2-	Dichloro-	ethene	(mg/kg)	< 0.005	< 0.035	> 0.06	< 0.005			< 0.005	< 0.005	< 0.005	< 0.005	600.0	< 0.005	n parameter and the second sec		< 0.005	< 0.005	
	Carbon	Disulfide	(mg/kg)	< 0.005	< 0.035	> 0.06	< 0.005			< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		-	< 0.005	< 0.005	
		Acetone	(mg/kg)	< 0.05	< 0.35	< 2.4	< 0.05	-		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		1	< 0.05	< 0.05	
		Depth	(feet)	35	7	17.5	27	7	7	12.5	12.5	27	27	6	27	-	6	17.5	29	
			Date	05/01/97	05/01/97	05/01/97	05/01/97	04/30/97	04/30/97	04/30/97	04/30/97	04/30/97	04/30/97	04/30/97	04/30/97	04/30/97	04/30/97	04/30/97	04/30/97	
		Sample	Name	SB-2-35	MW-1-7	MW-1-17.5	MW-1-27	MW-2-7	MW-10-7 (dup 04/30/97	MW-2-12.5	MW-10-12.5 (04/30/97	MW-2-27	MW-10-27 (du 04/30/97	MW-3-9	MW-3-27	MW-4-1	MW-4-9	MW-4-17.5	MW-4-29	NOTES

— Not analyzed.
 E = The associated value is an estimated quantity.

Table 6-5
Summary Statistics - Soil Samples
New City Cleaners Site
Richland, Washington

									Page 1 of 4
			Minimum	Maximum		Minimum Detection	Maximum Detection		
	Number	Number	Detected	Detected	Average	Limit	Limit		UCL 95
Compound	Analyzed	Detected	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	Distribution	(mg/kg)
Soils - Surface									
Dichlorodifluoromethane	25	0	NA	NA	NA	0.005	0.5	NA	NA
Chloromethane	25	0	NA	NA	NA	0.005	0.5	NA	NA
Vinyl Chloride	25	0	NA	NA	NA	0.005	0.5	NA	NA
Bromomethane	25	0	NA	NA	NA	0.005	0.5	NA	NA
Chloroethane	25	0	NA	NA	NA	0.005	0.5	NA	NA
Trichlorofluoromethane	25	0	NA	NA	NA	0.005	0.5	NA	NA
Acetone	25	9	0.052	0.2	0.085	0.05	5	Neither	M (0.2)
1,1-Dichloroethene	25	0	ΑΝ	NA	NA	0.005	0.5	NA	NA
Carbon Disulfide	25	0	NA	NA	NA	0.005	0.5	NA	NA
Methylene Chloride	25	0	NA	NA	NA	0.01	-	NA	NA
trans-1,2-Dichloroethene	25	0	NA	NA	NA	0.005	0.5	NA	NA
1,1-Dichloroethane	25	0	NA	NA	NA	0.005	0.5	NA	NA
2-Butanone(MEK)	25	0	NA A	NA	NA	0.02	7	NA	NA
2,2-Dichloropropane	25	0	NA	NA	NA	0.005	0.5	NA	NA
cis-1,2-Dichloroethene	25	0	NA	NA A	NA	0.005	0.5	NA	NA
Chloroform	25	0	NA	NA	NA	0.005	0.5	NA	NA
Bromochloromethane	25	0	NA	NA	NA	0.005	0.5	NA	NA
1,1,1-Trichloroethane	25	0	NA A	NA	NA	0.005	0.5	NA	NA
1,1-Dichloropropene	25	0	NA	NA	NA	0.005	0.5	NA	NA
CarbonTetrachloride	25	0	NA	NA	NA	0.005	0.5	NA	NA
1,2-Dichloroethane	25	0	NA	NA	NA	0.005	0.5	NA	NA
Trichloroethene	25	0	Α̈́	NA	NA	0.005	0.5	NA	NA
1,2-Dichloropropane	25	0	NA	NA	NA	0.005	0.5	NA	NA
Bromodichloromethane	25	0	NA	NA	NA	0.005	0.5	NA	NA
Dibromomethane	25	0	N A	NA	NA	0.005	0.5	NA	NA
2-Hexanone	25	0	NA	NA	NA	0.02	2	NA	NA
cis-1,3-Dichloropropene	25	0	NA	A A	NA	0.005	0.5	NA	NA
trans-1,3-Dichloropropene	25	0	NA	NA	NA	0.005	0.5	NA	NA
1,1,2-Inchloroethane	25	0	NA	NA	NA	0.005	0.5	NA	NA

Table 6-5
Summary Statistics - Soil Samples
New City Cleaners Site
Richland, Washington

					,				Page 2 of 4
						Minimum	Maximum		
	Niimber	Number	Minimum	Maximum	Augrana	Detection I imit	Detection Limit		1771
Compound	Analyzed	Detected	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	Distribution	(mg/kg)
Soils - Surface									
4-Methyl-2-pentanone	25	0	NA	NA	NA	0.02	2	NA	NA
1,3-Dichloropropane	25	0	NA	NA	NA	0.005	0.5	NA	NA
Tetrachloroethene	25	14	0.005	27	3.4	0.005	0.005	Lognormal	M(27)
Dibromochloromethane	25	0	NA	NA	NA	0.005	0.5	NA	NA
1,2-Dibromoethane	25	0	NA	NA	NA	0.02	2	NA	NA
Chloro-benzene	25	0	NA	NA	NA	0.005	0.5	NA	NA
1,1,1,2-Tetrachloroethane	25	0	NA	NA	NA	0.005	0.5	NA	NA
Styrene	25	0	NA	NA	NA	0.005	0.5	NA	NA
Вготоботт	25	0	NA	NA	NA	0.005	0.5	NA	NA
Isopropylbenzene	25	0	NA	NA	NA	0.02	7	NA	NA
1,1,2,2-Tetrachloroethane	25	0	NA	NA	NA	0.005	0.5	NA	NA
1,2,3-Trichloropropane	25	0	NA	NA	NA	0.005	0.5	NA	NA
Bromobenzene	25	0	NA	NA	NA	0.005	0.5	NA	NA
n-Propylbenzene	25	0	NA	NA	NA	0.02	2	NA	NA
2-Chlorotoluene	25	0	NA	NA	NA	0.02	7	NA	NA
4-Chlorotoluene	25	0	NA	NA	NA	0.02	7	NA	NA
1,3,5-Trimethylbenzene	25	0	NA	NA	NA	0.02	2	NA	NA
tert-Butylbenzene	25	0	NA	NA	NA	0.02	2	NA	NA
1,2,4-Trimethylbenzene	25	0	NA	NA	NA	0.02	2	NA	NA
sec-Butylbenzene	25	0	NA	NA	NA	0.02	2	NA	NA
1,3-Dichlorobenzene	25	0	NA	NA	NA	0.005	0.5	NA	NA
4-Isopropyltoluene	25	0	NA	NA	NA	0.02	2	NA	NA
1,4-Dichlorobenzene	25	0	NA	NA	NA	0.005	0.5	NA	NA
n-Butylbenzene	25	0	NA	NA	NA	0.02	2	NA	NA
1,2-Dichlorobenzene	25	0	NA	NA	NA	0.005	0.5	NA	NA
1,2-Dibromo-3-chloropropane	25	0	NA	NA	NA	0.02	7	NA	NA
1,2,4-Trichlorobenzene	25	0	NA	NA	NA	0.02	2	NA	NA
1,2,3-Trichlorobenzene	25	0	NA	NA	NA	0.02	2	NA	NA
Naphthalene	25	0	NA	NA	NA	0.02	2	NA	NA
Hexachlorobutadiene	25	0	NA	NA	NA	0.02	2	NA	NA
Benzene	25	0	NA	NA	NA	0.005	0.500	NA	NA
Toluene	25	0	NA	NA	NA	0.005	0.500	NA	NA
Ethylbenzene	25	0 (NA S	¥ ;	AN :	0.005	0.500	NA :	AN ;
Aylenes	C7	0	NA	INA	NA	0.00	0.500	NA	NA

Table 6-5
Summary Statistics - Soil Samples
New City Cleaners Site
Richland, Washington

)				Page 3 of 4
			Minimin	Maximim		Minimum Detection	Maximum		
	Number	Number	Detected	Detected	Average	Limit	Limit		UCL 95
Compound	Analyzed	Detected	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	Distribution	(mg/kg)
Soils - Subsurface									
Dichlorodifluoromethane	35	0	NA	NA	NA	0.005	1.0	NA	NA
Chloromethane	35	0	NA	NA	NA	0.005	1.8	NA	NA
Vinyl Chloride	35	0	NA	NA	NA	0.005	1.0	NA	NA
Bromomethane	35	0	NA	NA	NA	0.005	1.0	NA	NA
Chloroethane	35	0	NA	NA	NA	0.005	1.0	NA	NA
Trichlorofluoromethane	35	0	NA	NA	NA	0.005	1.0	NA	NA
Acetone	35	_	090.0	NA	NA	0.050	10	NA	NA
1,1-Dichloroethene	35	0	NA	NA	NA	0.005	1.0	NA	NA
Carbon Disulfide	35	-	800.0	NA	NA	0.005	1.0	NA	NA
Methylene Chloride	35	0	NA	NA	NA	0.010	2.0	NA	NA
trans-1,2-Dichloroethene	35	0	NA	NA	NA	0.005	1.0	NA	NA
1,1-Dichloroethane	35	0	NA	NA	NA	0.005	1.0	NA	NA
2-Butanone(MEK)	35	0	NA	NA	AN	0.020	4.0	NA	NA
2,2-Dichloropropane	35	0	NA	NA	NA	0.005	1.0	NA	NA
cis-1,2-Dichloroethene	35	4	600.0	26	9.9	0.005	1.0	NA	M (26)
Chloroform	35	0	NA	NA	NA	0.005	1.0	NA	NA
Bromochloromethane	35	0	NA	NA	N A	0.005	1.0	NA	NA
1,1,1-Trichlorocthane	35	0	NA	NA	NA	0.005	1.0	NA	NA
1,1-Dichloropropene	35	0	NA	NA	NA	0.005	1.0	NA	NA
CarbonTetrachloride	35	0	NA	NA	Ν Α	0.005	1.0	NA	NA
1,2-Dichloroethane	35	0	NA	NA	N A	0.005	1.0	NA	NA
Trichloroethene	35	10	900.0	0.950	0.179	0.005	1.0	NA	M (0.950)
1,2-Dichloropropane	35	0 '	NA.	NA V	A A	0.005	1.0	NA	NA A
Bromodichloromethane	35	0	NA	NA	NA	0.005	1.0	NA	NA
Dibromomethane	35	0	NA	NA	NA	0.005	1.0	NA	NA
2-Hexanone	35	0	NA	NA	NA	0.020	4.0	NA AN	NA
cis-1,3-Dichloropropene	35	0	NA	NA	NA	0.005	1.0	NA	NA
trans-1,3-Dichloropropene	35	0	NA	NA	NA	0.005	1.0	NA	NA
1,1,2-Trichloroethane	35	0	NA	NA	NA	0.005	1.0	NA	NA
4-Methyl-2-pentanone	35	0	NA	NA	NA	0.020	4.0	NA	NA
1,3-Dichloropropane	35	0	NA	NA	NA	0.005	1.0	NA	NA
Tetrachloroethene	35	27	900.0	7.5	1.02	0.005	0.50	Lognormal	M (7.5)
Dibromochloromethane	35	0 0	AN S	AN S	N Y	0.005	1.0	AN :	Y Y
1,2-Dibioinoculane	33		INA	NA	AN	070.0	4.0	NA	NA

Table 6-5
Summary Statistics - Soil Samples
New City Cleaners Site
Richland, Washington

									Page 4 of 4
			Minimum	Maximum		Minimum Detection	Maximum Detection		
Compound	Number Analyzed	Number Detected	Detected (mg/kg)	Detected (mg/kg.)	Average (mg/kg)	Limit (mg/kg.)	Limit (mg/kg)	Distribution	UCL 95 (mg/kg)
Soils - Subsurface									à à
Chloro-benzene	35	0	NA	NA	NA	0.005	1.0	NA	NA
1,1,1,2-Tetrachloroethane	35	0	NA	NA	NA	0.005	1.0	NA	NA
Styrene	35	0	NA	NA	NA	0.005	1.0	NA	NA
Bromoform	35	0	NA	NA	NA	0.005	1.0	NA	NA
Isopropylbenzene	35	0	NA	Ä	NA	0.020	4.0	NA	NA
1,1,2,2-Tetrachloroethane	35	0	NA	NA	NA	0.005	1.0	NA	NA
1,2,3-Trichloropropane	35	0	NA	AN	NA	0.005	1.0	NA	NA
Bromobenzene	35	0	NA	NA	NA	0.005	1.0	NA	NA
n-Propylbenzene	35	-	10	NA	NA	0.020	2.0	NA	NA
2-Chlorotoluene	35	0	NA	NA	NA	0.020	4.0	NA	NA
4-Chlorotoluene	35	0	NA	NA	NA	0.020	4.0	NA	NA
1,3,5-Trimethylbenzene	35	7	0.180	16	8.1	0.020	2.0	NA	NA
tert-Butylbenzene	35	_	7.0	NA	NA	0.020	2.0	NA	NA
1,2,4-Trimethylbenzene	35	7	0.430	51	26	0.020	2.0	NA	NA
sec-Butylbenzene	35	7	0.180	7.0	3.6	0.020	2.0	NA	NA
1,3-Dichlorobenzene	35	0	NA	NA	NA	0.005	1.0	NA	NA
4-Isopropyltoluene	35	2	0.190	0.6	4.6	0.020	2.0	NA	NA
1,4-Dichlorobenzene	35	0	NA	NA	NA	0.005	1.0	NA	NA
n-Butylbenzene	35	7	0.150	8.0	4.1	0.020	2.0	NA	NA
1,2-Dichlorobenzene	35	0	NA	A A	N. A.	0.005	1.0	NA	NA
1,2-Dibromo-3-chloropropane	35	0	NA	NA	NA	0.020	4.0	NA	NA
1,2,4-Trichlorobenzene	35	0	NA V	N A	NA	0.020	4.0	NA	NA
1,2,3-Trichlorobenzene	35	0	NA	N A	NA	0.020	4.0	NA	NA
Naphthalene	35	0	NA	NA	NA	0.020	4.0	NA	NA
Hexachlorobutadiene	35	0	N A	N A	NA	0.020	4.0	NA	NA
TPH-G	23	4	8.0	2300	704	5	5	Lognormal	M (2300)
TPH-D	23	4	43	1040	302	25	25	Neither	M (1040)
TPH-0	23	ĸ	303	1450	755	100	100	Lognormal	M(1450)
Benzene	35	0	NA	NA	NA	0.005	1	NA	NA
Toluene	35	0	NA	NA	NA	0.005	-	NA	NA
Ethylbenzene	35	0	NA	NA	NA	0.005	-	NA	NA
Xylenes	35	1	12	NA	NA	0.005	0.5	NA	NA
NOTE									
NA= Not available. M indicates default to maximum value maximum vlaue listed in narentheese	alue maximum	dane listed in n	arenthoses						
	,								

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TPH and BTEX in Groundwater - Geoprobe™ and Monitoring Well Samples New City Cleaners Site Richland, Washington Table 6-6

TSS	700	177	176	1,040	48	3,740	1,690	5,630	677	278 E	402	276												:		
Total Xylenes	(m/g/m)	0.010	< 0.100	< 0.025	< 0.010	0.260	< 0.100	< 0.100	< 0.020	< 0.100	< 0.130	< 0.020	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Ethylbenzene (mo/l.)	(7,6,0)	0.010	< 0.100	< 0.025	< 0.010	< 0.050	< 0.100	< 0.100	< 0.020	< 0.100	< 0.130	< 0.020	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Toluene (me/L)	(me/z)	0.010	< 0.100	< 0.025	< 0.010	< 0.050	< 0.100	< 0.100	< 0.020	< 0.100	< 0.130	< 0.020	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Benzene	(1116/22)	0.010	< 0.100	< 0.025	< 0.010	< 0.050	< 0.100	< 0.100	< 0.020	< 0.100	< 0.130	< 0.020	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
O-HdT	(m,P,m)		l	1			< 0.750		< 0.750	< 0.750	< 0.750	< 0.750		< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	< 0.750	NA	NA	Ϋ́Α	NA	NA	NA	NA
TPH-D	(2,)2)			1		0.504 O^2	0.356 O²	< 0.250	< 0.250	< 0.250	< 0.250	< 0.250	1	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25
TPH-G	(T.A)			1		6.40 E	1.70 E, O ¹	$2.00 O^1$	0.46 O [‡]	1.10 O^{1}		0.29 E, O ¹	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	<0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Depth (feet)	15	ן נ	17	19	19	19	15	Ξ	10	15	15	17						:								
Date	03/17/07	17/21/20	03/12/97	03/12/97	03/12/97	03/12/97	03/12/97	03/12/97	03/11/97	03/11/97	03/11/97	03/12/97	76/80/50	05/08/97	05/08/97	05/08/97	05/08/97	05/12/97	05/12/97	16/07/80	08/20/97	08/20/97	08/20/97	08/20/97	08/20/97	08/20/97
Sample	CDW 1 207 15	01-760-1-M 10	GPW-2-397-17	GPW-3-397-19	GPW-4-397-19	GPW-5-397-19	GPW-6-397-15	GPW-7-397-11	GPW-8-397-10	GPW-9-397-15	GPW-9-397-25 (dup)	GPW-10-397-17	, MW-1-0597	MW-20-0597 (dup)	MW-2-0597 ^a	MW-3-0597 ^a	MW-4-0597	MW-D-0597	MW-E-0597	MW-1-0897	MW-2-0897	MW-5-0897 (dup)	MW-3-0897	MW-4-0897	MW-D-0897	MW-E-0897

--- = Not analyzed.

E =The associated numerical value is an estimated quantity. $O^1 =$ Quantitated as gasoline. The sample contained an unknown peak that eluted in the gasoline range. $O^2 =$ Quantitated as diesel. The sample contained components ligher than diesel that partially eluted in the diesel range.

Table 6-7 VOCs in Groundwater - Geoprobe™ Samples New City Cleaners Site Richland, Washington

				cis -1,2-			1,2,4-Tri-
				Dichloro-	Trichloro-	Tetrachloro-	methyl-
Sample		Depth	TSS	ethene	ethene	ethene	benzene
Name	Date	(feet)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
GPW-1-397-15	03/12/97	15	7 99 ,	< 0.010	0.018	0.210	< 0.040
GPW-2-397-17	03/12/97	17	176	< 0.1	< 0,1	4.3	< 0.4
GPW-3-397-19	03/12/97	19	1,040	< 0.025	0.056	1.1	< 0.1
GPW-4-397-19	03/12/97	19	48	< 0.010	< 0.010	0.340	< 0.040
GPW-5-397-19	03/12/97	19	3,740	0.620	0.160	0.9	0.490
GPW-6-397-15	03/12/97	15	1,690	2.3	3.5	1.0	< 0.4
GPW-7-397-11	03/12/97	11	5,630	< 0.1	< 0.1	4.3	< 0.4
GPW-8-397-10	03/11/97	10	677	< 0.020	< 0.020	1:0	< 0.080
GPW-9-397-15	03/11/97	15	278	< 0.1	< 0.1	2.2	< 0.4
GPW-9-397-25 (dup)	03/11/97	15	402	< 0.130	< 0,130	2.2	< 0.5
GPW-10-397-17	03/12/97	17	276	< 0.020	< 0.020	0.059	< 0.080

NOTE:

--- = Not analyzed.

Table 6-8 VOCs in Groundwater - Monitoring Well Samples New City Cleaners Site Richland, Washington

		cis -1,2-			
		Dichloro-		Trichloro-	Tetrachloro-
Sample		ethene	Chloroform	ethene	ethene
Name	Date	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MW-1-0597	05/08/97	< 0.0005	< 0.0005	< 0.0005	0.0028
MW-20-0597 (dup)	05/08/97	< 0.0005	< 0.0005	< 0.0005	0,0033
MW-2-0597ª	05/08/97	< 0.0005	< 0.0005	0.0042	0.047
MW-3-0597*	05/08/97	< 0.0005	< 0.0005	0.0023	0.054
MW-4-0597	05/08/97	< 0.0005	< 0.0005	0.001	0.0026
MW-D-0597	05/12/97	< 0.0005	< 0.0005	< 0.0005	< 0.0005
MW-E-0597	05/12/97	0.0008	< 0.0005	0.0061	0.039
MW-1-0897	08/20/97	< 0.0005	< 0.0005	0.001	0.031
MW-2-0897	08/20/97	< 0.0005	< 0.0005	0.0057	0.058
MW-5-0897 (dup)	08/20/97	< 0.0005	< 0.0005	0.0058	0.065
MW-3-0897	08/20/97	< 0.0005	< 0.0005	0.0017	0.035
MW-4-0897	08/20/97	< 0.0005	< 0.0005	0.001	0.0012
MW-D-0897	08/20/97	< 0.0005	0.0009	< 0.0005	< 0.0005
MW-E-0897	08/20/97	0.0006	< 0.0005	0.0034	0.0077

NOTE:

^{--- =} Not analyzed.

 ^a Sample names for wells MW-2 and MW-3 were transposed in the field.
 Data tables reflect the corrected sample locations.

Table 6-9
Summary Statistics - Groundwater Samples
New City Cleaners Site
Richland, Washington

	-								
						Minimum	Maximum		
_			Minimum	Maximum		Detection	Detection		
	Number	Number	Detected	Detected	Average	Limit	Limit	:	UCL 95
	Analyzed	Detected	(mg/L)	(mg/L,)	(mg/L)	(mg/L)	(mg/L)	Distribution	(mg/L)
Groundwater - Geoprobe TM									
Dichlorodifluoromethane	10	0	NA	NA	NA	0.010	0.12	NA	NA
Chloromethane	10	0	NA	NA AN	NA	0.010	0.12	NA	NA
Vinyl Chloride	10	0	NA	NA	NA	0.010	0.12	NA	NA
Bromomethane	10	0	NA	NA	NA	0.010	0.12	NA	NA
Chloroethane	10	0	NA	NA	NA	0.010	0.12	NA	NA
Trichlorolluoromethane	10	0	NA	NA	NA	0.010	0.12	NA	NA
Acetone	01	0	NA	NA	NA	0.40	4.5	NA	NA
1,1-Dichloroethene	01	0	NA	NA	NA	0.010	0.12	NA A	NA
Carbon Disulfide	01	0	NA	NA	NA	0.010	0.12	NA	NA
Methylene Chloride	01	0	NA	NA	NA	0.020	0.22	NA	NA
trans-1,2-1)ichloroethene	01	0	NA	NA	NA	0.010	0.12	NA	NA
1,1-Dichloroethane	10	0	NA	NA	NA	0.010	0.12	NA	NA
2-Butanone(MEK)	10	0	NA	NA	NA	0.40	4.5	NA	NA
2,2-Dichloropropane	10	0	NA	NA	NA	0.010	0.12	NA	NA
cis-1,2-Dichloroethene	10	2	0.620	2.300	1.5	0.010	0.12	NA	NA
Chloroform	10	0	A A	N A	NA	0.010	0.12	NA	NA
Bromochloromethane	10	0	NA A	NA	NA	0.010	0.12	NA	NA
1,1,1-Trichloroethane		0	NA A	NA	NA	0.010	0.12	NA	NA
1,1-Dichloropropene	01	0	NA	NA	NA	0.010	0.12	NA	NA
CarbonTetrachloride	10	0	NA	NA	NA	0.010	0.12	NA	NA
1,2-Dichloroethane	01	0	NA A	NA	NA	0.010	0.12	NA	NA
Trichloroethene	01	4	0.018	3.5	0.93	0.010	0.12	Neither	M(3.5)
1,2-Dichloropropane	10	0	NA A	NA A	NA	0.010	0.12	NA	NA
Bromodichloromethane	10	0	NA A	NA	NA	0.010	0.12	NA	NA
Dibromomethane	10	0	NA	NA	NA	0.010	0.12	NA	NA
2-Hexanone	10	0	NA	NA	NA	0.40	4.5	NA	NA
cis-1,3-Dichloropropene	10	0	NA	NA	NA	0.010	0.12	NA	NA
trans-1,3-Dichloropropene	01	0	NA	NA	NA	0.010	0.12	NA	NA
1,1,2-Trichloroethane	01	0	NA	NA	NA	0.010	0.12	NA	NA
4-Methyl-2-pentanone	10	0	NA	N A	NA	0.40	4.5	NA	NA
1,3-Dichloropropane	10	0	NA	NA	NA	0.010	0.12	NA	NA
Tetrachloroethene	10	10	0.059	4.3	1.5	NA	NA	Lognormal	11.9

Table 6-9
Summary Statistics - Groundwater Samples
New City Cleaners Site
Richland, Washington

)				Page 2 of 4
			Minimum	Maximum		Minimum Detection	Maximum Detection		
Compound	Number Analyzed	Number Detected	Detected (1ng/L)	Detected (mg/L)	Average (mg/L)	Limit (mg/L)	Limit (mg/L)	Distribution	UCL 95 (mg/L)
Groundwater - Geoprobe TM									
Dibromochloromethane	10	0	NA	NA	NA	0.010	0.12	NA	NA
1,2-Dibromoethane	10	0	NA	NA	NA	0.040	1.0	NA	NA
Chloro-benzene	10	0	NA	NA	NA	0.010	0.12	NA	NA
1,1,1,2-Tetrachloroethane	10	0	NA	NA	NA	0.010	0.12	NA	NA
Styrene	10	0	NA	NA	NA	0.010	0.12	NA	NA
Вготобогт	10	0	NA	NA	NA	0.010	0.12	NA	NA
Isopropylbenzene	10	0	NA	NA	NA	0.040	0.45	NA	NA
1,1,2,2-Tetrachloroethane	10	0	NA	NA	NA	0.010	0.12	NA	NA
1,2,3-Trichloropropane	10	0	NA	NA	NA	0.010	0.12	NA	NA
Bromobenzene	10	0	NA	NA	NA	0.010	0.12	NA	NA
n-Propylbenzene	10	0	NA A	NA	NA	0.040	0.45	NA	NA
2-Chlorotoluene	10	0	NA	NA	NA	0.040	0.45	NA	NA
4-Chlorotoluene	10	0	NA	NA	NA	0.040	0.45	NA	NA
1,3,5-Trimethylbenzene	10	0	NA	NA	NA	0.040	0.45	NA	NA
tert-Butylbenzene	10	0	NA	NA	NA	0.040	0.45	NA	NA
1,2,4-Trimethylbenzene	10	1	0.49	NA	NA	0.040	0.45	NA	NA
sec-Butylbenzene	10	0	NA	NA	NA	0.040	0.45	NA	NA
1,3-Dichlorobenzene	10	0	NA	NA	NA	0.010	0.12	NA	NA
4-Isopropyltoluene	10	0	NA	NA	NA	0.040	0.45	NA	NA
1,4-Dichlorobenzene	10	0	NA	NA	NA	0.010	0.12	NA	NA
n-Butylbenzene	10	0	NA	NA	NA	0.040	0.45	NA	NA
1,2-Dichlorobenzene	10	0	NA	NA	NA	0.010	0.12	NA	NA
1,2-Dibromo-3-chloropropane	10	0	NA	NA	NA	0.040	0.45	NA	NA
1,2,4-Trichlorobenzene	10	0	NA	NA	NA	0.040	0.45	NA	NA
1,2,3-Trichlorobenzene	10	0	NA	NA	NA	0.040	0.45	NA	NA
Naphthalene	10	0	NA	NA	NA	0.040	0.45	NA	NA
Hexachlorobutadiene	10	0	NA	NA	NA	0.040	0.45	NA	NA
TPH-G	9	9	0.29	6.4	2.0	NA	NA	Lognormal	20.8
TPH-D	9	2	0.36	0.50	0.43	0.25	0.25	NA	NA
TPH-0	9	0	NA	NA	NA	0.75	0.75	NA	NA
Benzene	10	0	NA A	NA	NA	0.01	0.12	NA	NA
Toluene	10	0	NA	NA	NA	0.01	0.12	NA	NA
Ethylbenzene	10	0	Y'A	NA	NA	0.01	0.12	NA	NA
I otal Xylenes	10	1	0.26	NA	NA	0.01	0.12	NA	NA

Table 6-9
Summary Statistics - Groundwater Samples
New City Cleaners Site
Richland, Washington

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									X
			Minimiz	Marianian		Minimum	Maximum		
	Number	Number	Detected	Detected	Average	Limit	Limit		UCL 95
Compound	Analyzed	Detected	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	Distribution	(mg/L)
Groundwater - Monitoring Wells	S								
Dichlorodifluoromethane	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Chloromethane	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Vinyl Chloride	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Bromomethane	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Chloroethane	. 12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Trichlorofluoromethane	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Acetone	12	0	NA	NA	NA	0.0200	0.0200	NA	NA
1,1-Dichloroethene	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Carbon Disulfide	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Methylene Chloride	12	0	NA	NA	NA	0.0010	0.0010	NA	NA
trans-1,2-Dichloroethene	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
1,1-Dichloroethane	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
2-Butanone(MEK)	12	0	NA	NA	NA	0.0200	0.0200	NA	NA
2,2-Dichloropropane	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
cis-1,2-Dichloroethene	12	2	9000.0	0.0008	0.0007	0.0005	0.0005	NA	NA
Chloroform	12	_	6000.0	NA	NA	0.0005	0.0005	NA	NA
Bromochloromethane	12	0	ΝΑ	NA	NA	0.0005	0.0005	NA	NA
1,1,1-Trichloroethane	12	0	NA	NA	ΝΑ	0.0005	0.0005	NA	NA
1,1-Dichloropropene	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Carbon Tetrachloride	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
1,2-Dichloroethane	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Trichloroethene	12	6	0.0010	0.0061	0.0029	0.0005	0.0005	Lognormal	0.0087
1,2-Dichloropropane	12	0	NA.	NA.	Y Y	0.0005	0.0005	NA	NA
Bromodichloromethane	12	0 (Y ?	AN ?	Y ;	0.0005	0.0005	Y Y	NA
Dibromomethane	7 .	o (Ψ,	Y ;	Ψ,	0.0005	0.0005	NA	NA
2-Hexanone	12	0 (Y ;	Y N	Y :	0.0200	0.0200	NA	NA
cis-1,3-Dichloropropene	12	0 (AN ;	YY ;	ΨZ;	0.0005	0.0005	NA	NA
trans-1,3-Dichloropropene	12	0	AN	NA	NA	0.0005	0.0005	NA	NA
1,1,2-Trichloroethane	12	0	NA A	NA	NA	0.0005	0.0005	NA	NA
4-Methyl-2-pentanone	12	0	NA	NA	NA A	0.0200	0.0200	NA	NA
1,3-Dichloropropane	12	0	NA AN	NA	NA	0.0005	0.0005	NA	NA
Tetrachloroethene	12	10	0.001	0.062	0.028	0.0005	0.0005	Normal	0.035
Dibromochloromethane	12	0 0	A Z	A Z	A Z	0.0005	0.0005	NA A	AN Y
1,2-17101011001110110	71		UNI	CM	CAI	0.0020	0.0020	YNI .	INA

Table 6-9
Summary Statistics - Groundwater Samples
New City Cleaners Site
Richland, Washington

					ח				Page 4 of 4
			Minimim	Maximim		Minimum	Maximum Detection		
	Number	Number	Detected	Detected	Average	Limit	Limit		ACL 95
Compound	Analyzed	Detected	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	Distribution	(mg/L)
Groundwater - Monitoring Wells	ls								
Chloro-benzene	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
1,1,1,2-Tetrachloroethane	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Styrene	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Bromoform	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Isopropylbenzene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
1,1,2,2-Tetrachlorocthane	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
1,2,3-Trichloropropane	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Bromobenzene	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
n-Propylbenzene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
2-Chlorotoluene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
4-Chlorotoluene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
1,3,5-Trimethylbenzene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
tert-Butylbenzene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
1,2,4-Trimethylbenzene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
sec-Butylbenzene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
1,3-Dichlorobenzene	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
4-Isopropyltoluene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
1,4-Dichlorobenzene	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
n-Butylbenzene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
1,2-Dichlorobenzene	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
1,2-Dibromo-3-chloropropane	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
1,2,4-Trichlorobenzene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
1,2,3-Trichlorobenzene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
Naphthalene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
Hexachlorobutadiene	12	0	NA	NA	NA	0.0020	0.0020	NA	NA
TPH-G	12	0	NA	NA	NA	0.05	0.05	NA	NA
TPH-D	12	0	NA	NA	NA	0.25	0.25	NA	NA
TPH-O	9	0	NA	NA	NA	0.75	0.75	NA	NA
Benzene	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Toluene	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Ethylbenzene	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
Total Xylenes	12	0	NA	NA	NA	0.0005	0.0005	NA	NA
NOTE:									
NA=Not available. Mindicates default to maximum units maximum ulans listed in messethenes	of the section of the	and bearing the second	1						
M malcales default to maximum v	aiuc, maximum	viauc iisicu iii	ai ciiiileses.						

Table 8-1

Human Health Indicator Hazardous Substances in Soil Richland, Washington **New City Cleaners**

						Method B Soil	
					Maximum	CUL to Protect	Maximum
		Number of	Number of	Detection	Detected	Groundwater	Exceeds
Location	Chemical	Detects a	Samples ^a	Frequency	Value (mg/kg) a	(mg/kg) ^b	CUL?
Surface	Acetone	9	25	24%	0.2	80	Z
	Tetrachloroethene	14	25	%95	27	0.0858	Y
Subsurface	Acetone	1	35	3%	90'0	80	z
	Carbon disulfide	1	35	3%	0.008	80	z
	cis-1,2-Dichloroethene	5	35	14%	26	&	Y
	Trichloroethene	10	35	767	0.95	0.398	Y
	Tetrachloroethene	27	35	<i>%LL</i>	7.5	0.0858	X
	n-Propylbenzene	_	35	3%	10	NA	z
	1,3,5-Trimethylbenzene	2	35	%9	16	NA	z
	tert-Butylbenzene		35	3%	7	NA	z
	1,2,4-Trimethylbenzene	. 5	35	%9	51	NA	z
	sec-Butylbenzene	7	35	%9	. 7	NA	z
	4-Isopropyltoluene	2	35	%9	6	NA	z
	n-Butylbenzene	. 2	35	%9	∞	NA	z
	TPH-G	4	23	17%	2300	100	X
	TPH-D	4	23	17%	1040	200	>
	TPH-O	3	23	13%	1450	200	>
	Xylenes	_	35	3%	12	1600	Z
NOTE:							

CUL = Cleanup level

1HS = Indicator hazardous substance

NA = Not available

TPH-G = Total petroleum hydrocarbons as gasoline

TPH-D = Total petroleum hydrocarbons as diesel

TPH-O = Total petroleum hydrocarbons as oil

^a From Table 6-5.

Department of Ecology, Olympia, Washington. TPH values are Method A residential.

b From Model Toxics Control Act Cleanup Levels and Risk Calculations (CLARC II) Update. February 1996. Publication No. 94-145. Washington State

Table 8-2

Human Health Indicator Hazardous Substances in Groundwater New City Cleaners Richland, Washington

				Maximum	Method B	Maximum
	Number of	Number of	Detection	Detected	Groundwater	Exceeds
Chemical	Detects ^a	Samples a	Frequency	Value (mg/L) ^a	CUL (mg/L)	CUL?
cis-1,2-Dichloroethene	2	12	17%	0.0008	80.0	z
Chloroform		12	%8	0.0009	0.00717	z
Trichloroethene	6	12	75%	0.0061	0.00398	Y
Tetrachloroethene	10	12	83%	0.062	0.000858	}
NOTE:						
CUL = Cleanup level						
IHS = Indicator hazardous substance						
NA = Not available						
UCL95 = Upper 95 percent confidence limit on the mean.	limit on the mean.	•			,.	
a From Table 6-9.					٠	
b From Model Toxics Control Act Cleanup Levels and Risk Calculations (CLARC II) Update. February 1996. Publication No. 94-145.	nup Levels and Risk C.	alculations (CLARC II	l) Update. February I	996. Publication No. 94-	145.	
Washington State Department of Ecology, Olympia, Washington.	logy, Olympia, Washin	gton.				

Table 8-3 Human Health Exposure Pathway Analysis New City Cleaners Richland, Washington

				Potentially		
Medium	IHSs	Exposure Pathway	Currently Complete	Complete in Future	Incomplete	Comments
Surface soil	PCE	Direct contact	×			Site is largely unpaved.
		Inhalation of vapors				
		from soil	×			PCE is volatile.
		Inhalation of dust				
		from soil	×			Site is largely unpaved and unvegetated.
		Leaching to				
		groundwater	×			PCE was detected in groundwater.
Subsurface soil	Subsurface soil cis-1,2-DCE, PCE, TCE,					
	TPH-G, TPH-D, TPH-O	Direct contact		×		Could occur during excavation.
		Inhalation of vapors				
		from soil	×			Many soil IHSs are volatile.
		Inhalation of dust				
		from soil		×		Could occur during excavation.
		Leaching to	,			
		groundwater	X			Some soil IHSs were detected in groundwater.
Groundwater	PCE, TCE	Ingestion		×		Could occur if well drilled on site.
						•
		Inhalation of vapors		;		
		from groundwater		×		Could occur if well drilled on site.
		Dermal absorption				
		from groundwater		×		Could occur if well drilled on site.
NOTE:						
cis-1,2-DCE = cis-1,2-Dichloroethene	,2-Dichloroethene					
CUL = Cleanup level	el					
IHS = Indicator hazardous substance	ardous substance					
PCE = Tetrachloroethene	thene					
TCE = Trichloroethene	iene					
TPH-G = Total pet	TPH-G = Total petroleum hydrocarbons as gasoline					
TPH-D = Total pet	TPH-D = Total petroleum hydrocarbons as diesel					
TPH-O = Total peti	TPH-O = Total petroleum hydrocarbons as oil					

Table 8-4

Human Health Risk Estimates for Soil New City Cleaners Richland, Washington

	Maxim	Maximum Soil	Direct Contact	Contact	Risk Estimates for Direct	s for Direct	Risk Estimates for Direct	es for Direct
	Concer	Concentrations	Soil Cleanup Levels	up Levels	Contact with Surface Soil	Surface Soil	Contact with Subsurface Soil	ubsurface Soil
	Surface	Subsurface	Noncarc.	Carcinogen	HQª	Risk ^b	нОª	Risk ^b
Chemical	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(unitless)	(unitless)	(unitless)	(unitless)
cis-1,2-DCE	NA	26	800	NA	NA	NA	0.03	NA
PCE	27	7.5	800	19.6	0.03	1.38E-06	0.009	3.83E-07
TCE	NA	0.95	N > N	6.06	NA	NA	>N	1.05E-08
TPH-G°	NA	2,300	NA	NA	NA	NA	0.70	NA
TPH-D°	NA	1,040	NA	NA AN	NA	NA	0.30	NA
TPH-0°	NA	1,450	NA	NA	NA	NA	0.50	NA
Xylenes	NA	12	NA	NA	NA	NA	7.50E-05	NA
Total HI or Cancer Risk					0.03	1.4E-06	1.5	3.9E-07
NOTE:								
cis-1,2-DCE = cis-1,2-Dichloroethene	-Dichloroethene							
GW = Groundwater			•					
HI = Hazard index								
HQ = Hazard quotient	==							
NA = Not applicable								
NV = Not available								
PCE = Tetrachloroethene	lene							
TCE = Trichloroethene	ne							
TPH-G = Total petrol	TPH-G = Total petroleum hydrocarbons as gasoline	soline						
TPH-D = Total petrol	TPH-D = Total petroleum hydrocarbons as diesel	esel						
TPH-O = Total petrol	TPH-O = Total petroleum hydrocarbons as oil							
1E-6 is abbreviated sc	1E-6 is abbreviated scientific notation equivalent to 1×10^4	lent to 1 x 10 ⁻⁶ or 0.000001.	11.					
^a HQ = Site Conc. x 1.	^a HQ = Site Conc. x 1.0 / Noncarcinogen CUL							
Bisk = Site Conc. x 1	^b Risk = Site Conc. x 1E-6 / Carcinogen CUL							
Risk estimates from Table H-4.	Γable H-4.							

Table 8-5

Human Health Risk Estimates for Groundwater New City Cleaners Richland, Washington

	Maximum Groundwater	·	ndwater ip Levels	ł	mates for Consumption
	Conc.	Noncarc.	Carcinogen	HQ ^a	Risk ^b
Chemical	(mg/L)	(mg/L)	(mg/L)	(unitless)	(unitless)
PCE °	0.035	0.08	8.58E-04	0.44	4.08E-05
TCE	0.0061	NV	3.98E-03	NV	1.53E-06
Total HI or					
Cancer Risk				0.4	4.2E-05

NOTE:

HI = Hazard index

HQ = Hazard quotient

NV = Not available

 $\label{eq:pce} PCE = Tetrachloroethene$

TCE = Trichloroethene

1E-6 is abbreviated scientific notation equivalent to 1 x 10⁻⁶ or 0.000001.

^a HQ = Site Conc. x 1.0 / Noncarcinogen CUL

b Risk = Site Conc. x 1E-6 / Carcinogen CUL

^c UCL95 value was used instead of the maximum value. This was the only chemical for which a UCL95 value could be calculated and for which the UCL95 was less than the maximum detected value.

Table 8-6

Ecological Indicator Hazardous Substances in Groundwater New City Cleaners Richland, Washington

				Maximum	Federal	Maximum
	Number of	Number of	Detection	Detected	LOEL/10	Exceeds
Chemical	Detects ^a	Samples ^a	Frequency	Value (mg/L) ^a	(mg/L) ^b	LOEL/10?
cis-1,2-Dichloroethene	2	12	17%	0.0008	NV	Z
Chloroform	_	12	%8	0.0009	0.124	z
Trichloroethene	6	12	75%	0.0061	2.19	z
Tetrachloroethene	10	12	83%	0.062	0.084	z
NOTE:						
IHS = Indicator hazardous substance	ø					
LOEL = Lowest observed effect level	76					
NV = Not available						
					,	

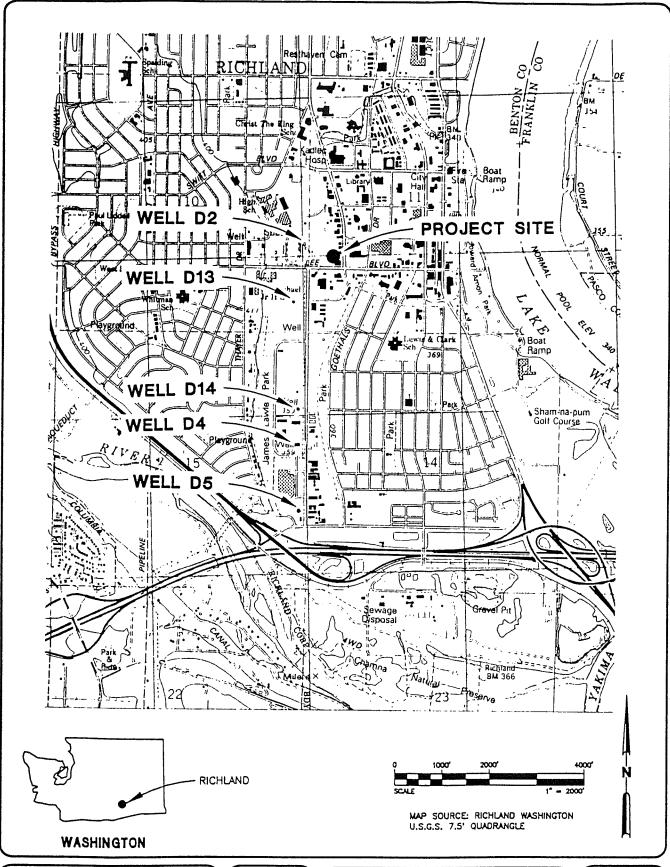
^a From Table 6-9.

UCL95 = Upper 95 percent confidence limit on the mean.

^b From USEPA. 1991. Water Quality Criteria Summary. Poster produced by USEPA, Office of Science and Technology, Health and Ecological

Criteria Division, Washington, D.C. May.

FIGURES





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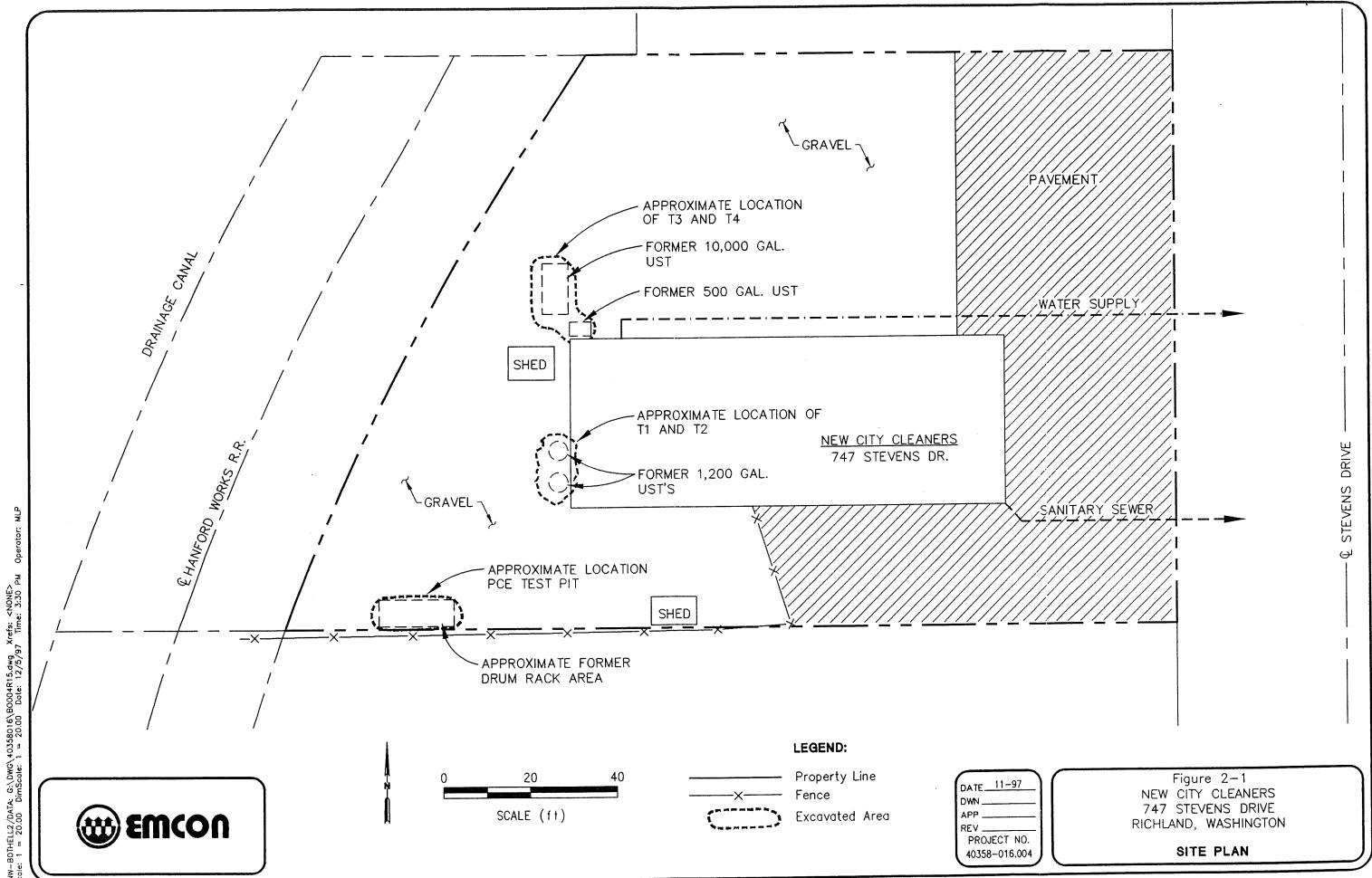
NEW CITY CLEANERS 747 STEVENS DRIVE RICHLAND, WASHINGTON

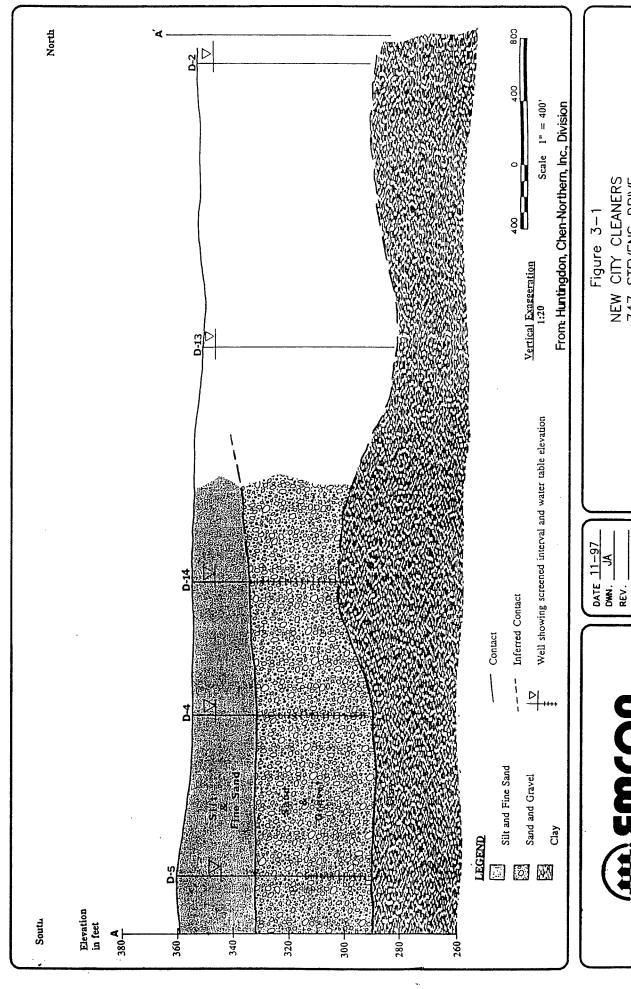
SITE LOCATION MAP

FIGURE

1-1

PROJECT NO. 40358-001.002





NEW CITY CLEANERS 747 STEVENS DRIVE RICHLAND, WASHINGTON Figure 3-1

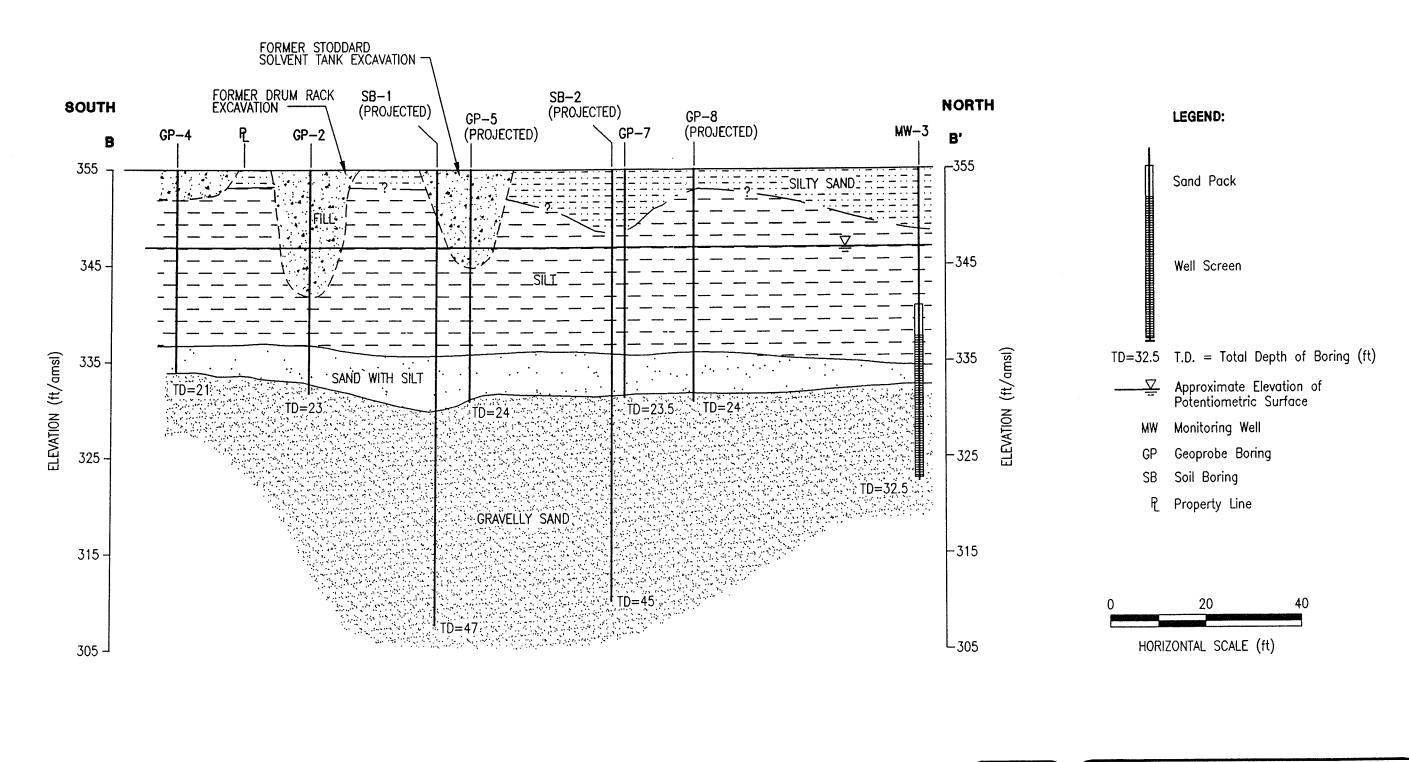
REGIONAL GEOLOGIC CROSS SECTION

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PROJECT NO.

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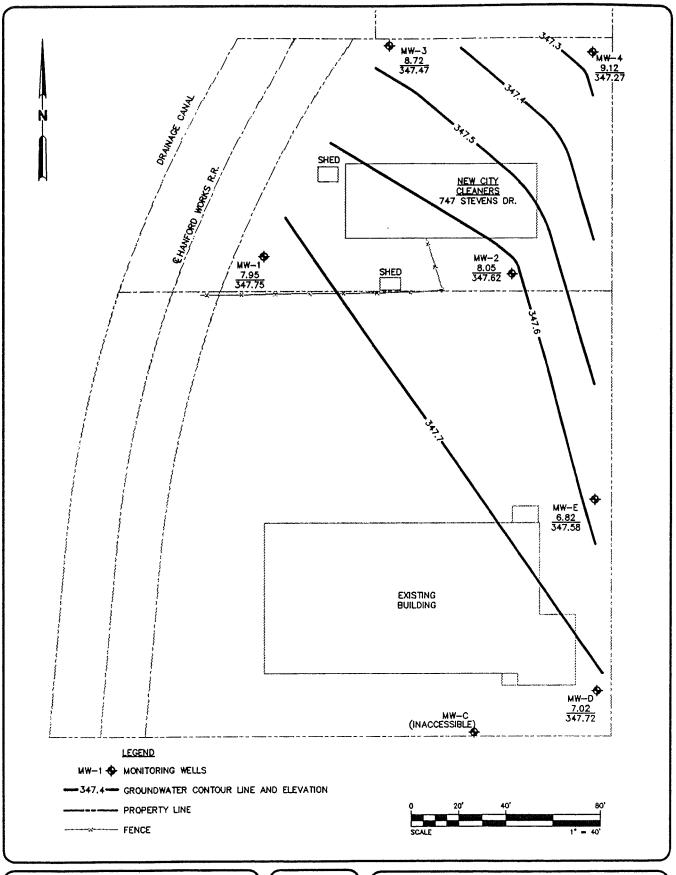


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DATE 11-97 DWN JA APP REV PROJECT NO. 40358-016.004 Figure 5-2
NEW CITY CLEANERS
747 STEVENS DRIVE
RICHLAND, WASHINGTON
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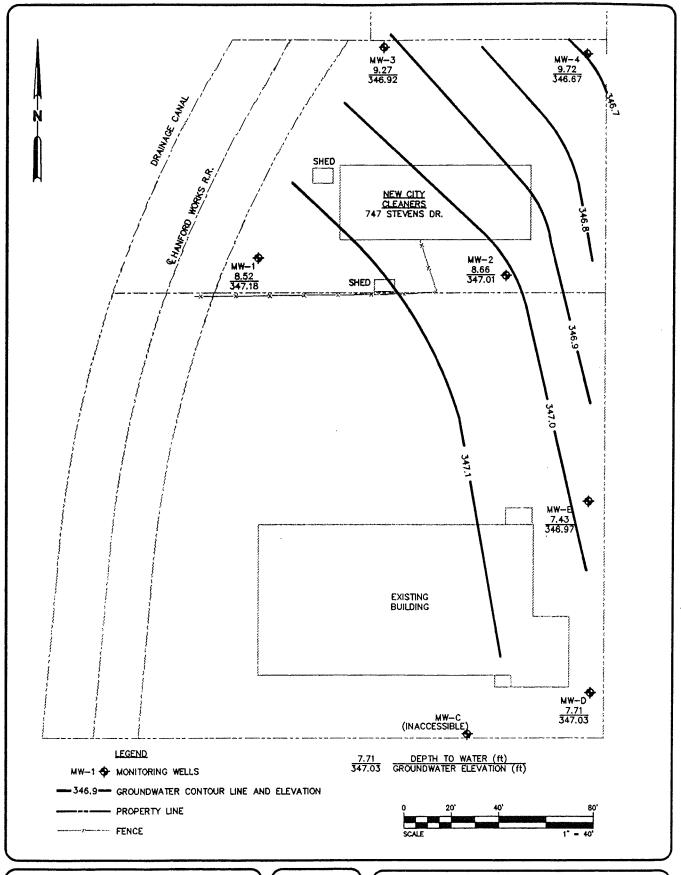
GENERALIZED GEOLOGIC CROSS SECTION B-B'





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4358-	-016.004

Figure 5-3
NEW CITY CLEANERS
747 STEVENS DRIVE
RICHLAND, WASHINGTON
POTENTIOMETRIC SURFACE
MEASURED JUNE 19, 1997



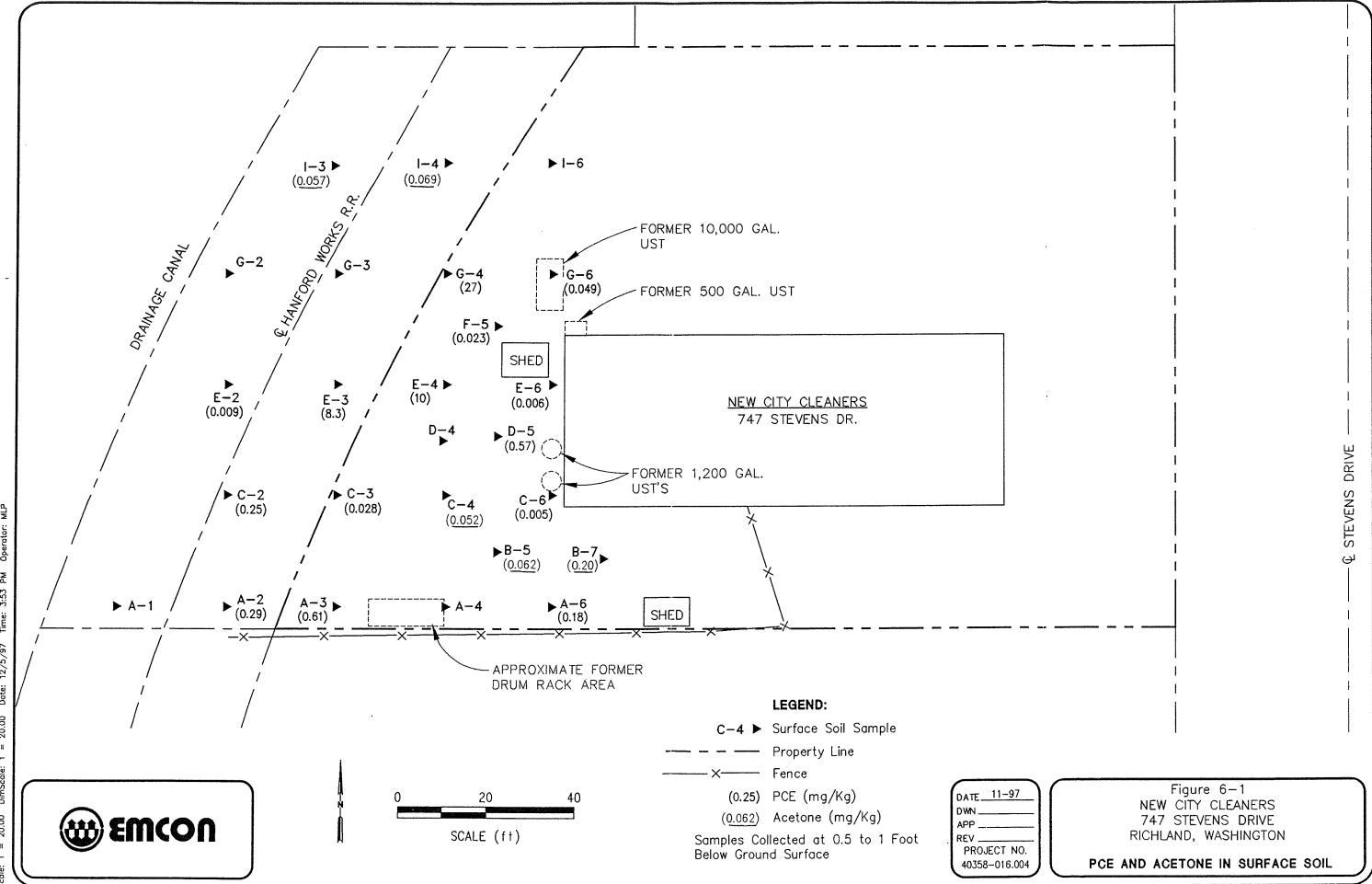


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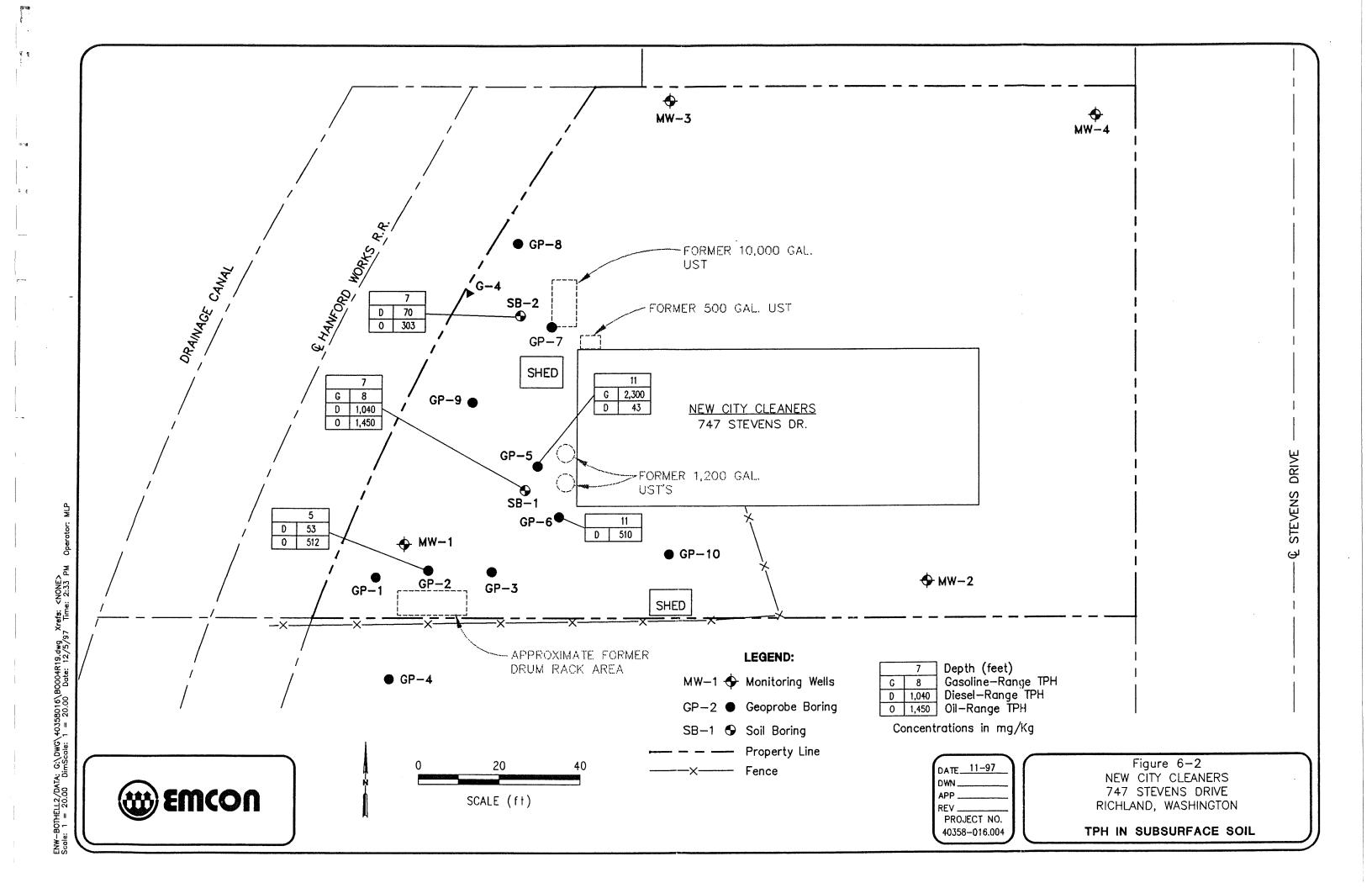
4358-016.004

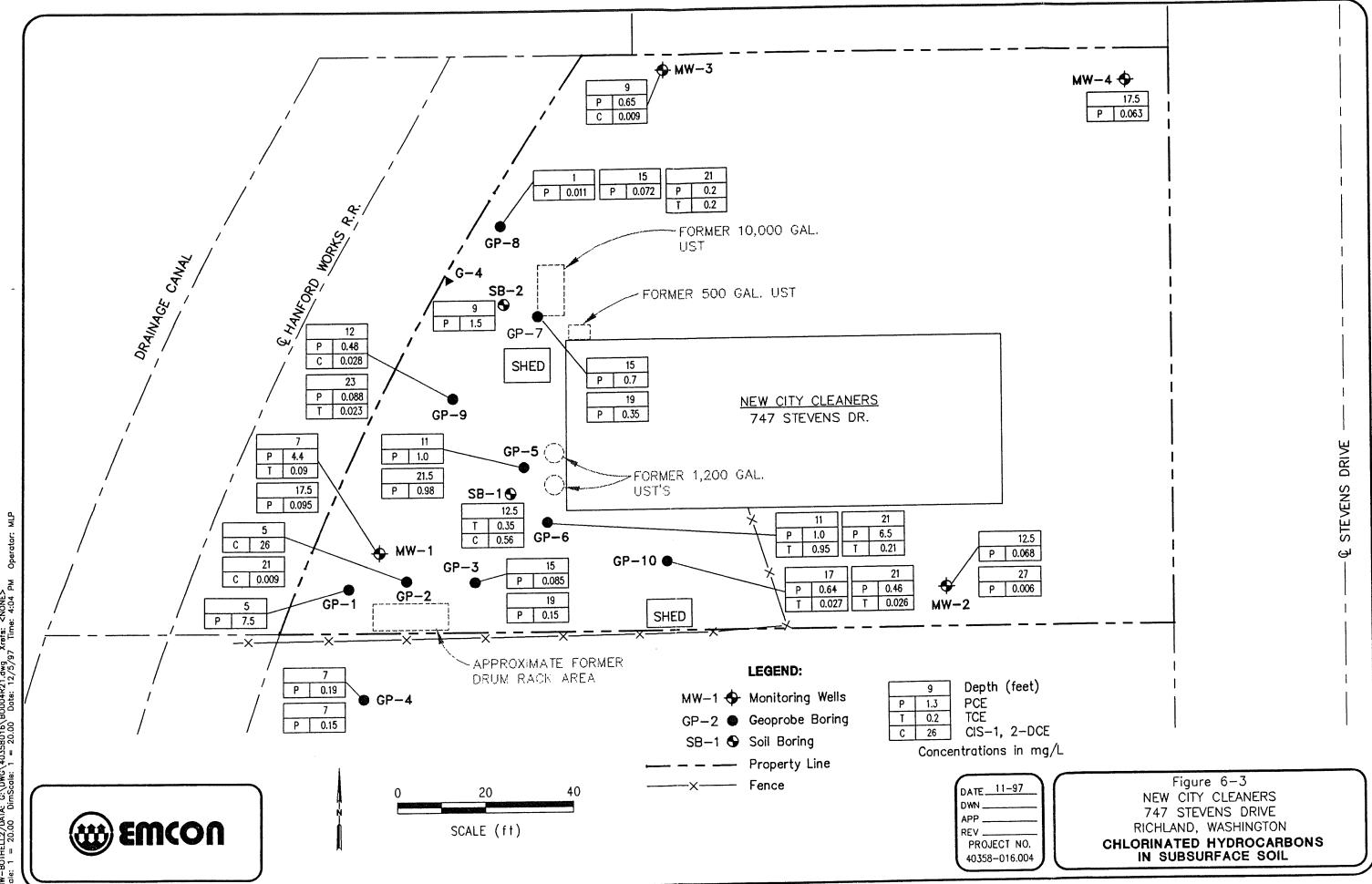
Figure 5-4
NEW CITY CLEANERS
747 STEVENS DRIVE
RICHLAND, WASHINGTON
POTENTIOMETRIC SURFACE

POTENTIOMETRIC SURFACE MEASURED NOVEMBER 13, 1997

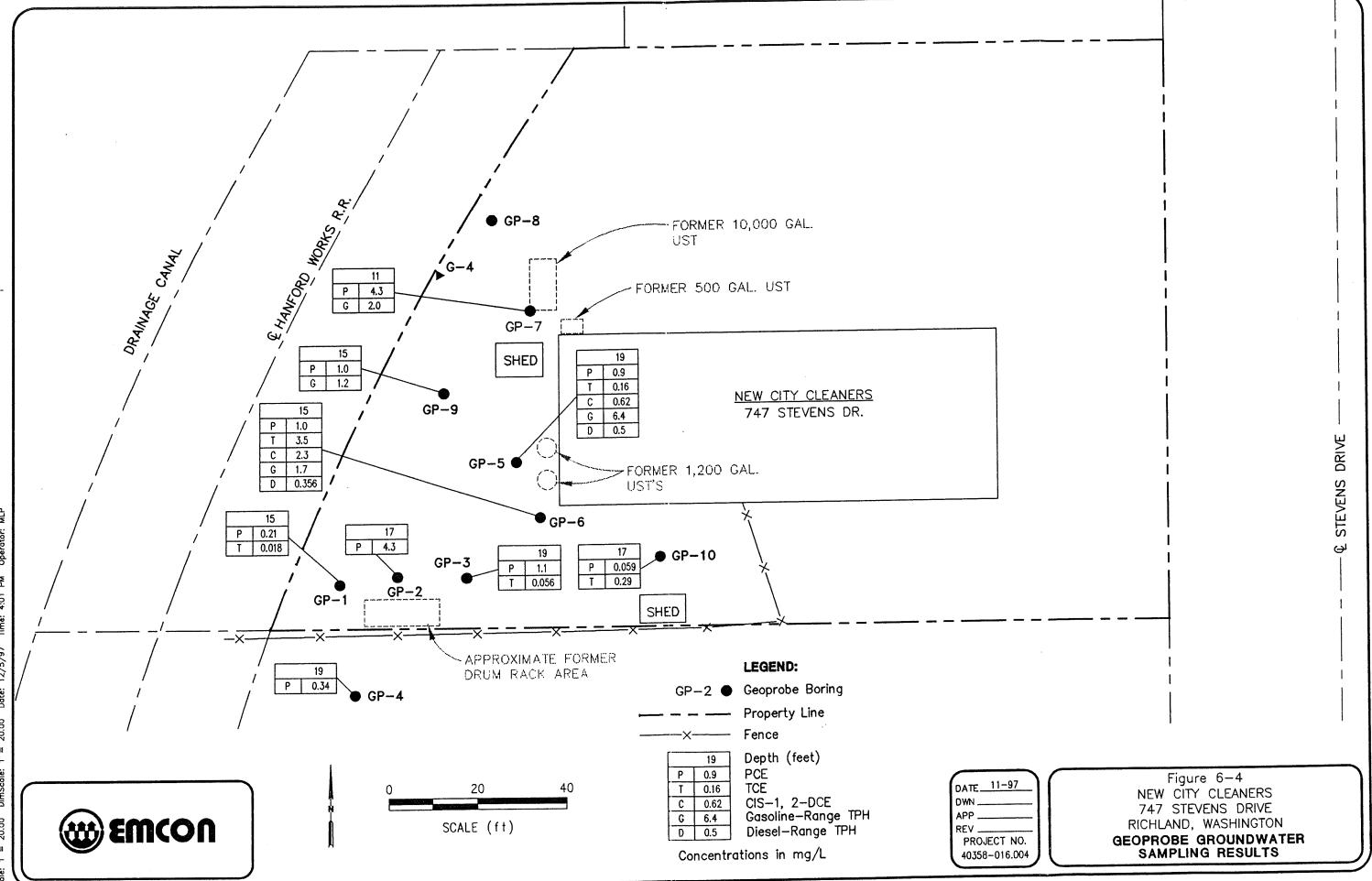


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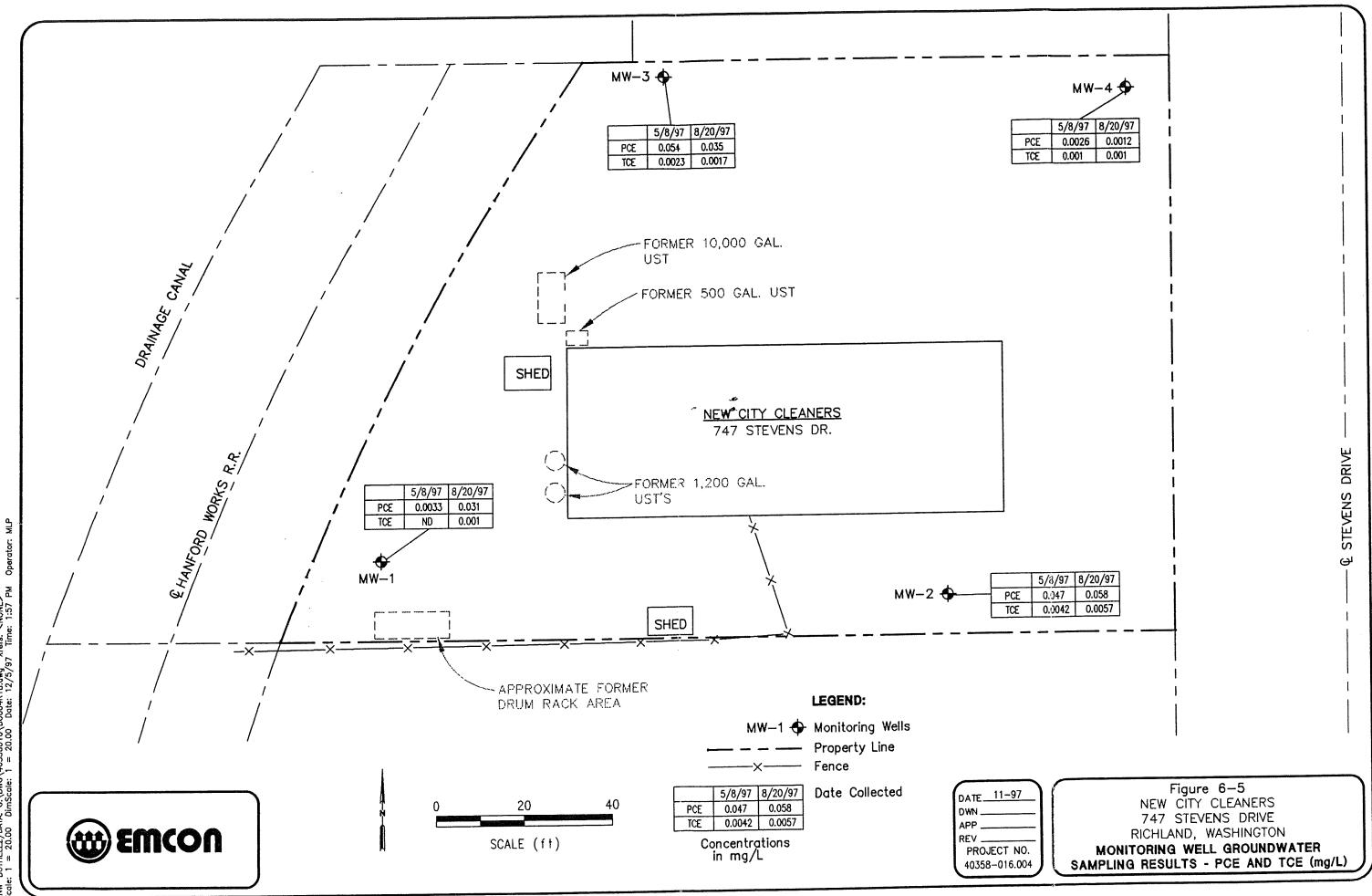




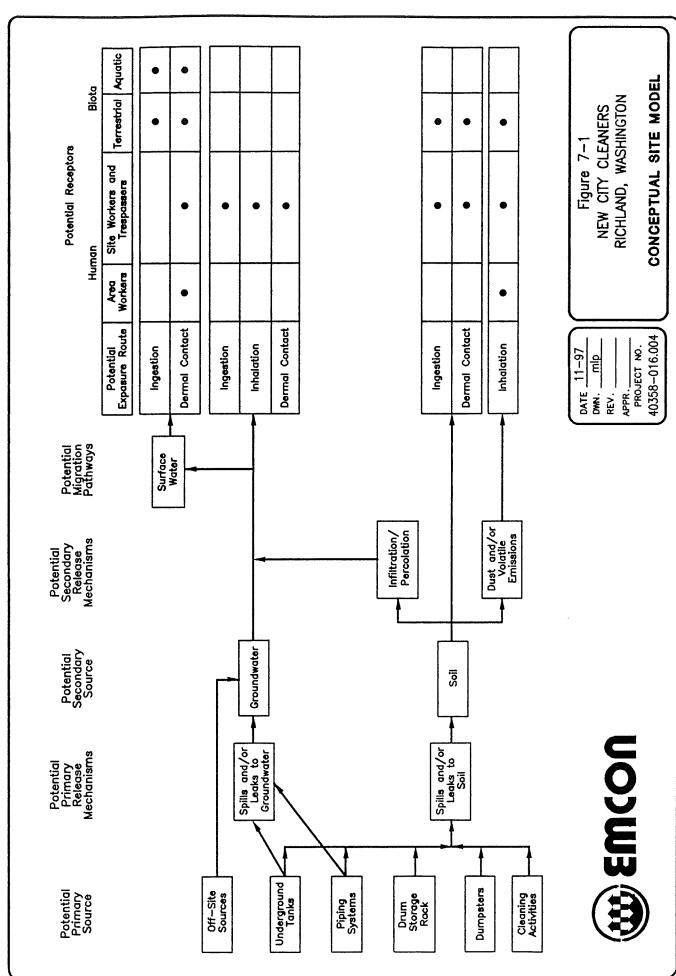
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DRAFT VOLUME II APPENDICES REMEDIAL INVESTIGATION REPORT NEW CITY CLEANERS 747 STEVENS BLVD. RICHLAND, WASHINGTON

Prepared for

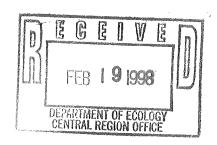
Copeland, Landye, Bennett, and Wolf, LLP

February 17, 1998

Prepared by

EMCON W. 7106 Will D. Alton Lane, Suite 102 Spokane, Washington 99224-5760

Project 40358-016.004



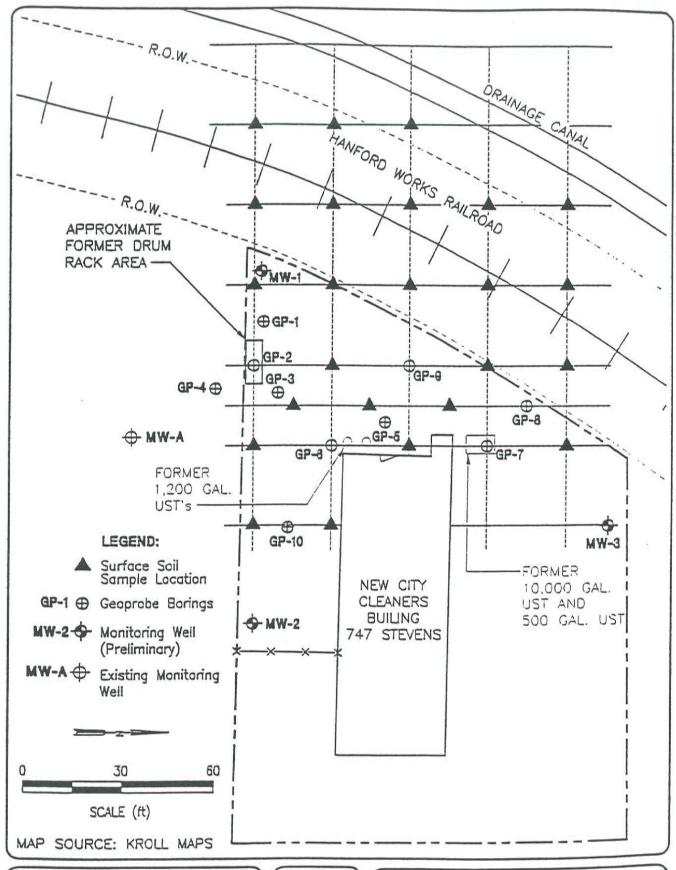
APPENDIX A SAMPLING ALTERATION CHECKLISTS

Sampling Alteration Checklist

Sample program identification: New City Cleaners, Site Investigation
Material to be sampled: Groundwater samples collected from temporary well points on 3/11/97
through 3/13/97.
Measurement variable: Method used for groundwater sample collection for VOCs, TPH-G,
TPH-D ext., and TSS from temporary well points.
Standard procedure for analysis: According to Sampling and Analysis Plan (SAP) groundwater
samples collected from temporary well points were to be collected using a stainless steel bailer.
Reference: SAP Section 4.6.5 Temporary Wellpoint Sampling Part B.
Variation from standard procedure: A peristaltic pump and dedicated 1/4-inch polyethylene and silicone tubing were used to collect groundwater samples.
Reason for variation: Because of total sample volume required from each well (approximately
2L) and small stainless steel bailer volumes (approximately 10 to 20 ml), a peristaltic pump was
utilized to expedite sample collection. The change was approved in the field by Chung Yee and
Dan Abbott of Ecology on 3/11/97.
Resultant change in field sample procedure: Groundwater samples collected from temporary well points on 3/11/97 through 3/13/97 were collected using a peristaltic pump and 1/4-inch dedicated polyethylene and silicone tubing.
Special equipment, material, or personnel required: Peristaltic pump and 1/4-inch polyethylene and silicone tubing.
Author's name: John Latta, R.G., Geologist Date: December 5, 1997 Approval: Title: Page 12 6 (9.7)

Sampling Alteration Checklist

Sample program identification: New City Cleaners, Site Investigation
Material to be sampled: Surface Soil Samples
Measurement variable: Location
Standard procedure for analysis: Sampling and Analysis Plan (SAP) defined locations per
attached preliminary location plan.
Reference: Preliminary sample location plan from SAP (attached).
Variation from standard procedure: <u>Final locations indicated per attached sample location map.</u> Sample B-7 replaced the two samples in the general vicinity of GP-10. Also, Samples A-4, C-6, and E-4 were collected from locations described as GP-2, GP-6, and GP-9 in the SAP.
Reason for variation: Change in surface soil locations due to location of site buildings and
fences with respect to field location of sampling grid.
Resultant change in field sample procedure: N/A
Special equipment, material, or personnel required: N/A
Author's name: John Latta, R.G., Geologist Date: August 27, 1997
Approval: Title: PM
Date:8/28/97





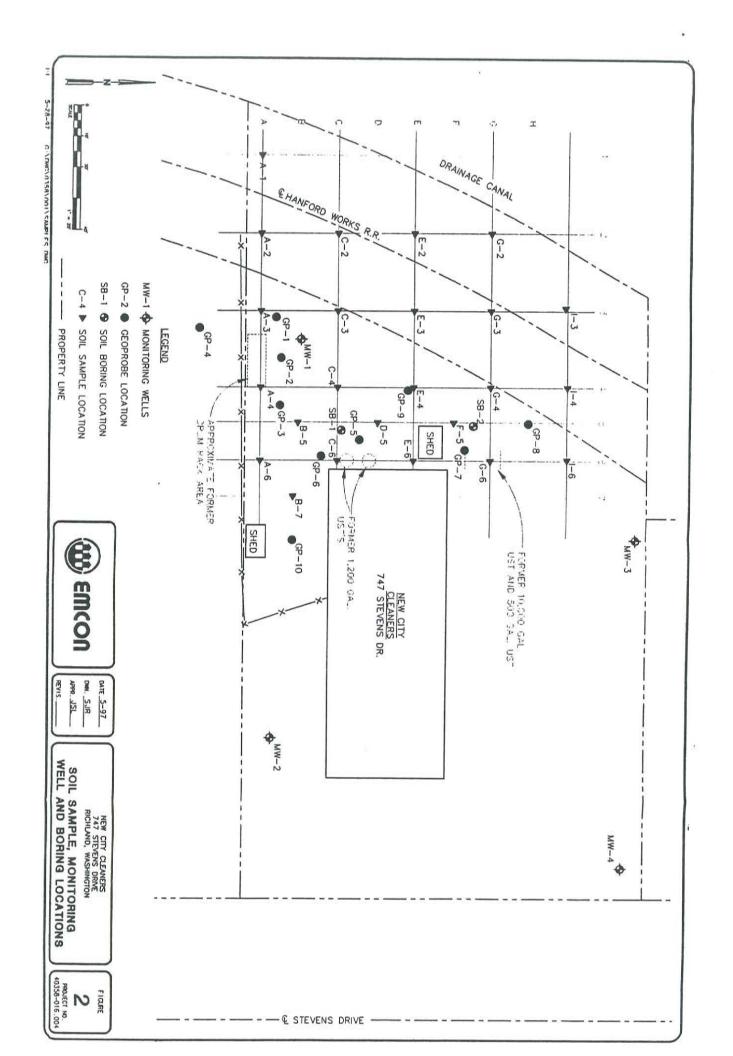
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PROJECT NO.
40358-001.003

Figure 2

NEW CITY CLEANERS

747 STEVENS DRIVE
RICHLAND, WASHINGTON

SAMPLING, BORING AND PRELIMINARY
MONITORING WELL LOCATIONS



Sampling Alteration Checklist

Sample program identification: New City Cleaners, Site Investigation									
Material to be sampled: Groundwater samples collected from monitor wells on 8/20/97.									
Measurement variable: Turbidity									
Standard procedure for analysis: Measurement of turbidity in field utilizing a turbidimeter.									
Units of measurement, NTUs.									
Reference: Sampling and Analysis Plan (SAP) Section 4.6.5 Part C.									
Variation from standard procedure: Did not measure turbidity during August 20, 1997									
Quarterly groundwater sampling event.									
Reason for variation: Forgot to take turbidity meter into field.									
Resultant change in field sample procedure: <u>Turbidity not quantified</u> . <u>Turbidity observations</u>									
were recorded on Field Sampling Data Sheets. Noted that in general water quality of samples									
was clear and colorless.									
Special equipment, material, or personnel required: N/A									
Author's name/ John Latta, R.G., Geologist Date: August 28, 1997 Approval: Title:									
Date: 8/28/97									

APPENDIX B BORING LOGS AND WELL COMPLETION DETAILS

PROJECT NAME New City Cleaners

LOCATION DRILLED BY DRILL METHOD 747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

GeoProbe

John Latta/(Nick Garson) LOGGED BY

BORING NO.

PAGE

GP- 1 1 OF 2

GROUND ELEV. TOTAL DEPTH

355.16' 21.00' DATE COMPLETED 03/12/97

LUG	GED BY	Johr	John Latta/(Nick Garson)					DATE COMPLETED 03/12/97
SAMPLE NUMBER (SAMPLE TYPE)	PIO (in ppm)	RECOVERY PERCENT	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL	COLUMN	LITHOLOGIC DESCRIPTION _
GP-1-1 (GP)	10.1	6/24	-					O to 5.0 feet: GRAVELLY SILTY SAND AND SILTY SAND (SM), brown, fine, 15 percent fines, trace to 10 percent coarse to medium sand, damp. (FILL)
GP-1-3 (GP)	7.1	8/24	- - - -					
GP-1-5 (GP)	35.7	15/24		5 <u>2</u> '	-			5.0 to 18.5 feet: SILT (ML), light grayish brown, low plasticity, trace to 5 percent fine sand, moist to wet. Local reddish brown iron-oxide staining beginning at 12 feet. (ALLUVIUM)
GP-1-7 (GP)	7.1	22/24	- - -					
GP-1-9 (GP)	7.1	17/24	- - -	10				
GP-1-11 (GP)	3.5	20/24	-					
GP-1-13 (GP)	3.5	16/24	-					
GP-1-15 (GP)	3.5	15/24	-	15				
GP-1-17 (GP)	3.5	20/24	-				- ماراد	18.5 to 21.0 feet: SILTY SAND (SP-SM), dark
GP-1-19 (GP)	3.5	20/24	<u>-</u> -	20-		***********		brown to gray, a few percent fines, wet. (ALLUVIUM)



REMARKS

REMARKS
(1) GP = Soil samples collected using 1.5 inch 0.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) -- = No PID reading. (3) NR = Recovery not recorded.

EMCON

40358-016.004(7).NEWC.sa:3.06/16/97...STANDARD

PROJECT NAME New City Cleaners

BORING NO. **PAGE**

GP-1

LOCATION DRILLED BY 747 Stevens Drive, Richland, Washington Cascade Drilling, Inc.

2 OF 2

DRILL METHOD **LOGGED BY**

GeoProbe

John Latta/(Nick Garson)

GROUND ELEV. TOTAL DEPTH

355.16' 21.00 DATE COMPLETED 03/12/97

SAMPLE	PIO	RECOVERY				ì	ų	
NUMBER	(in ppm)	PERCENT	5 6 2	Ŧ	LES	1 3	₩.	птногоаю
(SAMPLE	•		EV & B	9.5	ΑŽ	WEL	달리	DESCRIPTION
TYPE			9>-	-=	3	•	Ęŏ	-

18.5 to 21.0 feet: SILTY SAND (SP-SM).

			·			18.5 to 21.0 feet: SILTY SAND (SP-SM), continued.
1		 		····	\mathbf{H}	© 21.0 feet: refusal at top of GRAVELLY SAND. /
1		 	•		1	Total depth drilled = 21.0 feet.
		 	· —	ļ ļ	1 4	Total depth sampled = 21.0 feet.
1					1	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
1					1 1	
1	1				1	WELL COMPLETION DETAILS:
1				ļ l	١ ،	0 to 21.0 feet: abandoned by backfilling with hydrated bentonite chips.
	1	[- 25 —		1	13.0 to 17.0 feet: set temporary well screen to
			25		1	collect groundwater sample GPW-1-397-15.
					۱ ۱	
1					۱ ا	
					'	
		-			1	
1		}				
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REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

PROJECT NAME New City Cleaners

LOCATION DRILLED BY DRILL METHOD

747 Stevens Drive, Richland, Washington Cascade Drilling, Inc.

GeoProbe

LOGGED BY John Latta/(Nick Garson) BORING NO.

PAGE GROUND ELEV. TOTAL DEPTH

GP- 2 1 OF 2 355.15' 23.00

DATE COMPLETED 03/12/97

-50	JED D 1	00			JG 1.5011,		DATE COM LETES CO. 1237
SAMPLE NUMBER (SAMPLE TYPE)	PID (in ppm)	RECOVERY PERCENT	GROUND WATER LEVELS DEPTH	SAMPLES	WELL	СОГОМИ	LITHOLOGIC DESCRIPTION _
GP-2-1 (GP)	_	7/24	-				O to 3.0 feet: FINE SAND WITH GRAVEL (GP), brown, fine, 5 to 10 percent medium to coarse sand, 5 percent fine gravel, trace fines, damp. (FILL)
GP-2-3 (GP)	1.8	3/24	- -	1		0 0	3.0 to 11.0 feet: SILTY FINE SAND (SM), brown to gray, 10 to 15 percent low plasticity fines, trace medium to coarse sand, damp to moist.
GP-2-5 (GP)	5.4	6/24	- 5 -				(FILL)
GP-2-7 (GP)	56 .3	10/24	<u>\</u>				·
GP-2-9 (GP)	38.1	11/24	_ _ 10	-			·
GP-2-11 (GP)	23.6	6/24	- -				11.0 to 13.0 feet: GRAVELLY SILTY FINE SAND (ML), gray, 5 to 10 percent medium sand to fine gravel, 10 to 15 percent low plasticity, moist to wet. (FILL)
GP-2-13 (GP)	5.4	22/24	- - -				13.0 to 18.0 feet: SILT (ML), light grayish brown, low plasticity, trace to 5 percent fine sand, moist to wet.
GP-2-15 (GP)	5.4	15/24	– 15 -				
GP-2-17 (GP)	1.8	21/24	- -			ر ماران ا	18.0 to 22.0 feet: SILTY SAND (SP-SM), dark
GP-2-19 (GP)	1.8	20/24	20				brown gray, a few percent low plasticity fines, wet. (ALLUVIUM)



REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) -- = No PID reading. (3) NR = Recovery not recorded.

EMCON

40368-016.004(7).NEWC.sa:3.06/16/97...STANDARD

PROJECT NAME New City Cleaners LOCATION **DRILLED BY**

747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

DRILL METHOD GeoProbe

John Latta/(Nick Garson) LOGGED BY

BORING NO. GP- 2 2 OF 2 PAGE GROUND ELEV. 355.15 TOTAL DEPTH 23.00 DATE COMPLETED 03/12/97

SAMPLE NUMBER (SAMPLE TYPE)	PID (in ppm)	RECOVERY PERCENT	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL DETAILS	ПТНОГОВІС СОГИМИ	LITHOLOGIC DESCRIPTION -
GP-2-21 (GP)		20/24		25 30				18.0 to 22.0 feet: SILTY SAND (SP-SM), continued. 22.0 to 23.0 feet: GRAVELLY SAND (SW), dark brown gray, fine to coarse, with a little fine to medium subrounded gravel, trace fines, wet. (ALLUVIUM) ② 23.0 feet: refusal. Total depth drilled = 23.0 feet. Total depth sampled = 23.0 feet. WELL COMPLETION DETAILS: 0 to 23.0 feet: abandoned by backfilling boring with hydrated bentonite chips. 15.0 to 19.0 feet: set temporary well screen to collect groundwater sample GPW-2-397-17.



REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

EMCON

40358-016.004(7).NEWC.sa:3.06/16/97...STANDARD

PROJECT NAME New City Cleaners LOCATION

GP-3 1 OF 2

DRILLED BY DRILL METHOD 747 Stevens Drive, Richland, Washington Cascade Drilling, Inc.

GROUND ELEV. TOTAL DEPTH

BORING NO.

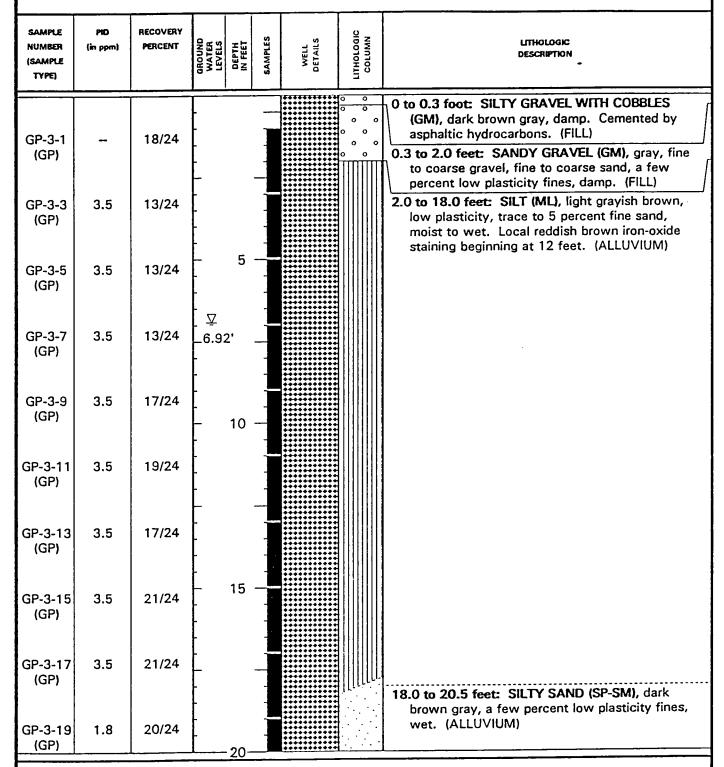
PAGE

355.79' 21.00'

LOGGED BY

GeoProbe John Latta

DATE COMPLETED 03/13/97





REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

LOCATION

PROJECT NAME New City Cleaners

747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

DRILLED BY **DRILL METHOD** LOGGED BY

GeoProbe John Latta BORING NO. PAGE

GP-3 2 OF 2

GROUND ELEV. TOTAL DEPTH DATE COMPLETED 03/13/97

355.79' 21.00

LOGGED B	Y John Lat	ta 			DATE COMPLETED 03/13/97
SAMPLE PID NUMBER (in ppm (SAMPLE TYPE)	RECOVERY PERCENT GNOWN	DEPTH IN FEET	WELL	СОГОМИ	LITHOLOGIC DESCRIPTION -
		25 —		°°.0.∈	18.0 to 20.5 feet: SILTY SAND (SP-SM), continued. 20.5 to 21.0 feet: GRAVELLY SAND (SW), dark brown gray, fine to coarse, with a little fine to medium subrounded gravel, trace fines, wet. (ALLUVIUM) ② 21.0 feet: refusal. Total depth drilled = 21.0 feet. Total depth sampled = 21.0 feet. WELL COMPLETION DETAILS: 0 to 21.0 feet: abandoned by backfilling boring with hydrated bentonite chips. 15.0 to 19.0 feet: set temporary well screen to collect groundwater sample GPW-3-397-19.



REMARKS

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(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

PROJECT NAME New City Cleaners LOCATION

747 Stevens Drive, Richland, Washington

BORING NO. **GP-4** PAGE 1 OF 2

DRILLED BY DRILL METHOD GeoProbe LOGGED BY

Cascade Drilling, Inc. John Latta

GROUND ELEV. 355.95' TOTAL DEPTH 21.00' DATE COMPLETED 03/13/97

					,		
SAMPLE NUMBER (SAMPLE TYPE)	PIO (in ppm)	RECOVERY PERCENT	GROUND WATER LEVELS DEPTH IN FEET	SAMPLES	WELL	COLUMN	LITHOLOGIC DESCRIPTION
GP-4-1 (GP)	-	13/24					0 to 0.3 foot: ASPHALT AND CRUSHED GRAVEL 0.3 to 3.0 feet: MEDIUM SAND (SP), gray, some crushed gravel, damp. (FILL)
GP-4-3 (GP)	1.8	15/24	- - -				3.0 to 18.0 feet: SILT (ML), light grayish brown, low plasticity, trace to 5 percent fine sand, moist to wet. Laminated locally. Local reddish
GP-4-5 (GP)	1.8	16/24	5				brown iron-oxide staining beginning at 12 feet. (ALLUVIUM)
GP-4-7 (GP)	1.8	16/24	- - -				
GP-4-9 (GP)	1.8	12/24	- 10				
GP-4-11 (GP)	1.8	22/24	- - - <u>-</u> <u>-</u>				
GP-4-13 (GP)	1.8	16/24	- 12.5' -	,			
GP-4-15 (GP)	1.8	19/24	- 15 -				
GP-4-17 (GP)	1.8	21/24	- -				18.0 to 21.0 feet: SILTY SAND (SP-SM), a few
GP-4-19 (GP)	1.8	22/24	20.				percent fines, black, wet. (ALLUVIUM)



REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

EMCON

40358-016.004[7].NEWC.sa:3,06/16/97...STANDARD

LOCATION

PROJECT NAME New City Cleaners

DRILLED BY

747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

DRILL METHOD GeoProbe LOGGED BY John Latta BORING NO. PAGE

GP-4 2 OF 2

GROUND ELEV. TOTAL DEPTH

355.95' 21.00'

	L METHO	John	Probe Latta	3				DATE COMPLETED 03/13/97
SAMPLE NUMBER (SAMPLE TYPE)	PID (in ppm)	RECOVERY PERCENT	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL DETAILS	COLUMN	LITHOLOGIC DESCRIPTION _
				25 30 40-				18.0 to 21.0 feet: SILTY SAND (SP-SM), continued. ② 21.0 feet: refusal at top of GRAVELLY SAND. Total depth drilled = 21.0 feet. Total depth sampled = 21.0 feet. WELL COMPLETION DETAILS: 0 to 21.0 feet: abandoned by backfilling boring with hydrated bentonite chips. 15.0 to 19.0 feet: set temporary well screen to collect groundwater sample GPW-4-397-19.



REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

EMCON

40358-016.004[7].NEWC.se:3.06/16/97...STANDARD

PROJECT NAME New City Cleaners

LOCATION DRILLED BY 747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

DRILL METHOD LOGGED BY

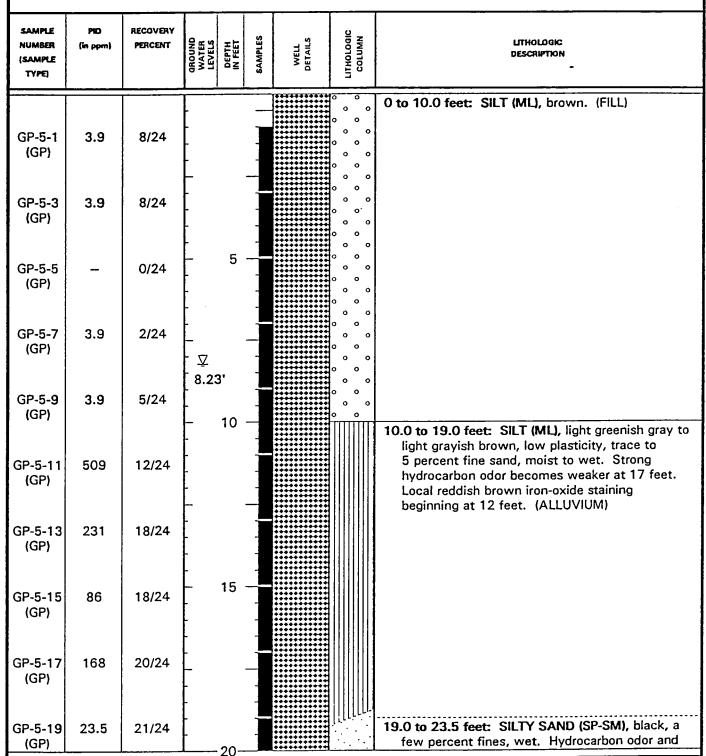
GeoProbe John Latta BORING NO. PAGE

GP- 5 1 OF 2

GROUND ELEV. TOTAL DEPTH

355.86 24.00

DATE COMPLETED 03/11/97





REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

EMCON

40358-016.004(7).NEWC.se:3.06/16/97...STANDARD

PROJECT NAME New City Cleaners LOCATION

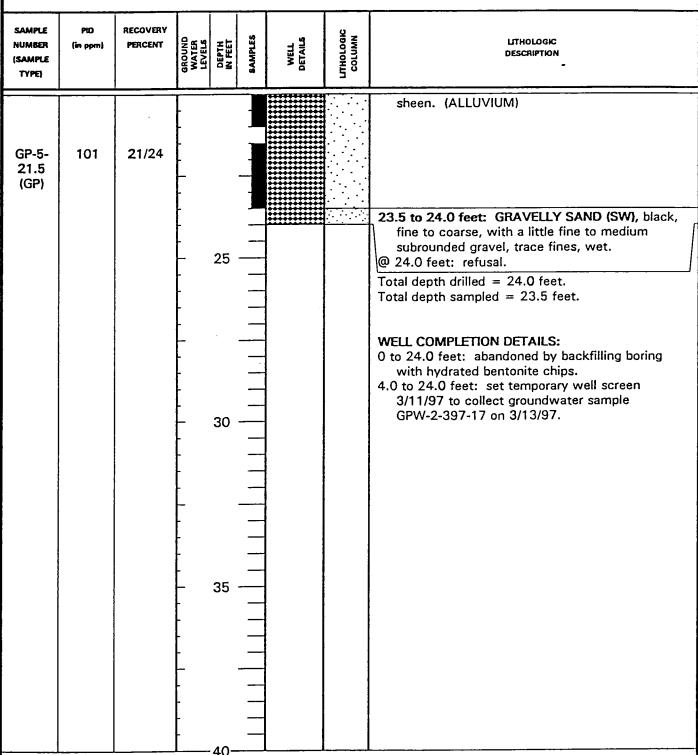
747 Stevens Drive, Richland, Washington Cascade Drilling, Inc.

DRILLED BY DRILL METHOD LOGGED BY

GeoProbe John Latta BORING NO. PAGE GROUND ELEV.

GP-5 2 OF 2 355.86 24.00'

TOTAL DEPTH DATE COMPLETED 03/11/97





REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

EMCON

40358-016.004(7).NEWC.sa:3.06/16/97...STANDARD

PROJECT NAME New City Cleaners

LOCATION DRILLED BY

747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

DRILL METHOD GeoProbe

LOGGED BY

John Latta/(Nick Garson)

BORING NO. PAGE

GP-6 1 OF 2 355.52"

GROUND ELEV. TOTAL DEPTH DATE COMPLETED 03/12/97

23.50'

SAMPLE NUMBER (SAMPLE TYPE)	PID (in ppm)	RECOVERY PERCENT	GROUND WATER LEVELS DEPTH	IN FEET	WELL	LITHOLOGIC	LITHOLOGIC DESCRIPTION -
GP-6-1 (GP)	3.5	13/24					0 to 1.0 foot: FINE SANDY GRAVEL (GM), brown, damp. (FILL) 1.0 to 3.0 feet: SILTY FINE SAND (SM), brown, 10 to 15 percent low plasticity fines, damp. (ALLUVIUM)
GP-6-3 (GP)	3.5	16/24	- - -				3.0 to 19.0 feet: SILT (ML), light grayish brown, low plasticity, trace to 5 percent fine sand, moist to wet. Laminated locally. Local reddish
GP-6-5 (GP)	3.5	15/24	- - -	5			brown iron-oxide staining beginning at 12 feet. (ALLUVIUM)
GP-6-7 (GP)	3.5	21/24	_ <u>⊽</u> _6.78'				
GP-6-9 (GP)	21.4	18/24	- - - 10) 			·
GP-6-11 (GP)	74.9	16/24	- - -	,			
GP-6-13 (GP)	17.8	17/24					
GP-6-15 (GP)	7.1	20/24	- 15 -	5 -			
GP-6-17 (GP)	3.5	22/24	 - -				
			- - - - - -	, <u></u>			19.0 to 23.0 feet: SILTY SAND (SP-SM), black, a few percent fines, wet. (ALLUVIUM)



REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

EMCON

40358-016.004(7).NEWC.se:3.06/16/97...STANDARD

PROJECT NAME New City Cleaners

LOCATION DRILLED BY

747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

DRILL METHOD

LOGGED BY

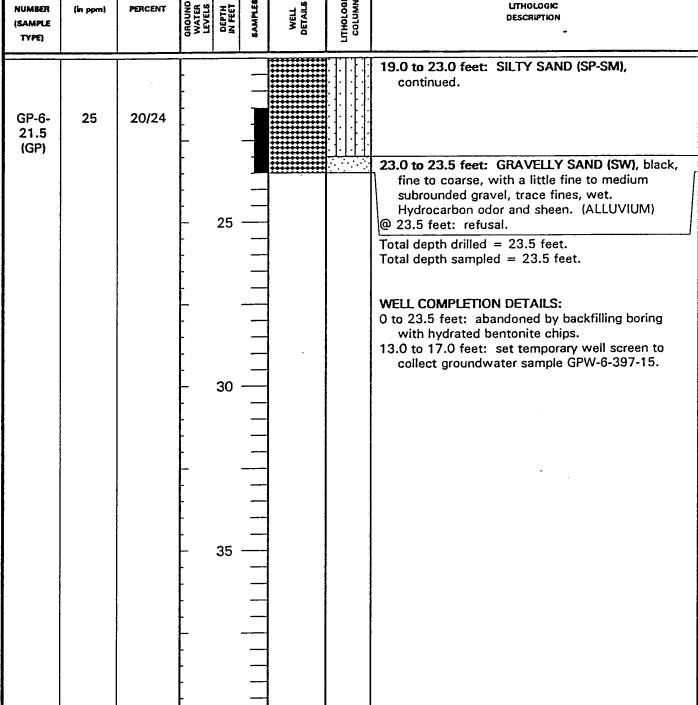
GeoProbe John Latta/(Nick Garson) BORING NO.

PAGE GROUND ELEV. GP-6 2 OF 2 355.52

TOTAL DEPTH

23.50 DATE COMPLETED 03/12/97

SAMPLE	PID	RECOVERY]				₽_	
NUMBER	(in ppm)	PERCENT	ELS ELS	표표	2	_ 18	0 × ×	штношей
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REMARKS

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(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

PROJECT NAME New City Cleaners LOCATION **DRILLED BY** DRILL METHOD

LOGGED BY

747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

GeoProbe

John Latta/(Nick Garson)

BORING NO. GP- 7 1 OF 2 PAGE GROUND ELEV. 355.44' TOTAL DEPTH 23.50 DATE COMPLETED 03/12/97

SAMPLE NUMBER (SAMPLE TYPE)	PIO (in ppm)	RECOVERY PERCENT	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL DETAILS	согими	LITHOLOGIC DESCRIPTION -
GP-7-1 (GP)	0.0	7/24		<u></u>				O to 1.0 foot: FINE SANDY GRAVEL (GM), brown, damp. (FILL) 1.0 to 3.0 feet: SILTY FINE SAND (SM), brown, 15 to 20 percent low plasticity fines, less than 5 percent medium to coarse sand, damp. (FILL)
GP-7-3 (GP)	3.5	4/24	- - -					3.0 to 7.0 feet: FINE SANDY SILT (ML), brown, low plasticity, 10 percent fine sand, trace medium to coarse sand damp. (FILL)
GP-7-5 (GP)	3.5	9/24	- - -	5	-			
GP-7-7 (GP)	3.5	22/24	- _ ⊈ _ 7.9:	3'				7.0 to 19.0 feet: SILT (ML), light grayish brown, low plasticity, trace to 5 percent fine sand, moist to wet. Laminated locally. Local reddish brown iron-oxide staining beginning at 12 feet.
GP-7-9 (GP)	3.5	19/24	- - -	10				(ALLUVIUM)
GP-7-11 (GP)	3.5	13/24	- - -		-			
GP-7-13 (GP)	3.5	16/24	- - -					
GP-7-15 (GP)	3.5	17/24	- - - -	15				
GP-7-17 (GP)	3.5	24/24	- - -					
			-	- 20-	_			19.0 to 23.0 feet: SILTY SAND (SP-SM), black, a few percent fines, wet. (ALLUVIUM)



REMARKS

(1) GP = Soil samples collected using 1.5-inch 0.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) -- = No PID reading. (3) NR = Recovery not recorded.

EMCON

40358-016.004(7).NEWC.sa:3.06/16/97...STANDARD

PROJECT NAME New City Cleaners

LOCATION **DRILLED BY**

747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

DRILL METHOD LOGGED BY

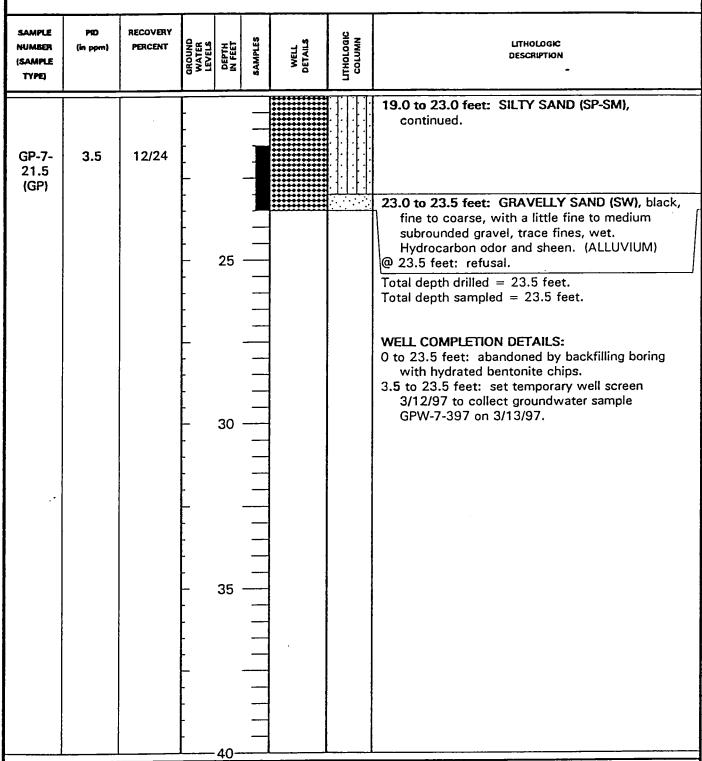
GeoProbe John Latta/(Nick Garson) BORING NO. **PAGE**

GP- 7 2 OF 2

GROUND ELEV. TOTAL DEPTH

355.44' 23.50

DATE COMPLETED 03/12/97





REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) -- = No PID reading. (3) NR = Recovery not recorded.

EMCON

40358-016.004[7].NEWC.se:3.06/16/97...STANDARD

PROJECT NAME New City Cleaners

LOCATION DRILLED BY DRILL METHOD

LOGGED BY

747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

GeoProbe John Latta BORING NO. PAGE

GP-8 1 OF 2 355.42'

GROUND ELEV. TOTAL DEPTH

24.00' DATE COMPLETED 03/11/97

	J.C.O. O.							
SAMPLE NUMBER (SAMPLE TYPE)	PIO (in ppm)	RECOVERY PERCENT	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL DETAILS	COLUMN	LITHOLOGIC DESCRIPTION -
GP-8-1 (GP)	3.6	14/24	-		-		00000	0 to 2.0 feet: FINE SANDY GRAVEL (GM), brown, damp. (ALLUVIUM)
GP-8-3 (GP)	-	NR	- - - -					2.0 to 19.0 feet: SILT (ML), light grayish brown, low plasticity, trace to 5 percent fine sand, moist to wet. Laminated locally. Local reddish brown iron-oxide staining beginning at 15 feet. (ALLUVIUM)
GP-8-5 (GP)	3.6	18/24	- - -	5				
GP-8-7 (GP)	3.6	18/24	<u>_</u> 	o '	1			
GP-8-9 (GP)	7.2	18/24	- - -	10				
GP-8-11 (GP)	3.6	19/24	- - -					
GP-8-13 (GP)	3.6	17/24	<u>-</u>					
GP-8-15 (GP)	3.6	NR	-	15				
GP-8-17 (GP)	3.6	NR	- - -					
GP-8-19 (GP)	3.6	NR		- 20-		••••••		19.0 to 23.0 feet: SILTY SAND (SP-SM), black, a few percent fines, wet. (ALLUVIUM)



REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) -- = No PID reading. (3) NR = Recovery not recorded. - --

EMCON

40358-016.004(7).NEWC.sa:3.08/16/97...STANDARD

PROJECT NAME New City Cleaners LOCATION DRILLED BY

LOGGED BY

747 Stevens Drive, Richland, Washington

DRILL METHOD GeoProbe John Latta

Cascade Drilling, Inc.

BORING NO. GP- 8 PAGE 2 OF 2 GROUND ELEV. 355.42' TOTAL DEPTH 24.00' DATE COMPLETED 03/11/97

SAMPLE NUMBER (SAMPLE TYPE)	PIO (in ppm)	RECOVERY PERCENT	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL	соглми	LITHOLOGIC DESCRIPTION -
GP-8-21 (GP)	3.6	12/24						19.0 to 23.0 feet: SILTY SAND (SP-SM), continued.
GP-8-23 (GP)	3.6	NR		25 30				23.0 to 24.0 feet: GRAVELLY SAND (SW), black, fine to coarse, with a little fine to medium subrounded gravel, trace fines, wet. ② 24.0 feet: refusal. Total depth drilled = 24.0 feet. Total depth sampled = 24.0 feet. WELL COMPLETION DETAILS: 0 to 23.5 feet: abandoned by backfilling boring with hydrated bentonite chips. 13.0 to 17.0 feet: set temporary well screen to collect groundwater sample GPW-8-397-10.



REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

LOCATION DRILLED BY

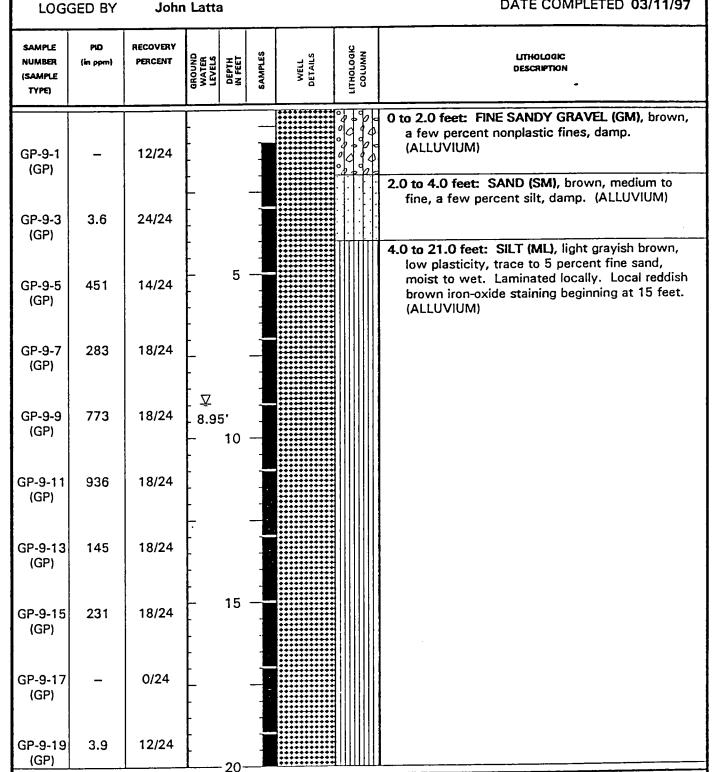
PROJECT NAME New City Cleaners

747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

DRILL METHOD GeoProbe John Latta

BORING NO. GP- 9 PAGE 1 OF 2 GROUND ELEV. 356.42 TOTAL DEPTH 24.00' DATE COMPLETED 03/11/97





REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

EMCON

40358-016.004(7).NEWC.sa:3.06/16/97...STANDARD

PROJECT NAME LOCATION DRILLED BY

PROJECT NAME New City Cleaners

747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

DRILL METHOD LOGGED BY

GeoProbe John Latta BORING NO. PAGE

GP- 9 2 OF 2

GROUND ELEV. 356.42'
TOTAL DEPTH 24.00'

DATE COMPLETED 03/11/97

200	ים מבט	00111		-				
SAMPLE NUMBER (SAMPLE TYPE)	PLD (in ppm)	RECOVERY PERCENT	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL DETAILS	ПТНОГОВІС СОГИМИ	LITHOLOGIC DESCRIPTION -
GP-9-21 (GP)	_	0/24	-					4.0 to 21.0 feet: SILT (ML), continued. 21.0 to 22.5 feet: SILTY SAND (SP-SM), black, a few percent fines, wet. (ALLUVIUM)
GP-9-23 (GP)	3.9	NR						22.5 to 25.0 feet: GRAVELLY SAND (SW), black, fine to coarse, with a little fine to medium subrounded gravel, trace fines, wet. (ALLUVIUM) @ 25.0 feet: refusal.
			-	25		••••		Total depth drilled = 25.0 feet. Total depth sampled = 25.0 feet.
				30				WELL COMPLETION DETAILS: 0 to 25.0 feet: abandoned by backfilling boring with hydrated bentonite chips. 13.0 to 17.0 feet: set temporary well screen to collect groundwater sample GPW-9-397-15.
			-	40-	-			



REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

PROJECT NAME New City Cleaners LOCATION

DRILLED BY

747 Stevens Drive, Richland, Washington

Cascade Drilling, Inc.

GeoProbe DRILL METHOD John Latta LOGGED BY

BORING NO. PAGE GROUND ELEV. TOTAL DEPTH DATE COMPLETED 03/12/97

GP-10 1 OF 2 355.56' 24.00'

	GED D1	•						
SAMPLE NUMBER (SAMPLE TYPE)	PID (in ppm)	RECOVERY PERCENT	GROUND WATER LEVELS	WATER LEVELS DEPTH IN FEET		WELL DETAILS LITHOLOGIC COLUMN		LITHOLOGIC DESCRIPTION -
GP-10-1 (GP)	3.5	7/24		<u> </u>				O to 2.0 feet: SANDY GRAVEL (GM), brown to dark gray, fine to coarse gravel, some fine to coarse sand, a few percent nonplastic fines, damp. (ALLUVIUM)
GP-10-3 (GP)	3.5	15/24	-					2.0 to 20.5 feet: SILT (ML), light grayish brown, low plasticity, trace to 5 percent fine sand, moist to wet. Laminated locally. Local reddish brown iron-oxide staining beginning at 10 feet. (ALLUVIUM)
GP-10-5 (GP)	3.5	16/24		5				
GP-10-7 (GP)	3.5	12/24	- - ▽ - 7.9:	2'				
GP-10-9 (GP)	3.5	16/24		10				
GP-10- 11 (GP)	3.5	18/24	-					
GP-10- 13 (GP)	3.5	17/24	 - -					
GP-10- 15 (GP)	3.5	23/24	-	15				
GP-10- 17 (GP)	3.5	17/24	- - -					
GP-10- 19	3.5	16/24	<u> </u>	- 20-				



REMARKS

(1) GP = Soil samples collected using 1.5-inch O.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) - = No PID reading. (3) NR = Recovery not recorded.

EMCON

40358-016.004(7).NEWC.sa:3.08/16/97...STANDARD

LOCATION DRILLED BY

PROJECT NAME New City Cleaners

747 Stevens Drive, Richland, Washington

DRILL METHOD GeoProbe LOGGED BY

Cascade Drilling, Inc. John Latta

BORING NO. PAGE GROUND ELEV.

GP-10 2 OF 2 355.56

TOTAL DEPTH 24.00' DATE COMPLETED 03/12/97

						,		5772 55111 EETED 55/12/37
SAMPLE NUMBER (SAMPLE TYPE)	PID (in ppm)	RECOVERY PERCENT	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL	СОГИМИ	LITHOLOGIC DESCRIPTION -
(GP) GP-10- 21 (GP)	3.5	20/24		30 -				20.5 to 20.5 feet: SILTY SAND (SP-SM), black, a few percent fines, wet. (ALLUVIUM) 22.5 to 23.0 feet: GRAVELLY SAND (SW), black, fine to coarse, with a little fine to medium subrounded gravel, trace fines, wet. (ALLUVIUM) ② 23.0 feet: refusal. Total depth drilled = 24.0 feet. Total depth sampled = 24.0 feet. WELL COMPLETION DETAILS: 0 to 23.0 feet: abandoned by backfilling boring with hydrated bentonite chips. 13.0 to 17.0 feet: set temporary well screen to collect groundwater sample GPW-10-397-17.



REMARKS

REMARKS
(1) GP = Soil samples collected using 1.5-inch 0.D. GeoProbe coreing tube using a 2-foot-long polyethylene liner. (2) -= No

PROJECT NAME New City Cleaners LOCATION DRILLED BY DRILL METHOD

LOGGED BY

747 Stevens Drive, Richland, Washington **Environmental West Exploration**

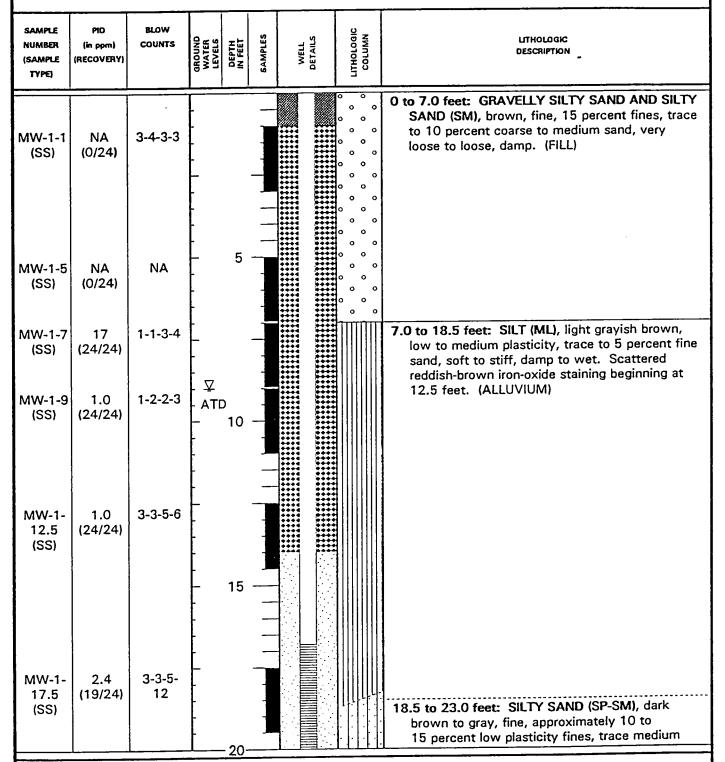
BORING NO. PAGE

MW- 1 1 OF 2

GROUND ELEV.

32.30'

TOTAL DEPTH Tubex DATE COMPLETED 05/01/97 Nick Garson





(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID). (3) -- = No PID reading recorded. (4) NA = No sample recovered. (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground

PROJECT NAME New City Cleaners LOCATION

BORING NO. PAGE

MW- 1 2 OF 2

DRILLED BY DRILL METHOD 747 Stevens Drive, Richland, Washington **Environmental West Exploration**

GROUND ELEV.

32.30

LOGGED BY

Tubex Nick Garson TOTAL DEPTH DATE COMPLETED 05/01/97

SAMPLE NUMBER (SAMPLE TYPE)	PKO (in ppm) (RECOVERY)	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL DETAILS	СОГЛЖИ	LITHOLOGIC DESCRIPTION _
MW-1-22 (SS)	1.0 (22/24)	6-20-15- 50/2"	-	25				23.0 to 32.3 feet: GRAVELLY SAND (SW), dark brown to dark gray, fine to coarse, approximately 20 to 25 percent fine to coarse, angular to subrounded gravel, approximately 5 to 10 percent low plasticity fines, medium dense
MW-1-27 (SS)	1.0 (11/24)	2-10- 50/4"	- - - - - - - - - - - - - - - - - - -	30				to very dense, wet. (ALLUVIUM)
				35				Total depth drilled = 32.3 feet. Total depth sampled = 29.0 feet. WELL COMPLETION DETAILS: 0 to 16.8 feet: 2-inch-diameter, flush-threaded, schedule 40 PVC blank riser pipe. 16.8 to 31.8 feet: 2-inch-diameter, flush-threaded, schedule 40 PVC well screen with 0.020-inch machined slots. 31.8 to 32.3 feet: 2-inch-diameter, flush-threaded, schedule 40 PVC end cap. Ground surface - flush mount well monument. 0 to 1.0 foot: Concrete. 1.0 to 14.0 feet: 3/8-inch Baroid Holeplug Bentonite chips hydrated with potable water. 14.0 to 32.3 feet: 20 - 40 Colorado Silica Sand.



(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID). (3) -- = No PID reading recorded. (4) NA = No sample recovered. (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface.

PROJECT NAME New City Cleaners LOCATION

747 Stevens Drive, Richland, Washington **Environmental West Exploration**

PAGE GROUND ELEV.

BORING NO.

MW- 2 1 OF 2

DRILLED BY DRILL METHOD LOGGED BY

Tubex Nick Garson TOTAL DEPTH

32.30 DATE COMPLETED 04/30/97

1	GLD D.							
SAMPLE NUMBER (SAMPLE TYPE)	PID (in ppm) (RECOVERY)	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL DETAILS	COLUMN	LITHOLOGIC DESCRIPTION _
MW-2-1 (SS)	0.4 (6/24)	10-30-35- 50		_				0 to 0.3 foot: ASPHALT 0.3 to 7.0 feet: GRAVELLY SILTY SAND AND SILTY SAND (SM), brown, fine, 10 to 15 percent low plasticity fines, 10 to 20 percent medium sand to coarse, angular to subrounded gravel, medium dense to very dense, damp. (FILL)
MW-2-5 (SS)	1.3 (0/24)	20-50/5"	- - - -	5 -	-			
MW-2-7 (SS)	1.3 (24/24)	3-4-2-4	- - -	-				7.0 to 22.0 feet: SILT (ML), light grayish brown to dark gray, low to medium plasticity, trace to approximately 5 percent fine sand, scattered
MW-2-9 (SS)	1.0 (24/24)	1-3-4-2	- - ⊈ - ATD -	10 -				rootlets, very soft to firm, damp to wet. (ALLUVIUM)
MW-2- 12.5 (SS)	2.0 (24/24)	1-3-3-3	-	- 15 -				
MW-2- 17.5 (SS)	0 (10/24)	2-2-4-5		- 20—				



REMARKS

(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID). (3) -- = No PID reading recorded. (4) NA = No sample recovered. (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface.

PROJECT NAME New City Cleaners
LOCATION 747 Stevens Drive,
DRILLED BY Environmental Wes

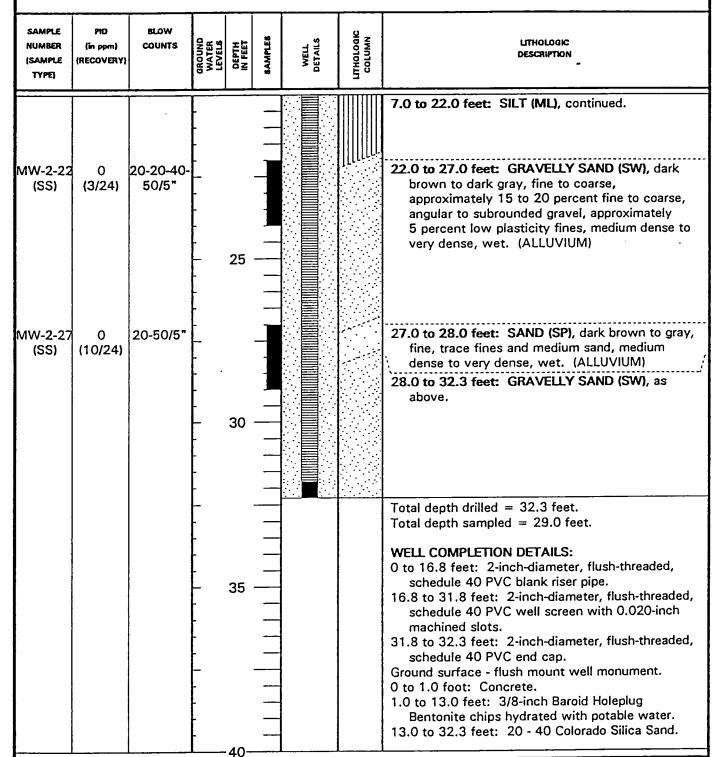
DRILL METHOD

LOGGED BY

New City Cleaners
747 Stevens Drive, Richland, Washington
Environmental West Exploration

Tubex Nick Garson BORING NO. MW- 2 PAGE 2 OF 2 GROUND ELEV.

TOTAL DEPTH 32.30' DATE COMPLETED 04/30/97





REMARKS

(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photolonization Detector (PID). (3) - = No PID reading recorded. (4) NA = No sample recovered. (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface.

PROJECT NAME New City Cleaners LOCATION

BORING NO. **PAGE**

MW- 3 1 OF 2

DRILLED BY DRILL METHOD 747 Stevens Drive, Richland, Washington **Environmental West Exploration**

GROUND ELEV.

32.50'

LOGGED BY

Tubex Nick Garson TOTAL DEPTH

DATE COMPLETED 04/30/97

SAMPLE NUMBER (SAMPLE TYPE)	PID (in ppm) (RECOVERY)	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL	СОГОМИ	LITHOLOGIC DESCRIPTION
MW-3-1 (SS)	0 (6/24)	3-20- 50/3"	-	-				O to 6.0 feet: GRAVELLY SILTY SAND AND SILTY SAND (SM), brown, fine, 15 to 20 percent low plasticity fines, 10 to 20 percent medium sand to coarse, angular to subrounded gravel, very loose to loose, damp. (FILL)
MW-3-5 (SS)	1.5 (24/24)	4-4-3-4	-	5 -				
MW-3-7 (SS)	0.2 (24/24)	1-1-2-3	-	-	,			6.0 to 9.0 feet: SANDY SILT (ML), brown, low plasticity, approximately 5 to 15 percent fine sand, very soft to soft, damp to wet. (ALLUVIUM)
MW-3-9 (SS)	9.0 (24/24)	1-1-1-1	- ☑ - ATD - - -	10 -				9.0 to 17.5 feet: SANDY SILT (ML), light grayish brown to dark gray, low plasticity, approximately 5 to 15 percent fine sand, very soft to soft, wet. Local reddish brown iron-oxide staining beginning at 9 feet. (ALLUVIUM)
MW-3- 12.5 (SS)	2.8 (24/24)	2-2-3-3		- 15 -				
MW-3- 17.5 (SS)	3.2 (24/24)	2-3-6-5		-				17.5 to 18.0 feet: SAND (SP), dark brown to gray, fine, approximately 5 percent low plasticity fines, very loose to loose, wet. (ALLUVIUM) 18.0 to 19.4 feet: SILT (ML), light grayish brown to dark gray, low plasticity, approximately



REMARKS

(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID). (3) -- = No PID reading recorded. (4) NA = No sample recovered. (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface.

PROJECT NAME New City Cleaners LOCATION

DRILL METHOD

LOGGED BY

DRILLED BY

747 Stevens Drive, Richland, Washington **Environmental West Exploration**

Tubex Nick Garson BORING NO.

MW- 3 2 OF 2

PAGE GROUND ELEV.

32.50'

TOTAL DEPTH DATE COMPLETED 04/30/97

SAMPLE NUMBER (SAMPLE TYPE)	PID (in ppm) (RECOVERY)	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL DETAILS	COLUMN	LITHOLOGIC DESCRIPTION -
MW-3-22 (SS)	0.2 (6/24)	8-10-30- 50/3"		25				5 percent fine sand, soft to firm, wet. (ALLUVIUM) 19.4 to 22.0 feet: SILTY SAND (SP-SM), dark brown, fine, approximately 5 to 15 percent low plasticity fines, loose, wet. (ALLUVIUM) 22.0 to 27.0 feet: GRAVELLY SAND (SW), dark brown to gray, fine to coarse, approximately 10 to 15 percent fine to coarse, angular to subrounded gravel, approximately 5 percent low plasticity fines, medium dense to very dense, wet. (ALLUVIUM)
MW-3-27 (SS)	0 (12/24)	6-20- 50/3"		30				27.0 to 28.0 feet: SAND (SP), gray, fine, trace fines and medium sand, medium dense, wet. (ALLUVIUM) 28.0 to 32.5 feet: GRAVELLY SAND (SW), dark brown to dark gray, fine to coarse, approximately 15 to 20 percent fine to coarse, angular to subrounded gravel, trace fines, medium dense to very dense, wet. (ALLUVIUM)
				35				Total depth drilled = 32.5 feet. Total depth sampled = 29.0 feet. WELL COMPLETION DETAILS: 0 to 17.0 feet: 2-inch-diameter, flush-threaded, schedule 40 PVC blank riser pipe. 17.0 to 32.0 feet: 2-inch-diameter, flush-threaded, schedule 40 PVC well screen with 0.020-inch machined slots. 32.0 to 32.5 feet: 2-inch-diameter, flush-threaded, schedule 40 PVC end cap. Ground surface - flush mount well monument. 0 to 1.0 foot: Concrete. 1.0 to 14.0 feet: 3/8-inch Baroid Holeplug Bentonite chips hydrated with potable water. 14.0 to 32.5 feet: 20 - 40 Colorado Silica Sand.



REMARKS

(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID). (3) -- = No PID reading recorded. (4) NA = No sample recovered. (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface.

LOCATION DRILLED BY

DRILL METHOD

LOGGED BY

PROJECT NAME New City Cleaners

747 Stevens Drive, Richland, Washington **Environmental West Exploration** Hollow Stem Auger/Tubex

Nick Garson

BORING NO. **PAGE**

MW- 4A/MW- 4B

1 OF 2

GROUND ELEV. TOTAL DEPTH

31.75 DATE COMPLETED 04/30/97

SAMPLE PID BLOW COLUMN WELL DETAILS NUMBER COUNTS LITHOLOGIC (in pam) DESCRIPTION (SAMPLE (RECOVERY) TYPE) 0 to 0.3 foot: ASPHALT 0.3 to 3.0 feet: SANDY SILT (ML), brown, low MW-4-1 12-28/4" 0 plasticity, approximately 5 to 15 percent fine (SS) (6/24)sand, trace to approximately 5 percent medium sand to fine gravel, stiff to very stiff, damp. (FILL) MW-4-3 NA 3.0 to 7.0 feet: GRAVEL (GW), gray, fine to NA (SS) (NA) coarse, angular to subrounded, approximately 5 to 10 percent cobbles up to 4-inch diameter, very dense, damp. (FILL) 5 MW-4-5 NA NA (SS) (NA) MW-4-7 7-12-20-7.0 to 9.0 feet: SILTY SAND (SP-SM), brown, 0 (SS) (18/24)25 fine, approximately 15 to 20 percent low plasticity fines, approximately 5 percent medium sand to fine to coarse, angular to subrounded gravel, trace wood debris, fine laminations, firm MW-4-9 2.3 4-6-3-3 to very stiff, damp to moist. (ALLUVIUM) (SS) (18/24)10 9.0 to 24.0 feet: SILT (ML), brown, low plasticity, approximately 5 percent fine sand, very soft to hard, moist to wet. (ALLUVIUM) MW-4-1 1 0 1-1-2-4 ATD (SS) (24/24)15 MW-4-15 162 5-5-5-(SS) (24/24)10 MW-4-6000 2-2-2-3 17.5 (24/24)(SS) 20



REMARKS

(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID), (3) -- = No PID reading recorded, (4) NA = No sample recovered, (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface. (8) Soil samples collected from MW-4A on 4/29/97. Monitoring well installed in MW-4B location on 4/30/97.

PROJECT NAME New City Cleaners LOCATION **DRILLED BY** DRILL METHOD LOGGED BY

747 Stevens Drive, Richland, Washington **Environmental West Exploration** Hollow Stem Auger/Tubex

Nick Garson

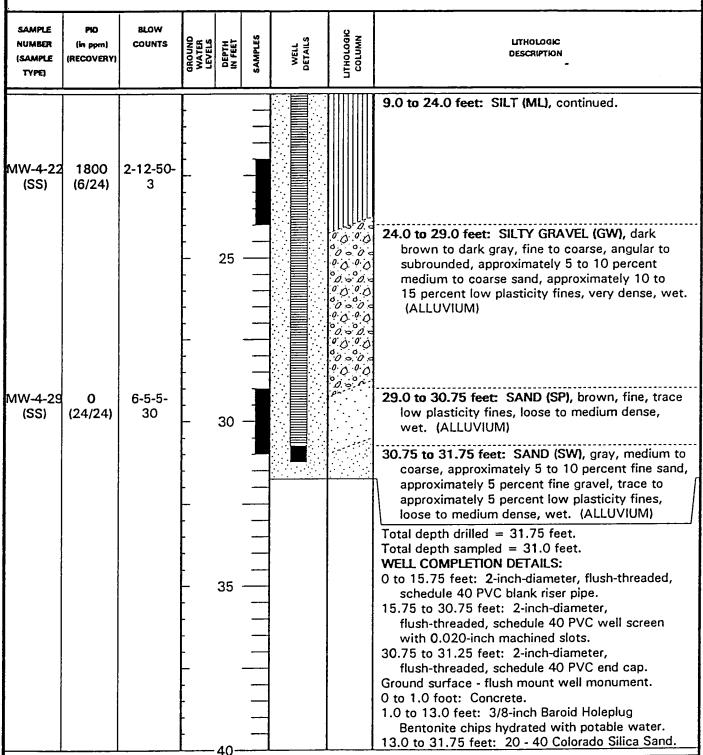
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MW- 4A/MW- 4B 2 OF 2

GROUND ELEV.

31.75

TOTAL DEPTH DATE COMPLETED 04/30/97





REMARKS

(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID). (3) -- No PID reading recorded. (4) NA = No sample recovered. (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface. (8) Soil samples collected from MW-4A on 4/29/97. Monitoring well installed in MW-4B location on 4/30/97.

LOCATION DRILLED BY DRILL METHOD

PROJECT NAME New City Cleaners

747 Stevens Drive, Richland, Washington

Environmental West Exploration Hollow Stem Auger/Tubex

Nick Garson

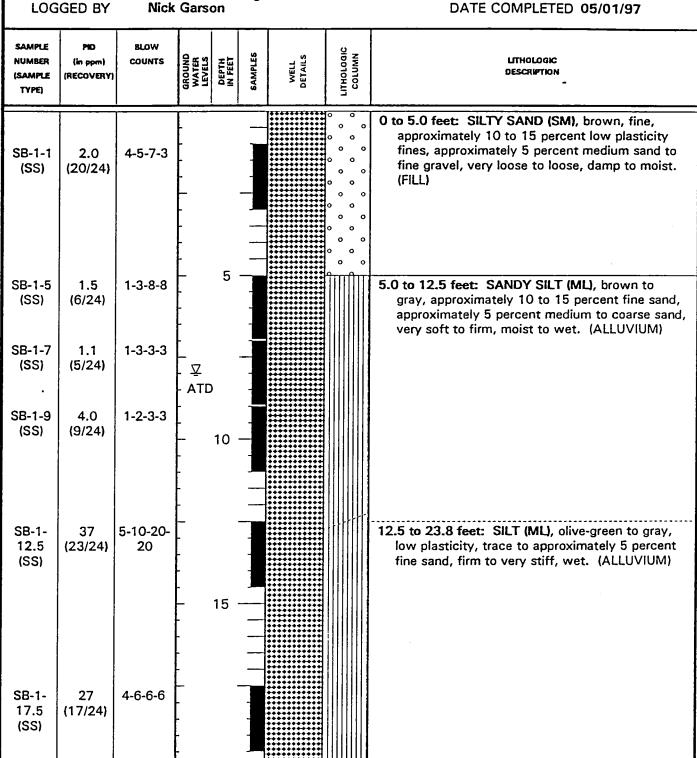
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BORING NO.

SB-1 1 OF 3

TOTAL DEPTH

47.00'





REMARKS

20

(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID), (3) -- = No PID reading recorded, (4) NA = No sample recovered, (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface. (8) Drilled boring with Hollow Stem Auger until refusal was encountered at approximately 29 feet bgs. Drilled boring from 29 to 45 feet bgs with Tubex drill rig.

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40358-016.004(3).NEWCI.se:2.05/16/97...NEWCI

LOCATION DRILLED BY DRILL METHOD

LOGGED BY

PROJECT NAME New City Cleaners

747 Stevens Drive, Richland, Washington

Environmental West Exploration Hollow Stem Auger/Tubex

Nick Garson

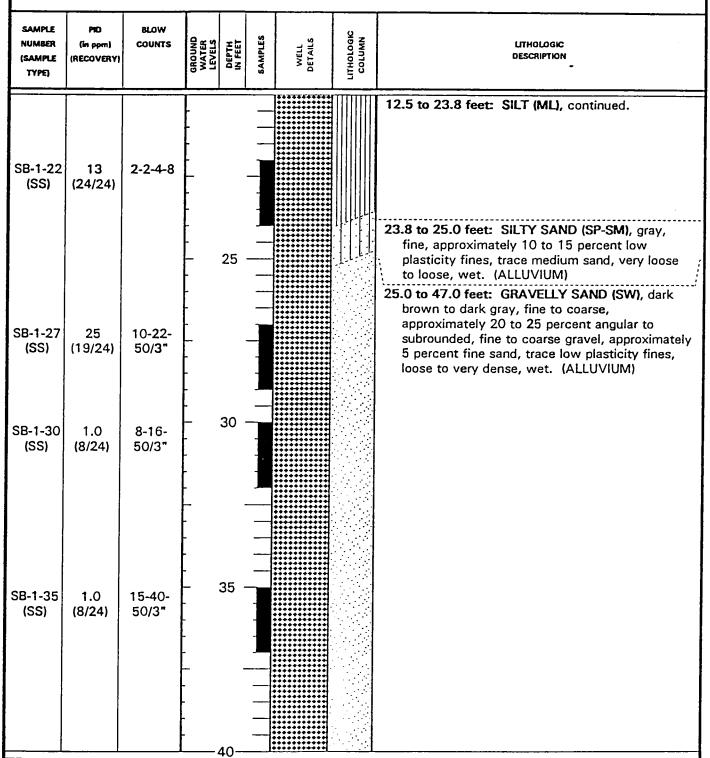
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SB- 1 2 OF 3

GROUND ELEV.

47.00

TOTAL DEPTH DATE COMPLETED 05/01/97





REMARKS

(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID). (3) -- = No PID reading recorded. (4) NA = No sample recovered. (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface. (8) Drilled boring with Hollow Stem Auger until refusal was encountered at approximately 29 feet bgs. Drilled boring from 29 to 48 feet bgs with Tubex drill rig.

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DRILLED BY DRILL METHOD

PROJECT NAME New City Cleaners
LOCATION 747 Stevens Drive, Richland, Washington **Environmental West Exploration** Hollow Stem Auger/Tubex

GROUND ELEV. TOTAL DEPTH

BORING NO.

PAGE

SB-1 3 OF 3

47.00 DATE COMPLETED 05/01/97

LOGGED BY Nick Garson

SAMPLE NUMBER (SAMPLE TYPE)	PIO (in ppm) (RECOVERY)	BLOW COUNTS	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL	ПТНОСОВІС СОСИМИ	LITHOLOGIC DESCRIPTION _
SB-1-40 (SS)	1.0 (8/24)	10-30-50/3"		45 -				25.0 to 47.0 feet: GRAVELLY SAND (SW), continued. Boring heaved at 40 feet bgs. No samples collected below 42 feet bgs. Total depth drilled = 47.0 feet. Total depth sampled = 42.0 feet. Boring backfilled with hydrated bentonite chips.



EMCON

REMARKS

60-

(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID). (3) - = No PID reading recorded. (4) NA = No sample recovered. (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface. (8) Drilled boring with Hollow Stem Auger until refusal was encountered at approximately 29 feet bgs. Drilled boring from 29 to 48 feet bgs with Tubex drill rig.

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PROJECT NAME New City Cleaners LOCATION DRILLED BY DRILL METHOD LOGGED BY

747 Stevens Drive, Richland, Washington **Environmental West Exploration**

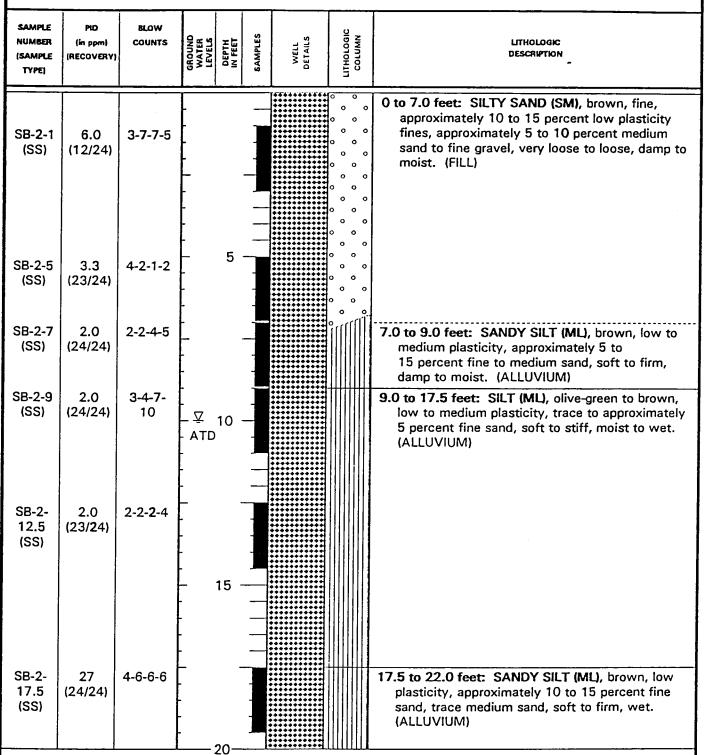
Hollow Stem Auger/Tubex Nick Garson

BORING NO. PAGE

SB- 2 1 OF 3

GROUND ELEV.

TOTAL DEPTH 45.00' DATE COMPLETED 05/01/97





REMARKS

(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID). (3) -- = No PID reading recorded. (4) NA = No sample recovered. (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface. (8) Drilled boring with Hollow Stem Auger until refusal was encountered at approximately 29 feet bgs. Drilled boring from 29 to 45 feet bgs with Tubex drill rig.

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PROJECT NAME New City Cleaners LOCATION DRILLED BY DRILL METHOD

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747 Stevens Drive, Richland, Washington **Environmental West Exploration**

Hollow Stem Auger/Tubex

Nick Garson

BORING NO. PAGE

SB- 2 2 OF 3

GROUND ELEV. TOTAL DEPTH

45.00 DATE COMPLETED 05/01/97

	·							DATE COMPLETED 05/01/97
SAMPLE NUMBER (SAMPLE TYPE)	PID (in ppm) (RECOVERY)	BLOW	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL DETAILS	СОГОМИ СОГОМИ	LITHOLOGIC DESCRIPTION -
SB-2-22 (SS)	1.1 (17/24)	2-3-20- 50/3"	-					17.5 to 22.0 feet: SANDY SILT (ML), continued. 22.0 to 24.0 feet: SAND (SP), dark brown to dark gray, fine, approximately 5 to 10 percent low plasticity fines, trace medium sand, very loose to medium dense, wet. (ALLUVIUM) 24.0 to 45.0 feet: GRAVELLY SAND (SW), dark
SB-2-27 (SS)	1.5 (10/24)	5-5- 50/5*	-	25				brown to dark gray, fine to coarse, approximately 15 to 20 percent angular to subrounded, fine to coarse gravel, approximately 5 percent low plasticity fines, loose to very dense, wet. Heave at 40 to 45 feet bgs. (ALLUVIUM)
SB-2-30 (SS)	1.5 (7/24)	10-50/3"	- - -	30 -				
SB-2-35 (SS)	1.0 (16/24)	5-10- 50/5"	- -	-				
				10—	:			



REMARKS

(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID). (3) - = No PID reading recorded. (4) NA = No sample recovered. (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface. (8) Drilled boring with Hollow Stem Auger until refusal was encountered at approximately 29 feet bgs. Drilled boring from 29 to 45 feet bgs with Tubex drill rig.

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40358-016.004(3).NEWCI.se:2.05/16/97...NEWCI

PROJECT NAME New City Cleaners LOCATION DRILLED BY DRILL METHOD LOGGED BY

747 Stevens Drive, Richland, Washington **Environmental West Exploration** Hollow Stem Auger/Tubex Nick Garson

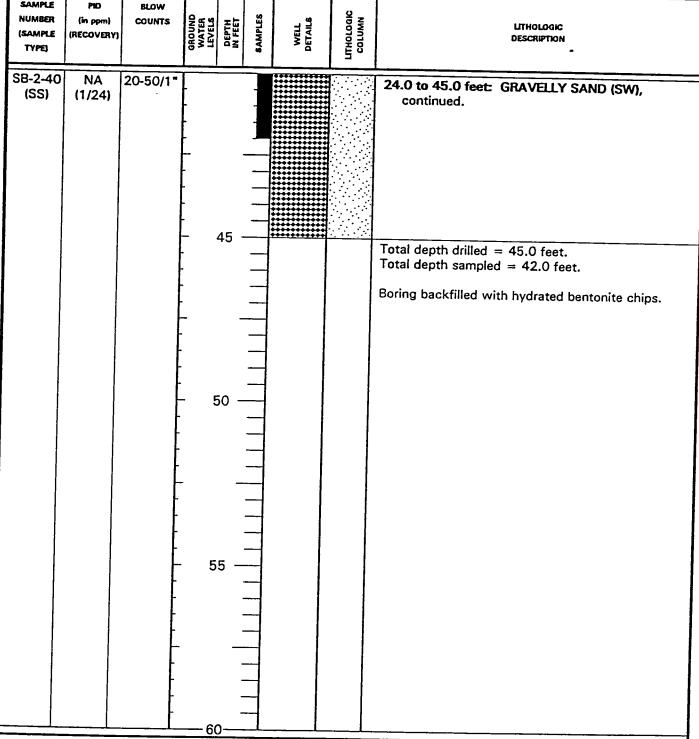
GROUND ELEV. TOTAL DEPTH DATE COMPLETED 05/01/97

BORING NO.

PAGE

SB- 2 3 OF 3 45.00'

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					7		
SAMPLE	PND	BLOW		j	i	l i	
NUMBER	(in ppm)	COUNTS	12 gg :	∓	1 . 9	ĕş	1710.000





(1)SS = Soil samples collected using 2.5 inch by 24 inch stainless steel sampler. (2) Soil samples field screened with a Photoionization Detector (PID). (3) -- = No PID reading recorded. (4) NA = No sample recovered. (5) Blow counts do not represent SPT results. (6) White triangle = field estimate of water table at time of drilling. (7) Reference elevation = ground surface. (8) Drilled boring with Hollow Stem Auger until refusal was encountered at approximately 29 feet bgs. Drilled boring from 29 to 45 feet bgs with Tubex drill rig.

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40358-016.004(3).NEWCI.sa:2.05/18/97...NEWCI

APPENDIX C FIELD SAMPLING DATA SHEETS

EMCON

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

(509) 838-1144

(509) 838-1382

-			4000						Office.	(308	1) 030-1	<u> </u>	ı ax.	(50	13) 030	-1302
PROJE	CT N	AME:									LL ID:					
SITE A	DDRE	ESS:								BL	ND ID:	<u>55-1</u>	41			
			403	5B	- 016	∞	<u>ન</u>				UP ID:					NA
WI	ND FR	OM:	N	NE	E	SE	S	SW	W	NW	LIG		MEC		HI	EAVY
N	EATH	HER:	SU	NY	CLC	YOU	(RA	<u>C</u> NÍ		?	TEN	IPERA'	TURE:		5.	• C
HYDR	OLOG	3Y/LE	VEL N	MEASU	REME	VTS (Nea	erest 0.01	ft)		(Product	(hickness)	(Water	Column)	, (Circ	le appropri (Water C	otumo x Gel/ft)
Dat	T		me		ottom		roduct	1	Vater	DTP-	DTW_	DTB-	DTW		Volu	me (gal)
/	/		:				•				•		•	X 1		•
1	/		:		•		•		•		•			X 3		•
Gal/ft = (dia./2) ² x	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6 " =	1.469	10" =	4.080	12" =	5.875
§ METHO	DS: (A) S	ubmersib	le Pump (B) Peristaltic	Pump (C) [Otsposable B	ailer (D) PVC	Meflon Baik	r (E) Dedic	ated Bailer (F) Dedicated	Pump (G)	Other = G	<u> </u>		Lil it most
GROU	NDW	ATER	SAME	LING	DATA (if product	is detected	i, do NOT	sample)			Sampl	e Depth	:		(V if used)
Bottle	Туре	D	ate	Ti	me	Method 5	Amoun	t & Volu	me mL	Pres	ervative	(circle)	Ice	Filter	pН	1
VOA	Slass	1	1		:		3	40	ml		HCI		YES	NO		
Amber	Glass	1	1		:			250, 5	00, 1L	(None	(HCI) (H	I₂SO₄)	YES	NO		
White	Poly	1	7		:			250, 5	00, 1L		None		YES	NO	NA	
Yellow	Poly	/	1		:			250, 5	500, 1L		H₂SO₄		YES	NO		
Green	Poly	1	1		:			250, 5	500, 1L		NaOH		YES	NO		
Red Tot	Red Total Poly / /				:			250, 5	500, 1L	HNO3			YES	NO		
Red Dis	ted Diss. Poly / /				:			250, 5	500, 1L		HNO3		YES	YES		V
1603	2045	3/1	0/97	14	: 30	G	ì	250, 5	00, TL				YES			
- 3	3					te count):	ı									
	ВО	TLET	YPE	TYPICA	LANALYS	IS ALLOW	ED PER B	OTTLE TY	PE (Circle	applicable	or write no	n-standar	d analysis			
	VOA - G	ilass		(8010)	(8010/8020)		(8240) (82			(BTEX/	PH-G)				()	WA[]
y wed	AMBER			 ` 	TPH-HCID)	(TPH-D)	(TPH-418.1) (BOD)			nity) (HCC	PACO7) (CI) (SO ₄)	(tON)	O ₂) (F)	[]	
Analysis Allowed per Bottle Type	WHITE	V - Poly			onductivity) (TOC) (To		Total Keldahi			O3/NO2)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, ((· - 4)	- 4 ()		
llysis Bot	GREEN			(Cyanide)												
Ag ag	RED TO	TAL - Po	ły				(Co) (C1)				(Ag) (Se)					
		SSOLVE					20) (Cr) (Cu)					(Zn) (Hg) (K) (Na) (Ha	irdness) (S	IIICa)	
WATE	,	<u> </u>			Dumo	Start Ti	<u>ය,</u>	PA	D 64	Jens	<u> </u>	Pump	Bailer II	nlet Dep	th:	
Meas.				ed (gal)	 -	oH		<u>.</u> id (μS)	oe Te	mp °C	Other		2 (mg/l)		Vater Q	uality
	Metr	nod [§]	Purge	u (gai)	<u> </u>		1 2 001	α (μο/	1			1	•			
1						•	 			<u> </u>				-		
2				•	<u> </u>	•			 	<u> </u>			<u>. </u>			
3																
4				<u>. </u>	 	•	-		 	<u></u>			<u>. </u>			
[Casing]	[Selec	a A-G]	[Cumula	trve Totals)	<u> </u>	•			[Circl	e units]	L	L	-	L	(Clanty, C	olor
	0 .	•	•-	01	\				n			_1_	n· -	croe	- (
7	I I	4 9	بص	ex (GM,	مِيدا (w,	ω (,	age	یں ر	arca	mt 1	Jane	Sau	والحد	
		. ~ ~	7 A A	o. 🛰	لا ينيسم	SVA V.		· 🔺 🕨	N	~ ~1 .	a α	$\Delta \Delta \Delta \Delta$	***** Y O	•	-	

SAMPLER: John Latta (PRINTED NAME)

ELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101

77		78								Sp	okane,	Washin	gton 9	9224		
									Office:	(509	9) 838-1	144	Fax:	(50	9) 838	-1382
ROJI	ECT N	IAME:	:							WE	ELL ID:			_		
ITE F	DDRI	ESS:								BL	ND ID:	55-	A2			
	-		403	58-	016	<u>+</u>				D	UP ID:					NA
WII	ND FR	ROM:	N	NE	Ε	SE	S	sw	W	NW	(IG	HI	MEC	NUIC	Н	EAVY
٧	VEAT	HER:	SU	VNY	CLC	YQU	(RA	(NI		?	TEN	MPERATURE: (F			5.	• 0
WDE		CVII E		AEASII	REME	NTS (Nex	arest 0.01	#\		(Product	[hickness]	[Water C	Columni	(Circ	le appropri	ste unds) olumn x Gal/fl
Da			me		ottom		roduct		Vater	DTP-DTW		DTB-DTW] [me (gal)
7	/		:			 	•		•		•			X 1		•
-	7		:		·									X 3		
Sal/ft = ((dia /2)2 x	0.163	1" =	0.041	2" =	0.163	3" =	0.367 4" =		0.653	6" =	1.469	10" =	4.080	12" =	5.875
					Pump (C) (Disposable B	ailer (D) PVC	/Teflon Bail	er (E) Dedica	ated Bailer (F) Dedicated	Pump (G) C	ither = G	طهه		
							is detected				-	Sample				(v if used)
Bottle			ate		me	Method 5					ervative	(circle)	lce	Filter	рΗ	1
VOA		1	1		:		3	40) ml		HCI		YES	NO		
Amber	Glass	7	1		:			250, 5	500, 1L	(None)	(HCI) (H	H₂SO₄)	YES	NO		
White	Poly	1	1		:			250, 5	500, 1L		None		YES	NO	NA	
Yellow	Poly	/			:			250, 5	500, 1L		H₂SO.		YES	NO		
Green	Poly	/	<i>1 1</i> :					250, 5	500, 1L	NaOH			YES	NO		
Red Tol	tal Poly / /				:			250, 5	500, 1L	HNO₃			YES	NO		
Red Dis	i Diss. Poly / /				:			250, 500, 1L			HNO ₃		YES	YES		
402 (drag	3/	10/97	14	:07	6	l	250, 5	500, 1L				YES			V
7	0			s (includ		te count):	,									
	ВС	TTLE T		-			ED PER BO	TILE TY	PE (Circle	applicable	or write no	on-standard	analysis	below)		
	VOA - C	Glass		(8010) (ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below) 8010/8020) (8020) (8240) (8280) (BTEX) (TPH-G) (BTEX/TPH-G) OR [] WA []											
§ 8	AMBER	l - Glass		(PAH) (TPH-HCID)	(TPH-0)	(TPH-418.1)	(Oil &Gn								WA []
§ ₹	WHITE	- Poly		(pH) (C	onductivity)		(BOD)				ACO3) (CI) (SO ₄)	(1O1) (N	O) (F)		
30tt		W - Poly		<u> </u>	тос) (То	tal PO ₄) (I	otal Keldahi i	Nitrogen)	(NHT) (NK	ο• νν ο•)						· · -
Analysis Allowed per Bottle Type	GREEN		<u> </u>	(Cyanide)	(Pa) (Pa) (Ca) (Ca)	(Co) (Cr)	(Cu) (Ea)	(Ph) (Ma)	(Mn) (Nn	(Ad) (Se)	(TD, (V), (Z	Zn) (Ha) ((K) (Na)		
∢ ∸		SSOLVE					20) (Cr) (Cu)								ica)	
		e ala		8260		TPH -		TPH	_	,						
VATE			OATA			Start Ti		:				Pump/	Bailer Ir	niet Dept	h:	
deas.	т	nod §		d (gal)		oH	E Con	d (μS)	°F Te	mp °C	Other	Diss O	(mg/l)	V	ater Qu	ality
1				•		•				•		Ţ .				
2			-	•		•							,			
3				· · ·								,				
•	 															
4					 				T		_	 				
					1	•				• '						

SAMPLER: John Latta (PRINTED NAME)

FIELD SAMPLING DATA SHEET

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

									Office:	(509	9) 838-1	144_	Fax:	(50	9) 838	-1382
PROJE	CT N	AME:								W	LL ID:					
SITE A	DDRI	ESS:								BL	IND ID:	<i>5</i> 5	- A 3			
		-	4035	68 - C	016.0	54					UP ID:					NA
WI	ND FR	F	N	NE	E	SE	S	sw	W	NW	LIG	H	MED	NUM	HI	EAVY
N	/EATI	HER:	SUN	YNY	CLC	YQUO	RA	M		?	TEN	IPERA	TURE:	(F)	5.	•c
מעעם		2V/I E	VEL N	MEASI	JREME	NTS (Nex	arest 0.01	ft)	_	Product	Thickness)	(Water	Column)	(Circ	le appropri [Water C	ete unitsj olumn x Gal/ftj
Dat			me		Bottom		roduct		Vater		-DTW	DTB-	DTW			me (gal)
1	/		:		•				•					X 1		
	-		:		•		•							X 3		
Gel/ft = (لــــــــــــــــــــــــــــــــــــ	0.163	1" =	0.041	2 =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
			ie Pump (B		ic Pump (C) I	Disposable B	ailer (D) PVC	/Teflon Baik	er (E) Dedic	ated Sailer (F) Dedicated	Pump (G)	Other = Co	Mab		
GROU	GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample) Sample Depth: Vifused															
Bottle	bottle type Date Time Imedical Fundamental Links															
VOA	VOA Glass / / : 3 40 mi HCI YES NO															
Amber	Amber Glass / / : 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO															
White	Amber Glass / / : 250, 500, 1L (None) (HCl) (H ₂ SO ₄) YES NO White Poly / / : 250, 500, 1L None YES NO NA															
Yellow	A STATE OF THE STA															
Green	Poly	1	1		:			250, 5	500, 1L		NaOH		YES	NO		
Red Tot	al Poly	1			:			250, 5	500, 1L		HNO ₃		YES	NO		
Red Dis	s. Poly	1	1		:			250, 5	500, 1L		HNO ₃		YES	YES		
160 00 0	3/249	3//	197	14	: 55	G	1	250, 5	500, 1L				YES			1
- CO - WI	7 (-7/)				de duplica		1			<u> </u>						
	ВС	TTLET			AL ANALYS		ED PER BO	TTLE TY	PE (Circle	applicable	or write no	on-standar	d analysis	below)		
ľ	VOA - G	ilass		(8010)	(8010/8020)	(8020)	(8240) (826	30) (BTEX	g (TPH-G) (BTEX/I	TPH-G)				[]	WA []
De se		- Glass		(PAH)	(TPH-HCID)	(TPH-D)	(TPH-418.1)					(00)	(rON)		[]	WA (]
Allo Te	WHITE	- Poly V - Poly	_	(COD)	Conductivity) (TOC) (To		rss) (BOO) rotal Keldahl			OzNOz)	h/CO1) (CI) (SO ₄)	(HO1) (N	O ₂) (F)		
Analysis Allowed per Bottle Type	GREEN			(Cyanide	<u> </u>				V 4							
Ana		TAL - Po	ły		b) (Ba) (Be											
	RED D	SSOLVE	O - Poly		o) (Ba) (Ba)							(Zn) (Hg) (K) (Na) (Ha	rdness) (Sil	ica)	
	وم ما ا		مد		0, W			TP1+-	D ex	مسعر.		Bump	Bailer Ir	ilet Dept	h:	
WATE						Start Ti	Γ'		oc To	°C	Other				/ater Q	ıality
Meas.	Meth	od [§]	Purge	d (gal)	<u> </u>	oH	E Con	α (μδ)	I F IE	mp °C	Other	DISS C	₂ (mg/l)		ater Q	
	ļ			•	_	•		 -		•			•			
2				•		•				•			•			
3				•		•				<u> </u>			•			
4				•		•	<u> </u>		ļ	•			•			
(Caeine)	[Calco	t A-G]	Cumulai	tive Totals		•			(Circle	• units)	L	<u></u>	• .		(Clanty, Co	okri
(Casing)	•	_	•										,		-	
Ja	ماصد	g &	n aw	& (GM)	brow	m w	rat	four	perc	Tue	selt	, da	ه, مهد	deus	٤
Sa	لمس	Ce J	oca:	tion	im	exce	iton	م ر. '	De	pth o	of Sa	φ ^Q	- cy	بصمم	X 2-	e. Pt bgs.

FIELD SAMPLING DATA SHEET

i emcon

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

									Office:	(509	9) 838-1	144	Fax:	(50	9) 838	<u>-1382</u>	
PROJ	ECTN	IAME	:							W	ELL ID:						
SITE A	DDR	ESS:								BL	IND ID:	SS	- A4				
			4035	& -OK	0-00	4				ב	OUP ID:					N	4
Wii	ND FF	ROM:		NE	E	SE	(S)	sw	W	NW	LIC	HT	MEC	MUIC	H	EAVY	
V	/EAT	HER:	SUI	YNY	CLC	YOU	RA	IN.	wind	2	TEN	IPERA	TURE:	(F)43	5.		•c
HVDD	01.0	CV/I I		AE A QII	DEME	NTS /No	arest 0.01	# \		4	Thickness)	Water	Column)	(Circ	e appropri	ate units) olumn x (
Da			ime		ottom		roduct		Nater		-DTW		DTW	Ι [me (ga	
/		•		0.40	0110111									X 1	, , ,		<u>,</u>
- '-	/		:		•		•	_	•		•		• ——-	1 1		<u>. </u>	—
			:		•				•	0.050		4 450	405	X 3	100 -		
Gal/ft = (1"=	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.8	/5
							ailer (D) PVC			ited Bailer (F) Dedicated					[4 it u	sedi
GROU	NDW	ATER	SAMF				is detected					<u> </u>	e Depth			<u> </u>	
Bottle	Туре	0	ate	Tir	me	Method ⁵	Amoun	t & Volu	me mL	Pres	ervative	[circle]	Ice	Filter	pН	V	
VOA	Slass	/	1		:		3	40	ml		HCI		YES	NO			
Amber Glass / / : 250, 500, 1L (None) (HCl) (H₂SO₄) YES NO White Poly / / : 250, 500, 1L None YES NO NA																	
White Poly / / : 250, 500, 1L None YES NO NA																	
Yellow	Poly	1	7		:			250, 5	500, 1L		H₂SO₄		YES	NO			
Green		1			•			250. 5	500, 1L		NaOH		YES	NO			
Red Tot		'			•				00, 1L		HNO ₃		YES	NO			
		',			<u>-</u>		<u> </u>		500, 1L	-	HNO ₃		YES	YES			
Red Dis	s. Poly	/			·	-	1				7	. .	YES				
voza	Xagg		12/97		20	<u>G</u>		230, 3	500, 1L				163	l		L	
	,				e duplicat								4 1 - 1 -	L. Jane			
		TLE 1	YPE				ED PER BC (8240) (826		O (TPH-G			n-standar	a anaiysis	OR (1	WA [-
	VOA - G	- Glass			8010/8020) IPH-HCID)	(8020) ((TPH-D)	(8240) (826 (TPH-418.1)			(8124)	-11-0)			OR		WA (
nalysis Allowed per Bottle Type	WHITE			<u> </u>	anductivity)		'SS) (BOD)		-	rty) (HCO	ACO7) (CI) (SO ₄)	(NO ₃) (N	ວ _ນ (F)	·		<u> </u>
Analysis Allowed per Bottle Type	YELLOV			<u> </u>			otal Keldahi i			CON/CO							
聚 8	GREEN	- Poly		(Cyanide)													
\$ 8	RED TO	TAL - Po	oly				(Co) (Cr)										
ļ		SSOLVE					(Cr) (Cu)				(N) (TT) (V)	(Zn) (Hg) (i	() (Na) (Ha	rdness) (Sili	(2)		
	16 03						WTPH	-Dext	tend				O a il a a la		<u> </u>		
			Y DATA		Purge	Start Ti		<u>:</u>	r			— <u> </u>		let Depti		- 175 -	
Meas.	Meth	od §	Purge	d (gal)	P	H	E Con	d (μS)	°F Ter	np °C	Other	Diss O	₂ (mg/l)	W	ater Qu	ality	_
1						•											
2						•				·							
3																	
4						•				,							
				•									•	-			
(Casing)	(Selec	t A-G]	(Cumulat	ve Totals					(Circle	units)		l			(Clanty, Co	okor]	
G	ray	s Ined	andi lim	tand	ave, a	l (G Jew p	W-GM ercen	·), fi t silt	ne to	cears	e rou locsi	nde. i to v	of gra	we(,	fine	. +> te <i>ne</i>	J

SAMPLER:

FIELD SAMPLING DATA SHEET

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

Office: (509) 838-1144

Fax:

(509) 838-1382

									<u> </u>	(33)	,					
PROJE	ECT N	IAME:	•								ELL ID:					· ·
SITE A	DDRI	ESS:									IND ID:		- AW			
		40	0350	-016	.00	4	 ,				UP ID:					NA NA
WII	ND FR	ROM:	N	NE	Ε	SE	(§)	sw	W	NW	LIG			NOM)		EAVY
N	IEATH	HER:	SU	YMY	CLC	YOU	RA	JN		?	TEN	IPERA	TURE:			• C
HYDR	OLOG	GY/LE	EVEL	MEASU	REME	VTS (Nea	rest 0.01	ft)		[Product	Thickness)	(Water	Column)	ļurē	le appropria (Water C	olumn x Gal/ft)
Dat			me	DT-B			roduct		Vater	DTP-	-DTW	OTB-	WTO		Volu	me (gal)
/	7		:				•		•		•		•	X 1		•
1	/		:				•		•		•			X 3		•
Gal/ft = (dia./2)² x	0.163	1" =	0.041	2" =	0.163	3⁼ =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
§ METHO	OS: (A) S	ubmersib	le Pump (B) Peristaltic	Pump (C) (Disposable B	ailer (D) PVC	/Teffon Baile	r (E) Dedic	ated Bailer (F) Dedicated	Pump (G) (Other = G	rab		
GROU	NDW	ATER	SAMF	LING	DATA (if product i	s detected	i, do NOT	sample)			Sampl	e Depth			(v if used)
Bottle	Туре	D	ate	Tir	ne	Method ⁵	Amoun	t & Volu	me mL	Pres	ervative	[circle]	Ice	Filter	pН	√
VOA Glass / / : 3 40 ml HCl YES NO																
Amber Glass / / : 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO																
White	White Poly / / : 250, 500, 1L None YES NO NA															
Yellow	White Poly / / : 250, 500, 1L None YES NO NA Yellow Poly / / : 250, 500, 1L H₂SO₄ YES NO															
Green	Poly	1	1					250, 5	00, 1L		NaOH		YES	NO		
Red Tot	al Poly	1	1		:			250, 5	00, 1L		HNO₃		YES	NO		
Red Dis	s. Poly	1	1		<u> </u>			ļ <u>.</u>	00, 1L	_	HNO ₃		YES	YES		
1602	alaes	3/1	2/97	12	<u>: 47_</u>	G	2 3	<u> </u>	00, 1L	<u> </u>			YES			
	0	To	otal Bottle			te count):	2	7.5~								
	BC	TTLET	YPE	TYPICAL	ANALYS	IS ALLOW	ED PER BO			-		n-standar	d analysis			
	VOA - G	ilass		, , ,	8010/8020)		(8240) (826) (втехл	TPH-G)				(1	WA[]
Analysis Allowed per Bottle Type	AMBER			<u> </u>	TPH-HCID)	(TPH-D)	(TPH-418.1)					(60.)	000		[]	WA []
lysis Allowed Bottle Type	WHITE			, ,	onductivity)		'SS) (BOD)				PACOT) (CI	(SO ₄)	(100) (N	아) (F)		
sis		V - Poly		 ````	TOC) (To	tal PO ₄) (T	otal Keldahl	Nitrogen)	(NH ⁷) (W	O3NO3)						
\naty per f	GREEN	<u>-</u> -		(Cyanide)	(Pa) (Pa	(Ca) (Cd)	(Co) (Cr)	(Cu) (Ea)	(Pb) (Ma)	(Mn) (Ni)	(Ad) (Se)	m vo (Zn) (Ho) (K) (Na)		
▼ -		SSOLVE					(Cr) (Cu)								lica)	
	16 02			(12) (33)	(==, (==,	<u> </u>		<u>, , , , , , , , , , , , , , , , , , , </u>			<u> </u>					
WATE				٩	Purge	Start Ti	me:	:				Pump/	Bailer Ir	let Dep	th:	
Meas.	Meth	od §	Purge	d (gai)	ŗ	Н	E Con	d (μS)	°F Te	mp °C	Other	Diss O	₂ (mg/l)		/ater Qu	uality
1										•			•			
2				•						•			•			
3				•						•			•			
4				•		•				•			•			
				•		•				•			•	L	(C) C	
[Casing]	(Salec	t A-G)	(Cumulat	Totals]	0	~ (·	<u>.</u>	0		units)	L				(Clanty, Co	
C.	eloka	ted	a.	Kulo	x du	المنطا	ile a	nd,	Kabel	Ked	J# 5	s-Jt	, wit	ha	.time	- of
t	3∶α	٦. '	Samp	ste l	ocat	plica	at top	of	soil	stock	cpile					U

SAMPLER: John (PRINTED NAME)

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

	100		~~~~						Office:	(50	9) 838-1	144	rax:	(50	19) 838	-1382
PROJ	ECT N	AME	:							W	ELL ID:					
SITE A	ADDRI	ESS:								BL	IND ID:	Ss	-BS			
			403	58-0	ی حاد	204					OUP ID:					NA
WI	ND FR	OM:	N	NE	Ε	SE	S	SW	W	NW	(LIG			NUM	Н	EAVY
٧	VEAT	HER:	SUI	YNY	CLC	YDU	RA	JN	Bre	eze?	TEN	IPERA	TURE:		5.	• c
HYDE	OLOG	3 Y /LE	EVEL N	//FASU	REME	NTS (Ne	arest 0.01	ft)		(Product	Thickness]	(Water	Column)	[Circ	e appropri Water C	ate units] olumn x Gal/ft]
Da			ime		ottom		roduct		Vater		-DTW		DTW]		me (gal)
/	7		:				•	<u> </u>			•			X 1		•
7	7		:				•	-						Х 3		•
Gal/ft = ((dia /2) ² x	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6° =	1.469	10" =	4.080	12" =	5.875
§ METHO	OS: (A) S	ubmensit	ole Pump (B) Peristaltic	Pump (C) (Disposable B	ailer (D) PVC	/Teflon Baik	er (E) Dedic	ated Bailer	F) Dedicated	Pump (G) (Other =	طمهز		
GROU	NDW	ATER	SAMP	LING	DATA (if product	is detected	I, do NO1	sample)			Sampl	e Depth	:		[√if used]
Bottle	Bottle Type Date Time Method ³ Amount & Volume mL Preservative (circle) Ice Filter pH √															
VOA	VOA Glass / / : 3 40 ml HCI YES NO															
Amber	VOA Glass / / : 3 40 ml HCl YES NO Amber Glass / / : 250, 500, 1L (None) (HCl) (H ₂ SO ₄) YES NO															
White	Poly	1	1		:			250, 5	500, 1L		None		YES	NO	NA	
Yellow	Poly	1	1		:			250, 5	500, 1L		H₂SO₄		YES	NO		
Green	Poly	1	1		:			250, 5	500, 1L		NaOH		YES	NO		
Red Tot	al Poly	1	1		:			250, 5	500, 1L		HNO ₃		YES	NO		
Red Dis	s. Poly	1	1		:			250, 5	500, 1L		HNO ₃		YES	YES		
مر حا	alass	3/	10/47	llo	: 30	6	l	250, 5	00, 1L				YES			
7	8		otal Bottle			e count):	t									
	ВО	TTLE					ED PER BO	TTLE TY	PE (Circle	applicable	or write no	n-standar	d analysis	below)		
	VOA - G	1256		(8010) (8010/8020)	(8020)	(8240) (826	(BTEX) (TPH-G) (BTEX/	PH-G)				[]	WA []
D &	AMBER	- Glass		(PAH) (TPH-HCID)	(TPH-D)	(TPH-418.1)	(Oil &Gre	ase)						[]	WA[]
Analysis Allowed per Bottle Type	WHITE	Poly		-	onductivity)	- 	'SS) (BOD)				PACO3) (CI)	(504)	(NO1) (N	O ₂) (F)		
sls ,	YELLOY			<u> </u>	TOC) (To	tal PO₄) (T	otal Keldahi i	Nitrogen)	(NHT) (NK	O ₂ /NO ₂)						
naly Ser E	GREEN		N	(Cyanide)	(Da) (Ba)	(Ca) (Ca)	(Ca) (Cd	/Cu) /Ea\	(Ph) (Ma)	(Ma) (Ni)	(Ag) (Se)	m w c	Zn) (Hn) (3O (Na)		
* -	RED DIS		<u>-</u>								(∧g) (Oo) (a) (∏) (∨) (-		ica)	
	100						1-6,		_				<u></u>			
WATE			Y DATA			Start Ti		:		- 71		Pump/	Bailer Ir	ilet Dept	h:	
Meas.	Meth			d (gal)		Н	E Con	d (μS)	°F Te	mp °C	Other	Diss O	2 (mg/l)	W	/ater Qu	uality
1						•										
2				•			-			•	_		•			
3		-		•						•						
4			·						,	•						
	· · · · ·															
[Casing]	(Selec	t A-G}	(Cumulat	ive Totals]						units]		· · · · · ·			(Clarity, Co	olor
Las	udu.	, 01	save		(Gr	1), a	nay.	, me	مک کھ	md	da	w.0	كمعيد	lium	.,	- 0
7	J. B	1.0	1	•	0 .	ک ر د. د	ray.	, 52	لقبيا	Ce is	10"	belie	w /	desc	ribe	d Daye
ual	nax	٠ ١ ٠	mat	eria	a al	. sur	Duck	. ,,,	7	,	-		- (- -		J

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

(509) 838-1144

Fax:

(509) 838-1382

										10/5						
PROJE	CT N	AME:									LL ID:					
SITE A	DDRI	ESS:									ND ID:	<u>\$\$</u>	- B7			
		_								D	UP ID:	_				NA
WIN	ID FR	OM:	(N)	NE	Ε	SE	S	SW	W	NW	l(lG		MED			EAVY
W	EATI	HER:	(SUI	NNS.	CLC	UDY	RA	IN		?	TEM	IPERA	TURE:	<u>(F) 4</u>		•c
UVDO	01.00	-V/I E	3/EL 8	AE A SI II	PEME	UTS (Nes	rest 0.01	m)		[Product]	Thickness)	[Water (Column)	[Circ	te appropria [Water Co	ete unitsj olumn x Gal/ft]
Dat			me	DT-B			roduct	DT-V	Vater		WTO		WTO		Volu	me (gal)
	/		•	0.0						-				X 1		
	'		•		<u> </u>		·							X 3		
	′	T	:	l		0.400	· 27 -	0.367	4" =	0.653	·	1.469	10" =	4.080	12" =	5.875
Gal/ft = (d	dia./2) ² :	0.163	1" =	0.041	2" =	0.163	3" =							Trab		
							ailer (D) PVC			ated Darlet (r) Dedicated		e Depth:			[v if used]
		ATER	SAME				s detected			Dras		·	- 	Filter	pН	1
Bottle Type Date Time Method 5 Amount & Volume mL Preservative (circle) Ice Filter pH V VOA Glass / / : 3 40 mi HCI YES NO																
VOA Glass / / : 3 40 ml HCI YES NO																
Amber (VOA Glass / / : 3 10 <															
SEC. FOR ALL (March (MCI) (M SO.) VES. NO.																
Yellow	Poly	1	1		:			250, 5	00, 1L		H₂SO₄		YES	NO		
Green	Poly	1	1		:			250, 5	00, 1L		NaOH		YES	NO		
Red Total	ai Polv	7	1		:			250, 5	00, 1L		HNO ₃		YES	NO		
Red Diss		7	1		 -			250, 5	00, 1L	_	HNO₃		YES	YES		
	<u>~ ·</u>	3/1	3/97		: :	Gu	1	250, 5	600, 1L				YES			
16 oz c	()			es (includ	e duplica											
	BC BC	OTTLE T		TYPICAL	ANALYS	IS ALLOW	ED PER BO	OTTLE TY	PE (Circle	applicable	or write no	n-standar	d analysis	below)		
ł	VOA - C				(8010/8020)		(8240) (82) (BLEXL					[]	WA []
2 0	AMBER	- Glass		(PAH) (TPH-HCID)	(TPH-D)	(TPH-418.1)	(Oil &Gre	ase)					OR	[]	WA []
y T Ty	WHITE	- Poly		(pH) (C	onductivity)	(TDS) (1	rss) (BOD	(Turbidit)			PACO3) (CI) (SO ₄)	(_t ON)	O ₂) (F)		
offle	YELLO	W - Poly		(COD) ((TOC) (To	tal PO ₄) (Total Keldahi	Nitrogen)	(vHv) (v	0,000,0						
Analysis Allowed per Bottle Type	GREEN			(Cyanide)		\ (O+\ (C+)	(Co) (Cr)	(Cu) (Es)	OH) OF-	Mn) (NA	(An) (Sa)	m ~ ·	(Zn) (Ha)	(K) (Na)		
Αď		OTAL - Pol					20) (Cd) (Cd)								ilica)	
1		SSOLVE		821 d		TPH-C		PH -	Day	tend						
WATE		a Ca			Pume	Start Ti		:	 ,	I O T T V		Pump	Bailer II	nlet Dep	th:	
Meas.		nod §		ed (gal)		эН		id (μS)	°F Te	mp °C	Other	Diss C	₂ (mg/l)	٧	Vater Q	uality
	Meti	100	ruige	d (gai)	<u> </u>	JI 1	1	- (p /								
4				•			<u> </u>			<u> </u>	-					
3				<u>·</u>	├	<u>. </u>										
2				<u>. </u>	 -	<u>. </u>				<u> </u>	 !					
1	<u> </u>			•	ļ	<u>. </u>	 			•			<u>. </u>	 		
(Casing)	(6*)-	ct A-G]	L	tive Totals	<u> </u>	<u>•</u>			[Circl	e units]		<u> </u>	<u> </u>	<u> </u>	(Clarity, C	Color]
(vasing)	[2616	w v-01	Cumula	iuro ionaiaj					-	•						

SAMPLER: John Latta
(PRINTED NAME)

EMCC EMCC

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

Control Cont						E V				Office:	(509	9) 838-1	144	Fax:	(50	9) 838	-1382		
WIND FROM: N NE E S S W NW (IGHT) MEDIUM HEAVY MEDIUM MEDIUM MEDIUM HEAVY MEDIUM ME	ROJ	ECT N	IAME:	:							WE	LL ID:							
WIND FROM: N NE E SE S SW W NW CIGHT MEDIUM HEAVY WEATHER: SUNNY CLOUDY TAMP 7 TEMPERATURE: G 45 G G G G G G G G	ITE A	DDRI	ESS:								BL	ND ID:	55-0	<u> </u>					
WEATHER: SUNNY CLOUDY (403	58-	016.	004										NA		
Note	WI	ND FR	ROM:	N	NE	E	SE	S	SW	W	NW						EAVY		
Myther Column Calum Date	٧	VEAT	HER:	SU	YNY	CLC	UDY	RA	ID)		?	TEN	IPERA	TURE:			• 0		
Date	HYDR	OLO	GY/LE	EVEL N	MEASU	REME	NTS (Nex	arest 0.01	ft)		(Product	Thickness)	(Water	Column)	(Circ		-		
										Vater	DTP-	-DTW	DTB-	DTW		Volu	me (gal)		
Salm	1	7		:		•						•			X 1		•		
METHODS: NO Submerable Pump (6) Pericative Pump (7) Objectable Baller (7) PVCTrefton Baller (7) Decicated Baller (7) Decicated Baller (7) Decicated Pump (7) Object		7		:		•									X 3				
METHODS: (A) Submerable Pump (B) Pensation Pump (C) Deposable Baler (D) PVCTerion Baler (E) Desicated Baler (F) Desicated Pump (G) Other STROUNDWATER SAMPLING DATA (if product is defected, do NOT sample) Sample Depth: (14 forest pump (G) Pump	Gal/ft = (dia /2)² x	0,163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875		
Bottle Type Date Time Method Amount & Volume mL Preservative (acces) Ice Filter pH V				de Pump (B) Peristaltic	Pump (C) (Disposable B	ailer (D) PVC	/Teflon Baile	r (E) Dedic	ated Bailer (F) Dedicated	Pump (G)	Other =					
VOA Glass	ROU	NDW	ATER	SAME	LING	DATA (f product	is detected	l, do NOT	sample)			Sampl	e Depth	:		(V if used)		
Amber Glass	Bottle	Туре	D	ate	Ti	me	Method 5	Amoun	t & Volu	me mL	Pres	ervative	[circle]	lce	Filter	pН	1		
White Poly / / : 250, 500, 1L None YES NO NA Yellow Poly / / : 250, 500, 1L H ₂ SO ₄ YES NO Green Poly / / : 250, 500, 1L NaOH YES NO Red Total Poly / / : 250, 500, 1L NaOH YES NO Red Total Poly / / : 250, 500, 1L HNO ₃ YES NO Total Bottles (include duplicate count): 1 BOTTLE TYPE (Trick ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below) VOA: Glass (6010) (60100620) (6020) (6240) (6260) (67EO) (7FH-16) (8TEX/TPH-C) MABER: Glass (PAH) (TPH-HCID) (TPH-1) (TPH-13) (GIT Gorase) RED TOTAL - Poly (ph) (Conductivity) (TO) (TSS) (600) (TURSidity) (Alcalinity) (HCO)CO) (C) (SO ₄ (NO ₃) (NO ₃) (F) VELLOW: Poly (COO) (TOO) (TOO) (TOO POL) (TOO INTERINGE) (NH) (NO)NO ₂) RED TOTAL - Poly (Na) (Sb) (Ba) (Ba) (Ca) (Cd) (Cd) (Cd) (Cd) (Pb) (Pb) (Ma) (Mh) (Ni) (Ag) (Sb) (TI) (N) (An) (No) (P) VELLOW: Poly (Coo) (TOO) (TOO ITOO ITOO ITOO ITOO (TOO ITOO ITOO			1	1		:		3	40	mi		HCI		YES	ИО		l		
White Poly	Amber	Glass	1	7	-	:			250, 5	00, 1L	(None) (HCI) (I	H₂SO₄)	YES	NO				
Yellow Poly			/			:			250, 5	00, 1L		None		YES	NO	NA			
Red Total Poty			1			<u>. </u>			250, 500, 1L None YES NO NA 250, 500, 1L H ₂ SO ₄ YES NO										
Red Total Poly		ellow Poly / / : 250, 500, 1L H ₂ SO ₄ YES NO																	
Red Diss. Poly			<u> </u>	.		:			250, 5	00, 1L		HNO ₃		YES	NO				
Solid Soli			<u> </u>			:			250, 5	00, 1L		HNO ₃		YES	YES				
Total Bottles (Include duplicate count):	_	•			1,1	:40		,	250-5	00, 1L				YES		•			
BOTTLE TYPE	<u> </u>	0					te count):	 		 -	l								
VA - Glass		80						ED PER BO	OTTLE TY	PE (Circle	applicable	or write no	on-standar	d analysis	below)				
WHITE-Poly (PA) (Conductivity) (TDS) (TSS) (BOO) (Turbidity) (Alkalinity) (HCO ₂ /CO ₃) (C) (SO ₄) (NO ₃) (NO ₃) (NO ₃) (F)		VOA - G	Glass		(8010)	(8010/8020)	(8020)	(8240) (826	30) (BTEX) (TPH-G) (BTEX/I	PH-G)			OR	[]	WA[]		
RED DISSOLVED - Pohy (As) (Sb) (Ba) (Ba) (Ca) (Cd) (Cd) (Cd) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (Y) (Ag) (Na) (Hardness) (Silica)	8 8	AMBER	- Glass		(PAH) ((TPH-HCID)	(TPH-0)	(TPH-418.1)	(Oil &Gre	250)					OR	[]	WA[]		
RED DISSOLVED - Pohy (As) (Sb) (Ba) (Ba) (Ca) (Cd) (Cd) (Cd) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (Y) (Ag) (Na) (Hardness) (Silica)	Allow 9 Tyl	WHITE	- Poly		<u> </u>		_``			····		P/CO3) (C	n) (SO ₄)	(NOT) (N	O ₂) (F)				
RED DISSOLVED - Pohy (As) (Sb) (Ba) (Ba) (Ca) (Cd) (Cd) (Cd) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (Y) (Ag) (Na) (Hardness) (Silica)	sis,	——				` 	tal PO ₄) (Total Keldahl	Nitrogen)	(MH7) (M	J-yN(J-)		 						
RED DISSOLVED - Poly (As) (Sb) (Ba) (Ba) (Ca) (Cd) (Cd) (Cd) (Fb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Rh) (Na) (Hardness) (Silica) I	Anat)		<u>-</u>	xty) (Ca) (Cd)	(Co) (C1)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(1) (7)	Zn) (Hg)	(K) (Na)				
IL p2 alass B260 WTPH-G WTPH-D extend NATER QUALITY DATA Purge Start Time: : Pump/Bailer Inlet Depth: Meas. Method Purged (gal) pH E Cond (μS) °F Temp °C Other Diss O ₂ (mg/l) Water Quality 1	`															lica)			
Meas. Method § Purged (gal) pH E Cond (μS) °F Temp °C Other Diss O₂ (mg/l) Water Quality 1 .									TPH-	Dex	tend	•					·		
1	NATE	R QU	ALIT	Y DATA	<u> </u>	Purge	Start Ti	me:	:	·									
2	Meas. Method [§] Purged (gal) pH E Cond (μS) °F Temp °C Other Diss O ₂ (mg/l) Water									/ater Qu	ality								
3	1				•						•		<u> </u>	•					
Casing) [Select A-G] [Cumulative Totals] [Circle units] [Ciarry, Color]	2										•			•					
[Casing] [Select A-G] [Cumulative Totals] [Circle units] [Ciarry, Color]	3				•		•							•					
(casual) Country vol Continuente terral	4				•		•												
(casual) Country vol Continuente terral					•						•			•	<u> </u>				
	[Casing]	(Selec								•	•								
	50.	sle	Sto	zat,	on i	المصدسا	= ala	suck s	wed	スス・	16.01	₩.							

atta Nick Garson

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

		7							Office:	(509	9) 838-1	144	Fax:	(50	9) 838	-1382
PROJE	CT N	AME:									LL ID:					
SITE A	DDR	ESS:			_					BL	ND ID:	<u>55</u>	<u>- CZ</u>			
	-		40	35B	-016	+00+	·				UP ID:					NA NA
WII	ND FR	OM:	N	NE	E	SE	S	SW	W	NW	(LIG			NUM		EAVY
W	/EAT	HER:	SU	YNY	CLC	UDY	(RA	₹		?	TEN	IPERA	TURE:	(£) 4		•c
HYDR	OI 00	3Y/I F	VFI.N	MEASU	REME	NTS (Nex	arest 0.01	rt)	-	[Product	Thickness)	(Water	Column)	(Circ	le appropri (Water C	ate units] olume x Gal/ft]
Dat	-		me		ottom		roduct		Vater	DTP-	.DTW	DTB-	DTW		Volu	me (gal)
/	7		:							-	•		•	X 1		•
1	7		:		•			,			•			X 3		•
Gal/ft = (e	dia./2)² x	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
§ METHO	OS: (A) S	ubmersib	le Pump (B) Peristaltic	Pump (C) [Disposable B	ailer (D) PVC	/Teflon Baile	er (E) Dedica	sted Bailer (F) Dedicated	Pump (G)	Other = G	don		
GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)															[√ if used]	
Bottle	Bottle Type Date Time Method ⁵ Amount & Volume mL Preservative (circle) Ice Filter pH V															1
VOA Glass / / : 3 40 ml HCl YES NO																
Amber	VOA Glass / / : 250, 500, 1L (None) (HCl) (H₂SO₄) YES NO															
Amber Glass / / : 250, 500, 1L (None) (HCI) (H₂SO₄) YES NO White Poly / / : 250, 500, 1L None YES NO NA																
Yellow	Poly	/	1		:			250, 5	00, 1L		H₂SO₄		YES	NO		
Green	Poly	1	1		:			250, 5	00, 1L		NaOH		YES	NO		
Red Tot	al Poly	1	1		:			250, 5	00, 1L		HNO ₃		YES	NO		
Red Dis	s. Poly	1	1		:			250, 5	00, 1L		HNO ₃		YES	YES		
و وه ما	2005	34	0/97	13	:45	G	1	.250, 5	:00, 1L-				YES			
0		To	otal Bottle	s (includ			1									
	80	TLET	YPE	TYPICAL	ANALYS	IS ALLOW	ED PER BO	TILE TY	PE (Circle	applicable	or write no	n-standar	d analysis			
	VOA - G	lass		(8010) (8010/8020)	(8020)	(8240) (826	хо) (втех) (TPH-G	(BTEXT	PH-G)				[]	WA (]
88	AMBER	- Glass		(PAH) (TPH-HCID)	(TPH-D)	(TPH-418.1)	(Oil &Gre	ase)						[]	WA[]
J J	WHITE	- Poly		(pH) (Cd	onductivity)	(TDS) (1	'SS) (800)	(Turbidit			• ∿co⁴) (ci) (SO ₄)	(NO ₁) (N	O ₂) (F)		
Analysis Allowed per Bottle Type	AETTON	N - Poly		(COD) (TOC) (To	tal PO ₄) (1	otal Keldahl	Nitrogen)	(HH) (M							
aty: er B	GREEN	<u>-</u>		(Cyanide)							(4.) (5.)	~ A0	7-> (4->)	00 (Na)		
₹ ~		TAL - Po					(Co) (C1) (Co) (Cu)								lica)	
			D - Poly						D ex			(29 (9) (4 (144) (144			
WATE		3 gla AINT				TPH - 0 Start Ti		;	- D W	renoc		Pump	Bailer Ir	nlet Dept	h:	
Meas.		od §		d (gal)		H	E Con	d (uS)	°F Tei	mp °C	Other	Diss C	2 (mg/l)	V	/ater Q	uality
1	Mich	100	1 419		<u> </u>	•	<u> </u>						•	<u> </u>		
2						<u> </u>			 	•			•			
3	·			•						•			•			
4						•				•	-		• _			
		-		•	-	•				•			•			
(Casing)	(Selec	t A-G)	(Cumulat	tive Totals]	L		<u></u>	_	(Circle	units]					(Clanty, C	olor]
B	low	n 6	and	ly a	مما	20	lam.	مے ن	me -	ilt	Sna		2 - 0	Da _+_	d /-	et .

below 2 sheets of visqueen assoc. w/ 2 neighboring stockpiles.

SAMPLER: John Latta

FIELD SAMPLING DATA SHEET

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

									Office:	(50	9) 838-	1144	Fax:	(50	09) 838	3-1382
PROJ	ECT N	IAME	:			_				W	ELL ID:	;				
SITE	ADDR	ESS:								BL	IND ID:	55 -	<u>C3</u>			
			4035	B-0	16.0	04					DUP ID:			-		NA
WI	ND FF	ROM:		NE	E	SE	S	sw	W	NW	(LIC	HI	ME	DIUM	Н	EAVY
٧	NEAT	HER:	SUI	VNY	CLC	YQUC	(RA	IN)		?	TE	MPERA	TURE:	(F) 4	5.	•c
דאטנ	201.0	CV/I I	E1/E1 1	IEACII	DEME	MTS /No	arest 0.01	4)		D- 4		***		[Cin	cle appropr	-
Da			ime		ottom		roduct			<u> </u>	Thickness)		-DTW	1		column x Gal/rq
	/	<u>'</u>	•	5,0						, <u>J,,</u>		1	-		VOIG	me (gal)
'			: 		<u> </u>	-	•	<u> </u>	•	-	•	 	•	X 1		<u> </u>
			48 -	0.044		0.467		0.267		0.653		4 460	400 -	X 3		•
	(dia./2) ²)		1" =	0.041	2" =	0.163	3" = ailer (D) PVC	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
									•		(F) Dedicates	T			·	[Vif used]
	GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample) Bottle Type Date Time Method Method Amount & Volume mL Preservative (circle) Ice Filter pH ✓															
	Bottle Type Date Time Method Amount & Volume mL Preservative (circle) Ice Filter pH √ VOA Glass / / : 3 40 ml HCI YES NO															
																
White	Poly				<u> </u>			250, 5	00, 1L		None		YES	NO	NA	
Yellow	/ Poly	/			:			250, 5	600, 1L		H₂SO₄		YES	NO		
Green	Poly	1	/	;				250, 5	500, 1L		NaOH		YES	NO		
Red Tot	al Poly	1	1	:				250, 5	600, 1L		HNO ₃		YES	NO		
Red Dis	s. Poly	/	7	;				250, 5	00, 1L		HNO ²		YES	YES		
602	alass	34	0/97	15	07	G	1	250, 5	00, 1L				YES			V
2	0			s (include		e count):	1				-			<u> </u>		
	ВО	TTLE T	YPE	TYPICAL	ANALYS	IS ALLOW	ED PER BO	TTLE TY	PE (Circle	applicable	or write no	n-standare	l analysis	below)		
	VOA - G	lass		(8010) (3010/8020)	(8020) (8240) (826	O) (BLEX) (TPH-G)	(BTEX	TPH-G)			OR	[]	WA[]
wed	AMBER			``	PH-HCID)	<u> </u>	(TPH-418.1)	`					_		[]	WA[]
Analysis Allowed per Bottle Type	WHITE				nductivity)		SS) (BOD)			ity) (HCC	yycoy) (ci) (SO ₄)	(NO1) (N	D) (F)		
lysis Bott	GREEN			(COD) (1 (Cyanide)	roc) (ro	≱IPO₄) (T	otal Keldahi N	(urogen)	(NH ₃) (NC)-\NO ²)						
Ana		TAL - Po	ly		(Ba) (Be)	(Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(TI) (V) (Z	In) (Hg) (K) (Na)		
	RED DIS	SOLVE) - Poly	(As) (Sb)	(Ba) (Be)	Ca) (Cd) (C	o) (Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn) (Ni) (Ag) (S	;e) (∏) (V)	(Zn) (Hg) (K) (Na) (Ha	rdness) (Sil	ica)	
	10 03						WT	H-D	ext.c.	Å						
WATE	R QU	ALIT	DATA	\	Purge	Start Tir	me:	:				Pump/l	Bailer In	let Dept	h:	
Meas.	Meth	od §	Purge	d (gal)	p	H]	E Cond	I (μS)	°F Ter	np °C	Other	Diss O	(mg/l)	W	ater Qu	ality
1																
2					•											
3			-													
4																
												•		- • • • • • • • • • • • • • • • • • • •		
[Casing]	(Select	A-G]	(Cumulatr	ve Totals)		1			(Circle	units]					(Clanty, Co	lor)
Sil	Hu a	سعاد	م) (د	,M\	حمما	S-4	1 - 1			4	0.			, ,		.

SAMPLER: John Latta

(SIGNATURE)

EM EM

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Sqite 101 Spokane, Washington 99224

		7		翼 羅				1	Office:	(509) 838-1	144	Fax:	(50	9) 838	-1382
PROJE	CT N	AME:	-								LL ID:					
SITE A	DDRE	SS:									ND ID:	<u> 55.</u>	<u>- 어</u>			
		7	0358	3-01	<i>ا</i> . حد	₩				D	UP ID:					NA
WIN	ND FR	OM:	N	NE	Ε	SE	S	(SW)	W	NW	(LIG	II	MEC	MUII	H	EAVY
W	/EATH	IER:	SUN	YNY	CLC	YQU	RA	IN _	Bree	3e ?	TEN	IPERA	TURE:		5 .	•c
HYDR	OLOG	Y/LE	VEL N	MEASU	REME	NTS (Nea	rest 0.01	ft)		[Product]	(hickness)	(Water	Column]	(Circ	le appropri (Water C	ate units] olumn x Gal/ft]
Dat	$\overline{}$		me		ottom		roduct		Vater	DTP-	DTW	DTB-	-DTW		Volu	me (gal)
1	7		:		•				•		•		•	X 1		•
1	1		:		•								,	X 3		•
Gal/ft = (d			1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
§ METHO	DS: (A) Si	pwewp	le Pump (B) Peristaltic	Pump (C) [Hsposable B	ailer (D) PVC	/Teflon Baile	er (E) Dedic	ated Bailer (F	-) Dedicated					[√ if used]
GROU	NDWA	TER	SAMP	LING I	DATA (i	f product i	s detected	i, do NOT	sample)			Sampl	e Depth	:		<u> </u>
Bottle	Bottle Type Date Time Method Amount & Volume mL Preservative [circle] Ice Filter pH V VOA Glass / / : 3 40 ml HCI YES NO															
VOA G	VOA Glass / / : 3 40 ml HCI YES NO Amber Glass / / : 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO															
Amber (Amber Glass / / : 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO															
White	Alliber Glass / /															
Yellow	Yellow Poly / / : 250, 500, 1L H₂SO₄ YES NO															
Green	Yellow Poly / / : 250, 500, 1L H₂SO₄ YES NO Green Poly / / : 250, 500, 1L NaOH YES NO															
Red Total	The same of the sa															
Red Dis	s. Poly	1	1		:			250, 5	00, 1L		HNO ₃		YES	YES		
الومح	255		0/97		:15	رس_	1	250, 5	500, 1L	<u> </u>		-	YES			
)				e duplicat			l								
]		TLET	YPE				ED PER BO					on-standar	d analysis		[]	WA[]
	VOA - GI			 	8010/8020)		(8240) (826	<u> </u>) (BTEXT	PH-0)				[]	WA[]
¥ &	AMBER WHITE			 ` 	TPH-HCID) onductivity)	(TPH-D) (TDS) (1	(TPH-418.1) (SS) (BOD)			nev) (HCO	₂ /CO ₃) (CI) (SO ₄)	(10) (N	<u>ා</u> (F)	<u> </u>	
He Te	AETTOW.						otal Keldahi			ONNO)						
Pot Bot	GREEN			(Cyanide)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		-									
Analysis Allowed per Bottle Type	RED TO	TAL - Pol	y				(Co) (Cr)									
	RED DIS	SOLVE) - Poly	(As) (Sb)			(Cr) (Cu)				(A) (II) (e)	(Zn) (Hg) (K) (Na) (Ha	rdness) (Si	lica)	
	وه ما			8260			کیا , ح	TPH-	Dey	fend	•					
WATE	R QU	TELA	DATA	<u> </u>	Purge	Start Ti		<u>:</u>	1			<u> </u>	Bailer Ir	 -		
Meas.	Meth	od §	Purge	d (gal)		H	E Con	d (μS)	°F Te	mp °C	Other	Diss O	₂ (mg/l)	V	Vater Q	uality
1				•		•				•			•			
2				•		•				•			·			
3				•	<u> </u>	•				·			•			
4						<u>. </u>				•		ļ.—	<u>· </u>			
				·	<u> </u>	•	<u> </u>		1000	•		<u> </u>	•	L	(Clanty, C	olor)
(Casing)	(Select	A-G)	(Cumulat	tive Totals)	بط.	rown 9	M-14		(Circle	e units]					(Cianty, C	ow,
So	udy	182	avel	(G	-M) b		5, W	(a f	Sew	perc	ent.	silt,	dan	م م	udi	

SAMPLER:

John Tatte

John Patta

MACO

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

	and the same								Office:	(50	9) 838-1	1144	Fax:	(50	9) 838	-1382
PROJ	ECT N	IAME								W	LL ID:					
SITE A	ADDR	ESS:								BL	IND ID:	55-	D4			-
			403	5B-0	16. a	5 4					UP ID:					NA
WI	ND FF	ROM:	N	NE	E	SE	s	(SW)	W	NW	LIG	HT	ME	MUIC	Н	EAVY
٧	VEAT	HER:	SUI	YNY	CLC	YQU	RA	IN	Bree	2 ?	TEN	IPERA	TURE:	(E)4	5.	•c
HYDE	01.0	GY/I I	EVE! A	/FASU	REME	NTS (Ne	arest 0.01	6)		/	Thickness)	Water	Columni	(Cin	le appropri	ate units] clumn x Gal/ft]
Da			ime		ottom		roduct				-DTW		DTW			me (gal)
7	1		:	<u> </u>				<u></u>		<u></u>	•	<u> </u>	•	X 1		(34.)
1	1		:		•		•		.		•			X 3		•
Gal/ft = ((dia./2) ² :	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
§ METHO	OS: (A) S	Submersil	bie Pump (E) Peristaltic	Pump (C) [Xsposable B	ailer (D) PVC	/Teflon Bail	er (E) Dedic	ated Bailer (F) Dedicated	Pump (G)	Other = (طعدر		-
GROU	GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample) Sample Depth: Viriused															
Bottle	Bottle Type Date Time Method ⁵ Amount & Volume mL Preservative [circle] Ice Filter pH V															
VOA	VOA Glass / / : 3 40 ml HCI YES NO															
Amber	VOA Glass / / : 3 40 ml HCl YES NO Amber Glass / / : 250, 500, 1L (None) (HCl) (H₂SO₄) YES NO															
White	Poly	1	1		:			250, 5	500, 1L		None		YES	NO	NA	
Yellow	Poly	1	1		:		· i	250, 5	500, 1L		H₂SO₄	-	YES	NO		
Green	Poly	1	1		:			250, 5	500, 1L		NaOH		YES	NO		
Red Tot	al Poly	1	1		:			250, 5	500, 1L		HNO ₃		YES	NO		
Red Dis	s. Poly	1	. /					250, 5	500, 1L		HNO3		YES	YES		
16 BG	lass	3/	10/97	16	: 4 0	J	1	250, 5	500, 1L				YES			
) 	To	otal Bottle	s (includ	e duplicat	e count):	i									
	ВС	TILE	YPE	TYPICAL	ANALYS	IS ALLOW	ED PER BO	TTLE TY	PE (Circle	applicable	or write no	n-standar	d analysis	below)		
	VOA - G			<u> </u>	8010/8020)	<u> </u>	8240) (826	<u> </u>	<u> </u>	(BTEX/T	PH-G)				[]	WA[]
ype	AMBER			· · · ·	PH-HCID)	<u> </u>	(TPH-418.1) SS) (BOD)			** 4400	усо _з) (ст	(SO ₄)	(NO ₃) (NK	OR (D ₂) (F)	1	WA []
Analysis Allowed per Bottle Type		W - Poly		<u> </u>	inductivity) TOC) (Tot	````	otal Keldahi N)))))	yccs) (ci)	(504)	(1403) (144	- U	-	
alysia r Bol	GREEN			(Cyanide)					• • •			<u> </u>				
§ 8	RED TO	TAL - Po	ty				(Co) (Cr)									
,		SSOLVE	D - Poly				o) (Cr) (Cu)		_	Ni) (Ag) (S	•) (TT) (V) (Zn) (Hg) (H	(Na) (Ha	rdness) (Sil	ica)	
MATE	D CIE		r DATA	826		TPH-		JTPH	<u>-De</u>	<u> </u>		Bump/	Bailer In	lot Dont	h:	
						Start Ti		· · · · ·	°⊏ To-	°C	Othor					lalib.
Meas.	Meth	100 3	Purge	d (gal)	p	Η	E Cond	ι (μδ)	°F Ter	np C j	Other	Diss O	2 (1119/1)		ater Qu	lanty
2				•		•			•			•	'			
3						•			•			•	,			
4				•		•	_						<u>'</u>			
_				•					•				<u>' </u>			
(Casing)	(Selec	t A-G]	(Cumulati	ve Totals]			<u>-</u> .		(Circle	units)			l		(Clarity, Co	Nor]
F	ine	<i>C</i> ~		· 0	المار ا	04-	.01	Mr \	/	~ 0	. - ^	0	+ -	٠ ٨٠٠	_(da
1 '	Jan 40	سرال	udu e. (χ > ιι'	10 7	yia	ve~ (راسار	w/	" B	a p	عدولا	~ 1 9	3	~ , ·	damp

SAMPLER:

John Letta

John Latta (SIGNATURE)

SAMPLER: John Latta
(PRINTED NAME)

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

		7		麗 羅					Office:	(509	9) 838-1	144	Fax:	(50	9) 838	-1382
PROJE	CT N	AME:									ELL ID:					
SITE A	DDRE	ss:									IND ID:	ජා -	<u>E2</u>			
			403	5 <u>8</u> -	016	.00	ł			D	UP ID:				_	NA
WIN	D FR	ом:Г	N	NE	Ε	SE	s	sw	W	NW	(LIG		MED	ابــــــا	HE	EAVY
W	EATH	IER:[SUN	INY	CLC	UDY	(REA	IN)		?	TEN	IPERA	TURE:		5 ·	• C
HYDRO	oLog	Y/LE	VEL N	IEASUI	REME	NTS (Nea	rest 0.01	ft)		(Product	Thickness)	[Water	Column)	į Circ		olumn x Gal/ft]
Date		_	me	DT-Bo			oduct	DT-V	Vater	DTP-	-DTW	DTB-	DTW		Volu	me (gai)
1	7								•		•			X 1		•
1	7	;	:								•			X 3		•
Gal/ft = (d	ia/2) ² x	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
§ METHOD	IS: (A) Su	thmersible	e Pump (B) Peristaltic	Pump (C) [Xisposable Be	iller (D) PVC	Teflon Baile	r (E) Dedic	ated Bailer (F) Dedicated	Pump (G) (Other = G	nab		(√if used)
GROU	NDWA	TER	SAMP	LING [DATA (f product i	s detected	, do NOT	sample)			Sampl	e Depth:	:		
Bottle 1	30ttle Type Date Time Method Amount & Volume True VES NO															√
VOA G	VOA Glass / / : 3 40 ml HCI YES NO															
Amber (Amber Glass / / : 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO															
White	ber Glass															
Yellow	ite Poly															
Green	Poly	1	1		 			250, 5	00, 1L		NaOH		YES	NO		
Red Tota	 	$\overline{}$	1		:			250, 5	00, 1L		HNO ₃		YES	МО		
Red Diss		1	1		:			250, 5	00, 1L		HNO ₃		YES	YES		
		3//	0/97	13	:15_	6	1	250, 5	00, 1L				YES			
1603	gur			s (include			(
	ВО	TLET				IS ALLOW	ED PER BO	TTLE TY	PE (Circle	applicable	or write n	on-standar	d analysis	below)		
	VOA - G	lass		(8010) (8010/8020)	(8020) (8240) (826	90) (BTEX) (TPH-G) (BTEX/I	TPH-G)				[]	WA ()
Analysis Allowed per Bottle Type	AMBER			 ` ` `	TPH-HCID)	(TPH-0)	(TPH-418.1)			-is-A 04000	0×CO3) (C	n (SO ₄)	(NO ₃) (N	OR O) (F)	[]	WA[]
A Ho	WHITE -			-	roc) (To		SS) (BOD otal Keldahi		" `` 	OyNO)	OgCOS) (C	, (304)	(non tr			
ysls Bott	YELLOV	<u>_</u>		(COD) ((Cyanide)	100) (10		OGE (COLORINA		VIII VI							
Per P		TAL - Pol	ly	(As) (Sb)	(Ba) (Be) (Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(TI) (V)	Zn) (Hg) ((K) (Na)		
	RED DIS	SSOLVEI	- Poly	(As) (Sb)		(Ca) (Cd) (C					Se) (TT) (V)	(Zn) (Hg) (K) (Na) (Ha	rdness) (Si	lica)	
		3.9		826		WTP		WTPY	-D a	**+	r	Dump	Bailer Ir	alot Den	th:	
WATE					— <u> </u>	Start Ti		:	1 ec =		Other	ļ			Vater Q	
Meas.	Meth	od §	Purge	d (gal)		oH	E Con	d (μS)	T Te	mp °C	Other	DISS C	2 (mg/l)	<u> </u>	valer Q	uanty
1				•		<u>. </u>			<u> </u>	•	 		<u></u>			
2						<u>·</u>				<u>•</u>	<u> </u>	 	<u>. </u>	ļ		
3				•		•			<u> </u>	•		ļ <u>.</u>	<u>. </u>			
4				<u>. </u>	<u> </u>	•			ļ	•		ļ	<u></u>			
				•		<u></u>			TC:=-1	e A ((mphr)	L	<u>]</u>	<u> </u>	<u> </u>	(Clarity, C	olori
(Casing)	Selection (Selection)	ty (Cumula 2 2 0 - 6	tive Totals)	1 Ro	Brund Dhite	ed a	dan have Le.	ey. Circle	o units)	2"-3	"dia	(In	aba	ndo	ned

1 8

FIELD SAMPLING DATA SHEET

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

office: (509) 838-1144

Fax:

(509) 838-1382

/				==			-		Office:	(509	3) 838-1	144	rax:	(50	9) 030	-1382
PROJ	ECT N	IAME:	:							WE	ELL ID:	_				
SITE A	DDRI	ESS:								BL	IND ID:	53.	E3			
			403	350 -	016.	004					UP ID:					NA
WII	ND FR	ROM:	N	NE	Ε	SE	S	sw	W	NW	(LIG	HT	MEC	NUM	H	EAVY
٧	VEATI	HER:	SUI	YNY	CLC	YQU	(RA	.IM		?	TEN	IPERA	TURE:	(F) 4	5.	•c
LIVDE		~V/I E	7/E1 B	IE A CII	DEME	NTS (No	arest 0.01	6\		(Droduct)	Thickness)	Water	Column)	(Circ	ie appropri	ete units) olumn x Gal/ft)
Da			me		ottom		roduct		Vater		-DTW	T	DTW			me (gal)
/	,						-							X 1		4
1	-,		<u>· </u>		<u> </u>		•				-			X 3		
				2044		0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4,080	12" =	5.875
Gal/ft = (1" =	0.041	2 =	0.163	aler (D) PVC		<u></u>					طمر	12 -	3.073
										- COURT	1) 565/64/65		e Depth			[Vit used]
		T					is detected			Desc		<u> </u>	г. —	Filter	<u>Б</u> Ц	1
Bottle	Туре	D	ate	Til	me	Method ⁵				Pres	ervative	(circle)	Ice		pН	<u> </u>
VOA Glass / / : 3 40 ml HCl YES NO Amber Glass / / : 250, 500, 1L (None) (HCl) (H ₂ SO ₄) YES NO																
Alliber Glass / /																
veine Poly 7 7														NA		
Vellow Poly / : 250, 500, 1L H₂SO₄ YES NO																
Green	Poly	1	1		:			250, 5	00, 1L		NaOH		YES	NO		
Red Tot	al Poly	7	1		:			250, 5	00, 1L		HNO ₃		YES	NO		
Red Dis		-	-		:			250, 5	00, 1L		HNO ₃		YES	YES		
		<u> </u>	· /	100	-	6-	<u> </u>		00, 1L				YES			レ
مو ما	KO 45		10/57	s (includ	: 10	e count):	-			L			L	<u> </u>		
	- -	OTTLE T					ED PER BO	TTI E TY	PE (Circle	anniicable	or write or	n-standar	d analysis	below)	_	
	VOA - C		IFE		8010/8020)		(8240) (826) (BTEX/I					[]	WA[]
, a		- Glass		 ` ` ` 	TPH-HCID)	(TPH-O)	(TPH-418.1)		1256)	<u> · · · · · · · · · · · · · · · · · ·</u>			•	OR	[]	WA[]
Analysis Allowed per Bottle Type	WHITE	- Poly		(pH) (C	onductivity)	(TDS) (rss) (BOO)	(Turbidit	y) (Alkalir	ity) (HCC	PACO3) (CI) (SO ₄)	(NO ₃) (N	O) (F)		
Is A	AETTO	W - Poly		(COD) ((TOC) (To	talPO ₄) (1	rotal Keldahi I	Nitrogen)	(NH ³) (N	O2/NO2)				.		
ahys er Bo	GREEN	l - Poly		(Cyanide)											-	
₹ &		OTAL - Po					(Co) (Cr)								ion)	
	-	SSOLVE					20) (Cr) (Cu)					(ZII) (NY) (y (144) (154	idites) (or	104)	
MATE		2 98c	Y DATA	83		Start Ti	ک , لا	OIPN	<u> </u>	s, en	<u> </u>	Pump	Bailer Ir	ilet Depi	h:	
					 		E Con	4 (0.6)	°F To	mp °C	Other	<u> </u>	2 (mg/l)		/ater Q	uality
Meas.	Metr	nod [§]	Furge	d (gal)	<u> </u>	H	COII	α (μο)	1 10		041101	1				
1	ļ			<u>. </u>		•	ļ			•		 	•			
2	<u> </u>			•	ļ—	<u> </u>	ļ			•		 	•			
3	<u> </u>			•		•				•		<u> </u>	<u> </u>	ļ		
4				•	<u> </u>	•	<u> </u>			•		ļ <u>.</u>	•			
				•		•			L	•		<u> </u>		L	(Clare)	nlad.
[Casing]	(Selec	# A-G}	(Cumulat	tive Totals]				4	•	units]	. ,				(Clanty, C	
V	مهود	æn	- ق	事7"	ba	s . S	amp	le c	olle	ted	belo	w.	Typ	نحما	sell	y grav
	V		•		ں		•						Ω,			,

SAMPLER:

John Latta

(SIPMATURE)

FIELD SAMPLING DATA SHEET

EMCON

W 7106 Will D. Alton Lane, Sqite 101 Spokane, Washington 99224

								.	Office:	(509	9) 838-1	144	Fax:	(50	9) 838	-1382		
PROJ	ECT N	IAME								WE	LL ID:							
SITE	ADDR	ESS:								BL	ND ID:	55	-E4					
			4035	18-01	0.00 4	r					UP ID:					NA_		
WI	ND FF	ROM:	N	NE	ш	SE	S	sw	W	NW	LIGHT		MEDIUM		HEAVY			
٧	VEAT	HER:	SÚI	YNY	CLC	YQU	RA	IN		? TEMPERA			TURE:		t0. ·c			
HYDF	OLO	GY/LE	EVEL	/EASU	REME	NTS (Nes	arest 0.01		[Product Thickness] (Water C			Column)	(Circ	cle appropriate units) [Water Column x Gal/ft]				
Date Time					DT-Bottom		roduct	DT-Water		DTP-DTW		DTB-DTW			Volu	me (gal)		
/ / :			:	•		•		•		•				X 1		•		
/ / :					•	•		•				X 3		•				
Gal/ft =	(dia /2) ² x	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875		
§ METHO	DS: (A) S	ubmersit	ole Pump (E) Peristaltic	Pump (C) [deposable B	ailer (D) PVC	Meflon Baile	er (E) Dedic	ated Bailer (F) Dedicated	Pump (G) (Other = G	rab				
GROU	NDW	ATER	SAMF	LING	DATA (i	if product i	s detected	, do NOT	sample)			Sampl	e Depth	:		[4 if used]		
Bottle	Туре	ם	ate	Time		Method 5	Amount	& Volume mL		Pres	Preservative (circle)		Ice	Filter	pН	√		
VOA	Glass	1	1	:			3	40 mi		НСІ			YES	NO				
Amber	Glass	1 1		:				250, 5	00, 1L	(None)	(None) (HCl) (H₂SO₄)			NO				
White	Poly	11						250, 5	00, 1L		None		YES	NO	NA			
Yellow	Poly	1	1	:				250, 500, 1L		H₂SO₄		YES	NO					
Green	Poly	1		:				250, 500, 1L			NaOH		YES	NO				
Red Tot	al Poly	1	1					250, 5	00, 1L		HNO		YES	NO				
Red Dis	s. Poly	/	1					250, 5	00, 1L		HNO₃		YES	YES				
16 030	2055	31	11/97	17	: 35	6]	250, 5	00, 1L				YES					
9 (5	To	otal Bottle	s (include		e count):	-	_										
	ВО	TTLET	YPE	TYPICAL	ANALYS	IS ALLOW	ED PER BO	TTLETY	PE (Circle	applicable	or write no	n-standar	d analysis	below)				
Ì	VOA - G	ilass		(8010) (8010/8020)	(8020) (8240) (826			(BTEX/T								
wed		R - Glass													()	WA []		
Allo Te T	VELLOV				(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkallinity) (HCO ₂ /CO ₃) (CJ) (SO ₄) (NO ₃) (NO ₃) (F) (COD) (TOC) (Total PO ₄) (Total Keldahi Nitrogen) (NH ₃) (NO ₂ /NO ₂)													
Analysis Allowed per Bottle Type	GREEN			(Cyanide)	100/ (10	2 / 54/ (1			VIII.	-,2		-		- *				
Per Per	RED TO	TAL - Po	ly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Cd) (Cd) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (TI) (V) (Zn) (Hg) (K) (Na)														
		SSOLVE		(As) (Sb)			(Cr) (Cu)				n	Zn) (Hg) (h	Q (Na) (Ha	rdness) (Sil	ica)			
	16 03			826			σ,ω Τ	PH-D	2xte	ended	<u></u>	5	O - 11 1 -	lat Dast				
	WATER QUALITY DATA						05 T.		 		Bailer Inlet Dep		n: Vater Quality					
Meas.	Meth	ethod [§] Purged (gal)		p	H	E Cond	1 (μδ)	r iei	mp C	np °C Other		Diss O ₂ (mg/l)		alei Qu	lailty			
1				•		•			•	•		•						
2			<u> </u>		·													
3			·					•				•						
4				·	· ·				•									
(Casing)	(Select	t A-GI	(Cumulati	ve Totals		•		i	[Circle	units)			•		(Clarity, Co	lorj		
					udy esigle	grav Leu S	el (G heet)	3M), land	•	•	er cent	silt stack	. So kpile	empl	•	Dected		
											1!							

SAMPLER: John Latta
(PRINTED NAME)

(SIGNATURE)

FIELD SAMPLING DATA SHEET

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

1								Office:	(509	3) 838-1	144	Fax:	(50)9) 83 <u>8</u>	-1382		
PROJE	CT NA	ME:							W	ELL ID:							
SITE ADDRESS: BLIND ID: 55 - EG																	
	-	40	35 8 -	ا، حاات	004					UP ID:	<u>5</u> 5-	. Flo			NA		
WII	ND FRO	M: N	NE	E	SE	(s)	sw	W	NW	LIG	HT	MEC			EAVY		
V	/EATHE	R: <u>র</u> ্ডা	KNN	CLC	YOU	RA	IN.		?	TEM	IPERA	TURE:			• c		
HYDR	OLOGY	/LEVEL	MEASU	REME	NTS (Nex	arest 0.01	ft)		(Product	Thickness]	(Water	Column)	(Cin		-		
Da		Time		ottom		roduct		Vater	DTP	-DTW	DTB-	DTW		Volu	me (gal)		
1	/	:				•				•		•	X 1		•		
1	1	•				•		•					X 3		•		
Gal/ft = $(dia J2)^2 \times 0.163$ 1" = 0.041 2" = 0.163 3" = 0.367 4" = 0.653 6" = 1.469 10" = 4.080 12" = 5.875												5.875					
5 METHODS: (A) Submersuble Pump (B) Peristatitic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other = G																	
GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample) Sample Depth:													[V if used]				
									1								
VOA	Blass	1 1		:		3	40	ml		HCI		YES	NO				
Amber	Glass	1 1		:			250, 5	500, 1L	(None) (HCl) (H ₂ SO ₄)			YES	NO				
White	Poly	1 1		:			WELL ID: BLIND ID: SS - EC NA SW W NW LIGHT MEDIUM HEAVY TEMPERATURE: S S S R) Product Thickness (Water Column) (Water Column x Gaura) DT-Water DTP-DTW DTB-DTW Volume (gal)										
Yellow Poly		1 1	, ,				250, 5	00, 1L		H₂SO₄		YES	NO				
Green Poly / /			:			250, 5	500, 1L		NaOH		YES	NO					
Red Tot	al Poly	1 1		:			250, 5	500, 1L		HNO₃		YES	NO				
Red Dis	s. Poly	1 1	250, 500, 1L HNO ₃ YES NO 15:20 250, 500, 1L HNO ₃ YES YES 7 70:00 40 YES YES														
10020	50 DISS. FULL 17 75.28									~							
16 2 alas 3 Total Bottles (include duplicate count): 17 x x 5 250, 500, 1L YES L																	
		LE TYPE	TYPICAL	LANALYS	IS ALLOW	ED PER BO	TTLE TY	PE (Circle	applicable	or write no	n-standar	d analysis	below)		<u> </u>		
wed/	AMBER - G		- ` - ` -	(All three) (All the three t													
Analysis Allowed per Bottle Type	WHITE - Po			onductivity)		(BOD)		" ' · · · · · · · · · · · · · · · · · · 		9CO3) (CI	(504)	(1401) (141	O1) (F)				
/sls Bott	GREEN - P			(TOC)	tal PO ₄) (T	Otal Keldalii I	Midođeni	(IAID) (IA	Jy1102J								
per per	RED TOTAL		(Cyanide)	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cl) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (TI) (V) (Zn) (Hg) (K) (Na)													
		LVED - Poly												lica)			
	110 22 9	1655	8260	, WT	P1+-6	WIPH	-Dex	tend.									
WATE		ITY DA	ГА	Purge	Start Ti	me:	:				Pump/	Bailer Ir	ilet Dep	th:			
Meas.	Method	§ Purg	jed (gal)		Н	E Con	d (μS)	°F Te	mp °C	Other	Diss O	2 (mg/l)	M	/ater Qu	ıality		
1			•		•				•			•					
2			•		•				•								
3			•						•								
4	4		•	•					•								
			•			<u> </u> 			•		<u> </u>	•		(Cla-b) C	lad		
[Casing]	(Select A-	•	lative Totals]					•	-					-			
Co	llecte	da	duplie	ate	Sam	Sto E	alvel	ed F	-60	at 15	20	Bro	ron 9	gray			
Gr	ndu	910	0 (0)	٠ الد	tt	f	- · - م م ه د د	` - اجرو	silt.	Ga	vel f	n to	coar	, se 4.	in		
roi	mde	1 40 Si	desour	ded	60%	fine	to ca	well .	surcil	25%	, dall	up to	es such	- moi	<i>o</i> 7 .		
SAMP	LER:	John	Latt		• •	υ			10	hunk	att.	_					
	_	RINTED NAM						•	(SIGNATI	JRE) V							

(PRINTED NAME)

FIELD SAMPLING DATA SHEET

DEMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

7		y	-				- 144			Office:) 838-1	144	Fax:	(50	9) 030-	1382
PROJE	CT N	AME:									WE	LL ID:					· · · · · · · · · · · · · · · · · · ·
SITE ADDRESS: BLIND ID: S5-F5																	
40358 - C16 OCT DUPID: NA																	
Wil	ND FR	OM:	N	NE	Ε	SE		S SW		W	NW LIG		HT ME		NUM HEAVY		AVY
V	/EATI	HER:	SUN	INY	CLC	CLOUDY		RAIN		Win	Lindy & T		MPERATURE:		ゆき. '		•c
		L	7/51 1/	EASII	DEME	NTS (Na	ract (1 01 8			\mathcal{O}	[hickness]	Water	Column)	(Circ	le appropria (Water Co	ite units) slumn x Gal/ftj
					DT-Bottom DT				DT-W	/ater		DTW	DTB-DTW			Volui	ne (gal)
Date Time				<u> </u>				+									
							-							X 1 X 3			
/ / :		2044	~ _	0.453			0.257	/ /* -	0.653	6" = 1.469		10" =	4.080	12" =	5.875		
Gavit = (dia/2) x 0.163 1 = 0.041 2 = 0.160																	
§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Terifon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other = (900 b) [Vif used] [Vif used]																	
												ervative	<u> </u>	lce	Filter	pН	1
Bottle	Туре	D:	ate	Tit	ne	Method ³						(arcie)			PII	•	
VOA	Glass	/			<u> </u>		3		40 ml		HCI			YES	NO		
Amber	Glass	/	1	:				_	250, 500, 1L		(None) (HCI) (H ₂ SO ₄)			YES	NO		
White	Poly	1	1	:					250, 500, 1L		None			YES	NO	NA	
Yellow	Poly	/	7		:			250, 5		00, 1L	H₂SO₄			YES	NO		
Green	Poly	1	1	:					250, 500, 1L			NaOH		YES	NO		
Red Total Poly		7	1	:					250, 500, 1L		HNO₃		YES	NO			
Red Diss. Poly		7	1	:			-		250, 500, 1L		HNO ₃		YES	YES			
6. 0 -1		2/97	2	:40	G	-	250		00, 1L				YES				
1602 g	<u> 155 .</u>						1			_	<u> </u>						
	BC	TILET		s (Include duplicate count): TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)													
	VOA - Glass			8010/8020)		(8240)	(8260								[]	WA []	
و و	AMBER	AMBER - Glass		(PAH) (TPH-HCID) (TPH-D) (TPH-418.1) (Oil &Grease) OR										(1	WA (]		
Mol. Ty	WHITE	WHITE - Poly		(pH) (C	onductivity)	(TDS) (1	SS)	(BOD)	(Turbidit			PACO?) (CI	(SO ₄)	(NO1) (N	10 ₂) (F)		
Analysis Allowed per Bottle Type	YELLOW - Poly			(COD) (TOC) (Total PO4) (Total Keldahl Nitrogen) (NHs) (NO3/NO2)													
naty: er B		GREEN - Poly			(Cyanide) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Cd) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (TI) (V) (Zn) (Hg) (K) (Na)												
Α ·		SSOLVEI		(As) (Sb) (Ba) (Be) (Ca) (Cd) (Cd) (Cd) (Cd) (Fe) (Fe) (Mg) (Mn) (Ni) (Ag) (Se) (TI) (Y) (Ze) (Ng) (N) (Na) (Hardness) (Silica)													
		z oslo				TPH-C											
WATE			DAT			Start Ti			:	,			Pump	Bailer I	nlet Dep	th:	
Meas.				d (gal)				Cond	i (μS)	°F Te	mp °C	Other Diss O		$O_2(mg/l)$ V		Water Quality	
					•	Ī				•							
1				 			<u> </u>			•							
2					•	 			· -								
3				<u>-</u>	 								 		 		
4			<u> </u>	<u> </u>	1	<u>. </u>	-				<u>. </u>	ļ <u>-</u>		-	-		
(Carrent	18-1-	ct A-G]	Cumula	tive Totals)	<u> </u>	•	L			[Circl	e units]	<u> </u>	L	•	1	(Clanty, C	olor]
(Casing)			•		0 /	اد. ٠		n·		•	•	^	n				
G,	ray	gai	idy	grang	ek ((۱ (۲ ۶ د	لصف	لااسر	n to	fer	e sa	nd,	fine	: to	medi	im 1	ounded Slocks Aphaltic
O (yrav	el,	dani	φ·.	Sau	uple	cot	lle c	ted	bene	eath 1	sile 's	y br	oker	1 cina	ler k	lock
9	žerl'	bene	يعالد	cend	er bl	ocks	æn	حل	abe	v &	<u> </u>	mysle	. میں	stain	ed on	nd a	phaltic

SAMPLER: John Lada (PRINTED NAME)

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washingt

on	99224	
_		

									Office:	(509	9) 838-1	144	Fax:	(50	9) 838	-1382
PROJE	CT N	AME:									ELL ID:					
SITE A	DDRI	ESS:						. —-		BL	IND ID:	55	-62			
		403	58 -	06.0	04						UP ID:					NA
WII	ND FR	OM:	N	NE	ш	SE	S	sw	W	NW	LIG			MUIC		EAVY
W	/EATI	HER:	SU	YNY	CLC	YQU	(RA	IN)		?	TEN	IPERA	TURE:		15.	•c
HYDR	OLO	GY/LE	VEL N	MEASU	REME	NTS (Ne	rest 0.01	ft)		(Product	Thickness)	(Water	Column)	, Lunc	le appropri (Water C	olumn x Gal/ft
Dat			me		ottom		roduct	_	Vater	DTP-	DTW	DTB-	DTW		Volu	me (gal)
_	1		:		,		•		•		•		•	X 1		•
1	1		:				•		•	_	•			X 3		•
Gal/ft = (dia./2)² x	0.163	1" =	0.041	2" =	0.163	3* =	0.367	4" =	0.653	6" =	1.469	10* =	4.080	12" =	5.875
§ METHO	DS: (A) S	ubmersib	le Pump (B) Peristaltic	Pump (C) (Xsposable B	ailer (D) PVC	/Teflon Baild	r (E) Dedic	ated Bailer (F) Dedicated	Pump (G) (Other = G	طمم		
GROU	NDW	ATER	SAME	LING I	DATA (f product	is detected	l, do NOT	sample)			Sampl	e Depth	: 		[Vif used]
Bottle	Sottle Type Date Time Method Amount & Volume mL Preservative (circle) Ice Filter pH VOA Glass / / : 3 40 ml HCI YES NO															
VOA C	VOA Glass / / : 3 40 ml HCI YES NO Amber Glass / / : 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO															
Amber	VOA Glass / / : 3 40 ml HCI YES NO Amber Glass / / : 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO															
White	Amber Glass / / : 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO White Poly / / : 250, 500, 1L None YES NO NA															
Yellow	White Poly / / : 250, 500, 1L None YES NO NA Yellow Poly / / : 250, 500, 1L H ₂ SO ₄ YES NO															
Green	White Poly / / : 250, 500, 1L None YES NO NA															
Red Tot	al Poly	1	1		:			250, 5	00, 1L		HNO₃		YES	NO		
Red Dis	s. Poly	1	1		:			250, 5	00, 1L		HNO ₃		YES	YES		
المحادا	910 95	3/	0/97	/2	:57	Gro	ا ط	250, 5	00, 1L				YES			/
0	رعجار			s (includ			1									
	BC	TLET					ED PER BO	TTLE TY	PE (Circle	applicable	or write no	n-standar	d analysis	below)		
	VOA - G	1255		(8010) (8010/8020)	(8020)	(8240) (826	<u> </u>) (BTEX/I	PH-G)				[]	WA (]
wed.	AMBER			 ` `	TPH-HCID)	(TPH-D)	(TPH-418.1)				PACO3) (CI) (SO ₄)	(tON)	OR O ₂) (F)	[]	WA (]
ysis Allowed Bottle Type	AETTO			, , , ,	onductivity) TOC) (To	_ <u>``</u>	rss) (BOD rotal Keldahi			Dy/NO ₂)	, (CO)	, (304)	(10) (11	- · · ·	· · ·	
Analysis Allowed per Bottle Type	GREEN			(Cyanide)	100, (.0				<u> </u>							
Anal	RED TO	TAL - Pol	ly .				(Co) (C1)									
		SSOLVE					20) (C1) (Cu)				(Λ) (Π) (∀)	(Zn) (Hg) (1	() (Na) (Ha	rdness) (Si	lica)	
		<u>z %</u>					<u>ه. س</u>	TPH-	D ex	Tena	•	Pump/	Bailer Ir	ilet Dept		
WATE						Start Ti	1		•E To	mp °C	Other	<u> </u>	2 (mg/l)		/ater Qt	ıality
Meas.	Meth	nod [§]	Purge	d (gal)	<u> </u>	H	E Con	α (μο)	°F Te	mp C	Other	Diss	2(1119/1)		rater at	
1				·		-				·			•			
2				<u>. </u>		•				•		<u>. </u>	•			
3				<u> </u>		<u>·</u>			<u> </u>	•			•		 	
4				<u> </u>						•		<u> </u>	•			
Casinal	(0.4)	14.61	Cumula	tive Totals)		•	<u> </u>		Circle	• units]		<u> </u>	•		[Clanty, Co	olor)
(Casing)		: A-G) 			ame	ted i	., dan Zrau	el.	•	•	3" d	la, a	u tre	rce a	•	sand.
(1)	آ م م	barr	done	a R	RR	-0-h),)		ı			,		Ĺ		
	_		_				1									

EMCC

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

office:	(509)) 838-	114
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Fax:

(509) 838-1382

									Office.	(500	7) 000-1	177	1 4.		0,000	
PROJE	CT N	AME:									LL ID:					
SITE A	DDR	ESS:									ND ID:	<u>55-0</u>	-3			
			403	58 -	<u>، ماد</u>	201					UP ID:					NA
WI	ID FR	OM:	N	NE	E	SE	S	sw	W	NW	(LIG		MEC			EAVY
W	EATI	HER:	SU	YMY	CLC	VDY	(RA	IN)		?	TEN	IPERA	TURE:		5 ·	° C
HYDR	OLO	GY/LE	EVEL N	MEASU	REME	NTS (Nea	arest 0.01	ft)		[Product	[hickness]	(Water	Column]			olumn x Gal/ft
Dat			me		ottom		roduct	L .	Vater	DTP-	WTO	DTB-	DTW		Volu	me (gai)
1	1		:		•		•		•		•			X 1		•
1	1	-	:		•		•							X 3		•
Gal/ft = (1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
							ailer (D) PVC			ated Bailer (F) Dedicated			map.		(√ifused)
GROU	NDW	ATER	SAMP	LING	DATA (is detected					<u> </u>	e Depth			
Bottle	Туре	Q	ate	Ti	me	Method ⁵	Amoun	t & Volu	me mL	Pres	ervative	(circle)	Ice	Filter	pН	√
VOA G	VOA Glass / / : 3 40 ml HCI YES NO Amber Glass / / : 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO White Poly / / : 250, 500, 1L None YES NO NA															
Amber	Amber Glass / / : 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO White Poly / / : 250, 500, 1L None YES NO NA															
White	White Poly / : 250, 500, 1L None YES NO NA Yellow Poly / : 250, 500, 1L H ₂ SO ₄ YES NO															
Yellow	White Poly 7 7 . 200, 600, 12 Hold															
Green	Yellow Poly / / : 250, 500, 1L H ₂ SO ₄ YES NO Green Poly / / : 250, 500, 1L NaOH YES NO															
Red Tot	Yellow Poly / : 250, 500, 1L H ₂ SO ₄ YES NO Green Poly / : 250, 500, 1L NaOH YES NO															
Red Dis	s. Poly	1	1		:			250, 5	00, 1L		HNO ₃		YES	YES		
340	7	3/	10/97	15	:15	G		250, 5	00, 1L				YES			~
1603	glas	5 To	otal Bottle			te count):	1									
	ВС	TTLE T	YPE				ED PER BO					on-standar	d analysis		<u> </u>	WA[]
_	VOA - C				8010/8020)	(8020) (TPH-D)	(8240) (826 (TPH-418.1)) (втехл	PH-G)		<u>-</u>		[]	WA[]
Analysis Allowed per Bottle Type	WHITE	- Glass		 ` 	TPH-HCID) onductivity)		rss) (800)			nity) (HCC	PACO3) (CI) (SO ₄)	(NO ₃) (N	O ₂) (F)		
s Ali		W - Poly		 ` ` `		tal PO ₄) (Total Keldahi	Nitrogen)	(vHv) (v	ONNO)						
atysi er Bo	GREEN	- Poly		(Cyanide)												
Anat		TAL - Po					(Co) (Cr)								lica)	
		SSOLVE					20) (CH) (CU)		TPH-		∞) (11) (v)	(Zri) (mg) (i	7 (144) (114			
		g ala	2 .55 Y DATA	826		Start Ti		, w	C FI			Pump/	Bailer Ir	let Dep	th:	
Meas.		nod §		d (gal))H	E Con	d (uS)	°F Te	mp °C	Other	Diss O	₂ (mg/l)	V	Vater Qu	uality
1	Meti	100	i dige	, u (gui)	<u> </u>	•		- ()/		•			•			
2				<u>. </u>		` 				•						
3				<u> </u>	-	<u>·</u>				<u> </u>						
4			_			<u>· </u>	 			•						
				<u> </u>		<u>. </u>		•		•			•			
(Casing)	(Selec	t A-G]	(Cumulai	tive Totals]	<u> </u>	·	<u> </u>		(Circle	unds)	·	·			(Clanty, Co	okor]
)a	. سالم	0404	28	(()	\ ,	_		A		_	. 1				<i>c</i> ·
•		(d)	7		COM), 124	own	, a	lew	-par	cent	sell	=, de	مسع	, we	Lein.
								1	V					•		

SAMPLER:

Latta

(SIGNATURE)

EMCC

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

									Office:	(509) 838-1	144	Fax:	(50	9) 838	-1382
PROJE	CT N	AME:								WE	LL ID:					
SITE A										BLI	ND ID:	55	- ربا			
			40356	3 - 016	.00	4				D	UP ID:					NA
WII	ND FR		N	NE	Ε	SE	S	SW	W	NW	LIG		MED		HE	EAVY
V	/EAT	HER:	SUN	YNY	CLC	YQUO	RA	IN		7	TEM	IPERA	TURE:		•	• C
HYDR	OLOG	SY/LE	VEL N	MEASU	REME	NTS (Nez	arest 0.01	ft)		[Product]	(hickness)	(Water (Column)	(Circ	le appropri (Water C	ate units) olumn x Gal/ft]
Dat			me		ottom	1	roduct		Vater	DTP-	WTO	DTB-	DTW		Volu	me (gal)
1	7	_	:				•				•			X 1		•
7	7		:				•		•		•			X 3		•
Gal/ft = (dia /2) ² x	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
			le Pump (B) Peristaltic	Pump (C)	Disposable B	ailer (O) PVC	/Teflon Baik	er (E) Dedica	ated Bailer (F) Dedicated					[v if used]
GROU	NDW	ATER	SAMP	LING	DATA (if product i						Sampl	e Depth		_ -	
Bottle	Туре	D	ate	Ti	me	Method 5	Amoun	t & Volu	me mL	Pres	ervative	[circle]	Ice	Filter	pН	√
VOA Glass / / : 3 40 ml HCl YES NO Amber Glass / / : 250, 500, 1L (None) (HCl) (H ₂ SO ₄) YES NO																
Amber Glass / / : 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO																
White Poly																
Yellow	Poly	1	1		:			250, 5	500, 1L		H₂SO₄		YES	NO		
Green	Poly	1	1		:			250, 5	500, 1L		NaOH	·	YES	NO		
Red Tot	al Poly	1	7		:			250, 5	500, 1L		HNO₃		YES	NO		
Red Dis		1			:			250, 5	500, 1L		HNO₃		YES	YES		
1602	alau	3/1	0/97	طا	:00	G	1	250, 5	500, 1L				YES	Ĺ		
- W 03	0					te count):	1									
	ВС	TTLET				SIS ALLOW	ED PER B	TLE TY	PE (Circle	applicable	or write no	n-standar	d analysis		<u> </u>	
	VOA - C				(8010/8020		(8240) (82) (BTEXI	PH-G)				[]	WA[]
y wed		- Glass		 ` 	TPH-HCID)		(TPH-418.1)			nitra (HCC	3,CO3) (CI) (SO ₄)	(NO ₁) (N	O ₂) (F)	<u> </u>	<u> </u>
Analysis Allowed per Bottle Type	WHITE	Poly V - Poly		+	onductivity) (TOC) (To		rss) (BOO Fotal Keldahl		"-`-	OyNO ₂)	(O	. ,				
lysis Bott	GREEN			(Cyanide)	<u> </u>											
Ana Per l		TAL - Po	ły	(As) (Sb) (Ba) (B	e) (Ca) (Cd)	(Co) (C1)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(m) (v) (Zn) (Hg)	(K) (Na)	illa-1	
		SSOLVE				(Ca) (Cd) (C					>e) (∏) (V)	(Zn) (Hg) (Na) (Na) (Ha	aroness) (S	m(C2)	
		gla				TPH-C		(+H-)) ant	<u> </u>		Pumpi	Bailer I	nlet Dep	th:	
			Y DAT			Start Ti		· · · · ·	oe Ta	mp °C	Other	 	2 (mg/l)		Vater Q	uality
Meas.	Meth	nod [§]	Purge	ed (gal)		рН	I = Con	d (μS)	 		0.1101	† 		- ·		
1	ļ			•	 -	•	-			<u> </u>	ļ	 	•	-		
2	<u> </u>	_	 	<u>. </u>		•			 	<u> </u>	<u> </u>	-	-	-		
3	 		ļ	<u> </u>	 	•			-	•			<u>. </u>	-		
4	<u> </u>		 	•	 	·				<u> </u>			<u>•</u>			
[Casing]	[Sala:	ct A-G]	(Cumula	itive Totals)	<u></u>	•	<u> </u>		[Circl	e units]	<u> </u>	<u> </u>	<u>.</u>	Ц	(Clanty, C	olor
-	•	•	٠ .				٨		,							
511	itu a	nan	es (GM)	brown	m	Leur	Adhe	ent e	J	0-		1/3.		0	- ^ ^

Silty gravel (GM) brown a few percent sand medium. Visqueen liver about 6"-7" Bgs. Soil 1-2" below visqueen has de brown "tarry" consist.

SAMPLER.

John Walls

(SIGNATURE)

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

									Office:	(509) 838-1	144	Fax:	(50	9) 838	-1382
PROJE	CT N	AME:									LL ID:			_		
SITE A	DDRE	SS:								BLI	ND ID:	45-	I3			
			4035	5B - (016.	994				D	UP ID:					NA
WIN	ID FR	ом:Г	N	NE	E	SE	S	SW	W	8	(LIG	_	MED		Н	EAVY
W	EATH	ER:	SUN	YNY	CLC	UDY	(ŔA	\(\begin{array}{c}\eq \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\		?	TEM	IPERA	TURE:		5.	• c
HAUD	01.00	_ 	VEL N	AEASII	REME	UTS (Nes	rest 0.01	m)		(Product T	hickness)	(Water	Column]	(Cin	nqorqua ek: (Water C	ate units) olumn x Gal/ftj
Dat			me		ottom		roduct		Vater	DTP-	DTW	DTB-	WTO		Volu	me (gal)
1	/		:				•				,		•	X 1		•
1	7		:				•							X 3		•
Gal/ft = (c	ia_/2) ² x	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
§ METHO	DS: (A) S	ubmensibi	le Pump (B) Peristaltic	Pump (C) [Disposable B	ailer (D) PVC	/Teflon Baile	r (E) Dedic	ated Bailer (F) Dedicated			طمه		L (dd)
GROU	NDWA	ATER	SAMF	LING	DATA (if product i	s detected	l, do NOT	sample)			Sampl	e Depth	:	,	(v it used)
Bottle	W > (10) (100) V(0)															
VOA G	WOA Glass / : 3 40 ml HCI YES NO Amber Glass / / : 250, 500, 1L (None) (HCl) (H ₂ SO ₄) YES NO															
Amber	VOA Glass / /															
Amber Glass / / : 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO White Poly / / : 250, 500, 1L None YES NO NA																
Amber Glass / / : 250, 500, 1L None YES NO NA Yellow Poly / / : 250, 500, 1L H ₂ SO ₄ YES NO																
Green	White Poly / / : 250, 500, 1L H ₂ SO ₄ YES NO Yellow Poly / / : 250, 500, 1L H ₂ SO ₄ YES NO Green Poly / / : 250, 500, 1L NaOH YES NO															
Red Tot	al Poly	1	1		:			250, 5	00, 1L		HNO ₃		YES	NO	ļ <u> </u>	<u> </u>
Red Dis	s. Poly	1	1		:			250, 5	00, 1L		HNO ₃		YES	YES	ļ	
16 03	3 has	3/1	0/97	15	: 35	6	1	250, 5	500, 1L	<u></u>			YES		<u> </u>	
	o 	To	tal Bottle			te count):	1									
	ВО	TILET	YPE	TYPICAL	LANALYS	IS ALLOW	ED PER BO					on-standar	d analysis			WA[]
	VOA - G	lass		÷÷	(8010/8020)		(8240) (82			(BIEXI	PH-G)					WALI
Analysis Allowed per Bottle Type	AMBER			 	TPH-HCID)	(TPH-D)	(TPH-418.1)			** 450	7CO3) (CI) (SO ₄)	(NO ₁) (N	O) (F)	<u> </u>	1001
Analysis Allowed per Bottle Type	WHITE			 	onductivity)		rss) (BOD Total Keldahi			OyNO ₂)	3 003) (C	, (004)	(103)			
Sis	GREEN			(COD) (Cyanide)		talPO ₄) (CON CONTRACT	History	(1112)							
Per Ja		TAL - Po) (Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(TI) (V)	(Zn) (Hg)	(K) (Na)		
		SSOLVE		(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	20) (Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn)	(Ni) (Ag) (S	(V) (II) (e)	(Zn) (Hg) (K) (Na) (H	ardn ess) (S	il ica)	
		olas					<u> </u>									
WATE		_				Start Ti		:				Pump	/Bailer I	nlet Dep	th:	
Meas.	Meth	od §	Purge	d (gal)		ρΗ	E Con	d (μS)	°F Te	mp °C	Other	Diss C) ₂ (mg/l)	<u>v</u>	Vater Q	uality
1				•								L	•			
2				•		•				•			<u></u>			
3				•	<u> </u>	•				•		ļ	•	ļ		
4				•		•				•			•			
				•		•	<u> </u>		<u> </u>				•	<u> </u>	(Clanty, C	olor)
(Casing)	[Selec	t A-G)	[Cumuia	tive Totals]				0	(Circl	e units)		r		4	Charley, C	, L
5	eltr	3	ave	L, (5M) K	Nows	۱, ۵	few	عم ۔	rcent	Sau	م رکف	dam	تسرم	سلمه	~ .
50	amp	Re	loco	ction	in	form	i,a	Re R	50M	R	ootle:	ts vol	ni ba	- all	sam	≥&& •

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

									Office:	(509	9) 838-1	144	Fax:	(50	9) 838	-1382
PROJ	ECT N	IAME								WE	ELL ID:					
SITE A	DDR	ESS:								BL	IND ID:	55-	IY			
			4035	8-016	, 00 ⁴						OUP ID:					NA
Wil	ND FR	ROM:	N	NE	Ε	SE	S	SW	W	NW		H	MEC	MUIC	Ξ	EAVY
٧	VEATI	HER:	SUI	YNY	CLC	YOU	RA			?	TEN	IPERA	TURE:	(F) H	5.	*C
HYDR	OLO	GY/LE	EVEL N	MEASU	REME	NTS (Ne	arest 0.01	ft)		(Product	Thickness)	(Water	Column)	(Cin	e appropri	ate units) olumn x Gal/ftj
Da			ime	T	ottom		roduct		Vater	DTP	-DTW	DTB-	DTW		Volu	me (gal)
1	1		:		•		•		•		•			X 1		•
1	1		:		•		•		•		•			X 3		•
Gal/ft = ((dia./2) ² x	(0.163	1"=	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
§ METHO	OS: (A) S	ubmensul	ble Pump (B) Peristallic	Pump (C) (Xisposable B	ailer (D) PVC	/Teflon Bail	er (E) Dedica	ated Bailer (F) Dedicated	Pump (G)	Other = G	nab		
GROU	NDW	ATER	SAMF	LING I	DATA (f product	is detected	i, do NOT	sample)			Sampl	e Depth	:		[√if used]
Bottle	Sottle Type Date Time Method ¹ Amount & Volume mL Preservative (circle) Ice Filter pH √ VOA Glass / / : 3 40 ml HCl YES NO															
VOA	VOA Glass / / : 3 40 ml HCl YES NO															
Amber Glass / / : 250, 500, 1L (None) (HCl) (H ₂ SO ₄) YES NO White Poly / / : 250, 500, 1L None YES NO NA Yellow Poly / / : 250, 500, 1L H ₂ SO ₄ YES NO																
Amber Glass / / : 250, 500, 1L (None) (HCl) (H ₂ SO ₄) YES NO White Poly / / : 250, 500, 1L None YES NO NA Yellow Poly / / : 250, 500, 1L H ₂ SO ₄ YES NO																
Amber Glass / / : 250, 500, 1L (None) (HCl) (H₂SO₄) YES NO White Poly / / : 250, 500, 1L None YES NO NA Yellow Poly / / : 250, 500, 1L H₂SO₄ YES NO Green Poly / / : 250, 500, 1L NaOH YES NO Red Total Poly / / : 250, 500, 1L HNO₃ YES NO																
Red Tot	al Poly	1	1		:			250, 5	00, 1L		HNO3		YES	NO		
Red Dis	s. Poly	1	1		:			250, 5	500, 1L		HNO₃		YES	YES		
Wogg	Rass	3/	10/97	15	55	<u></u> G-	<u> </u>	250, 5	500, 1L		_		YES			V
	3	To	otal Bottle	s (include	e duplicat	e count):										
	ВО	TLET	YPE	TYPICAL	. ANALYS	IS ALLOW	ED PER BO	TTLE TY	PE (Circle	applicab le	or write no	n-standar	d analysis			
	VOA - G	lass		(8010) (8010/8020)	(8020)	(8240) (826	(O) (BTE)) (TPH-G)	(BLEXI	PH-G)				[]	WA []
Analysis Allowed per Bottle Type	AMBER			(PAH) (1	PH-HCID)	(TPH-0)	(TPH-418.1)		•						[]	WA []
nalysis Allowed per Bottle Type	WHITE	<u></u>		<u> </u>	anductivity)	<u> </u>	'SS) (BOD)				-yco-y (ci	(504)	(100) (NO)	O ₂) (F)		
sis	YELLOV		. <u>-</u>		TOC) (To	zalPO ₄) (T	otal Keldahi i	Nitrogen)	(NH7) (NC	D-WOJ)						
hat) Per	GREEN	- Poly TAL - Po	<u> </u>	(Cyanide)	(Ra) (Ra)	(Ca) (Ca)	(Co) (Cr)	(Cu) (Ea)	(Ph) (Ma)	(Ma) (Na	(An) (Se)	m w c	7n) (Ha) (K) (Na)		
d –		SSOLVE					(Cr) (Cu)								ica)	
				(-) (-)	(, (,	, , , ,	, , , , ,									
WATE	R QU	ALIT	Y DATA	1	Purge	Start Ti	me:	:				Pump/	Bailer In	let Dept	h:	
Meas.	Meth	od §	Purge	d (gal)	р	Н	E Con	d (μS)	°F Ter	mp °C	Other	Diss O	₂(mg/l)	W	/ater Qu	ality
1				•		•										
2				•	-	•										
3						•										
4				•		•				,						
						•				.]						
(Casing)	(Select	t A-G]	(Cumulat	we Totals]					(Circle	units]					(Clanty, Co	, Hori
S	lty a	gran	vel (ſΜ)	, b	10cm	ـ, مـ	few	pero	ent	sauc	l, d	مسه	,	- m	edim
R	oofl	zts.			•		,	V					•	*		

SAMPLER: John Latter

(SIGNATURE)

3

FIELD SAMPLING DATA SHEET

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

Office: (509) 838-1144

Fax:

(509) 838-1382

	Poly															
PROJ	ECT NA	AME								W	ELL ID:					
SITE	ADDRE	SS:	_							BL	IND ID:	55-	I6			
		2	4035	8-01	6.0	04	_				OUP ID:					NA
WI	ND FRO		_	_	T	· -	(\$)	sw	W	NW	LIC	HT	ME	DIUM	Н	EAVY
V	VEATH	ER:	SU	NNY	CLC	YQUO	RA	NIN .	Win	dy ?	TEN	/IPERA	TURE:	E 4	10.	•c
HYDE	301 OG	УЛ F	EVEL N	MEASI	REME	NTS (Ne	arest 0.01	# \			I Thickness	(Mater	Columni	(Cin	• • •	-
								T	Nater		<u>-</u>			1		<u>·</u>
	7		•		_	l l						 		Y 1	75.5	(30.)
	7		<u>:</u>	 	<u> </u>		•		<u>. </u>		<u>: </u>			1		<u>.</u>
Gel/it =	(dla./2) ² x 0	1.163	1" =	0.041	2" =	0.163	3==	0.367	4" =	0.653	6" =	1.469	10" =		12" =	5.875
			<u> </u>		<u> </u>	·	_		<u> </u>				۰.,			
											<u> </u>	r				[v if used]
				T		r .					ervative	·	<u>·</u> _	1	pН	1
VOA	Glass		1		:		3	40	ml		HCI		YES	NO		
Amber	Glass	1			:			250, 5	500, 1L	(None) (HCI) (F	H₂SO₄)	YES	NO		
White	Poly	1	1		:			250, 5	00, 1L		None		YES	NO	NA	
Yellow	Poly	1		H₂SO₄		YES	NO									
Green Poly / / : 250, 500, 1L NaOH YES NO Red Total Poly / / : 250, 500, 1L HNO ₃ YES NO																
Green Poly / : 250, 500, 1L NaOH YES NO Red Total Poly / : 250, 500, 1L HNO3 YES NO Red Diss. Poly / : 250, 500, 1L HNO3 YES YES																
Red Dis	s. Poly	1	1		:			250, 5	00, 1L		HNO₃		YES	YES		
Red Diss. Poly / / : 250, 500, 1L HNO ₃ YES YES																
9	Ū	To	tal Bottle			e count):	(-			-		
	ВОТ	TLE T	YPE	TYPICAL	ANALYS	IS ALLOW	ED PER BO	TTLE TY	PE (Circle	applicab l e	or write no	n-standard	l analysis	below)		
	VOA - Glas	56		(8010) (8010/8020)	(8020) (8240) (82 0	O) (BTEX) (TPH-G)	(BTEX/I	PH-G)					WA[]
wed				<u> </u>			<u> </u>								[]	WA[]
Analysis Allowed per Bottle Type				~				<u>`</u>	<u> </u>		-/CO3) (CI)	(SO ₄)	(NO3) (NK	D ₂) (F)		
ysis					(10C) (18c	#I PO4) (I	OCEN Keldani N	·rrrogen)	(NH1) (NC	JYNO)					_	
Ana			·		(Ba) (Be)	(Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(TI) (V) (Z	(n) (Hg) (K) (Na)		
	RED DISS	OLVED										Zn) (Hg) (K) (Na) (Ha	rdness) (Sill	ica)	
	1000	عله	4	826	0. n	TPH-	C- n	HCL	-De	xten.	ded					
WATE	R QÚAI	<u>YTY</u>	DATA					:		<u> </u>		Pump/8	Bailer In	let Dept	h:	
Meas.	Method	d §	Purge	d (gal)	р	H	E Cond	l (μS)	°F Ter	np °C	Other	Diss O ₂	(mg/l)	W	ater Qu	ality
4												•				
3															_	
2			•									•				
1		_							•							
0 (622)	10.1.11		0,0					l				•			(Clarate Ca	iod)
[Casing]	Sand Cyra Sam	•	(Cumulation of a contract of a	-	(GP)	in de	mele Le Si uveu	d t	(Circle	•	rund Perce	cd .	Ct,		iclainty, co early c), de	al Znp.
SAMP	LER:	.\	ohn	10	Ha			- 5	7	\bigcup_{\sim}	EN	Patt	<u></u>			

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

		7						#	Office:	(509	9) 838-1	144	Fax:	(50	19) 838	-1382
PROJE	ECT N	IAME	:								ELL ID:					
SITE A	DDR	ESS:						_		BL	IND ID:	GPW-	1-39	77 -	15	
		L	10356	5-011	0.00	1					UP ID:					NA
Wii	ND FF	ROM:	N	NE	E	SE	S	sw	W	NW	LIG	HT	MEC	NUM	H	EAVY
V	VEATI	HER:	SUN	INY	CLC	YQU	RA	IN		?	TEM	IPERA	TURE:	٠٤	<u>.</u>	•c
HVDB		2V/I 5	TVEL N	EASII	REME	UTS (Nes	rest 0.01	ft)		Product	Thickness)	. (Water	Column)	(Circ	e appropri Water C	ate units) olumn x Gal/ft)
Da			ime		ottom		roduct		Vater		-DTW		DTW		Volu	me (gal)
/	7		:				•		•		•		•	X 1		•
	1		:						•		•			X 3		•
Gal/ft ≈ (dia./2) ²)	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
			de Pump (B) Peristaltic	Pump (C) 0	isposable Ba	ailer (D) PVC	/Teflon Baile	er (E) Dedica	ated Sailer (F) Dedicated	Pump (G) (Other = 🗐	,	-	
GROU	NDW	ATER	SAMP	LING) ATAC	f product i	s detected	i, do NOT	sample)			Sampl	e Depth	:		(v if used)
Bottle	Туре	D	ate	Tir	me	Method 5	Amount	t & Volu	me mL	Pres	ervative	(circle)	Ice	Filter	pΗ	1
VOA (Glass	3/1	2 197	16	20	B	86	15~ 40	ml		HCI		YES	NO		/
Amber	Amber Glass 3 / 12 / 97 16:20 B 1 250, 500, TC (None) (HCI) (H ₂ SO ₄) YES NO V White Poly 3 / 12 / 97 /6:20 B 1 250 (500) 1L None YES NO NA															
White	7/12/9# 10:00 D															
Yellow	Yellow Poly / / : 250, 500, 1L H₂SO₄ YES NO															
Green	Yellow Poly / / : 250, 500, 1L H₂SO₄ YES NO															
Red Tot	al Poly	1	1		:			250, 5	500, 1L		HNO3		YES	NO		
Red Dis	s. Poly	1	1					250, 5	500, 1L		HNO ³		YES	YES		
		1	1		:			250, 5	500, 1L				YES			
		To	otal Bottle				8	<u> </u>	****							
	ВС	TILET	YPE	TYPICAL	ANALYS	IS ALLOW	ED PER BO	TTLE TY	PE (Circle	applicable	or write no	n-standar	d analysis			
	VOA - C	ilass		(8010) (8010/8020)	(8020) (8240) (826	(BTE)	CLEH-C	(BTEX/I	PH-G)				[]	WA[]
Analysis Allowed per Bottle Type	AMBER	- Glass		<u>`</u>	TPH-HCID)		(TPH-418.1)					(00.)	a(C) a([]	WA []
rnalysis Allowed per Bottle Type	WHITE				onductivity)	<u> </u>	SS) (BOD))^CO1) (CI	(SO ₄)	(100) (N	O ₁) (F)		_
sls 3ottl		N - Poly			TOC) (To	tal PO₄) (T	otal Keldahi	Nitrogen)	(NH1) (NK	D2NO3)						
naly per f	GREEN	TAL - Po		(Cyanide)	(Pa) (Pa)	(C1) (C4)	(Co) (Cr)	(Cu) (Ee)	(Pb) (Ma)	(Mn) (Ni)	(Aq) (Se)	m w	Zn) (Hg) ((Na)		
~		SSOLVE					(Cr) (Cu)								lica)	
	INCO OF		3 -1 (3.)	(1-5) (3-5)	(<u> </u>	7, 7, 3, 3									
WATE	R QU	ALIT	Y DATA	1	Purge	Start Ti	me:	:			Turb.	Pump)	Bailer Ir	ilet Depi	th: 15	
Meas.		od §		d (gal)	p	Н	E Con	d (µS)	°F Te	mp °C	Other	Diss O	₂ (mg/l)	V	/ater Qu	ıality
1	1			.5		.21	1,17	-0	14	. D	>1000	2	.04	Sec	ldyb	rown
2					· · · · ·					•	NTO		•		Ü	
3													•			
4						•							•			
				•		•				•			•			
[Casing]	(Selec	A-G	(Cumulat	ve Totals)					(Circle	units]					(Clanty, Co	olot]

W 7106 Will D. Alton Lane, Suite 101

W										•	okane,					
									Office:		9) 838-1		Fax:	(50	9) 838	-1382
PROJE	ECT N	AME:	New	C1.+.	<u>/ (</u>	CANCE	5				ELL ID:					·
SITE A	DDR	ESS:	747	Stive	NS DR	:10 N	<u> Lichl</u>	HNO.	WA		ND ID:	GPW	<u>2 - 39</u>	₹ <i>₹∙ [</i> 7	7-	
				-014		4					UP ID:			T		NA
WII	VD FR	OM:	N	NE	Ε	SE	S	sw	W	NW		HT/	MEC			EAVY
V	/EAT	IER:	(SUN	INY)	CLC	YQU	RA	IN .		7	TEN	IPERA	TURE:		5.	° C
HYDR	OLO	SY/LE	VEL	IEASU	REME	NTS (Nea	rest 0.01	ft)		(Product	Thickness)	(Water (Column)	, Cure		olumn x Gal/ft]
Dai			me	DT-B			roduct	1	Vater	DTP-	.DTW	DTB-	DTW		Volu	me (gal)
1	/		:								•			X 1		•
1	/		:								•			X 3		
Gal/ft = (1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
§ METHO	DS: (A) S	ubmersib	le Pump (B) Peristaltic	Pump (C) [Disposable Ba	ailer (D) PVC	/Teflon Baile	or (E) Dedica	ated Bailer (F) Dedicated					[Very line of the left of the
GROU	NDW	ATER	SAMP	LING	DATA (i	f product i	s detected	l, do NOT	sample)			—— <u> </u>	e Depth	T 1		
Bottle	Туре	D	ate	Tir	ne	Method 5	Amoun	t & Volu	me mL	Pres	ervative	(circle)	ice	Filter	pН	√
VOA	/OA Glass 3 /13 /97 10:25 B															
Amber	mber Glass 3 /13/97 IC: 25 B 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO															
White	White Poly 3/13/97 10:25 B 1 250, 500, 1L None YES NO NA /															/
Yellow	Yellow Poly / / : 250, 500, 1L H₂SO₄ YES NO															
Green	Poly	1	1	;				250, 5	00, 1L		NaOH		YES	ИО		
Red Tot	ai Poly	1	1					250, 5	00, 1L		HNO³		YES	ΝΟ		
Red Dis	s. Poly	1	/	;	:			250, 5	00, 1L		HNO ₃		YES	YES		
		1	/	;				250, 5	00, 1L				YES			
		To	tal Bottle	s (include			æ									
	ВС	TTLET	YPE	TYPICAL	. ANALYS		ED PER BO					n-standar	d analysis			
	VOA - G			· · ·	3010/8020)	````		(S) (BTEX) (BLEXI	_				[]	WAIX
ype	AMBER			<u>````</u>	PH-HCID) inductivity)	\`````	(TPH-418.1) SS) (BOD			1-0-0-1	мсол (сі <u>мсо</u> м) (SO ₄)	N) (cON)	O) (F)	. 1	
tle T	AETTON	V - Poly				<u> </u>	otal Keldahl		·	DYNO)		· · ·	· · · ·			
Analysis Allowed per Bottle Type	GREEN			(Cyanide)	<u> </u>											
ا ۾ ھ	RED TO	TAL - Po	у				(Co) (C1)								\\\\\\\\\-	
	RED DI	SOLVE) - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	(Cr) (Cu)	(Fa) (Pb)	(Mg) (Mn)	(Ni) (Ag) (S	io) (Π) (V) ((Zn) (Hg) (H	(Na) (Ha	uraness) (Sil	K2)	
	P ()!	A1 ITS	/ DAT/	<u> </u>	Dume	Start Ti	me'				Turbid	(Pump)	Bailer Ir	nlet Dept	h: / 🗀	L
			DATA	d (gal))H	E Con	q (ng)	°F Te	mp (°C)	Other	_	2 (mg/l)		/ater Qu	uality
Meas.		od §											· / ·	20.	bro	
1	T	2	0	. 3	9	.95	1,110				21000 UTU	2		Cicy	4000	~ ~
2				•		<u> </u>			<u> </u>	•			•			
3				•		<u>·</u>			<u> </u>	•			·			
4			·	·		•			ļ	•		-	•			
(Casing)	(Selec	t A-G]	(Cumulat	ve Totals]	L	•	L		[Circle	• units]	L	L	-	L	(Clanty, Co	noic
,	•	•	•	•												

of Juhla Im

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

(509) 838-1144

Fax:

(509) 838-1382

DPO IE	CTN	ΔME:	1/0.1	c ' 1 .	. 1	Alea c	403	SK - 011	L and	WE	LL ID:	GPL	V - 3	. 39	7-1	9
CITE	DDGG	CC.	70 CW	CITY.	<u> </u>	Nens	2 1	10/1	- 009 - 1	BLI	LL ID: ND ID:	GP	-1			/
SITEA	DUKE	:33:	<u> 14+</u>	STEVE	<u> </u>	Rive	KICK	IANO	, WA		UP ID:					NA
2442		T	N 1	NE I		SE	s	sw	w	NW I	LIG	нт	MED	IUM	HE	EAVY
	ID FR	- ⊢	N	NE			RA			7			TURE:			•c
W	EATH	IER:	SUN	INY	CLC	YDU	104	and .	<u></u>		1 -14	ir Liva	ا ۱۰۰۰		le appropri	
HYDR	OLOG	Y/LE	VEL N	IEASU	REME	NTS (Nea	arest 0.01	ft)		(Product 1	(hickness)	(Water	Column)		(Water C	olumn x Gal/ftj
Dat			me	DT-B		1	roduct		Vater	DTP-	WTG	DTB-	DTW	ļ	Volu	me (gal)
7	7						•		•		•		•	X 1		•
/	7		:								•			X 3		•
Gal/ft = (e	dia./2)2 x	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6* =	1.469	10" =	4.080	12" =	5.875
			e Pump (B) Peristaltic	Pump (C) (Disposable Ba	ailer (D) PVC	Tefon Baile	r (E) Oedic	ated Bailer (I	F) Dedicated	Pump (G) (Other =			
						if product i							e Depth:			(v if used)
Bottle			ate	Tir		Method 5				1	ervative	(circle)	lce	Filter	рН	1
VOA Glass 3 /12/97 19:07 B 36 40 ml HCI YES NO																
VOA Glass 3 /13/97 19:07 13 26 40 1111 (None) (HCI) (H ₂ SO ₄) YES NO														V		
White	-		3/97		50	B	1	250(5	600) 1L		None		YES	NO	NA	/
Yellow	- -	<u>ر ر</u> ا) /		<u> </u>			250, 5	500, 1L		H₂SO₄		YES	NO		
Green	- 		1		:			250, 5	500, 1L		NaOH		YES	NO	L	
Red Tot	al Poly		1		:			250, 5	500, 1L		HNO ²		YES	NO		
Red Dis	s. Poly		1		:			250, 5	500, 1L		HNO₃		YES	YES		
		1	1		:			250, 5	500, 1L				YES			
		To	tal Bottle	s (include	e duplica	te count):	8									
	ВО	TLET	YPE	TYPICAL	ANALYS	SIS ALLOW	ED PER B	OTTLE TY	PE (Circle	applicable	or write no	n-standar	d analysis			
	VOA - G	lass		(8010) (8010/8020)	(8020)	(8240) (82	60) (BTE)	9 (TPH-C	BTEX/	PH-G)				(]	WA (]
2 g	AMBER	- Glass		(PAH) ((PH-HCID)	(TPH-O)	(TPH-418.1								()	WA []
Analysis Allowed per Bottle Type	WHITE .	Poly		(pH) (Co	onductivity)		rss) (BOC			<u> </u>	PACO?) (CI	(SO ₄)	(NO1) (N	O ₃) (F)		
offle	YELLOY	V - Poly		(COO) (TOC) (TO	ital PO ₄) (1	Total Keldahl	Nitrogen)	(VHV) (N	O'NO')						
raly:	GREEN			(Cyanide)				(6.) (6.)	(Db) (14a)	(Mn) (Ni)	(Ac) (Sa)	m 00 i	(7n) (Ha) ((Na)		
Z a		TAL • Pol	 -			(Ca) (Cd) (Cd)									ilica)	
1	RED OU	SOLVE	O - Poly	(As) (Sb)	(83) (84)	((3) ((3) (26) (C1) (C0	, (14) (10)	(mg) (mil)	(10) (10) (1	Wtu	-7.00				
WATE	B OII	Δ1 1Τ	/ DAT		Pume	Start Ti	ime:	:			Turs	Pump	Bailer In	nlet Dep	th: 10	ì
Meas.	Meth			d (gal)	 	oH		nd (μS)	°F Te	emp °C	Other	Diss C) ₂ (mg/l)	V	Vater Q	uality
1	B			· 35	7	. 45		3 <i>0</i>	11	• 0	56.8	G	.58			
2			<u> </u>	•		<u> </u>	 		1	•						

SAMPLER: NICK GARSON/JOHN LATTA MISIGNATURE)

(PRINTED NAME)

(SIGNATURE)

[Cumulative Totals]

[Select A-G]

(Circle units)

[Clanty, Color]

my man



FIELD SAMPLING DATA SHEET

EMEMA

W 7106 Will D. Alton Lane, Suite 101

W									Office:	•	okane, 9) 838-1		igton s Fax:)9) 838	-1382
DDC "	ECT N	A 845							J.1106.		ELL ID:			,,,,,	. <u>. ,</u>	
PROJE			<u>.</u>								IND ID:			397 -	19	
SITE	יטטאנ	_33.									UP ID:	<u> </u>		<u> </u>	, ,	NA
WII	ND FR	ωм-!	N	NE	E	SE	S	sw	W	NW	LIG	нр	MED	NUIC	HE	EAVY
	VEATH		., NUS			UDY	RA	IN		?	TEN	IPERA	TURE:	(F)4:	5 .	•c
		'					rest 0.01	ft)		(Product	Thickness)	[Water (Column)	(Circ	de appropria	ate units) olumn x Gal/ft)
Da			me		ottom		roduct		Vater		WTO.	DTB-				me (gal)
3/10	3 47	14	:02	19.	C			12	.5		•		•	X 1		•
1	7		:	<u> </u>					•		•			X 3		•
Gal/ft = ((dia /2) ² x	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5 .875
			le Pump (8) Peristaltic	Pump (C) C	Hisposable B	ailer (D) PVC	Teflon Baile	r (E) Dedic	ated Bailer (F) Dedicated	Pump (G) C	Other =			Name of
GROU	MDM	ATER	SAMP	LING	DATA (i	f product i	s detected	, do NOT	sample)			Sampl	e Depth			[√ if used]
Bottle	Туре	D	ate	Tir	ne	Method 5	Amount	& Volu	me mL	Pres	ervative	(circle)	Ice	Filter	pН	1
VOA	VOA Glass 3 / 13 / 97 14:50 B 8 6 40 ml HCI YES NO Amber Glass 3 / 13 / 97 14:50 B 1 250, 500, 1L (None) (HCI) (H ₂ SO ₄) YES NO															
Amber	Amber Glass 3 / 13 / 97 IH:50 B 1 250, 500, 1L (None) (HCI) (H₂SO₄) YES NO ✓ White Poly 3 / 13 / 97 IH:50 B 1 250, 500, 1L None YES NO NA ✓															
White	White Poly 3/13/97 14:50 B 1 250, 500, 1L None YES NO NA V															
Yellow	Yellow Poly / / 1 250, 500, 1L H₂SO₄ YES NO															
Green	Green Poly / / : 250, 500, 1L NaOH YES NO															
Red Tot	al Poly	1	7		:			250, 5	500, 1L		HNO ₃		YES	NO		
Red Dis	s. Poly	1	1		:			250, 5	500, 1L		HNO ₃		YES	YES		
		1	1		:			250, 5	500, 1L				YES			
		To	otal Bottle	s (includ			B									
	ВО	TTLE	YPE				ED PER BO					n-standar	d analysis			WA (X)
_	VOA - G			<u> ` </u>	8010/8020)		(8240) (826 (TPH-418.1)	<u> </u>		(BTEXT	PH-G)				[]	WAIXI
we d	AMBER WHITE			7	rpH-HCiD)		(IPH-410.1) (BOD)			ity) (HCO	PACOT) (CL	(SO ₄)	(1ON)	O ₃) (F)		
s All	YELLOV	<u> </u>		<u> </u>			otal Keldahi i			CONVC)						
Analysis Allowed per Bottle Type	GREEN	<u>_</u>		(Cyanide)												
₹ 8.	RED TO			(As) (Sb)	(Ba) (Be	(Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(TI) (V) (I	Zn) (Hg)	(K) (Na)	lica)	
	RED DIS	SOLVE	D - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	(Cd) (Cu)	(Fe) (Pb)	(Mg) (Mn)	(NI) (Ag) (S	(II) (V)	(£D) (HG) (F	7 (ME) (ME	nuness) (Si		
WATE	R OII	ΔΙΙΤ	Y DATA	 1	Pume	Start Ti	me:	<u> </u>			Tubid	Pump/	Bailer Ir	nlet Dep	th:	
Meas.	Meth			d (gal)		H	E Con	d (μS)	°F Te	тр 😙	Other	<u> </u>	₂ (mg/l)		Vater Qu	uality
1	Metri 12			· 2		. 39	1,20			. 2	999		.42		4 br	5W7V
2	<u> </u>		<u> </u>	<u>. </u>	 	• <u> </u>	1,20	 -			焼り		•		9	
3	 			<u> </u>		<u>. </u>					V10					
4		-				<u>:</u>	 					-				
	 			<u> </u>		•							•			
[Casing]	(Selec	t A-G]	(Cumulat	we Totals	<u> </u>	-	L		(Circle	units)		L		·	(Clanty, Co	olori

SAMPLER: John Latta (PRINTED NAME)

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

							7 B I		O65	•	-	444511111 1 <i>111</i>	_		9) 838	_1382
- C''	CTA	IANE	4/:				- 100	-	Office:		8) 838-1 ELL ID:		Fax:	,	19) 038	-1302
ITE A			NEU	<u>، ت ک نرو</u>	ty C	Dri,	ers 1	. h l	<u></u>		IND ID:			397 .	-19	•
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	LUUN		747	<u> </u>	16 0	04	16 14	UNIA	VE W 14		UP ID:			<u>., 1 1</u>	/	NA
1A/Ia	ND FR	0.04.	N	NE NE	E	SE	S	sw	W	NW	LIG	нт	MEC	NUIC	Н	EAVY
		- F		VNY		DUDY	RA			7		IPERA			0.	• c
		HER:					Ļ		V 14 C						de appropri	
<u>HYDR</u>	OLO	GY/LE	VEL N			NTS (Nea					Thickness]	(Water (1 :		olumn x Gal/fit
Dat	te	Ti	me	DT-8	ottom	DT-P	roduct		Vater	DTP-	.DTW	DTB-	DIW		Volu	me (gal)
3/13	197	-12	:20	21	<u>· 40 </u>		<u> </u>	8	. 93	Nove		12.	47	X 1		<u>·</u>
/	/		:		•		•		•		·			X 3		•
Gal/fi = (1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
METHO	DS: (A) S	ubmensib	le Pump (B) Peristaltic	Pump (C)	Disposable B	ailer (O) PVC	/Teflon Baile	er (E) Dedica	ated Bailer (F) Dedicated					(distance)
ROU	NDW	ATER	SAMP	LING I	DATA (if product	s detected	l, do NOT	sample)			Sample	e Depth	:		(v if used)
Bottle	Туре	D	ate	Ti	me	Method 5	Amoun	t & Volu	me mL	Pres	ervative	[circle]	ice	Filter	pН	1
VOA Glass 3 / 13/9.7 2 : 55 B & & (40 ml) HCI YES NO U																
Amber Glass 3/15/97 12:35 B 1 250, 500, (L) (None) (HCI) (H ₂ SO ₄) YES NO																
White Poly 3/13/91 12:55 0 1 250, 500:1L None YES NO NA U																
White Poly 3/13/19/14 12 . 35 0 1 250,850 12 11.50 VES NO																
Yellow Poly / / : 250, 500, 1L H₂SO₄ YES NO Green Poly / / : 250, 500, 1L NaOH YES NO																
		<u> </u>			•	 	 				HNO ₃		YES	NO		
Red Tot	al Poly	/			<u>: </u>	 		-	500, 1L							
Red Dis	s. Poly	/			<u>:</u>	ļ		 	500, 1L		HNO3		YES	YES		
		/	1		<u>: </u>	<u></u>		250, 5	00, 1L	L			YES	<u> </u>	L	<u> </u>
		To	otal Bottle	•		te count):	8	<u></u>								
	ВС	TTLE T	YPE	TYPICAL	ANALYS	SIS ALLOW		_				n-standar	d analysis			WA (1
_	VOA - C			, ,	8010/8020			(SIE)		∑ (втехл	PH-G)				[]	WA[]
§ 8€		- Glass		<u> </u>	TPH-HCID)		(TPH-418.1) (BOD)			ith) (HCC	-yCO ₃) (CI)	(SO ₄)	(NO ₁) (N	O ₂) (F)	1	
Analysis Allowed per Bottle Type	WHITE	V - Poly		-	onductivity) TOC) (To		otal Keldahi		"- ` 		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(004)		-4 (7		
lysis Bot	GREEN			(Cyanide)	,100, (10			•	, , , ,			-				
A Pa		OTAL - Po	ly		(Ba) (Be) (Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(n) (v) (n	Zn) (Hg)	(K) (Na)		
	RED D	SSOLVE	D - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	20) (Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn)				() (Na) (H	ardness) (S	ilica)	
					· · · · · · · · · · · · · · · · · · ·						unbidit					
WATE	R QU	ALIT	Y DATA	٩	Purge	Start Ti	me:	:			NTU			nlet Dep		
Meas.	Meth	nod §	Purge	d (gal)	<u> </u>	oH	E Con	d (μS)	°F Te	mp (C)	Other	Diss O		V	Vater Q	uality
4	[2	5		. 50	7	.09	14	34	15	.0	>1000	0	.89	Brow	v clo	udy s
3	- 1					•								ı	L , 51,	, ,
2										•			•			oden
1	<u> </u>				\vdash		-		 							
•	-	-			 	<u> </u>	 	-		-						
0			į U.	,00 tive Totals)		<u> </u>	1		<u> </u>	units)	L	<u> </u>	<u> </u>		(Clarity, C	olori

FIELD SAMPLE EMCON

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

	access to the sale								Office:	(509) 838-1	144	Fax:	(50	9) 838	-1382
PROJE	CT N	AME:	·							WE	LL ID:	GP-6	,			
SITE A	DDRI	ESS:								BLI	ND ID:	GPW-1	6-39	17-15		
											UP ID:					NA
WI	ND FR	юм:Г	N	NE	Ε	SE	(ŝ)	SW	W	NW	LIG	HT	MED	IUM	H	EAVY
V	/EATI	HER:	SUN	YNY	CLC	YOU	RA	IN		?	TEM	PERA	TURE:	(F)49	5.	*c
		•	NEL M	AEASII	REME	NTS (Nex	arest 0.01	ft)		[Product]	[hickness]	(Water (Column)	(Circ	te appropri (Water C	ate units) olumn x Gal/ft)
Dai			me	DT-B			roduct	DT-V	Vater	DTP-		DTB-	WTO		Volu	me (gal)
1	/		:				•						,	X 1		•
1	1		:											X 3		•
Gal/ft = (dia./2) ² x	0.163	1" =	0.041	2" =	0,163	3" =	0.367	4" =	0.653	6, =	1.469	10" =	4.080	12" =	5.875
§ METHO	DS: (A) S	ubmensib	le Pump (B) Peristaltic	Pump (C) (Disposable B	ailer (D) PVC	Teflon Baile	r (E) Dedic	ated Bailer (-) Dedicated	Pump (G) (Other =			T dia a
GROU	NDW	ATER	SAMP	LING I	DATA (if product i	is detected	, do NOT	sample)			Sampl	e Depth:	:		(viif used)
Bottle	Туре	D	ate	Tir	ne	Method 5	Amount	& Volu	me mL	Pres	ervative	(circle)	lce	Filter	pΗ	1
VOA	Slass	31	2 197	14	25	B	صا کا مزود	40	ml		HCI		YES	NO		
Amber	Glass		2/97	14	25	В	1	250, 5	∞(IL)	(None)	(HCI) (F	I₂SO₄)	YES	NO		/
White	White Poly 3/12/9				25	В	1	250(5	ồg, 1L		None		YES	NO	NA	1
Yellow	White Poly 3/12/G				:			250, 5	00, 1L		H₂SO₄		YES	NO		
Green	Poly	1	1		:			250, 5	00, 1L		NaOH		YES	NO		
Red Tot	al Poly	1	1		:			250, 5	00, 1L		HNO ²		YES	NO		
Red Dis	s. Poly	1	1		:			250, 5	00, 1L		HNO3		YES	YES		
		1	1		:			250, 5	00, 1L				YES			
		То	tal Bottle	s (include	e duplica	te count):	8									
	ВС	TILET					ED PER BO	TTLE TY	PE (Circle	applicable	or write no	n-standar	1 analysis	below)		
	VOA - G	ilass		(8010) (8010/8020)	(8020)	(8240) (826	M) (BLEX	(TPH-G) (втехл					()	WAIX
Analysis Allowed per Bottle Type	AMBER	- Glass		(PAH) (TPH-HCID)	1	(TPH-418.1)		ase)	Exte					[]	WA (X)
δ T	WHITE	- Poly		(pH) (Ca	onductivity)		(BOD)				ACO ²) (CI	(SO ₁)	(NO1) (NO	0 ₁) (F)		
sls /	AETTO/	W - Poly		(COD) (TOC) (To	tal PO ₄) (I	Total Keldahi i	Nitrogen)	(HH) (HH)	ONNO ³)						
raly Ser E	GREEN			(Cyanide)	(D-) (B-) (Ca) (Ca)	(Co) (C1)	(Cu) (Ea)	(Ph) (Ma)	(Mn) (Ni)	(Ao) (Se)	m M d	Zn) (Ho) (K) (Na)		
*		SSOLVET					>) (Cr) (Cu)								lica)	
	אבט טו	SSOCVEL	J. Poly	(7.5) (30)	(04) (04)	(02) (00) ((4) (4)		<u>, , , , , , , , , , , , , , , , , , , </u>						
WATE	R QU	ALIT	DATA	<u> </u>	Purge	Start Ti	me:	:			Turbid	Pump/	Bailer Ir	ilet Dep	th: 15	·
Meas. Method § Purged (gal)						 Н	E Con	d (μS)	°F Te	mp (C)	Other	Diss O	2 (mg/l)	V	/ater Q	uality
	1 18 0.4					.05	1,54		14	·B	7 000	1	.98	SE CL	Ly be	rown w
2				•		•	<u> </u>			•	אנח					ر سی
3										•			•	she	en.	
	3															

Note discontinuous sheen.

SAMPLER.

Latta

(SIGNATURE

(Circle units)

(Clanty, Color)

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

								<u> </u>	Office:	(509	9) 838-1	144	Fax:	(50	9) 838	-1382
PROJE	CT N	AME:	Neu	v Ci	ty C	lexvi	ر <u>ا</u> ۲			WE	ELL ID:	CP-	7			
						Rive		A.Vd	4,01	BL	ND ID:	GPU	/ -7	- 397	- 11	
					016.0					D	UP ID:					NA
1IW	ND FR	OM:	N	NE	Ε	SE	S	sw	W	NW	LIG		MED			EAVY
V	/EATI	HER:	NUS	INY	CCC	UDÝ.	RA		<u> </u>	?	TEN	IPERA	TURE:	-		• C
HYDR	OLO	GY/LE	VEL N	IEASU	REME	VTS (Nea	rest 0.01		. ن. ن دیری چام	/ 5 [Product	Thickness)	(Water (Column)	, ICITE	le appropn [Water C	ata unitsj kolumn x Gal/ft)
Dat			me		ottom		roduct		Vater		-DTW	DTB-	WTO		Volu	me (gal)
3 /13	47	13	:40	23.	. 63	 -	•	9	.38*	None	,		,	X 1		•
1	/		:				•		•		•			X 3		•
Gal/ft = (dia /2) ² x	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
						isposable 8				ated Bailer (F) Dedicated	I				[v if used]
GROU	NDW	ATER	SAMP	LING I	DATA (i	f product i						Sampl	e Depth:			
Bottle	Туре	D	ate	Tir	me	Method 5	Amount	t & Volu	me mL	Pres	ervative	(circle)	Ice	Filter	рН	1
VOA G	Blass	3 h	3 197	14	: 10	ß	86	40	(a)		HCI		YES	NO		1
Amber	Glass	_	3197	14	: 10	В	١		∞,⊙	(None	(HCI) ⁽ (I	H₂SO₄)	YES	NO		V
White	Poly	3 /1	3 197	14	: 10	В	1	250(5	00);1L		None		YES	NO	NA_	
Yellow	Poly	1			:		1	250, 5	500, 1L		H₂SO₄		YES	NO		<u> </u>
Green	Poly	1	1		:			250, 5	500, 1L		NaOH		YES	ИО		<u> </u>
Red Tot	al Poly	1	1		:			250, 5	500, 1L		HNO₃		YES	NO		
Red Dis	s. Poly	/	1		:			250, 5	500, 1L		HNO ₃		YES	YES		
		1	1	-	:			250, 5	500, 1L				YES			
		To	tal Bottle	s (includ	e duplical	te count):	8									
	ВС	TTLE T				IS ALLOW	ED PER BO			· ·		on-standar	d analysis			
	VOA - G	ilass		<u> </u>	(8010/8020)		8240) (826		Q (TPH-G	(BIEXI	PH-G)				[]	WA[]
wed ype	-	- Glass			TPH-HCID)		(TPH-418.1) (BOD)			nity) (HCC)-/CO ₃) (C) (SO ₄)	(NO ₃) (N	O ₂) (F)	[]	- WOL 1
Analysis Allowed per Bottle Type	WHITE	- Poly W - Poly		```	onductivity) (TOC) (To	<u> </u>	otal Keldahi))))		., (304)	V	4 67		
llysis Bot	GREEN			(Cyanide)	, (10											
Aria Pe Aria	RED TO	TAL - Po	у			(Ca) (Cd)										
	RED D	SSOLVE	O - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	(Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn)				() (Na) (Ha	irdn ess) (Si	lica)	
		• • • • • • • • • • • • • • • • • • • •	<u> </u>	<u> </u>	D	Clad T	m o:				unbidi	TV VBumn)	Railer In	nlet Dept	h: /	i
WATE						Start Ti		١ (١٠٥١	°E To	mp(°à	(V+u) Other		2 (mg/l)	, 	/ater Q	uality
Meas.		nod §		d (gal)		H	E Con					 		-		
4	B	5		·5	7	•17	131	<u>\tag{\tau} \tag{\tau} \tag{\tau}</u>	12	• 7	827	-	.15	اعددلا	ry C	now
3				<u> </u>		•				•		<u> </u>	•			
2				•		•	<u> </u>			•			•			
1				•	ļ.—	•		·		•	ļ	 	<u> </u>			
(Casing)	[Salar	≭ A-G]		00 Ive Totals)		•			Circle	• unrts)	<u> </u>	<u> </u>	•	L	(Clanty, C	Color)

SAMPLER: NICLE GARSON
(PRINTED NAME)

(SIGNATURE)

W 7106 Will D. Alton Lane, Suite 101

ROJECT NAME: WELL ID: (\$7-6)																	
SUND ID: CFD - 6 391 - 10 NA		ROJECT NAME: WELL ID: GP-8															-1382
WIND FROM: N NE	SITE A																
WIND FROM: N N E SE S S W NW LIGHT MEDIUM HEAVY WEATHER: SUNNY CLOUDY RAIN 7 TEMPERATURE: F) 4.7 (Cloude speciment use) (Cloude s	40358-010.001															10	
WIND FROM: N N E SE S SW NW LIGHT MEDIUM MEAVY			,	4035	8-C	16.0	204					UP ID:					
HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)	WIN	ID FR	_					S	sw	W	NW						
Mythor Clours Calums Cal	W	EATH	HER:	SUN	INY	Crc	UDY	RA	IN		?	TEN	IPERA	TURE:			
Date	LVDR	OI OC	2V/I E	VELV	IEASU	REME	NTS (Ne	rest 0.01 f	æ)		(Product 1	(hickness)	[Water 6	Column)	(Circ		-
3/11 5 10 : 20										Vater	DTP-	WTG	DTB-	DTW		Volu	me (gal)
				<u> </u>					8	.00	9				X 1		D. Z
Galfin = (dis.2)*x 0.163	5/11	/ 1		$\cdot w$	17	00							_		X 3	(0.60
Nethods:		in m²	0.163	<u> </u>	0.041	2" =	0.163	3* ≈	0.367	4" =	0.653	6* =	1.469	10" =		12" =	5.875
Sample Depth: N° Fruend Bottle Type Date				-						r (E) Dedic	ated Bailer (I	-) Dedicated	Pump (G) (Other =			
Bottle Type Date															:		[v if used]
VOA Glass 3 / 1 / 9 10 : 15 9 40 ml											Pres	ervative	(circle)	Ice	Filter	pН	1
Amber Glass 3 /11 / 9 7 10 : 15 P	VOA Glass 3/11/97 10:15 B																
White Poly 3 / 1 757 10 : 15	Amber Glass 3 /11 /97 10:15 P (250,500,1L (None) (HCI) JH2SO4) YES NO																
Vellow Poly	White Poly 3/11/97 10:15 P 250, 500, IL None YES NO NA																
Caston Control Contr	White I	Poly	3/1	1/97	10	: 15	7				<u> </u>					147	
Red Total Poly	Yellow	Poly	/	/	;	<u> </u>											
Red Diss. Poly	Green	Poly		1		<u> </u>											
Total Bottles (include duplicate count):	Red Tota	al Poly	1			<u> </u>			250, 5	600, 1L		HNO ₃					
Total Bottles (include duplicate count):	Red Diss	s. Poly	1	1		<u> </u>			250, 5	500, 1L		HNO ²		YES	YES		<u> </u>
BOTTLE TYPE			1	1					250, 5	00, 1L	<u> </u>			YES			L
VOA - Glass (8010) (8010/8020) (8020) (8240) (8280) (BTEX (TPH-G) (BTEXCEPL-G) OR [] WA[]			То	tal Bottle				Z									
VA - Glass		ВС	TTLET	YPE	TYPICAL	ANALYS	IS ALLOW						n-standar	d analysis			
MATER QUALITY DATA Purge Start Time:	[VOA - G	lass		(8010) (8010/8020)											
RED DISSOLVED - Poly (As) (Sb) (Ba) (Ba) (Ca) (Cd) (Cd) (Cd) (Cd) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (TI) (M (Zn) (Hg) (N (Na) (Hardness) (Silica)	\$ 8				<u>` </u>								(504)	(NO ¹) (N			W()
RED DISSOLVED - Poly (As) (Sb) (Ba) (Ba) (Ca) (Cd) (Cd) (Cd) (Cd) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (TI) (M (Zn) (Hg) (N (Na) (Hardness) (Silica)	원 ·				4.7	<u></u>						JOS (CO	, (004)	(1.03)			
RED DISSOLVED - Poly (As) (Sb) (Ba) (Ba) (Ca) (Cd) (Cd) (Cd) (Cd) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (M (Zn) (Hg) (N (Na) (Hardness) (Silica)	ysls Bott		<u></u>			100) (10	(, 04, ((
RED DISSOLVED - Poly (As) (Sb) (Ba) (Ba) (Ca) (Cd) (Cd) (Cd) (Cd) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (TI) (M (Zn) (Hg) (N (Na) (Hardness) (Silica)	Pe An			ly		(Ba) (Be) (Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(m) (v) (Zn) (Hg)	(K) (Na)		
Meas. Method \$ Purged (gal) pH E Cond (μS) °F Temp(°C) Other Diss O₂ (mg/l) Water Quality 1 The cond (μS) The c	Ì				(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	(Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn)	(Ni) (Ag) (S	(V) (TT) (e)	(Zn) (Hg) (K) (Na) (Ha	ardness) (Si	lica)	
Meas. Method \$ Purged (gal) pH E Cond (μS) °F Temp(°C) Other Diss O₂ (mg/l) Water Quality 1 The cond (μS) The c												त्त्र ।	 -		1 . 5		
1 13 14 15 15 15 15 15 15 15	NATE	R QU	ALITY	DAT	٩	Purge	Start Ti	me:	:		· · · · · · ·		<u> </u>				
2 B 0 - 7 7 . 14 1241 14 . 0 3 281 2 . 59 " " "	Meas.	Meth	nod §	Purge	d (gal))H			°F Te	mp ୯ ©	Other	Diss O	2 (mg/l)	<u> </u>	Vater Q	uality
3	1	13		C	.+	5	.93	58	<u> </u>	14	.0	354		<u>. 53</u>	Stell	Ly b	rown
3	2	B		0	. 7	7	.14	12	11	14	· D	¥281	2	. 59	0 0	,,	
4	3										•			•			
[Casing] (Select A-G) [Cumulative Totals] [Circle units] (Circle units]	- 		-								•			•			
[Casino] [Select A-G] [Cumulative Totals] [Circle units] [Circle units]							•				•						
Water table elev 8 bgs. Confining conditions, free water not encounts till screen at 13-17. Tried to sample of screen at 7-11' But no free water	[Casing]	(Selec	:t A-G)	(Cumulat	ve Totals]	L		l				<u></u>		-		•	

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

0800

									Office:	(509	9) 838-1	144	Fax:	(50	9) 838	-1382
PROJE	ECT	IAME	:							W	ELL ID:	GP	-9			
SITE A	DDR	ESS:								BL	IND ID:	GPW-	9-3	97-19	5	
			4035	8-01	6.CO	4			··		UP ID:	GPW-			25	-NA @
Wil	ND FF	ROM:	2	NE	Ε	SE	S	sw	W	NW	LIG			NUIC		EAVY
V	VEAT	HER:	(SÚI	(YNV	CLC	YQU	RA	IN		?	TEM	IPERA	TURE:	(F) <u>F</u>		•c
HYDR	OLO	GY/LE	EVEL	MEASU	REME	NTS (Nea	arest 0.01	ft)		Product	Thickness)	(Water	Column)	- (Cin	le appropri (Water C	olumn x Gal/ft]
Da	te	T	ime	DT-B	ottom	DT-P	roduct	DT-V	Vater	DTP	WTG	DTB-	DTW		Volu	me (gal)
1	1		:				•		•		•			X 1		•
1	/	·	:		•		•		•		•			X 3		•
Gai/ft = (dia./2) ² >	(0,163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5 .875
§ METHO	DS: (A) S	ubmensit	de Pump (B) Peristaltic	Pump (C) (Xisposable B	ailer (D) PVC	/Teflon Baik	er (E) Dedica	ited Bailer (F) Dedicated	Pump (G)	Other =			L (4 a
GROU	NDW	ATER	SAME	LING I	DATA (f product i	s detected	i, do NOT	sample)			Sampl	e Depth	:		[vitused]
Bottle	Туре	D	ate	Tir	ne	Method ⁵	Amount	t & Volu	me mL	Pres	ervative	(circle)	Ice	Filter	pН	√
VOA	Glass	31	11 197	14	15	3	BLO	40	ml		HCI		YES	NO		
Amber	Glass	3/	11/97	14	15	B	2	250, 5	500, 1L	(None	(HCI) (H	I₂SO₄)	YES	ИО		
White	White Poly 3 / 11 / 97 14:15 B Z 250, 500, 1L None YES NO NA Yellow Poly / / : 250, 500, 1L H₂SO₄ YES NO															
Yellow	Yellow Poly / / : 250, 500, 1L H ₂ SO ₄ YES NO															
Green Poly / / : 250, 500, 1L NaOH YES NO																
Red Tot	Green Poly / : 250, 500, 1L NaOH YES NO Red Total Poly / : 250, 500, 1L HNO3 YES NO															
Red Dis	Red Total Poly / / : 250, 500, 1L HNO3 YES NO Red Diss. Poly / / : 250, 500, 1L HNO3 YES YES															
		/	1		•			250, 5	00, 1L				YES			
		To	otal Bottle	s (include			10	inc								
	BC	TLET	YPE	TYPICAL	ANALYS	IS ALLOW	ED PER BO					n-standard	1 analysis			
_	VOA - G			 '	8010/8020)		(8240) (826	-		(BIEXI	PH-G)				[]	WA[]
wec	AMBER			, ,	PH-HCID)	<u> </u>	(TPH-41&1) (SS) (BOO)	(Oil &Gre		** 0400	ACO-) (CI)	(SO ₄)	(1ON) (N	O) (F)		WA[]
Alk tle T	AETTON	<u>·</u>		<u> </u>	onductivity) TOC) (To		otal Keldahi i)))))		(004)	(· · · · · · · · · · · · · · · · · · ·			
Analysis Allowed per Bottle Type	GREEN	<u>-</u>		(Cyanide)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				· · · · ·							
Ana	RED TO	TAL - Po	ły	(As) (Sb)	(Ba) (Be)	(Ca) (Cd)	(Co) (C1)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(m) (v) (i	Zn) (Hg) ((N) (Na)		
	RED O	SSOLVE) - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	(Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn) (Ni) (Ag) (S	(a) (II) (v) (i	Zn) (Hg) (H	(Na) (Ha	ardness) (Si	ica)	
					F			,			· -	2				.7
			/ DAT/		Purge	Start Ti		4:15			,;;,			let Dept		
Meas.	Meth	od §		d (gal)	<u>F</u>	H	E Con	d (μS)		пр 😉	Other	Diss O			/ater Qu	
1		3	0	.5	7	.।५	1244	. <i>D</i>	17.	0 7	>1000 _x	TU 1	51	St CI	dy b	rown
2				•		•			•				· 			
3				• <u> </u>	-	•							•			
4				•		•						•	·			
(Casual)	(6-1		/S	· Totalal		•			(Circle	unde)			•		(Clarity, Co	olor)
(Casing)	(Selec			rve Totalsj	7 4	.1	,						, .	Λ	•	
	علاف	cte	O a	· frel	ld du	plic	ate.	label	ed G	PW-	7 -39	7 - 25	'a ho	l ga	ve is	t
ao	dum	my.	time	46	080	0.	ate.)		

SAMPLER: _ Som

hn Latta

SIGNATURE)

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

									Office:	(509	9) 838-1	144	Fax:	(50) 838 (ec	-1382
PROJ	ECT N	IAME	:							W	ELL ID:	GP-	10			
SITE	ADDR	ESS:								BL	IND ID:	GPW	-10-	397	-44	17 350
			40350	-016	001						UP ID:	·			,	NA
WI	ND FR	ROM:	N	NE	E	SE	(S)	sw	W	NW	LIG			NUM	<u> </u>	EAVY
٧	VEAT	HER:	SUI	NNY)	CLC	YQUC	RA	IN.	(Win	dy'n	TEN	IPERA	TURE:			*c
HYDR	ROLO	GY/LE	EVEL	/ //EASU	REME	NTS (Ne	arest 0.01	ft)		[Product]	Thickness]	(Water	Column)	į Cun	cle appropri (Water C	column x GaVft
Da			ime		ottom		roduct	T .	Vater	DTP	-DTW	DTB-	WTO		Volu	me (gal)
1	1		:		•		•				•			X 1		•
7	1		:				•		•		•			X 3		
Gal/ft =	(dia./2) ² x	0.163	1" =	0.041	2" =	0.163	3" =	0.367	4" =	0.653	6 " =	1.469	10" =	4.080	12" =	5 .875
							ailer (D) PVC				F) Dedicated					[Vit used]
GROU	MDW	ATER	SAME	LING I	ATA (if product	is detected	i, do NO7	r sample)			Sampl	e Depth			<u> </u>
Bottle	Туре	0	ate	Tit	ne	Method ⁵	Amoun			Pres	ervative	(circle)	Ice	Filter	pН	1 1
VOA	Glass	31	12/97	12	:∞	B	\$60	J5~ 40) ml		HCI		YES	NO	<u> </u>	1
Amber	Glass	31	12/47	12	:00	B	1	250, 5	500(L)	(None	(HCI) (I	H₂SO₄)	YES	NO		V
White	Poly	31	12/97	12	00	B	1	250(5	∭7L		None		YES	NO	NA	V
Yellow	/ Poly	/	1		•			250, 5	500, 1L		H₂SO₄	_	YES	NO		<u> </u>
Green	Poly	1	1		:			250, 5	500, 1L		NaOH		YES	NO		ļ
Red To	tai Poly	1	1					250, 5	500, 1L		HNO3		YES	NO		<u> </u>
Red Dis	s. Poly	1	1		:			250, 5	500, 1L		HNO ²		YES	YES		
		1	1		•			250, 5	500, 1L				YES	<u> </u>		<u> </u>
		To	otal Bottle	s (includ												
	ВС	TTLET	YPE				ED PER BO					n-standar	d analysis	_		WA (X)
_	VOA - G			 ` 	8010/8020) IPH-HCID)	(6020) (TPH-D)	(8240) ((826 (TPH-418.1)		O (TPH-G	(BIEXI	PH-G)		_		[]	WA D
уре	WHITE	- Glass		 ` 	onductivity)		(IP 10.1)			nity) (HCC	PACO7) (CI) (SO ₄)	(NO ₃) (N	O ₂) (F)	` ' -	
s All	}	N - Poly		 ` ` ` `		`````	otal Keldahi		(NH7) (NH	DyNO3)						
Analysis Allowed per Bottle Type	GREEN	- Poly		(Cyanide)												
₹ ×		TAL - Po	<u></u>				(Co) (Cr)								ilical	
	RED OL	SSOLVE	D - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Co) (C	(Cr) (Cu)	(F8) (P0)	(wg) (mn)	(M) (M) (S	HE) (11) (V)	(21) (19) (1	9 (144) (114	indiress) (O	100	
WATE	R QU	ALIT	Y DATA	Δ	Purae	Start Ti	me:	:			Tubid	Pump/	Bailer Ir	niet Dep	th: #	<u> </u>
Meas.		nod §		d (gal)		H	E Con	d (μS)	°F Te	mp (°C)	Other		2 (mg/l)		Vater Q	
1	E		0			·3B	126		13	. 7	437	7	٠+	Slo	ldu 15	nown
2	 	<u>, , </u>	- 		<u>_</u>	•				•			•		0	•
3	 			•		•			 	•			•			
4	 			<u>·</u>		<u>·</u>										
[Casing]	[Selec	t A-G]		ove Totals]		-	·		(Circle	units]					(Clanty, C	olor)

SAMPLER: July

(PRINTED NAME)

John Valla (SIGNATURE)

W 7106 Will D. Alton Lane, Suite 101

	4	"	E	П						•	okane,					
									Office:		9) 838-1		Fax:	(50	9) 838	-1382
				CITY							LL ID:					
							AND, W	Α			IND ID:					
		_				TASK 3			· · · · · ·		UP ID:					
	ND FF	<u> </u>	N	NE	E	SE	S	sw	W	NW	LIG			DIUM		EAVY
٧	VEAT	HER:	(SUN	NY)	CLC	YQU	RA	IN	Ĺ	7	TEM	IPERA	TURE:		5 .	• C
HYDR	OLO	GY/LE	VELN	IEASU	REME	NTS (Nea	arest 0.01	ft)		(Product	Thickness)	(Water	Column)	, (CAIC		olumn x Gel/ft
Da	te	Tin	ne	B-TO	ottom	DT-P	roduct	DT-V	Vater	DTP-	-DTW	DTB-	DTW		Volu	me (gal)
518	3 77	12:	40	30	80		•	7	.99		•	22	-ଞା	X 1	17	3.72
5/8	3 47				,		•	8	.00		•			X 3		1.15
	(dia /2) ²)		1" =	0.041	(2)	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
§ METHO	OS: (P) P	eristaltic P	ump (D) D	isposable E		lon Bailer (O) Other =									
GROU	NDW.	ATER:	SAMP	LING	DATA (i	f product i	s detected	, do NOT	sample)			Sampl	e Depth	:		(V if used)
Bottle	Туре	Da	te	Tir	ne	Method ⁵	Amount	& Volu	me mL	Pres	ervative	(circle)	lce	Filter	рН	√
VOA	Glass	5/8	197	ls	10	P	بهر بحودل	5 40	ml		HCI		YES	NO		√
Amber	Glass		197		(0	P	**	1	IL.		HCI		YES	МО		√
White Poly / / : 250, 500, 1L None YES NO NA																
Yellow Poly / / : 250, 500, 1L H₂SO₄ YES NO																
Green	Poly	1	1		:			250, 5	500, 1L		NaOH		YES	NO		
Red Tot	al Poly	1	1					250, 5	500, 1L		HNO3		YES	NO		
Red Dis	s. Poly	1	1					250, 5	500, 1L		HNO ₃		YES	YES		
		1	1				المول	250, 5	500, 1L				YES			
		Tota	al Bottle	s (include	duplicat	e count):	X 12	Incl	Ludin	رم ۱ ۰۰	ملح ط	uplic	eate			
	ВС	TLE TY	PE _	TYPICAL	ANALYS	IS ALLOW	ED PER BC	TTLE TY	PE (Circle	applicable	or write no	n-standan	d analysis			
	VOA - G	lass		8280_(F	HG \										[]	WA(X)
Anatysis Allowed per Bottle Type	AMBER			(PH-D (E)	<u></u>						100 1 100	(00)	010 \ 01		[]	WA[X]
Allo (WHITE			(pH) (ex		`````	SS) (BOD)				-yCO ₁) (CI)	(SO ₄)	(100) (N	O ₂) (F)		
Pott	YELLOV			(COD) ((Cyanide)	roc) (ra	alPO₄) (T	otal Keldahi I	Autoden)	(NH ³) (NC	yvv0y)						
Pe de		TAL - Poly			(Be) (Be)	(Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(TI) (V) (Žn) (Hg) ((K) (Na)		
		SSOLVED -					(Cr) (Cu)								ica)	
<u> </u>							_									
WATE	R QU	ALITY	DATA		Purge	Start Ti	me:	17:4.	3		Time	(Pump)	Bailer Ir	let Dept	h: 20	<u>o</u> '
Meas.	Meth	od §	Purge	d (gal)	р	H	E Cond	d (μS)	°F Ter	np(°C))Other	Turbid.	(NTU)	W	ater Qu	ıality
1	1		3.	72	7	. Ol	100	03	17	0	17:47	277		Cldy	bru	
2														u		
3	F			15		.31		47	16	ط	17:58	D	8	V.51	doly	bur.
4						•										
																
[Casing]	(Select P		(Cumulatr	•	- 4.	+			(Circle	units)					(Clarity, Co	HOT

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

									Office:		9) 838-1		Fax:	•	9) 838	
PROJ	ECT N	JAME	: NEW	CITY	CLEAN	IERS				W	ELL ID:	MW.	- 2/3	J5L 7	-114/97	
SITE	ADDR	ESS:	747 S	TEVEN	IS DR.,	RICHL	AND, W	Ά		BL	IND ID:	MW-	Z2 6	2597	;	
PROJ	ECT N	IUME	BER: 4	0358-0	16.001	TASK 3	3			ם	OUP ID:		10-0	255	یں ک	L NA-
WI	ND FF	ROM:	N	NE	E	SE	S	sw	W	NW	LIG			NUIC		EAVY
V	NEAT	HER:	(Sui	YNY)	CLC	YOU	RA	IN .		?	TEN	1PERA	TURE:	(F)	•	•c
HYDS	ROLO	GY/LI	FVFI N	/FASU	REME	NTS (Ne	arest 0.01	ft)		(Product	Thickness)	[Water	Column)	(Cin	e appropri	iste unitsj Column x Gal/ftj
Da			ime		ottom		roduct	1	Vater	DTP	-DTW	DTB-	OTW]	Volu	me (gal)
5/	B 47	12	:34	31	.05		•	8	.79			22	.26	X 1	• • •	3.63
	3 47		:58		<u> </u>				.79					X 3	1	D· B6
	(dla./2) ²)	_		0.041	(Z)	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
)isposable (Bailer (T) Te	flon Bailer (C) Other =									
GROL	MDW	ATER	SAMF	LING	DATA (if product	s detected	i, do NO	r sample)			Sampl	e Depth	:		(V if used)
Bottle	Туре	С	ate	Ti	me	Method ⁵	Amoun	t & Volu	me mL	Pres	ervative	(circle)	Ice	Filter	pН	1
VOA	Glass	51	8/93	17	:00	P	5	40) ml		HCI		YES	NO		1
Amber	Glass		8/97		:00	P	1		1L		HCI		YES	NO		1
White	Poly		1		:			250, 5	500, 1L		None		YES	NO	NA	
Yellow Poly / / : 250, 500, 1L H₂SO₄ YES													NO			
Green	ı Poly	/	1		:			250, 5	500, 1L		NaOH		YES	NO		
Red To	tal Poly	1	7		:			250, 5	500, 1L		HNO ₃		YES	NO		
Red Dis	ss. Poly	/	1		:			250, 5	500, 1L		HNO ₃		YES	YES		
<u> </u>	i	1	1		:		JSL	250, 5	500, 1L				YES			
L		T	otal Bottle	s (includ	e duplicat	te count):	**	72 ;	Act 15		12	incl.	sin	lw-k	sami	de
	ВС	TTLE		•		IS ALLOW						n-standar	l analysis	below)		
	VOA - G	1255	-7	8200 TF	жв)										[]	WA(X)
\$ &	AMBER		-	TPH-0 (E	, 						150) (51	(00)	WON (N		[]	WA [X]
Analysis Allowed per Bottle Type	YELLOV				onductivity) TOC) (To		SS) (BOD) otal Keldahi I	<u> </u>		DyNO ₂)	1-/CO ₁) (CI	(SO ₄)	(1404)	O) (F)		
lysis Bott	GREEN			(Cyanide)	100) (10	(A) (1	OCE REGETT	tia Og 411)	(1113) (110	,,,,,,						
Ana	1	TAL - Po	Hy		(Ba) (Be	(Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(TT) (V) (A	Zn) (Hg) ((K) (Na)		
	RED DIS	SSOLVE	D - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	(Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn) ((pA) (in	ie) (Π) (V) (Zn) (Hg) (H	() (Na) (Ha	rdness) (Si	lica)	
	<u> </u>			L	Γ=	·			<u> </u>				Daileala	niet Depi	.b. 74	,
	·		Y DATA			Start Ti		<u>16:2</u>		(60)	\					
Meas.	Meth		Purge	d (gal)		H	E Con			np(°C)		Turbid.			/ater Qu	
1	P			63		·28	117	₹7	16		16:28			Cidy		
2	F		7	26		. 39	117	5	16.		16:35	25	B	<u> अ ८ ४</u>	4 pia	<u>. </u>
3	Į į	2	10	86	7	9	16:45	* 7	277	11 15						
4						•			<u> </u>			17.	, T			
(0	<u> </u>	0.7.6	Cumulati	r Tar-tal		•			(Circle	unitsi		<u> </u>			(Clanty, Co	olor)

Rins Equipment rine sample MW-20-0597. Pumped spren DI H20 through silicone tabine from bottle into sample containers. Gave a dummy time of 92:40. Cascade Gle as premian drinking water.

(AMPLER: Jahr Latta

(PRINTED NAME)

SIGNATURE)

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

Office:

(509) 838-1144

Fax:

(509) 838-1382

PROJ	ECT N	IAME: NEW	CITY	CLEAN	IERS				WE	LL ID:	MW.	-32	194 71	14/97	
SITE	ADDR	ESS: 747 S	TEVEN	S DR.,	RICHL	AND, W	Α		BL	ND ID:	MW-	73 - C	>593	Ł	
PROJ	ECT N	IUMBER: 4	0358-01	16.001	TASK :	3			D	UP ID:	MS/A	15Ď			NA
W	ND FF	ROM: N	NE	Ε	SE	S	sw	W	NW	LIG	HT	ME	NUIC	H	EAVY
٧	VEAT	HER: (SU	NNY	CLC	YQUC	RA	IN		?	TEN	IPERA	TURE:	(F) 7	15.	•c
HYDF	ROLO	GY/LEVEL N	//EASU	REME	NTS (Ne	arest 0.01 i	n)		[Product	Thickness)	(Water	Columnj	(Cin	cie appropri (Water C	isto units) kolumn x Gal/ft)
Da		Time		ottom		roduct		Vater	DTP-	WTO-	DTB-	WTO.		Volu	me (gai)
5/8	, 197	12:21	28	.98			8	·13		•	٥٥	· 85	X 1	77)	3.40
5/8	3 /97					•	8	. ાન		•			X 3	l t). 20
Gai/it =	(dia /2) ² :		0.041	②	0.163	3" =	0.367	4" = .	0.653	6° =	1.469	10" =	4.080	12" =	5.875
§ METHO	OS: (P) P	eristaltic Pump (D) (Disposable E	ailer (T) Te	flon Bailer (C)) Other =									
GROU	NDW.	ATER SAME	LING I	DATA (if product	is detected	, do NOT	sample)			Sampl	e Depth	:		(v if used)
Bottle	Туре	Date	Tir	ne	Method ⁵	Amount	& Volu	me mL	Pres	ervative	(circle)	lce	Filter	pН	1
VOA	Glass	5/B/97	14	50	P	73.5× 10	40	ml		HCI		YES	NO		√
Amber	Glass	5/8/97	14	50	P	2	1	L		HCI		YES	NO		٧
White	Poly	1 1			Ī		250, 5	00, 1L		None		YES	NO	NA	
Yellow	Poly	1 1		;			250, 5	00, 1L		H₂SO₄		YES	NO		
Green	Poly	1 1		:			250, 5	00, 1L		NaOH		YES	NO		!
Red To	al Poly	1 1					250, 5	00, 1L		HNO ₃		YES	NO		
Red Dis	s. Poly	1 1					250, 5	00, 1L		HNO₃		YES	YES		
		1 1					250, 5	00, 1L				YES			
<u> </u>	لــــ دــ سه	Total Bottle	s (include	duplicat	e count):	12	سن	cl 1	MS/M	SDS					
BOTTLE TYPE TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)															
100,1 61255												WA[X]			
8 8	AMBER	- Glass	APH-D (E)	tended)	7								OR	[]	WA[X]
Analysis Allowed per Bottle Type	WHITE	Poly	(H) (C)	nductivity)	(TDS) (T	'SS) (BOD)	(Turbidit)	/) (Alkalin	ity) (HCO:	ACO ³) (CI	(SO ₄)	MO7 (M	O ₃) (F)		
ette sis	YELLOV	V - Poly	(COD) (roc) (To	nal PO ₄) (T	otal Keldahi N	litrogen)	(NH ²) (NK	Dyno)	···					
e aly	GREEN	- Poly	(Cyanide)												
5 %	RED TO	TAL - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Cd)	(Co) (Cr) ((Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(TI) (V) (II)	Zn) (Hg) (K) (Na)		

WATE	R QUALIT	Y DATA	Purge Start Ti	ime: (너:(3	Time	Pump/Bailer II	niet Depth: 24
Meas.	Method §	Purged (gal)	pН	E Cond (µS)	°F Temp(°C	<u> </u>	Turbid. (NTU)	Water Quality
1	P	3.40	3 -14	1287	17·B	14:23	5315 91.5	Cldy gray
2	P	6.80	7.36	1280	17.1	14:29	14.60	SI clay gray
3	P	10.20	7.48	12:35	17.0	14:36	4.40	V.SI. clay gray
4					•			
	·				•			
Manual .	(Calanda O T O)	(Cten a Tabelel			(Circle units)			(Clanty, Color)

[Casing] (Select P-O-T-O) [Cumulative Totals]

RED DISSOLVED - Poly

(As) (Sb) (Ba) (Ba) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (TI) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)

SAMPLER:

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

					B 4				Office:	(50	9) <u>838-1</u>	144	Fax:	(50	19) <u>838</u>	-1382
PROJ	ECT N	AME	: NEW	CITY	CLEAN	ERS				Wi	ELL ID:	MW-	4			
SITE A	DDRI	ESS:	747 S	TEVEN	IS DR.,	RICHL	AND, W	Ά		BL	IND ID:	MW-	4-0	597	•	
PROJ	ECT N	UMB	ER: 4	0358-0 ⁻	16.001	TASK 3	3				OUP ID:					NA
WI	ND FR	OM:	N	NE	E	SE	S	sw	W	NW	LIG	HT	MED	MUIC	H	EAVY
٧	VEAT	IER:	∕5UI	NNY)	CLC	UDY	RA	IN		?	TEN	IPERA	TURE:	(F) 7	5.	*c
HVDE	201.00	2V/I t	EVEL A	AE A SU	PEME	NTS (Ne	arest 0.01	6)		Product	Thickness)	(Water 6	Cokumni	(Cin	cie appropri (Water C	ate unitsj olumn x Gal/f(
Da			ime		ottom		roduct	T	Vater		-DTW	DTB-				me (gal)
5/0	9 /97		:28		·35		•	9	·25		•	20	10	X 1	3	3.28
	3 /97		52		. y.y. .		•	_	٠26					X 3		1.83
	(dia./2) ² x		1"=	0.041	(2)=	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
§ METHO	OS: (P) P	eristaltic	Pump (D) [Disposable I	Bailer (T) Te	fon Bailer (O) Other =									
GROU	NDW	ATER	SAME	LING	DATA (i	f product	is detected	i, do NOT	sample)			Sample	e Depth	:		(√ifusea)
Bottle	Туре	D	ate	Ti	me	Method ⁵	Amoun	t & Volu	me mL	Pres	ervative	(circle)	lce	Filter	pН	√
VOA	Glass	5/	8/97	10	:00	7	5	40	ml		HCI		YES	ИО		1
Amber	Glass		8 47		:00	P	1	1	L		HCI		YES	NO		√
White	Poly		1		:			250, 5	00, 1L		None		YES	NO	NA	
Yellow	Poly	1	/		:			250, 5	500, 1L		H₂SO₄		YES	NO		
Green	Poly	1	1		:			250, 5	500, 1L		NaOH		YES	NO		
Red Tol	al Poly	1	/		:			250, 5	500, 1L		HNO ₃		YES	NO		
Red Dis	s. Poly	1	1		:			250, 5	500, 1L		HNO ₃		YES	YES		
		1	/		:			250, 5	500, 1L				YES			L
		To	otal Bottle		e duplicat		6									
	ВО	TLET	YPE	TYPICAL	ANALYS	IS ALLOW	ED PER BO	TILE TY	PE (Circle	applicable	or write no	n-standard	t analysis			
	VOA - G	lass		8260 TF)									()	WA[X]
Analysis Allowed per Bottle Type	AMBER			TPH-D (E			~ #000	e e e e e e e e e e e e e e e e e e e	y) (Alkalin	and the contract of the contra)-/CO ₁) (CI) (SO ₄)	(1OH)	O) (F)	[]	
Allo le T	WHITE -			G-17 (-	onductivity) TOC) (To		rss) (BOD) rotal Keldahi I		····	Dy/NO ₂)	1900) (C)	(304)	(10)			
ysis	GREEN	<u>_</u>		(Cyanide)	100) (10			you	(<u>y</u>							
Anal	RED TO		ły		(Ba) (Be)	(Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(m) (v) (a	Žn) (Hg) ((Na)		
	RED DIS	SOLVE	D - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	(Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn) ((Ni) (Ag) (S	S•) (Π) (V) ((Zn) (Hg) (H) (Na) (Ha	rdness) (Si	lica)	
																7
WATER QUALITY DATA Purge Start Time: 15:35 Pump Bailer Inlet I																
Meas.	Meth	od §	Purge	d (gal)	р	H	E Con	d (μS)	°F Ter	mp(°C	Other	Turbid.	(NTU)	W	/ater Qu	ıality
1	F	•	3	·ZB	7	. 24	100	10	16	. ප	13:38	126		_	bru	
2	₽	•	6	.55	7	. 44	10	50	16	7_	13:45	1	99		<u>Cldy</u>	
3						.46	10	53	lb.	<u>.8</u>	15:52	1.	47	Clean	colo	ملعمه
4																
				•		•			<u> </u>						(Clarity, Co	plori
(Casing)														to-rus, or	1	

SAMPLER:

John Latta (PRINTED NAME)

EMCON

W 7106 Will D. Alton Lane, Suite 101

Spokane, Washington 99224

(509) 838-1144

(509) 838-1382

									Onice.		7) 030-1		rax.	(50	19) 030	, 1002
PROJ	ECT N	AME	: NEW	CITY	CLEAN	IERS				WE	LL ID:	MW	<u>-D</u>			·
SITE A	ADDRE	ESS:	747 S	TEVEN	S DR.,	RICHL	AND, W	A		BL	:מו מא	Mw-	D - C	2593	7	
PROJ	ECT N	UMB	ER: 4	0358-01	16.001	TASK 3					UP ID:					NA NA
WI	ND FR	OM:	N	NE	Ε	SE	S	SW	W	(WW)	$\overline{}$	HID	MED			EAVY
٧	VEATH	IER:	S UI	E	CLC	YQUC	RA	IN		?	TEN	1PERA	TURE:			•c
HVDE	יחו חמ		TVEL A	AEASII	REME	NTS (Nex	rest 0.01	71		(Product	Thickness)	Water	Columni	(Circ	de appropr Water (nate units) Column x Gal/ft)
Da			me		ottom		roduct		Vater		DTW	,	ĐΤW			ime (gal)
	2 /97		ઃનવ		00	1		2	.05			8	.03	X 1		5.24
	2 47		:45	17	.09				.00		<u> </u>			X 3		5.73
	dia./2) ² x		1"=	0.041	2"=	0.163	3" =	0.367	(4-)	0.653	6" =	1.469	10" =	4,080	12" =	5.875
						fion Bailer (O			<u> </u>	0.000						
							s detected	do NOT	sample)			Sampl	e Depth:			[vid used]
Bottle					me		Amount			Pres	ervative	<u> </u>	Ice	Filter	рH	1
			ate				5		ml	1 103	HCI	(circio)	YES	NO		1
VOA			2/97		:00_	7					HCI		YES	NO		1
Amber			2/97	6	:00	P			L					NO	NA	 '
	White Poly / : 250, 500, 1L None YES NO NA Yellow Poly / : 250, 500, 1L H₂SO₄ YES NO															
	Yellow Poly / / : 250, 500, 1L H₂SO₄ YES NO Green Poly / / : 250, 500, 1L NaOH YES NO															
Green	Great ray															
Red Tot	Red Total Poly / / : 250, 500, 1L HNO ₃ YES NO															
Red Dis	s. Poly	1	1		:			250, 5	00, 1L		HNO ₃		YES	YES		
		1	1		:			250, 5	00, 1L				YES			
		То	tal Bottle	s (include	•		6				<u></u> .			·		
	ВО	TLET	YPE	TYPICAL	ANALYS	IS ALLOW	ED PER BO	TTLE TY	PE (Circle	applicable	or write no	n-standan	d analysis l			
	VOA - GI			8280 TF	_										[]	WA[X]
ype	AMBER			TPH-0 (E	onductivity)	(поя) (г	SS) (BOO)	(Turbidit	y) (Alkalin	iity) (HCO	ACO-) (CI) (SO ₄)	(NOT) (NC			
s Allo	VELLOW .	•	-	<u> </u>			otal Keldahi N			DyNO ₂)	,,,,,,	, , , ,				
Anatysis Allowed per Bottle Type	GREEN			(Cyanide)												
Pe A	RED TO	ľAL - Pol	y				(Co) (Cr)									
	RED DIS	SOLVE	- Poly	(As) (Sb)	(Ba) (Ba)	(Ca) (Cd) (C	o) (Cd) (Cu)	(Fe) (Pb)	(Mg) (Mn)	(Ni) (Ag) (S	•) (II) (V)	(Zn) (Hg) (H	(Na) (Hai	rdness) (Sil	ica)	14.0
					D	Charl Ti						6imil	Bailer In	let Dent	h: 11	15h
WATE		- :- 1				Start Ti		5:0		7	Time Other	Turbid.			ater Q	uality
Meas.	Meth	od a		d (gal)		H	E Cond									queen
1	<u>+</u>		5	24	6	.94	169		16		15:16	42		V. 31 C	<u> </u>	d'ii
2	7			48		.03	177	25	15	.5	15:34	20	· Ч		••	.,
3	_ P	,		73-		-					15:43			*		
4				.00		<u></u>	··-			·	_		·			
	10 to 0		(Cumulat	· Yamial		<u>. </u>			(Circle	units)		<u></u>	· [(Clarity, Co	plor
(Casing)	الم مل	ر کیا۔	DELOMBOJ	να ₁ ουσα) Δ 4 α. Δ	. 1.	If	5'2	Tor.	•	•			0			,
7	1		2000	7			.5' B	100, E' P	Tall	u z	por	e ve	Kum	م مب	mg	ed
					PA	L.	uc 1	כו כ	100	TO	Keep	up	ω { ο	nau	rdo	wu.
W	ecc	Puw	بععظ	. dry	ap	on pu	rging	3119	alle	ns (Wou	red :	D AR	chan	ge t	ع الم الاح
SAMP	LER:	, \	shr	Lat	ta		`	- (_		kun N	Lat	(au			9 15:55
			D NAME)						(SIS) ATL	JRE) U					

FIELD SAMPLE SAM

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

					1				Office:	(50	9) 838-1	144	Fax:	(50	9) 838	-1382
PROJ	ECT N	VAME	: NEW	CITY	CLEAN	IERS				W	ELL ID:	MW	- E			
SITE	ADDR	ESS:	747 S	TEVEN	IS DR.,	RICHL	AND, W	Ά			IND ID:			593	2.	
PROJ	ECT N	NUME	3ER: 4	0358-0	16.001	TASK 3	3		-		UP ID:					NA
W	ND F	ROM:	N	NE	Ε	SE	S	sw	W	(ŃW) (Lic	энт)	ME	NUIC	H	EAVY
V	NEAT	HER:	Sui	NNY	CLC	YQU	RA	IN		7	TEN	/IPERA	TURE:	3 9	ο.	• c
HYDE	2010	GY/I	EVEL A	AEASII	REME	NTS (Ne	arest 0.01	A)		Product	Thickness)	Water	Column)	(Cin	de appropri	ste unitsj olumn x Gal/ftj
Da	•		ime	T -	ottom		roduct		Vater		-DTW		OTW]		me (gal)
	2 /97	_	A57		.47	<u> </u>		(-	·80	<u></u>	•	B	67	X 1		5.66
/	<u>6 7 t</u>	1	:53	• •					.70					X 3		, 9B
Gal/fi =	(dla./2) ² :		1"=	0.041	2"=	0.163	3" =	0.367	V47	0.653	6" =	1.469	10" =	4.080	12" =	5.875
	<u> </u>				<u> </u>	fion Bailer (C) Other =									·
<u> </u>			_				is detected	, do NOT	Γ sample)			Sampl	e Depth	:		(V if used)
Bottle			Date	·	me		Amount				ervative	(circle)	Ice	Filter	pН	1
VOA		5/	12 97	1E	:00	R	5	40) ml		HCI		YES	NO		1
Amber	Glass		12/97	r	:00	7	(1	1L		HCI		YES	NO		1
White	Poly	1			:		-	250, 5	500, 1L		None		YES	NO	NA	
Yellow		1	1		:			250, 5	500, 1L		H₂SO₄		YES	NO		
Green	Poly	1	1		:			250, 5	500, 1L		NaOH		YES	NO		
Red To	al Poly	7	7		:			250, 5	500, 1L		HNO ₃		YES	NO		
Red Dis	s. Poly	1	1	-	:			250, 5	500, 1L		HNO ₃		YES	YES		
		1	1		:			250, 5	500, 1L				YES			
			otal Bottle	s (include	e duplicat	e count):	6									<u> </u>
	ВС	TTLE 1					ED PER BO	TTLE TY	PE (Circie	applicable	or write no	n-standard	i analysis	below)		
	VOA - G	iass		(82 80 TF	H-G									OR	[]	WA[X]
P 2	AMBER	- Glass		PH-0 (E	dended										[]	WA[X]
ysis Allowed Bottle Type	WHITE	- Poly		(pH) TO	mouctivity)	<u> </u>	'SS) (BOD)	(Turbidit)	· · · · · · · · · · · · · · · · · · ·		ACO4) (CI	(SO ₄)	(NO1) (N	O) (F)		
sis ,	YELLOV		-	(COO) (roc) (ro	ad PO₄) (T	otal Keldahi N	litrogen)	(NH ³) (NC)^NO ¹)						
Analysis Allowed per Bottle Type	GREEN	TAL - Po		(Cyanide)	(Re) (Re)	(Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Ph) (Ma)	(Ma) (Na)	(An) (Se)	m w a	In) (Ha) (10 (Na)		
		SSOLVE					o) (Cr) (Cu)								ica)	
				,					_							
WATE	R QU	ALIT	Y DATA	1	Purge	Start Ti	me:	4:25			Time	Eump	Bailer Ir	iet Dept	h: 1니	1
Meas.	Meth	od §	Purge	d (gal)	р	Н	E Cond	l (μS)	°F Ter	np 💿	Other	Turbid.	(NTU)	W	ater Qu	ality
1	F		5	ماعا	6	.30	54	0	17.	7	14:31	134.		DKg	yay,	cloudy
2	Ŧ	,		32		·07	79	3	16.		14:40	66.	2	r		••
3	Ŧ			90		.37	81	3	15.	7	14:53	16:	3	51cld	y brn	gray
4						•			•			•				
						•						•				
[Casing]	(Select P	-O-T-O)	(Cumulate	ve Totals)		-			(Circle	units]					(Clarity, Col	orj

SAMPLER: John Latta

18(QNATURE) Catta

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

									Office:	(509	9) 838-1	144	Fax:	(50	9) 838	-1382
PROJ	ECT N	IAME:	: NEW	CITY	CLEAN	IERS				WE	LL ID:	MW-	-			
SITE A	DDR	ESS:	747 ST	EVEN	S DR.,	RICHLA	ND, W	4		BL	ND ID:	MW.	<u>-1-</u>	89	7	
PROJ	ECT N	IUMB	ER: 40	0358-0	16.004	TASK 3	}				UP ID:					-
WII	ND FF	ком:[N	NE	Ε	SE	S	(SV)	W	NW	LIG		MEC			EAVY
٧	VEAT	HER:	SUN	YNV	CLĆ	Yau	(RA	in)	Dust	y ?	TEN	IPERA	TURE:	(F)8	5.	•c
HYDR	OLO	GY/LE	VEL N	/EASL	IREME	VTS (Nea	arest 0.01	ft)		(Product	Thickness)	(Water	Column	(Ciri	le appropn Water C	ate units) olumn x Gal/ft)
Da			me		Bottom		roduct		Vater	DTP-	DTW	DTB-	DTW		Volu	me (gal)
8 /2	0 47	16	:38	30	·80		•	8	. 14	 	•	22	جاجا.	X 1	3	3.7
1	1		:06					8	. 21					X 3	11	. 1
Gal/fl = ((dia./2) ² >		1" =	0.041	(2°)±	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
§ METHO	OS: (A) S	ubmersib	le Pump (8) Peristalti	C Pump (C) ()isposable 8	ailer (D) PVC	Tellon Baile	r (E) Dedic	ated Bailer (F) Dedicated	Pump (G)	Other =			
GROU	NDW.	ATER	SAMP	LING	DATA (i	f product i	is detected	l, do NOT	sample)			Sampi	e Depth	:		(√ if used)
Bottle	Туре	D	ate	Ti	ime	Method ⁵	Amount	t & Volu	me mL	Pres	ervative	(circle)	Ice	Filter	рН	1
VOA	Glass	8/2	20/97	17	ः।५	В	5	40	ml		HCI		YES	NO		V
Amber	Glass	Bh	20/57	17	:14	B	2	1	L		HCI		YES	NO		1
White	Poly	1	1		:			250, 5	00, 1L		None		YES	NO	NA	
Yellow	Poly	/	1		:			250, 5	00, 1L		H₂SO₄		YES	NO		
Green	Poly	1	1		:			250, 5	00, 1L		NaOH		YES	NO		
Red Tol	tal Poly	1	1		:			250, 5	00, 1L		HNO3		YES	NO		
Red Dis	s. Poly	1	1		:			250, 5	00, 1L		HNO3		YES	YES		
		1	1		;			250, 5	00, 1L				YES			
\		To	otal Bottle	s (includ	de duplicat	e count):	14	Inc	Ludi	<u> </u>	zaniy	men	+ ri	use.	Sam	ple
	ВС	TTLET	YPE	TYPICA	L ANALYS	IS ALLOW	ED PER BO	TTLE TY	PE (Circle	applicable	or Write no	n-standar	d analysis	below)		
	VOA - C	Glass		8260	=										[]	WA[X]
wed /be	1	- Glass		TPH-D (E											(1	WA[X]
nalysis Allowed per Bottle Type	WHITE				Conductivity)		(800)			OyNO;)	yCO3) (CI	(SO ₄)	(NO ₃) (N	O:) (F)		
ysis	GREEN	W - Poly		(CDD)	 	tal PO ₄) (T	otal Keldahi i	Nitrogen	(NH ₃) (NC	וייסאועכ						
Analysis Allowed per Bottle Type	<u> </u>	OTAL - Po	dv			(Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(TI) (Y) (II)	Zn) (Hg) ((K) (Na)		
`		SSOLVE	<u> </u>				(Cr) (Cu)								lica)	
WATE	R QU	ALIT	Y DATA	4	Purge	Start Ti	me: \	6:5°			Time	(Cump	Bailer Ir			
Meas.	Meth	nod §	Purge	d (gal)	ŗ	Н	E Con	d (μS)	°F Te	mp (°C)	Other	Diss O	2 (mg/l)	<u> </u>	Vater Q	uality
4	P	5	3	・マ	7	16	115	3	17	.0	1659			Sed	dy 9	ray.
3	1	3	7	٠ 4	7	٠4٥	116	4	16	. ૭	1703		•	19 cl	dy e	Man_
2	7	3	11	· 1	7	.43	116	4	16	.7	1706			Clear	ر گوه (<u>orless</u>
. 1				•									•			
0			0.	.00						•			•			
[Casing]	-	t A·G)	•	ive Totals)					•	units]					(Clarity, C	
G	jave	عمِ	Kuip	men	tru	we s	مسما	le H	e no	ame	MW.	-B-C	897	اص زا	lecta	ed
at	t 16	55.	υ·											-		

SAMPLER: John Latta
(PRINTED NAME)

John Latta SIGNATURE)

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

			6						Office:	(509	9) 838-1	144	Fax:	(50	9) 838	-1382	
PROJ	ECTN	IAME	: NEW	CITY	CLEAN	ERS				W	ELL ID:	Mw	1-2				•
SITE A	DDR	ESS:	747 ST	EVEN	S DR.,	RICHLA	ND, W	4		BL	IND ID:	Mw-	2-089	 17			•
PROJ	ECT N	IUMB	ER: 40	0358-01	16.004	TASK 3					UP ID:						•
WII	ND FF	ROM:	N	NE	Ε	SE	S	(SW) w	NW	(IG	HT/	MED	MUIC	HE	EAVY]
٧	VEATI	HER:	SUI	YNY	(CLC	(YQU	RA	IN		?	TEN	IPERA	TURE:	(f) 8	5.	• c]
HYDR	01.00	GY/LE	VEL N	MEASU	REME	UTS (Ne	arest 0.01	ft)	-	(Product	Thickness]	Water	Column)	(Circ	le appropria	ite units] olumn x Gal/ft]	-
Da			ime		ottom		roduct		Vater	,	-DTW		DTW			ne (gal)	
8/2	0 /97	14	: 20	31	05		•	8	-31_		•	20	حاحا.	X 1	3	-1	
1	1	_	:41	28	.98((ماد	•		.36		•			X 3	7	-2 10]. 2
Gal/fl = (dia /2)2 x	0.163	1" =	0.041	(2)=	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875]
§ METHO	OS: (A) S	Submersit	ole Pump (B) Peristaltic	Pump (C) [isposable B	ailer (D) PVC	/Tellon Baile	er (E) Dedic	ated Bailer (F) Dedicated	Pump (G) (Other =]
GROU	NDW	ATER	SAMP	LING	DATA (i	f product i	s detected	l, do NOT	sample)			Sampl	e Depth	:		(√ if used)	
Bottle	Туре	D	ate	Tiı	me	Method ⁵	Amoun	t & Volu	me mL	Pres	ervative	(circle)	Ice	Filter	pН	1	
VOA	Glass	BI	20/97	14	:54	В	5	40	ml		HCI		YES	NO		1	
Amber	Glass	8/	20/97	(4	:54	B	2	1	1 L		HCI		YES	NO		√]
White	Poly	1	1		:			250, 5	500, 1L		None		YES	NO	NA		
Yellow	Poly	1	1		:			250, 5	500, 1L		H₂SO₄		YES	NO]
Green	Poly	1	1		:			250, 5	600, 1L		NaOH		YES	NO]
Red Tot	al Poly		1		:			250, 5	500, 1L		HNO₃		YES	NO]
Red Dis	s. Poly	1	1		:			250, 5	500, 1L		HNO ₃		YES	YES			
		1	1		:			250, 5	500, 1L		·		YES	_		:]
		To	otal Bottle	s (includ	e duplicat	e count):	7	in	elud	سرم ،	lield	dur	lica	te_			
	ВС	TTLE T	YPE			IS ALLOW	ED PER BO	TTLE TY	PE (Circle	applicable	write no	n-standar	d analysis				-
	VOA - G			(8260) (\sim						-	<u>_</u>			[]	WA(X)	-
owe	WHITE	- Glass		(pH) (Co	onductivity)	(TDS) (T	(BOD)	(Turbidit	y) (Alkalir	nity) (HCO	yCO ₃) (CI	(SO ₄)	(nO ₁) (N	O _i) (F)			1
Analysis Allowed per Bottle Type		W - Poly		(COD) (otal Keldahi i		·········	(10N/vO		<u> </u>	· · · · ·				
Analysi per Bo	GREEN	l - Poly		(Cyanide)													
各교		TAL - Po									(Ag) (Se)						-
	RED DI	SSOLVE	D - Poly	(As) (Sb)	(Ba) (Be) ((Ca) (Cd) (C	(Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn)	(Ni) (Ag) (S	Se) (TI) (V) ((Zn) (Hg) ()	() (Na) (Ha	irdness) (Si	lica)		1
WATE	R OU	ΔΙΙΤ	Y DATA	7	Purge	Start Ti	me. I	4:2			Time	€umb/	Bailer Ir	nlet Dept	th: -24	± 24'	ىدرا
Meas.		nod §	· · · · ·	d (gal)		H	E Con			mp (°C)		1	₂ (mg/l)		/ater Qu		
+1	72		3			·51	114		1	· <u> </u>	M:33		<u> </u>			less	1
32	1			B		·58	113		18		14:37			"	"		1
23)	10	_		.60	115		17		14:41			11	11		1
7-4	· · ·		10	<u> </u>	-			<u></u>	••	· · · · ·	11.16						1
-0-	-		-0.	00													ĺ
(Casing)		it A-G)	(Cumulat	ive Totals)			<u> </u>		-	e units)					(Clanty, Co	lor]	•
Fà	eld	duf	<i>Slica</i>	te M	1w-5	-08	77, g	ave	ad	lumi	my +	ime	5/1	1:37.			

(PRINTED NAME)

John Zatta

W 7106 Will D. Alton Lane, Suite 101

										s	pokane,	Washii	ngton	99224	J (
		<u> </u>							Office:	(50	9) 838-	1144	Fax	(50	09) 838	-1382
PROJ	ECT N	AME	: NEV	CITY	CLEA	NERS				W	ELL ID	MW.	-3			
SITE	ADDRE	ESS:	747 S	TEVEN	IS DR.,	RICHL	AND, W	Α		BL	IND ID:	MW-:	3-08	397		
PROJ	ECT N	UMB	ER: 4	0358-0	16.004	TASK :	3				DUP ID:					*
WI	ND FR	OM:	N	NE	Ε	SE	S	(SW)	W	NW	LIC	3HT	ME	DIUM	Н	EAVY
1	NEATH	HER:	SUI	NNY	Q(L)	(עסטכ	RA	NIN .	Dus	h 8	TE	MPERA	TURE:	(F) 8	5.	• c
HYDE	ROLOG	SY/LE	EVEL N	MEAS L	JREME	NTS (Ne	arest 0.01	ft)		,	Thickness)	(Mater	Column)		le appropri	•
	ite		ime		ottom	1	roduct		Vater		P-DTW	T	DTW	7		olumn x Gal/m) me (gal)
8/2	20/97	16	:02		.05		 -	8	.95			 	10	X 1		راه (gai)
1	/		:16		<u> </u>	 			96		<u> </u>		<u></u>	X 3		·.8
Gal/ft =	(dia /2)2 x		1" =	0.041	(2°)=	0,163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
			ie Pump (8	3) Peristaltu		Disposable 8	ailer (D) PVC		r (E) Dedic:		(F) Dedicated					0.075
							is detected				` -	T	e Depth	n:		(V if used)
Bottle	Туре	D	ate	Ti	me	Method ⁵	Amoun	t & Volu	ne mL	Pres	servative	(circle)	Ice	Filter	pΗ	1
VOA	Glass	8/2	0/97	حا\	: 23	В	5	40	ml I		HCI		YES	NO		1
Amber	Glass	B /2	20/97		:23	B	2	1	L		HCI		YES	NO		1
White	Poly	/	1		:			250, 5	00, 1L		None		YES	NO	NA	
Yellow	/ Poly	1	1		:			250, 5	00, 1L		H₂SO₄		YES	NO		
Green	Poly		1		:			250, 5	00, 1L		NaOH		YES	NO		:
Red To	lal Poly		1		:			250, 5	00, 1L		HNO₃		YES	NO		
Red Dis	s. Poly		/	_	:			250, 50	00, 1L		HNO₃		YES	YES		
					:			250, 50	00, 1L				YES			
		То	tal Bottle		e duplicat		7									
		TLE T	YPE			IS ALLOW	ED PER BO	TTLE TYP	E (Circle :	applicable	or write no	n-standard	analysis	below)		
_	VOA - GI			(8260) (f										OR		WA[X]
ype	AMBER -		_	TPH-O (E)		me r	CC) (DOD)	G. A. H.	(411-1-1					OR (<u> </u>	WA[X]
AMBER - Glass (FPH-D (Extended) OR [] WA [X] WHITE - Poly (pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCOyCO ₃) (CI) (SO ₄) (NO ₃) (NO ₃) (F) YELLOW - Poly (COD) (TOC) (Total PO ₄) (Total Keldahl Nitrogen) (NH ₃) (NO ₂ NO ₃) GREEN - Poly (Cyanide)																
lysi Bo	GREEN - Poly (Cyanide)															
RED TOTAL - Poly (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na)																
RED DISSOLVED - Poly (As) (Sb) (Ba) (Be) (Ca) (Cd) (Cd	o) (Cı) (Cu)	(Fe) (Pb) (i	Mg) (Mn) (1	Ni) (Ag) (S	ie) (⊓) (∨) (Zn) (Hg) (K	(Na) (Ha	rdness) (Sili	ca)		
Ļi																
	R QUA		DATA	<u> </u>	Purge :	Start Tir	ne: (6:00	<u> </u>		Time	(Pum)/E	Bailer In	let Depti	h: كام	<u>'</u>
Meas.	Metho	od §	Purge	d (gal)	р	н	E Cond	(μS)	°F Ten	np(°C	Other	Diss O ₂	(mg/l)	W	ater Qu	ality
41	B		3 ·	6	7	51	991	1	17.	6	1608			SI Jd	y gra	У
82			7.	2	7.	53	980	_	17.	1	1611	•		Clear		ا ر د
23	2	,	10.	8	⊋.	56	98	7	17.		10110			Į1	11	

SAMPLER: John Latta
(PRINTED NAME)

0.00

(Circle units)

(Clarity, Color)

EMCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

			6						Office:	•	9) 838-1		Fax:		9) 838	-1382
PROJE	CT N	AME	: NEW	CITY	CLEAN	IERS			-	W	ELL ID:	MW-	D	· ·		
							ND, W	Δ			IND ID:			297		··-
PROJE	CT N	UMB	ER: 40	0358-01	16.004	TASK 3		·			UP ID:					
WIN	ID FR	OM:	Ŋ	NE	Ε	SE	S	(sw	W	NW	(LIG	HT >	MEC	NUIC	H	EAVY
W	/EAT	HER:	SUI	YNY	CLC	YQU	RA	IN		?	TEN	1PERA	TURE:	(1) B	·5·	• c
HVDB		2V/I E	IVEL M	MEASII	REME	NTS (Na	arest 0.01	e)		Product	Thickness]	(Water 6	Columni		le appropri	ate units) olumn x Gal/ft)
Dat			me		ottom		roduct		Vater		-DTW	DTB-				me (gal)
B/20			:52		·08	<u> </u>		7	· 31			2	77	X 1		5. l
1	/		:12				•		. 89				<u> </u>	X 3		5· 3
Gal/ft = (d	l dia./2)² x		1" =	0.041	2" =	0.163	3" =	0.367	(4) =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
		_	ole Pump (8) Peristaltic	Pump (C) (Oisposable 8	ailer (D) PVC	Mellon Baile	er (E) Dedica	ated Bailer (F) Dedicated	Pump (G) C	Other =			
GROU	NDW	ATER	SAMP	LING	DATA (i	f product i	s detected	l, do NOT	sample)			Sampl	e Depth	:		[Vifused]
Bottle 1	Туре	D	ate	Tir	ne	Method §	Amount	& Volu	me mL	Pres	ervative	(circle)	lce	Filter	рΗ	1
VOA G	Slass	8/2	20/97	14	07	В	5	40	ml		HCI		YES	NO		1
Amber (Glass		0/97		07	B	2	1	L		HCI		YES	NO		1
White	Poly		1		•			250, 5	00, 1L		None		YES	NO	NA	
Yellow	Poly	1	1		:			250, 5	00, 1L		H₂SO₄		YES	МО		
Green	Poly	1	1		:			250, 5	00, 1L		NaOH		YES	NO		!
Red Tota	al Poly	1	1		:			250, 5	00, 1L		HNO₃		YES	NO		_
Red Diss	s. Poly	1	1		:			250, 5	00, 1L		HNO₃		YES	YES		
		/	1		:			250, 5	00, 1L				YES		-	
		To	otal Bottle	s (includ	e duplicat	e count):	7									
	во	TLET	YPE	TYPICAL	ANALYS	IS ALLOW	ED PER BC	TTLE TY	PE (Circle	applicable	or write no	n-standard	l analysis	below)		
	VOA - G			(8260) (f	\sim											WA[X]
wed	AMBER			TPH-D (E)				<u> </u>								WA[X]
Analysis Allowed per Bottle Type	YELLOV		-,-	(COD) (onductivity)		SS) (BOD) otal Keldahi i	- `		OVNO)	(ci)	(SO ₄)	(NO ₃) (N	O) (F)		
ysis Bott	GREEN	<u> </u>		(Cyanide)	100/ (10		OCAT IVEIDAM I	···········	(111)							
Anal		TAL - Po	ly		(Ba) (Be)	(Ca) (Cd)	(Co) (Ci)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(TI) (V) (I	?n) (Hg) (K) (Na)		
	RED DIS	SSOLVE	D - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	o) (Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn) ((Ni) (Ag) (S	Se) (TI) (V) (Zn) (Hg) (K	(Na) (Ha	rdness) (Si	ica)	
																(72r)
WATE	R QU	ALIT	Y DATA	٩	Purge	Start Ti	me:	2:50			Time (Pump	Bailer In	let Dept	h: 14	-15'
Meas.	Meth	od §	Purge	d (gal)	ρ	Н	E Cond	d (μS)	°F Ter	пр 🕥	Other	Diss O	(mg/l)	V	/ater Qu	
41	\mathbb{Z}		5	· 1	6	· 86	- 너너	8	18.	5	1301			Clear	, yel	ltiat
22	_ 1	3	10	٠2	7	.27	138	34	13:	6	1312			V. Kch	dy ye	ee
-2		3-	15	3		•		_						 		
4										·						
ا ه			<u> </u>	00		•			<u>, , , , , , , , , , , , , , , , , , , </u>	·					(Clause Co	ited
(Casing)	(Selec		•	we Totals)	alt.			0 -	(Circle	-		0		0.00	(Clarity, Co	
₩ -	ecc.	pur	Sea		1.7	~ 12	move	u of) 2	casiv	200 N	okun 1.	سعل.	Willo	wed	l WL
10	، تعد حـر	- VYV	TO	17.18	→ □\	ع ب	nos	TO 5	amp	ره حم	cke ct.	on				

SAMPLER:

John Latta

John Latta (SIGNATURE)

CMAPAA

W 7106 Will D. Alton Lane, Suite 101

							Ä		Sp	pokane,	Washi	ngton (99224		
			3 803 802	S222 VVQ			<u> </u>	Office:	: (50	9) 838-1	1144	Fax:	: (5	09) 838	3-1382
		NAME: NEV							WI	ELL ID:	Μω	-4			
		RESS: 747 S					Α		BL	IND ID:	MW-	4-08	397		
PROJ	ECT I	NUMBER: 4	,0358-0°	16.004	TASK :	3				OUP ID:		/MS/			
		ROM: N	NE	Ε	SE	S	(SW)	W	NW	LIC	SHT		- ANDIO	Н	IEAVY
ı	WEAT	HER: SU	INNY	<u>€</u> L¢	SUDY	RA	AIN	Dust	7 8	TEN	MPERA	TURE:	(De	35 .	•c
HYDI	ROLO	GY/LEVEL I	MEASU	REME	NTS (Ne	arest 0.01				Thickness	Water	Column)		rcle appropn	nate units] Column x Gal/ft]
1	ate	Time		ottom		roduct	T	Water		-DTW	1	-DTW	1	$\overline{}$	ıme (gal)
8 /2	0 47	15:12	29.	·35		•	9	٥٠٠			19	.95	X 1		3.25
/	1	15: z4		•			9					<u> </u>	X 3		
Gal/ft =	(dia./2) ² :		0.041	(Z)=	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
		Submersible Pump (E		Pump (C) D						F) Dedicated	Pump (G) (Other =		L	
		ATER SAME									1 -	e Depth	ı:		[V if used]
Bottle	Туре	Date	Tin	ne	Method ⁵	Amount	t & Volu	me mL	Pres	ervative	[circle]	Ice	Filter	ρН	1
VOA	Glass	8/20/97	15	:50	В	510	40) mi		HCI		YES	NO		\ \
Amber	Glass	8/20/97	1	50	13	74	1	1L		HCI		YES	NO		1
White	Poly	1 1	:	;			250, 5	500, 1L		None		YES	NO	NA	
Yellow	Poly	1 1	:				250, 5	500, 1L		H₂SO₄		YES	NO		
Green	ı Poly	1 1	:	;			250, 5	500, 1L		NaOH		YES	NO		
Red Tot	tal Poly	1 1	:	,			250, 5	500, 1L		HNO ₃		YES	NO		
Red Dis	s. Poly	1 1	:				250, 50	00, 1L		HNO ₃		YES	YES		
		1 1	:				250, 50	00, 1L				YES	\Box		<u> </u>
		Total Bottle	s (include	duplicate	e count):	14		2.1		MS	MSD				
	ВО	OTTLE TYPE	TYPICAL	ANALYSI	IS ALLOWE	ED PER 80	TTLE TYF	E (Circle	applicable		n-standard	l analysis	below)		
 	VOA - G		(8260) (P										OR ((]	WA[X]
wed /	AMBER		TPH-0 (Ext	ended									OR ((]	WA[X]
e J	WHITE -			nductivity)	(TDS) (TS	SS) (BOD)	(Turbidity)	y) (Alkalini	ity) (HCO	/CO ₃) (CI)	(SO ₄) ((NO ₃) (NC	O ₃) (F)		
Analysis Allowed per Bottle Type	YELLOW			OC) (Tota	tal PO₄) (To	otal Keldahi N	litrogen) ((NH ₁) (NO	(יסטיק						
le la	GREEN		(Cyanide)												
₹ ₾		TAL - Poly				(Co) (Cr) (
1 1	RED DIS	SSOLVED - Poly	(As) (Sb) (8a) (8e) (C	Ca) (Cd) (Cd	o) (Cr) (Cu) ((Fe) (Pb) (P	Mg) (Mn) (f	Ni) (Ag) (Se) (TI) (V) (Z	(Hg) (K) (Na) (Har	(Sili	ica)	
اا	<u> </u>		<u> </u>												
WATE	R QU	ALITY DATA	4 [5	Purge ર	Start Tin	ne:	15:14	ì	-	Time	Pump/E	3ailer In	let Depth	h: 2	4

WATE	R QUALIT	Y DATA	Purge Start Ti	me: 15:14	1	Time	Pump/Bailer Ir	nlet Depth:	24'
Meas.	Method §	Purged (gal)	pН	E Cond (μS)	°F Temp (°C		Diss O ₂ (mg/l)	Wate	er Quality
41	B	3.25	7.50	956	18.0	1518	•	Clear	dorless
32	B	6.50	7.56	926	17.6	1521	•	11	11
23	B	9.75	7.55	941	17.60	1524	•	51	11
+	·				•				
-هر		-0.00	•						
(Casing)	(Select A.G)	(Cumulative Totals)			(Circle units)			(Clar	nty, Color

SAMPLER:

John Latta (PRINTED NAME)

FIELD

FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

Office:

(509) 838-1144

Fax:

(509) 838-1382

							Office,	. (50)	7/ 030-1144	rax.	(SUS)	838-1382	
PROJECT NAME:	NEW	CITY	CLEAN	IERS				WE	LL ID: MW	- F	(000)	1002	
SITE ADDRESS:						Ά			ND ID: MW-		202		
PROJECT NUMB		0358-01	16.004	TASK 3	3				UP ID:				_
WIND FROM:		NE	Ε	SE	S	sw	W	NW	LIGHT	MEDIL	JM	HEAVY	_
WEATHER:	SU	YNY	C LC)UPY	R/	AIN		?	TEMPERA	TURE:	P 85	•	c
10/0001 001//												otoppole1	_

	GY/LEVEL I	MEASUREM	ENTS (N	earest 0.01	ft)		(Product	Thickness	(Water	Columnj	(Cii	(Water C	ate unitsj olumn x Gal/fil
Date	Time	DT-Bottom	DT-F	Product	DT-W	Vater	OTP.	-DTW	DTB	-DTW	7		me (gal)
8/20/97		15.47		•	7.	06		•	8	.41	X 1		5.5
1 1	12:27	<u> </u>		•	12.	25		•			X3	14	p. 5
$Gal/II = (dia J2)^2$		0.041 2" =	0.163	3" =	0.367	₫ * <u></u>	0.653	6" =	1.469	10" =	4.080	12" =	5.875
§ METHODS: (A) S	Submersible Pump (E	3) Peristaltic Pump () Disposable (Bailer (D) PVC	Mellon Baile	r (E) Dedic	ated Bailer (f	F) Dedicated	Pump (G) (Other =			
GROUNDW	ATER SAME	LING DATA	(if product	is detected	d, do NOT	sample)			Sampl	e Depth	1:		[√ if used]
Bottle Type	Date	Time	Method ⁵	Amoun	t & Volun	ne mL	Pres	ervative	(circle)	Ice	Filter	ρΉ	1
VOA Glass	8/20/97	12:45	В	5	40 (m!		HCI		YES	NO		1

		=:::0 0,::::	(ii product	3 detecte	u, uo NOT sample)	į Sam	pie Deptr	١.		[
Bottle Type	Date	Time	Method ⁵	Amoun	t & Volume mL	Preservative (circle)	Ice	Filter	ρН	1
VOA Glass	8/20/97	12:45	B	5	40 ml	HCI	YES	NO		J
Amber Glass	8/20/97	12:45	B	2	1L	HCI	YES	NO		<u> </u>
White Poly	1 1	:			250, 500, 1L	None	YES	NO	NA NA	
Yellow Poly	1 1	:	-		250, 500, 1L	H₂SO₄	YES	NO		
Green Poly	1 1	:			250, 500, 1L	NaOH	YES	NO		L
Red Total Poly	1 1	:			250, 500, 1L	HNO ₃	YES	NO		
Red Diss. Poly	1 1	:			250, 500, 1L	HNO ₃	YES	YES		-
	1 1	:			250, 500, 1L		YES			
	Total Bottles	(include duplica	te count):	7			<u>-</u>			-

	BOTTLE TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
Ì	VOA - Glass	(8250) (PH-G) OR[] WA[X]
be de	AMBER - Glass	TPH-0 (Extended) OR [] WA [X]
	WHITE - Poly	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO ₃ /CO ₃) (CI) (SO ₄) (NO ₃) (NO ₃) (F)
sis A 3ottle	YELLOW - Poly	(COD) (TOC) (Total PO ₄) (Total Keldahl Nitrogen) (NH ₃) (NO ₃ NO ₃)
nalys er B	GREEN - Poly	(Cyanide)
₹ g ¦	RED TOTAL - Poly	(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (TI) (V) (Zn) (Hg) (K) (Na)
!! !		23 (m) (m) (m) (m) (m) (m)

(As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silica)

WATE	R QUALIT	Y DATA	Purge Start Ti	me: []: =	53	Time	Fump/Bailer In	nlet Depth: +++ 13'(J
Meas.	Method §	Purged (gal)	рН	E Cond (μS)	°F Temp (C		Diss O ₂ (mg/l)	
4 (B	5.5	7.42	466	20·B	1203		Cloudy gray
32	18	11.0	7.48	764	19.7	1214		Stoldy aran
2 3	B	16.5	7.50	1020	19.1	1227		Clear, who ben tim
14	B	22.0	7.56	1029	19.1	1238		Clear colonless
(Casino)	(Salact A Cl	-8.00			•			CALLA CALLADA

Casing (Select A.G) (Cumulative Totals) (Circle units) (Circle units)

Because conductivity was not stable, a 4th casing volume was purged prior to sampling

SAMPLER: John Latta
(PRINTED NAME)

RED DISSOLVED - Poly

Solu Jatta (SIGNATURE) APPENDIX D

LAB REPORTS



April 2, 1997

Service Request No: K9701638

Rob Lindsay **EMCON** W 7106 Will D. Alton Lane, Suite 101 Spokane, WA 99204-5760

Re: New City Cleaners/40358-016-004 Task 3

Dear Rob:

Enclosed are the results of the sample(s) submitted to our laboratory on March 13, 1997. For your reference, these analyses have been assigned our service request number K9701638.

The analysis of sample SS-C2 for volatiles was completed after hold time expired.

Sample GP-5-11, SS-D4, SS-E3, and SS-A3 had surrogates outside acceptance limits due to matrix interferences.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 243.

Respectfully submitted,

Columbia Analytical Services, Inc.

Richard Craven **Project Chemist**

RAC/sam

Page 1 of

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon

CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

J Estimated concentration. The value is less than the method reporting limit, but

greater than the method detection limit.

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a substance

allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number

MRL Method Reporting Limit

NA Not Applicable
NAN Not Analyzed

NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected at or above the MRL

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/40358-016.004 task3

Service Request: K9701638 Date Collected: 3/10-11/97

Date Received: 3/13/97

Date Extracted: NA Date Analyzed: 3/25/97

Carbon, Total Organic ASTM D4129-82M Units: Percent (%) Dry Weight Basis

Sample Name	Lab Code	MRL	Result
SS-C4	K9701638-003	0.05	0.24
SS-E3	K9701638-008	0.05	0.84
SS-A1	K9701638-012	0.05	0.06
GP-8-1'	K9701638-017	0.05	0.13
GP-8-15'	K9701638-018	0.05	0.05
GP-8-21'	K9701638-019	0.05	0.13
GP-9-12'	K9701638-021	0.05	0.06
GP-9-23	K9701638-024	0.05	0.07
Method Blank	K9701638-MB	0.05	ND

M

Modified for analysis of soil.

Approved By: IAMRL/102594 01638WET.KY1 - IAMRL 3/28/97

312897 Date: ____

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 task3

Sample Matrix: Water

Service Request: K9701638

Date Collected: 3/11/97

Date Received: 3/13/97 Date Extracted: NA

Date Analyzed: 3/18/97

Solids, Total Suspended (TSS) EPA Method 160.2 Units: mg/L (ppm)

Sample Name	Lab Code	MRL	Result
GPW-8-397-10	K9701638-020	5	677
GPW-9-397-15'	K9701638-022	5	278
GPW-9-397-25'	K9701638-023	5	402
Method Blank	K9701638-MB	5	ND

Approved By: IAMRL/102594 01638WET.KYI - IAMRL (2) 3/28/97 Date: 3/28197

Analytical Report

Client: Project: **EMCON**

New City Cleaners/40358-016.004 task3

Sample Matrix:

Soil

Service Request: K9701638

Date Collected: 3/11/97

Date Received: 3/13/97 Date Extracted: 3/25/97

Date Analyzed: 3/25/97

Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D Units: mg/Kg (ppm) Dry Weight Basis

	Analyte:	Diesel	Oil*
	Method Reporting Limit:	25	100
Sample Name	Lab Code	-	
GP-8-1'	K9701638-017	ND	ND
GP-8-15'	K9701638-018	ND	ND
GP-8-21'	K9701638-019	ND	ND
GP-9-12'	K9701638-021	ND	ND
GP-9-23	K9701638-024	ND	ND
GP-5-11	K9701638-026	43(O)	ND
GP-5-21.5	K9701638-027	ND	ND
Method Blank	K970325-MB	ND	ND

Quantified using 30-weight motor oil as a standard.

Quantitated as diesel. The sample contained a lighter than diesel component that partially eluted

in the diesel range.

Approved By:	Lone	2 Partwood	Date:	3/27/27
2A/102094				

QA/QC Report

Client:

EMCON

Service Request: K9701638

Project:

New City Cleaners/40358-016.004 task3

Date Collected: 3/11/97

Sample Matrix: Soil

Date Received: 3/13/97 Date Extracted: 3/25/97 Date Analyzed: 3/25/97

Surrogate Recovery Summary
Total Petroleum Hydrocarbons as Diesel and Oil
Washington DOE Method WTPH-D

		Percent Recovery
Sample Name	Lab Code	o-Terphenyl
GP-8-1'	K9701638-017	93
GP-8-15'	K9701638-018	87
GP-8-21'	K9701638-019	90
GP-9-12'	K9701638-021	91
GP-9-23	K9701638-024	88
GP-5-11	K9701638-026	86
GP-5-21.5	K9701638-027	88
Method Blank	K970325-MB	86

CAS Acceptance Limits: 56-116

Approved By: John & Partural Date: 3/27/97

SURVINISM

01638PHC.SS1 - TPH4SUR 3/27/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 task3

Sample Matrix:

Water

Service Request: K9701638

Date Collected: 3/11/97

Date Received: 3/13/97 Date Extracted: 3/17/97

Date Analyzed: 3/18/97

Total Petroleum Hydrocarbon as Diesel and Oil Washington DOE Method WTPH-D Units: µg/L (ppb)

	Analyte: Diesel Method Reporting Limit: 250		Oil* 750	
Sample Name	Lab Code			
GPW-8-397-10	K9701638-020	ND	ND	
GPW-9-397-15'	K9701638-022	ND	ND	
GPW-9-397-25'	K9701638-023	ND	ND	
Method Blank	K970317-WB	ND	ND	

Quantified using 30 weight motor oil as a standard.

hour Mill

Approved By:

2A/102094

01638PHC.JS1 - TPHw 3/20/97

Date: 3/24/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 task3

Sample Matrix: Water

. .

Service Request: K9701638

Date Collected: 3/11/97
Date Received: 3/13/97

Date Extracted: 3/17/97

Date Analyzed: 3/18/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Sample Name	Lab Code	Percent Recovery o-Terphenyl
GPW-8-397-10	K9701638-020	80
GPW-9-397-15'	K9701638-022	84
GPW-9-397-25'	K9701638-023	84
Method Blank	K970317-WB	87

CAS Acceptance Limits: 59-110

Approved By:

SURI/111594 01638PHC.JS1 - TPHwSUR 3/20/97 Date: 3/24/97

00008

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: 3/11/97 Date Received: 3/13/97

Date Extracted: NA Date Analyzed: 3/23/97

Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: mg/Kg (ppm) Dry Weight Basis

Sample Name	Lab Code	MRL	Result
GP-8-1'	K9701638-017	5	ND
GP-8-15'	K9701638-018	5	ND
GP-8-21'	K 9701638-019	5	ND
GP-9-12'	K9701638-021	5	ND
GP-9-23	K9701638-024	5	ND
GP-5-11	K9701638-026	5	2300
GP-5-21.5	K9701638-027	5	ND
Method Blank	K970320-MB	5	ND

Approved By: IAMRI/102594 01638VOAJS1 - GASs 4/1/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: 3/11/97

Date Received: 3/13/97

Date Received: 3/13/97
Date Extracted: NA
Date Analyzed: 3/23/97

Surrogate Recovery Summary
Total Petroleum Hydrocarbons as Gasoline
Washington DOE Method WTPH-G

Lab Code	Percent Recovery 1,4-Difluorobenzene	
K9701638-017	65	
K9701638-018	67	
K9701638-019	59	
K9701638-021	65	
K9701638-024	59	
K9701638-026	61	
K9701638-027	57	
K970320-MB	70	
	K9701638-017 K9701638-018 K9701638-019 K9701638-021 K9701638-024 K9701638-026 K9701638-027	

CAS Acceptance Limits: 48-129

Approved By:

SURI/111594 01638VOA.JSI - GAS&SUR.3/31/97 July Motself

Date: 4/1/97

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Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: 3/10,11/97

Date Received: 3/13/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb)

Dry Weight Basis

	Sample Name:	SS-D4	SS-B5	SS-C↓
	Lab Code:	K97 01638-001	K9701638-002	K9701638-003
	Date Analyzed:	3/20/97	3/20/97	3/21/97
Analyte	MRL			
Tetrachloroethene (PCE)	5	57 0	ND	ND
Dibromochloromethane	5	ND	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
1,1,1,2-Tetrachloroethane	5	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Total Xylenes	5	ND	ND	ND
Styrene	5	ND	ND	, ND
Bromoform	5	ND	ND	ND
Isopropylbenzene	20	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND
1,2,3-Trichloropropane	5	ND	ND	ND
Bromobenzene	วี	ND	ND	ND
n -Propylbenzene	20	ND	ND	ND
2-Chlorotoluene	20	ND	ND	ND
4-Chlorotoluene	20	ND	ND	ND
1,3,5-Trimethylbenzene	20	ND	ND	ND
tert -Butylbenzene	20	ND	ND	ND
1,2,4-Trimethylbenzene	20	ND	ND	ND
sec -Butylbenzene	20	ND	ND	ND
1,3-Dichlorobenzene	5	ND	ND	ND
4-Isopropyltoluene	20	ND	ND	ND
1,4-Dichlorobenzene	5	ND	ND	ND
n -Butylbenzene	20	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND	ND
Naphthalene	20	ND	ND	ND
Hexachlorobutadiene	20	ND	ND	ND

Approved By:

3S2P/101894

Als Mosself Date:

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Date Collected: 3/10,11/97 Date Received: 3/13/97 Date Extracted: NA

Service Request: K9701638

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	SS-D4 K 9701638-001 3/20/97	SS-B5 K9701638-002 3/20/97	SS-C4 K9701638-003 3/21/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	5	ND	ND	ND .
Chloromethane	5	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND
Bromomethane	5	ND	ND	ND
Chloroethane	5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	5	ND	ND	ND
Acetone	50	<u>.</u> 69	62	_ 52
1,1-Dichloroethene	5	, ND	ND	ND
Carbon Disulfide	5	ND	ND	ND
Methylene Chloride	10	ND	ND	ND
trans-1,2-Dichloroethene	5	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	5	ND	ND	ND
cis-1,2-Dichloroethene	5	ND	ND	$_{\rm H}$ ND
Chloroform	5	ND	ND	ND
Bromochloromethane	5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	5	ND	ND	ND
1,1-Dichloropropene	5	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND
Benzene	5	ND	ND	ND
Trichloroethene (TCE)	5	ND	ND	ND
1,2-Dichloropropane	5	ND	ND	ND
Bromodichloromethane	5	ND	ND	ND
Dibromomethane	5	ND	ND	ND
2-Hexanone	20	ND	ND	, ND
cis-1,3-Dichloropropene	5	ND	ND	ND
Toluene	5	ND	ND	ND
trans-1,3-Dichloropropene	5	ND	ND	ND
1,1,2-Trichloroethane	5	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND

Approved By: 01638VOA.LW2 - 8260s J/31/97

_ Date: _

QA/QC Report

Client:

EMCON

Service Request: K9701638

Project:

New City Cleaners/40358-016.004 task3

Date Collected: 3/11/97

Sample Matrix: Water

Date Received: 3/13/97 Date Extracted: NA

Date Analyzed: 3/25/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G

		Percent Recovery
Sample Name	Lab Code	4-Bromofluorobenzene
GPW-8-397-10	K9701638-020	94
GPW-9-397-15'	K9701638-022	110
GPW-9-397-25'	K9701638-023	114
TB1-397	K9701638-025	94
Method Blank	K970325-MB	94

CAS Acceptance Limits: 65-117

Approved By:

SURI/111594 01638VOAJS2 - GASWSUR 3/31/97 _____ Date: 4/4/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 task3

Sample Matrix: Water

Service Request: K9701638

Date Collected: 3/11/97

Date Received: 3/13/97

Date Extracted: NA

Date Analyzed: 3/25/97

Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: µg/L (ppb)

Sample Name	Lab Code	MRL	Result
GPW-8-397-10	K9701638-020	50	460(O)
GPW-9-397-15'	K9701638-022	50	1100(O)
GPW-9-397-25'	K9701638-023	50	1100(O) 1200(O)
TB1-397	K9701638-025	50	ND
Method Blank	K970325-MB	50	ND

Quantitated as gasoline. The sample contained a component that eluted in the gas range.

Approved By:

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IAMRL/102594

01638VOAJS2 - GASW 4/1/97

Date: _

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: 3/10,11/97 Date Received: 3/13/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code:	SS-D4 K9701638-001	SS-B5 K9701638-002	SS-C4 K9701638-003
	Date Analyzed:	3/20/97	3/20/97	3/21/9 7
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	5	ND	ND	ND
Chloromethane	5	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND
Bromomethane	5	ND	ND	ND
Chloroethane	5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	5	ND	ND	ND
Acetone	50	69	62	52
1,1-Dichloroethene	5	ND	ND	ND
Carbon Disulfide	5	ND	ND	ND
Methylene Chloride	10	ND	ND	ND
trans -1,2-Dichloroethene	5	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	5	ND	ND	ND
cis-1,2-Dichloroethene	5	ND	ND	NDبد
Chloroform	5	ND	ND	ND
Bromochloromethane	5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	5	ND	ND	ND
1,1-Dichloropropene	5	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND
Benzene	5	ND	ND	ND
Trichloroethene (TCE)	5	ND	ND	ND
1,2-Dichloropropane	5	ND	ND	ND
Bromodichloromethane	5	ND	ND	ND
Dibromomethane	5	ND	ND	ND
2-Hexanone	20	ND	ND	ND 💂
cis -1,3-Dichloropropene	5	ND	ND	ND
Toluene	5	ND	ND	ND
trans-1,3-Dichloropropene	5	ND	ND	ND
1,1,2-Trichloroethane	5	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND

Approved By: 01638VOA.LW2 - 8260s 3/31/97

____ Date: <u>3/3</u>

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638 Date Collected: 3/10,11/97 Date Received: 3/13/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code:	SS-D4 K 9701638-001	SS-B5 K9701638-002	SS-C4 K9701638-003
	Date Analyzed:	3/20/97	3/20/97	3/21/97
Analyte	MRL			
Tetrachloroethene (PCE)	5	:570 ³	ND	ND
Dibromochloromethane	5	ND	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
1,1,1,2-Tetrachloroethane	5	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Total Xylenes	5	ND	ND	ND
Styrene	5	ND	ND	, ND
Bromoform	5	ND	ND	ND
Isopropylbenzene	20	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND
1,2,3-Trichloropropane	5	ND	ND	ND
Bromobenzene	5	ND	ND	ND
n-Propylbenzene	20	ND	ND	ND
2-Chlorotoluene	20	ND	ND	ND
4-Chiorotoluene	20	ND	ND	ND
1,3,5-Trimethylbenzene	20	ND	ND	ND
tert -Butylbenzene	20	ND	ND	ND
1,2,4-Trimethylbenzene	20	ND	ND	ND
sec -Butylbenzene	20	ND	ND	ND
1,3-Dichlorobenzene	5	ND	ND	ND
4-Isopropyltoluene	20	ND	ND	ND
1,4-Dichlorobenzene	5	ND	ND	ND
n-Butylbenzene	20	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND	ND
Naphthalene	20	ND	ND	ND
Hexachlorobutadiene	20	ND	ND	ND

Approved By:

01638VOA.LW2 - 8260s 3/31/97

3S2P/101894

Date: ___

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: 3/10,11/97

Date Received: 3/13/97
Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	SS-I4 K9701638-005 3/21/97	SS-I3 K9701638-006 3/21/97	SS-G3 K9701638-007 3/21/97
Analyte	MRL				
Dichlorodifluoromethane (CFC 12)	5		ND	ND ·	ND
Chloromethane	5		ND	ND	ND
Vinyl Chloride	5		ND	ND	ND
Bromomethane	5		ND	ND	ND
Chloroethane	5		ND	ND	ND
Trichlorofluoromethane (CFC 11)	5		ND	ND .	ND
Acetone	50		. 69	57	ND
1,1-Dichloroethene	5		<- ND	ND	ND
Carbon Disulfide	5		ND	ND	ND
Methylene Chloride	10		ND	ND	ND
trans -1,2-Dichloroethene	5		ND	ND	ND
1,1-Dichloroethane	5		ND	ND	ND
2-Butanone (MEK)	20		ND	ND	ND
2,2-Dichloropropane	5		ND	ND	ND
cis-1,2-Dichloroethene	5		ND	ND	ND
Chloroform	5		ND	ND	ND
Bromochloromethane	5		ND	ND	ND
1,1,1-Trichloroethane (TCA)	5		ND	ND	ND
1,1-Dichloropropene	5		ND	ND	ND
Carbon Tetrachloride	5		ND	ND	ND
1,2-Dichloroethane	5		ND	ND	ND
Benzene	5		ND	ND	ND
Trichloroethene (TCE)	5		ND	ND	ND
1,2-Dichloropropane	5		ND	ND	ND
Bromodichloromethane	5		ND	ND	ND
Dibromomethane	5		ND	ND	ND
2-Hexanone	20		ND	ND	ND
cis-1,3-Dichloropropene	5		ND	ND	ND
Toluene	5		ND	ND	ND
trans-1,3-Dichloropropene	5		ND	ND	ND
1,1,2-Trichloroethane	5		ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20		ND	ND	ND
1,3-Dichloropropane	5		ND	ND	ND

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Page No..

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: 3/10,11/97
Date Received: 3/13/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	SS-I4 K9701638-005 3/21/97	SS-I3 K9701638-006 3/21/97	SS-G3 K9701638-007 3/21/97
Analyte	MRL				
Tetrachloroethene (PCE)	5		ND	ND	ND
Dibromochloromethane	5		ND	ND	ND
1,2-Dibromoethane (EDB)	20		ND	ND	ND
Chlorobenzene	5		ND	ND	ND
1,1,1,2-Tetrachloroethane	5		ND	ND	ND
Ethylbenzene	5		· ND	ND	ND
Total Xylenes	5		ND	ND	ND
Styrene	5		ND	ND	·ND
Bromoform	5		ND	ND	ND
Isopropylbenzene	20		ND	ND	ND
1,1,2,2-Tetrachloroethane	5		ND	ND	ND
1,2,3-Trichloropropane	5		ND	ND	ND
Bromobenzene	5		ND	ND	ND
n-Propylbenzene	20		ND	ND	ND
2-Chlorotoluene	20		ND	ND	ND
4-Chlorotoluene	20		ND	ND	ND
1,3,5-Trimethylbenzene	20		ND	ND	ND
tert -Butylbenzene	20		ND	ND	ND
1,2,4-Trimethylbenzene	20		ND	ND	ND
sec -Butylbenzene	20		ND	ND	ND
1,3-Dichlorobenzene	5		ND	ND	ND
4-Isopropyltoluene	20		ND	ND	ND
1,4-Dichlorobenzene	5		ND	ND	ND
n -Butylbenzene	20		ND	ND	ND
1,2-Dichlorobenzene	5		ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20		ND	ND	ND
1,2,4-Trichlorobenzene	20		ND	ND	ND
1,2,3-Trichlorobenzene	20		ND	ND	ND
Naphthalene	20		ND	ND	ND
Hexachlorobutadiene	20		ND	ND	ND

Approved By:

01638VOA.LW2 - 8260s (2) 3/31/97

3S2P/101894

At Motoff

Date: 33/87

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Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: 3/10,11/97 Date Received: 3/13/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name:	SS-E3	SS-C3	SS-A3
	Lab Code:	K9701638-008	K9701638-009	K9701638-010
	Date Analyzed:	3/20/97	3/20/97	3/20/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	5	ND	ND	ND
Chloromethane	5	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND
Bromomethane	5	ND	ND	ND
Chloroethane	5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	5	ND	ND	ND
Acetone	50	ND	ND	ND
1,1-Dichloroethene	5	ND	ND	ND
Carbon Disulfide	5	ND	ND	ND
Methylene Chloride	10	ND	ND	ND
trans -1,2-Dichloroethene	5	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	5 -	ND	ND	ND
cis -1,2-Dichloroethene	5	ND	ND	ND
Chloroform	5	ND	ND	ND
Bromochloromethane	5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	5	ND	ND	ND
1,1-Dichloropropene	5	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND
Benzene	5	ND	ND	ND
Trichloroethene (TCE)	5	ND	ND	ND
1,2-Dichloropropane	5	ND	ND	ND
Bromodichloromethane	5	ND	ND	ND
Dibromomethane	5	ND	ND	ND
2-Hexanone	20	ND	ND	ND
cis-1,3-Dichloropropene	5	ND	ND	ND
Toluene	5	ND	ND	ND
trans-1,3-Dichloropropene	5	ND	ND	· ND
1,1,2-Trichloroethane	5	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND

Approved By: __ 01638VOA.LW2 - 8260s (3) 3/31/97 geff Notsign Date: 3/3

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: 3/10,11/97
Date Received: 3/13/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name:	SS-E3	SS-C3	SS-A3
	Lab Code:	K9701638-008	K9701638-009	K9701638-010
	Date Analyzed:	3/20/97	3/20/97	3/20/97
Analyte	MRL			
Tetrachloroethene (PCE)	5	:83 00	£28	7610 °
Dibromochloromethane	5	ND	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
1,1,1,2-Tetrachloroethane	5	ND	ND	ND
Ethvibenzene	5	ND	ND	ND
Total Xylenes	5	ND	ND	ND
Styrene	5	ND	ND	, ND
Bromoform	5	ND	ND	ND
Isopropylbenzene	20	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND
1,2,3-Trichloropropane	5	ND	ND	ND
Bromobenzene	5	ND	ND	ND
n -Propylbenzene	20	ND	ND	ND
2-Chlorotoluene	20	ND	ND	ND
4-Chlorotoluene	20	ND	ND	ND
1,3,5-Trimethylbenzene	20	ND	ND	ND
tert -Butylbenzene	20	ND	ND	ND
1,2,4-Trimethylbenzene	20	ND	ND	ND
sec -Butylbenzene	20	ND	ND	ND
1,3-Dichlorobenzene	5	ND	ND	ND
4-Isopropyltoluene	20	ND	ND	ND
1,4-Dichlorobenzene	5	ND	ND	ND
n-Butylbenzene	20	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND	ND
Naphthalene	20	ND	ND	ND
Hexachlorobutadiene	20	ND	ND	ND

Approved By:

3S2P/101894

Off Motself

Date: 37/97

00018

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: 3/10,11/97

Date Received: 3/13/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	SS-C1 K9701638-011 3/21/97	SS-A1 K9701638-012 3/20/97	SS-A2 K9701638-013 3/20/97
Analyte	MRL				
Dichlorodifluoromethane (CFC 12)	5		ND	ND	ND
Chloromethane	5		ND	ND	ND
Vinyl Chloride	5		ND	ND	ND
Bromomethane	5		ND	ND	ND
Chloroethane	5		ND	ND	ND
Trichlorofluoromethane (CFC 11)	5		ND	ND	ND
Acetone	50		ND	ND	ND
1,1-Dichloroethene	5		ND	ND	. ND
Carbon Disulfide	5		ND	ND	ND
Methylene Chloride	10		ND	ND	ND
trans -1,2-Dichloroethene	5		ND	ND	ND
l, l-Dichloroethane	5		ND	ND	ND
2-Butanone (MEK)	20		ND	ND	ND
2,2-Dichloropropane	5		ND	ND	ND
cis-1,2-Dichloroethene	5		ND	ND	ND
Chloroform	5		ND	ND	ND
Bromochloromethane	5		ND	ND	ND
1,1,1-Trichloroethane (TCA)	5		ND	ND	ND
1,1-Dichloropropene	5		ND	ND	ND
Carbon Tetrachloride	5		ND	ND	ND
1,2-Dichloroethane	5		ND	ND	ND
Benzene	5		' ND	ND	ND
Trichloroethene (TCE)	5		ND	ND	ND
1,2-Dichloropropane	5		ND	ND	ND
Bromodichloromethane	5		ND	ND	ND
Dibromomethane	5		ND	ND	ND
2-Hexanone	20		ND	ND	ND
cis-1,3-Dichloropropene	5		ND	ND	ND
Toluene	5		ND	ND	ND
trans-1,3-Dichloropropene	5		ND	ND	ND
1,1,2-Trichloroethane	5		ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20		ND	ND	ND
1,3-Dichloropropane	5		ND	ND	ND

Approved By: 01638VOA.LW2 - 8260s (4) 3/31/97

00019

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: 3/10,11/97

Date Received: 3/13/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	SS-C1 K9701638-011 3/21/97	SS-A1 K 9701638-012 3/20/97	\$S-A2 K9701638-013 3/20/97
Analyte	MRL			
Tetrachloroethene (PCE)	5	ND	ND	290
Dibromochloromethane	5	ND	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
1,1,1,2-Tetrachloroethane	5	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Total Xylenes	5	ND	ND	ND
Styrene	5	ND	ND	· ND
Bromoform	5	ND	ND	ND
Isopropylbenzene	20	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND
1,2,3-Trichloropropane	5	ND	ND	ND
Bromobenzene	5	ND	ND	ND
n-Propylbenzene	20	ND	ND	ND
2-Chlorotoluene	20	ND	ND	ND
4-Chlorotoluene	20	ND	ND	ND
1,3,5-Trimethylbenzene	20	ND	ND	ND
tert -Butylbenzene	20	ND	ND	ND
1,2,4-Trimethylbenzene	20	ND	ND	ND
sec -Butylbenzene	20	ND	ND	ND
1,3-Dichlorobenzene	5	ND	ND	ND
4-Isopropyltoluene	20	ND	ND	ND
1,4-Dichlorobenzene	5	ND	ND	ND
n -Butylbenzene	20	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND	ND
Naphthalene	20	ND	ND	ND.
Hexachlorobutadiene	20	ND	ND	ND

Approved By:

3S2P/101894

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Date:

33/197

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/ #40358-016.004 task3

Date Collected: 3/10,11/97 Date Received: 3/13/97 Date Extracted: NA

Service Request: K9701638

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	SS-C2 K9701638-014(H) 3/27/97	SS-E2 K9701638-015 3/20/97	SS-G2 K 9701638-016 3/21/97
Analyte	MRL				
Dichlorodifluoromethane (CFC 12)	5		ND	ND	ND
Chloromethane	5		ND	ND	ND
Vinyl Chloride	5		ND	ND	ND
Bromomethane	5		ND	ND	ND
Chloroethane	5		ND	ND	ND
Trichlorofluoromethane (CFC 11)	5		ND	ND	ND
Acetone	50		ND	ND	ND
1,1-Dichloroethene	5		ND	ND	ND
Carbon Disulfide	5		ND	ND	ND
Methylene Chloride	10		ND	ND	ND
trans-1,2-Dichloroethene	5		ND	ND	ND
1,1-Dichloroethane	5		ND	ND	ND
2-Butanone (MEK)	20		ND	ND	ND
2,2-Dichloropropane	5		ND	ND	ND
cis-1,2-Dichloroethene	5		ND	ND	ND
Chloroform	5		ND	ND	ND
Bromochloromethane	5		ND	ND	ND
1,1,1-Trichloroethane (TCA)	5		ND	ND	ND
1,1-Dichloropropene	5		ND	ND	ND
Carbon Tetrachloride	5		ND	ND	ND
1,2-Dichloroethane	5		ND	ND	ND
Benzene	5		ND	ND	ND
Trichloroethene (TCE)	5		ND	ND	ND
1,2-Dichloropropane	5		ND	ND	ND
Bromodichloromethane	5		ND	ND	ND
Dibromomethane	5		ND	ND	ND
2-Hexanone	20		ND	ND	ND
cis -1,3-Dichloropropene	5		ND	ND	ND
Toluene	5		ND	ND	ND
trans-1,3-Dichloropropene	5		ND	ND	ND
1,1,2-Trichloroethane	5		ND	ND	ND ND
4-Methyl-2-pentanone (MIBK)	20		ND	ND ND	ND ND
1,3-Dichloropropane	5		ND	מא	מא

The analysis was performed past the recommended hold time; see case narrative.

Approved By: _ 01638VOA.LW2 - 8260s (5) 3/31/97

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___ Date: __

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/ #40358-016.004 task3

Volatile Organic Compounds

EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

Date Collected: 3/10,11/97 Date Received: 3/13/97 Date Extracted: NA

Service Request: K9701638

	Sample Name: Lab Code: Date Analyzed:	SS-C2 K9701638-014(H) 3/27/97	SS-E2 K9701638-015 3/20/97	SS-G2 K9701638-016 3/21/97
Analyte	MRL			
Tetrachloroethene (PCE)	5	250	<i>9</i> .	ND
Dibromochloromethane	5	ND	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
1,1,1,2-Tetrachloroethane	5	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Total Xylenes	5	ND	ND	ND
Styrene	5	ND	ND	.ND
Bromoform	5	ND	ND	ND
Isopropylbenzene	20	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND
1,2,3-Trichloropropane	5	ND	ND	, ND
Bromobenzene	5	ND	ND	ND
n-Propylbenzene	20	ND	ND	ND
2-Chlorotoluene	20	ND	ND	ND
4-Chlorotoluene	20	ND	ND	ND
1,3,5-Trimethylbenzene	20	ND	ND	ND
tert -Butylbenzene	20	ND	ND	ND
1,2,4-Trimethylbenzene	20	ND	ND	ND
sec -Butylbenzene	20	ND	ND	ND
1,3-Dichlorobenzene	5	ND	ND	ND
4-Isopropyltoluene	20	ND	ND	ND
1,4-Dichlorobenzene	5	ND	ND	ND
n-Butylbenzene	20	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20 .	ND	ND	ND
1,2,4-Trichlorobenzene	20 .	ND	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND	ND
Naphthalene	20	ND	ND	ND
Hexachlorobutadiene	20	ND	ND	ND

The analysis was performed past the recommended hold time; see case narrative.

Approved By:

3S2P/[01894

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Date: _

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/ #40358-016.004 task3

Service Request: K9701638 Date Collected: 3/10,11/97 Date Received: 3/13/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code:	GP-8-1' K970163 8- 017	GP-8-15' K9701638-018	GP-8-21' K9701638-019
	Date Analyzed:	3/20/97	3/20/97	3/21/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	5	ND	ND	ND
Chloromethane	5	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND
Bromomethane	5	ND	ND	ND
Chloroethane	5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	5	ND	ND	ND
Acetone	50	ND	ND	, ND
1,1-Dichloroethene	5	ND	ND	ND
Carbon Disulfide	5	ND	ND	ND
Methylene Chloride	10	ND	ND	ND
trans-1,2-Dichloroethene	5	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	5	ND	ND	ND
cis-1,2-Dichloroethene	5	ND	ND	ND
Chloroform	5	ND	ND	ND
Bromochloromethane	5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	5	ND	ND	ND
1,1-Dichloropropene	5	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND
Benzene	5	ND	ND	ND 3
Trichloroethene (TCE)	5	ND	ND	12 \\ ND
1,2-Dichloropropane	5	ND	ND	
Bromodichloromethane	5	ND	ND	ND
Dibromomethane	5	ND	ND	ND ND
2-Hexanone	20	ND	ND	, ND
cis-1,3-Dichloropropene	5	ND	ND	. ND ND
Toluene	5	ND	ND	ND ND
trans-1,3-Dichloropropene	5	ND	ND	ND
1,1,2-Trichloroethane	5	ND	ND ND	ND ND
4-Methyl-2-pentanone (MIBK)	20	ND ND	ND ND	ND ND
1,3-Dichloropropane	5	מא	NU	ND

Approved By: 01638VOA.LW2 - 8260s (6) 3/31/97

Date: __

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/ #40358-016.004 task3

Service Request: K9701638

Date Collected: 3/10,11/97 Date Received: 3/13/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name:	GP-8-1'	GP-8-15'	GP-8-21'
	Lab Code:	K9701638-017	K9701638-018	K9701638-019
	Date Analyzed:	3/20/97	3/20/97	3/21/97
Analyte	MRL		1	
Tetrachloroethene (PCE)	5	*11	₹ 7 2	200 *
Dibromochloromethane	5	ND	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
1,1,1,2-Tetrachloroethane	5	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Total Xylenes	5	ND	ND	ND
Styrene	5	ND	ND	· ND
Bromoform	5	ND	ND	ND
Isopropylbenzene	20	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND
1,2,3-Trichloropropane	5	ND	ND	ND
Bromobenzene	5	ND	ND	ND
n -Propylbenzene	20	ND	ND	ND
2-Chlorotoluene	20	ND	ND	ND
4-Chlorotoluene	20	ND	ND	ND
1,3,5-Trimethylbenzene	20	ND	ND	ND
tert -Butylbenzene	20	ND	ND	ND
1,2,4-Trimethylbenzene	20	ND	ND	ND
sec -Butylbenzene	20	ND	ND	ND
1,3-Dichlorobenzene	5	ND	ND	ND
4-Isopropyltoluene	20	ND	ND	ND
1,4-Dichlorobenzene	5	ND	ND	ND
n -Butylbenzene	20	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND	ND
Naphthalene	20	ND	ND	ND ND
Hexachlorobutadiene	20	ND	ND	ND

Approved By:

3S2P/101894

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638 Date Collected: 3/10,11/97 Date Received: 3/13/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	GP-9-12' K970163 8- 021 3/21/97	GP-9-23 K9701638-024 3/21/97	GP-5-21.5 K9701638-027 3/21/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	5	ND	ND	ND
Chloromethane	5	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND
Bromomethane	5	ND	ND	ND
Chloroethane	5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	5	ND	ND	ND
Acetone	50	ND	ND	60
1,1-Dichloroethene	5	ND	ND	ND
Carbon Disulfide	5	ND	ND	<i>₹</i> 18 ₹
Methylene Chloride	10	ND	ND	ND
trans-1,2-Dichloroethene	5	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	5	ND 3	ND	ND
cis-1,2-Dichloroethene	5	~28	ND	ND
Chloroform	5	ND	ND	ND
Bromochloromethane	5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	5	ND	ND	ND
1,1-Dichloropropene	5	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND
Benzene	5	ND	ND	ND
Trichloroethene (TCE)	5	ND	23	<u></u> 100 *
1,2-Dichloropropane	5	ND	ND	ND
Bromodichloromethane	5	ND	ND	ND
Dibromomethane	5	ND	ND	ND
2-Hexanone	20	ND	ND	ND
cis-1,3-Dichloropropene	5	ND	ND	ND
Toluene	5	ND	ND	ND
trans-1,3-Dichloropropene	5	ND	ND	ND
1,1,2-Trichloroethane	5	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND

Approved By: 01638VOA.LW2 - 8260s (7) 3/31/97

_ Date: _

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638 **Date Collected: 3/10,11/97** Date Received: 3/13/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name:	GP-9-12'	GP-9-23	GP-5-21.5
	Lab Code: Date Analyzed:	K9701638-021 3/21/97	K9701638-024 3/21/97	K9701638-027 3/21/97
	Date Analyzed:	3/21/9/	3/21/9/	3/21/9/
Analyte	MRL		E2 1	,e- \$
Tetrachloroethene (PCE)	5	-3 ⁴ 80	88	980
Dibromochloromethane	5	AND	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
1,1,1,2-Tetrachloroethane	5	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Total Xylenes	5	ND	ND	ND
Styrene	5	ND	ND	· ND
Bromoform	5	ND	ND	ND
Isopropyibenzene	20	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND
1,2,3-Trichloropropane	5	ND	ND	ND
Bromobenzene	5	ND	ND	ND
n-Propylbenzene	20	ND	ND	ND
2-Chlorotoluene	20	ND	ND	ND
4-Chlorotoluene	20	ND	ND	ND
1,3,5-Trimethylbenzene	20	ND	ND	ND
tert -Butylbenzene	20	ND	ND	ND
1,2,4-Trimethylbenzene	20	ND	ND	ND
sec -Butylbenzene	20	ND	ND	ND
1,3-Dichlorobenzene	5	ND	ND	ND
4-Isopropyitoluene	20	ND	ND	ND
1,4-Dichlorobenzene	5	ND	ND	ND
n-Butylbenzene	20	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND	ND
Naphthalene	20	ND	ND	ND
Hexachlorobutadiene	20	ND	ND	ND

Approved By:

3S2P/101894

_____Date: 3/31/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: 3/10,11/97

Date Received: 3/13/97

Date Extracted: 3/17/97

Volatile Organic Compounds EPA Method 8260A Units: mg/Kg (ppm) Dry Weight Basis

		Sample Name:	SS-G4	GP-5-11	SS-E4
		Lab Code: Date Analyzed:	K9701638-004 3/23/97	K9701638-026(C) 3/23/97	K9701638-028 3/23/97
Analyte	MRL		5,25,7	2,20,1	5. 5
-	0.5	100 19	*2 7	\mathbf{q}^{-j}	10 1
Tetrachloroethene (PCE)	0.5	- ,	ND	<1	ND
Dibromochloromethane			ND ND	<4	ND
1,2-Dibromoethane (EDB)	2 0.5		ND ND	<1	ND ND
Chlorobenzene					ND ND
1,1,1,2-Tetrachloroethane	0.5		ND	<1	
Ethylbenzene	0.5		ND	<1	ND
Total Xylenes	0.5		ND	12	ND
Styrene	0.5		ND	<1	·ND
Bromoform	0.5		ND	<1	ND
Isopropylbenzene	2		ND	<4	ND
1,1,2,2-Tetrachloroethane	0.5		ND	<1	ND
1,2,3-Trichloropropane	0.5		ND	<1	ND
Bromobenzene	0.5		ND	<1	ND
n-Propylbenzene	2		ND	10 '	ND
2-Chlorotoluene	2 2 2 2		ND	<4	ND
4-Chlorotoluene	2		ND	<4	ND
1,3,5-Trimethylbenzene	2		ND	16	ND
tert -Butylbenzene			ND	7.	ND
1,2,4-Trimethylbenzene	2 2		ND	7. 31. 7	ND
sec -Butylbenzene			ND	7	ND
1,3-Dichlorobenzene	0.5		ND	<1	ND
4-Isopropyltoluene	2		ND	₹9	ND
1,4-Dichlorobenzene	0.5		ND	<1	ND
n-Butylbenzene	2		ND	8 5	ND
1,2-Dichlorobenzene	0.5		ND	<1	ND
1,2-Dibromo-3-chloropropane (DBCP)	2		ND	<4	ND
1,2,4-Trichlorobenzene	2		ND	<4	ND
1,2,3-Trichlorobenzene	2		ND	<4	ND
Naphthalene	2 2 2		ND	<4	ND
Hexachlorobutadiene	2		ND	<4	ND

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The MRL is elevated because the sample required diluting.

Approved By:

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Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: 3/10,11/97

Date Received: 3/13/97
Date Extracted: 3/17/97

Volatile Organic Compounds EPA Method 8260A Units: mg/Kg (ppm) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	SS-G4 K9701638-004 3/23/97	GP-5-11 K9701638-026(C) 3/23/97	SS-E4 K9701638-028 3/23/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	0.5	ND	<1	ND
Chloromethane	0.5	ND	<1	ND
Vinyl Chloride	0.5	ND	<1	ND
Bromomethane	0.5	ND	<1	ND
Chloroethane	0.5	ND	<1	ND
Trichlorofluoromethane (CFC 11)	0.5	ND	<1	ND
Acetone	5	ND	<10	ND
1,1-Dichloroethene	0.5	ND	<1	ND
Carbon Disulfide	0.5	ND,	<1	ND
Methylene Chloride	1	ND	<2	ND
trans-1,2-Dichloroethene	0.5	ND	<1	ND
1,1-Dichloroethane	0.5	ND	<1	ND
2-Butanone (MEK)	2	ND	<4	ND
2,2-Dichloropropane	0.5	ND	<1	ND
cis-1,2-Dichloroethene	0.5	ND	<1	ND
Chloroform	0.5	ND	<1	ND
Bromochloromethane	0.5	ND	<1	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	<1	ND
1,1-Dichloropropene	0.5	ND	<1	ND
Carbon Tetrachloride	0.5	ND	<1	ND
1,2-Dichloroethane	0.5	ND	<1	ND
Benzene	0.5	ND	<1	ND
Trichloroethene (TCE)	0.5	ND	<1	ND
1,2-Dichloropropane	0.5	ND	<1	ND
Bromodichloromethane	0.5	ND	<1	ND
Dibromomethane	0.5	ND	<1	ND
2-Hexanone	2	ND	<4	ND
cis-1,3-Dichloropropene	0.5	ND	<1	ND
Toluene	0.5	ND	<1	ND
trans-1,3-Dichloropropene	0.5	ND	<1	ND
1,1,2-Trichloroethane	0.5	ND	<1	ND
4-Methyl-2-pentanone (MIBK)	2	ND	<4	ND
1,3-Dichloropropane	0.5	ND	<1	ND

The MRL is elevated because the sample required diluting.

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Date: 3/3//97

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Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: NA
Date Received: NA

Date Extracted: 3/17/97

Volatile Organic Compounds EPA Method 8260A Units: mg/Kg (ppm) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	Method Blank K970323-MB 3/23/97
Analyte	MRL	
Dichlorodifluoromethane (CFC 12)	0.5	ND
Chloromethane	0.5	ND
Vinyl Chloride	0.5	ND
Bromomethane	0.5	ND
Chloroethane	0.5	ND
Trichlorofluoromethane (CFC 11)	0.5	ND
Acetone	5	ND
I, I-Dichloroethene	0.5	ND
Carbon Disulfide	0.5	ND
Methylene Chloride	I	ND
trans -1,2-Dichloroethene	0.5	ND
I,1-Dichloroethane	0.5	ND
2-Butanone (MEK)	2	ND
2,2-Dichloropropane	0.5	ND
cis-1,2-Dichloroethene	0.5	ND
Chloroform	0.5	ND
Bromochloromethane	0.5	ND
1,1,1-Trichloroethane (TCA)	0.5	ND
1,1-Dichloropropene	0.5	ND
Carbon Tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Benzene	0.5	ND
Trichloroethene (TCE)	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Dibromomethane	0.5	ND
2-Hexanone	2	ND
cis-1,3-Dichloropropene	0.5	ND
Toluene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
4-Methyl-2-pentanone (MIBK)	2	ND
1,3-Dichloropropane	0.5	ND

Approved By:	Dell	Mitstell	Date:	3/3/19
01638VOA LWI - 8260s (2) V31/97				1

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Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: NA Date Received: NA Date Extracted: 3/17/97

Volatile Organic Compounds EPA Method 8260A Units: mg/Kg (ppm) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	Method Blank K970323-MB 3/23/97
Analyte	MRL	
Tetrachloroethene (PCE)	0.5	ND
Dibromochloromethane	0.5	ND
1,2-Dibromoethane (EDB)	2	ND
Chlorobenzene	0.5	ND
1,1,1,2-Tetrachloroethane	0.5	ND
Ethylbenzene	0.5	ND
Total Xylenes	0.5	ND
Styrene	0.5	ND
Bromoform	0.5	ND
Isopropylbenzene	2	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,2,3-Trichloropropane	0.5	ND
Bromobenzene	0.5	ND
n-Propylbenzene	2	ND
2-Chlorotoluene	2	ND
4-Chlorotoluene	2	ND
1,3,5-Trimethylbenzene	2	ND
tert -Butylbenzene	2	ND
1,2,4-Trimethylbenzene	2 2 2 2 2 2	ND
sec-Butylbenzene		ND
1,3-Dichlorobenzene	0.5	ND
4-Isopropyltoluene	2	ND
1,4-Dichlorobenzene	0.5	ND
n-Butylbenzene	2	ND
1,2-Dichlorobenzene	0.5	ND
1,2-Dibromo-3-chloropropane (DBCP)	2 2	ND
1,2,4-Trichlorobenzene	2	ND
1,2,3-Trichlorobenzene	2	ND
Naphthalene	2	ND
Hexachlorobutadiene	2	ND

Approved By: 3S2P/101894

Date: __

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/ #40358-016.004 task3

Date Collected: NA Date Received: NA Date Extracted: NA

Service Request: K9701638

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	Method Blank K970320-MB1 3/20/97	Method Blank K970320-MB2 3/20/97	Method Blank K970321-MB 3/21/97
Analyte	MRL				
Dichlorodifluoromethane (CFC 12)	5		ND	ND	ND
Chloromethane	5		ND	ND	ND ·
Vinyl Chloride	5		ND	ND	ND
Bromomethane	5		ND	ND	ND
Chloroethane	5		ND	ND	ND
Trichlorofluoromethane (CFC 11)	5		ND	ND	ND
Acetone	50		ND	ND	ND
1,1-Dichloroethene	5		ND	ND	. ND
Carbon Disulfide	5		ND	ND	ND
Methylene Chloride	10		ND	ND	ND
trans-1,2-Dichloroethene	5		ND	ND	ND
1,1-Dichloroethane	5		ND	ND	ND
2-Butanone (MEK)	20		ND	ND	ND
2,2-Dichloropropane	5		ND	ND	ND
cis-1,2-Dichloroethene	5		ND	ND	ND
Chloroform	5		ND	ND	ND
Bromochloromethane	5		ND	ND	ND
1,1,1-Trichloroethane (TCA)	5		ND	ND	ND
1,1-Dichloropropene	5		ND	ND	ND
Carbon Tetrachloride	5		ND	ND	ND
1,2-Dichloroethane	5		ND	ND	ND
Benzene	5		ND	ND	ND
Trichloroethene (TCE)	5		ND	ND	ND
1,2-Dichloropropane	5		ND	ND	ND
Bromodichloromethane	5		ND	ND	ND
Dibromomethane	5		ND	ND	ND
2-Hexanone	20		ND	ND	ND
cis-1,3-Dichloropropene	5		ND	ND	ND
Toluene	5		ND	ND	ND
trans-1,3-Dichloropropene	5		ND	ND	ND
1,1,2-Trichloroethane	5		ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20		ND	ND	ND
1,3-Dichloropropane	5		ND	ND	ND

Approved By: 01638VOA.LW2 - 8260s (8) 3/31/97 Jeff Matrick Date:

Analytical Report

Client: Project: **EMCON**

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: NA Date Received: NA Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name:	Method Blank	Method Blank K970320-MB2	Method Blank K970321-MB
	Lab Code: Date Analyzed:	K970320-MB1 3/20/97	3/20/97	3/21/97
	•	3120131	3/20/7/	3/21/7
Analyte	MRL			
Tetrachloroethene (PCE)	5	ND	ND	ND
Dibromochloromethane	5	ND	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND	ND
Chlorobenzene	5	ND	ND	, ND
1,1,1,2-Tetrachloroethane	5	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Total Xylenes	5	ND	ND	ND
Styrene	5	ND	ND	· ND
Bromoform	5	ND	ND	ND
Isopropylbenzene	20	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND
1,2,3-Trichloropropane	5	ND	ND	ND
Bromobenzene	5	ND	ND	ND
n -Propylbenzene	20	ND	ND	ND
2-Chlorotoluene	20	ND	ND	ND
4-Chlorotoluene	20	ND	ND	ND
1,3,5-Trimethylbenzene	20	ND	ND	ND
tert -Butylbenzene	20	ND	ND	ND
1,2,4-Trimethylbenzene	20	ND	ND	ND
sec -Butylbenzene	20	ND	ND	ND
1,3-Dichlorobenzene	5	ND	ND	ND
4-Isopropyltoluene	20	ND	ND	ND
1,4-Dichlorobenzene	5	ND	ND	ND
n-Butylbenzene	20	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND	ND
Naphthalene	20	ND	ND	ND
Hexachlorobutadiene	20	ND	ND	ND

Approved By:

3S2P/101894

Jeff Motsaff Date: 3/3

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: NA Date Received: NA Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name:	Method Blank
	Lab Code:	K970327-MB
	Date Analyzed:	3/27/97
Analyte	MRL	
Dichlorodifluoromethane (CFC 12)	5	ND
Chloromethane	5	ND
Vinyl Chloride	5	ND
Bromomethane	5	ND
Chloroethane	5	ND
Trichlorofluoromethane (CFC 11)	5	ND
Acetone	50	ND
1,1-Dichloroethene	5	ND
Carbon Disulfide	5	ND
Methylene Chloride	10	ND
trans-1,2-Dichloroethene	5	ND
1,1-Dichloroethane	5	ND
2-Butanone (MEK)	20	ND
2,2-Dichloropropane	5	ND
cis-1,2-Dichloroethene	5	ND
Chloroform	5	ND
Bromochloromethane	5	ND
1,1,1-Trichloroethane (TCA)	5	ND
1,1-Dichloropropene	5	ND
Carbon Tetrachloride	5	ND
1,2-Dichloroethane	5	ND
Benzene	5	ND
Trichloroethene (TCE)	5	ND
1,2-Dichloropropane	5	ND
Bromodichloromethane	5 .	ND
Dibromomethane	5	ND
2-Hexanone	20	ND
cis -1,3-Dichloropropene	5	ND
Toluene	5	ND
trans-1,3-Dichloropropene	5	ND
1,1,2-Trichloroethane	5	ND
4-Methyl-2-pentanone (MIBK)	20	ND
1,3-Dichloropropane	5	ND

Approved By: 01638VOA.LW2 - 8260s (9) 3/31/97 Jeff Motroff Date: 3/2/91

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Soil

Service Request: K9701638

Date Collected: NA
Date Received: NA
Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code:	Method Blank K970327-MB
		Date Analyzed:	3/27/97
Analyte	MRL		
Tetrachloroethene (PCE)	5		ND
Dibromochloromethane	5		ND
1,2-Dibromoethane (EDB)	20		ND
Chlorobenzene	5		ND
1,1,1,2-Tetrachloroethane	5		ND
Ethylbenzene	5		ND
Total Xylenes	5		ND
Styrene	5		ND
Bromoform	5		ND
Isopropylbenzene	20		ND
1,1,2,2-Tetrachloroethane	5		ND
1,2,3-Trichloropropane	5		ND
Bromobenzene	5		ND
n-Propylbenzene	20		ND
2-Chlorotoluene	20		ND
4-Chlorotoluene	20		ND
1,3,5-Trimethylbenzene	20		ND
tert -Butylbenzene	20		ND
1,2,4-Trimethylbenzene	20		ND
sec-Butylbenzene	20		ND
1,3-Dichlorobenzene	5		ND
4-Isopropyltoluene	20		ND
1,4-Dichlorobenzene	5		ND
n-Butylbenzene	20		ND
1,2-Dichlorobenzene	5		ND
1,2-Dibromo-3-chloropropane (DBCP)	20		ND
1,2,4-Trichlorobenzene	20		ND
1,2,3-Trichlorobenzene	20		ND
Naphthalene	20		ND
Hexachlorobutadiene	20		ND

Approved By:

3S2P/101894

Soft Motorf

Date: ___

3/3/197

QA/QC Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/ #40358-016.004 task3

Date Collected: 3/10,11/97 Date Received: 3/13/97 Date Extracted: NA Date Analyzed: 3/20-27/97

Service Request: K9701638

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

Sample Name	Lab Code	Percen Dibromofluoromethane	t Rec Toluene-d ₈	o v e r y 4-Bromofluorobenzene
SS-D4	K9701638-001	104	86	54(A)
SS-B5	K9701638-002	96	97	81
SS-C4	K9701638-003	104	94	74
SS-I4	K9701638-005	101	95	73
SS-I3	K9701638-006	98	99	83 .
SS-G3	K9701638-007	102	98	82
SS-E3	K9701638-008	105	89	54(A)
SS-C3	K9701638-009	106	91	72
SS-A3	K9701638-010	108	88	65(A)
SS-C1	K9701638-011	99	98	77
SS-A1	K9701638-012	101	96	86
SS-A2	K9701638-013	103	94	73
SS-C2	K9701638-014	110	98	85
SS-E2	K9701638-015	102	95	78
SS-G2	K9701638-016	98	9 9	81
GP-8-1'	K9701638-017	101	96	83
GP-8-15'	K9701638-018	101	96	87
GP-8-21'	K9701638-019	100	96	86

CAS Acceptance Limits: 82-122

84-116

67-129

Α

Outside acceptance limits; see case narrative.

Approved By:

SUR.V110094 01638VOA.LW2 - 8260sSUR 3/31/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3 Sample Matrix: Soil

Service Request: K9701638 **Date Collected: 3/10,11/97** Date Received: 3/13/97

Date Extracted: NA

Date Analyzed: 3/20-27/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

Percent Recovery

Lab Code	Dibromofluoromethane	Toluene-d ₈	4-Bromofluorobenzene
K9701638-021	102	97	91
K9701638-024	101	95	81
K9701638-027	101	95	74
K970320-MB1	9 8	99	96
K970320-MB2	95	96	82 .
K970321-MB	95	97	79
K970327-MB	98	100	95
	K9701638-021 K9701638-024 K9701638-027 K970320-MB1 K970320-MB2 K970321-MB	K9701638-021 102 K9701638-024 101 K9701638-027 101 K970320-MB1 98 K970320-MB2 95 K970321-MB 95	K9701638-021 102 97 K9701638-024 101 95 K9701638-027 101 95 K970320-MB1 98 99 K970320-MB2 95 96 K970321-MB 95 97

CAS Acceptance Limits: 82-122

84-116

67-129

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Approved By:	(D FY	100	Date: _	1/4/	
		,		U	

SUR3/110094 01638VOA.LW2 - 8260sSUR (2) 3/31/97

QA/QC Report

Client:

EMCON

Service Request: K9701638

Project:

New City Cleaners/ #40358-016.004 task3

Date Collected: 3/10,11/97

Sample Matrix: Soil

Date Received: 3/13/97 Date Extracted: 3/17/97

Date Analyzed: 3/23/97

Surrogate Recovery Summary **Volatile Organic Compounds** EPA Method 8260A

> Percent Recovery Dibromofluoromethane 4-Bromofluorobenzene Toluene-d₈ 97 100 102

Sample Name Lab Code K9701638-004 SS-G4 GP-5-11 K9701638-026 98 100 164(A) 104 SS-E4 K9701638-028 100 100 89 Method Blank K970323-MB 99 99

CAS Acceptance Limits:

82-122

84-116

67-129

Α

Outside acceptance limits; see case narrative.

Approved By:

SUR3/110094 01638VOA.LW1 - 8260±SUR 3/31/97

Date:

Analytical Report

Client: Project: **EMCON**

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Water

Service Request: K9701662 Date Collected: 3/12/97

Date Received: 3/14/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

		Sample Name: Lab Code: Date Analyzed:	GPW-10-397-17 K97 01662-010(C) 3/25/97	GPW-6-397-15 K 9701662-014(C) 3/25/97	GPW-1-397-15 K9701662-019(C) 3/25/97
Analyte	MRL				
Dichlorodifluoromethane (CFC 12)	0.5		<20	<100	<10
Chloromethane	0.5		<20	<100	<10
Vinyl Chloride	0.5		<20	<100	<10
Bromomethane	0.5		<20	<100	<10
Chloroethane	0.5		<20	<100	<10
Trichlorofluoromethane (CFC 11)	0.5		<20	<100	<10
Acetone	20		<800	<4000	<400
1,1-Dichloroethene	0.5		<20	<100	·<10
Carbon Disulfide	0.5		<20	<100	<10
Methylene Chloride	1		<40	<200	<20
trans-1,2-Dichloroethene	0.5		<20	<100	<10
1,1-Dichloroethane	0.5		<20	<100	<10
2-Butanone (MEK)	20		<800	<4000	<400
2,2-Dichloropropane	0.5		<20	<100	<10
cis-1,2-Dichloroethene	0.5		<20	, 23 00	<10
Chloroform	0.5		<20	<100	<10
Bromochloromethane	0.5		<20	<100	<10
1,1,1-Trichloroethane (TCA)	0.5		<20	<100	<10
I, I-Dichloropropene	0.5		<20	<100	<10
Carbon Tetrachloride	0.5		<20	<100	<10
1,2-Dichloroethane	0.5		<20	<100	<10
Benzene	0.5		<20	<100	<10
Trichloroethene (TCE)	0.5		<20	3500	318 7
1,2-Dichloropropane	0.5		<20	<100	<10
Bromodichloromethane	0.5		<20	<100	<10
Dibromomethane	0.5		<20	<100	<10
2-Hexanone	20		<800	<4000	<400
cis-1,3-Dichloropropene	0.5		<20	<100	<10
Toluene	0.5		<20	<100	<10
trans-1,3-Dichloropropene	0.5		<20	<100	<10
1,1,2-Trichloroethane	0.5		<20	<100	<10
4-Methyl-2-pentanone (MIBK)	20		<800	<4000	<400
1,3-Dichloropropane	0.5		<20	<100	<10

The MRL is elevated because the sample required diluting.

Approved By:

С

01662VOA.LW3 - 8260w2p 3/31/97

Date: __

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Water

Service Request: K9701662

Date Collected: 3/12/97 Date Received: 3/14/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

	Sample Name: Lab Code: Date Analyzed:	GPW-10-397-1 7 K970 1662-010(C) 3/25/97	GPW-6-397-15 K9701662-014(C) 3/25/97	GPW-1-397-15 K9701662-019(C) 3/25/97
Analyte	MRL			timed 0°
Tetrachloroethene (PCE)	0.5	59	1000	1 210 ·
Dibromochloromethane	0.5	<20	<100	<10
1,2-Dibromoethane (EDB)	2	<80	<400	<40
Chlorobenzene	0.5	<20	<100	<10
1,1,1,2-Tetrachloroethane	0.5	<20	<100	<10
Ethylbenzene	0.5	<20	<100	<10
Total Xylenes	0.5	<20	<100	<10
Styrene	0.5	<20	<100	· <10
Bromoform	0.5	<20	<100	<10
Isopropylbenzene	2	<80	<400	<40
1,1,2,2-Tetrachloroethane	0.5	<20	<100	<10
1,2,3-Trichloropropane	0.5	<20	<100	<10
Bromobenzene	0.5	<20	<100	<10
n-Propylbenzene	2	<80	<400	<40
2-Chlorotoluene	2	<80	<400	<40
4-Chlorotoluene		<80	<400	<40
1,3,5-Trimethylbenzene	2 2 2 2	<80	<400	<40
tert -Butylbenzene	2	<80	<400	<40
1,2,4-Trimethylbenzene	2	<80	<400	<40
sec -Butylbenzene	2	<80	<400	<40
1,3-Dichlorobenzene	0.5	<20	<100	<10
4-Isopropyltoluene	2	<80	<400	<40
1,4-Dichlorobenzene	0.5	<20	<100	<10
n-Butylbenzene	2	<80	<400	<40
1,2-Dichlorobenzene	0.5	<20	<100	<10
1,2-Dibromo-3-chloropropane (DBCP)	2	<80	<400	<40
1,2,4-Trichlorobenzene	2	<80	<400	<10
1,2,3-Trichlorobenzene	2 2 2	<80	<400	<40
Naphthalene	2	<80	<400	<40
Hexachlorobutadiene	2	<80	<400	<40

The MRL is elevated because the sample required diluting.

Approved By:

C

3\$2P/102094 01662VOA.LW3 - 8260w2p 3/31/97

OH Tabel Date: 3/3/

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Analytical Report

Client: Project: **EMCON**

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Water

Service Request: K9701638 Date Collected: 3/11/97

Date Received: 3/13/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

		Sample Name:	GPW-8-397-10	GPW-9-397-15'	GPW-9-397-25'
		Lab Code: Date Analyzed:	K97 01638-020(C) 3/25/97	K9701638-022(C) 3/25/97	K9701638-023(C) 3/25/97
Analyte	MRL				
Dichlorodifluoromethane (CFC 12)	0.5		<20	<100	<130
Chloromethane	0.5		<20	<100	<130
Vinyl Chloride	0.5		<20	<100	<130
Bromomethane	0.5		<20	<100	<130
Chloroethane	0.5		<20	<100	<130
Trichlorofluoromethane (CFC 11)	0.5		<20	<100	<130
Acetone	20		<8 00	<4000	<5000
1,1-Dichloroethene	0. <i>5</i>		<20	<100	<130
Carbon Disulfide	0.5		<20	<100	<130
Methylene Chloride	1		<40	<200	<250
trans -1,2-Dichloroethene	0.5		<20	<100	<130
1,1-Dichloroethane	0.5		<20	<100	<130
2-Butanone (MEK)	20		<800	<4000	<5000
2,2-Dichloropropane	0.5		<20	<100	<130
cis-1,2-Dichloroethene	0.5		<20	<100	<130
Chloroform	0.5		<20	<100	<130
Bromochloromethane	0.5		<20	<100	<130
1,1,1-Trichloroethane (TCA)	0.5		<20	<100	<130
I,1-Dichloropropene	0.5		<20	<100	<130
Carbon Tetrachloride	0.5		<20	<100	<130
1,2-Dichloroethane	0.5		<20	<100	<130
Benzene	0.5		<20	<100	<130
Trichloroethene (TCE)	0.5		<20	<100	<130
1,2-Dichloropropane	0.5		<20	<100	<130
Bromodichloromethane	0.5		<20	<100	<130
Dibromomethane	0.5		<20	<100	<130
2-Hexanone	20		<800	<4000	<5000
cis-1,3-Dichloropropene	0.5		<20	<100	<130
Toluene	0.5		<20	<100	<130
trans -1,3-Dichloropropene	0.5		<20	<100	<130
1,1,2-Trichloroethane	0.5		<20	<100	<130
4-Methyl-2-pentanone (MIBK)	20	•	<800	<1000	<5000
1,3-Dichloropropane	0.5		<20	<100	<130

The MRL is elevated because the sample required diluting.

Approved By: 01638VOA.LW3 - 8260w2p 3/31/97

C

Date: __

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Water

Service Request: K9701638

Date Collected: 3/11/97 Date Received: 3/13/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

	Sample Name:	TB1-397	Method Blank
	Lab Code:	K9701638-025	K970325-MB
	Date Analyzed:	3/25/97	3/25/97
A	MRL		
Analyte			
Dichlorodifluoromethane (CFC 12)	0.5	ND	ND
Chloromethane	0.5	ND	ND
Vinyl Chloride	0.5	ND	ND
Bromomethane	0.5	ND	ND
Chloroethane	0.5	ND	ND
Trichlorofluoromethane (CFC 11)	0.5	ND	ND
Acetone	20	ND	ND
1,1-Dichloroethene	0.5	ND	ND
Carbon Disulfide	0.5	ND	ND
Methylene Chloride	1	ND	ND
trans-1,2-Dichloroethene	0.5	ND	ND
1,1-Dichloroethane	0.5	ND	ND
2-Butanone (MEK)	20	ND	ND
2,2-Dichloropropane	0.5	ND	ND
cis-1,2-Dichloroethene	0.5	ND	ND
Chloroform	0.5	ND	ND
Bromochloromethane	0.5	ND	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	ND
1,1-Dichloropropene	0.5	ND	ND
Carbon Tetrachloride	0.5	ND	ND
1,2-Dichloroethane	0.5	ND	ND
Benzene	0.5	ND	ND
Trichloroethene (TCE)	0.5	ND	ND
1,2-Dichloropropane	0,5	ND	ND
Bromodichloromethane	0.5	ND	ND
Dibromomethane	0.5	ND	ND
2-Hexanone	20	ND	ND
cis-1,3-Dichloropropene	0.5	ND	ND
Toluene	0.5	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND
1,3-Dichloropropane	0.5	ND	ND
• •			

Approved By: 01638VOA.LW3 - 8260w2p (2) 3/31/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Water

Service Request: K9701638

Date Collected: 3/11/97 Date Received: 3/13/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

		Sample Name: Lab Code: Date Analyzed:	GPW-8-397-10 K97 01638-020(C) 3/25/97	GPW-9-397-15' K9701638-022(C) 3/25/97	GPW-9-397-25' K9701638-023(C) 3/25/97
Analyte	MRL	,	Premius:		Lauren - e
Tetrachloroethene (PCE)	0.5		2000	220 0	220 0
Dibromochloromethane	0.5		<20	<100	~<130
1,2-Dibromoethane (EDB)	2		<80	<400	<500
Chlorobenzene	0.5		<20	<100	<130
1,1,1,2-Tetrachloroethane	0.5		<20	<100	<130
Ethylbenzene	0.5		<20	<100	<130
Total Xylenes	0.5		<20	<100	<130
Styrene	0.5		<20	<100	<130
Bromoform	0.5		<20	<100	<130
Isopropylbenzene	2		<80	<100	<500
1,1,2,2-Tetrachloroethane	0.5		<20	<100	<130
1,2,3-Trichloropropane	0.5		<20	<100	<130
Bromobenzene	0.5		<20	<100	<130
n-Propylbenzene	2		<80	<400	<500
2-Chlorotoluene	2		<80	<400	<500
4-Chlorotoluene	2		<80	<400	<500
1,3,5-Trimethylbenzene	2 2 2 2 2 2		<80	<400	<500
tert -Butylbenzene	2		<80	<400	<500
1,2,4-Trimethylbenzene	2		<80	<400	<500
sec-Butylbenzene	2		<80	<400	<500
1,3-Dichlorobenzene	0.5		<20	<100	<130
4-Isopropyitoluene	2		<80	<400	<500
1,4-Dichlorobenzene	0.5		<20	<100	<130
n-Butylbenzene	2		<80	<400	<500
1,2-Dichlorobenzene	0.5		<20	<100	<130
1,2-Dibromo-3-chloropropane (DBCP)	2 2		<80	<400	<500
1,2,4-Trichlorobenzene			<80	<400	<500
1,2,3-Trichlorobenzene	2		<80	<400	<500
Naphthalene	2 2 2		<80	<400	<500
Hexachlorobutadiene	2		<80	<400	<500

The MRL is elevated because the sample required diluting.

Approved By:

C

3S2P/102094 01638VOA.LW3 - 8260w2p 3/31/97

Date: 3/31/07

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Water

Service Request: K9701638

Date Collected: 3/11/97

Date Received: 3/13/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

	Sample Name:	TB1-397	Method Blank
	Lab Code:	K9701638-025	K970325-MB
	Date Analyzed:	3/25/97	3/25/97
Analyte	MRL		
Tetrachloroethene (PCE)	0.5	ND	ND
Dibromochloromethane	0.5	ND	ND
1,2-Dibromoethane (EDB)	2	ND	ND
Chlorobenzene	0.5	ND	ND
1,1,1,2-Tetrachloroethane	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Total Xylenes	0.5	ND	ND
Styrene	0.5	ND	ND
Bromoform	0.5	ND	ND
Isopropylbenzene	2	ND	ND
1,1,2,2-Tetrachloroethane	0.5	ND	ND
1,2,3-Trichloropropane	0.5	ND	ND
Bromobenzene	0.5	ND	ND
n-Propylbenzene	2	ND	ND
2-Chlorotoluene	2	ND	ND
4-Chlorotoluene	2	ND	ND
1,3,5-Trimethylbenzene	2 2	ND	ND
tert -Butylbenzene		ND	ND
1,2,4-Trimethylbenzene	2	ND	ND
sec -Butylbenzene	2	ND	ND
1,3-Dichlorobenzene	0.5	ND	ND
4-Isopropyltoluene	2	ND	ND
1,4-Dichlorobenzene	0.5	ND	ND
n -Butylbenzene	2	ND	ND
1,2-Dichlorobenzene	0.5	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	2	ND	ND
1,2,4-Trichlorobenzene	2	ND	ND
1,2,3-Trichlorobenzene	2	ND	ND
Naphthalene	2 2 2 2	· ND	ND
Hexachlorobutadiene	2	ND	ND

Approved By: _

3S2P/102094 01638VOA.LW3 - 8260w2p (2) 3/31/97

Juff Matel 3/3/197

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 task3

Sample Matrix: Water

Service Request: K9701638

Date Collected: 3/11/97

Date Received: 3/13/97 Date Extracted: NA

Date Analyzed: 3/25/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

Sample Name	Lab Code	Dibromofluoromethane	Toluene-d ₈	4-Bromofluorobenzene
Sample Ivanie				
GPW-8-397-10	K9701638-020	101	101	98
GPW-9-397-15'	K9701638-022	100	101	99
GPW-9-397-25'	K9701638-023	100	101	98
TB1-397	K9701638-025	100	101	97
Method Blank	K970325-MB	97	99	94

CAS Acceptance Limits:

91-117

90-110

82-119

Approved By:

SUR2/111594 01638VOA.LW3 - 8260wSUR 3/31/97

_ Date: _

ServiceS** 1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222 • FAX (360) 636-1068 Chumbia Chumbia

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DATE March 11, 1597 PAGE

ANALYSIS REQUESTED

SAMPLE RECEIPT: Lab No. K97 1638 CA0291 Shipping VIA: Shipping #: 8 کرمی Condition. (XOV)C JOSOB (XOT) INVOICE INFORMATION: (logy of dissolved in the log of Caleh Melals 3 P.O.4 REPORT REQUIREMENTS II. Report (includes DUP MS. MSD, as required, may be III. Data Validation Report (includes All Raw Data) IV. CLP Deliverable Report charged as samples) nodiesocibyh musionist 1. Rouline Report SPECIAL INSTRUCTIONS/COMMENTS: SOUTH SOUTH Of Aromalic 602/8020 **TURNAROUND REQUIREMENTS** 24 hr _____ 5 day Provide FAX preliminary Results Standard (10-15 working days) Provide Verbal Preliminary アードラグ Requested Report Date NUMBER OF CONTAINERS Results PROJECT NAME NEWJ City Cleaners # 4035B-010.004 SAMPLE MATRIX PHONE 838-1144 Scil = = = = = Ξ = Ξ 02:01 9 4 ∞ n K971638-1 Ивсемер ву: RECEIVED BY: CAS - AB Printed Name Firm Ex (3/12/97 SAMPLERS SIGNATURE _ STATE TO BELLE PROJECT MANAGER - Rob Lindsay Date/Time W. 7106 Alton Ln # 10 15:35 15:10 15:03 14:55 15:15 16:30 16:15 15:55 او:00 <u>등</u> 9924 TIME 3/10/57 COMPANY/ADDRESS EMCON DATE Ξ 3 MA = = Ξ RELINQUISHED BY: RELINQUISHED BY: LOPM Printed Name Signature Jall Spokane SAMPLE 1.D. ENCOU 1.197 55-DH 58-B5 55-63 55-E3 55-A3 55-63 55 - CH 55-64 55-T3 55-T4 Signature

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Services.** 1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222 • FAX (360) 636-1068

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REMARKS SAMPLE RECEIPT Lab No. K97 1638 3 25 149 Shipping VIA: Shipping 8: Condition SebileH : <u></u>258 Tolal Organic (TOX) 9020 ኢ **ANALYSIS REQUESTED** 11/4 INVOICE INFORMATION (beyloszib 10 le101) SteleM Woled Scion Lane H D GISHNO Bill To P.O. TPH/HCID: REPORT REQUIREMENTS II. Report (includes DUP.MS. MSD, as required, may be charged as samples) IV. CLP Deliverable Report III. Data Validation Report (includes All Raw Data) OPAN Hydroci Routine Report 8260 = JOCS and BIEX WTPH-G Extended SPECIAL INSTRUCTIONS/COMMENTS: 602/8020 J 24 hr 48 hr. 5 day **TURNAROUND REQUIREMENTS** Provide FAX preliminary Results Standard (10-15 working days) Provide Verbal Pretiminary Requested Report Date 4 φ 4 ω 4 NUMBER OF CONTAINERS Ø SAMPLE MATRIX PROJECT NAME Kly City Cleaner # 40358-016,004 5012 -23 | Water -22 Water -25| Water PHONE_838-1144 -24 55:1 Soil Ę. 3/12/97 1030 -28 MINEN RECEIVED BY: RECEIVED BY: 17-- AB - D Printed Name # (03 Signature 1735 John Satta 14:15 15:45 3/11/97 14 50 0800 PROJECT MANAGER ROLD LINGS AY TIME 110to 1720 Firm 1 Spokane (UA 99723 <u>.</u> 3/11/93 COMPANY/ADDRESS EMCON DATE ŧ Ξ W. 7106 Alton RELINQUISHED BY: RELINQUISHED BY: SAMPLERS SIGNATURE 9-23 TBH-, 347 Ust 10PM FRW-9-3971-25 GRJ-9-397-15 John Lotter Printed Name John Patter M SAMPLE I D. GP-9-12 7-5-21, EMCDN Printed Name Firm 197 GP-5-1 55-E4 Date/Time Signature 00

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315 H3 REMARKS SAMPLE RECEIPT: 2.25 Shipping VIA: Sripping E. 41 Confilion: 100 25€ ままろ र्ड ANALYSIS REQUESTED INVOICE INFORMATION: 整 . 0. II. Report lindudes OUP LAS. LASO, as required, may be charged as samples? REPORT REQUIREMENTS III Data Validation Report (indudes All Raw Data) IV. CLP Deliverable Report BTEX i. Routine Report SPECIAL INSTRUCTIONS/COMMENTS: istin R comanica 450 0.0 154 · 15C+ TURNAROUND REQUIREMENTS 24 H ___ 48 ft. ___ 5 day Provide FAX preliminary Results Standard (10-15 working days) Provide Verbal Preliminary WITH P Requested Report Date C-973 1 N 4 NUMBER OF CONTAINERS OUEGINAME NEW CITY CIESLES & HORSES - CHARCE Water SAMPLE Ph11 -5:58 = = = = = Ξ RECEIVED BY: RECEIVED BY: PHONE <u>ج</u> کے Printed Name Printed Name Firm Date/Time Signature シャグラー Signature 11:25 0:13 0:43 13:15 10 11 11 アナイン 0िमा 14:30 いいべ रकः ना 13:45 93224 . W I FIE COMPANY/ADDRESS ENCOND 310933 UAIE = = = = 6) 710c Allen Alvenne 1VA . RELINQUISHED BY: RELINQUISHED BY: 7.17 SAMPLERS SIGNATURE_ AN-5-377 . 10 1 "PROJECT MANAGER EMCOR 32-8-15 7-A-A-21 SAMPLE Film Printed Name d <u>-</u> Signature. Date/Time づ 55- A

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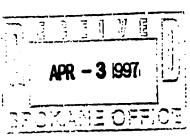
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MEETERS PROFITERS





April 2, 1997

Service Request No: K9701662

Rob Lindsay EMCON W 7106 Will D. Alton Lane, Suite 101 Spokane, WA 99204-5760

Re: New City Cleaners/40358-016.004 Task 3

Dear Rob:

Enclosed are the results of the sample(s) submitted to our laboratory on March 14, 1997. For your reference, these analyses have been assigned our service request number K9701662.

The detection limit for chloromethane in samples GP6-25 and GP-1-5 is elevated due to matrix interferences in the blank.

Samples GP6-11-15, GP6-25, SS-A6 and SS-J4 have surrogates outside acceptance criteria due to matrix interference.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 243.

Respectfully submitted,

Columbia Analytical Services, Inc.

Richard Craven Project Chemist

RAC/lj

Page 1 of _

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

Estimated concentration. The value is less than the method reporting limit, but

greater than the method detection limit.

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a substance

allowed in drinking water as established by the USEPA.

MDL Method Detection Limit

MPN Most Probable Number

MRL Method Reporting Limit

NA Not Applicable
NAN Not Analyzed
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected at or above the MRL

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016-004 Task 3

Sample Matrix: Water

Date Extracted: NA

Date Collected: 3/12,13/97 Date Received: 3/14/97

Service Request: K9701662

Date Analyzed: 3/18,20/97

Solids, Total Suspended (TSS) EPA Method 160.2 Units: mg/L (ppm)

Sample Name	Lab Code	MRL	Result
GPW-10-397-17	K9701662-010	5	276
GPW-6-397-15	K9701662-014	5	1690
GPW-1-397-15	K9701662-019	5	799
GPW-3-397-19 3/13	K9701662-023	5	1040
Method Blank	K9701662-MB	5	ND

Date: 3/28/97 Approved By: _

IAMRL/102594 01662WET.LJI - TSS 3/28/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016-004 Task 3

Sample Matrix: Soil

01662WET.LJI - TOCS 3/28/97

Service Request: K9701662

Date Collected: 3/12/97

Date Received: 3/14/97
Date Extracted: NA
Date Analyzed: 3/19/97

Carbon, Total Organic ASTM D4129-82M Units: Percent (%) Dry Weight Basis

Sample Name	Lab Code	MRL	Result
GP-10-17	K9701662-008	0.05	0.06
GP-10-21	K9701662-009	0.05	0.07
Method Blank	K9701662-MB	0.05	ND

0.0004

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662

Date Collected: 3/12/97

Date Received: 3/14/97

Date Extracted: 3/25/97

Date Analyzed: 3/25,26/97

Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D Units: mg/Kg (ppm) Dry Weight Basis

	Analyte: Method Reporting Limit:	Diesel 25	Oil* 100
Sample Name	Lab Code		
GP-7-15	K9701662-003	ND	ND
GP-7-21.5	K9701662-004	ND	ND
GP-10-17	K9701662-008	ND	ND
GP-10-21	K9701662-009	ND	NĎ
GP6-11-15	K9701662-011	ND	ND
GP6-25	K9701662-012	ND	ND
GP6-21.5	K9701662-013	ND	ND
Method Blank	K970325-MB	ND	ND

Quantified using 30-weight motor oil as a standard.

Approved By: Undan

Date: <u>3/27/97</u>

00005

2A/102094 01002PHC.SS1 - TPHs 3/27/97

QA/QC Report

Client: Project:

Sample Matrix: Soil

EMCON

Service Request: K9701662

New City Cleaners/40358-016.004 Task 3

Date Collected: 3/12/97
Date Received: 3/14/97
Date Extracted: 3/25/97

Date Analyzed: 3/25,26/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

		Percent Recovery
Sample Name	Lab Code	o-Terphenyl
GP-7-15	K9701662-003	90
GP-7-21.5	K9701662-004	89
GP-10-17	K9701662-008	91
GP-10-21	K9701662-009	93
GP6-11-15	K9701662-011	84
GP6-25	K9701662-012	90
GP6-21.5	K9701662-013	93
Method Blank	K970325-MB	86

CAS Acceptance Limits: 56-116

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix:

Water

Service Request: K9701662 Date Collected: 3/12/97

Date Received: 3/14/97 Date Extracted: 3/17/97

Date Analyzed: 3/18/97

Total Petroleum Hydrocarbon as Diesel and Oil Washington DOE Method WTPH-D Units: µg/L (ppb)

Analyte:

Diesel

Oil*

Method Reporting Limit:

250

750

Sample Name

Lab Code

GPW-10-397-17 GPW-6-397-15

K9701662-010

K9701662-014

ND

ND

Method Blank

K970317-WB

356(O)

ND

ND

ND

0

Quantified using 30 weight motor oil as a standard.

Quantitated as diesel. The sample contained components lighter than diesel that partially eluted in

haun (frieth

the diesel range.

Approved By:

2A/102094 01662PHC.JS1 - TPHw 3/24/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix: Water

Service Request: K9701662

Date Collected: 3/12/97 Date Received: 3/14/97

Date Extracted: 3/17/97 Date Analyzed: 3/18/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Sample Name	Lab Code	Percent Recovery o-Terphenyl
GPW-10-397-17	K9701662-010	81
GPW-6-397-15	K9701662-014	82
Method Blank	K 970317-WB	87

CAS Acceptance Limits: 59-110

Approved By:

SUR1/111594 01662PHC.JS1 - TPHwSUR 3/20/97

Page No.:

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix: Soil

6-17

Service Request: K9701662

Date Collected: 3/12/97
Date Received: 3/14/97

Date Extracted: NA

Date Analyzed: 3/22-23/97

Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: mg/Kg (ppm) Dry Weight Basis

Sample Name	Lab Code	MRL	Result
GP-7-15	K9701662-003	5	ND
GP-7-21.5	K9701662-004	5	ND
GP-10-17	K9701662-008	5	ND ·
GP-10-21	K9701662-009	5	ND .
GP6-11-15	K 9701662-011	5	470(N)
GP6-25	K9701662-012	5	510(N)
GP6-21.5	K9701662-013	5	19 🖟
Method Blank	K970320-MB	5	ND

N

Quantitated as gasoline. The sample contained components that eluted in the gasoline range, but the chromatogram did not match the typical gasoline fingerprint.

Approved By:

1AMRL/102594 01662VOA.JS1 - GASs 4/1/97 Date: 4/1/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662

Date Collected: 3/12/97

Date Received: 3/14/97

Date Extracted: NA

Date Analyzed: 3/22-23/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G

		Percent Recovery
Sample Name	Lab Code	1,4-Difluorobenzene
GP-7-15	K9701662-003	62
GP-7-21.5	K9701662-004	54
GP-10-17	K9701662-008	54
GP-10-21	K9701662-009	53
GP6-11-15	K9701662-011	60
GP6-25	K9701662-012	118
GP6-21.5	K9701662-013	58
Method Blank	K970320-MB	70

CAS Acceptance Limits: 48-129

Approved By:

SURI/111594 01662VOAJS1 - GAS#SUR 3/31/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix: Water

Service Request: K9701662

Date Collected: 3/12/97

Date Received: 3/14/97

Date Extracted: NA

Date Analyzed: 3/26,27/97

Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: µg/L (ppb)

Sample Name	Lab Code	MRL	Result
GPW-10-397-17	K9701662-010(H)	50	290(O) [}]
GPW-6-397-15	K9701662-014(H)	50	1700(O) 🧎
Method Blank	K970326-MB	50	ND

H 0

The analysis was performed past the recommended hold time; see case narrative. Quantitated as gasoline. The sample contained an unknown peak that eluted in the gasoline range.

Approved By:

IAMRL/102594 01662VOA.MS1 - GAS# 4/2/97 Date: 4/2/57

00011

Page No.:

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix: Water

Method Blank

Service Request: K9701662

Date Collected: 3/12/97

Date Received: 3/14/97

Date Extracted: NA

Date Analyzed: 3/26,27/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G

K970326-MB

Percent Recovery 4-Bromofluorobenzene Lab Code Sample Name 91 K9701662-010(H) GPW-10-397-17 207(A) K9701662-014(H) GPW-6-397-15 90

CAS Acceptance Limits: 65-117

Outside acceptance limits; see case narrative. A

Approved By:

SURI/111594 01662VOA.MSI - GASWSUR 4/2/97

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/ #40358-016.004 Task 3

Service Request: K9701662 **Date Collected: 3/12,13/97** Date Received: 3/14/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

Lab Code: K9701662-001 K9701662-002 K9701662-0	
Date Analyzed: 3/23/97 3/22/97 3/22/97	7
·	
Dichlorodifluoromethane (CFC 12) 5 ND ND <30	
Chloromethane 5 ND ND <30	
Vinyl Chloride 5 ND ND <30	
Bromomethane 5 ND ND <30	
Chloroethane 5 ND ND <30	
Trichlorofluoromethane (CFC 11) 5 ND ND <30	
Acetone 50 ND ND <300	
1,1-Dichloroethene 5 ND ND <30	
Carbon Disulfide 5 ND ND <30	
Methylene Chloride 10 ND ND <60	
trans-1,2-Dichloroethene 5 ND ND <30	
1,1-Dichloroethane 5 ND ND <30	
2-Butanone (MEK) 20 ND ND <120	
2,2-Dichloropropane 5 ND ND <30	
cis-1,2-Dichloroethene 5 ND ND <30	
Chloroform 5 ND ND <30	
Bromochloromethane 5 ND ND <30	
1,1,1-Trichloroethane (TCA) 5 ND ND <30	
1,1-Dichloropropene 5 ND ND <30	
Carbon Tetrachloride 5 ND ND <30	
1,2-Dichloroethane 5 ND ND <30	
Benzene 5 ND ND <30	
Trichloroethene (TCE) 5 ND ND <30	
1,2-Dichloropropane 5 ND ND <30	
Bromodichloromethane 5 ND ND <30	
Dibromomethane 5 ND ND <30	
2-Hexanone 20 ND ND <120	
cis-1,3-Dichloropropene 5 ND ND <30	
Toluene 5 ND ND <30	
trans-1,3-Dichloropropene 5 ND ND <30	
1,1,2-Trichloroethane 5 ND ND <30	
4-Methyl-2-pentanone (MIBK) 20 ND ND <120	
1,3-Dichloropropane 5 ND ND <30	

The MRL is elevated because the sample required diluting.

Approved By: _ 01662VOA.LW: - 8260s 3/31/97

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____ Date: 3/3//97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662 **Date Collected: 3/12,13/97** Date Received: 3/14/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	SS-F5 K9701662-001 3/23/97	SS-I6 K9701662-002 3/22/97	GP-7-15 K9701662-003(C) 3/22/97
Analyte	MRL				
Tetrachloroethene (PCE)	5		23	ND	700 }
Dibromochloromethane	5		ND	ND	<30
1,2-Dibromoethane (EDB)	20		ND	ND	<120
Chlorobenzene	5		ND	ND	<30
1,1,1,2-Tetrachloroethane	5		ND	ND	<30
Ethylbenzene	5		ND	ND	<30
Total Xylenes	5		ND	ND	<30
Styrene Styrene	5		ND	ND	·<30
Bromoform	5		ND	ND	<30
Isopropylbenzene	20		ND	ND	<120
1,1,2,2-Tetrachloroethane	5		ND	ND	<30
1,2,3-Trichloropropane	5		ND	ND	<30
Bromobenzene	5		ND	ND	<30
n-Propylbenzene	20		ND	ND	<120
2-Chlorotoluene	20		ND	ND	<120
4-Chlorotoluene	20		ND	ND	<120
1,3,5-Trimethylbenzene	20		ND	ND	<120
tert -Butylbenzene	20		ND	ND	<120
1,2,4-Trimethylbenzene	20		ND	ND	<120
sec-Butylbenzene	20		ND	ND	<120
1,3-Dichlorobenzene	5		ND	ND	<30
4-Isopropyltoluene	20		ND	ND	<120
1,4-Dichlorobenzene	5		ND	ND	<30
n-Butylbenzene	20		ND	ND	<120
1,2-Dichlorobenzene	5		ND	ND	<30
1,2-Dibromo-3-chloropropane (DBCP)	20		ND	ND	<120
1,2,4-Trichlorobenzene	20		ND	ND	<120
1,2,3-Trichlorobenzene	20		ND	ND	<120
Naphthalene	20		ND	ND	<120
Hexachlorobutadiene	20		ND	ND	<120

С

The MRL is elevated because the sample required diluting.

Approved By: 3S2P/101894

____ Date: __

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01662VOALW2 - 8260s 3/31/97

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/ #40358-016.004 Task 3

Service Request: K9701662 Date Collected: 3/12,13/97 Date Received: 3/14/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name:	GP-7-21.5	SS-A4	SS-A6
	Lab Code:	K9701662-004(C)	K9701662-005	K9701662-006
	Date Analyzed:	3/22/97	3/22/97	3/21/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	5	<35	ND	ND
Chloromethane	5	<35	ND	ND
Vinyl Chloride	5	<35	ND	ND
Bromomethane	5	<35	ND	ND
Chloroethane	5	<35	ND	ND
Trichlorofluoromethane (CFC 11)	5	<35	ND	ND
Acetone	50	<350	ND	ND
1,1-Dichloroethene	5	<35	ND	ND
Carbon Disulfide	5	<35	ND	ND
Methylene Chloride	10	<70	ND	ND
trans -1,2-Dichloroethene	5	<35	ND	ND
1,1-Dichloroethane	5	<35	ND	ND
2-Butanone (MEK)	20	<140	ND	ND
2,2-Dichloropropane	5	<35	ND	ND
cis-1,2-Dichloroethene	5	<35	ND	ND
Chloroform	5	<35	ND	ND
Bromochloromethane	5	<35	ND	ND
1,1,1-Trichloroethane (TCA)	5	<35	ND	ND
1,1-Dichloropropene	5	<35	ND	ND
Carbon Tetrachloride	5	<35	ND	ND
1,2-Dichloroethane	5	<35	ND	ND
Benzene	5	<35	ND	ND
Trichloroethene (TCE)	5	<35	ND	ND
1,2-Dichloropropane	5	<35	ND	ND
Bromodichloromethane	5	<35	ND	ND
Dibromomethane	5	<35	ND	ND
2-Hexanone	20	<140	ND	ND
cis-1,3-Dichloropropene	5	<35	ND	ND
Toluene	5	<35	ND	ND
trans -1,3-Dichloropropene	5	<35	ND	ND
1,1,2-Trichloroethane	5	<35	ND	ND
4-Methyl-2-pentanone (MIBK)	20	<140	ND	ND
1,3-Dichloropropane	5	<35	ND	ND

The MRL is elevated because the sample required diluting.

Approved By: _ 01662VOA.LW2 - 8260s (2) 3/31/97

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Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662 **Date Collected: 3/12,13/97**

Date Received: 3/14/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	GP-7-21.5 K9701662-004(C) 3/22/97	SS-A4 K9701662-005 3/22/97	SS-A6 K9701662-006 3/21/97
Analyte	MRL	•			
Tetrachloroethene (PCE)	5		350 î	ND	180 '
Dibromochloromethane	. 5		<35	ND	ND
1,2-Dibromoethane (EDB)	20		<140	ND	ND
Chlorobenzene	5		<35	ND	ND
1,1,1,2-Tetrachloroethane	5		<35	ND	ND
Ethylbenzene	5		<35	ND	ND
Total Xylenes	5		<35	ND	ND
Styrene	5		<35	ND	· ND
Bromoform	5		<35	ND	ND
Isopropylbenzene	20		<140	ND	ND
1,1,2,2-Tetrachloroethane	5		<35	ND	ND
1,2,3-Trichloropropane	5		<35	ND	ND
Bromobenzene	5		<35	ND	ND
n-Propylbenzene	20		<140	ND	ND
2-Chlorotoluene	20		<140	ND	ND
4-Chlorotoluene	20		<140	ND	ND
1,3,5-Trimethylbenzene	20		<140	ND	ND
tert -Butylbenzene	20		<140	ND	ND
1,2,4-Trimethylbenzene	20		<140	ND	ND
sec -Butylbenzene	20		<140	ND	ND
1,3-Dichlorobenzene	5		<35	ND	ND
4-Isopropyltoluene	20		<140	ND	ND
1,4-Dichlorobenzene	5		<35	ND	ND
n-Butylbenzene	20		<140	ND	ND
1,2-Dichlorobenzene	5	-	<35	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20		<140	ND	ND
1,2,4-Trichlorobenzene	20		<140	ND	ND
1,2,3-Trichlorobenzene	20		<140	ND	ND
Naphthalene	20		<140	ND	ND
Hexachlorobutadiene	20		<140	ND	ND

The MRL is elevated because the sample required diluting.

Approved By:

3S2P/101894

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_____Date: <u>3/3//4/</u>

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662

Date Collected: 3/12,13/97 Date Received: 3/14/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	SS-J4 K9701662-007 3/22/97	GP-10-17 K9701662-008 3/21/97	GP-10-21 K9701662-009 3/21/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	5	ND	ND	ND
Chloromethane	5	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND
Bromomethane	5	ND	ND	ND
Chloroethane	5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	5	ND	ND	ND
Acetone	50	ND	ND	ND
1,1-Dichloroethene	5	ND	ND	, ND
Carbon Disulfide	5	ND	ND	ND
Methylene Chloride	10	ND	ND	ND
trans-1,2-Dichloroethene	5	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	5	ND	ND	ND
cis-1,2-Dichloroethene	5	ND	ND	ND
Chloroform	5	ND	ND	ND
Bromochloromethane	5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	5	ND	ND	ND
1,1-Dichloropropene	5	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND
Benzene	5	ND	ND .	ND,
Trichloroethene (TCE)	5	ND	27	26
1,2-Dichloropropane	5	ND	ND	ND
Bromodichloromethane	5	ND	ND	ND
Dibromomethane	5	ND	ND	ND
2-Hexanone	20	ND	ND	ND
cis-1,3-Dichloropropene	5	ND	ND	ND
Toluene	5	ND	ND	ND
trans-1,3-Dichloropropene	5	ND	ND	ND
1,1,2-Trichloroethane	5	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND

Approved By: _ 01662VOALW2 - 8260s (3) 3/31/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662

Date Collected: 3/12,13/97

Date Received: 3/14/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name:	SS-J4	GP-10-17	GP-10-21
	Lab Code:	K9701662-007	K9701662-008	K9701662-009
	Date Analyzed:	3/22/97	3/21/97	3/21/97
Analyte	MRL			
-		130 4	640	: 460 ^f
Tetrachloroethene (PCE)	5 5	ND	ND	ND
Dibromochloromethane		ND	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND	ND
Chlorobenzene	5 5	ND	ND	ND
1,1,1,2-Tetrachloroethane		ND	ND	ND
Ethylbenzene	5	ND ND	ND	ND
Total Xylenes	5	ND ND	ND	·ND
Styrene	5	ND	ND	ND
Bromoform	5	ND	ND	ND
Isopropylbenzene	20	ND ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND ND	ND	ND
1,2,3-Trichloropropane	5	ND ND	ND ND	ND
Bromobenzene	5	ND ND	ND	ND
n -Propylbenzene	20		ND ND	ND
2-Chlorotoluene	20	ND ND	ND ND	ND
4-Chlorotoluene	20		ND ND	ND
1,3,5-Trimethylbenzene	20	ND	ND ND	ND
tert -Butylbenzene	20	ND	ND ND	ND
1,2,4-Trimethylbenzene	20	ND		ND
sec -Butylbenzene	20	ND	ND ND	ND
1,3-Dichlorobenzene	5	ND		ND ND
4-Isopropyltoluene	20	ND	ND ND	ND
1,4-Dichlorobenzene	5	ND		ND
n -Butylbenzene	20	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND	ND ND
1,2,3-Trichlorobenzene	20	ND	ND	ND ND
Naphthalene	20	ND	ND	ND ND
Hexachlorobutadiene	20	ND	ND	ND

Approved By:

352P/101894

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Date: 3/3/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662

Date Collected: 3/12,13/97

Date Received: 3/14/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name:	GP6-21.5	SS-E6	SS-F6
	Lab Code:	K9701662-013(C)	K9701662-015	K9701662-016
	Date Analyzed:	3/22/97	3/21/97	3/22/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	5	<35	ND	ND
Chloromethane	5	<35	ND	ND
Vinyl Chloride	5	<35	ND	ND
Bromomethane	5	<35	ND	ND
Chloroethane	5	<35	ND	ND
Trichlorofluoromethane (CFC 11)	5	<35	ND	ND
Acetone	50	<350	ND	ND
1.1-Dichloroethene	5	<35	ND	·ND
Carbon Disulfide	5	<35	ND	ND
Methylene Chloride	10	<70	ND	ND
trans -1,2-Dichloroethene	5	<35	ND	ND
1,1-Dichloroethane	5	<35	ND	ND
2-Butanone (MEK)	20	<140	ND	ND
2,2-Dichloropropane	5	<35	ND	ND
cis-1,2-Dichloroethene	5	<35	ND	ND
Chloroform	5	<35	ND	ND
Bromochloromethane	5	<35	ND	ND
1,1,1-Trichloroethane (TCA)	5	<35	ND	ND
1,1-Dichloropropene	5	<35	ND	ND
Carbon Tetrachloride	5	<35	ND	ND
1,2-Dichloroethane	5	<35	ND	ND
Benzene	5	<35	ND	ND
Trichloroethene (TCE)	5	210	ND	ND
1,2-Dichloropropane	5	<35	ND	ND
Bromodichloromethane	5	<35	ND	ND
Dibromomethane	5	<35	ND	ND
2-Hexanone	20	<140	ND	ND
cis-1,3-Dichloropropene	5	<35	ND	ND
Toluene	5	<35	ND	ND
trans -1,3-Dichloropropene	5	<35	ND	ND
1,1,2-Trichloroethane	5	<35	ND	ND
4-Methyl-2-pentanone (MIBK)	20	<140	ND	ND
1,3-Dichloropropane	5	<35	ND	ND

The MRL is elevated because the sample required diluting.

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____ Date: 3/3//97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662 **Date Collected: 3/12,13/97** Date Received: 3/14/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) **Dry Weight Basis**

	Sam	ple Name:	GP6-21.5	SS-E6	SS-F6
		Lab Code:	K9701662-013(C)	K9701662-015	K9701662-016
	Date	Analyzed:	3/22/97	3/21/97	3/22/97
Analyte	MRL	•			
Tetrachloroethene (PCE)	5		-6500 ₹	6 •	5 .
Dibromochloromethane	5		<35	ND	ND
1,2-Dibromoethane (EDB)	20		<140	ND	ND
Chlorobenzene	5		<35	ND	ND
1,1,1,2-Tetrachloroethane	5		<35	ND	ND
	5 .		<35	ND	ND
Ethylbenzene	5		<35	ND	ND
Total Xylenes	5		<35	ND	· ND
Styrene	5		<35	ND	ND
Bromoform	20		<140	ND	ND
Isopropylbenzene	5		<35	ND	ND
1,1,2,2-Tetrachloroethane	5		<35	ND	ND
1,2,3-Trichloropropane Bromobenzene	5		<35	ND	ND
n-Propylbenzene	20		<140	ND	ND
2-Chlorotoluene	20		<140	ND	ND
4-Chlorotoluene	20		<140	ND	ND
1,3,5-Trimethylbenzene	20		<140	ND	ND
tert -Butylbenzene	20		<140	ND	ND
1,2,4-Trimethylbenzene	20		<140	ND	ND
sec -Butylbenzene	20		<140	ND	ND
1,3-Dichlorobenzene	5		<35	ND	ND
4-Isopropyltoluene	20		<140	ND	ND
1,4-Dichlorobenzene	5		<35	ND	ND
n-Butylbenzene	20		<140	ND	ND
1,2-Dichlorobenzene	5		<35	ND	ND
1,2-Dictriorobenzene 1,2-Dibromo-3-chloropropane (DBCP)	20		<140	ND	ND
1,2,4-Trichlorobenzene	20		<140	ND	ND
1,2,3-Trichlorobenzene	20		<140	ND	ND
Naphthalene	20		<140	ND	ND
Hexachlorobutadiene	20		<140	ND	ND
HEVACITOLOGRIZMENC	20			•	

The MRL is elevated because the sample required diluting.

Approved By:

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Date: 3/3/197

01662VOA.LW2 - 8260s (4) 3/31/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662 Date Collected: 3/12,13/97

Date Received: 3/14/97
Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name:	GP-1- 19	GP3- 19	GP3-15
		Lab Code:	K9701662-018(C)	K9701662-020	K9701662-021
		Date Analyzed:	3/22/97	3/22/97	3/23/97
Analyte	MRL				
Dichlorodifluoromethane (CFC 12)	5		<30	ND	ND
Chloromethane	5		<30	ND	ND
Vinyl Chloride	5		<30	ND	ND
Bromomethane	5		<30	ND	ND
Chloroethane	5		<30	ND	ND
Trichlorofluoromethane (CFC 11)	5		<30	ND	ND
Acetone	50		<300	ND	ND
1,1-Dichloroethene	5		<30	ND	, ND
Carbon Disulfide	5		<30	ND	ND
Methylene Chloride	10		<60	ND	ND
trans -1,2-Dichloroethene	5		<30	ND	ND
1,1-Dichloroethane	5		<30	ND	ND
2-Butanone (MEK)	20		<120	ND	ND
2,2-Dichloropropane	5		<30	ND	ND
cis-1,2-Dichloroethene	5		<30	ND	ND
Chloroform	5		<30	ND	ND
Bromochloromethane	5		<30	ND	ND
1,1,1-Trichloroethane (TCA)	5		<30	ND	ND
1,1-Dichloropropene	5		<30	ND	ND
Carbon Tetrachloride	5		<30	ND	ND
1,2-Dichloroethane	5		<30	ND	ND
Benzene	5		<30	ND	ND
Trichloroethene (TCE)	5		<30	ND	ND
1,2-Dichloropropane	5		<30	ND	ND
Bromodichloromethane	5		<30	ND	ND
Dibromomethane	5		<30	ND	ND
2-Hexanone	20		<120	ND	ND
cis-1,3-Dichloropropene	5		<30	ND	ND
Toluene	5		<30	ND	ND
trans-1,3-Dichloropropene	5		<30	ND	ND
1,1,2-Trichloroethane	5		<30	ND	ND
4-Methyl-2-pentanone (MIBK)	20		<120	ND	ND
1,3-Dichloropropane	5		<30	ND	ND

The MRL is elevated because the sample required diluting.

Approved By: _______01662VOA.LW2 - 8260s (5) 3/31/97

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Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662 Date Collected: 3/12,13/97 Date Received: 3/14/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	GP-1-19 K9701662-018(C) 3/22/97	GP3-19 K 9701662-020 3/22/97	GP3-15 K9701662-021 3/23/97
Analyte	MRL		25E \$	
Tetrachloroethene (PCE)	5	440	150	¥ 85
Dibromochloromethane	5	***~30	ND	ND
1,2-Dibromoethane (EDB)	20	<120	ND	ND
Chlorobenzene	5	<30	ND	ND
1,1,1,2-Tetrachioroethane	5	<30	ND	ND
Ethylbenzene	5	<30	ND	ND
Total Xylenes	5	<30	ND	ND
Styrene	5	<30	ND	. ND
Bromoform	5	<30	ND	ND
Isopropyibenzene	20	<120	ND	ND
1,1,2,2-Tetrachloroethane	5	<30	ND	ND
1,2,3-Trichloropropane	5	<30	ND	ND
Bromobenzene	5	<30	ND	ND
n -Propylbenzene	20	<120	ND	ND
2-Chlorotoluene	20	<120	ND	ND
4-Chlorotoluene	20	<120	ND	ND
1,3,5-Trimethylbenzene	20	<120	ND	ND
tert -Butylbenzene	20	<120	ND	ND
1,2,4-Trimethylbenzene	20	<120	ND	ND
sec -Butylbenzene	20	<120	ND	ND
1,3-Dichlorobenzene	5	<30	ND	ND
4-Isopropyitoluene	20	<120	ND	ND
1,4-Dichlorobenzene	5	<30	ND	ND
n-Butylbenzene	20	<120	ND	ND
1,2-Dichlorobenzene	5	<30	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	<120	ND	ND
1,2,4-Trichlorobenzene	20	<120	ND	ND
1,2,3-Trichlorobenzene	20	<120	ND	ND
Naphthalene	20	<120	ND	ND
Hexachlorobutadiene	20	<120	ND	ND

The MRL is elevated because the sample required diluting.

Approved By:

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01662VOA.LW2 - 8260s (5) 3/31/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662

Date Collected: 3/12,13/97

Date Received: 3/14/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name:	SS-G6	SS-C6	Method Blank
	Lab Code:	K9701662-024	K9701662-025	K970320-MB
	Date Analyzed:	3/23/97	3/23/97	3/20/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	5	ND	ND	ND
Chloromethane	5	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND
Bromomethane	5	ND	ND	ND
Chloroethane	5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	5	ND	ND	ND
Acetone	50	ND	ND	ND
1,1-Dichloroethene	5	ND	ND	. ND
Carbon Disulfide	5	ND	ND	ND
Methylene Chloride	10	ND	ND	ND
trans-1,2-Dichloroethene	5	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	5	ND	ND	ND
cis-1,2-Dichloroethene	5	ND	ND	ND
Chloroform	5	ND	ND	ND
Bromochloromethane	5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	5	ND	ND	ND
1,1-Dichloropropene	5	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND
Benzene	5	ND	ND	ND
Trichloroethene (TCE)	5	ND	ND	ND
1,2-Dichloropropane	5	ND	ND	ND
Bromodichloromethane	5	ND	ND	ND
Dibromomethane	5	ND	ND	ND
2-Hexanone	20	ND	ND	ND
cis-1,3-Dichloropropene	5	ND	ND	ND
Toluene	5	ND	ND	ND
trans-1,3-Dichloropropene	5	ND	ND	ND
1,1,2-Trichloroethane	5	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND

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Page No.:

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662 **Date Collected: 3/12,13/97** Date Received: 3/14/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	SS-G6 K 9701662-024 3/23/97	SS-C6 K9701662-025 3/23/97	Method Blank K970320-MB 3/20/97
Analyte	MRL	\$65 a	दुर्व र १३	
Tetrachloroethene (PCE)	5	49	≤ 5	ND
Dibromochloromethane	5	ND	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
1,1,1,2-Tetrachloroethane	5	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Total Xylenes	5	ND	ND	ND
Styrene	5	ND	ND	. ND
Bromoform	5	ND	ND	ND
Isopropylbenzene	20	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND
1,2,3-Trichloropropane	5	ND	ND	ND
Bromobenzene	5	ND	ND	ND
n -Propyibenzene	20	ND	ND	ND
2-Chlorotoluene	20	ND	ND	ND
4-Chlorotoluene	20	ND	ND	ND
1,3,5-Trimethylbenzene	20	ND	ND	ND
tert -Butylbenzene	20	ND	ND	ND
1,2,4-Trimethylbenzene	20	ND	ND	ND
sec -Butylbenzene	20	ND	ND	ND
1,3-Dichlorobenzene	5	ND	ND	ND
4-Isopropyltoluene	20	ND	ND	ND
1,4-Dichlorobenzene	5	ND	ND	ND
n-Butylbenzene	20	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND	ND
Naphthalene	20	ND	ND	ND
Hexachlorobutadiene	20	ND	ND	ND

Approved By:

01662VOA.LW2 - 8260s (6) 3/31/97

3S2P/101894

Date: _______

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/ #40358-016.004 Task 3

Date Collected: 3/12,13/97 Date Received: 3/14/97 Date Extracted: 3/17/97

Service Request: K9701662

Volatile Organic Compounds EPA Method 8260A Units: mg/Kg (ppm) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	GP6-11-15 K9701662-011 3/24/97	GP6-25 K97 01662-012 3/24/97	GP-1-5 K97 01662-017 3/24/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	0.5	ND	ND wife	ND
Chloromethane	0.5	ND	<3(X)	· <1(X)
Vinyl Chloride	0.5	ND	ND	ND
Bromomethane	0.5	ND	ND :	ND
Chloroethane	0.5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	0.5	ND	ND	ND
Acetone	5	ND	ND	ND
1,1-Dichloroethene	0.5	ND	ND	· ND
Carbon Disulfide	0.5	ND	ND	ND
Methylene Chloride	1	ND	ND	ND
trans -1,2-Dichloroethene	0.5	ND	ND	ND
1,1-Dichloroethane	0.5	ND	ND	ND
2-Butanone (MEK)	2	ND	ND	ND
2,2-Dichloropropane	0.5	ND	ND	ND
cis-1,2-Dichloroethene	0.5%	ND	ND	ND
Chloroform	0.5	ND	ND	ND
Bromochloromethane	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	ND	ND
1,1-Dichloropropene	0.5	ND	ND	ND
Carbon Tetrachloride	0.5	ND	ND	ND
1,2-Dichloroethane	0.5	ND	ND	ND
Benzene	0.5	ND	ND ,	ND
Trichloroethene (TCE)	0.5	0.6	1.3	ND
1,2-Dichloropropane	0.5	ND	ND	ND
Bromodichloromethane	0.5	ND	ND	ND
Dibromomethane	0.5	ND	ND	ND
2-Hexanone	2	ND	ND	ND
cis-1,3-Dichloropropene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	2	ND	ND	ND
1,3-Dichloropropane	0.5	ND	ND	ND

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See case narrative.

Approved By: 01662VOA.LW1 - 8260s 3/31/97

____ Date: ___

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662

Date Collected: 3/12,13/97
Date Received: 3/14/97
Date Extracted: 3/17/97

Volatile Organic Compounds EPA Method 8260A Units: mg/Kg (ppm) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	GP6-11-15 K9701662-011 3/24/97	GP6-25 K9701662-012 3/24/97	GP-1-5 K9701662-017 3/24/97
Analyte	MRL			
Tetrachloroethene (PCE)	0.5	⊋0.6	2.0	7.5 ·
Dibromochloromethane	0.5	ND	ND	ND ,
1,2-Dibromoethane (EDB)	2	ND	ND	ND
Chlorobenzene	0.5	ND	ND	ND
1,1,1,2-Tetrachloroethane	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
Styrene	0.5	ND	ND	, ND
Bromoform	0.5	ND	ND	ND
Isopropylbenzene	2	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.5	ND	ND	ND
1,2,3-Trichloropropane	0.5	ND	ND	ND
Bromobenzene	0.5	ND	ND	ND
n-Propylbenzene	2	ND	ND	ND
2-Chlorotoluene	2	ND	ND	ND
4-Chlorotoluene	2	ND	ND	ND
1,3,5-Trimethylbenzene	2	ND	ND	ND
tert -Butylbenzene	2	ND	ND	ND
1,2,4-Trimethylbenzene	2	ND	ND	ND
sec -Butylbenzene	2	ND	ND	ND
1,3-Dichlorobenzene	0.5	ND	ND	ND
4-Isopropyltoluene	2	ND	ND	ND
1,4-Dichlorobenzene	0.5	ND	ND	ND
n-Butylbenzene	2	ND	ND	ND
1,2-Dichlorobenzene	0.5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	2	ND	ND	ND
1,2,4-Trichlorobenzene	2	ND	ND	ND
1,2,3-Trichlorobenzene	2	ND	ND	ND
Naphthalene	2	ND	ND	. ND
Hexachlorobutadiene	2	ND	ND	ND

Approved By:

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Date: 3/3/197

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01662VOA.LWI - 8260s 3/31/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662

Date Collected: NA
Date Received: NA
Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb)

Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	Method Blank K970322-MB1 3/22/97	Method Blank K970322-MB2 3/22/97
Analyte	MRL	•		
Dichlorodifluoromethane (CFC 12)	5		ND	ND
Chloromethane	5		ND	ND
Vinyl Chloride	5		ND	ND
Bromomethane	5		ND	ND
Chloroethane	5		ND	ND
Trichlorofluoromethane (CFC 11)	5		ND	ND
Acetone	50		ND	ND
1,1-Dichloroethene	5		ND	ND
Carbon Disulfide	5		ND	ND
Methylene Chloride	10		ND	ND
trans -1,2-Dichloroethene	5		ND	ND
1,1-Dichloroethane	5		ND	ND
2-Butanone (MEK)	20		ND	ND
2,2-Dichloropropane	5		ND	ND
cis-1,2-Dichloroethene	5		ND	ND
Chloroform	5		ND	ND
Bromochloromethane	5		ND	ND
1,1,1-Trichloroethane (TCA)	5		ND	ND
1,1-Dichloropropene	5		ND	ND
Carbon Tetrachloride	5		ND	ND
1,2-Dichloroethane	5		ND	ND
Benzene	5		ND	ND
Trichloroethene (TCE)	5 5		ND	ND
1,2-Dichloropropane	5		ND	ND
Bromodichloromethane	5		ND	ND
Dibromomethane	5		ND	ND
2-Hexanone	20		ND	ND
cis -1,3-Dichloropropene	5		ND	ND
Toluene	5		ND	ND
trans-1,3-Dichloropropene	5		ND	ND
1,1,2-Trichloroethane	5		ND	ND
4-Methyl-2-pentanone (MIBK)	20		ND	ND ND
1,3-Dichloropropane	5		ND	מאז

Approved By: 01662VOA.LW2 - 82604 (7) 3/31/97

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Date: 3/3/8

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662

Date Collected: NA Date Received: NA Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	Method Blank K970322-MB1 3/22/97	Method Blank K970322-MB2 3/22/97
Analyte	MRL			
Tetrachloroethene (PCE)	5		ND	ND
Dibromochloromethane	5		ND	ND
1,2-Dibromoethane (EDB)	20		ND	ND
Chlorobenzene	5		ND	ND
1,1,1,2-Tetrachloroethane	5		ND	ND
Ethylbenzene	5 5 5		ND	ND
Total Xylenes	5		ND	ND
Styrene	5		ND	ND
Bromoform	5		ND	ND
Isopropylbenzene	20		ND	ND
1,1,2,2-Tetrachloroethane	5		ND	ND
1,2,3-Trichloropropane	5		ND	ND
Bromobenzene	5		ND	ND
n-Propylbenzene	20		ND	ND
2-Chlorotoluene	20		ND	ND
4-Chlorotoluene	20		ND	ND
1,3,5-Trimethylbenzene	20		ND	ND
tert -Butylbenzene	20		ND	ND
1,2,4-Trimethylbenzene	20		ND	ND
sec -Butylbenzene	20		ND	ND
1,3-Dichlorobenzene	5		ND	ND
4-Isopropyltoluene	20		ND	ND
1,4-Dichlorobenzene	5		ND	ND
n-Butylbenzene	20		ND	ND
1,2-Dichlorobenzene	5		ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20		ND	ND
1,2,4-Trichlorobenzene	20		ND	ND
1,2,3-Trichlorobenzene	20		ND	ND
Naphthalene	20		ND	ND
Hexachlorobutadiene	20		ND	ND

Approved By:

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Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662

Date Collected: NA
Date Received: NA
Date Extracted: 3/17/97

Volatile Organic Compounds EPA Method 8260A Units: mg/Kg (ppm) Dry Weight Basis

	Sample Name:	Method Blank
	Lab Code:	K970324-MB
	Date Analyzed:	3/24/97
Analyte	MRL	
Dichlorodifluoromethane (CFC 12)	0.5	ND
Chloromethane	0.5	ND
Vinyl Chloride	0.5	ND
Bromomethane	0.5	ND
Chloroethane	0.5	ND
Trichlorofluoromethane (CFC 11)	0.5	ND
Acetone	5	ND
1,1-Dichloroethene	0.5	ND
Carbon Disulfide	0.5	ND
Methylene Chloride	1	ND
trans -1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
2-Butanone (MEK)	2	ND
2,2-Dichloropropane	0.5	ND
cis-1,2-Dichloroethene	0.5	ND
Chloroform	0.5	ND
Bromochloromethane	0.5	ND
1,1,1-Trichloroethane (TCA)	0.5	ND
1,1-Dichloropropene	0.5	ND
Carbon Tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Benzene	0.5	ND
Trichloroethene (TCE)	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Dibromomethane	0.5	ND
2-Hexanone	2	ND
cis-1,3-Dichloropropene	0.5	ND
Toluene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
4-Methyl-2-pentanone (MIBK)	2	ND
1,3-Dichloropropane	0.5	ND

 AH Mobil

Date: 3/3/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9701662

Date Collected: NA
Date Received: NA
Date Extracted: 3/17/97

Volatile Organic Compounds EPA Method 8260A Units: mg/Kg (ppm) Dry Weight Basis

		Sample Name:	Method Blank
		Lab Code:	K970324-MB
		Date Analyzed:	3/24/97
Analyte	MRL		
Tetrachloroethene (PCE)	0.5		ND
Dibromochloromethane	0.5		ND
1,2-Dibromoethane (EDB)	2		ND
Chlorobenzene	0.5		ND
1,1,1,2-Tetrachloroethane	0.5		ND
Ethylbenzene	0.5		ND
Total Xylenes	0.5		ND
Styrene	0.5		ND
Bromoform	0.5		ND
Isopropylbenzene	2		ND
1,1,2,2-Tetrachloroethane	0.5		ND
1,2,3-Trichloropropane	0.5		ND
Bromobenzene	0.5		ND
n-Propylbenzene	2		ND
2-Chlorotoluene	2 2 2 2		ND
4-Chlorotoluene	2		ND
1,3,5-Trimethylbenzene	2		ND
tert -Butylbenzene	2		ND
1,2,4-Trimethylbenzene	2		ND
sec -Butylbenzene	2		ND
1,3-Dichlorobenzene	0.5		ND
4-Isopropyltoluene	2		ND
1,4-Dichlorobenzene	0.5		ND
n-Butylbenzene	2		ND
1,2-Dichlorobenzene	0.5		ND
1,2-Dibromo-3-chloropropane (DBCP)	2		ND
1,2,4-Trichlorobenzene	2		ND
1,2,3-Trichlorobenzene	2		ND
Naphthalene	2 2		ND
Hexachlorobutadiene	2		ND

Approved By: 352P/101894

Art Trough

Date:

43/97

QA/QC Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/ #40358-016.004 Task 3

Service Request: K9701662 Date Collected: 3/12,13/97

Date Received: 3/14/97 Date Extracted: NA

Date Analyzed: 3/20-23/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

Sample Name	Lab Code	Percen Dibromofluoromethane	t Rec Toluene-d ₈	o v e r y 4-Bromofluorobenzene
SS-F5	K 9701662-001	111	97	84
SS-I6	K 9701662-002	109	96	86
GP-7-15	K9701662-003	106	100	101
GP-7-21.5	K9701662-004	105	101	97
SS-A4	K9701662-005	109	96	82
SS-A6	K9701662-006	106	97	48(A)
SS-J4	K9701662-007	110	94	62(A)
GP-10-17	K9701662-008	102	96	87
GP-10-21	K9701662-009	100	96	85
GP6-21.5	K 9701662 - 013	107	101	110
SS-E6	K9701662-015	104	94	80
SS-F6	K9701662-016	110	97	87
GP-1-19	K9701662-018	106	102	9 8
GP3-19	K9701662-020	107	100	9 8
GP3-15	K9701662-021	107	. 102	100
SS-G6	K9701662-024	107	102	93
SS-C6	K9701662-025	109	101	90
Method Blank	K970320-MB	95	96	82
Method Blank	K970322-MB1	100	100	94
Method Blank	K970322-MB2	100	101	95
	CAS Acceptance Lin	nits: 82-122	84-116	67 - 129

Α Outside acceptance limits; see case narrative.

Approved By:

SUR3/110094 01662VOA.LW2 - 82604SUR 3/31/97

0.0031

QA/QC Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/ #40358-016.004 Task 3

Service Request: K9701662 Date Collected: 3/12,13/97

Date Received: 3/14/97 Date Extracted: 3/17/97 Date Analyzed: 3/24/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

		Percen	t Rec	overy
Sample Name	Lab Code	Dibromofluoromethane	Toluene-d ₈	4-Bromofluorobenzene
GP6-11-15	K9701662-011	98	101	161(A)
GP6-25	K9701662-012	97	100	165(A)
GP-1-5	K9701662-017	96	99	104
Method Blank	K970324-MB	97	101	103

CAS Acceptance Limits: 82-122

84-116

67-129

A

Outside acceptance limits; see case narrative.

DA Story Approved By: SUR3/110094 01662VQA.LW1 - 8260sSUR 3/31/97

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Water

New City Cleaners/ #40358-016.004 Task 3

Service Request: K9701662 Date Collected: 3/12/97 Date Received: 3/14/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

GPW-3-397-19

			GF W-3-377-17		
		Sample Name: Lab Code: Date Analyzed:	3/12 K9701662-022(C) 3/25/97	Method Blank K97 0325-MB 3/25/97	Method Blank K970327-MB 3/27/97
Analyte	MRL				
Dichlorodifluoromethane (CFC 12)	0.5		<25	ND	ND
Chloromethane	0.5		<25	ND	ND
Vinyl Chloride	0.5		<25	ND	ND
Bromomethane	0.5		<25	ND	, ND
Chloroethane	0.5		<25	ND	ND
Trichlorofluoromethane (CFC 11)	0.5		<25	ND	ND
Acetone	20		<1000	ND	ND
1,1-Dichloroethene	0.5		<25	ND	ND
Carbon Disulfide	0.5		<25	ND	ND
Methylene Chloride	1		<50	ND	ND
trans-1,2-Dichloroethene	0.5		<25	ND	ND
1,1-Dichloroethane	0.5		<25	ND	ND
2-Butanone (MEK)	20		<1000	ND	ND
2,2-Dichloropropane	0.5		<25	ND	ND
cis-1,2-Dichloroethene	0.5		<25	ND	ND
Chloroform	0.5		<25	ND	ND
Bromochloromethane	0.5		<25	ND	ND
1,1,1-Trichloroethane (TCA)	0.5		<25	ND	ND
1,1-Dichloropropene	0.5		<25	ND	ND
Carbon Tetrachloride	0.5		<25	ND	ND
1,2-Dichloroethane	0.5		<25	ND	ND
Benzene	0.5		<25	ND	ND
Trichloroethene (TCE)	0.5		56:2°	ND	ND
1,2-Dichloropropane	0.5		<25	ND	ND
Bromodichloromethane	0.5		<25	ND	ND
Dibromomethane	0.5		<25	ND	ND
2-Hexanone	20		<1000	ND	ND
cis-1,3-Dichloropropene	0.5		<25	ND	ND
Toluene	0.5		<25	ND	ND
trans-1,3-Dichloropropene	0.5		<25	ND	ND
1,1,2-Trichloroethane	0.5		<25	ND	ND
4-Methyl-2-pentanone (MIBK)	20		<1000	ND	ND
1,3-Dichloropropane	0.5		<25	ND	ND

The MRL is elevated because the sample required diluting. C

Approved By: 01662VOA.LW3 - 8260w2p (2) 3/31/97 Jeff Notself Date: 3/3/197

Analytical Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Water

Service Request: K9701662 Date Collected: 3/12/97 Date Received: 3/14/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

			GPW-3-3 97-19		
		Sample Name:	3/12	Method Blank	Method Blank
		Lab Code:	K9701662-022(C)	K970325-MB	K970327-MB
		Date Analyzed:	3/25/97	3/25/97	3/27/97
Analyte	MRL				
Tetrachloroethene (PCE)	0.5		1100	ND	ND
Dibromochloromethane	0.5		<25	ND	ND
1,2-Dibromoethane (EDB)	2		<100	ND	ND
Chlorobenzene	0.5		<25	ND	ND
1,1,1,2-Tetrachloroethane	0.5		<25	ND	ND
Ethylbenzene	0.5		<25	ND	ND
Total Xylenes	0.5		<25	ND	ND
Styrene	0.5		<25	ND	. ND
Bromoform	0.5		<25	ND	ND
Isopropylbenzene	2		<100	ND	ND
1,1,2,2-Tetrachloroethane	0.5		<25	ND	ND
1,2,3-Trichloropropane	0.5		<25	ND	ND
Bromobenzene	0.5		<25	ND	ND
n-Propylbenzene	2		<100	ND	ND
2-Chlorotoluene	2 2 2		<100	ND	ND
4-Chlorotoluene	2		<100	ND	ND
1,3,5-Trimethylbenzene	2		<100	ND	ND
tert -Butylbenzene	2 2		<100	ND	ND
1,2,4-Trimethylbenzene			<100	ND	ND
sec -Butylbenzene	2		<100	ND	ND
1,3-Dichlorobenzene	0.5		<25	ND	ND
4-Isopropyltoluene	2		<100	ND	ND
1,4-Dichlorobenzene	0.5		<25	ND	ND
n-Butylbenzene	2		<100	ND	ND
1,2-Dichlorobenzene	0.5		<25	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	2		<100	ND	ND
1,2,4-Trichlorobenzene	2		<100	ND	ND
1,2,3-Trichlorobenzene	2 2		<100	ND	ND
Naphthalene	2		<100	ND	ND
Hexachlorobutadiene	2		<100	ND	ND

The MRL is elevated because the sample required diluting.

Approved By:

С

3S2P/102094 01662VOA.LW3 - 8260w2p (2) 3/31/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/ #40358-016.004 Task 3

Sample Matrix: Water

Service Request: K9701662 Date Collected: 3/12/97

Date Received: 3/14/97 Date Extracted: NA

Date Analyzed: 3/25-27/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

	Percent Recovery				
Sample Name	Lab Code	Dibromofluoromethane	Toluene-d ₈	4-Bromofluorobenzene	
GPW-10-397-17	K9701662-010	100	99	95	
GPW-6-397-15	K9701662-014	99	102	99	
GPW-1-397-15	K9701662-019	103	102	100	
GPW-3-397-19 3/12	K9701662-022	102	101	98	
Method Blank	K970325-MB	97	99	94	
Method Blank	K970327-MB	100	99	93 .	

CAS Acceptance Limits: 91-117

90-110

82-119

Date: ___ Approved By: SUR3/111594 01662VOA.LW3 - 8260wSUR 3/31/97

1317 South 13th Ave. • Kelso, WA 98626 • (206) 577-7222 • (800) 695-7222 • FAX (206) 636-1068 r 'umbia .nalytical Services...

CHAIN OF 'JSTODY/LABORATORY ANALYSIS REQUE' FORM

P.

PAGE

DATE 3/13/97

* \$ \$ \$ DELLA CP-10-15/100 55-F7 799 Sayer 55-F5 labeled 55-F7, GP-10-21 labeled GP-10-15 went by delea SAMPLE RECEIPT: 444 Lab No: 1/1) 55 Shipping VIA: Condition: SebileH ? ANALYSIS REQUESTED INVOICE INFORMATION: Sen 7 P.O. REPORT REQUIREMENTS Report (includes DUP MS. MSD, as required, may be IV. CLP Deliverable Report III. Data Validation Report (includes All Raw Data) charged as samples) Routine Report SPECIAL INSTRUCTIONS/COMMENTS: WIPHD extend 8260 = BTE **TURNAROUND REQUIREMENTS** Provide FAX preliminary Results Standard (10-15 working days) Provide Verbal Preliminary アードコー Requested Report Date 7 Ω 3 140358-DIGO SAMPLE MATRIX PHONE SZB-1144 No. Water = = = = = = 00.00 CAMPO, CAS RECEIVED BY: Firm 13/47 RECEIVED BY 4 G 上でいる」 Mem Printed Name of he patte PROJECT MANAGER ROL LINGS Y Signature 3/12/97 09:00 3/12/97/12:20 3:00 3/2/97 13:00 3/12/12:50 अयिरोठकरे 3/12/97 12:47 49224 PROJECT NAME NULL CITY CLEANERS 3/4/109:10 ३०:60 रिक्रा W. FIDG Alter Ln. COMPANY/ADDRESS EMCON 8/12/92 774-12-397-17/12/12/12 DATE Spokane WA RELINQUISHED BY: RELINQUISHED BY: DAM SAMPLERS SIGNATURE_ のエーナー Printed Name GP-7-21.5 SAMPLE F-10-17 F-10-21 13-FS Printed Name GP-7-15 FMCON <u>a</u> ज्यात्र १३ 55-AG Gate/Time 35-14 55 - AH Signature 00

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-VELL Owners, Phys. -- Mained-su-maintaion

DISTOLOUPING - NOITH - 100-

C., AIN COSTOS , LADORA ORY A, JAL, SIS, 1. FC, 1.

ORGANIC METALS/INORGANICS REMARKS 1201. LAJ : 1662 SAMPLE RECEIPT: 3 6 70x (circle) No.2 No.3 (circle) No.2 No.3 (circle) Shipping VIA: Shoping to: Condition: 7 PAGE ANALYSIS REQUEST INVOICE INFORMATION: DATE 3/13/27 ORGANIC P.O. Selibelo V Single Volenes of Aromaic Volenes of Selibelo OSOS/SOS II. Report (includes DUP.MAS. REPORT REQUIREMENTS MSD, as required, may be charged as samples) III. Data Validation Report (includes All Raw Data) CLP Deliverable Report PETROLEUM HCS *8360 = BTEX + VOC'A Routine Report WTPH-D Extended SPECIAL INSTRUCTIONS/COMMENTS: TURNAROUND REQUIREMENTS 24 hr 48 hr. 5 day Provide FAX preliminary Results Standard (10-15 working days) Y Provide Verbal Preliminary N-101-6 Requested Report Date 4 ત NUMBER OF CONTRINERS હ $\boldsymbol{\omega}$ 3 Mithe CANSON / JUNALATION PROJECT ATTA ROB LINGS AY - EMCON SPOKAME PHONE (904) 835-1144 RITON LAWE TO PROJECT NAME NEW C 14 () CANIAS # 40358 - 016, 004 114 tel SAMPLE 50,6 Water 50.1 MATRIX 50:1 Soil 3.5 roburn RECEIVED BY: RECEIVED BY: Ž 99 zzy ₽ <u>0</u>: Mary Firm S/13/97 Date/Time 15-14.97 Printed Name Signature 620 3/12/57 0800 3/4/4 1440 3/292 1425 1520 3/12/12/30 362A7 1605 TIME 3/47= 1455 3/12/97 | 1645 12/2 COMPANY/ADDRESS ALEST 3/14/2 3/12/17 3/13/Pr DAM E RELINQUISHED BY: RELINQUISHED BY: OOK ANC SAMPLERS SIGNATURE Jehn Gatte GPW-1-397-15 Printed Name FW-6-397-15 5P6 - 21.5 GP6-11-15 GP6- 25 SAMPLE I.D. EMCON 5/2/13/97 Pnnted Name GP-1-5 GP-1-19 55-FG 55-EW Date/Time Date/Time Signature

CHAIN OF USTODY/LABORATORY ANALYSIS REQUE 'FORM

Ŋ PAGE DATE 3/13/97

P. ..nalytical
Services... 1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222 • FAX (360) 636-1068

lec'd one van broker 2 Cobaled 491-16b 3-2 SAMPLE RECEIPT: 128 128 551 092g CA0291 Shipping VIA: Shipping 8. 용 Condition: ANALYSIS REQUESTED INVOICE INFORMATION: P.O. REPORT REQUIREMENTS II. Report (includes DUP.MS. MSD, as required, may be charged as samples) (includes All Raw Data) IV. CLP Deliverable Report III. Data Validation Report VOC 8760 = BTEX + VOC'A X Routine Report WTPH-OBYTENDED SPECIAL INSTRUCTIONS/COMMENTS: **TURNAROUND REQUIREMENTS** 24 hr 48 hr. 5 day Provide FAX preliminary Results Standard (10-15 working days) Frovide Verbal Preliminary WTPH- G Requested Report Date NUMBER OF CONTAINERS PHONE (507) 828-1149 SAMPLE MATRIX 50:6 20,0 WAter WATER PROJECT NAME NEW CITY CICAMAS "10358-016, 004 (3 2017 50.1 16'.02 (ADRIACE) SAMPLERS SIGNATURE_2, 6) Tratale Prom RECEIVED BY: RECEIVED BY: 101 # LAB LD. Firm 3-14-97 Date/Time Mary Printed Name FED EX Firm 31397 WEST 7106 RITUALANCE Signature 5280 KUSI/E 3/12/27 6840 우:% 5PW-3-377-19 3/13/17 750 1907 TIME EMLON Sportal WA 29 AZH. Shake DATE GP3-21-18/11/11 DAM RELINQUISHED BY: RELINQUISHED BY: 6PW-3-397-19 COMPANY/ADDRESS ___ PROJECT MANAGER 603-15 Printed Name SAMPLE Printed Name MOON Firm 7.3/13/97 Signature Firm

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UTIO

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Date/Time



April 8, 1997

Service Request No: K9701685

Rob Lindsay EMCON W 7106 Will D. Alton Lane, Suite 101 Spokane, WA 99204-5760

Re: New City Cleaners/40358-016.004 task 3

Dear Rob:

Enclosed are the results of the sample(s) submitted to our laboratory on March 15, 1997. Preliminary results were transmitted via facsimile on April 7, 1997. For your reference, these analyses have been assigned our service request number K9701685.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 243.

Respectfully submitted,

Columbia Analytical Services, Inc.

Richard Craven Project Chemist

RAC/td

Page 1 of _

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEO Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

J Estimated concentration. The value is less than the method reporting limit, but

greater than the method detection limit.

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a substance

allowed in drinking water as established by the USEPA.

MDL Method Detection Limit

MPN Most Probable Number

MRL Method Reporting Limit

NA Not Applicable
NAN Not Analyzed
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected at or above the MRL

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 task 3

Sample Matrix: Soil

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97

Date Extracted: NA Date Analyzed: 3/25/97

Carbon, Total Organic ASTM D4129-82M Units: Percent (%) Dry Weight Basis

Sample Name	Lab Code	MRL	Result
SS-B7	K9701685-006	0.05	0.06
Method Blank	K9701685-MB	0.05	ND

Approved By:

IAMRL/102594 01685WET.LJI - TOCS 4/8/97 Date: 4/8/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 task 3

Sample Matrix: Water

Service Request: K9701685 Date Collected: 3/13/97 Date Received: 3/15/97 Date Extracted: NA Date Analyzed: 3/20/97

Solids, Total Suspended (TSS) EPA Method 160.2 Units: mg/L (ppm)

Sample Name	Lab Code	MRL	Result
GPW-5-0397-19	K9701685-001	5	3740
GPW-2-0397-17	K9701685-002	5	1 7 6
GPW-7-0397-11	K9701685-003	5	5630
GPW-7-0397-19	K9701685-004	5	48
Method Blank	K9701685-MB	5	ND

Approved By:

IAMRL/102594 01685WET.LJ1 - TSS 4/8/97 Date: 4/8/57

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 task 3

Sample Matrix:

Water

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97

Date Extracted: 3/17/97

Date Analyzed: 3/18/97

Total Petroleum Hydrocarbon as Diesel and Oil Washington DOE Method WTPH-D Units: µg/L (ppb)

Analyte:

Diesel

Oil*

Method Reporting Limit:

250

750

Sample Name

Lab Code

GPW-5-397-19 GPW-7-397-11 K9701685-001 K9701685-003 504(O) ND

ND

ND

Method Blank

K970317-WB

ND

ND

Quantified using 30 weight motor oil as a standard.

hown This

0

Quantitated as diesel. The sample contained components lighter than diesel that partially eluted in the diesel range.

Approved By:

2A/102094 01685PHC.JS1 - TPHw 3/24/97 Date:

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 task 3

Sample Matrix: Water

Service Request: K9701685 Date Collected: 3/13/97

Date Received: 3/15/97

Date Extracted: 3/17/97 Date Analyzed: 3/18/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Sample Name	Lab Code	Percent Recovery o-Terphenyl
GPW-5-397-19	K9701685-001	73
GPW-7-397-11	K9701685-003	78
Method Blank	K970317-WB	87

Thawal Buth

CAS Acceptance Limits: 59-110

Approved By:

SURI/111594 01685PHC.JS1 - TPHwSUR 3/20/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 task 3

Sample Matrix: Water

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97

Date Extracted: NA

Date Analyzed: 3/26-27/97

Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: µg/L (ppb)

Sample Name	Lab Code	MRL	Result
GPW-5-397-19	K9701685-001	50	6400
GPW-7-397-11	K9701685-003	50	2000(O)
TB-2-397	K9701685-010	50	ND
Method Blank	K970326-MB	50	ND

Quantitated as gasoline. The sample contained an unknown peak that eluted in the gasoline range.

Approved By:

0

IAMRL/102594 01685VOA.JSI - GASw 4/1/97 Date: 4/1/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 task 3

Sample Matrix: Water

Service Request: K9701685 Date Collected: 3/13/97 Date Received: 3/15/97

Date Extracted: NA

Date Analyzed: 3/26-27/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G

Sample Name	Lab Code	Percent Recovery 4-Bromofluorobenzene		
GPW-5-397-19	K9701685-001	308(A)		
GPW-7-397-11	K9701685-003	89		
TB-2-397	K9701685-010	86		
Method Blank	K970326-MB	90		

CAS Acceptance Limits: 65-117

Outside acceptance limits due to matrix interference.

Approved By:

Α

SUR1/111594 01685VOA.JS1 - GASWSUR 4/8/97 Date: 4/8/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/#40358-016.004 task 3

Sample Matrix: Soil

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name:	GP4- 19	SS-B7	GP4- 7
	Lab Code:	K9701685-005	K9701685-006	K9701685-007
	Date Analyzed:	3/25/97	3/25/97	3/25/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	5	ND	ND	ND
Chloromethane	5	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND
Bromomethane	5	ND	ND	ND
Chloroethane	5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	5	ND	ND	ND
Acetone	50	ND	200 :	ND
1,1-Dichloroethene	5	ND	ND .	ND
Carbon Disulfide	5	ND	ND	ND
Methylene Chloride	10	ND	ND	ND
trans-1,2-Dichloroethene	5	ND	ND	ND
I, 1-Dichloroethane	5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	5	ND	ND	ND
cis -1,2-Dichloroethene	5	ND	ND	ND
Chloroform	5	ND	ND	ND
Bromochloromethane	5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	5	ND	ND	ND
1,1-Dichloropropene	5	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND
Benzene	5	ND	ND	ND
Trichloroethene (TCE)	5	ND	ND	ND
1,2-Dichloropropane	5	ND	ND	ND
Bromodichloromethane	5	ND	ND	ND
Dibromomethane	5	ND	ND	ND
2-Hexanone	20	ND	ND	ND
cis-1,3-Dichloropropene	5	ND	ND	ND
Toluene	5	ND	ND	ND
trans-1,3-Dichloropropene	5	ND	ND	ND
1,1,2-Trichloroethane	5	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND	ND
1,3-Dichloropropane	5	ND	ND	ND

Approved By: Lisa Ulisky
01683VOA.DW2-82609 3/31/97

Date: $\frac{3}{31/97}$

Analytical Report

Client:

EMCON

Project:

New City Cleaners/#40358-016.004 task 3

Sample Matrix: Soil

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code:	GP4-19 K97 016 85- 00 5	SS-B 7 K97016 85- 006	GP4- 7 K 97016 8 5-007
	Date Analyzed:	3/25/97	3/25/97	3/25/97
Analyte	MRL			
Tetrachloroethene (PCE)	5	150	ND	190
Dibromochloromethane	5	ND	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND	ND
Chlorobenzene	5	ND	ND	ND
1,1,1,2-Tetrachloroethane	5	ND	ND	ND
Ethylbenzene	5	ND	ND	ND
Total Xylenes	5 5	ND	ND	ND
Styrene	5	ND	ND	ND
Bromoform	5	ND	ND	ND
Isopropylbenzene	20	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND
1,2,3-Trichloropropane	5	ND	ND	ND
Bromobenzene	5	ND	ND	ND
n-Propylbenzene	20	ND	ND	ND
2-Chlorotoluene	20	ND	ND	ND
4-Chlorotoluene	20	ND	ND	ND
1,3,5-Trimethylbenzene	20	ND	ND	ND
tert -Butylbenzene	20	ND	ND	ND
1,2,4-Trimethylbenzene	20	ND	ND	ND
sec -Butylbenzene	20	ND	ND	ND
1,3-Dichlorobenzene	5	ND	ND	ND
4-Isopropyltoluene	20	ND	ND	ND
1,4-Dichlorobenzene	5	ND	ND	ND
n-Butylbenzene	20	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND	ND
Naphthalene	20	ND	ND	ND
Hexachlorobutadiene	20	ND	ND	ND

Lisa Weistagf

Approved By:

3S2P/101894

Date: 3/31/9)

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Page No.:

Analytical Report

Client:

EMCON

Project:

New City Cleaners/#40358-016.004 task 3

Sample Matrix: Soil

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		mple Name: Lab Code: e Analyzed:	GP2-21 K9701685-009 3/25/97	Method Blank K970325-MB 3/25/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	5		ND	ND
Chloromethane	5		ND	ND
Vinyl Chloride	5		ND	ND
Bromomethane	5		ND	ND
Chloroethane	5		ND	ND
Trichlorofluoromethane (CFC 11)	5		ND	ND
Acetone	50		ND	ND
1,1-Dichloroethene	5		ND	ND
Carbon Disulfide	5		ND	ND
Methylene Chloride	10		ND	ND
trans-1,2-Dichloroethene	5		ND	ND
1,1-Dichloroethane	5		ND	ND
2-Butanone (MEK)	20		ND	ND
2,2-Dichloropropane	5		ND	ND
cis-1,2-Dichloroethene	5		ND	ND
Chloroform	5		ND	ND
Bromochloromethane	5		ND	ND
1,1,1-Trichloroethane (TCA)	5		ND	ND
1,1-Dichloropropene	5		ND	ND
Carbon Tetrachloride	5		ND	ND
1,2-Dichloroethane	5		ND	ND
Benzene	5		ND	. ND
Trichloroethene (TCE)	5 5 5 5 5		ND	ND
1,2-Dichloropropane	5		ND	ND
Bromodichloromethane			ND	ND
Dibromomethane	5		ND	ND
2-Hexanone	20		ND	ND
cis-1,3-Dichloropropene	5		ND	ND
Toluene	5		ND	ND
trans-1,3-Dichloropropene	5		ND	ND
1,1,2-Trichloroethane	5		ND	ND
4-Methyl-2-pentanone (MIBK)	20		ND	ND
1,3-Dichloropropane	5		ND	ND

Approved By:

01685VOA.DW2 - 8260s (3) 3/31/97

Lisa Weiskorf

Date: 3/31/9+

Analytical Report

Client:

EMCON

Project:

New City Cleaners/#40358-016.004 task 3

Sample Matrix: Soil

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	GP2-21 K9701685-009 3/25/97	Method Blank K970325-MB 3/25/97
Analyte	MRL		
Tetrachloroethene (PCE)	5	779	ND
Dibromochloromethane	5	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND
Chlorobenzene	5	ND	ND
1,1,1,2-Tetrachloroethane	5	ND	ND
Ethylbenzene	5	ND	ND
Total Xylenes	5	ND	ND
Styrene	5	ND	ND
Bromoform	5	ND	ND
Isopropylbenzene	20	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND
1,2,3-Trichloropropane	5	ND	ND
Bromobenzene	5	ND	ND
n-Propylbenzene	20	ND	ND
2-Chlorotoluene	20	ND	ND
4-Chlorotoluene	20	ND	ND
1,3,5-Trimethylbenzene	20	ND	ND
tert -Butylbenzene	20	ND	ND
1,2,4-Trimethylbenzene	20	ND	ND
sec -Butylbenzene	20	ND	ND
1,3-Dichlorobenzene	5	ND	ND
4-Isopropyltoluene	20	ND	ND
1,4-Dichlorobenzene	5	ND	, ND
n-Butylbenzene	20	ND	ND
1,2-Dichlorobenzene	5	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND
Naphthalene	20	ND	ND
Hexachlorobutadiene	20	ND	ND

Approved By: 352P/101894

Losa Weistorf

Date: $\frac{3}{3} \frac{1}{9} \frac{97}{9}$

Analytical Report

Client:

EMCON

Project:

New City Cleaners/#40358-016.004 task 3

Sample Matrix: Soil

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97
Date Extracted: 3/22/97

Volatile Organic Compounds EPA Method 8260A Units: mg/Kg (ppm) Dry Weight Basis

	Sample Na Lab C Date Analy	ode: K9701685-008	Method Blank K970324-MB 3/24/97
Analyte	MRL		
Dichlorodifluoromethane (CFC 12)	0.5	ND	ND
Chloromethane	0.5	ND	ND
Vinyl Chloride	0.5	ND	ND
Bromomethane	0.5	ND	ND
Chloroethane	0.5	ND	ND
Trichlorofluoromethane (CFC 11)	0.5	ND	ND
Acetone	5	ND	ND
1,1-Dichloroethene	0.5	ND	ND
Carbon Disulfide	0.5	ND	ND
Methylene Chloride	1	ND	ND
trans -1,2-Dichloroethene	0.5	ND	ND
I,I-Dichloroethane	0.5	ND	ND
2-Butanone (MEK)	2	ND	ND
2,2-Dichloropropane	0.5	ND	ND
cis-1,2-Dichloroethene	0.5	726	ND
Chioroform	0.5	ND	ND
Bromochloromethane	0.5	ND	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	ND
1,1-Dichloropropene	0.5	ND	ND
Carbon Tetrachloride	0.5	ND	ND
1,2-Dichloroethane	0.5	ND	ND
Benzene	0.5	ND	ND
Trichloroethene (TCE)	0.5	ND	ND
1,2-Dichloropropane	0.5	ND	ND
Bromodichloromethane	0.5	ND	ND
Dibromomethane	0.5	ND	ND
2-Hexanone	2	ND	ND
cis-1,3-Dichloropropene	0.5	ND	ND
Toluene	0.5	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND
4-Methyl-2-pentanone (MIBK)	2	ND	ND
1,3-Dichloropropane	0.5	ND	ND

Date: 3/31/9+

Analytical Report

Client:

EMCON

Project:

New City Cleaners/#40358-016.004 task 3

Sample Matrix: Soil

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97

Date Extracted: 3/22/97

Volatile Organic Compounds EPA Method 8260A Units: mg/Kg (ppm) Dry Weight Basis

	-	Name: GP : b Code: K97016 alyzed: 3/24	85-008 K970324-1	MB
Analyte	MRL			
Tetrachloroethene (PCE)	0.5	N		
Dibromochloromethane	0.5	N		
1,2-Dibromoethane (EDB)	2	N		
Chlorobenzene	0.5	N		
1,1,1,2-Tetrachloroethane	0.5	N		
Ethylbenzene	0.5	N		
Total Xylenes	0.5	N		
Styrene	0.5	N		
Bromoform	0.5	N		
Isopropylbenzene	2	N		
1,1,2,2-Tetrachloroethane	0.5	N		
1,2,3-Trichloropropane	0.5	N		
Bromobenzene	0.5	N		
n-Propylbenzene	2	N		
2-Chlorotoluene	2 2 2 2 2	N		
4-Chlorotoluene	2	N		
1,3,5-Trimethylbenzene	2	N		
tert -Butylbenzene	2	N		
1,2,4-Trimethylbenzene	2 2	N		
sec-Butylbenzene		N		
1,3-Dichlorobenzene	0.5	N		
4-Isopropyltoluene	2	N		
1,4-Dichlorobenzene	0.5	N		
n-Butylbenzene	2	N		
1,2-Dichlorobenzene	0.5	N		
1,2-Dibromo-3-chloropropane (DBCP)	2	N		
1,2,4-Trichlorobenzene	2	N		
1,2,3-Trichlorobenzene	2	N		
Naphthalene	2 2	N		
Hexachlorobutadiene	2	N	D ND	

Approved By: 352P/101894

Lisa Weiskarf

Date: 3/31/9+

QA/QC Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/#40358-016.004 task 3

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97 Date Extracted: 3/22/97

Date Analyzed: 3/24-25/97

Surrogate Recovery Summary **Volatile Organic Compounds** EPA Method 8260A

		reference accovery					
Sample Name	Lab Code	Dibromofluoromethane	Toluene-d ₈	4-Bromofluorobenzene			
GP4-19	K9701685-005	108	103	105			
SS-B7	K9701685-006	93	99	86			
GP4-7	K9701685-007	108	105	107			
GP2-5	K9701685-008	98	101	99			
GP2-21	K9701685-009	107	104	107			
Method Blank	K970324-MB	97	99	95			
Method Blank	K970325-MB	101	102	98			

CAS Acceptance Limits:

Lisa Waistonf

82-122

84-116

67-129

Approved By:

SUR3/110094 01685VOA.DW2 - 8260±SUR 3/31/97

Date: $\frac{3}{3} \frac{31}{9}$

Analytical Report

Client:

EMCON

Project:

New City Cleaners/#40358-016.004 task 3

Sample Matrix: Water

Service Request: K9701685

Date Collected: 3/13/97 Date Received: 3/15/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

		Sample Name:	GPW-5-397-19	GPW-2-397-17	GPW-7-397-11
		Lab Code: Date Analyzed:	K9701685-001(C) 3/27/97	K9701685-002(C) 3/26/97	K9701685-003(C) 3/26/97
Analyte	MRL				
Dichlorodifluoromethane (CFC 12)	0.5		<50	<100	<100
Chloromethane	0.5		<50	<100	<100
Vinyl Chloride	0.5		<50	<100	<100
Bromomethane	0.5		<50	<100	<100
Chloroethane	0.5		<50	<100	<100
Trichlorofluoromethane (CFC 11)	0.5		<50	<100	<100
Acetone	20		<2000	<4000	<4000
1,1-Dichloroethene	0.5		<50	<100	<100
Carbon Disulfide	0.5		<50	<100	<100
Methylene Chloride	1		<100	<200	<200
trans-1,2-Dichloroethene	0.5		<50	<100	<100
1,1-Dichloroethane	0.5		<50	<100	<100
2-Butanone (MEK)	20		<2000	<4000	<4000
2,2-Dichloropropane	0.5		<50	<100	<100
cis-1,2-Dichloroethene	0.5		62 0	<100	<100
Chloroform	0.5		<50	<100	<100
Bromochloromethane	0.5		<50	<100	<100
1,1,1-Trichloroethane (TCA)	0.5		<50	<100	<100
1,1-Dichloropropene	0.5		<50	<100	<100
Carbon Tetrachloride	0.5		<50	<100	<100
1,2-Dichloroethane	0.5		<50	<100	<100
Benzene	0.5		.<50	. <100	<100
Trichloroethene (TCE)	0.5		160	<100	<100
1,2-Dichloropropane	0.5		<50	<100	<100
Bromodichloromethane	0.5		<50	<100	<100
Dibromomethane	0.5		<50	<100	<100
2-Hexanone	20		<2000	<4000	<4000
cis -1,3-Dichloropropene	0.5		<50	<100	<100
Toluene	0.5		<50	<100	<100
trans-1,3-Dichloropropene	0.5		<50	<100	<100
1,1,2-Trichloroethane	0.5		<50	<100	<100
4-Methyl-2-pentanone (MIBK)	20		<2000	<4000	<4000
1,3-Dichloropropane	0.5		<50	<100	<100

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The MRL is elevated because the sample required diluting.

Lisa Weiskopy Approved By: 01685VOA.DW1 - 8260w2p 3/31/97

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Water

New City Cleaners/#40358-016.004 task 3

Date Collected: 3/13/97 Date Received: 3/15/97 Date Extracted: NA

Service Request: K9701685

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

		Sample Name: Lab Code: Date Analyzed:	GPW-5-397-19 K9701685-001(C) 3/27/97	GPW-2-397-17 K9701685-002(C) 3/26/97	GPW-7-397-11 K9701685-003(C) 3/26/97
Analyte	MRL	,	and the State of t	. e	
Tetrachloroethene (PCE)	0.5		₹ 9 00 }	4300	4300
Dibromochloromethane	0.5		<50	<100	~~100
1,2-Dibromoethane (EDB)	2		<200	<400	<400
Chlorobenzene	0.5		<50	<100	<100
1,1,1,2-Tetrachloroethane	0.5		<50	<100	<100
Ethylbenzene	0.5		<50	<100	<100
Total Xylenes	0.5		· 2 60	<100	<100
Styrene	0.5		<50	<100	<100
Bromoform	0.5		<50	<100	<100
Isopropylbenzene	2		<200	<400	<400
1,1,2,2-Tetrachloroethane	0.5		<50	<100	<100
1,2,3-Trichloropropane	0.5		<50	<100	<100
Bromobenzene	0.5		<50	<100	<100
n-Propylbenzene	2		<200	<400	<400
2-Chlorotoluene	2		<200	<400	<400
4-Chlorotoluene	2 2		<200	<400	<400
1,3,5-Trimethylbenzene	2		<200	<400	<400
tert -Butylbenzene	2		<200	<400	<400
1,2,4-Trimethylbenzene	2 2		2490	<400	<400
sec -Butylbenzene			<200	<400	<400
1,3-Dichlorobenzene	0.5		<50	<100	<100
4-Isopropyltoluene	2		<200	<400	<400
1,4-Dichlorobenzene	0.5		<50	<100	<100
n-Butylbenzene	2		<200	<400	<400
1,2-Dichlorobenzene	0.5		<50	<100	<100
1,2-Dibromo-3-chloropropane (DBCP)	2		<200	<400	<400
1,2,4-Trichlorobenzene	2		<200	<400	<400
1,2,3-Trichlorobenzene	2		<200	<400	<400
Naphthalene	2 2 2 2		<200	<400	<400
Hexachlorobutadiene	2		<200	<400	<400

The MRL is elevated because the sample required diluting.

Approved By: _

C

3S2P/102094 01685VOA.DW1 - 8260w2p 3/31/97

Lisa Meistapp Date: 3/31/9+

Analytical Report

Client:

EMCON

Project:

New City Cleaners/#40358-016.004 task 3

Sample Matrix: Water

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

		♥				
		Sample Name:	GPW-7-397-19	TB-2-397	Method Blank	
		Lab Code:	K9701685-004(C)	K9701685-010	K970326-MB	
		Date Analyzed:	3/26/97	3/26/97	3/26/97	
Analyte	MRL					
Dichlorodifluoromethane (CFC 12)	0.5		<10	ND	ND	
Chloromethane	0.5		<10	ND	ND	
Vinyl Chloride	0.5		<10	ND	ND	
Bromomethane	0.5		<10	ND	ND	
Chloroethane	0.5		<10	ND	ND	
Trichlorofluoromethane (CFC 11)	0.5		<10	ND	ND	
Acetone	20		<400	ND	ND	
1,1-Dichloroethene	0.5		<10	ND	ND	
Carbon Disulfide	0.5		<10	ND	ND	
Methylene Chloride	1		<20	ND	ND	
trans-1,2-Dichloroethene	0.5		<10	ND	ND	
1,1-Dichloroethane	0.5		<10	ND	ND	
2-Butanone (MEK)	20		<400	ND	ND	
2,2-Dichloropropane	0.5		<10	ND	ND	
cis-1,2-Dichloroethene	0.5		<10	ND	ND	
Chloroform	0.5		<10	ND	ND	
Bromochloromethane	0.5		<10	ND	ND	
1,1,1-Trichloroethane (TCA)	0.5		<10	ND	ND	
1,1-Dichloropropene	0.5		<10	ND	ND	
Carbon Tetrachloride	0.5		<10	ND	ND	
1,2-Dichloroethane	0.5		<10	ND	ND	
Benzene	0.5		<10	. ND	ND	
Trichloroethene (TCE)	0.5		<10	ND	ND	
1,2-Dichloropropane	0.5		<10	ND	ND	
Bromodichloromethane	0.5		<10	ND	ND	
Dibromomethane	0.5		<10	ND	ND	
2-Hexanone	20		<400	ND	ND	
cis-1,3-Dichloropropene	0.5		<10	ND	ND	
Toluene	0.5		<10	ND	ND	
trans-1,3-Dichloropropene	0.5		<10	ND	ND	
1,1,2-Trichloroethane	0.5		<10	ND	ND	
4-Methyl-2-pentanone (MIBK)	20		<400	ND	ND	
1,3-Dichloropropane	0.5		<10	ND	ND	

The MRL is elevated because the sample required diluting.

C

Liga Weiskay

Date: 3/31/9-

Analytical Report

Client:

EMCON

Project:

New City Cleaners/#40358-016.004 task 3

Sample Matrix: Water

Service Request: K9701685 Date Collected: 3/13/97

Date Received: 3/15/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

		nple Name: Lab Code: e Analyzed:	GPW-7-397-19 K9701685-004(C) 3/26/97	TB-2-397 K 9701685-010 3/26/97	Method Blank K970326-MB 3/26/97
Analyte	MRL				
Tetrachloroethene (PCE)	0.5		*\\\3\\\40 \\\\1	ND	ND .
Dibromochloromethane	0.5		<10	ND	ND
1,2-Dibromoethane (EDB)	2		<40	ND	ND
Chlorobenzene	0.5		<10	ND	ND
1,1,1,2-Tetrachloroethane	0.5		<10	ND	ND
Ethylbenzene	0.5		<10	ND	ND
Total Xylenes	0.5		<10	ND	ND
Styrene	0.5		<10	ND	ND
Bromoform	0.5		<10	ND	ND
Isopropylbenzene	2		<40	ND	ND
1,1,2,2-Tetrachloroethane	0.5		<10	ND	ND
1,2,3-Trichloropropane	0.5		<10	ND	ND
Bromobenzene	0.5		<10	ND	ND
n-Propylbenzene	2		<40	ND	ND
2-Chlorotoluene	2		<40	ND	ND
4-Chlorotoluene	2		<40	ND	ND
1,3,5-Trimethylbenzene	2		<40	ND	ND
tert -Butylbenzene	2		<40	ND	ND
1,2,4-Trimethylbenzene	2		<40	ND	ND
sec-Butylbenzene	2		<40	ND	ND
1,3-Dichlorobenzene	0.5		<10	ND	ND
4-Isopropyltoluene	2		<40	ND	ND
1,4-Dichlorobenzene	0.5		<10	ND	ND
n-Butylbenzene	2		<40	ND	ND
1,2-Dichlorobenzene	0.5		<10	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	2		<40	ND	ND
1,2,4-Trichlorobenzene	2		<40	ND	ND
1,2,3-Trichlorobenzene	2		<40	ND	ND
Naphthalene	2 2		<40	ND	ND
Hexachlorobutadiene	2		<40	ND	ND

The MRL is elevated because the sample required diluting.

Approved By:

C

3S2P/102094 01685VOA.DW1 - 8260w2p (2) 3/31/97

Lisa Weiskay Date: 3/31/97

QA/QC Report

Client:

Sample Name

EMCON

Project: New City Cleaners/#40358-016.004 task 3

Sample Matrix: Water

Service Request: K9701685 Date Collected: 3/13/97

Date Received: 3/15/97 Date Extracted: NA

Date Analyzed: 3/26-27/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

> Percent Recovery Dibromofluoromethane Toluene-d₈ 4-Bromofluorobenzene 99 99 100 95 101 100

GPW-5-397-19 K9701685-001 GPW-2-397-17 K9701685-002 93 GPW-7-397-11 K9701685-003 100 100 92 K9701685-004 100 100 GPW-7-397-19 98 94 TB-2-397 K9701685-010 101 Method Blank K970326-MB 101 101 98

Lab Code

CAS Acceptance Limits:

91-117

90-110

82-119

Approved By:

SUR3/111594 01685VOA.DW1 - 8260wSUR 3/31/97

Lisa Whistoph Date: 3/31/97

***** ACTIVITY REPORT *****

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TX/RX NO. 9436
CONNECTION TEL 15098381382
CONNECTION ID
START TIME 04/08 09:48
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PAGES 19
RESULT OK



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1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222 • FAX (360) 636-1068

DATE

3/13/97 PAGE

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ServiceS** 1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222 • FAX (360) 636-1068

DATE 3/13/57

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REMARKS SAMPLE RECEIPT: 96 CA0291 Shipping VIA: Shipping II: Condition: **ANALYSIS REQUESTED** INVOICE INFORMATION: D GIOHNAO 4,200,4 REPORT REQUIREMENTS MSD, as required, may be charged as samples) IV. CLP Deliverable Report (includes All Raw Data) Ill. Data Validation Report 1. Routine Report 81EX SPECIAL INSTRUCTIONS/COMMENTS: 82601 TURNAROUND REQUIREMENTS 24 hr _____ 48 hr. ____ 5 day Provide FAX preliminary Results Slandard (10-15 working days) Provide Verbal Preliminary シェアチ・ク Requested Report Date 707 NUMBER OF CONTAINERS PROJECT NAME 1/64 (1+4 (1/22/12 # 4/0358 - 016, 004 13) PHONE 509/838 - 1144 SAMPLE MATRIX NATES 12PM RECEIVED BY: . B G #10 PROJECT MANAGER RUB LIN dSAY Printed Name Fed Ex Firm 314/97 Date/Time Signature TIME 7106 AltON LANC 49224 COMPANY/ADDRESS EMCON 3/13/27 199 Spokane WA RELINQUISHED BY: RELINQUISHED BY: SAMPLERS SIGNATURE_ -397 SAMPLE I.D. F13/13/13 Printed Name 9eele/Time Date/Time Signature 0

CHAIN OF C'STODY/LABORATORY ANALYSIS REQUEST FORM

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Muc JR/TERY TIAI WAIS PUDDENT

R A, 3 _ PAGE_ 1317 South 13th Ave. • Ketso, WA 98626 • (360) 577.7222 • (800) 695-7222 • FAX (360) 636-1068 • DATE DATE

______ J⊓TOT REMARKS SAMPLE RECEIPT: Shipping VIA: Shipping It. Conditor 1**EP 7**3: HALYSIS REQUESTED INVOICE INFORMATION: 55000 REPORT REQUIREMENTS III. Data Validabon Report Voc. 8 a 60 - 0 TEX 4 Voc. 1. Routine Repart 7 SPECIAL INSTRUCTIONS/COMMENTS: . . TURNAROUND REQUIREMENTS Provide FAX proliminary Results -Sancard (10-15 working days) Provide Verber Preliminary Requested Report Date PROJECT NAME Aleid (+ 1 (HANIAS " - 10358 - 016, 00-1/3) PHONE 509) 638 - 1144 SAMPLE X 2 PM RECEIVED BY: RECEIVED BY: **8** 43 11/2 7106 Alton Lane #50 Printed Namo Printed Name 314197 Date/Time FRISEX Signature Signaturo Spokank WA 99224 COMPANY/ADDRESS EMCON DATE: 713 hz 1660 Beleffine Signalure SAMPLERS SIGNATURE 3 ". RELINQUISHED BY:... - RELINGUISHED BY: B-2-397 . C! SAMPLE

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April 11, 1997

Service Request No: K9701685

Rob Lindsay EMCON W 7106 Will D. Alton Lane, Suite 101 Spokane, WA 99204-5760

APR | 4 199?

Re: New City Cleaners/40358-016.004 task 3

Dear Rob:

Enclosed are the revised pages for the sample(s) submitted to our laboratory on March 15, 1997. For your reference, these analyses have been assigned our service request number K9701685.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 243.

Respectfully submitted,

Columbia Analytical Services, Inc.

Richard Craven Project Chemist

RAC/II

Page I of ____

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

J Estimated concentration. The value is less than the method reporting limit, but

greater than the method detection limit.

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a substance

allowed in drinking water as established by the USEPA.

MDL Method Detection Limit

MPN Most Probable Number

MRL Method Reporting Limit

NA Not Applicable

NAN Not Analyzed

NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected at or above the MRL

NIOSH National Institute for Occupational Safety and Health

POL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Analytical Report

Client:

EMCON

Project:

New City Cleaners/#40358-016.004 task 3

Sample Matrix: Water

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97
Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

		Sample Name: Lab Code: Date Analyzed:	GPW-4-397-19 K9701685-004(C) 3/26/97	TB-2-397 K97 016 85- 010 3/26/97	Method Blank K970326-MB 3/26/97
Analyte	MRL	•			
Tetrachloroethene (PCE)	0.5		340	ND	ND
Dibromochloromethane	0.5		<10	ND	ND
1,2-Dibromoethane (EDB)	2		<40	ND	ND
Chlorobenzene	0.5		<10	ND	ND
1,1,1,2-Tetrachloroethane	0.5		<10	ND	ND
Ethylbenzene	0.5		<10	ND	ND
Total Xylenes	0.5		<10	ND	ND
Styrene	0.5		<10	ND	ND
Bromoform	0.5		<10	ND	ND
Isopropylbenzene	2		<40	ND	ND
1,1,2,2-Tetrachloroethane	0.5		<10	ND	ND
1,2,3-Trichloropropane	0.5		<10	ND	ND
Bromobenzene	0.5		<10	ND	ND
n-Propylbenzene	2		<40	ND	ND
2-Chlorotoluene	2		<40	ND	ND
4-Chlorotoluene			<40	ND	ND
1,3,5-Trimethylbenzene	2 2 2		<40	ND	ND
tert -Butylbenzene	2		<40	ND	ND
1,2,4-Trimethylbenzene	2		<40	ND	ND
sec -Butylbenzene	2		<40	ND	ND
1,3-Dichlorobenzene	0.5		<10	ND	ND
4-Isopropyitoluene	2		<40	ND	ND
1,4-Dichlorobenzene	0.5		<10	ND	ND
n-Butylbenzene	2		<40	ND	ND
1,2-Dichlorobenzene	0.5		<10	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	2		<40	ND	ND
1,2,4-Trichlorobenzene	2 2		<10	ND	ND
1,2,3-Trichlorobenzene			<10	ND	ND
Naphthalene	2		<40	ND	ND
Hexachlorobutadiene	2		<40	ND	ND

The MRL is elevated because the sample required diluting.

Approved By: M

C

Date: <u>4/11/97</u>

3S2P/102094 K971585B XLS - 8260w2p (Rev) 4-11-97 4/11/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/#40358-016.004 task 3

Sample Matrix: Water

Service Request: K9701685

Date Collected: 3/13/97

Date Received: 3/15/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

	Sample Name: Lab Code: Date Analyzed:	GPW-4-397-19 K97 01685-004(C) 3/26/97	TB-2-397 K97 01685 - 010 3/26/97	Method Blank K970326-MB 3/26/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	0.5	<10	ND	ND
Chloromethane	0.5	<10	ND	ND
Vinyl Chloride	0.5	<10	ND	ND
Bromomethane	0.5	<10	ND	- ND
Chloroethane	0.5	<10	ND	ND
Trichlorofluoromethane (CFC 11)	0.5	<10	ND	ND
Acetone	20	<400	ND	ND
1,1-Dichloroethene	0.5	<10	ND	ND
Carbon Disulfide	0.5	<10	ND	ND
Methylene Chloride	1	<20	ND	ND
trans-1,2-Dichloroethene	0.5	<10	ND	ND
1,1-Dichloroethane	0.5	<10	ND	ND
2-Butanone (MEK)	20	<400	ND	ND
2,2-Dichloropropane	0.5	<10	ND	ND
cis-1,2-Dichloroethene	0.5	<10	ND	ND
Chloroform	0.5	<10	ND	ND
Bromochloromethane	0.5	<10	ND	ND
1,1,1-Trichloroethane (TCA)	0.5	<10	ND	ND
1,1-Dichloropropene	0.5	<10	ND	ND
Carbon Tetrachloride	0.5	<10	ND	ND
1,2-Dichloroethane	0.5	<10	ND	ND
Benzene	0.5	<10	ND	ND
Trichloroethene (TCE)	0.5	<10	ND	ND
1,2-Dichloropropane	0.5	<10	ND	ND
Bromodichloromethane	0.5	<10	ND	ND
Dibromomethane	0.5	<10	ND	ND
2-Hexanone	20	<400	ND	ND
cis-1,3-Dichloropropene	0.5	<10	ND	ND
Toluene	0.5	<10	ND	ND
trans-1,3-Dichloropropene	0.5	<10	ND	ND
1,1,2-Trichloroethane	0.5	<10	ND	ND
4-Methyl-2-pentanone (MIBK)	20	<400	ND	ND
1,3-Dichloropropane	0.5	<10	ND	ND

C The MRL is elevated because the sample required diluting.

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/#40358-016.004 task 3

Sample Matrix: Water

Service Request: K9701685

Date Collected: 3/13/97 Date Received: 3/15/97

Date Extracted: NA

Date Analyzed: 3/26-27/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

		Percen	t Rec	overy
Sample Name	Lab Code	Dibromofluoromethane	Toluene-d ₈	4-Bromofluorobenzene
GPW-5-397-19	K9701685-001	99	100	99
GPW-2-397-17	K9701685-002	101	100	95
GPW-7-397-11	K9701685-003	100	100	93
GPW-4-397-19	K9701685-004	100	100	92
TB-2-397	K9701685-010	101	98	94
Method Blank	K970326-MB	101	101	98

CAS Acceptance Limits: 91-117

90-110

82-119

Approved By:

SUR3/111594 K971685B.XLS - 8260wSUR (Rev) 4-11-97 4/11/97

Date: 4/1/57



May 20, 1997

Service Request No: K9702899

Rob Lindsay EMCON W 7106 Will D. Alton Lane, Suite 101 Spokane, WA 99204-5760

Re: New City Cleaners/40358-016.004(3)

Dear Rob:

Enclosed are the results of the sample(s) submitted to our laboratory on May 1, 1997. For your reference, these analyses have been assigned our service request number K9702899.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 243.

Respectfully submitted,

Columbia Analytical Services, Inc.

Richard Craven Project Chemist

RAC/mc

Page 1 of

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEO Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology

DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

J Estimated concentration. The value is less than the method reporting limit, but

greater than the method detection limit.

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a substance

allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NAN Not Analyzed
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected at or above the MRL

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Analytical Report

lient:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702899

Date Collected: 4/29/97

Date Received: 5/1/97

Date Extracted: NA

Date Analyzed: 5/8,14/97

Carbon, Total Organic ASTM D4129-82 Modified Units: Percent (%) Dry Weight Basis

Sample Name	Lab Code	MRL	Result
MW-4a-1	K9702899-001	0.05	0.23
MW-4a-17.5	K9702899-003	0.05	0.07
MW-4a-29	K9702899-004	0.05	ND
MW-3-27	K9702899-006	0.05	ND
Method Blank	K9702899-MB	0.05	ND

Approved By: _____

_ Date: _____ \$\int 1619 \forall \tag{7}

. 00003

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix:

Soil

Service Request: K9702899

Date Collected: 4/29/97

Date Received: 5/1/97
Date Extracted: 5/9/97

Date Analyzed: 5/14,15/97

Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D Units: mg/Kg (ppm) Dry Weight Basis

	Analyte: Method Reporting Limit:	Diesel 25	Oil* 100
Sample Name	Lab Code		
MW-4a-9	K9702899-002	ND	ND
MW-3-9	K9702899-005	ND	ND
Method Blank	K970509-MB	ND	ND

Quantified using 30-weight motor oil as a standard.

Approved By: Zorn E. Rontwood Date: 5/16/97

2A 102004 02899PHC.SSI - TPHs \$/15/97

Analytical Report

lient:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702899

Date Collected: 4/29/97

Date Received: 5/1/97

Date Extracted: 5/13/97
Date Analyzed: 5/13/97

Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: mg/Kg (ppm) Dry Weight Basis

Sample Name	Lab Code	MRL	Result
MW-4a-9	K9702899-002	5	ND
MW-3-9	K9702899-005	5	ND
Method Blank	K970513-MB	5	ND

Approved By:

IAMRL/102594 02899VOA.IGI - GAS¢ 5/18/97 Date: _5/18/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702899
Date Collected: 4/29/97
Date Received: 5/1/97
Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	\$	Sample Name:	MW-4a-17.5	MW-4a-29	MW-3-9
		Lab Code:	K9702899-003	K9702899-004	K9702899-005
	Е	ate Analyzed:	5/7/97	5/7/97	5/7/97
			•		
Analyte	MRL				
Dichlorodifluoromethane (CFC 12)	5		ND	ND	ND
Chloromethane	5		ND	ND	ND
Vinyi Chloride	5		ND	ND	ND
Bromomethane	5		ND	ND	ND
Chloroethane	5		ND	ND	ND
Trichlorofluoromethane (CFC 11)	5		ND	ND	ND
Acetone	50		ND	ND	ND
1,1-Dichloroethene	5		ND	ND	ND
Carbon Disulfide	5		ND	ND	ND
Methylene Chloride	10		ND	ND	ND
trans-1,2-Dichloroethene	5		ND	ND	ND
1,1-Dichloroethane	5		ND	ND	ND
2-Butanone (MEK)	20		ND	ND	ND
2,2-Dichloropropane	5		ND	ND	ND
cis-1,2-Dichloroethene	5		ND	ND	9
Chloroform	5		ND	ND	ND
Bromochloromethane	5		ND	ND	ND
1,1,1-Trichloroethane (TCA)	5		ND	ND	ND
1,1-Dichloropropene	5		ND	ND	ND
Carbon Tetrachloride	5		ND	ND	ND
1,2-Dichloroethane	5		ND	ND	ND
Benzene	5		ND	ND	ND
Trichloroethene (TCE)	5		ND	ND	6
1,2-Dichloropropane	5		ND	ND	ND
Bromodichloromethane	5		ND	ND	ND
Dibromomethane	5		ND	ND	ND
2-Hexanone	20		ND	ND	ND
cis-1,3-Dichloropropene	5		ND	ND	ND
Toluene	5		ND	ND	ND
trans-1,3-Dichloropropene	5		ND	ND	ND
1,1,2-Trichloroethane	5		ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20		ND	ND	ND
1,3-Dichloropropane	5		ND	ND	ND

Approved By: _______

AH Thetaff

____ Date: <u>5/15/9/</u>

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702899

Date Collected: 4/29/97

Date Received: 5/1/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		ple Name: Lab Code: Analyzed:	MW-42-17.5 K9702899-003 5/7/97	MW-4a-29 K9702899-004 5/7/97	MW-3-9 K9702899-005 5/7/97
Analyte	MRL				
Tetrachloroethene (PCE)	5		63	ND	650
Dibromochloromethane	5		ND	ND	ND
1,2-Dibromoethane (EDB)	20		ND	ND	ND
Chlorobenzene	5		ND	ND	ND
1,1,1,2-Tetrachloroethane	5		ND	ND	ND
Ethylbenzene	5		ND	ND	ND
Total Xylenes	5		ND	ND	ND
Styrene	5		ND	ND	ND
Bromoform	5		ND	ND	ND
Isopropyibenzene	20		ND	ND	ND
1,1,2,2-Tetrachloroethane	5		ND	ND	ND
1,2,3-Trichloropropane	5		ND	ND	ND
Bromobenzene	5		ND	ND	ND
n-Propylbenzene	20		ND	ND	ND
2-Chlorotoluene	20		ND	ND	ND
4-Chlorotoluene	20		ND	ND	ND
1,3,5-Trimethylbenzene	20		ND	ND	ND
tert -Butylbenzene	20		ND	ND	ND
1,2,4-Trimethylbenzene	20		ND	ND	ND
sec -Butylbenzene	20		ND	ND	ND
1,3-Dichlorobenzene	5		ND	ND	ND
4-Isopropyltoluene	20		ND	ND	ND
1,4-Dichlorobenzene	5		ND	ND	ND
n-Butylbenzene	20		ND	ND	ND
1,2-Dichlorobenzene	5		ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20		ND	ND	ND
1,2,4-Trichlorobenzene	20		ND	ND	ND
1,2,3-Trichlorobenzene	20		ND	ND	ND
Naphthalene	20		ND	ND	ND
Hexachlorobutadiene	20		ND	ND	ND

Approved By:

3S2P/101894

got Matriff

Date: __

5/15/97

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/40358-016.004(3)

Volatile Organic Compounds EPA Method 8260A

MW-3-27

Service Request: K9702899

Date Collected: 4/29/97

Date Received: 5/1/97

Date Extracted: NA

Method Blank

Units: µg/Kg (ppb) Dry Weight Basis

Sample Name:

Lab Code: K9702899-006 K970507-MB 5/7/97 Date Analyzed: 5/7/97 MRL Analyte 5 ND ND Dichlorodifluoromethane (CFC 12) ND 5 ND Chloromethane 5 ND ND Vinyl Chloride 5 ND ND Bromomethane 5 ND Chloroethane ND 5 ND ND Trichlorofluoromethane (CFC 11) ND ND 50 Acetone 5 ND ND 1.1-Dichloroethene 5 ND ND Carbon Disulfide ND 10 ND Methylene Chloride trans-1,2-Dichloroethene 5 ND ND 5 ND ND 1.1-Dichloroethane 20 ND ND 2-Butanone (MEK) ND 5 ND 2,2-Dichloropropane 5 ND ND cis-1,2-Dichloroethene 5 ND ND Chloroform 5 ND ND Bromochloromethane 5 ND ND 1,1,1-Trichloroethane (TCA) 5 ND ND 1,1-Dichloropropene 5 ND ND Carbon Tetrachloride 5 ND ND 1.2-Dichloroethane 5 ND Benzene ND 5 ND ND Trichloroethene (TCE) 5 ND ND 1,2-Dichloropropane 5 ND ND Bromodichloromethane 5 ND ND Dibromomethane 20 ND ND 2-Hexanone 5 ND ND cis-1,3-Dichloropropene 5 ND ND Toluene 5 ND ND trans-1,3-Dichloropropene ND 5 ND 1,1,2-Trichloroethane ND ND 20 4-Methyl-2-pentanone (MIBK) ND ND 5 1,3-Dichloropropane

Approved By: 02899VOA.LWI - 8260s (2) 5/14/97 Juff Motors

Date: <u>5/15/97</u>

8000n

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/40358-016.004(3)

Date Collected: 4/29/97 Date Received: 5/1/97 Date Extracted: NA

Service Request: K9702899

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	MW-3-27 K9702899-006 5/7/97	Method Blank K970507-MB 5/7/97
Analyte	MRL			
Tetrachloroethene (PCE)	5		ND	ND
Dibromochloromethane	5		ND	ND
1,2-Dibromoethane (EDB)	20		ND	ND
Chlorobenzene	5		ND	ND
1,1,1,2-Tetrachloroethane	5		ND	ND
Ethylbenzene	5		ND	ND
Total Xylenes	5		ND	ND
Styrene	5		ND	ND
Bromoform	5		ND	ND
Isopropylbenzene	20		ND	ND
1,1,2,2-Tetrachloroethane	5		ND	ND
1,2,3-Trichloropropane	5		ND	ND
Bromobenzene	5		ND	ND
n-Propylbenzene	20		ND	ND
2-Chlorotoluene	20		ND	ND
4-Chlorotoluene	20		ND	ND
1,3,5-Trimethylbenzene	20		ND	ND
tert -Butylbenzene	20		ND	ND
1,2,4-Trimethylbenzene	20		ND	ND
sec -Butylbenzene	20		ND	ND
1,3-Dichlorobenzene	5		ND	ND
4-Isopropyltoluene	20		ND	ND
1,4-Dichlorobenzene	5		ND	ND
n-Butylbenzene	20		ND	ND
1,2-Dichlorobenzene	5		ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20		ND	ND
1,2,4-Trichlorobenzene	20		ND	ND
1,2,3-Trichlorobenzene	20		ND	ND
Naphthalene	20		ND	ND
Hexachlorobutadiene	20		ND	ND

Approved By:

3S2P/101894

Date: 5/15/97

PQ0009

APPENDIX A LABORATORY QC RESULTS

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702899

Date Collected: 4/29/97

Date Received: 5/1/97

Date Extracted: NA Date Analyzed: 5/8/97

Duplicate Summary Carbon, Total Organic ASTM D4129-82 Modified Units: Percent (%) Dry Weight Basis

	•		Duplicate			Relative	
Sample Name	Lab Code	MRL	Sample Result	Sample Result	Average	Percent Difference	
MW-4a-1	K9702899-001D	0.05	0.23	0.25	0.24	8	

Date: 5/16/97 Approved By:

DUP1A/102194 02899WET.LJ2 - TOCDS 5/16/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702899 Date Collected: 4/29/97

Date Received: 5/1/97 Date Extracted: NA Date Analyzed: 5/8/97

CAS

Matrix Spike Summary Carbon, Total Organic ASTM D4129-82 Modified Units: Percent (%) Dry Weight Basis

							Percent	
			Spike	ike Sample	Spiked Sample	Percent Recovery	Recovery Acceptance Limits	
Sample Name	Lab Code	MRL	Level	Result	Result			
MW-4a-1	K9702899-001MS	0.05	1.49	0.23	1.70	99	75-125	

5/16/97 Date: Approved By: 00012

MS1A/102194 02899WET.LJ2 - TOCMW 5/16/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702899
Date Collected: 4/29/97
Date Received: 5/1/97
Date Extracted: 5/9/97

Date Analyzed: 5/14,15/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Sample Name	Lab Code	Percent Recovery o-Terphenyl
MW-4a-9	K9702899-002	87
MW-3-9	K9702899-005	92
Batch QC	K9702929-004	79
Batch QC	K9702929-004MS	86
Batch QC	K9702929-004DMS	93
Lab Control Sample	K970509-LCS	89
Method Blank	K970509-MB	7 7

CAS Acceptance Limits: 56-116

Approved By:	Loren Er	Potwood	Date:	5/16/97
		• • • • • • • • • • • • • • • • • • • •		

QA/QC Report

Client:

EMCON

New City Cleaners/40358-016.004(3)

Service Request: K9702899

Project:

Sample Matrix:

Soil

Date Collected: NA Date Received: NA

Date Extracted: 5/9/97

Date Analyzed: 5/15/97

Matrix Spike/Duplicate Matrix Spike Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Units: mg/Kg (ppm) Dry Weight Basis

Sample Name:

DMSISARDUSSISATPHIDMS VIVOT

Batch QC

Lab Code:

K9702929-004DMS

Percent Recovery

	Spike	Level	Sample	Spike	Result			CAS Acceptance		CAS RPD Acceptance
Analyte	MS	DMS	Result	MS	DMS	MS	DMS	Limits	Difference	Limit
Diesel	210	190	ND	160	160	76	84	19-145	10	40

Lome 5. Partiros Approved By:

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

LCS Matrix:

Soil

Service Request: K9702899

Date Collected: NA

Date Received: NA

Date Extracted: 5/9/97
Date Analyzed: 5/14/97

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons as Diesel and Oil
Washington DOE Method WTPH-D
Units: mg/Kg (ppm)

					CAS
					Percent
	ı				Recovery
		True		Percent	Acceptance
Analyte		Value	Result	Recovery	Limits
Diesel		150	121	81	60-120

Approved By: Laryn E. Portuged Date: 5/16/97

LCS/107194 02899PHC.SS1 - TPH±LCS 5/15/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Date Collected: 4/29/97
Date Received: 5/1/97
Date Extracted: 5/13/97
Date Analyzed: 5/13-14/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G

Sample Name	Lab Code	Percent Recovery 1,4-Difluorobenzene
MW-4a-9	K9702899-002	89
MW-3-9	K9702899-005	84
MW-4a-9	K9702899-002MS	98
MW-4a-9	K9702899-002DMS	95
Lab Control Sample	K970514-LCS	115
Method Blank	K970513-MB	80

CAS Acceptance Limits: 48-129

Approved By:

Date: 5/18/97

SURI/111594 02899VOAJGI - GAS4SUR 5/18/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix:

Soil

Service Request: K9702899

Date Collected: 4/29/97

Date Received: 5/1/97

Date Extracted: 5/13/97

Date Analyzed: 5/14/97

Matrix Spike/Duplicate Matrix Spike Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WIPH-G

Units: mg/Kg (ppm)
Dry Weight Basis

Sample Name:

MW-4a-9

Lab Code:

K9702899-002DMS

Percent Recovery

CAS Relative CAS RPD Sample Spike Result Acceptance Percent Acceptance Spike Level Difference Limit MS DMS Result MS **DMS** MS **DMS** Limits Analyte 89 59-135 1 40 Gasoline 63 64 ND 56 56 88

Approved By:

DMS1SRPD/120594 02899VOA.JG1 - DMS1SRPD 5/18/97 Date: 5/18/97

QA/QC Report

Client:

EMCON

Service Request: K9702899

Project:

New City Cleaners/40358-016.004(3)

Date Collected: NA Date Received: NA

LCS Matrix:

Soil

Date Extracted: 5/13/97 Date Analyzed: 5/14/97

Laboratory Control Sample Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: mg/Kg (ppm)

				CAS Percent Recovery	
Analyte	True Value	Result	Percent Recovery	Acceptance Limits	
Gasoline	50	48	96	82-155	

Approved By: LCS/102194

02899VOAJGI - GASaLCS 5/18/97

Date: 5/13/97

0 JT 8

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix:

Soil

Service Request: K9702899

Date Collected: 4/29/97

Date Received: 5/1/97
Date Extracted: NA

Date Analyzed: 5/7/97

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds
EPA Method 8260A
Units: μg/Kg (ppb)
Dry Weight Basis

Sample Name:

02899VOA.LW1 - 8260sDMS 5/14/97

MW-3-27

Lab Code:

K9702899-006MS, K9702899-006DMS

	ŕ					Perc	ent R	ecovery	
	Spike	Level	Sample	Spike	Result			CAS Acceptance	Relative Percent
Analyte	MS	DMS	Result	MS	DMS	MS	DMS	Limits	Difference
1,1-Dichloroethene	62	60	ND	64	64	103	107	51-147	4
Benzene	62	60	ND	63	63	102	105	70-120	3
Trichloroethene (TCE)	62	60	ND	65	64	105	107	60-123	2
Toluene	62	60	ND	63	62	102	103	66-125	<1
Chlorobenzene	62	60	ND	60	59	97	98	64-124	I
1,2-Dichlorobenzene	62	60	ND	57	57	92	95	55-117	3
Naphthalene	62	60	ND	50	56	81	93	13-142	14

QA/QC Report

Client: Project: **EMCON**

LCS Matrix:

Soil

New City Cleaners/40358-016.004(3)

Service Request: K9702899

Date Collected: NA

Date Received: NA Date Extracted: NA

Date Analyzed: 5/7/97

Laboratory Control Sample Summary Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb)

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits
1,1-Dichloroethene	50	47	94	70-130
Benzene	50	47	94	70-130
Trichloroethene	50	49	98	70-130
Toluene	50	48	96	70-130
Chlorobenzene	50	48	96	70-130
1,2-Dichlorobenzene	50	49	98	70-130
Naphthalene	50	53	106	70-130

Approved By:

LCS/060194 02899VOA.LW1 - 8260sLCS 3/14/97

Date:

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702899 Date Collected: 4/29/97

Date Received: 5/1/97 Date Extracted: NA

Date Analyzed: 5/7/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

•		Perce	nt Rec	overy
Sample Name	Lab Code	Dibromofluoromethane	Toluene-d ₈	4-Bromofluorobenzene
MW-4a-17.5	K9702899-003	110	100	100
MW-4a-29	K9702899-004	108	100	100
MW-3-9	K9702899-005	109	101	104
MW-3-27	K9702899-006	110	99	99
MW-3-27	K9702899-006N	IS 102	100	102
MW-3-27	K9702899-006D	MS 104	100	102
Lab Control Sample	K970507-LCS	104	98	99
Method Blank	K970507-MB	103	99	96

CAS Acceptance Limits: 82-122

84-116

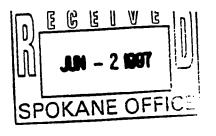
67-129

Date: Approved By:

SUR3/110094 02899VOA.LW1 - 8260sSUR 5/14/97

APPENDIX B CHAIN OF CUSTODY INFORMATION

recd W brollon HOId-DIDLE जकाळादा 🗆 OF. ORGANIC METAL B/INORGANICS REMARKS SAMPLE RECEIPT: RICHARD CRAVENS for Acport Reguirements 9 Chain C JUSI JDI, LABONATONY ANALY SIS REI Shpping VIA Shapong to Condition .o¥ del 4/30/97 PAGE ANALYSIS REQUEST INVOICE INFORMATION: by kg ORGANIC AS STATED IN EMOON'S OAPP. Poe DATE Ž REPORT REQUIREMENTS II. Report (includes DUP MAS. MSD, as required, may be charged as samples) Aromatic V 602/8020_ III. Data Validation Report (includes All Raw Data) IV. CLP Deliverable Report PETROLEUM HCS 1. Routine Report SPECIAL INSTRUCTIONS/COMMENTS: TURNAROUND REQUIREMENTS 24 hr 5 day - Frovide FAX preliminary Results Slandard (10-15 working days) Refer to Provide Verbal Preliminary Requested Report Date 4 6 ىر 4 PHONE (509) 638-1144 PROJECT NAME ALLY CIEMMAS " 40358 - 016 DUM SAMPLE MATRIX Spokane WA 99234 7:05 7106 West Will D. Alter AIR A STAN RECEIVED BY: 7890 LAB LO HECENED/ PROJECT ATTN: Rob L. NJSAN Printed Name SAMPLERS SIGNATURE 17, Chulle Date/Time Date/Time Firm S/ Signature 1005 200 1015 145 1/3067 1040 1055 TIME 110 E 11/20/11 DATE 1400 4250N 101 RELINGUISHED BY: RELINQUISHED BY: -42-17.5 27 29 COMPANY/ADDRESS MW - 4a - 9 2007 MW-4aı SAMPLE Printed Name 120/ mw-4a ととこ Date/Time \ \ \ \ \ Signature 38 MY E



Columbia Analytical Services:::

May 27, 1997

Service Request No: K9702929

Rob Lindsay EMCON 15055 SW Sequoia Parkway, Suite 140 P.O. Box 231269 Portland, OR 97224

Re: New City Cleaners/40358-016.004(3)

Dear Rob:

Enclosed are the results of the sample(s) submitted to our laboratory on May 2, 1997. For your reference, these analyses have been assigned our service request number K9702929.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 243.

Respectfully submitted,

Columbia Analytical Services, Inc.

Richard Craven Project Chemist

RAC/td

Page 1 of

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

J Estimated concentration. The value is less than the method reporting limit, but

greater than the method detection limit.

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a substance

allowed in drinking water as established by the USEPA.

MDL Method Detection Limit

MPN Most Probable Number

MRL Method Reporting Limit

NA Not Applicable

NAN Not Analyzed

NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected at or above the MRL

NIOSH National Institute for Occupational Safety and Health

POL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Analytical Report

lient:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/40358-016.004(3)

Service Request: K9702929 Date Collected: 4/30/97 Date Received: 5/2/97 Date Extracted: NA Date Analyzed: 5/14/97

Carbon, Total Organic ASTM D4129-82 Modified Units: Percent (%) Dry Weight Basis

Sample Name	Lab Code	MRL	Result
MW-2-12.5	K9702929-005	0.05	0.08
MW-2-27	K9702929-006	0.05	0.05
Method Blank	K9702929-MB	0.05	ND

Approved By:

IAMRL/102594 02929WET.LJI - TOCS 5/16/97 Date: 5/16197

0.0.0.03

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix:

Soil

Service Request: K9702929

Date Collected: 5/1/97

Date Received: 5/2/97

Date Extracted: 5/9/97

Date Analyzed: 5/14,15/97

Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Units: mg/Kg (ppm) Dry Weight Basis

	Analyte: Method Reporting Limit:	Diesel 25	Oil* 100
Sample Name	Lab Code		
MW-1-7	K9702929-001	ND	ND
MW-2-7	K9702929-004	ND	ND
MW-10-7	K9702929-007	ND	ND
Method Blank	K970509-MB	ND	ND

Quantified using 30-weight motor oil as a standard.

Approved By: MMarthe

2A/102004 02929PHC.SSI - TPHs 5/15/97

_ Date: <u>5/19/47</u>

0-0-004

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702929

Date Collected: 4/30-5/1/97

Date Received: 5/2/97

Date Extracted: 5/13/97 Date Analyzed: 5/13/97

Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: mg/Kg (ppm) Dry Weight Basis

Sample Name	Lab Code	MRL	Result
MW-1-7	K9702929-001	5	ND
MW-2-7	K9702929-004	5	ND
MW-10-7	K9702929-007	5	ND
Method Blank	K970513-MB	5	ND

Approved By:

IAMRL/102594 02929VOAJGI - GASs 5/18/97

5/18/97 Date: ____

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702929 **Date Collected: 4/30-5/1/97** Date Received: 5/2/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

			Sample Name: Lab Code: Date Analyzed:	MW-1-7 K9702929-001(C) 5/8/97	MW-1-27 K9702929-003 5/7/97	MW-2-12.5 K9702929-005 5/8/97
	Analyte	MRL	•			
	Dichlorodifluoromethane (CFC 12)	5		<35	ND	ND
	Chloromethane	5		<35	ND	ND
	Vinyl Chloride	5		<35	ND	ND
	Bromomethane	5		<35	ND	ND
	Chloroethane	5		<35	ND	ND
	Trichlorofluoromethane (CFC 11)	5		<35	ND	ND
	Acetone	50		<350	ND	ND
	1,1-Dichloroethene	5		<35	ND	ND
	Carbon Disulfide	5		<35	ND	ND
	Methylene Chloride	10		<70	ND	ND
	trans-1,2-Dichloroethene	5		<35	ND	ND
	1,1-Dichloroethane	5		<35	ND	ND
	2-Butanone (MEK)	20		<140	ND	ND
	2,2-Dichloropropane	5		<35	ND	ND
	cis-1,2-Dichloroethene	5		<35	ND	ND
	Chloroform	5		<35	ND	ND
	Bromochloromethane	5		<35	ND	ND
	1,1,1-Trichloroethane (TCA)	5		<35	ND	ND
	1,1-Dichloropropene	5		<35	ND	ND
	Carbon Tetrachloride	5		<35	ND	ND
	1,2-Dichloroethane	5		<35	ND	ND
X	Benzene	5		<35	ND	ND
	Trichloroethene (TCE)	5 5 5		90	ND	ND
	1,2-Dichloropropane	5		<35	ND	ND
	Bromodichloromethane	5		<35	ND	ND
	Dibromomethane	5		<35	ND	ND
	2-Hexanone	20		<140	ND	ND ND
	cis-1,3-Dichloropropene	5		<35	ND	ND ND
X	Toluene	5		<35	ND	
	trans-1,3-Dichloropropene	5		<35	ND	ND ND
	1,1,2-Trichloroethane	5		<35	ND	ND
	4-Methyl-2-pentanone (MIBK)	20		<140	ND	ND ND
	1,3-Dichloropropane	5		<35	ND	מא

The MRL is elevated because the sample required diluting.

Approved By: 02929VOALWI - 8260s 5/22/97

С

Date: _

099:06

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702929 Date Collected: 4/30-5/1/97

Date Received: 5/2/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	MW-1-7 K9702929-001(C) 5/8/97	MW-1-27 K9702929-003 5/7/97	MW-2-12.5 K9702929-005 5/8/97
Analyte	MRL				
Tetrachloroethene (PCE)	5		4400	ND	68
Dibromochloromethane	5		<35	ND	ND
1,2-Dibromoethane (EDB)	20		<140	ND	ND
Chlorobenzene	5		<35	ND	ND
1,1,1,2-Tetrachloroethane	5		<35	ND	ND
✗ Ethylbenzene	5		<35	ND	ND
X Total Xylenes	5		<35	ND	ND
Styrene	5		<35	ND	ND
Bromoform	5		<35	ND	ND
Isopropylbenzene	20		<140	ND	ND
1,1,2,2-Tetrachloroethane	5		<35	ND	ND
1,2,3-Trichloropropane	5		<35	ND	ND
Bromobenzene	5		<35	ND	ND
n -Propylbenzene	20		<140	ND	ND
2-Chlorotoluene	20		<140	ND	ND
4-Chlorotoluene	20		<140	ND	ND
1,3,5-Trimethylbenzene	20		<140	ND	ND
tert -Butylbenzene	20		<140	ND	ND
1,2,4-Trimethylbenzene	20		<140	ND	ND
sec -Butylbenzene	20		<140	ND	ND
1,3-Dichlorobenzene	5		<35	ND	ND
4-Isopropyltoluene	20		<140	ND	ND
1,4-Dichlorobenzene	5		<35	ND	ND
n -Butylbenzene	20		<140	ND	ND
1,2-Dichlorobenzene	5		<35	ND	ND
1,2-Dibromo-3-chloropropane (D	BCP) 20		<140	ND	ND
1,2,4-Trichlorobenzene	20		<140	ND	ND
1,2,3-Trichlorobenzene	20		<140	ND	ND
Naphthalene	20		<140	ND	ND
Hexachlorobutadiene	20		<140	ND	ND

The MRL is elevated because the sample required diluting.

Approved By:

3S2P/101894

C

DH Note 72497

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702929

Date Collected: 4/30-5/1/97

Date Received: 5/2/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	MW-2-27 K9702929-006 5/8/97	MW-10-12.5 K9702929-008 5/8/97	MW-10-27 K9702929-009 5/8/97
Analyte	MRL	<i>5, 6, 5</i> .	2,0,2	
Dichlorodifluoromethane (CFC 12)	5	ND	ND	ND
Chloromethane	5	ND	ND	ND .
Vinyl Chloride	5	ND	ND	ND
Bromomethane	5	ND	ND	ND
Chloroethane	5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	5	ND	ND	ND
Acetone	50	ND	ND	ND
1,1-Dichloroethene	5	ND	ND	ND
Carbon Disulfide	5	ND	ND	ND
Methylene Chloride	10	ND	ND	ND
trans-1,2-Dichloroethene	5	ND	ND	ND
1,1-Dichloroethane	5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	5	ND	ND	ND
cis-1,2-Dichloroethene	5	ND	ND	ND
Chloroform	5	ND	ND	ND
Bromochloromethane	5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	5	ND	ND	ND
1,1-Dichloropropene	5	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND
1,2-Dichloroethane	5	ND	ND	ND
Benzene	5	ND	ND	ND
Trichloroethene (TCE)	5	ND	ND	ND
1,2-Dichloropropane	5	ND	ND	ND
Bromodichloromethane	5	ND	ND	ND
Dibromomethane	5	ND	ND	ND
2-Hexanone	20	ND	ND	ND
cis-1,3-Dichloropropene	5	ND	ND	ND ND
Toluene	5	ND	ND	ND ND
trans-1,3-Dichloropropene	5	ND	ND	ND ND
1,1,2-Trichloroethane	5	ND	ND	ND ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND ND	ND ND
1,3-Dichloropropane	5	ND	שא	110

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Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/40358-016.004(3)

Date Collected: 4/30-5/1/97 Date Received: 5/2/97 Date Extracted: NA

Service Request: K9702929

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name:	MW-2-27	MW-10-12.5	MW-10-27
	Lab Code:	K9702929-006	K9702929-008	K9702929-009
	Date Analyzed:	5/8/97	5/8/97	5/8/97
Analyte MR	L			
Tetrachloroethene (PCE) 5		6	16	6
Dibromochloromethane 5		ND	ND	ND
1,2-Dibromoethane (EDB) 20		ND	ND	ND
Chlorobenzene 5		ND	ND	ND
1,1,1,2-Tetrachloroethane 5		ND	ND	ND
Ethylbenzene 5		ND	ND	ND
Total Xylenes 5		ND	ND	ND
Styrene 5		ND	ND	ND
Bromoform 5		ND	ND	ND
Isopropylbenzene 20		ND	ND	ND
1,1,2,2-Tetrachloroethane 5		ND	ND	ND
1,2,3-Trichloropropane 5		ND	ND	ND
Bromobenzene 5		ND	ND	ND
<i>n</i> -Propylbenzene 20		ND	ND	ND
2-Chlorotoluene 20		ND	ND	ND
4-Chlorotoluene 20		ND	ND	ND
1,3,5-Trimethylbenzene 20		ND	ND	ND
tert -Butylbenzene 20		ND	ND	ND
1,2,4-Trimethylbenzene 20		ND	ND	ND
sec -Butylbenzene 20		ND	ND	ND
1,3-Dichlorobenzene 5		ND	ND	ND
4-Isopropyltoluene 20		ND	ND	ND
1,4-Dichlorobenzene 5		ND	ND	ND
<i>n</i> -Butylbenzene 20		ND	ND	ND
1,2-Dichlorobenzene 5		ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP) 20		ND	ND	ND
1,2,4-Trichlorobenzene 20		ND	ND	ND
1,2,3-Trichlorobenzene 20		ND	ND	ND
Naphthaiene 20		ND	ND	ND
Hexachlorobutadiene 20		ND	ND	ND

Approved By:

3S2P/101894

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702929

Date Collected: NA
Date Received: NA
Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	Method Blank K970507-MB 5/7/97	Method Blank K970508-MB 5/8/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	5		ND	ND
Chloromethane	5		ND	ND
Vinyl Chloride	5		ND	ND
Bromomethane	5		ND	ND
Chloroethane	5		ND	ND
Trichlorofluoromethane (CFC 11)	5		ND	ND
Acetone	50		ND	ND
1,1-Dichloroethene	5		ND	ND
Carbon Disulfide	5		ND	ND
Methylene Chloride	10		ND	ND
trans-1,2-Dichloroethene	5		ND	ND
1,1-Dichloroethane	5		ND	ND
2-Butanone (MEK)	20		ND	ND ND
2,2-Dichloropropane	5		ND ND	ND ND
cis-1,2-Dichloroethene	5 5		ND ND	ND ND
Chloroform	5		ND	ND
Bromochloromethane	5		ND	ND
1,1,1-Trichloroethane (TCA) 1,1-Dichloropropene	5		ND	ND
Carbon Tetrachloride	5		ND	ND
1,2-Dichloroethane	5		ND	ND
Benzene	5		ND	ND
Trichloroethene (TCE)	5		ND	ND
1,2-Dichloropropane	5		ND	ND
Bromodichloromethane	5		ND	ND
Dibromomethane	5		ND	ND
2-Hexanone	20		ND	ND
cis-1,3-Dichloropropene	5		ND	ND
Toluene	5		ND	ND
trans-1,3-Dichloropropene	5		ND	ND
1,1,2-Trichloroethane	5		ND	ND
4-Methyl-2-pentanone (MIBK)	20		ND	ND
1,3-Dichloropropane	5		ND	ND

Approved By: 02929VOA.LWI - 8260s (3) 5/22/97

Jeff Stores

Date: 5/07/9/

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/40358-016.004(3)

Service Request: K9702929

Date Collected: NA Date Received: NA Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name Lab Code Date Analyzed	: K970507-MB	Method Blank K970508-MB 5/8/97
Analyte	MRL		
Tetrachloroethene (PCE)	5	ND	ND
Dibromochloromethane	5	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND
Chlorobenzene	5	ND	ND
1,1,1,2-Tetrachloroethane	5 5 5 5	ND	ND
Ethylbenzene	5	ND	ND
Total Xylenes	5	ND	ND
Styrene		ND	ND
Bromoform	5	ND	ND
Isopropyibenzene	2 0	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND
1,2,3-Trichloropropane	5 5 5	ND	ND
Bromobenzene		ND	ND
n -Propylbenzene	20	ND	ND
2-Chlorotoluene	20	ND	ND
4-Chlorotoluene	20	ND	ND
1,3,5-Trimethylbenzene	20	ND	ND
tert -Butylbenzene	20	ND	ND
1,2,4-Trimethylbenzene	20	ND	ND
sec -Butylbenzene	20	ND	ND
1,3-Dichlorobenzene	5	ND	ND
4-Isopropyltoluene	20	ND	ND
1,4-Dichlorobenzene	5	ND	ND
n -Butylbenzene	20	ND	ND
1,2-Dichlorobenzene	5	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND
Naphthalene	20	ND	ND
Hexachlorobutadiene	20	ND	ND

Approved By:	DY1	Stept 1	Date:	5/2497	,
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Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702929

Date Collected: 4/30-5/1/97

Date Received: 5/2/97

Date Extracted: 5/15/97

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	MW-1-17.5 K9702929-002(C) 5/15/97	Method Blank K970515-MB 5/15/97
Analyte	MRL	,		
Dichlorodifluoromethane (CFC 12)	5		<60	<50
Chloromethane	5		<60	<50
Vinyl Chloride	5		<60	<50
Bromomethane	5		<60	<50
Chloroethane	5		<60	<50
Trichlorofluoromethane (CFC 11)	5		<60	<50
Acetone	50		<2400	<2000
1,1-Dichloroethene	5		<60	<50
Carbon Disulfide	5		<60	<50
Methylene Chloride	10		<120	<100
trans-1,2-Dichloroethene	5		<60	<50
1,1-Dichloroethane	5		<60	<50
2-Butanone (MEK)	20		<2400	<2000
2,2-Dichloropropane	5		<60	<50
cis-1,2-Dichloroethene	5		<60	<50
Chloroform	5		<60	<50
Bromochloromethane	5 5		<60	<50
1,1,1-Trichloroethane (TCA)			<60	<50
1,1-Dichloropropene	5		<60	<50
Carbon Tetrachloride	5 5 5		<60	<50
1,2-Dichloroethane	5		<60	<50
Benzene	5		<60	<50
Trichloroethene (TCE)	5		<60	<50
1,2-Dichloropropane	5		<60	<50
Bromodichloromethane	5		<60	<50
Dibromomethane	5		<60	<50
2-Hexanone	20		<2400	<2000
cis-1,3-Dichloropropene	5		<60	<50
Toluene	5		<60	<50
trans -1,3-Dichloropropene	5		<60	<50
1,1,2-Trichloroethane	5		<60	<50
4-Methyl-2-pentanone (MIBK)	20		<2400	<2000
1,3-Dichloropropane	5		<60	<50

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The MRL is elevated because the sample required diluting.

 Jet Matriff

Date: 5/22/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702929 Date Collected: 4/30-5/1/97

Date Received: 5/2/97
Date Extracted: 5/15/97

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	I	Sample Name: Lab Code: Date Analyzed:	MW-1-17.5 K9702929-002(C) 5/15/97	Method Blank K970515-MB 5/15/97
Analyte	MRL			
Tetrachloroethene (PCE)	5		95	<50
Dibromochloromethane	5		<60	<50
1,2-Dibromoethane (EDB)	20		<240	<200
Chlorobenzene	5		<60	<50
1,1,1,2-Tetrachloroethane	5 5 5 5		<60	<50
Ethylbenzene	5		<60	<50
Total Xylenes	5		<60	<50
Styrene	5		<60	<50
Bromoform	5		<60	<50
Isopropylbenzene	20		<240	<200
1,1,2,2-Tetrachloroethane	5		<60	<50
1,2,3-Trichloropropane	5 5 5		<60	<50
Bromobenzene	5		<60	<50
<i>n</i> -Propylbenzene	20		<240	<200
2-Chlorotoluene	20		<240	<200
4-Chlorotoluene	20		<240	<200
1,3,5-Trimethylbenzene	20		<240	<200
tert -Butylbenzene	20		<240	<200
1,2,4-Trimethylbenzene	20		<240	<200
sec -Butylbenzene	20		<240	<200
1,3-Dichlorobenzene	5		<60	<50
4-Isopropyltoluene	20		<240	<200
1,4-Dichlorobenzene	5		<60	<50
n-Butylbenzene	20		<240	<200
1,2-Dichlorobenzene	5		<60	<50
1,2-Dibromo-3-chloropropane (DBCP)	20		<240	<200
1,2,4-Trichlorobenzene	20		<240	<200
1,2,3-Trichlorobenzene	20		<240	<200
Naphthalene	20		<240	<200
Hexachlorobutadiene	20		<240	<200

The MRL is elevated because the sample required diluting.

Approved By: _

3S2P/101894

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JUH STRAFF

Date: 70997

02929VOA.LW1 - 8260s (4) 5/22/97

APPENDIX A LABORATORY QC RESULTS

QA/QC Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/40358-016.004(3)

Date Collected: 4/30/97 Date Received: 5/2/97 Date Extracted: NA Date Analyzed: 5/14/97

Service Request: K9702929

Duplicate Summary Carbon, Total Organic ASTM D4129-82 Modified Units: Percent (%) Dry Weight Basis

				Duplicate		Relative	
Sample Name	Lab Code	MRL	Sample Result	Sample Result	Average	Percent Difference	
MW-2-12.5	K9702929-005D	0.05	0.08	0.08	0.08	< 1	

Date: 5/16/97 Approved By:

DUP1A/102194 02929WET.LJ1 - TOCDS 5/16/97

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QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702929

Date Collected: 4/30/97

Date Received: 5/2/97
Date Extracted: NA
Date Analyzed: 2/14/97

Matrix Spike Summary Carbon, Total Organic ASTM D4129-82 Modified Units: Percent (%) Dry Weight Basis

CAS Percent Spiked Recovery Spike Sample Sample Percent Acceptance MRL Level Result Result Recovery Limits Sample Name Lab Code 80.0 75-125 0.05 2.49 2.66 104 MW-2-12.5 K9702929-005MS

Approved By: MSIA/102194 O2929WET.LJI - TOCMW 5/16/97

DI

Date: 5/16/97

QA/QC Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/40358-016.004(3)

Service Request: K9702929

Date Collected: 5/1/97

Date Received: 5/2/97

Date Extracted: 5/9/97 **Date Analyzed:** 5/14,15/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Sample Name	Lab Code	Percent Recovery o-Terphenyl
MW-1-7	K9702929-001	97
MW-2-7	K9702929-004	7 9
MW-10-7	K9702929-007	108
MW-2-7	K9702929-004MS	86
MW-2-7	K9702929-004DMS	93
Lab Control Sample	K970509-LCS	89
Method Blank	K970509-MB	77

CAS Acceptance Limits: 56-116

Approved By: M Marthe

Date: 5/19/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix:

Soil

Service Request: K9702929

Date Collected: 5/1/97

Date Received: 5/2/97

Date Extracted: 5/9/97

Date Analyzed: 5/15/97

Matrix Spike/Duplicate Matrix Spike Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Units: mg/Kg (ppm)
Dry Weight Basis

Sample Name:

MW-2-7

Lab Code:

K9702929-004DMS

Percent Recovery

CAS Relative **CAS RPD** Acceptance Percent Acceptance Sample Spike Result Spike Level Limit Limits Difference Result **DMS** DMS Analyte MS **DMS** MS MS 40 76 19-145 10 ND 160 84 190 160 Diesel 210

Approved By: MManthe

Date: 5/19/97

DM&MAPARCHER 19-4TPHsDMS 5/15/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

LCS Matrix:

Soil

Service Request: K9702929

Date Collected: NA

Date Received: NA
Date Extracted: 5/9/97

Date Analyzed: 5/14/97

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons as Diesel and Oil
Washington DOE Method WTPH-D
Units: mg/Kg (ppm)

	True		Percent	CAS Percent Recovery Acceptance
Analyte	Value	Result	Recovery	Limits
Diesel	150	121	81	60 -12 0

Approved By: MWahtle

____ Date: <u>5/19/97</u>

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix:

Soil

Service Request: K9702929

Date Collected: 4/30-5/1/97

Date Received: 5/2/97

Date Extracted: 5/13/97

Date Analyzed: 5/14/97

Matrix Spike/Duplicate Matrix Spike Summary
Total Petroleum Hydrocarbons as Gasoline
Washington DOE Method WTPH-G
Units: mg/Kg (ppm)
Dry Weight Basis

Sample Name:

MW-1-7

Lab Code:

K9702929-001MS, K9702929-001DMS

Percent Recovery

	Spike	e Level	Sample	Spike	: Result	reit	ent r	CAS Acceptance	Relative	CAS RPD Acceptance
Analyte	MS	DMS	Result	MS	DMS	MS	DMS	Limits	Difference	Limit
Gasoline	63	64	ND	58	51	92	79	59-135	15	40

DMS1SRPD/120594 02929VOA.JG1 - DMS1SRPD 5/18/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

LCS Matrix:

Soil

Service Request: K9702929

Date Collected: NA

Date Received: NA

Date Extracted: 5/13/97
Date Analyzed: 5/14/97

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons as Gasoline
Washington DOE Method WTPH-G
Units: mg/Kg (ppm)

				Percent
Analyte	True Value	Result	Percent Recovery	Recovery Acceptance Limits
Gasoline	50	48	96	82-155

Approved By: LCS/102194

Date: 5/18/57

02929VOA.JG1 - GASsLCS 5/18/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702929

Date Collected: 4/30-5/1/97

Date Received: 5/2/97

Date Extracted: 5/13/97

Date Extracted: 5/13/97
Date Analyzed: 5/13-14/97

Surrogate Recovery Summary
Total Petroleum Hydrocarbons as Gasoline
Washington DOE Method WTPH-G

a 1 W	Y -1- O-1-	Percent Recovery
Sample Name	Lab Code	1,4-Difluorobenzene
MW-1-7	K9702929-001	94
MW-2-7	K9702929-004	8 9
MW-10-7	K 9702929-007	87
MW-1-7	K9702929-001MS	102
MW-1-7	K9702929-001DMS	100
Lab Control Sample	K970513-LCS	115
Method Blank	K970513-MB	106

CAS Acceptance Limits: 48-129

Approved By:

SUR1/111594 02929VOA.JG1 - GAS4SUR 5/18/97 Date: 5/18/97

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QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix:

Soil

Service Request: K9702929

Date Collected: 5/1/97
Date Received: 5/2/97

Date Extracted: NA
Date Analyzed: 5/7/97

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds
EPA Method 8260A
Units: µg/Kg (ppb)
Dry Weight Basis

Sample Name:

MW-1-27

Lab Code:

K9702929-003MS, K9702929-003DMS

Lab Codo.	165702525 003	1110, 11	,,,,,,,				Percent Recovery			
		Spike	: Level	Sample	Spike	Result			CAS Acceptance	Relative Percent
Analyte		MS	DMS	Result	MS	DMS	MS	DMS	Limits	Difference
1,1-Dichloroethene	2	57	57	ND	65	64	114	112	51-147	2
Benzene		57	57	ND	63	63	111	111	70-120	<1
Trichloroethene (T	CE)	57	57	ND	65	64	114	112	60-123	2
Toluene		57	57	ND	62	61	109	107	66-125	2
Chlorobenzene		57	57	ND	61	60	107	105	64-124	2
1,2-Dichlorobenze	пе	57	57	ND	58	58	102	102	55-117	<1
Naphthalene		57	57	ND	57	55	100	96	13-142	4

Approved By: Date: 93497

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

LCS Matrix:

Soil

Service Request: K9702929

Date Collected: NA
Date Received: NA

Date Extracted: NA
Date Analyzed: 5/7/97

Laboratory Control Sample Summary Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb)

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits
1,1-Dichloroethene	50	47	94	70-130
Benzene	50	47	94	70-130
Trichloroethene	50	49	98	70-130
Toluene	50	48	96	70-130
Chlorobenzene	50	48	96	70-130
1,2-Dichlorobenzene	50	49	98	70-130
Naphthalene	50	53	106	70-130

Approved By:

LCS/060194 02929VOA.LW1 - 8260sLCS 5/22/97 Jeff Tital

QA/QC Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/40358-016.004(3)

Date Collected: 4/30-5/1/97 Date Received: 5/2/97 Date Extracted: NA Date Analyzed: 5/7-8/97

Service Request: K9702929

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

		Percen	t Rec	overy
Sample Name	Lab Code	Dibromofluoromethane	Toluene-d ₈	4-Bromofluorobenzene
MW-1-7	K9702929-001	108	100	100
MW-1-27	K9702929-003	108	100	98
MW-2-12.5	K9702929-005	107	100	96
MW-2-27	K9702929-006	110	100	99
MW-10-12.5	K9702929-008	110	99	97
MW-10-27	K9702929-009	109	102	100
MW-1-27	K9702929-003MS	104	98	99
MW-1-27	K9702929-003DN	1S 102	98	99
Lab Control Sample	K970507-LCS	104	98	99
Method Blank	K970507-MB	103	99	96
Method Blank	K970508-MB	103	99	94

CAS Acceptance Limits:

82-122

84-116

67-129

Approved By:

SUR3/110094 02929VOA.LW1 - 8260sSUR 5/22/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

a in

Service Request: K9702929

Date Collected: 4/30-5/1/97

Date Received: 5/2/97

Date Extracted: 5/15/97
Date Analyzed: 5/15/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

Percent Recovery

Sample Name	Lab Code	Dibromofluoromethane		•
MW-1-17.5	K9702929-002 K970515-MB	99 101	100 97	96 92
Method Blank	WA10212-MD	101	91	72

CAS Acceptance Limits:

82-122

84-116

67-129

Approved By: Date: 5/2487

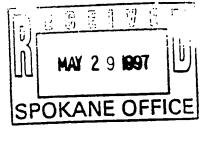
SURJ/110094 02929VOA.LWI - 8260sSUR (2) 5/22/97

APPENDIX B CHAIN OF CUSTODY INFORMATION

Jucou (iii)

CHAIN 'CUSTODY/LABORATORY ANALYSIS REP IT FORM

ı					DATE	N N	164		PAGE		0r	
					ANA	LYSIS	ANALYSIS REQUEST	EST				
_	PROJECT NAME NCW CITY CLEANERS # 40355-016, COY (3)	\Box	PET	PETROLEUM HCS	Ĭ	ORGANIC	2	ORG	ORGANIC M	METAL	S/INOR	S/INORGANICS
-	PROJECT ATTW RUB LINASTY			P73	Se//IF	/ /	//		/ /	જ્		/
	COMPANY/ADDRESS FIDE WEST WILL PAINE		<u></u>	217 J	000	s	<u></u>	~	<u></u>	، بدلاً.	~	_
		IATM	_ `	<i></i>	200	_	=	_	\$Q\(\frac{1}{2}\)		78°	_
	PHONE(509) 838-1144		/ /8 /	01 VA	10 0 10 0 10 0	Sp	ັດຄ		POS		<u></u>	
	SAMPLERS SIGNATURE J. Mullelle Gon	IO HEE	720	Olher	OT OT OF	0 807	7271	- Ac	(9) , (CO) N (CO) NO3 ((C) NO3 ((C)	$\sim \nu$	<u></u>	CRYNANA
L	SAMPLE LAB SAMPLE I.D. MATRIX	MUN	APT ABIS	60109 H3108	W/J5 Pases	HAG	alot Melak	CYani Cyani Metal	NON 1			REMARKS
	MW-1-7 5/197 0830 KRR9-1 So,	7	X							X		
	MW-1-175 1 0845 -2 1	κ							14	麦	1110	010
1	MW-1.27 & 0915 3	く								X	•	
—-;ч	MW-3-7 1130/97 15/5 4	હ	×									
	MW.3-13.5 / 1535 5	جح.								λ		
1	MW- 2-37 / 1610 6	8			!					X		
1	7 124c 7	ኅ	$\times \times$									
	MW-10-12.5 1215 8	ત								X		
(MW-10-27 V 1230 9 V	ત								X		
	BY: RECEIVED BY:	TURNAROUND REQUIREMENTS	REQUIREMENTS	REPORT REQUIREMENTS	ENTS	INVOI	INVOICE INFORMATION:	ATION:		SAM	SAMPLE RECEIPT	PT:
_	Sonature Sonature	100	underno dayes	II Record (includes DLIP MAS		P.O.			Shoons VIA	· AIA		
	ame 6 47.501	Provide Verbal Preliminary	Preliminary	MSD, as required, may be charged as samples)		BH 70			or Bunddhus	9 9 9		
	Film 51.14 × 1330 Film 51.2 67 1018	Hesults Frovide FAX pre	nesulis Provide FAX preliminary Results	III. Data Validation Report (includes All Raw Data)	ارة الارة الارة				Condition	\ <u>\</u>		{
	Date/Time	Requested Report Date		IV. CLP Deliverable Report	<u></u> -				Lab No	4	100	77
	RELINQUISHED BY:	SPECIAL INSTRUCTIONS/COMMENTS:	OCTIONS/CO				3			,		
	Signature Signature	Reter	2	Richard C	CRARNS		ر کا ح	- را،	2	,	(
	Printed Name Printed Name	pegui	Reguirements	ts as stated		, 5	EMCON	5,20		54 F1	5	
0.0	Firm											-
02	Date/Time Date/Time											
ত্র			Ç							•	(





May 27, 1997

Service Request No: K9702981

Rob Lindsay EMCON W 7106 Will D. Alton Lane, Suite 101 Spokane, WA 99204-5760

Re: New City Cleaners/40358-016.004(3)

Dear Rob:

Enclosed are the results of the sample(s) submitted to our laboratory on May 5, 1997. For your reference, these analyses have been assigned our service request number K9702981.

A volatile surrogate in sample SB-1-12.5 was outside acceptance criteria due to matrix interference.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 243.

Respectfully submitted,

Columbia Analytical Services, Inc.

Richard Craven Project Chemist

RAC/mc

Page 1 of 21

4947 Carab 494b 4...... - B.O. Barr 470 - Malka Washinana 08494 - Talaahaaa 940/577 7999 - Fav 940/494 4048

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

J Estimated concentration. The value is less than the method reporting limit, but

greater than the method detection limit.

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a

substance allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable

NAN Not Analyzed

NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected at or above the MRL

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater 0.0002

than or equal to the MDL.

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702981

Date Collected: 5/1/97

Date Received: 5/5/97

Date Extracted: NA Date Analyzed: 5/16/97

Carbon, Total Organic ASTM D4129-82 Modified Units: Percent (%)

Dry Weight Basis

Sample Name	Lab Code	MRL	Result
SB-2-35	K9702981-003	0.05	0.15
Method Blank	K9702981-MB	0.05	ND

Approved By: IAMRL/102594 02981WET.LJI - TOCS 5/20/97

5/20197 Date: ___

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix:

Soil

Service Request: K9702981

Date Collected: 5/1/97

Date Received: 5/5/97

Date Extracted: 5/6,8,14/97

Date Analyzed: 5/9,12,13,20/97

Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D Units: mg/Kg (ppm) Dry Weight Basis

	Analyte:	Diesel	Oil*
	Method Reporting Limit:	25	100
Sample Name	Lab Code		
SB-2-7	K9702981-001	70(b)	303
SB-2-9	K9702981-002	ND	ND
SB-1-7	K9702981-004(a)	1040	1450
SB-1-9	K9702981-005	ND	ND
Method Blank 5/6/97	K9702981-MB	ND	ND
Method Blank 5/8/97	K9702981-MB	ND	ND
Method Blank 5/14/97	K9702981-MB	ND	ND

•	Quantified using 30-weight motor oil as a standard.
(a)	Quantified as diesel/oil. The sample contained components that eluted in the diesel/oil range, but the
•	chromatogram did not match the typical diesel/oil fingerprint.
(b)	This result is primarily due to the beginning of oil, which elutes in the diesel region.

Approved By:	Ste	Date: 5/27/5)
2A/102094		

0.004

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix:

Soil

Service Request: K9702981

Date Collected: 5/1/97

Date Received: 5/5/97

Date Extracted: 5/7/97

Date Analyzed: 5/7/97

Total Petroleum Hydrocarbons as Gasoline EPA Methods 5030A and Washington DOE Method WTPH-G

Units: mg/Kg (ppm) Dry Weight Basis

TPH as

Analyte:

Gasoline

Method Reporting Limit:

5

Sample Name	Lab Code	•
SB-2-7	K9702981-001	ND
SB-2-9	K9702981-002	ND
SB-1-7	K9702981-004	8(a)
SB-1-9	K9702981-005	ND
Method Blank	K9702981-MB	ND

Quantified as gas. The sample contained components that eluted in the gas range, but the chromatogram did not match the typical gas fingerprint.

Approved By: __

02981PHC.DJ1 - GBTXs 5/22/97

(a)

SA/102194

__ Date: __5/2>/5>

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702981 Date Collected: 5/1/97

Date Received: 5/5/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb)
Dry Weight Basis

	Sample Name:	SB-2-9	SB-2-35	SB-1-12.5
	Lab Code:	K9702981-002(C)	K9702981-003	K9702981-006(D)
	Date Analyzed:	5/9/97	5/9/97	5/9/97
Analyte	MRL			
· ·		<30	ND	<30
Dichlorodifluoromethane (CFC 12)	5 5	<30	ND	<30
Chloromethane	5	<30 <30	ND	<30
Vinyl Chloride	5	<30	ND	<30
Bromomethane	5	<30 <30	ND	<30
Chloroethane	5	<30 <30	ND	<30 <30
Trichlorofluoromethane (CFC 11)		<300	ND	<300
Acetone	50	<30	ND	<30
1,1-Dichloroethene	5	<30 <30	ND	<30 <30
Carbon Disulfide	5	<60	ND ND	<60
Methylene Chloride	10	<30	ND ND	<30 (
trans -1,2-Dichloroethene	5	<30 <30	ND ND	<30
1,1-Dichloroethane	5	<120	ND ND	<120
2-Butanone (MEK)	20	<30	ND ND	<30
2,2-Dichloropropane	5	<30 <30	ND ND	560 /
cis-1,2-Dichloroethene	5	<30 <30	ND ND	<30
Chloroform	5		ND ND	<30 <30
Bromochloromethane	5	<30 <30	ND ND	<30 <30
1, 1, 1-Trichloroethane (TCA)	. 5		ND ND	<30 <30
1,1-Dichloropropene	5	<30	ND ND	<30 <30
Carbon Tetrachloride	5	<30		<30 <30
1,2-Dichloroethane	5	<30	ND	
Benzene	5	<30	ND	<30 350 —
Trichloroethene (TCE)	5	<30	ND	
1,2-Dichloropropane	5	<30	ND	.<30 <30
Bromodichloromethane	5	<30	ND	<30 <30
Dibromomethane	5	<30	ND	<120
2-Hexanone	20	<120	ND	<30
cis -1,3-Dichloropropene	5	<30	ND	
Toluene	5	<30	ND	<30
trans-1,3-Dichloropropene	5	<30	ND	<30
1,1,2-Trichloroethane	5	<30	ND	<30
4-Methyl-2-pentanone (MIBK)	20	<120	ND	<120
1,3-Dichloropropane	5	<30	ND	<30

C The MRL	is elevated because th	e sample required d	iluting
-----------	------------------------	---------------------	---------

Approved By:	;	Nathan	Thysee	Da	te: <u>5/21/97</u>

The MRL is elevated because of matrix interferences and because the sample required diluting. D

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702981

Date Collected: 5/1/97

Date Received: 5/5/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	SB-2-9 K9702981-002(C) 5/9/97	SB-2-35 K9702981-003 5/9/97	SB-1-12.5 K9702981-006(D) 5/9/97
Analyte	MRL			
Tetrachloroethene (PCE)	5	1500	ND	<30
Dibromochloromethane	5	<30	ND	<30
1,2-Dibromoethane (EDB)	20	<120	ND	<120
Chlorobenzene	5	<30	ND	<30
1,1,1,2-Tetrachloroethane	5	<30	ND	<30
Ethylbenzene	5	<30	ND	<30
Total Xylenes	5	<30	ND	<30
Styrene	5	<30	ND	<30
Bromoform	5	<30	ND	<30
Isopropylbenzene	20	<120	ND	<120
1,1,2,2-Tetrachloroethane	5	<30	ND	<30
I,2,3-Trichloropropane	5	<30	ND	<30
Bromobenzene	5	<30	ND	<30
n-Propylbenzene	20	<120	ND	<120
2-Chlorotoluene	20	<120	ND	<120
4-Chlorotoluene	20	<120	ND	<120
1,3,5-Trimethylbenzene	20	<120	ND	180
tert -Butylbenzene	20	<120	ND	<120
1,2,4-Trimethylbenzene	20	<120	ND	430 —
sec -Butylbenzene	20	<120	ND	180~
1,3-Dichlorobenzene	5	<30	ND	<30
4-Isopropyltoluene	20	<120	ND	190-
1,4-Dichlorobenzene	5	<30	ND	<30
n-Butylbenzene	20	<120	ND	150~
1,2-Dichlorobenzene	5	<30	ND	<30
1,2-Dibromo-3-chloropropane (DBCP)	20	<120	ND	<120
1,2,4-Trichlorobenzene	20	<120	ND	<120
1,2,3-Trichlorobenzene	20	<120	ND	<120
Naphthalene	20	<120	ND	<120
Hexachlorobutadiene	20	<120	ND	<120

C

The MRL is elevated because the sample required diluting.

D

The MRL is elevated because of matrix interferences and because the sample required diluting.

Approved By: _

3S2P/101894

Matter Hydle

Date: <u>5/3//97</u>

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702981 Date Collected: 5/1/97

Date Received: 5/5/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

		Sample Name: Lab Code: Date Analyzed:	SB-1-40 K9702981-007 5/12/97	Method Blank K970509-MB 5/9/97	Method Blank K970512-MB 5/12/97
Analyte	MRL				
Dichlorodifluoromethane (CFC 12)	5		ND	ND	ND
Chloromethane	5		ND	ND	ND
Vinyl Chloride	5		ND	ND	ND
Bromomethane	5		ND	ND	ND
Chloroethane	5		ND	ND	ND
Trichlorofluoromethane (CFC 11)	5		ND	ND	ND
Acetone	50		ND	ND	ND
1,1-Dichloroethene	5		ND	ND	ND
Carbon Disulfide	5		ND	ND	ND
Methylene Chloride	10		ND	ND	ND
trans -1,2-Dichloroethene	5		ND	ND	ND (
1,1-Dichloroethane	5		ND	ND	ND '
2-Butanone (MEK)	20		ND	ND	ND
2,2-Dichloropropane	5		ND	ND	ND
cis-1,2-Dichloroethene	5		ND	ND	ND
Chloroform	5		ND	ND	ND
Bromochloromethane	5		ND	ND	ND
1,1,1-Trichloroethane (TCA)	5		ND	ND	ND
1,1-Dichloropropene	5		ND	ND	ND
Carbon Tetrachloride	5		ND	ND	ND
1,2-Dichloroethane	5		ND	ND	ND
Benzene	5		ND	ND	ND
Trichloroethene (TCE)	5		ND	ND	ND
1,2-Dichloropropane	5		ND	ND	ND
Bromodichloromethane	5		ND	ND	ND
Dibromomethane	5		ND	ND	ND
2-Hexanone	20		ND	ND	ND
cis-1,3-Dichloropropene	5		ND	ND	ND
Toluene	5		ND	ND	ND
trans-1,3-Dichloropropene	5		ND	ND	ND
1,1,2-Trichloroethane	5		ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20		ND	ND	ND
1,3-Dichloropropane	5		ND	ND	ND

approved By:	Hathan	Thyle	Date:	5/2/47	
02981VOA.CL1 - 8260s (2) \$/21/97					

 $\underset{\text{Page No.:}}{000008}$

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702981

Date Collected: 5/1/97

Date Received: 5/5/97
Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb) Dry Weight Basis

	Sample			
		Code: K970298		
	Date Ana	llyzed: 5/12/9	97 5/9/97	5/12/97
Analyte	MRL			
Tetrachloroethene (PCE)	5	ND	ND	ND
Dibromochloromethane	5	ND	ND	ND
1,2-Dibromoethane (EDB)	20	ND	ND	ND
Chlorobenzene	5	ND		ND
1,1,1,2-Tetrachloroethane	5	ND		ND
Ethylbenzene	5	ND		ND
Total Xylenes	5	ND		ND
Styrene	5	ND	ND	ND
Bromoform	5	ND		ND
Isopropylbenzene	20	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND		ND
1,2,3-Trichloropropane	5	ND	ND	ND
Bromobenzene	5	ND	ND	ND
n-Propylbenzene	20	ND	ND	ND
2-Chiorotoluene	20	ND		ND
4-Chlorotoluene	20	ND		ND
1,3,5-Trimethylbenzene	20	ND	ND	ND
tert -Butylbenzene	20	ND		ND
1,2,4-Trimethylbenzene	20	ND		ND
sec -Butylbenzene	20	ND	ND	ND
1,3-Dichlorobenzene	5	ND	ND	ND
4-Isopropyltoluene	20	ND		ND
1,4-Dichlorobenzene	5	ND	ND	ND
n-Butylbenzene	20	ND	ND	ND
1,2-Dichlorobenzene	5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	20	ND	ND	ND
1,2,4-Trichlorobenzene	20	ND	ND	ND
1,2,3-Trichlorobenzene	20	ND	ND	ND
Naphthalene	20	ND		ND
Hexachlorobutadiene	20	ND	ND	ND

Approved By: _

Mathon Hydle

Date: 5/21/47

APPENDIX A LABORATORY QC RESULTS

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702981

Date Collected: 5/1/97

Date Received: 5/5/97

Date Extracted: NA

Date Analyzed: 5/16/97

Duplicate Summary Carbon. Total Organic ASTM D4129-82 Modified Units: Percent (%) Dry Weight Basis

			Duplicate			Relative	
Sample Name	Lab Code	MRL	Sample Result	Sample Result Average		Percent Difference	
SB-2-35	K9702981-003D	0.05	0.15	0.13	0.14	14	

Approved By:

02981WET.LJ1 - TOCDS 5/20/97

__ Date: ____ 5 / 20 19 7

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702981

Date Collected: 5/1/97 Date Received: 5/5/97

Date Extracted: NA

Date Analyzed: 5/16/97

Matrix Spike Summary Carbon, Total Organic ASTM D4129-82 Modified Units: Percent (%) Dry Weight Basis

Sample Name	Lab Code	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits
SB-2-35	K9702981-003MS	0.05	4.54	0.15	4.39	93	75-125

5/2017 Date: Approved By:

MS1A/102194 02981WET.LJ1 - TOCMW 5/20/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

LCS Matrix:

Soil

Service Request: K9702981

Date Collected: NA
Date Received: NA

Date Extracted: NA
Date Analyzed: 5/16/97

Laboratory Control Sample Summary Carbon, Total Organic ASTM D4129-82 Modified

Units: Percent (%)

				CAS
				Percent
				Recovery
	True		Percent	Acceptance
Analyte	Value	Result	Recovery	Limits
rbon, Total Organic	0.62	0.62	100	85-115

02981WET.LJ1 - LCS 5/20/97

QA/QC Report

Client: Project: **EMCON**

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Date Collected: 5/1/97
Date Received: 5/5/97
Date Extracted: NA
Date Analyzed: 5/9-12/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

Percent Recovery

Sample Name	Lab Code I	Dibromofluoromethane	Toluene-d ₈	4-Bromofluorobenzene
SB-2-9	K9702981-002	107	100	102
SB-2-35	K9702981-003	109	100	106
SB-1-12.5	K9702981-006	106	98	414(A)
SB-1-40	K9702981-007	108	100	100
SB-2-35	K9702981-003MS	101	99	99
SB-2-35	K9702981-003DM	íS 101	100	99
Lab Control Sample	K970509-LCS	101	100	101
Method Blank	K970509-MB	101	98	94
Method Blank	K970512-MB	101	99	95

CAS Acceptance Limits:

82-122

84-116

67-129

A

Outside acceptance limits; see case narrative.

mm014

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix:

Soil

Service Request: K9702981

Date Collected: 5/1/97

Date Received: 5/5/97

Date Extracted: NA

Percent Recovery

Date Analyzed: 5/9/97

Matrix Spike/Duplicate Matrix Spike Summary Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb)

Dry Weight Basis

Sample Name:

SB-2-35

Lab Code:

K9702981-003

	Spike	Level	Sample	Spike	Result			CAS Acceptance	Relative Percent
	MS	DMS	Result	MS	DMS	MS	DMS	Limits	Difference
hene	56	57	ND	54	56	96	98	51-147	2

Analyte nce 1,1-Dichloroethe 70-120 2 Benzene 56 57 ND 56 58 100 102 Trichloroethene (TCE) 56 57 ND 58 61 104 107 60-123 3 ND 59 104 104 66-125 <1 Toluene 56 57 58 Chlorobenzene 56 57 ND 57 58 102 102 64-124 <1 1,2-Dichlorobenzene 56 57 ND 55 57 98 100 55-117 2 60 9 Naphthalene 56 57 ND 54 96 105 13-142

Nathon Hyou Date: 5/21/97 Approved By:

DMS1S/102194 02981VOA.CL1 - 8260sDMS 5/21/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

LCS Matrix:

Soil

Service Request: K9702981

Date Collected: NA
Date Received: NA
Date Extracted: NA

Date Analyzed: 5/9/97

Laboratory Control Sample Summary Volatile Organic Compounds EPA Method 8260A Units: µg/Kg (ppb)

Anaiyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits
1,1-Dichloroethene	50	49	98	70-130
Benzene	50	50	100	70-130
Trichloroethene	50	51	102	70-130
Toluene	50	54	108	70-130
Chlorobenzene	50	51	102	70-130
1,2-Dichlorobenzene	50	50	100	70-130
Naphthalene	50	51	102	70-130

Approved By: Matter Hydle Date: 5/21/97

LCS/060194

02981VOA.CL1 - 8260sLCS 5/21/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702981

Date Collected: 5/1/97

Date Received: 5/5/97

Date Extracted: 5/6,8,14/97

Date Analyzed: 5/9,12,13,20/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Sample Name	Lab Code	Percent Recovery p-Terphenyl
SB-2-7	K9702981-001	91
SB-2-7	K9702981-001MS	82
SB-2-9	K9702981-002	74(b)
SB-1-7	K9702981-004	134(a)
SB-1-7	K9702981-004DUP	136(a)
SB-1-9	K9702981-005	81
Method Blank 5/6/97	K9702981-MB	95
Method Blank 5/8/97	K9702981-MB	91
Method Blank 5/14/97	K9702981-MB	92
Lab Control Sample 5/6/97	K9702981-LCS	99
Lab Control Sample 5/8/97	K9702981-LCS	93
Lab Control Sample 5/14/97	K9702981-LCS	103

CAS Acceptance Limits: 81-112

(a)	Outside of acceptance limits because of matrix interferences. The chromatogram
	showed nontarget components that interfered with the analysis.

Outside of acceptance limits because of matrix effects. This sample was analyzed a second time, (b) and again produced unacceptable recovery values. The results from the initial analysis are reported.

Approved By:	Me	Date:	5/27/97

SURI/111594 02981PHC.EC1 - TPHsSUR 5/22/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9702981

Date Collected: 5/1/97

Date Received: 5/5/97 Date Extracted: 5/14/97

Date Analyzed: 5/20/97

Duplicate Summary

Total Petroleum Hydrocarbons as Diesel and Oil

Washington DOE Method WTPH-D

Units: mg/Kg (ppm) Dry Weight Basis

Sample Name:

SB-1-7

Lab Code:

K9702981-004DUP

		Sample	Duplicate Sample		Relative Percent Difference	CAS RPD Acceptance Limit
Analyte		Result	Result	Average		
Diesel	25	1040	960	1000	8	40
Oil	100	1450	1320	1385	9	40

Approved By:

QA/QC Report

Client:

EMCON

Service Request: K9702981

Project:

New City Cleaners/40358-016.004(3)

Date Collected: 5/1/97

Sample Matrix: Soil

Date Received: 5/5/97

Date Extracted: 5/14/97

Date Analyzed: 5/20/97

Matrix Spike Summary

Total Petroleum Hydrocarbons as Diesel and Oil

Washington DOE Method WTPH-D

Units: mg/Kg (ppm) Dry Weight Basis

Sample Name:

SB-2-7

Lab Code:

K9702981-001MS

CAS

Percent

Analyte

Sample Result

Sample Result

Spiked

Percent Recovery

Recovery Acceptance Limits

Diesel

328

Spike

Level

68

275

63(a)

MRL

25

66-120

(a)

Outside of acceptance limits. Sample is heterogeneous. Homogeneity could not be readily achieved using routine laboratory practices.

Approved By: _

MSISMRL/120194 02981PHC.EC1 - TPHsMS 5/22/97

Date: 5/27/57

Page No.:

00019

QA/QC Report

Client:

EMCON

Service Request: K9702981

Project: LCS Matrix: New City Cleaners/40358-016.004(3) Soil

Date Collected: NA Date Received: NA

Date Extracted: 5/6/97

Date Analyzed: 5/9/97

Laboratory Control Sample Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D Units: mg/Kg (ppm)

				CAS
				Percent
				Recovery
	True		Percent	Acceptance
Analyte	Value	Result	Recovery	Limits
Diesel	301	277	92	83-119

Approved By: LCS/102194

QA/QC Report

Client:

EMCON

Service Request: K9702981

Project:

New City Cleaners/40358-016.004(3)

Date Collected: NA

LCS Matrix:

Soil

Date Received: NA
Date Extracted: 5/8/97

Date Analyzed: 5/10/97

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons as Diesel and Oil
Washington DOE Method WTPH-D
Units: mg/Kg (ppm)

				CAS
				Percent
				Recovery
	True		Percent	Acceptance
Analyte	Value	Result	Recovery	Limits
Diesel	301	2 66	88	83-119

02981PHC.EC1 - TPHsLCS (2) 5/22/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

LCS Matrix:

Soil

Service Request: K9702981

Date Collected: NA

Date Received: NA

Date Extracted: 5/14/97

Date Analyzed: 5/20/97

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons as Diesel and Oil
Washington DOE Method WTPH-D
Units: mg/Kg (ppm)

				CAS
				Percent
				Recovery
	True		Percent	Acceptance
Analyte	Value	Result	Recovery	Limits
Diesel	254	259	102	83-119

Approved By: __

02981PHC.EC1 - TPHsLCS (3) 5/22/97

Date: 5/27/57

QA/QC Report

Client:

EMCON

Service Request: K9702981

Project:

02981PHC.DJ1 - GBTXsSUR 5/22/97

New City Cleaners/40358-016.004(3)

Date Collected: 5/1/97

Sample Matrix: Soil

Date Received: 5/5/97 Date Extracted: 5/7/97

Date Analyzed: 5/7/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Gasoline EPA Methods 5030A and Washington DOE Method WTPH-G

Sample Name	Lab Code	Percent Recovery 1,4-BFB (PID - BTEX)	Percent Recovery 1,4-BFB (FID - GAS)
SB-2-7	K9702981-001	NA	90
SB-2-9	K9702981-002	NA	91
SB-1-7	K9702981-004	NA	86
SB-1-9	K9702981-005	NA	84
Method Blank	K9702981-MB	NA	98
Lab Control Sample	K9702981-GLCS	NA	82
SB-2-7	K9702981-001GAS MS	NA	72

CAS Acceptance Limits:

59-116

59-115

Approved By: _ SUR2/111594

00023

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Date Collected: 5/1/97 Date Received: 5/5/97

Service Request: K9702981

Date Extracted: 5/12/97 Date Analyzed: 5/12/97

Matrix Spike Summary

BTEX and Total Petroleum Hydrocarbons as Gasoline EPA Methods 5030A/8020 and Washington DOE Method WTPH-G

> Units: mg/Kg (ppm) **Dry Weight Basis**

Sample Name:

SB-2-7

Lab Code:

CAS

Percent Recovery

Analyte

K9702981-001

Spike Level

53

Spiked Sample Result

Sample Percent Result Recovery Acceptance

Limits

Gasoline

5

MRL

ND

59

111

59-135

NS

Not spiked with gasoline.

Approved By:

MS15/102194 02981PHC.DJ1 - GBTXsMS 5/22/97 Date: <u>5/27/57</u>

QA/QC Report

Client:

EMCON

Service Request: K9702981

Project:

New City Cleaners/40358-016.004(3)

Date Collected: NA

LCS Matrix:

Soil

Date Received: NA
Date Extracted: 5/7/97

Date Analyzed: 5/7/97

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons as Gasoline
EPA Methods 5030A and Washington DOE Method WTPH-G
Units: mg/Kg (ppm)

				CAS
				Percent
				Recovery
	True		Percent	Acceptance
Analyte	Value	Result	Recovery	Limits
Gasoline	48	56	117	82-155

Approved By: LCS/102194
02981PHC.DJI - GBTXsLCS 5/22/97

Date: <u>5/07/57</u>

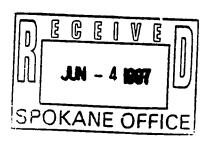
APPENDIX B CHAIN OF CUSTODY INFORMATION

CHAIN C JUSI JDY/LABURATURY AINALY SIS REPL 1 POFIN

ORGANIC METALS/INORGANICS SAMPLE RECEIPT: EMCON'S CIMPA Shipping VIA Shipping to Condition Lab Re PAGE ANALYSIS REQUEST INVOICE INFORMATION: Parglinaments as stitted in P.O. Refus to Richmad Chighens Report (includes DUP.MAS. REPORT REQUIREMENTS Aromalic L MSD, as required, may be charged as samples) IV. CLP Deliverable Report III. Data Validation Report (includes All Raw Data) PETROLEUM HCS I. Routine Report SPECIAL INSTRUCTIONS/COMMENTS: TURNAROUND REQUIREMENTS 24 hr 5 day Provide FAX preliminary Results Slandard (10-15 working days) Provide Verbal Preliminary Requested Report Date 4 4 3 NUMBER OF CONTAINERS 4 PROJECT NAME 12 W C. t. J. (12 4/2/25 " 4/2758 - 016 (04/3) PHONE (50-2) 635 - 119-4 SAMPLE 50:2 MATRIX COMPANY/ADDRESS 7106 hest will DAHON LANE 48865 IT MOSIER -603 -005 -001 -00C -002 100-2981-RECEIVED BY: Signaphre RECEIVED BY: Film 55-05-27 LAB I.D. 5 DO 12 ANC 10/4. SAMPLERS SIGNATURE TO SAUTHORN Printed Name PROJECT PHY (RUD L, 1/054, Date/Time Date/Time Signature 5/1/57 1200 TIME SIH1 +41/S 51/A7/1655 5/1/13 1315 Slikt 1410 19411305 SJART 0910 FILE DATE 2500 V. Shielfully Book RELINQUISHED BY: RELINQUISHED BY: 101 \mathcal{C} ニからのん SAMPLE 54,40 Printed Name 4 Dáte/Time Date/Time Signature 1-85 ٤

00027





June 2, 1997

Service Request No: K9703152

Rob Lindsay EMCON W 7106 Will D. Alton Lane, Suite 101 Spokane, WA 99204-5760

Re: New City Cleaners/40358-016.004 Task 3

Dear Rob:

Enclosed are the results of the sample(s) submitted to our laboratory on May 10, 1997. For your reference, these analyses have been assigned our service request number K9703152.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 243.

Respectfully submitted,

Columbia Analytical Services, Inc.

Richard Craven Project Chemist

RC/td

Page 1 of

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEO Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

J Estimated concentration. The value is less than the method reporting limit, but

greater than the method detection limit.

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a substance

allowed in drinking water as established by the USEPA.

MDL Method Detection Limit

MPN Most Probable Number

MRL Method Reporting Limit

NA Not Applicable

NAN Not Analyzed

NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected at or above the MRL

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

0.000

Analytical Report

ient:

EMCON

uple Matrix:

New City Cleaners/40358-016.004 Task 3

Water

Service Request: K9703152

Date Collected: 5/8/97

Date Received: 5/10/97
Date Extracted: NA

Volatile Organic Compounds by GC/MS

Units: Rasis: ethods:	ug/L (ppb) NA EPA 5030A/82	260A		Sample Name: Lab Code: Date Analyzed:	MW-1-0597 K9703152-001 5/22/97	MW-20-0597 K9703152-002 5/22/97	MW-2-0597 K9703152-003 5/2 2/ 97
Analyte		Methods	MRL	Dilution Factor			
chlorodifluorome	thane	EPA 5030A/8260A	0.5	1	ND	ND	ND
Lidoromethane		EPA 5030A/8260A	0.5	t	ND	ND	ND
Vinyl Chloride		EPA 5030A/8260A	0.5	1	ND	ND	ND
□ omomethane		EPA 5030A/8260A	0.5	1	ND	ND	ND
loroethane		EPA 5030A/8260A	0.5	1	ND	ND	ND .
richlorofluoromet	hane (CFC 11)	EPA 5030A/8260A	0.5	t	ND	ND	ND
Acetone	, ,	EPA 5030A/8260A	20	1	ND	ND	ND
-Dichloroethene		EPA 5030A/8260A	0.5	1	ND	ND	· ND
rbon Disulfide		EPA 5030A/8260A	0.5	1	ND	ND	ND
Methylene Chloride	•	EPA 5030A/8260A	1	1	ND	ND	ND
trans-1,2-Dichloroe		EPA 5030A/8260A	0.5	1	ND	ND	ND
:-Dichloroethane		EPA 5030A/8260A	0.5	1	ND	ND	ND
Butanone (MEK)		EPA 5030A/8260A	20	1	ND	ND	ND
2,2-Dichloropropan		EPA 5030A/8260A	0.5	1	ND	ND	ND
cis-1,2-Dichloroeth		EPA 5030A/8260A	0.5	1	ND	ND	ND
'orotorm		EPA 5030A/8260A	0.5	1	ND	ND	ND
nochlorometha	ne	EPA 5030A/8260A	0.5	1	ND	ND	ND
1,1-Trichloroetha		EPA 5030A/8260A	0.5	1	ND	ND	ND
1,1-Dichloropropen		EPA 5030A/8260A	0.5	1	ND	ND	ND
rbon Tetrachlorie		EPA 5030A/8260A	0.5	1	ND	ND	ND
2-Dichloroethane		EPA 5030A/8260A	0.5	i	ND	ND	ND
Benzene	(LDC)	EPA 5030A/8260A	0.5	i	ND	ND	ND
Trichloroethene (To	CE)	EPA 5030A/8260A	0.5	ī	ND	ND	2.3
2-Dichloropropan	•	EPA 5030A/8260A	0.5	i	ND	ND	ND
omodichlorometh		EPA 5030A/8260A	0.5	ī	ND	ND	ND
Dibromomethane	iano	EPA 5030A/8260A	0.5	i	ND	ND	ND
2-Hexanone		EPA 5030A/8260A	20	i	ND	ND	ND
:-1,3-Dichloropro	nene	EPA 5030A/8260A	0.5	i	ND	ND	ND
luene	pene	EPA 5030A/8260A	0.5	i	ND	ND	ND
trans-1,3-Dichlorop	ronene	EPA 5030A/8260A	0.5	i	ND	ND	ND
1.1.2-Trichloroetha		EPA 5030A/8260A	0.5	i	ND	ND	ND
Methyl-2-pentano		EPA 5030A/8260A	20	i	ND	ND	ND
3-Dichloropropan		EPA 5030A/8260A	0.5	i	ND	ND	ND
Tetrachloroethene (EPA 5030A/8260A	0.5	i	2.8	3.3	54
Dibromochlorometh		EPA 5030A/8260A	0.5	i	ND	ND	ND
2-Dibromoethane		EPA 5030A/8260A	2	i	ND	ND	ND
lorobenzene	(EDD)	EPA 5030A/8260A	0.5	i	ND	ND	ND
1,1,1,2-Tetrachloro	athana	EPA 5030A/8260A	0.5	i	ND	ND	ND
Ethylbenzene	eniane	EPA 5030A/8260A	0.5	i	ND	ND	ND
		EPA 5030A/8260A EPA 5030A/8260A	0.5	1	ND	ND	ND
/lenes, Total		EPA 5030A/8260A	0.5	i I	ND	ND	ND
vτene Bromotorm		EPA 5030A/8260A	0.5	1	ND	ND	ND
Isopropylbenzene (Cumana)	EPA 5030A/8260A	2	i	ND	ND	ND
raobrobatoetricue (cuitette)	LIA 3030/4 0200A	4		110		• -

CC Jaines Date: 5/27/97

00003

. .pproved By:

03152VOA.LWI - STD 1-3 5/27/97

Analytical Report

Client: P-nject: **EMCON**

.ple Matrix:

Water

New City Cleaners/40358-016.004 Task 3

Service Request: K9703152 Date Collected: 5/8/97 Date Received: 5/10/97 Date Extracted: NA

Volatile Organic Compounds by GC/MS

Units: Basis:	ug/L (ppb) NA			Sample Name: Lab Code:	MW-1-0597 K9703152-001	MW-20-0597 K9703152-002	MW-2-0597 K9703152-003
Methods:	EPA 5030A/826	0A		Date Analyzed:	5/22/97	5/22/97	5/22/97
Analyte		Methods	MRL	Dilution Factor			
1,1,2,2-Tetrachloro	ethane	EPA 5030A/8260A	0.5	1	ND	ND	ND
1,2,3-Trichloroprop	ane	EPA 5030A/8260A	0.5	1	ND	ND	ND
Bromobenzene		EPA 5030A/8260A	0.5	1	ND	ND	ND
n-Propylbenzene		EPA 5030A/8260A	2	1	ND	ND	ND
2-Chlorotoluene		EPA 5030A/8260A	2	1	ND	ND	ND
4-Chlorotoluene		EPA 5030A/8260A	2	i	ND	ND	ND
1,3,5-Trimethylben	zene	EPA 5030A/8260A	2	t	ND	ND	ND
tert-Butylbenzene		EPA 5030A/8260A	2	I	ND	ND	ND
1,2,4-Trimethylben	zene	EPA 5030A/8260A	2	1	ND	ND	ND
sec-Butylbenzene		EPA 5030A/8260A	2	Ī	ND	ND	ND
1,3-Dichlorobenzen	e	EPA 5030A/8260A	0.5	1	ND	ND	ND
4-Isopropyltoluene		EPA 5030A/8260A	2	1	ND	ND	ND
1,4-Dichlorobenzen	e	EPA 5030A/8260A	0.5	1	ND	ND	ND
n-Butylbenzene		EPA 5030A/8260A	2	i	ND	ND	ND
1,2-Dichlorobenzen	e	EPA 5030A/8260A	0.5	I	ND	ND	ND
1 7-Dibromo-3-chlo	ropropane (DBCP)	EPA 5030A/8260A	2	I	ND	ND	ND
-Trichlorobenz	ene	EPA 5030A/8260A	2	1	ND	ND	ND
Trichlorobenz-د, ع, ا	ene	EPA 5030A/8260A	2	1	ND	ND	ND
Naphthalene		EPA 5030A/8260A	2	I	ND	ND	ND
Hexachlorobutadier	ne	EPA 5030A/8260A	2	I	ND	ND	ND

Date: __

Approved By:

Analytical Report

ient:

EMCON

iject:
.iple Matrix:

New City Cleaners/40358-016.004 Task 3

Water

Date Collected: 5/8/97
Date Received: 5/10/97
Date Extracted: NA

Volatile Organic Compounds by GC/MS

Units: Pasis: ethods:	ug/L (ppb) NA EPA 5030A/820	60A		Sample Name: Lab Code: Date Analyzed:	MW-10-0597 K9703152-004 5/22/97	MW-3-0597 K97 03152-005 5/22/97	MW-4-0597 K9703152-006 5/22/97
Analyte		Methods	MRL	Dilution Factor			
chlorodifluorometh	ane	EPA 5030A/8260A	0.5	1	ND	ND	ND
Caloromethane		EPA 5030A/8260A	0.5	1	1.2	МD	ND
Vinyl Chloride		EPA 5030A/8260A	0.5	1	ND	ND	ND
omomethane		EPA 5030A/8260A	0.5	1	ND	ND	ND
ıloroethane		EPA 5030A/8260A	0.5	1	ИD	ND	ND .
ichlorofluorometha	ne (CFC 11)	EPA 5030A/8260A	0.5	1	ND	ND	ND
Acetone	•	EPA 5030A/8260A	20	I	ND	ND	ND
1-Dichloroethene		EPA 5030A/8260A	0.5	1	ND	ND	ND
ırbon Disulfide		EPA 5030A/8260A	0.5	1	ND	ND	ND
viethylene Chloride	•	EPA 5030A/8260A	1	1	ND	МD	ND
trans-1,2-Dichloroethe	ene	EPA 5030A/8260A	0.5	1	ND	ND	ND
1-Dichloroethane		EPA 5030A/8260A	0.5	1	ND	ND	ND
Butanone (MEK)		EPA 5030A/8260A	20	1	ND	ND	ND
2,2-Dichloropropane		EPA 5030A/8260A	0.5	1	ND	ND	ND
cis-1,2-Dichloroethen	e	EPA 5030A/8260A	0.5	1	ND	ND	ND
'oroform		EPA 5030A/8260A	0.5	i	4.1	ND	ND
nochloromethane		EPA 5030A/8260A	0.5	1	ND	ND	ND
1-Trichloroethane	(TCA)	EPA 5030A/8260A	0.5	1	ND	ND	ND
1,1-Dichloropropene	(EPA 5030A/8260A	0.5	1	ND	ND	ND
rbon Tetrachloride		EPA 5030A/8260A	0.5	1	ND	ND	ND
2-Dichloroethane (E	DC)	EPA 5030A/8260A	0.5	1	ND	ND	ND
Benzene		EPA 5030A/8260A	0.5	1	ND	ND	ND
Trichloroethene (TCE)	EPA 5030A/8260A	0.5	1	ND	4.2	1.0
2-Dichloropropane	,	EPA 5030A/8260A	0.5	l	ND	ND	ND
omodichloromethar	ie.	EPA 5030A/8260A	0.5	l	ND	ND	ND
Dibromomethane	.5	EPA 5030A/8260A	0.5	ĺ	ND	ND	ND
2-Hexanone		EPA 5030A/8260A	20	l	ND	ND	ND
3-1,3-Dichloroprope	ne	EPA 5030A/8260A	0.5	1	ND	ND	ND
luene		EPA 5030A/8260A	0.5	1	ND	ND	ND
trans-1,3-Dichloropro	pene	EPA 5030A/8260A	0.5	1	ND	ND	ND
1,1,2-Trichloroethane		EPA 5030A/8260A	0.5	1	ND	ND	ND
Methyl-2-pentanone		EPA 5030A/8260A	20	i	ND	ND	ND
3-Dichloropropane	(1.221)	EPA 5030A/8260A	0.5	1	ND	ND	ND
l'etrachloroethene (PC	E)	EPA 5030A/8260A	0.5	i	ND	47	2.6
Dibromochloromethar		EPA 5030A/8260A	0.5	1	ND	ND	ND
2-Dibromoethane (E	• -	EPA 5030A/8260A	2	1	ND	ND	ND
ılorobenzene	.23)	EPA 5030A/8260A	0.5	1	ND	ND	ND
1.1.1.2-Tetrachloroeth	iane	EPA 5030A/8260A	0.5	i	ND	ND	ND
Ethylbenzene		EPA 5030A/8260A	0.5	ì	ND	ND	ND
,p-Xylenes		EPA 5030A/8260A	0.5	i	ND	ND	ND
yrene		EPA 5030A/8260A	0.5	i	ND	ND	ND
Bromoform		EPA 5030A/8260A	0.5	i	ND	ND	ND
Isopropylbenzene (Cu	mene)	EPA 5030A/8260A	2	i	ND	ND	ND
isopropyroenzene (Cu		21,1200011	_	**			

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C d bleines

Date: $\frac{5/37/97}{}$

Analytical Report

Client:

EMCON

P·--iect: ple Matrix: New City Cleaners/40358-016.004 Task 3

Water

Service Request: K9703152 Date Collected: 5/8/97 Date Received: 5/10/97

Date Extracted: NA

Volatile Organic Compounds by GC/MS

Units: Basis: Methods:	ug/L (ppb) NA EPA 5030A/826	0A		Sample Name: Lab Code: Date Analyzed:	MW-10-0597 K9703152-004 5/22/97	MW-3-0597 K9703152-005 5/22/97	MW-4-0597 K9703152-006 5/22/97
Analyte		Methods	MRL	Dilution Factor			
1,1,2,2-Tetrachioroe	thane	EPA 5030A/8260A	0.5	1	ND	ND	ND
1,2,3-Trichloropropa		EPA 5030A/8260A	0.5	1	ND	ND	ND
Bromobenzene		EPA 5030A/8260A	0.5	1	ND	ND	ND
n-Propylbenzene		EPA 5030A/8260A	2	1	ND	ND	ND
2-Chlorotoluene		EPA 5030A/8260A	2	1	ND	ND	ND
4-Chlorotoluene		EPA 5030A/8260A	2	1	ND	ND	ND
1,3,5-Trimethylbenz	ene	EPA 5030A/8260A	2	1	ND	ND	ND
tert-Butylbenzene		EPA 5030A/8260A	2	Į	ND	ND	ND
1,2,4-Trimethylbenz	ene	EPA 5030A/8260A	2	1	ND	ND	ND
sec-Butylbenzene		EPA 5030A/8260A	2	1	ND	ND	ND
1,3-Dichlorobenzene	2	EPA 5030A/8260A	0.5	1	ND	ND	ND
4-Isopropyltoluene		EPA 5030A/8260A	2	1	ND	ND	ND
1,4-Dichlorobenzene	:	EPA 5030A/8260A	0.5	1	ND	ND	ND
n-Butylbenzene		EPA 5030A/8260A	2	Ī	ND	ND	ND
1,2-Dichlorobenzeno	:	EPA 5030A/8260A	0.5	1	ND	ND	ND
1 ° Dibromo-3-chlor	ropropane (DBCP)	EPA 5030A/8260A	2	1	ND	ND	ND
Trichlorobenze	ene	EPA 5030A/8260A	2	1	ND	ND	ND
Trichlorobenze کرے ا	ene	EPA 5030A/8260A	2	1	ND	ND	ND
Naphthalene		EPA 5030A/8260A	2	1	ND	ND	ND
Hexachlorobutadien	e	EPA 5030A/8260A	2	1	ND	ND	ND

Approved By: 3S2p/051697a

Date: ___

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Analytical Report

ent:

EMCON

ject: .iple Matrix:

New City Cleaners/40358-016.004 Task 3

Service Request: K9703152 Date Collected: NA Date Received: NA Date Extracted: NA

Volatile Organic Compounds by GC/MS

Units: Basis: Mithods:	ug/L (ppb) NA EPA 5030A/82	60A		Sample Name: Lab Code: Date Analyzed:	Method Blank K970522-MB 5/22/97
Analyte		Methods	MRL	Dilution Factor	
i :hlorodifluorome	thane	EPA 5030A/8260A	0.5	i	ND
loromethane		EPA 5030A/8260A	0.5	İ	ND
Vinyl Chloride		EPA 5030A/8260A	0.5	1	ND
Promomethane		EPA 5030A/8260A	0.5	1	ND
loroethane		EPA 5030A/8260A	0.5	1	ND
chlorofluorometh	ane (CFC 11)	EPA 5030A/8260A	0.5	1	ND
Acetone	(01 0 11)	EPA 5030A/8260A	20	1	ND
1 1-Dichloroethene		EPA 5030A/8260A	0.5	1	ND
rbon Disulfide		EPA 5030A/8260A	0.5	1	ND
thylene Chloride	•	EPA 5030A/8260A	1	1	ND
trans-1.2-Dichloroe		EPA 5030A/8260A	0.5	1	ND
1 1-Dichloroethane	410110	EPA 5030A/8260A	0.5	1	ND
3utanone (MEK)		EPA 5030A/8260A	20	1	ND
-Dichloropropan	ρ	EPA 5030A/8260A	0:5	1	ND
cis-1,2-Dichloroethe		EPA 5030A/8260A	0.5	1	ND
'oroform	-110	EPA 5030A/8260A	0.5	1	ND
nochloromethau	16	EPA 5030A/8260A	0.5	1	ND
! ,1-Trichloroetha		EPA 5030A/8260A	0.5	ĺ	ND
1,1-Dichloropropen		EPA 5030A/8260A	0.5	i	ND
C-rbon Tetrachloric		EPA 5030A/8260A	0.5	ì	ND
:-Dichloroethane		EPA 5030A/8260A	0.5	i	ND
Dichioroediane	(EDC)	EPA 5030A/8260A	0.5	i	ND
Trichloroethene (To	יפו	EPA 5030A/8260A	0.5	i	ND
? ?-Dichloropropan		EPA 5030A/8260A	0.5	i	ND
omodichlorometh		EPA 5030A/8260A	0.5	i	ND
bromomethane	iane	EPA 5030A/8260A	0.5	i	ND
		EPA 5030A/8260A	20	i	ND
2-Hexanone (-1,3-Dichloropro	nana	EPA 5030A/8260A	0.5	i	ND
	pene	EPA 5030A/8260A	0.5	i	ND
luene		EPA 5030A/8260A	0.5	i	ND
Lans-1,3-Dichlorop		EPA 5030A/8260A	0.5	i	ND
1,1,2-Trichloroetha		EPA 5030A/8260A	20	i	ND
Methyl-2-pentano		EPA 5030A/8260A	0.5	i	ND
3-Dichloropropan		EPA 5030A/8260A	0.5	i	ND
Letrachloroethene (EPA 5030A/8260A	0.5	i	ND
Dibromochlorometh		EPA 5030A/8260A	2	i	ND
?-Dibromoethane	(EDB)	EPA 5030A/8260A	0.5	ì	ND
ilorobenzene		EPA 5030A/8260A	0.5	i	ND
1,1,1,2-Tetrachloro	einane	EPA 5030A/8260A	0.5	i	ND
Ethylbenzene		EPA 5030A/8260A	0.5	ì	ND
lenes, Total		EPA 5030A/8260A	0.5	ì	ND
yrene		EPA 5030A/8260A	0.5	i	ND
omotorm در	C.,	EPA 5030A/8260A EPA 5030A/8260A	2	i	ND
Isopropylbenzene (cunene)	ELW JOSOMOTONA	4	•	

Ct bleires _ Date: _____ 5/2

pproved By: _

Analytical Report

Client:

EMCON

ect:

New City Cleaners/40358-016.004 Task 3

.ple Matrix:

Service Request: K9703152

Date Collected: NA Date Received: NA Date Extracted: NA

Volatile Organic Compounds by GC/MS

Units: Basis: Methods: ug/L (ppb)

NA

EPA 5030A/8260A

Sample Name:

Method Blank

Lab Code: Date Analyzed: K970522-MB 5/22/97

Analyte	Methods	MRL	Dilution Factor	
Analyte	Mariloas			
1,1,2,2-Tetrachloroethane	EPA 5030A/8260A	0.5	l	ND
1,2,3-Trichloropropane	EPA 5030A/8260A	0.5	1	ND
Bromobenzene	EPA 5030A/8260A	0.5	l	ND
n-Propylbenzene	EPA 5030A/8260A	2	l	ND
2-Chlorotoluene	EPA 5030A/8260A	2	1	ND
4-Chlorotoluene	EPA 5030A/8260A	2	1	ND
1,3,5-Trimethylbenzene	EPA 5030A/8260A	2	1	ND
tert-Butylbenzene	EPA 5030A/8260A	2	1	ND
1,2,4-Trimethylbenzene	EPA 5030A/8260A	2	1	ND
sec-Butylbenzene	EPA 5030A/8260A	2	1	ND
1,3-Dichlorobenzene	EPA 5030A/8260A	0.5	l	ND
4-Isopropyltoluene	EPA 5030A/8260A	2	I	ND
1,4-Dichlorobenzene	EPA 5030A/8260A	0.5	l	ND
n-Butylbenzene	EPA 5030A/8260A	2	l	ND
1,2-Dichlorobenzene	EPA 5030A/8260A	0.5	l	ND
' Dibromo-3-chloropropane (DBCP)	EPA 5030A/8260A	2	l	ND
Trichlorobenzene	EPA 5030A/8260A	2	1	ND
1,2,3-Trichlorobenzene	EPA 5030A/8260A	2	1	ND
Naphthalene	EPA 5030A/8260A	2	1	ND
Hexachlorobutadiene	EPA 5030A/8260A	2	1	ND

_____ Date: ____

Approved By: 3S2p/051697a

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix:

Water

Service Request: K9703152

Date Collected: 5/8/97

Date Received: 5/10/97

Date Extracted: 5/15/97
Date Analyzed: 5/23-24/97

Total Petroleum Hydrocarbon as Diesel and Oil Washington DOE Method WTPH-D Units: µg/L (ppb)

	Analyte: Method Reporting Limit:	Diesel 250	Oil* 750
Sample Name	Lab Code		
MW-20-0597	K9703152-002	ND	ND
MW-2-0597	K9703152-003	ND	ND
MW-10-0597	K9703152-004	ND	ND
MW-3-0597	K9703152-005	ND	ND
MW-4-0597	K9703152-006	ND	ND
Method Blank	K970515-MB	ND	ND

Quantified using 30 weight motor oil as a standard.

Approved By: 10rm E. Part Bod Date: 5/30/97

03152PHC.LPI - TPHw 5/30/97

Analytical Report

Client: Project:

EMCON

New City Cleaners/40358-016.004 Task 3

Sample Matrix: Water

Service Request: K9703152
Date Collected: 5/8/97
Date Received: 5/10/97

Date Extracted: NA
Date Analyzed: 5/20/97

Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: µg/L (ppb)

Sample Name	Lab Code	MRL	Result
MW-1-0597	K9703152-001	50	ND
MW-20-0597	K9703152-002	50	ND
MW-2-0597	K9703152-003	50	ND
MW-10-0597	K9703152-004	50	ND
MW-3-0597	K9703152-005	50	ND
MW-4-0597	K9703152-006	50	ND
TB1-0597	K9703152-007	50	ND
Method Blank	K970520-MB	50	ND

IAMRL/102594 03152VOA.LW4 - GASw 5/28/97

APPENDIX A LABORATORY QC RESULTS

QA/QC Report

Chent:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix:

Water

Service Request: K9703152

Date Collected: 5/8/97

Date Received: 5/10/97

Date Extracted: NA

Date Analyzed: 5/22/97

Surrogate Recovery Summary Volatile Organic Compounds by GC/MS

Prep Method:

EPA 5030A

Analysis Method: 8260A

Units: Percent

Basis: NA

		Test	Perce	nt Reco	very
Sample Name	Lab Code	Notes	Dibromofluoromethane	Toluene-d8	4-Bromofluorobenzene
					1
MW-1-0597	K9703152-001		109	99	92
MW-20-0597	K9703152-002		106	99	92
MW-2-0597	K9703152-003		109	101	92
MW-10-0597	K9703152-004		107	101	92
MW-3-0597	K9703152-005		110	101	93
MW-4-0597	K9703152-006		108	101	93
MW-3-0597	K9703152-005MS	÷	801	102	100
MW-3-0597	K9703152-005DMS		108	101	100
Marthod Blank	K970522-MB		102	100	90

CAS Acceptance Limits:

91-117

90-110

82-119

CC Haires _ Date: _ 5/ >7/ 97 Approved By:

03152VOA.LW3 - SUR 5/27/97

QA/QC Report

ıt:

EMCON

oject:

New City Cleaners/40358-016.004 Task 3

Sample Matrix:

Water

Service Request: K9703152

Date Collected: 5/8/97

Date Received: 5/10/97

Date Extracted: NA Date Analyzed: 5/22/97

Matrix Spike/Duplicate Matrix Spike Summary Volatile Organic Compounds by GC/MS

Sample Name:

MW-3-0597

ib Code: K9703152-005MS K9703152-005DMS

Units: ug/L (ppb)

Basis: NA

st Notes:

Percent Recovery

								-				,	
											CAS	Relative	
l .	Prep	Analysis		Spik	e Level	Sample	Spike	Result			Acceptance	Percent	Result
Analyte	Method	Method	MRL	MS	DMS	Result	MS	DMS	MS	DMS	Limits	Difference	Notes
.,1-Dichloroethene	EPA 5030A	8260A	0.5	10	10	ND	11	11	110	110	83-112	<1	
Benzene	EPA 5030A	8260A	0.5	10	10	ND	10	10	100	100	85-116	<1	
ichloroethene (TCE)	EPA 5030A	8260A	0.5	10	10	4.2	13	13	89	90	84-113	<1	
luene	EPA 5030A	8260A	0.5	10	10	ND	9.9	9.8	99	98	89-112	1	
Chlorobenzene	EPA 5030A	8260A	0.5	10	10	ND	8.9	9.0	89	90	86-113	ı	
Dichlorobenzene	EPA 5030A	8260A	0.5	10	10	ND	9.4	9.6	94	96	87-115	2	
thalene	EPA 5030A	8260A	2	10	10	ND	10	10	100	100	65-151	<1	

(C. Leuries Date: 5/27/97 Anproved By: _

03152VOA.LW3 - DMS 5/27/97

QA/QC Report

Client:

EMCON

Service Request: K9703152

Project:

New City Cleaners/40358-016.004 Task 3

Date Collected: 5/8/97

Sample Matrix: Water.

Date Received: 5/10/97

Date Extracted: 5/15/97

Date Analyzed: 5/23-24/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Sample Name	Lab Code	Percent Recovery o-Terphenyl
MW-20-0597	K9703152-002	85
MW-2-0597	K9703152-003	81
MW-10-0597	K9703152-004	88
MW-3-0597	. K9703152-005	84
MW-4-0597	K9703152-006	86
MW-3-0597	K9703152-005MS	91
MW-3-0597	K9703152-005DMS	87
Method Blank	K970515-MB	81

CAS Acceptance Limits: 59-110

Approved By:	Loren	٤	Patroad	Date:	5/3097

SUR1/111594 03152PHC.LP1 - TPHwSUR 5/30/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix:

Water

Service Request: K9703152

Date Collected: 5/8/97
Date Received: 5/10/97

Date Extracted: 5/15/97

Date Analyzed: 5/23-24/97

Matrix Spike/Duplicate Matrix Spike Summary
Total Petroleum Hydrocarbons as Diesel and Oil
Washington DOE Method WTPH-D
Units: μg/L (ppb)

Sample Name:

MW-3-0597

Lab Code:

K9703152-005DMS

Percent Recovery

	Spike	Levei	Sample	Spike	Result			CAS Acceptance		CAS RPD Acceptance
Analyte	MS	DMS	Result	MS	DMS	MS	DMS	Limits	Difference	Limit
Diesel	2000	2000	ND	1580	1450	7 9	73	39-117	9	30

Approved By:	Lander	E. Portwood	Date:	5/30/97
Approved by:	roru	C TOT IN 10 cod	Date:	21 <i>2011</i> F

QA/QC Report

Client:

EMCON

Project:

Sample Matrix: Water

New City Cleaners/40358-016.004 Task 3

Date Collected: 5/8/97 Date Extracted: NA

Date Received: 5/10/97

Date Analyzed: 5/20/97

Service Request: K9703152

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G

	Percent Recovery
Lab Code	4-Bromofluorobenzene
K9703152-001	71
K9703152-002	66
K9703152-003	73
K9703152-004	66
K9703152-005	68
K9703152-006	69
K9703152-007	69
K9703152-005MS	86
K9703152-005DMS	89
K970520-MB	70
	K9703152-001 K9703152-002 K9703152-003 K9703152-004 K9703152-005 K9703152-006 K9703152-007 K9703152-005MS K9703152-005DMS

CAS Acceptance Limits: 65-117

Approved By:

SURI/111594 03152VOA.LW4 - GASWSUR 5/28/97 ___ Date: _

QA/QC Report

Client:

EMCON

New City Cleaners/40358-016.004 Task 3

Service Request: K9703152

Project:

Date Collected: 5/8/97

Sample Matrix: Water Date Received: 5/10/97

Date Extracted: NA Date Analyzed: 5/21/97

Matrix Spike/Duplicate Matrix Spike Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: µg/L (ppb)

Sample Name:

MW-3-0597

Lab Code:

K9703152-005MS, K9703152-005DMS

Percent Recovery

CAS Relative CAS RPD Spike Level Sample Spike Result Acceptance Percent Acceptance Analyte MS DMS Result MS **DMS** MS . DMS Limits Difference Limit Gasoline 1000 1000 ND 860 930 86 93 70-121 8 30

Approved By:

DMS1SRPD/120594 03152VOA.LW4 - DMS1SRPD 5/28/97

APPENDIX B CHAIN OF CUSTODY INFORMATION

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בוסנו. סייי	nalytical	Services.™

CHAIN OF JSTUDY/LABOHATOHT ANALYSIS INEGGE

DATE May 9, 1997 PAGE

South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222 • FAX (360) 636-1068

1--- OF

- 16 Amber broken O WORD broken REMARKS 130 NO 1-3152 SAMPLE RECEIPT: Sample MW-3-0597 includes a set of containers for MS/MSD Shipping VIA Shipping F Condition (XOA)C ANALYSIS REQUESTED INVOICE INFORMATION: (DANIOSSID JO JEIOI) BII To P.O. REPORT REQUIREMENTS II. Report (includes DUP MS MSD, as required, may be III. Data Validation Report (includes All Raw Data) IV. CLP Deliverable Report charged as samples) 2-JOAS for ea. WIPH-G 1 Routine Report 3-124, for en 8260 SPECIAL INSTRUCTIONS/COMMENTS: Volatiles **TURNAROUND REQUIREMENTS** Provide FAX preliminary Results Standard (10-15 working days) Provide Verbal Preliminary Requested Report Date e e 1 Q e l Results NUMBER OF CONTAINERS PROJECT NAME New City Cleaners #40358-016.004 SAMPLE MATRIX Water (509) PHONE 838-1144 ; : : Chich 2 C.CD CAS RECEIVED BY: RECEIVED BY: LAB D Signature Printed Name FF 10-97 Printed Name SAMPLERS SIGNATURE. The fatter 0081 W. 7100 Alton Ln. #101 S1647 1700 5/8/17 1600 5/8/97 1-150 5/8/72 1210 5/8/97 1BID PROJECT MANAGER Keb Lindsay 5/8/7/12-10 Spokane, WA . 99224 COMPANY/ADDRESS EMCON 5/8/57 DATE B: 45 AM RELINQUISHED BY: RELINQUISHED BY: John S. Latta. Prinled Name MW-20-0597 Signature atten MW-10-0597 MW-2-0597 MW-1-0597 MW-3-0597 MW-4-0597 181-0597 SAMPLE Printed Name ENICON Firm 5/9/3 Date/Time

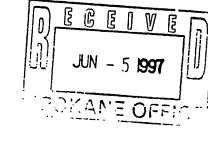
Amber fo WTPH-D Extended 1 set of trip blanks TB1-0597

- 14

Date/Time

Date/Time

100-05





June 2, 1997

Service Request No: K9703242

Rob Lindsay **EMCON** 15055 SW Sequoia Parkway, Suite 140 P.O. Box 231269 Portland, OR 97224

New City Cleaners/40358-016.004 Re:

Dear Rob:

Enclosed are the results of the sample(s) submitted to our laboratory on May 14, 1997. For your reference, these analyses have been assigned our service request number K9703242.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 243.

Respectfully submitted,

Columbia Analytical Services, Inc.

Richard Craven **Project Chemist**

RAC/mc

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlororluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

J Estimated concentration. The value is less than the method reporting limit, but

greater than the method detection limit.

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a substance

allowed in drinking water as established by the USEPA.

MDL Method Detection Limit

MPN Most Probable Number

MRL Method Reporting Limit

NA Not Applicable
NAN Not Analyzed

NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected at or above the MRL

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

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Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9703242

Date Collected: 5/12/97

Date Received: 5/14/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

	Sample Name:	W-D-0597	MW-E-0597	Method Blank
	Lab Code:	K9703242-001	K9703242-002	K970523-MB
	Date Analyzed:	5/23/97	5/23/97	5/23/97
A	•	3.30.7		
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	0.5	ND	ND	ND
Chloromethane	0.5	ND	ND	ND
Vinyl Chloride	0.5	ND	ND	ND
Bromomethane	0.5	ND	ND	ND
Chloroethane	0.5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	0.5	ND	ND	ND
Acetone	20	ND	ND	ND
I,1-Dichloroethene	0.5	ND	ND	ND
Carbon Disulfide	0.5	ND	ND	ND
Methylene Chloride	1	ND	ND	ND
trans-1,2-Dichloroethene	0.5	ND	ND	ND
1,1-Dichloroethane	0.5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	0.5	ND	ND	ND
cis-1,2-Dichloroethene	0.5	ND	0.8	ND
Chloroform	0.5	ND	ND	ND
Bromochloromethane	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	ND	ND
1,1-Dichloropropene	0.5	ND	ND	ND
Carbon Tetrachloride	0.5	ND	ND	ND
1,2-Dichloroethane	0.5	ND	ND	ND
Benzene	0.5	ND	ND	ND
Trichloroethene (TCE)	0.5	ND	6.1	ND
1,2-Dichloropropane	0.5	ND	ND	ND
Bromodichloromethane	0.5	ND	ND	ND
Dibromomethane	0.5	ND	ND	ND
2-Hexanone	20	ND	ND	ND
cis-1,3-Dichloropropene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND	ND
1,3-Dichloropropane	0.5	ND	ND	ND

Dane E. Wiegel Date: 5/30 Approved By: 03242VOA.LW1 - 8260w2p 5/28/97

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Water

New City Cleaners/40358-016.004

Date Collected: 5/12/97 Date Received: 5/14/97 Date Extracted: NA

Service Request: K9703242

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

	Sample Name:	W-D-0597	MW-E-0597	Method Blank
	Lab Code:	K9703242-001	K9703242-002	K970523-MB
	Date Analyzed:	5/23/97	5/23/97	5/23/97
Analyte	IRL			
Tetrachloroethene (PCE)	0.5	ND	39	ND .
Dibromochloromethane	0.5	ND	ND	ND
1,2-Dibromoethane (EDB)	2	ND	ND	ND
Chlorobenzene	0.5	ND	ND	ND
1,1,1,2-Tetrachloroethane	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
	0.5	ND	ND	ND
	0.5	ND	ND	ND
	0.5	ND	ND	ND
Isopropylbenzene	2	ND	ND	ND
	0.5	ND	ND	ND
1,2,3-Trichloropropane	0.5	ND	ND	ND
Bromobenzene	0.5	ND	ND	ND
n-Propylbenzene	2	ND	ND	ND
2-Chlorotoluene	2 2 2 2	ND	ND	ND
4-Chlorotoluene	2	ND	ND	ND
1,3,5-Trimethylbenzene		ND	ND	ND
tert -Butylbenzene	2	ND	ND	ND
1,2,4-Trimethylbenzene	2	ND	ND	ND
sec -Butylbenzene	2	ND	ND	ND
1,3-Dichlorobenzene	0.5	ND	ND	ND
4-Isopropyltoluene	2	ND	ND	ND
1,4-Dichlorobenzene	0.5	ND	ND	ND
n -Butylbenzene	2	ND	ND	ND
1,2-Dichlorobenzene	0.5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	2	ND	ND	ND
1,2,4-Trichlorobenzene	2	ND	ND	ND
1,2,3-Trichlorobenzene	2	ND	ND	ND
Naphthalene	2 2	ND	ND	ND
Hexachlorobutadiene	2	ND	ND	ND

3S2P/102094 03Z42VOA.LW1 - 8260w2p 5/28/97

00004

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix:

Water

Service Request: K9703242

Date Collected: 5/12/97

Date Received: 5/14/97 Date Extracted: 5/19/97

Date Analyzed: 5/21/97

Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D Units: µg/L (ppb)

	Analyte: Diesel Method Reporting Limit: 250		Oil* 750
Sample Name	Lab Code		
W-D-0597	K9703242-001	ND	ND
MW-E-0597	K9703242-002	ND	ND
Method Blank	K970519-MB	ND	ND

Quantified using 30-weight motor oil as a standard.

Approved By:

Date: 5/30/97

03242PHC.BTI - TPHs 5/30/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9703242

Date Collected: 5/12/97

Date Received: 5/14/97 Date Extracted: NA

Date Analyzed: 5/23/97

Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: µg/L (ppb)

Sample Name	Lab Code	MRL	Result
W-D-0597	K9703242-001	50	ND
W-D-0597	K9703242-001Dup	50	ND
MW-E-0597	K9703242-002	50	ND
Method Blank	K970523-MB	50	ND

Approved By:

IAMRL/102594 03242VOA.LW2 - GASW 5/28/97

Date: __

00006

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9703242

Date Collected: 5/12/97

Date Received: 5/14/97

Date Extracted: NA

Date Analyzed: 5/23/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

		Percen	t Rec	overy
Sample Name	Lab Code	Dibromofluoromethane	Toluene-d ₈	4-Bromofluorobenzene
W-D-0597	K9703242-001	106	99	91
MW-E-0597	K9703242-002	109	102	93
W-D-0597	K9703242-001MS	107	100	100
W-D-0597	K9703242-001DN	AS 105	100	100
Lab Control Sample	K970523-LCS	110	101	100
Method Blank	K970523-MB	107	100	91

CAS Acceptance Limits:

91-117

90-110

82-119

Approved By: SUR3/111594 03242VOA.LW1 - 8260wSUR 5/28/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix:

Water

Service Request: K9703242

Date Collected: 5/12/97

Date Received: 5/14/97
Date Extracted: NA

Date Analyzed: 5/23/97

Matrix Spike/Duplicate Matrix Spike Summary Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

Sample Name:

W-D-0597

Lab Code:

K9703242-001

						Perc	Recovery		
	Spike	. Level	Sample	Spike	Result			CAS Acceptance	Relative Percent
Analyte	MS	DMS	Result	MS	DMS	MS	DMS	Limits	Difference
1,1-Dichloroethene	10	10	ND	10	9. 6	100	96	83-112	4
Benzene	10	01	ND	9.7	9.2	97	92	85-116	5
Trichloroethene	10	10	ND	9.5	8.9	95	89	8 4-113	7
Toluene	10	10	ND	9.7	9.2	97	92	89-112	5
Chlorobenzene	10	10	ND	9.0	8.9	90	89	86-113	1
1,2-Dichlorobenzene	10	10	ND	9.1	9.2	91	92	87-115	1
Naphthalene	10	10	ND	11	12	110	120	65-151	9

Approved By: Date: 5/30/97

DMS15/060194
03242VOA,LW1 - 8260wDMS 5/28/97

QA/QC Report

Client:

EMCON

Service Request: K9703242

Project:

New City Cleaners/40358-016.004

Date Collected: NA

LCS Matrix:

Water

Date Received: NA
Date Extracted: NA

Date Analyzed: 5/23/97

CAS

Laboratory Control Sample Summary Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

Analyte	True Value	Result	Percent Recovery	Percent Recovery Acceptance Limits
1,1-Dichloroethene	10	11	110	77-123
Benzene	10	9.6	96	86-115
Trichloroethene	10	9.0	90	84-120
Toluene	10	9.2	92	86-116
Chlorobenzene	10	8.7	87(A)	88-114
1,2-Dichlorobenzene	10	8.8	88	83-119
Naphthalene	10	7.8	78	65-152

Outside acceptance limits; see case narrative.

A ----- Dev

Α

LCS/060194 03242VOA.LWI - 8260wLCS 5/28/97

Diane & Wiege Date: 5/30/97

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QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9703242

Date Collected: 5/12/97

Date Received: 5/14/97 Date Extracted: 5/19/97

Date Analyzed: 5/21/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Sample Name	Lab Code	Percent Recovery o-Terphenyl
W-D-0597	K9703242-001	103
MW-E-0597	K9703242-002	106
W-D-0597	K9703242-001DUP	105
MW-E-0597	K9703242-002MS	106
Lab Control Sample	K970519-LCS	106
Method Blank	K970519-MB	102

CAS Acceptance Limits: 59-110

Approved By:	Date:	5	130	197	
pp. 0 . 0					

SUR I/111594 03242PHC.BT1 - sur 5/30/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9703242

Date Collected: 5/12/97

Date Received: 5/14/97

Date Extracted: 5/19/97

Date Analyzed: 5/21/97

Duplicate Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Units: µg/L (ppb)

Sample Name:

W-D-0597

Lab Code:

K9703242-001DUP

			Relative	CAS RPD		
		Sample	Sample		Percent	Acceptance
Analyte	MRL	Result	Result	Average	Difference	Limit
Diesel	250	ND	ND	ND	-	40
Oil	750	ND	ND	ND	•	40

Approved By: DUP1SRPD/102194

03242PHC.BT1 - dup 5/30/97

Date: 5/31/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9703242

Date Collected: 5/12/97 Date Received: 5/14/97

Date Extracted: 5/19/97

Date Analyzed: 5/21/97

Matrix Spike Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D Units: µg/L (ppb)

Sample Name:

MW-E-0597

Lab Code:

K9703242-002MS

CAS Percent

Spiked Recovery Sample Sample Percent Acceptance Spike Result Limits MRL Level Result Recovery Analyte

Diesel

2000 250

ND

1530

39-117

77

Approved By: MSISMRL/120194

03242PHC.BTI - ms 5/30/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

LCS Matrix:

03242PHC.BTI - Ics 5/30/97

Water

Service Request: K9703242

Date Collected: NA

Date Received: NA

Date Extracted: 5/19/97

Date Analyzed: 5/21/97

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons as Diesel and Oil
Washington DOE Method WTPH-D
Units: µg/L (ppb)

				CAS
				Percent
				Recovery
	True		Percent	Acceptance
Analyte	Value	Result	Recovery	Limits
Diesel	2000	1440	72	46-108

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9703242

Date Collected: 5/12/97 Date Received: 5/14/97

Date Extracted: NA Date Analyzed: 5/23-24/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G

		Percent Recovery
Sample Name	Lab Code	4-Bromofluorobenzene
W-D-0597	K9703242-001	72
W-D-0597	K9703242-001Dup	71
MW-E-0597	K9703242-002	71
Batch QC	K9703347-001	71
Batch QC	K9703347-001MS	84
Batch QC	K9703347-001DMS	85
Lab Control Sample	K970524-LCS	89
Method Blank	K970523-MB	69

CAS Acceptance Limits: 65-117

Approved	By:	
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SUR1/111594 03242VOA.LW2 - GASWSUR 5/28/97 _____ Date: ___

QA/QC Report

Client:

EMCON

Service Request: K9703242

Project:

New City Cleaners/40358-016.004

Date Collected: NA

Sample Matrix:

Water

Date Received: NA

Date Extracted: NA

Date Analyzed: 5/24/97

Matrix Spike/Duplicate Matrix Spike Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: µg/L (ppb)

Sample Name:

Batch QC

Lab Code:

K9703347-001DMS

Percent Recovery

	Spike	Levei	Sample	Spike	Result			CAS Acceptance		CAS RPD Acceptance
Analyte	MS	DMS	Resuit	MS	DMS	MS	DMS	Limits	Difference	Limit
Gasoline	1000	1000	ND	770	850	7 7	85	70-121	10	30

Approved By:

DMS1SRPD/120594 03242VOA.LW2 - DMS1SRPD 5/28/97

QA/QC Report

Client: Project:

LCS Matrix:

EMCON

Water

Service Request: K9703242

New City Cleaners/40358-016.004

Date Collected: NA Date Received: NA

Date Extracted: NA Date Analyzed: 5/24/97

Laboratory Control Sample/Duplicate Laboratory Control Sample Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G

Units: µg/L (ppb)

Percent Recovery

	True	Value	Re	sult	1 61 (cent Re	CAS Acceptance	Relative Percent
Analyte	LCS	DLCS	LCS	DLCS	LCS	DLCS	Limits	Difference
Gasoline	1000	1000	810	820	81	82	76-138	ī

___ Date: __ Approved By:

DLCS/102194 03242VOA.LW2 - GASWDLCS 5/28/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9703242

Date Collected: 5/12/97

Date Received: 5/14/97

Date Extracted: NA

Date Analyzed: 5/23/97

Duplicate Summary

Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G

Units: µg/L (ppb)

Sample Name:

W-D-0597

Lab Code:

K9703242-001

			Relative	CAS RPD			
Analyte	MRL	Sample Result	Sample Result	Average	Percent Difference	Acceptance Limit	
Gasoline	50	ND	ND	<1	•	30	

Date: Approved By: DUPISRPD/102194

03242VOA.LW2 - GASWDUP 5/28/97

CHAIN OF "ISTODY/LABORATORY ANALYSIS REQUE" FORM

REMARKS SAMPLE RECEIPT: P. Hold TB-2-0597 do not analyse unless instructed Shipping VIA Shipping # DATE May 13,1957 PAGE Condition (XOA)C ANALYSIS REQUESTED INVOICE INFORMATION: WITH-G Extended 3 AH Sounders REPORT REQUIREMENTS Cr.'.mbia .alytical .alytical Services.** 1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222 • FAX (360) 636-1068 II Report (includes DUP MS. MSD, as required may be III Data Validation Report (includes All Raw Data) IV CLP Deliverable Report i Routine Report Please Return Coolins SPECIAL INSTRUCTIONS/COMMENTS: **TURNAROUND REQUIREMENTS** 24 hr ___ 5 day Provide FAX preliminary Results Standard (10-15 working days) Requested Report Date Provide Verbal Preliminary Results و NUMBER OF CONTAINERS PROJECT NAME New City Cleanerd # 412358-010-004 Water SAMPLE PHONE B38-1144 MATRIX = IFCEIVED BY: RECEIVED BY: LAB I.D. 101 SAMPLERS SIGNATURE - YEAR TO SAMPLERS Printed Name PROJECT MANAGER (ROP LINGSON) 99224 Date/Time MW-D-0597 5/12/43/1600 5/247 1500 Eig W. 7106 Alton Ln. COMPANY/ADDRESS EMCON 5/9/93 Spokane WA RELINQUISHED BY: RELINQUISHED BY: MW-E-0597 John / alla 18-2-0597 SAMPLE I.D. RACON Printed Name 5/13/57 **⊕** Date/Time Signature

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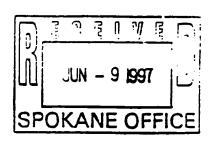
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June 4, 1997

Service Request No: K9703203

Rob Lindsay **EMCON** W 7106 Will D. Alton Lane, Suite 101 Spokane, WA 99204-5760

Re: New City Cleaners/40358-016.004(3)

Dear Rob:

Enclosed are the results of the sample(s) submitted to our laboratory on May 13, 1997. For your reference, these analyses have been assigned our service request number K9703203.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 243.

Respectfully submitted,

Columbia Analytical Services, Inc.

Richard Craven **Project Chemist**

RAC/td

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFU Chlororluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

J Estimated concentration. The value is less than the method reporting limit, but

greater than the method detection limit.

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a substance

allowed in drinking water as established by the USEPA.

MDL Method Detection Limit

MPN Most Probable Number

MRL Method Reporting Limit

NA Not Applicable
NAN Not Analyzed
NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected at or above the MRL

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 (3)

Sample Matrix: Soil

Service Request: K9703203

Date Collected: 5/1/97
Date Received: 5/13/97

Date Extracted: NA
Date Analyzed: 5/20/97

Solids, Total EPA Method 160.3 Modified Units: Percent (%)

Sample Name

Lab Code

Result

SB-1-27

K9703203-021

81.3

03203VOA_AMI - TSolids 5/27/97

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/40358-016.004(3)

Service Request: K9703203 Date Collected: 5/2/97

Date Received: 5/13/97 Date Extracted: NA

Date Analyzed: 5/22/97

Carbon, Total Organic ASTM D4129-82M Units: Percent (%) Dry Weight Basis

Sample Name	Lab Code	MRL	Result
SB-1-35	K9703203-023	0.05	ND
Method Blank	K9703203-MB	0.05	ND

Approved By: IAMRL/102594 03203WET.LJ1 - TOCS 5/23/97

Date: _

00004

Page No.:

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004(3)

Sample Matrix: Soil

Service Request: K9703203

Date Collected: 5/1/97

Date Received: 5/13/97 Date Extracted: 5/15/97

Volatile Organic Compounds EPA Method 8260A Units: mg/Kg (ppm) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	SB-1-27 K9703203-021 5/15/97	Method Blank K970515-MB 5/15/97
Analyte	MRL		
Dichlorodifluoromethane (CFC 12)	0.5	ND	ND
Chloromethane	0.5	ND	ND
Vinyl Chloride	0.5	ND	ND
Bromomethane	0.5	ND	ND
Chloroethane	0.5	ND	ND
Trichlorofluoromethane (CFC 11)	0.5	ND	ND
Acetone	5	ND	ND
1,1-Dichloroethene	0.5	ND	ND
Carbon Disulfide	0.5	ND	ND
Methylene Chloride	1	ND	ND
trans -1,2-Dichloroethene	0.5	ND	ND
I,I-Dichloroethane	0.5	ND	ND
2-Butanone (MEK)	2	ND	ND
2,2-Dichloropropane	0.5	ND	ND
cis-1,2-Dichloroethene	0.5	ND	ND
Chloroform	0.5	ND	ND
Bromochloromethane	0.5	ND	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	ND
I, I-Dichloropropene	0.5	ND	ND
Carbon Tetrachloride	0.5	ND	ND
1,2-Dichloroethane	0.5	ИD	ND
Benzene	0.5	УD	ND
Trichloroethene (TCE)	0.5	ND	ND
1,2-Dichloropropane	0.5	УD	ND
Bromodichloromethane	0.5	ИD	ND
Dibromomethane	0.5	ND	ND
2-Hexanone	2	ND	ND
cis-1,3-Dichloropropene	0.5	ND	ND
Toluene	0.5	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND
4-Methyl-2-pentanone (MIBK)	2	ND	ND ND
1,3-Dichloropropane	0.5	ND	מא

CCHlevies Approved By:

Analytical Report

Client:

EMCON

Project:

Sample Matrix: Soil

New City Cleaners/40358-016.004(3)

Service Request: K9703203 Date Collected: 5/1/97 Date Received: 5/13/97 Date Extracted: 5/15/97

Volatile Organic Compounds EPA Method 8260A Units: mg/Kg (ppm) Dry Weight Basis

	Sample Name: Lab Code: Date Analyzed:	SB-1-27 K9703203-021 5/15/97	Method Blank K970515-MB 5/15/97
Analyte	MRL		
Tetrachloroethene (PCE)	0.5	ND	ND
Dibromochloromethane	0.5	ND	ND
1,2-Dibromoethane (EDB)	2	ND	ND
Chlorobenzene	0.5	ND	ND
1,1,1,2-Tetrachloroethane	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Total Xylenes	0.5	ND	ND
Styrene	0.5	ND	ND
Bromoform	0.5	ND	ND
Isopropylbenzene	2	ND	ND
1,1,2,2-Tetrachloroethane	0.5	ND	ND
1,2,3-Trichloropropane	0.5	ND	ND
Bromobenzene	0.5	ND	ND
n-Propylbenzene	2	ND	ND
2-Chlorotoluene	2	ND	ND
4-Chlorotoluene	2	ND	ND
1,3,5-Trimethylbenzene	2	ND	ND
tert -Butylbenzene	2	ND	ND
1,2,4-Trimethylbenzene	2	ND	ND
sec -Butylbenzene	2	ND	ND
1,3-Dichlorobenzene	0.5	ND	ND
4-Isopropyltoluene	2	ND	ND
1,4-Dichlorobenzene	0.5	ND	ND
n-Butylbenzene	2	ND	ND
1,2-Dichlorobenzene	0.5	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	2	ND	ND
1,2,4-Trichlorobenzene	2 2 2	ND	ND
1,2,3-Trichlorobenzene		ND	ND
Naphthalene	2	ND	ND
Hexachlorobutadiene	2	ND	ND

Approved By:	CCheis	Date:	5/27/97	
520/10/804			, ,	

QA/QC Report

Client:

EMCON

Project:

Sample Matrix:

New City Cleaners/40358-016.004(3)

Service Request: K9703203 Date Collected: 5/1/97 Date Received: 5/13/97 Date Extracted: 5/15/97

Date Analyzed: 5/15/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

> Percent Recovery

Sample Name	Lab Code	Dibromofluoromethane	Toluene-d ₈	4-Bromofluorobenzene
SB-1-27	K9703203-021	98	100	143(A)
Method Blank	K970515-MB	101	97	92

CAS Acceptance Limits:

82-122

84-116

67-129

Α

Outside acceptance limits due to matrix interference.

What a Can

Approved By:

SURVI 10094 03203VOA.CL1 - 8260sSUR 6/4/97

Date: 6/5/97

CHAIN CUSTODY/LABORATORY ANALYSIS REPUBLY FORM



			_	DATE 5/6/	197 PAGE		Dr. 1	
;				ANALYSIS HEQUEST	QUEST			П
PROJECT NAME /VCL/ City (ICTA/CLS 110358-016 COM/S	0740	PE	PETROLEUM HCS	ORGANIC	ORGANIC M	ETAL	S/INORGANICS	S
PROJECT PATA ROS LINDSAN	_	_	Selne	<u></u>	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		<i></i>	
COMPANYIADDRESS EMLON - SpollANG	 			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	<u> </u>	B. F. B.	_	
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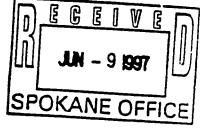
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June 5, 1997

Service Request No: K9703664

Rob Lindsay EMCON W 7106 Will D. Alton Lane, Suite 101 Spokane, WA 99204-5760

Re: New City Cleaners/40358-016.004 Task 3

Dear Rob:

Enclosed are the results of the rush sample(s) submitted to our laboratory on May 30, 1997. For your reference, these analyses have been assigned our service request number K9703664.

Analysis of these samples was completed after the end of recommended hold times.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 239.

Respectfully submitted,

Columbia Analytical Services, Inc.

Howard Boorse Project Chemist

HB/mc

Page 1 of

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unix

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology

DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

J Estimated concentration. The value is less than the method reporting limit, but

greater than the method detection limit.

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Confaminant Level is the highest permissible concentration of a substance

allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable

NAN Not Analyzed

NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected at or above the MRL

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater

than or equal to the MDL.

Analytical Report

Jlient:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix: Soil

03664VOA.MS1 - GASs 6/6/97

Service Request: K9703664

Date Collected: 3/13/97

Date Received: 5/30/97

Date Extracted: 6/2/97

Date Analyzed: 6/2,3/97

Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: mg/Kg (ppm) Dry Weight Basis

Sample Name	Lab Code	MRL	Resuit
GP2-5	K9703664-001	5	ND
GP2-21	K9703664-002	5	ND
Method Blank	K970602-MB	5	ND

Date: 6-6-97 Approved By: _ LAMRL/102594

00003 Page No.:

QA/QC Report

Client:

EMCON

Service Request: K9703664

Project:

New City Cleaners/40358-016.004 Task 3

Date Collected: 3/13/97

Sample Matrix: Soil

Date Received: 5/30/97 Date Extracted: 6/2/97 Date Analyzed: 6/2,3/97

Surrogate Recovery Summary
Total Petroleum Hydrocarbons as Gasoline
Washington DOE Method WTPH-G

		Percent Recovery
Sample Name	Lab Code	1,4-Difluorobenzene
GP2-5	K9703664-001	117
GP2-21	K9703664-002	115
GP2-21	K9703664-002MS	107
GP2-21	K9703664-002DMS	99
Lab Control Sample	K970602-LCS	116
Method Blank	K970602-MB	115

CAS Acceptance Limits: 48-129

Approved By:

SURL/111594 03664VOA.MS1 - GAS4SUR 6/6/97 Date: 6.6.97

00004

Page No.:

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix:

Soil

Service Request: K970366\4

Date Collected: 3/13/97

Date Received: 5/30/97

Date Extracted: 6/2/97

Date Analyzed: 6/2/97

Matrix Spike/Duplicate Matrix Spike Summary
Total Petroleum Hydrocarbons as Gasoline
Washington DOE Method WTPH-G
Units: mg/Kg (ppm)
Dry Weight Basis

Sample Name:

03664VOA.MSI - DMSISRPD 6/6/97

GP2-21

Lab Code:

K9703664-002MS, K9703664-002DMS

Percent Recovery

CAS Relative CAS RPD Sample Spike Result Acceptance Percent Acceptance Spike Level DMS Result MS **DMS** MS **DMS** Limits Difference Limit Analyte MS 52 52 ND 51 45 98 87 59-135 11 40 Gasoline

QA/QC Report

Client: Project: **EMCON**

New City Cleaners/40358-016.004 Task 3

LCS Matrix:

Soil

Service Request: K9703664

Date Collected: NA
Date Received: NA

Date Extracted: 6/2/97

Date Analyzed: 6/2/97

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons as Gasoline
Washington DOE Method WTPH-G
Units: mg/Kg (ppm)

				CAS Percent Recovery
Analyte	True Value	Result	Percent Recovery	Acceptance Limits
Gasoline	48	57	119	82-155

Approved By:

03664VOA.MSI - GAS±LCS 6/6/97

Date: 6.6.97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Sample Matrix:

Soil

Service Request: K9703664

Date Collected: 3/13/97

Date Received: 5/30/97

Date Extracted: 6/2/97

Date Analyzed: 6/3/97

Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D Units: mg/Kg (ppm) Dry Weight Basis

	Analyte: Method Reporting Limit:	Diesel 25	Oil* 100
Sample Name	Lab Code		
GP2-5	K9703664-001	53(O)	512
GP2-21	K9703664-002	ND	ND
Method Blank	K970602-MB	ND	ND

Quantitated using 30-weight motor oil as a standard.

Quantitated as diesel. The sample contained a heavier than diesel component that partially eluted in the diesel range.

Date: 6.6.97 Approved By: _ 2A/102094

03664PHC.LP1 - TPHs 6/6/97

QA/QC Report

Client: Project: **EMCON**

New City Cleaners/40358-016.004 Task 3

Sample Matrix: Soil

Service Request: K9703664

Date Collected: 3/13/97

Date Received: 5/30/97

Date Extracted: 6/2/97

Date Analyzed: 6/3/97

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D

Sample Name	Lab Code	Percent Recovery o-Terphenyl
GP2-5	K9703664-001	96
GP2-21	K9703664-002	87
GP2-5	K9703664-001MS	87
GP2-5	K9703664-001DMS	91
Lab Control Sample	K970602-LCS	89
Method Blank	K970602-MB	87

CAS Acceptance Limits: 56-116

Approved By: MMuhthe

SUBSCLIPITE - sur 6/5/97

Date: <u>6/5/97</u>

QA/QC Report

Client:

Sample Matrix:

EMCON

Project:

New City Cleaners/40358-016.004 Task 3

Soil

Service Request: K9703664

Date Collected: 3/13/97

Date Received: 5/30/97 Date Extracted: 6/2/97

Date Analyzed: 6/3/97

Matrix Spike/Duplicate Matrix Spike Summary Total Petroleum Hydrocarbons as Diesel and Oil Washington DOE Method WTPH-D Units: mg/Kg (ppm) Dry Weight Basis

Sample Name:

GP2-5

Lab Code:

K9703664-001DMS

Percent Recovery

CAS **CAS RPD** Relative Acceptance Percent Acceptance Spike Level Sample Spike Result **DMS** Limits Difference Limit MS DMS Result MS **DMS** MS Analyte 19-145 40 190 53 187 191 71 73 2 190 Diesel

Approved By: MManthe

Date: <u>6/5/97</u>

DMSLSDADHERYSAMILL 6/5/97

QA/QC Report

Client:

EMCON

Service Request: K9703664

Project:

New City Cleaners/40358-016.004 Task 3

Date Collected: NA

LCS Matrix:

Soil

Date Received: NA
Date Extracted: 6/2/97
Date Analyzed: 6/3/97

Laboratory Control Sample Summary
Total Petroleum Hydrocarbons as Diesel and Oil
Washington DOE Method WTPH-D
Units: mg/Kg (ppm)

CAS Percent Recovery Acceptance True Percent Value Resuit Recovery Limits Analyte Diesel 160 125 78 60-120

Approved By: MMunthe

Date: 6/5/97



September 18, 1997

Service Request No: K9706067

Rob Lindsay EMCON W 7106 Will D. Alton Lane, Suite 101 Spokane, WA 99204-5760

Re: New City Cleaners/40358-016.004

Dear Rob:

Enclosed are the results of the sample(s) submitted to our laboratory on August 22, 1997. For your reference, these analyses have been assigned our service request number K9706067.

All analyses were performed according to our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 243.

Respectfully submitted,

Columbia Analytical Services, Inc.

Richard Craven Project Chemist

RAC/bf

Page 1 of

Acronyms

ASTM American Society for Testing and Materials

A2LA American Association for Laboratory Accreditation

CARB California Air Resources Board

CAS Number Chemical Abstract Service registry Number

CFC Chlorofluorocarbon
CFU Colony-Forming Unit

DEC Department of Environmental Conservation

DEQ Department of Environmental Quality

DHS Department of Health Services

DOE Department of Ecology
DOH Department of Health

EPA U. S. Environmental Protection Agency

ELAP Environmental Laboratory Accreditation Program

GC Gas Chromatography

GC/MS Gas Chromatography/Mass Spectrometry

J Estimated concentration. The value is less than the method reporting limit, but greater

than the method detection limit.

LUFT Leaking Underground Fuel Tank

M Modified

MCL Maximum Contaminant Level is the highest permissible concentration of a substance

allowed in drinking water as established by the USEPA.

MDL Method Detection Limit
MPN Most Probable Number
MRL Method Reporting Limit

NA Not Applicable
NAN Not Analyzed

NC Not Calculated

NCASI National Council of the Paper Industry for Air and Stream Improvement

ND Not Detected at or above the MRL

NIOSH National Institute for Occupational Safety and Health

PQL Practical Quantitation Limit

RCRA Resource Conservation and Recovery Act

SIM Selected Ion Monitoring

TPH Total Petroleum Hydrocarbons

tr Trace level is the concentration of an analyte that is less than the PQL but greater than

or equal to the MDL.

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9706067

Date Collected: 8/20/97
Date Received: 8/22/97
Date Extracted: NA

Date Analyzed: 9/2,3/97

Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: µg/L (ppb)

Sample Name	Lab Code	MRL	Result
MW-B-0897	K9706067-001	50	ND
MW-D-0897	K9706067-002	50	ND
MW-E-0897	K 9706067-003	50	ND
MW-1-0897	K9706067-004	50	ND
MW-2-0897	K9706067-005	50	ND
MW-3-0897	K9706067-006	50	ND
MW-4-0897	K9706067-007	50	ND
MW-5-0897	K9706067-008	50	ND
TB-1-0897	K9706067-009	50	ND
Method Blank	K970902-MB	50	ND

Approved By: Date: 9/9/97 00003

Analytical Report

.lient:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix:

Water

Service Request: K9706067

Date Collected: 8/20/97

Date Received: 8/22/97

Total Petroleum Hydrocarbons as Diesel

Sample Name:

MW-B-0897

Units: ug/L (ppb)

Lab Code:

K9706067-001

Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Diesel	METHOD	W/TPH-D	250	1	8/27/97	8/28/97	ND	

00004

Analytical Report

_lient:

EMCON

Service Request: K9706067

Project:

New City Cleaners/40358-016.004

Date Collected: 8/20/97

Sample Matrix:

Water

Date Received: 8/22/97

Total Petroleum Hydrocarbons as Diesel

Sample Name:

MW-D-0897

Units: ug/L (ppb)

Lab Code:

K9706067-002

Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Diesel	METHOD	W/TPH-D	250	1	8/27/97	8/28/97	ND	

1822/052595

Analytical Report

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EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix:

Water

Service Request: K9706067

Date Collected: 8/20/97 Date Received: 8/22/97

Total Petroleum Hydrocarbons as Diesel

Sample Name:

MW-E-0897

Lab Code:

K9706067-003

Units: ug/L (ppb)

Basis: NA

Test Notes:

Result Analysis **Dilution** Date Date Prep Method MRL Factor Extracted Analyzed Result Notes Method Analyte 8/27/97 8/28/97 ND **METHOD** W/TPH-D 250 1 Diesel

Approved By:	JW	Date:	9/15/17	
522/052595			(00006

Analytical Report

lient:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix:

Service Request: K9706067

Date Collected: 8/20/97

Date Received: 8/22/97

Total Petroleum Hydrocarbons as Diesel

Sample Name:

Lab Code:

Test Notes:

MW-1-0897

K9706067-004

Units: ug/L (ppb)

Basis: NA

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Diesel	METHOD	W/TPH-D	250	ī	8/27/97	8/28/97	ND	

Date: <u>9/15/47</u> 00007 Approved By: 1822/052595

Analytical Report

Jlient:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix:

Water

Service Request: K9706067

Date Collected: 8/20/97

Date Received: 8/22/97

Total Petroleum Hydrocarbons as Diesel

Sample Name:

MW-2-0897

Lab Code:

K9706067-005

Units: ug/L (ppb)

Basis: NA

Test Notes:

Dilution Date Date Result Prep Analysis Method MRL Factor Extracted Analyzed Result **Notes** Method Analyte 8/27/97 8/28/97 ND Diesel **METHOD** W/TPH-D 250

Approved By: ______ Date: 9/15/57 00008

Analytical Report

Client:

EMCON

Service Request: K9706067

Project:

New City Cleaners/40358-016.004

Date Collected: 8/20/97

Sample Matrix:

Water

Date Received: 8/22/97

Total Petroleum Hydrocarbons as Diesel

Sample Name:

MW-3-0897

Units: ug/L (ppb)

Lab Code:

K9706067-006

Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor		Date Analyzed	Result	Result Notes
Diesel	METHOD	W/TPH-D	250	1	8/27/97	8/29/97	ND	

Approved By:	Jup	Date:	9/15/17
1822/052595			

00009

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix:

Water

Service Request: K9706067

Date Collected: 8/20/97

Date Received: 8/22/97

Total Petroleum Hydrocarbons as Diesel

Sample Name:

MW-4-0897

Units: ug/L (ppb)

Lab Code:

K9706067-007

Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Diesel	METHOD	W/TPH-D	250	1	8/27/97	8/29/97	ND	

Date: 9/15/17 Jup approved By:

Analytical Report

.lient:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix:

Water

Service Request: K9706067

Date Collected: 8/20/97

Date Received: 8/22/97

Total Petroleum Hydrocarbons as Diesel

Sample Name:

MW-5-0897

Lab Code:

K9706067-008

Units: ug/L (ppb)

Basis: NA

Test Notes:

Prep Analysis Dilution Date Date Result Analyte Method Method MRL Factor Extracted Analyzed Result Notes Diesel METHOD W/TPH-D 250 1 8/27/97 8/29/97 ND

00011

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix:

Water

Service Request: K9706067

Date Collected: NA

Date Received: NA

Total Petroleum Hydrocarbons as Diesel

Sample Name:

Method Blank

Units: ug/L (ppb)

Lab Code:

K970827-MB

Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	MRL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Diesel	METHOD	W/TPH-D	250	1	8/27/97	8/28/97	ND	

Date: 9/15/17 pproved By: 00012 1822/052595

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9706067

Date Collected: 8/20/97

Date Received: 8/22/97 Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

	Sample Name: Lab Code: Date Analyzed:	MW-B- 0897 K9706067-001 9/3/97	MW-D-0897 K9706067-002 9/3/97	MW-E-0897 K9706067-003 9/3/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	0.5	ND	ND	ND
Chloromethane	0.5	ND	ND	ND
Vinyl Chloride	0.5	ND	ND	ND ·
Bromomethane	0.5	ND	ND	ND
Chloroethane	0.5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	0.5	ND	ND	ND
Acetone	20	ND	ND	ND
1,1-Dichloroethene	0.5	ND	ND	ND
Carbon Disulfide	0.5	ND	ND	ND
Methylene Chloride	1	ND	ND	ND
trans-1,2-Dichloroethene	0.5	ND	ND	ND
1,1-Dichloroethane	0.5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	0.5	ND	ND	ND
cis -1,2-Dichloroethene	0.5	ND	ND	0.6
Chloroform	0.5	ND	0.9	ND
Bromochloromethane	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	ND	ND
1,1-Dichloropropene	0.5	ND	ND	ND
Carbon Tetrachloride	0.5	ND	ND	ND
, 1,2-Dichloroethane	0.5	ND	ND	ND
Benzene	0.5	ND	ND	ND
Trichloroethene (TCE)	0.5	ND	ND	3.4
1,2-Dichloropropane	0.5	ND	ND	ND
Bromodichloromethane	0.5	ND	ND	ND
Dibromomethane	0.5	ND	ND	ND
2-Hexanone	20	ND	ND	ND
cis-1,3-Dichloropropene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND	ND
1,3-Dichloropropane	0.5	ND	ND	ND

Jane E. Wiegel Date: 9/18/97 06067VOA.LW1 - 8260w2p 9/17/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9706067 Date Collected: 8/20/97 Date Received: 8/22/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

	Sample Name: Lab Code: Date Analyzed:	MW-B -0 8 97 K9706067-001 9/3/97	MW-D-0897 K9706067 - 002 9/3/97	MW-E-0897 K9706067-003 9/ 3 /97
Analyte	MRL			
Tetrachloroethene (PCE)	0.5	ND	ND	7.7
Dibromochloromethane	0.5	ND	ND	ND
1,2-Dibromoethane (EDB)	2	ND	ND	ND
Chlorobenzene	0.5	ND	ND	ND
1,1,1,2-Tetrachloroethane	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
Styrene	0.5	ND	ND	ND
Bromoform	0.5	ND	ND	ND
Isopropylbenzene	2	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.5	ND	ND	ND
1,2,3-Trichloropropane	0.5	ND	ND	ND
Bromobenzene	0.5	ND	ND	ND
n -Propylbenzene	2	ND	ND	ND
2-Chlorotoluene	2	ND	ND	ND
4-Chlorotoluene	2	ND	ND	ND
1,3,5-Trimethylbenzene	2	ND	ND	ND
tert -Butylbenzene	2	ND	ND	ND
1,2,4-Trimethylbenzene	2	ND	ND	ND
sec -Butylbenzene	2	ND	ND	ND
1,3-Dichlorobenzene	0.5	ND	ND	ND
4-Isopropyltoluene	2	ND	ND	ND
1,4-Dichlorobenzene	0.5	ND	ND	ND
n -Butylbenzene	2	ND	ND	ND
1,2-Dichlorobenzene	0.5	ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	2	ND	ND	ND
1,2,4-Trichlorobenzene	2	ND	ND	ND
1,2,3-Trichlorobenzene	2	ND	ND	ND
Naphthalene	2	ND	ND	ND
Hexachlorobutadiene	2	ND	ND	ND

Drane E Wiegel Approved By:

3S2P/102094 06067VOA LW1 - 8260w2p 9/17/97

Page No

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9706067

Date Collected: 8/20/97 Date Received: 8/22/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

	Sample Name: Lab Code: Date Analyzed:	MW-1-0897 K9706067-004 9/3/97	MW-2-0897 K9706067-005 9/3/97	MW-3-0897 K9706067 - 006 9/3/97
Analyte	MRL	2.2		5.5,,,,
Dichlorodifluoromethane (CFC 12)	0.5	ND	ND	ND
Chloromethane	0.5	ND	ND	ND
Vinyl Chloride	0.5	ND	ND	ND
Bromomethane	0.5	ND	ND	ND
Chloroethane	0.5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	0.5	ND	ND	ND
Acetone	20	ND	ND	ND
1,1-Dichloroethene	0.5	ND	ND	ND
Carbon Disulfide	0.5	ND	ND	ND
Methylene Chloride	I	ND	ND	ND
trans-1,2-Dichloroethene	0.5	ND	ND	ND
1,1-Dichloroethane	0.5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	0.5	ND	ND	ND
cis-1,2-Dichloroethene	0.5	ND	ND	ND
Chloroform	0.5	ND	ND	ND
Bromochloromethane	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	ND	ND
1,1-Dichloropropene	0.5	ND	ND	ND
Carbon Tetrachloride	0.5	ND	ND	ND
1,2-Dichloroethane	0.5	ND	ND	ND
√ Benzene	0.5	ND	ND	ND
Trichloroethene (TCE)	0.5	1.0	5.7	1.7
1,2-Dichloropropane	0.5	ND	ND	ND
Bromodichloromethane	0.5	ND	ND	ND
Dibromomethane	0.5	ND	ND	ND
2-Hexanone	20	ND	ND	ND
cis -1,3-Dichloropropene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND	ND
1,3-Dichloropropane	0.5	ND	ND	ND

Ciane E. Wigel Date: 9/18/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9706067

Date Collected: 8/20/97

Date Received: 8/22/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

		Sample Name: Lab Code: Date Analyzed:	MW-1-0897 K9706067-004 9/3/97	MW-2-0897 K9706067-005 9/3/97	MW-3-089 7 K9706067-006 9/3/97
Analyte	MRL				
Tetrachloroethene (PCE)	0.5		31	58	35
Dibromochloromethane	0.5		ND	ND	ND
1,2-Dibromoethane (EDB)	2		ND	ND	ND
Chlorobenzene	0.5		ND	ND	ND
1,1,1,2-Tetrachloroethane	0.5		ND	ND	ND
Ethylbenzene	0.5		ND	ND	ND
Total Xylenes	0.5		ND	ND	ND
Styrene	0.5		ND	ND	ND
Bromoform	0.5		ND	ND	ND
Isopropylbenzene	2		ND	ND	ND
1,1,2,2-Tetrachloroethane	0.5		ND	ND	ND
1,2,3-Trichloropropane	0.5		ND	ND	ND
Bromobenzene	0.5		ND	ND	ND
n -Propylbenzene	2		ND	ND	ND
2-Chlorotoluene	2		ND	ND	ND
4-Chlorotoluene	2		ND	ND	ND
1,3,5-Trimethylbenzene	2		ND	ND	ND
tert -Butylbenzene	2		ND	ND	ND
1,2,4-Trimethylbenzene	2		ND	ND	ND
sec -Butylbenzene	2		ND	ND	ND
1,3-Dichlorobenzene	0.5		ND	ND	ND
4-Isopropyltoluene	2		ND	ND	ND
1,4-Dichlorobenzene	0.5		ND	ND	ND
n-Butylbenzene	2		ND	ND	ND
1,2-Dichlorobenzene	0.5		ND	ND	ND
1,2-Dibromo-3-chloropropane (DBCP)	2		ND	ND	ND
1,2,4-Trichlorobenzene	2		ND	ND	ND
1,2,3-Trichlorobenzene	2		ND	ND	ND
Naphthalene	2		ND	ND	ND
Hexachlorobutadiene	2		ND	ND	ND

iane E. Wiegel 3S2P/102094 06067VOA.L.W1 - 8260w2p (2) 9/17/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9706067 Date Collected: 8/20/97 Date Received: 8/22/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

	Sample Name: Lab Code:	MW-4-0897 K9706067-007	MW-5-0897 K9706067-008	TB-1-0897 K9706067-009
	Date Analyzed:	9/3/97	9/3/97	9/3/97
Analyte	MRL			
Dichlorodifluoromethane (CFC 12)	0.5	ND	ND	ND
Chloromethane	0.5	ND	ND	ND
Vinyl Chloride	0,5	ND	ND	ND
Bromomethane	0.5	ND	ND	ND
Chloroethane	0.5	ND	ND	ND
Trichlorofluoromethane (CFC 11)	0.5	ND	ND	ND
Acetone	20	ND	ND	ND
1,1-Dichloroethene	0.5	ND	ND	ND
Carbon Disulfide	0.5	ND	ND	ND
Methylene Chloride	1	ND	ND	ND
trans-1,2-Dichloroethene	0.5	ND	ND	ND
1,1-Dichloroethane	0.5	ND	ND	ND
2-Butanone (MEK)	20	ND	ND	ND
2,2-Dichloropropane	0.5	ND	ND	ND.
cis -1,2-Dichloroethene	0.5	ND	ND	ND
Chloroform	0.5	ND	ND	ND
Bromochloromethane	0.5	ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	ND	ND
1,1-Dichloropropene	0.5	ND	ND	ND
Carbon Tetrachloride	0.5	ND	ND	ND
/ 1,2-Dichloroethane	0.5	ND	ND	ND
Benzene	0.5	ND	ND	ND
Trichloroethene (TCE)	0.5	1.0	5.8	ND
1,2-Dichloropropane	0.5	ND	ND	ND
Bromodichloromethane	0.5	ND	ND	ND
Dibromomethane	0.5	ND	ND	ND
2-Hexanone	20	ND	ND	ND
cis -1,3-Dichloropropene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND	ND
1,3-Dichloropropane	0.5	ND	ND	ND

Date: 9/18/97 00017 06067VOA L\VI - 8260w2p (3) 9/17/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9706067 Date Collected: 8/20/97

Date Received: 8/22/97

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

			Sample Name: Lab Code: Date Analyzed:	MW-4-0897 K9706067-007 9/3/97	MW-5-0897 K9706067-008 9/3/97	TB-1-0897 K9706067-009 9/3/97
	Analyte	MRL				
	Tetrachloroethene (PCE)	0.5		1.2	65	ND
1	Dibromochloromethane	0.5		ND	ND	ND
	1,2-Dibromoethane (EDB)	2		ND	ND	ND
	Chlorobenzene	0.5		ND	ND	ND
,	1,1,1,2-Tetrachloroethane	0.5		ND	ND	ND
0	Ethylbenzene	0.5		ND	ND	ND
/	Total Xylenes	0.5		ND	ND	ND
_	Styrene	0.5		ND	ND	ND
	Bromoform	0.5		ND	ND	ND
	Isopropylbenzene	2		ND	ND	ND
	1,1,2,2-Tetrachloroethane	0.5		ND	ND	ND
	1,2,3-Trichloropropane	0.5		ND	ND	ND
	Bromobenzene	0.5		ND	ND	ND
	n-Propylbenzene	2		ND	ND	ND
	2-Chlorotoluene	2		ND	ND	ND
	4-Chlorotoluene	2		ND	ND	ND
	1,3,5-Trimethylbenzene	2		ND	ND	ND
	tert -Butylbenzene	2		ND	ND	ND
	1,2,4-Trimethylbenzene	2		ND	ND	ND
	sec -Butylbenzene	2		ND	ND	ND
	1,3-Dichlorobenzene	0.5		ND	ND	ND
	4-Isopropyltoluene	2		ND	ND	ND
	1,4-Dichlorobenzene	0.5		ND	ND	ND
	n-Butylbenzene	2		ND	ND	ND
	1,2-Dichlorobenzene	0.5		ND	ND	ND
	1,2-Dibromo-3-chloropropane (DBCP)	2		ND	ND	ND
	1,2,4-Trichlorobenzene	2		ND	ND	ND
	1,2,3-Trichlorobenzene	2		ND	ND	ND
	Naphthalene	2		ND	ND	ND
	Hexachlorobutadiene	2		ND	ND	ND

Diane E. Wiegel Date: 9/18 3S2P/102094 06067VOA.LWI - 8260w2p (3) 9/17/97

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9706067

Date Collected: NA Date Received: NA

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

	Sample Nan	e: Method Blank	Method Blank
	Lab Cod	le: K970903-MB	K970908-MB
	Date Analyze	ed: 9/3/97	9/8/97
A matuta	MRL		
Analyte			\ m
Dichlorodifluoromethane (CFC 12)	0.5	ND	ND
Chloromethane	0.5	ND	ND
Vinyl Chloride	0.5	ND	ND
Bromomethane	0.5	ND	ND
Chloroethane	0.5	ND	ND
Trichlorofluoromethane (CFC 11)	0.5	ND	ND
Acetone	20	ND	ND
1,1-Dichloroethene	0.5	ND	ND
Carbon Disulfide	0.5	ND	ND
Methylene Chloride	1	ND	ND
trans-1,2-Dichloroethene	0.5	ND	ND
1,1-Dichloroethane	0.5	ND	ND
2-Butanone (MEK)	20	ND	ND
2,2-Dichloropropane	0.5	ND	ND
cis-1,2-Dichloroethene	0.5	ND	ND
Chloroform	0.5	ND	ND
Bromochloromethane	0.5	ND	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	ND
1,1-Dichloropropene	0.5	ND	ND
Carbon Tetrachloride	0.5	ND	ND
1,2-Dichloroethane	0.5	ND	ND
Benzene	0.5	ND	ND
Trichloroethene (TCE)	0.5	ND	ND
1,2-Dichloropropane	0.5	ND	ND
Bromodichloromethane	0.5	ND	ND
Dibromomethane	0.5	ND	ND
2-Hexanone	20	ND	ND
, cis-1,3-Dichloropropene	0.5	ND	ND
Toluene	0.5	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND
4-Methyl-2-pentanone (MIBK)	20	ND	ND
1,3-Dichloropropane	0.5	ND	ND

Diane E. Wiegel Approved By: _ 06067VOA.LW1 - 8260w2p (4) 9/17/97

Date: _ 9

Analytical Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9706067

Date Collected: NA Date Received: NA

Date Extracted: NA

Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

			Sample Name: Lab Code: Date Analyzed:	Method Blank K970903-MB 9/3/97	Method Blank K970908-MB 9/8/97
	Analyte	MRL	-		
	Tetrachloroethene (PCE)	0.5		ND	ND
	Dibromochloromethane	0.5		ND	ND
	1,2-Dibromoethane (EDB)	2		ND	ND
	Chlorobenzene	0.5		ND	ND
,	-1,1,1,2-Tetrachloroethane	0.5		ND	ND
~	Ethylbenzene	0.5		ND	ND
~	Total Xylenes	0.5		ND	ND
	Styrene	0.5		ND	ND
	Bromoform	0.5		ND	ND
	Isopropylbenzene	2	•	ND	ND
	1,1,2,2-Tetrachloroethane	0.5		ND	ND
	1,2,3-Trichloropropane	0.5		ND	ND
	Bromobenzene	0.5		ND	ND
	n-Propylbenzene	2		ND	ND
	2-Chlorotoluene	2 2		ND	ND
	4-Chlorotoluene			ND	ND
	1,3,5-Trimethylbenzene	2		ND	ND
	tert -Butylbenzene	2		ND	ND
	1,2,4-Trimethylbenzene	2		ND	ND
	sec -Butylbenzene	2		ND	ND
	1,3-Dichlorobenzene	0.5		ND	ND
	4-Isopropyltoluene	2		ND	ND
	I,4-Dichlorobenzene	0.5		ND	ND
	n-Butylbenzene	2		ND	ND
	1,2-Dichlorobenzene	0.5		ND	ND
	1,2-Dibromo-3-chloropropane (DBCP)	2		ND	ND
	1,2,4-Trichlorobenzene	2		ND	ND
	1,2,3-Trichlorobenzene	2		ND	ND
	Naphthalene	2		ND	ND
	Hexachlorobutadiene	2		ND	ND

Approved By: 3S2P/102094 06067VOA.LWI - 8260w2p (4) 9/17/97

APPENDIX A LABORATORY QC RESULTS

QA/QC Report

Client:

EMCON

Project:

Sample Matrix: Water

New City Cleaners/40358-016.004

Date Collected: 8/20/97 Date Received: 8/22/97 Date Extracted: NA Date Analyzed: 9/2,3/97

Service Request: K9706067

Surrogate Recovery Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G

		Percent Recovery
Sample Name	Lab Code	4-Bromofluorobenzene
MW-B-0897	K9706067-001	83
MW-D-0897	K9706067-002	83
MW-E-0897	K9706067-003	84
MW-1-0897	K9706067-004	83
MW-2-0897	K9706067-005	84
MW-3-0897	K9706067-006	83
MW-1-0897	K9706067-007	83
MW-5-0897	K9706067-008	84
TB-1-0897	K9706067-009	79
MW-1-0897	K9706067-007MS	94
MW-1-0897	K9706067-007DMS	93
Lab Control Sample	K970902-LCS	97
Method Blank	K970902-MB	84

CAS Acceptance Limits: 65-117

Approved By:

SUBSECTION OF SU

___ Date: __

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix:

Water

Service Request: K9706067

Date Collected: 8/20/97

Page No..

Date Received: 8/22/97

Date Extracted: NA

Date Analyzed: 9/3/97

Matrix Spike/Duplicate Matrix Spike Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: µg/L (ppb)

Sample Name:

06067VOA.SSI - DMSISRPD 9/9/97

MW-4-0897

Lab Code:

K9706067-007MS, K9706067-007DMS

Percent Recovery

CAS Relative **CAS RPD** Acceptance Percent Acceptance Spike Result Spike Level Sample MS **DMS** MS **DMS** Limits Difference Limit MS **DMS** Result Analyte 30 1000 1000 ND 880 890 88 89 70-121 1 Gasoline

JOH Retself Date: _ Approved By: DMSISRPD/120594

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

LCS Matrix:

Water

Service Request: K9706067

Date Collected: NA Date Received: NA

Date Extracted: NA Date Analyzed: 9/3/97

Laboratory Control Sample Summary Total Petroleum Hydrocarbons as Gasoline Washington DOE Method WTPH-G Units: µg/L (ppb)

		,,		CAS Percent
	True		Percent	Recovery Acceptance
Analyte	Value	Result	Recovery	Limits
Gasoline	1000	840	84	76-138

Approved By:

LCS/107194 06067 VOA SSI - GASWLCS 9/8/97

AH Straff Date:

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Service Request: K9706067

Date Analyzed: 9/2/97

Initial Calibration Verification (ICV) Summary Total Petroleum Hydrocarbons as Gasoline

Sample Name:

ICV

0902F002

Units: ug/L (ppb)

Basis: NA

Lab Code: Test Notes:

Analysis Analyte

Method

True Value

Result

Percent Recovery Result Notes

Gasoline

W-TPHG

2000

2000

100

M / Staff Date: 9/9/97 Approved By:

LCS/52595 06067VOA.SSZ - ICV 9/8/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Service Request: K9706067

Date Analyzed: 9/2/97

Continuing Calibration Verification (CCV) Summary Total Petroleum Hydrocarbons as Gasoline

Sample Name:

CCVI

Lab Code:

0902F016

Units: ug/L (ppb)

Basis: NA

Test Notes:

Analyte

Analysis Method

True Value

Result

Percent Recovery Result Notes

Gasoline

W-TPHG

2000

1870

94

Approved By:

LCS/52595 06067VOA.SS2 - CCV 9/8/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Service Request: K9706067

Date Analyzed: 9/3/97

Continuing Calibration Verification (CCV) Summary Total Petroleum Hydrocarbons as Gasoline

Sample Name:

CCV2

Units: ug/L (ppb)

Lab Code:

0902F028

Basis: NA

Test Notes:

A markete	Analysis	True	Domile	Percent	Result
Analyte	Method	Value	Result	Recovery	Notes
Gasoline	W-TPHG	2000	1900	95	

Approved By:

LCS/52595 06067VOA.SS2 - CCV (2) 9/8/97 Date: 9/9/97 00027

QA/QC Report

lient:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix:

Water

Service Request: K9706067

Date Collected: 8/20/97
Date Received: 8/22/97

Date Extracted: 8/27/97
Date Analyzed: 8/28-29/97

Surrogate Recovery Summary
Total Petroleum Hydrocarbons as Diesel

Prep Method:

METHOD

_

AnalysisMethod: W/TPH-D

Units: PERCENT

Basis: NA

Percent Recovery
o-Terphenyl
92
93
92
95
96
92
90
88
86
92
93
91

CAS Acceptance Limits:

59-110

SUR1/052595

00007PHC.JS1 - WTPHD SUR 9/15/97

QA/QC Report

nt:

EMCON

.ject:

New City Cleaners/40358-016.004

Sample Matrix:

Water

Service Request: K9706067

Date Collected: 8/20/97

Date Received: 8/22/97

Date Extracted: 8/27/97
Date Analyzed: 8/29/97

Matrix Spike/Duplicate Matrix Spike Summary

Total Petroleum Hydrocarbons as Diesel

Sample Name:

MW-4-0897

Units: ug/L (ppb)

Basis: NA

ab Code: Test Notes: K9706067-007MS,

K9706067-007DMS

Percent Recovery

CAS Relative Analysis Spike Level Sample Spike Result Acceptance Percent Result Prep MRL MS DMS Result MS DMS MS DMS Limits Difference Notes Method **Unalyte** Method 79 3 Diesel **METHOD** W/TPH-D 250 2000 2000 ND 1530 1580 76 39-117

0029

QA/QC Report

Client:

EMCON

Service Request: K9706067

Project:

New City Cleaners/40358-016.004

Date Collected: NA Date Received: NA

LCS Matrix:

Water

Date Extracted: 8/27/97

Date Analyzed: 8/28/97

Laboratory Control Sample Summary

Total Petroleum Hydrocarbons as Diesel

Sample Name:

Lab Control Sample

Units: ug/L (ppb)

Lab Code:

K970827-LCS

Basis: NA

Test Notes:

CAS Percent

Recovery Analysis True Percent Acceptance Prep Limits Analyte Method Method Value Result Recovery

Diesel

METHOD

W/TPH-D

2000

1470

Result Notes

74

46-108

Date: 9/15/77 00030 Approved By:

QA/QC Report

Client:

EMCON

Service Request: K9706067

Project:

New City Cleaners/40358-016.004

Date Analyzed: 8/28/97

Continuing Calibration Verification (CCV) Summary
Total Petroleum Hydrocarbons as Diesel

Sample Name:

CCVI

Units: mg/L (ppm)

Lab Code:

Code: 0828F006

Basis: NA

Test Notes:

Analyte	Analysis Method	True Value	Result	Percent Recovery	Result Notes
Diesel	W/TPH-D	1000	948	95	

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Service Request: K9706067

Date Analyzed: 8/28/97

Continuing Calibration Verification (CCV) Summary Total Petroleum Hydrocarbons as Diesel

Sample Name:

CCV2

Lab Code:

0828F036

Units: mg/L (ppm)

Basis: NA

Test Notes:

Analysis True Percent Result Analyte Method Value Result Recovery Notes Diesel W/TPH-D 1000 961 96

Date: 9/15/17 00032 Approved By: LCS/52595

06067PHCJS3 - CCV (2) 9/15/97

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Service Request: K9706067

Date Analyzed: 8/28/97

Continuing Calibration Verification (CCV) Summary
Total Petroleum Hydrocarbons as Diesel

Sample Name:

CCV3

Units: mg/L (ppm)

Lab Code:

0828F066

Basis: NA

Test Notes:

Analysis True Percent Result
Analyte Method Value Result Recovery Notes

Diesel W/TPH-D 1000 958 96

06067PHC.JS3 - CCV (3) 9/15/97

Page No :

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Service Request: K9706067

Date Analyzed: 8/29/97

Continuing Calibration Verification (CCV) Summary Total Petroleum Hydrocarbons as Diesel

Sample Name:

CCV4

Units: mg/L (ppm)

Lab Code:

0828F096

Basis: NA

Test Notes:

Analyte	Analysis Method	True Value	Result	Percent Recovery	Result Notes
Diesel	W/TPH-D	1000	963	96	

Approved By: LCS/52595

06067PHC.JS3 - CCV (4) 9/15/97

QA/QC Report

Client:

EMCON

Service Request: K9706067

Project:

New City Cleaners/40358-016.004

Date Analyzed: 8/28/97

Continuing Calibration Blank (CCB) Summary Total Petroleum Hydrocarbons as Diesel

Sample Name:

CCBI

Units: ug/L (ppb)

Lab Code:

0828F012

Basis: NA

Test Notes:

Resuit Analysis Notes Analyte Method MRL Result W/TPH-D 250 ND Diesel

Date: 1/15/17 00035 Approved By:

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Service Request: K9706067

Date Analyzed: 8/28/97

Continuing Calibration Blank (CCB) Summary Total Petroleum Hydrocarbons as Diesel

Sample Name:

CCB2

Units: ug/L (ppb)

Lab Code:

0828F042

Basis: NA

Test Notes:

Analysis

Result

Analyte

Method

MRL

Result

Notes

Diesel

W/TPH-D

250

ND

Date: 9/15/97 00036

Approved By: LCS/52595

06067PHCJS3 - CCB (2) 9/15/97

Page No..

QA/QC Report

Client: Project: **EMCON**

New City Cleaners/40358-016.004

Service Request: K9706067

Date Analyzed: 8/28/97

Continuing Calibration Blank (CCB) Summary
Total Petroleum Hydrocarbons as Diesel

Sample Name:

CCB3

Units: ug/L (ppb)

Lab Code:

0828F072

Basis: NA

Test Notes:

Analysis Result Notes

Diesel

Analyte

W/TPH-D

250

ND

Date: 9/15/17 00037

Approved By:

LCS/52595

06067PHC.JS3 - CCB (3) 9/15/97

QA/QC Report

Client

EMCON

Service Request: K9706067

Project:

New City Cleaners/40358-016.004

Date Analyzed:

Continuing Calibration Blank (CCB) Summary Total Petroleum Hydrocarbons as Diesel

Sample Name:

CCB4

Units: ug/L (ppb)

Lab Code:

Analyte

Diesel

NA

Basis: NA

Test Notes:

Analysis Result Notes
W/TPH-D 250 ND

LCS/52595

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix: Water

Service Request: K9706067 Date Collected: 8/20/97

Date Received: 8/22/97 Date Extracted: NA

Date Analyzed: 9/3-8/97

Surrogate Recovery Summary Volatile Organic Compounds EPA Method 8260A

Sample Name	Lab Code	P e r c e n Dibromofluoromethane	t Rec Toluene-d ₈	o v e r y 4-Bromofluorobenzene
MW-B-0897	K97 06067-001	102	100	102
MW-D-0897	K 9706067-002	106	101	104
MW-E-0897	K9706067-003	104	100	102
MW-1-0897	K9706067-004	104	101	104
MW-2-0897	K9706067-005	107	100	103
MW-3-0897	K9706067-006	102	101	101
MW-4-0897	K9706067-007	104	100	103
MW-5-0897	K9706067-008	106	101	104
TB-1-0897	K9706067-009	104	100	102
MW-4-0897	K9706067-007M	1S 102	101	100
MW-4-0897	K9706067-007D	MS 98	98	95
Lab Control Sample	K970903-LCS	102	101	107
Method Blank	K970903-MB	100	100	103
Method Blank	K970908-MB	99	99	99

CAS Acceptance Limits: 86-118

88-110

86-115

Date: 9/18/97-00039 Approved By: SURJ/111594 06067VOA.LW1 - 8260wSUR 9/17/97

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

Sample Matrix:

Water

Service Request: K9706067

Date Collected: 8/20/97
Date Received: 8/22/97

Date Extracted: NA
Date Analyzed: 9/8/97

Matrix Spike/Duplicate Matrix Spike Summary
Volatile Organic Compounds

EPA Method 8260A Units: μg/L (ppb)

Sample Name:

MW-4-0897

Lab Code:

K9706067-007MS, K9706067-007DMS

Percent Recovery

	Spike	Level	Sample	Spike	Result			CAS Acceptance	Relative Percent
Analyte	MS	DMS	Result	MS	DMS	MS	DMS	Limits	Difference
1,1-Dichloroethene	10	10	ND	11	11	110	110	83-112	<1
Benzene	10	10	ND	11	11	110	110	85-116	<1
Trichloroethene	10	10	1.0	12	12	110	110	84-113	<1
Toluene	10	10	ND	11	11	110	110	89-112	<1
Chlorobenzene	10	10	ND	10	10	100	100	86-113	<1
1,2-Dichlorobenzene	10	10	ND	9.8	10	98	100	87-115	2
Naphthalene	10	10	ND	9.6	10	96	100	65-151	4

Approved By: DALL STORY OF STO

. 9/18/97 0004

Page No.:

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:

EMCON

Project:

New City Cleaners/40358-016.004

LCS Matrix:

Water

Service Request: K9706067

Date Collected: NA

Date Received: NA Date Extracted: NA

Date Analyzed: 9/3/97

Laboratory Control Sample Summary Volatile Organic Compounds EPA Method 8260A Units: µg/L (ppb)

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits
I,1-Dichloroethene	10	10	100	77-123
Benzene	10	9.7	97	86-115
Trichloroethene	10	9.9	99	84-120
Toluene	10	9.8	98	86-116
Chlorobenzene	10	9.5	95	88-114
1,2-Dichlorobenzene	10	9.6	96	83-119
Naphthalene	10	11	110	65-152

Date: 9/8/970004

Page No.:

APPENDIX B CHAIN OF CUSTODY INFORMATION



CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

	_	_			$\overline{}$	_	 11		-	T-	T	т. —	Ter	(-		T							_
RELINQUISHED BY: Signature Frinted Name Firm Date/Time	Uate/1/me	MAP FP/18/8	EMCON	Printed Name	Signature Valle	RELINQUISHED BY:	EP80 - 1 - 8]	MW-5-0877	4-0B97	MW-3-0877	FP80-2-WM	TP80-1-WM	MW-E-0877	MW-D-0877	4-180 - B - WM	SAMPLE I.D.	SAMPLERS SIGNATURE	FAX 507 838	. W. FICE Allon	COMPANY/ADDRESS _	PROJECT MANAGER	PROJECT NAME New City	261416
		M				.:	11/048	B/20/99	Blucks	Blusha	Bloghi	Blachi	भ्राज्यात	स्रोद्धि	यक्ति	DATE	John	1382	۲	CMCON	Rob L	1 -	
Signature Entired Name Printed Name Printed Name Date/Time	Date/ I Ime		Y TOTAL	Printed Name	Signature		1	1137	1550	1623	1454	PIEI 3	1245	1467	1655	TIME	~ Fatte	PHONE	<u></u>		Lindson	Clegnerd	317 South 1
Haven By Ry	10 PU # 36		Ex	Vame	O I	RECEIVED BY:	9	8	72	2	5	-	٠	72	1	LAB I.D.	the	€ 509 83B	Spokene, WA				1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222 • FAX (360) 636-1068
SPEC	нефизи			 	2 22	TURNA	• 1	=	-	Ξ	1	=	=	=	Water	SAMPLE MATRIX		- 1144	1.98224			40358-016-004	A 98626 • (360)
SPECIAL INSTRUCTIONS/COMMENTS:	Hequesied Hepon Dale	Provide FAX preliminary Results	Results	Provide Verbal Preliminary	24 hr 48 hr 5 d	TURNAROUND REQUIREMENTS	+	7	도	+	7	+	4	4	7	1	BER (s	1	577-722
TRUC) ale	prelimina		bal Prelimi	48 hr	HEQUIR						<u> </u>				Base, GC,M. Volati GC,M.	Neu/A S 62	cia	702				2 - (80
TIONS		ny Results	!	nary	5 day	EMENT			-			<u> </u>				Volati GC/M, Halog 601/8	le Org S 524	"827 anics '824	O _{3aul}	:s	<u> </u>		0) 695
COMN	H	<u>"</u> 			- <u>-</u> 	S	-	-				<u> </u>				Halog 601/80 Pestin 608/80 Total EPA/	enate 10 7	0 or 2	romai	Vic.	_		7222
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		able Report	on Repor	amples)	des DUP	UIREMENTS		×	X	×	X	×	×	×	×	TPHI Gas TPHI Diesel TPHI WAVH	87E	(EX)	030/8	WA/4 015/8	18.1 J		1068
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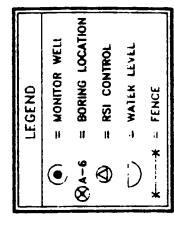
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JW - I ____INK - ____d by c ______r

40€ €

APPENDIX E SURVEY DATA, WELL DEVELOPMENT DATA



					356.52		356.89*				/97 = 347.21*
		355.16	355.15*	355.79*	355.86	355.52	355.44*	355.42'	356.42*	355.56	OF DITCH: 3/13/97
A-1	5-1	GP-1	CP 2	GP-3	GP-5	GP 6	GP-7	GP-8	6P-9	GP-10	WATER LEVEL
ĪĪ	<u> </u>	T			<u> </u>				_		.96
			355.16	355.16	355.16' 355.15' 355.79' 355.79'	355.16' 355.15' 355.79' 355.86'	355.16' 355.15' 355.15' 355.79' 355.95' 355.88'	355.16' 355.15' 355.79' 355.95' 355.86' 355.86'	355.16° 355.16° 355.79° 355.86° 355.86° 355.86° 355.84° 355.52°	355.16* 355.16* 355.79* 355.95* 355.86* 355.86* 355.44* 355.44* 355.44*	355.16' 355.16' 355.79' 355.79' 355.86' 355.86' 355.44' 355.42' 355.44'

TOP PVC

ELEVATION

BORING

KW-1

ELEVATION TABLE (5/97)

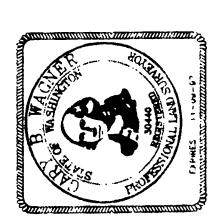
355.70° 356.19° 355.67° 356.39°

MW-23

14W-4

SB-1

1"=30"



E STEVENS DRIVE

SB-2 WELL "E" WELL "O"

354.40

355.3°

354.74'

.0

= 346.96'

WATER LEVEL OF DITCH: 5/08/97

MW-1 Development FIELD SAMPLING DATA SHEET

MCON

W 7106 Will D. Alton Lane, Suite 101 Spokane, Washington 99224

I: N I: SL LEVEL Time : 0 3 : 3 1" =	NE NNY MEASU DT-8 0.041 B) Peristation PLING	REMEI	SE DUDY NTS (Nex OT-P (PL)\$ 0.163 Disposable 8	S RA arest 0.01 roduct .03 . 3" =	SW IN DT-\ 0.367 /Terlon Bauk 1, do NO1 t & Volu 250, 5 250, 5	sample)	WE BLI D NW ? (Product 1 DTP- 0.653 atted Bauler (I	DTW	HT IPERA [Water of DTB- 1.469 Pump (G) Of Sample (circle)	Column) OTW .	Circ (Circ X 1 X 3 4.080		NA EAVY
I: N R: SL EVEL Time :03 :3 1" = rubble Pump ER SAM Date / / / / /	NE NNY MEASU DT-8 0.041 B) Peristance PLING	E CLC REMEI cottom Pump (C) C DATA (I	SE DUDY NTS (Nex DT-P 0.163 Disposable 8	S RA arest 0.01 roduct . 0 3 . 3* = arier (0) PVC is detected Amount	SW IN DT-\ 0.367 /Terion Bauk 1, do NO1 t & Volu 250, 5 250, 5	Vater . 0 3 . 4" = or (E) Dedice r sample) me mL mt 500, 1L	Pres	ND ID: UP ID: LIG TEM Chickness OTW 6" =	HT [Water 0 DTB- 1.469 Pump (G) C Sample (circle)	MED TURE: Columni DTW . 10" = Other = e Depth Ice YES	X 1 X 3 4.080 Filter NO NO		EAVY (atte units) plumn x Gald me (gal)
I: N I: SL EVEL Time : 0 3 : 3 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1	NE NNY MEASU DT-8 0.041 B) Peristance PLING	E CLC REME! ottom DATA (ime : : :	SE DUDY NTS (Nex DT-P 0.163 Disposable 8	S RA arest 0.01 roduct . 0 3 . 3* = arier (0) PVC is detected Amount	SW IN DT-\ 0.367 /Terion Bauk 1, do NO1 t & Volu 250, 5 250, 5	Vater . 0 3 . 4" = or (E) Dedice r sample) me mL mt 500, 1L	NW ? (Product 1 DTP- 0.653 atted Bailer (I	LIG TEM Thickness DTW 6" = Dodicated ervative HCI (HCI) (H	(Water C DTB- 1.469 Pump (G) C Sample (circle)	TURE: Columni DTW . 10" = Other = e Depth Ice YES	X 1 X 3 4.080 Filter NO NO		to units) olumn x Gal me (gal) . 5.875
: N SL	NENNY MEASU DT-8 0.041 B) Peristalitic PLING	E CLC REME! ottom DATA (ime : : :	SE DUDY NTS (Nex DT-P 0.163 Disposable 8	S RA arest 0.01 roduct . 0 3 . 3* = arier (0) PVC is detected Amount	0.367 //offon Bauk 40 250, 5 250, 5	Vater . 0 3 . 4" = or (E) Dedice r sample) me mL mt 500, 1L	NW ? (Product 1 DTP- 0.653 atted Bailer (I	LIG TEM Thickness OTW 6" = F) Dedicated ervative HCI (HCI) (HCI) (H	(Water C DTB- 1.469 Pump (G) C Sample (circle)	TURE: Columni DTW . 10" = Other = e Depth Ice YES	X 1 X 3 4.080 Filter NO NO		eate unstallolumn x Galme (gallolumn 5.875
I: N R: SL EVEL Time : 0 3 : 1" = 1 Table Pump ER SAM Date / / / / / / / / / / / / / / / / / / /	NE NNY MEASU DT-8 0.041 B) Peristantic PLING	CLC REMEI ottom	SE DUDY NTS (Nex DT-P 0.163 Disposable 8 if product	RA arest 0.01 roduct . 0 3 . 3" = asiar (0) PVC is detected	0.367 //offen Bask 1, do NOT t & Volu 250, 5 250, 5	Vater . 0 3 . 4" = or (E) Dedice r sample) me mL mt 500, 1L	(Product 1 DTP- 0.653 ated Bailer (I	TEM Chickness DTW 6" = Chickness HCI (HCI) (HCI)	(Water C DTB- 1.469 Pump (G) C Sample (circle)	TURE: Columni DTW . 10" = Other = e Depth Ice YES	X 1 X 3 4.080 Filter NO NO		ente untal plumn x Ga me (gal - 5.875
EVEL Time : 0 3 : 3 1" = restote Pump ER SAM Date / / / / / / / / /	0.041 B) Peristalitic	REMEI ottom Pump (C) C DATA (I me : :	OT-P O.163 Disposable 8	arest 0.01 roduct 0.03 3* = aler (0) PVC is detected	0.367 //offen Back 1, do NO1 t & Volu 250, 5 250, 5	4" = or (E) Dodice r sample) me mL mi 500, 1L	(Product DTP-0.653 atted Bailer (I	DTW 6" = F) Dedicated ervative HCI (HCI) (H	(Water of DTB-1.469 Pump (G) C Sample (circle)	Column) DTW 10" = Other = e Depth Ice YES	X 1 X 3 4.080 Filter NO NO	Volur 12" =	me (gal
Time : 0 3 : 3 1" = rubble Pump ER SAM Date / / / / / / / / /	0.041 B) Peristaltic PLING	2 = 2 = DATA (i	0.163 Disposable 8	roduct . U 3 . 3* = aler (0) PVC is detected Amount	0.367 /Toflon Bask ii, do NOT t & Volu	4" = or (E) Dodice r sample) me mL mi 500, 1L	0.653 atted Bauler (I	OTW 6" = F) Dedicated ervative HCI (HCI) (H	1.469 Pump (G) C Sample (circle)	10" = Other = e Depth Ice YES	X 1 X 3 4.080 Filter NO NO	Volur 12" =	olumn x Ga me (gal 5.875
Time : 0 3 : 3 1" = rubble Pump ER SAM Date / / / / / / / / /	0.041 B) Peristaltic PLING	2 = 2 = DATA (i	0.163 Disposable 8	roduct . U 3 . 3* = aler (0) PVC is detected Amount	0.367 /Toflon Bask ii, do NOT t & Volu	4" = or (E) Dodice r sample) me mL mi 500, 1L	0.653 atted Bauler (I	OTW 6" = F) Dedicated ervative HCI (HCI) (H	1.469 Pump (G) C Sample (circle)	10" = Other = e Depth Ice YES	X 3 4.080 : Filter NO NO	Volur 12' = pH	5.875
:03 : 3 1" = rsuble Pump ER SAM Date / / / / / / / / /	0.041 B) Peristaltic PLING	. 2" = : Pump (C) (I) DATA (I) me : : : : : : : : : : : : : : : : : :	0.163 Disposable B	3" = aler (0) PVC is detected	0.367 /Terion Bauk 1, do NOT t & Volu 40 250, 5 250, 5	4" = or (E) Dodice r sample) me mL mi 500, 1L	0,653 atted Bauler (I	6" = F) Dedicated ervative HCl (HCl) (H	1.469 Pump (G) C Sample (circle)	10" = Other = e Depth Ice YES	X 3 4.080 : Filter NO NO	12" =	5.875
: 3 1" = rsible Pump ER SAM Date / / / / / / / /	B) Peristaltic	Pump (C) C DATA (I	0,163 Disposable B	3" = lader (0) PVC is detected	0.367 /Terion Bauk i, do NOT t & Volu 40 250, 5 250, 5	4" = or (E) Dedice r sample) me mL omi 500, 1L	Pres	ervative HCI (HCI) (H	1.469 Pump (G) C Sample	10" = Other = e Depth Ice YES	X 3 4.080 : Filter NO NO	рН	5.875 (Viff use
Date / / / / / /	B) Peristaltic	Pump (C) C DATA (I	Disposable B	aier (0) PVC is detected	7 of to 8 of t	r sample) me mL mi 500, 1L	Pres	ervative HCI (HCI) (H	Pump (G) C Sample (circle)	e Depth Ice YES	4.080 Filter NO NO	рН	(V if use
Date / / / / / /	B) Peristaltic	Pump (C) C DATA (I	Disposable B	aier (0) PVC is detected	7 of to 8 of t	r sample) me mL mi 500, 1L	Pres	ervative HCI (HCI) (H	Pump (G) C Sample (circle)	e Depth Ice YES	Filter NO NO	рН	(V if use
Date / / / / / / / / / / / / / / / / / / /	PLING	DATA (i	if product i	is detected	40 Volu 250, 5 250, 5	r sample) me mL mi 500, 1L 500, 1L	Pres	ervative HCI (HCI) (H	Sample (circle)	e Depth Ice YES	Filter NO NO		
Date / / / / / / / / / / / / / /	Ti	me : : : : : : : : : : : : : : : : : : :	T	Amoun	250, 5 250, 5 250, 5	me mL ml 500, 1L 500, 1L	Pres	HCI (HCI) (H	(circle)	lce YES	Filter NO NO		1
		:	Method 3	}	250, 5 250, 5 250, 5	ml 500, 1L 500, 1L		HCI (HCI) (H		YES	NO NO		4
		:		3	250, 5 250, 5 250, 5	500, 1L 500, 1L	(None)	(HCI) (H	H ₂ SO₄)		NO		
		:			250, 5 250, 5	500, 1L	(None)		12004)	YES			
		:			250, 5			None					
, , 		:				500, 1L	•			YES	NO	NA NA	_
1 1		:		1				H₂SO.		YES	NO		
 	ļ	•		 	250, 5	500, 1L		NaOH		YES	NO		
1 1	T -	<u> </u>		<u> </u>	250, 9	500, 1L		HNO ₃		YES	NO		
	1	:			250, 9	500, 1L		HNO ³		YES	YES		
1 1		:			250, 5	500, 1L				YES			
Total Bott	es (includ	e duplicat	te count):										
ETYPE	TYPICAL	L ANALYS	IS ALLOW	ED PER BO	TLE TY	PE (Circle	applicable	or write no	n-standar	d analysis	below)		
		(8010/8020)	<u> </u>	(8240) (826) (BTEXT	PH-G)			OR		WA[]
		TPH-HCID)	(TPH-0)	(TPH-418.1) (TSS) (BOO)				ACO ¹) (CI	(SO ₄)	(NO ₁)	OR (WA ()
ły	+	onductivity) (TOC) (To		rss) (BOO) rotal Keldahi			DyNO)	(C)	(304)	tron tr	30 (1)		
,	(Cyanide)	<u> </u>											
Poly													
/ED - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	20) (Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn)	(Ni) (Ag) (S	e) (TT) (V)	(Zn) (Hg) (H	(eN) (Ha	rdness) (Sil	ica)	
	1	1					 		<u> </u>	D = 21 = - 1 =	let Dest	<u> </u>	
					:	Tac =			<u> </u>				nalib:
Purg	ed (gal)	<u> </u>)H	E Con	d (µS)	*⊦ Tei	mp °C	Other	DISS O	₂ (mg/i)		ater Qu	anty
	•		•			<u> </u>	•		-	•			
	•	ļ	•	ļ			•			•			.
	•			ļ		ļ	.			•			
			•	<u> </u>						•			
	.00		•				•			•			
(Cumul	tive Totals]					•	•	1			_	-	
	FD - Poly FY DAT Purge	FED - Poty (As) (Sb) FY DATA Purged (gal)	FD-Poty (As) (Sb) (Ba) (Be) FY DATA Purge Purged (gal)	FD-Poly (As) (Sb) (Ba) (Be) (Ca) (Cd) (Cd) (Cd) (Cd) (Cd) (Cd) (Cd) (Cd	Purged (gal)	Purged (gal) Ph E Cond (μS) Cond (Cond	FED - Poly	FED - Poly	FED - Poly	ED-Poly (As) (Sb) (Ba) (Bo) (Ca) (Cd) (Cd) (Cd) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (V) (Zn) (Hg) (Pg) (Pg) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (V) (Zn) (Hg) (Pg) (Pg) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (V) (Zn) (Hg) (Pg) (Pg) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (V) (Zn) (Hg) (Pg) (Pg) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (V) (Zn) (Hg) (Pg) (Pg) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (V) (Zn) (Hg) (Pg) (Pg) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (V) (Zn) (Hg) (Pg) (Pg) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (V) (Zn) (Hg) (Pg) (Pg) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (V) (Zn) (Hg) (Pg) (Pg) (Ng) (Ni) (Ag) (Se) (Π) (V) (Zn) (Hg) (Pg) (Pg) (Ng) (Ng) (Ng) (Ng) (Ng) (Ng) (Ng) (N	FED - Poly	FED - Poly	FED - Poly (As) (Sb) (Ba) (Bo) (Ca) (Ca) (Ca) (Ca) (Ca) (Ca) (Pe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Π) (V) (Zn) (Hg) (N (Na) (Hardness) (Silica)

(SIGNATURE)

(PRINTED NAME)

Mw-2 Development FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101

W		7]	5							Sp	okane,	Washir	igton ^{'9}	9224		
					1				Office:	(509	9) 838-1	144	Fax:	(50	19) 838	-1382
PROJE	ECT N	AME	: Ne	w C	147	Clean	ers			W	ELL ID:	М	W -	2		
SITE A	ADDRI	ESS:		147	51	even	s Dr	ive		BL	IND ID:					
											UP ID:					NA
WI	ND FR	юм:	N	NE	E	SE	S	sw	W	NW	LIG	HT	MED	NUI	Н	EAVY
٧	VEAT	HER:	SUI	YNY	CLC	UDY	RA	IN		?	TEN	1PERA	TURE:	• F	•	*c
HADO	201.00	27/1 E	TYE! N	AE ASII	REME	NTS (Ne	arest 0.01			Product	Thickness)	Water	Columni	(Cin	cie appropri (Water C	ste unitsj olumn x Gal/ftj
Da			me		ottom		roduct		Vater	,	-DTW		OTW	·		me (gal)
512			:18				•	8	.18	<u> </u>	•		•	X 1		•
51		(5#						8						X 3		•
	(dia./2) ² x		1" =	0.041	2"=	0.163	3" =	0.367	4" =	0.653	6" =	1.469	10" =	4.080	12" =	5.875
	<u> </u>	1					ailer (D) PVC		er (E) Dedic		F) Dedicated	Pump (G)	 Other =			
	~~~~						is detected				·		e Depth	:		[V if used]
Bottle			ate		me		Amount				ervative	[circle]	Ice	Filter	ρН	1
VOA		7		<u> </u>	•	Ī	3		ml		HCI	<u> </u>	YES	NO		<u> </u>
Amber		<del>,</del>			<u>:                                    </u>				500. 1L	(None	) (HCI) (I	H ₂ SO ₄ )	YES	NO		
White		,			<u>:</u>				500, 1L		None		YES	NO	NA	
Yellow		<del>'</del>	<del></del>		<del></del>				500, 1L	<u> </u>	H ₂ SO ₄		YES	NO		
Green		1			<del>.                                      </del>				500, 1L		NaOH		YES	NO		
Red Tot		,			<del>.</del> —	<del> </del>			500, 1L		HNO ₃		YES	NO		
Red Dis		,	<del>-                                    </del>		<u>.                                      </u>				500, 1L		HNO ₃		YES	YES		
- CG DIS	3. 1 Giy	,			<u>:                                      </u>			<u> </u>	500, 1L	<del> </del>	<u>.</u>		YES			
L				e (includ		te count):	-			<u>.                                    </u>			L		J	
	BC	TILET					ED PER BO	TTLE TY	PE (Circle	applicable	or write no	on-standar	d analysis	below)		<del></del>
	VQA - G		···-		(8010/8020)		(8240) (826								[ ]	WA[]
8 8	AMBER	- Glass		(PAH) (	(TPH-HCID)	(TPH-D)	(TPH-418.1)	(Oil &Gn	<b>1450</b> )					OR	[ ]	WA[ ]
ialysis Allowed er Bottle Type	WHITE	- Poly		(pH) (C	onductivity)	(TDS) (1	(800)	(Turbidit	y) (Alkadia	nty) (HCC	,,co,) (a	) (SO ₄ )	(NO1) (N	o) (F)		
st A	<b>VEITON</b>	W - Poly		(COD)	(TOC) (To	esiPO₄) (1	otal Keldahi i	Vitrogen)	(MH2) (M	ONO)						
a a pa	GREEN	- Poly		(Cyanide)											<del></del>	
€ g	RED TO	TAL - Po	ły				(Co) (Cr)									
	RED O	SSOLVE	D - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	20) (Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn)	(Ni) (Ag) (S	‰) (∏) (V)	(Zn) (Hg) (1	() (Na) (Ha	irdness) (Si	(1102)	
	<u> </u>			<u> </u>	1					-			Daileale	niet Dep	<u> </u>	
WATE					<del>                                     </del>	Start Ti	·		- T-	•0	Othor	<u> </u>			Vater Q	uality
Meas.	Meth	od 3	Purge	d (gal)	<u> </u>	H	E Cond	d (μS)_	1- 1e	mp °C	Other	Diss	₂ (mg/l)	<u> </u>	vater G	uanty
4	ļ			•	<del> </del>	•				•			<u> </u>			
3				<u></u>	<del>                                     </del>	•	<del> </del>			•			<u> </u>			
2	<b></b>			•		•				•		-	<u> </u>			
1	ļ			<u> </u>	<del>  -</del>	•				<u> </u>		<del> </del>	•			
0	(6	14.61	IC	.00	<u> </u>	<u> </u>			Cirre	• units)	<u> </u>	L	<u> </u>	<u> </u>	(Clanty, C	
(Casing)	(Selec	2 A-G)	[Cumulat	rve Totals	+	- O.	O	, <i>I</i>	1 / _		Lom	M	w - ⁻	2_		
: Fu,	n pe	d	appl	LOKI V	na U	4	2,	gal	lon,	s 7	7	1	. •	- -	/ クー	
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1	N ( C ( C )	יט) ג ארט	ا ا	2	1.11	est	Place	ا سون	ا کا ہے۔	. H	20	to	dv	JMS	ol	a 514

(SIGNATURE)

# MW-3 development

# FIELD SAMPLING DATA SHEET

W 7106 Will D. Alton Lane, Suite 101

ĺ	M			2		IJ		<i>7</i>		Office:	-	okane, ` 9) 838-1		ngton 9 Fax:		D9) 838	_1382
L	DBC 15	ECTN	A 8.4 E -				1	7				ELL ID:		$\omega$ -		9,000	-1302
-	PROJE SITE A	-	-		<u> </u>	<u>ن</u> ماء	<del>4</del>	<u> </u>	ane			IND ID:			<u> </u>		<del> </del>
-	311E A	KE			<u> </u>	270	ven's	<u>ر اد</u>	- ch	lan		OUP ID:	<del></del>				NA
	VATA	ND FR	OM-	N	NE	Ε	SE	s	sw	W	NW	LIG	нт	ME	NUIC	Н	EAVY
		VEATH		SUN			YOU	RA			?		IPERA	L	,	<u>`</u>	•c
								L		1		ı				cie appropri	ate units)
Г							1	arest 0.01		Vater		Thickness) -DTW		OTW	]		olumn x Gal/ft)
ļ	Dat	<del></del>		me	וט ו-8	ottom	יוט ו	roduct	<del> </del>		U1P-	-U 1 VV	, 018-	- VV		Volu	me (gai)
}		2/97		:45		·	<b> </b> -	•		. 84 . 8		•	-	<u> </u>	X 1	<del> </del>	<u> </u>
-	5/(	( /47	<del></del>	: 05				· 2=			ا وجم ا	6" =	1.469	10" =	4.080	12" =	5.875
-	Gel/ft = (			1" =	0.041	2" =	0.163	3" = auler (D) PVC	0.367	4" =	0.653	<u> </u>		<u> </u>	7.000	14 -	J.013
٠.												. , Journaled		e Depth	:		[V if used]
Г		—						Amoun				ervative	<u> </u>	Ice	Filter	рН	1
ŀ	Bottle		<del></del>	ate /		ne •	wethod ,	<del>}</del>	7		- 162	HCI	(mine)	YES	NO	<del></del>	<u> </u>
-	VOA			<del></del>		<u> </u>	<del> </del>	3	<del> </del>	ml	/Ale= -1		1-80 /	<del></del>	NO	<u> </u>	
-	Amber			/		<u>.                                    </u>		<del></del>		500, 1L	(None)	) (HCI) (H	12004)	YES	<del> </del>	NA.	
-	White			/		<u> </u>	<b></b>		<del>                                     </del>	500, 1L		None		YES	NO	AN	
	Yellow				<u> </u>	<u> </u>	<u> </u>	<del>                                     </del>	<del>                                     </del>	500, 1L		H ₂ SO₄		YES	NO		-
	Green	<del></del>				:	<u></u>	<u> </u>		500, 1L		NaOH		YES	NO	<del> </del>	
	Red Tot	<del></del>		1		:		<del></del>	<del> </del>	500, 1L		HNO ₃		YES	NO	<del> </del>	<del> </del>
ļ	Red Dis	s. Poly		1		<u>:                                      </u>	<b></b>		<del>                                     </del>	500, 1L		HNO3		YES	YES		<del> </del>
l				1		:	<u></u>	ļ	250, 5	500, 1L				YES		L	<u> </u>
_					•		te count):	<u></u>	<u></u>						halo: 1		
			TTLET	YPE				ED PER 80					n-standan	u analysis		:[ ]	WA [ ]
	ъ.	VOA - G		<del></del>	<u> </u>	8010/8020) TPH-HCID)	(IPH-0)	(8240) (826 (TPH-418.1)		· · · · · · · · · · · · · · · · · · ·	, (315/1		<u></u>			( )	WA( ]
	Analysis Allowed per Bottle Type	WHITE .			<u> </u>	anductivity)		rss) (800			nty) (HCO	y√co²) (ci	) (SO ₄ )	(NO1) (N	10 ₂ ) (F)		
	Sis A	<b>AETTON</b>	V - Poly			TOC) (To	tal PO ₄ ) (I	Total Keldahi	Nitrogen)	(NH1) (N	OyNO ₁ )						
	e By	GREEN			(Cysnede)								<b>A</b>	7-) 4	MO (CI-)		
	Υď		TAL - Pol					(CO) (CA)								lica)	<del> </del>
		KED OK	SSOLVE	J - Poly	(AS) (Sb)	(DE) (Be)	رسعه (۱۵۵ (۱	(الک) (ص) رب	(LA) (LD)	(mal) (Wall)	<u>~-1 (₩) (≥</u>	, (11) (¥)	—- (PP) ()	* () (LI			
l	WATE	R OII	ALIT	Y DATA	<u> </u>	Pume	Start Ti	me:	<del></del>				Pump/	Bailer In	nlet Dep	th:	
f	Meas.	Meth			d (gal)		oH		<u>.</u> d (μS)	°F Te	mp °C	Other	<u> </u>	₂ (mg/l)		Vater Qu	uality
1	4	1 1416(1)		90	• • • • • • • • • • • • • • • • • • • •	<del>                                     </del>				<u> </u>	•	<u> </u>	1				
ł	3	<del>                                     </del>							<del></del>	<u> </u>			<b> </b>	•			
ł	2	<del>                                     </del>			<u>.                                      </u>	<b></b>	<u>-</u>	<del>                                     </del>		<del></del>				•			
ł	1	<del>                                     </del>			<u>.</u>	<del></del>	<u> </u>	<del>                                     </del>		<u> </u>					<u> </u>		
1	0	<del>                                     </del>				<b>-</b>	<del></del>	t						•	<u> </u>		
l	_	(Salect	t A-G]				-		7	(Çirde	units		<b></b>		<u> </u>	(Clarity, Co	olorj
( .	: P B	mpl ain	, d and	appi	oximi Ci(n	atel an	7 50 7 PV	n-gal	lons De	wels	Hropma	tro	n t	1w-5	3 W 1150	int.	n fol
	17	154	261	SONV	e (.	4-	20	to	9000	MS	on	site	•				

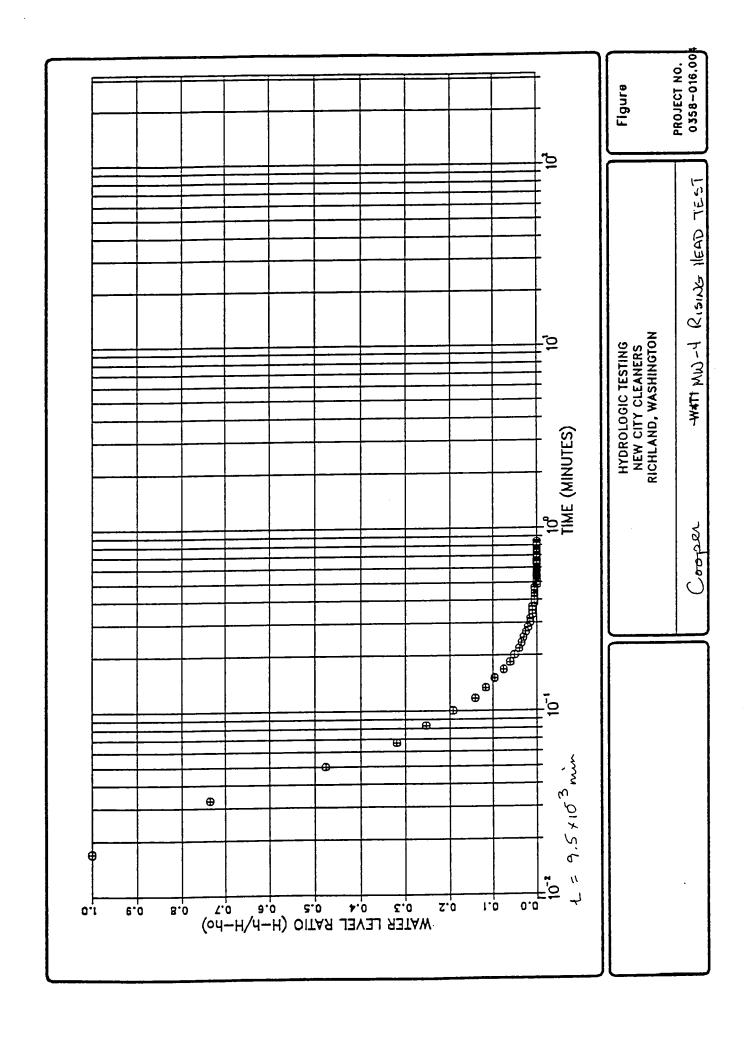
(SIGNATURE)

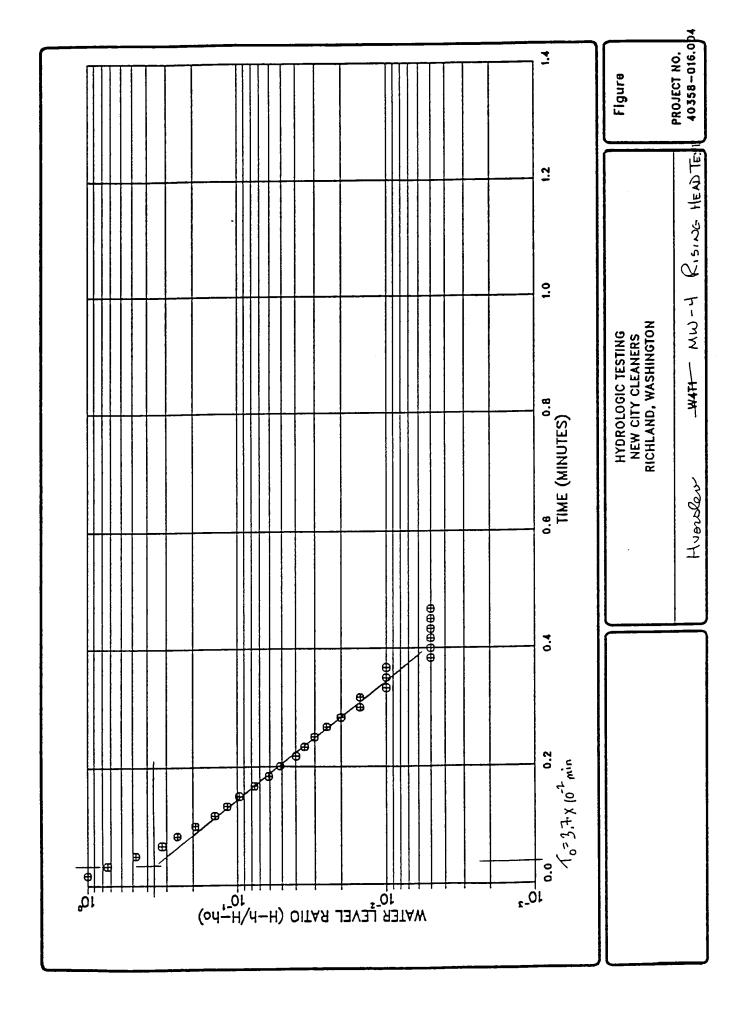
# 4w-4 Development SAMPLING DATA SHEET

FIELD SAMP	L
EMCON	

	W		j	•	M	16		)П				io vviii L iokane,		-		UI	
İ										Office:	(509	9) 838-1	144	Fax:	(50	9) 838	-1382
L	PROJE	ECT NA	ME:	رلم:	(4A)	Pich	(*(	Daner	. 5		WI	ELL ID:	M	w - 1	4		
-	SITE A	DDRES	 3S:	7 4 7 4	<del>کور</del> ۲	547	ven s		)r(U=		BL	IND ID:					
•				<del></del>	<u> </u>							UP ID:	<del></del>				NA
	WI	ND FRO	m:	N	NE	E	SE	s	sw	W	NW	LIG	HT	MED	NUIC	Н	EAVY
		VEATHE	· -	SUI	YNY	CLC	UDY	RA	IN		?	TEN	1PERA	TURE:	٠۶		•c
		OLOGY		3/E! A	4EASII	DEME	UTS /No	arest 0.01	<b>6</b> \		Product	Thickness)	(Water)	Column)	(Cin	cie appropri Water C	ate unitsj olumn x Gal/ftj
ſ	Da			me		ottom		roduct		Vater		-DTW		OTW	]		me (gal)
١	512	<u>_</u>		:45				•	9	.27		•		•	X 1		•
	511	147		: 05		<u> </u>		•	9	.3					X 3		•
		$\frac{1977}{(dia/2)^2 \times 0.}$	<del>` </del>	1" =	0.041	2"=	0.163	3" =	0.367	4" =	0,653	6" =	1.469	10" =	4.080	12" =	5.875
		OS: (A) Subr	,	-				auler (D) PVC	/Teffon Balk	er (E) Dedic	ated Bailer (	(F) Oedicated	Pump (G) (	Other =		·	
	_	NDWAT						•						e Depth	:		(V if used)
۱ '	Bottle			ate		me `	Method ⁵			-	1	ervative	(circle)	Ice	Filter	рΗ	1
	VOA	<del></del>	1	7		<u> </u>		3	40	mi		HCI	<u>.</u>	YES	NO	Ī	
	Amber	Glass	<del></del>	<del>.</del>	ļ	<u>:                                      </u>		<del>                                     </del>	250, 5	500, 1L	(None	) (HCI) (ł	H ₂ SO ₄ )	YES	NO		
	White		<u></u>	<del>.</del>		<u>.                                    </u>		<del>                                     </del>	<u> </u>	500, 1L	<u> </u>	None	<del> </del>	YES	NO	NA	
	Yellow		<del>'</del>			<u>.                                    </u>			<del></del>	500, 1L		H₂SO₄		YES	NO		
	Green	<del></del>	<del></del> -	<del>,</del>		<del>:</del>			<u> </u>	500, 1L		NaOH		YES	NO		
	Red Tot	<del></del>	<del>-/</del>			<u>.                                    </u>			<u> </u>	500, 1L	-	HNO ₃		YES	NO		
	Red Dis		<del>'</del>	<del>'</del>	<del>                                     </del>	<u>:</u>			<del></del>	500, 1L		HNO ₃		YES	YES		
	מע טוא	S. POLY	<del></del> -	<del>'</del>		<del></del>	<u> </u>			500, 1L				YES			
			<u> </u>		- (includ	e duplicat	e conut).		200, 0						<u></u>		L
1		вотт			٠.			ED PER 80	TILETY	PE (Circle	applicable	or write no	on-standar	d analysis	below)		
		VOA - Glas			-	(8010/8020)		(8240) (82								[ ]	WA[ ]
	₽ g.	AMBER - G	ilass		(PAH) (	TPH-HCID)	(TPH-0)	(TPH-418.1)	(Oil &Gn	<del>(250</del> )						[ ]	WA[]
	ysis Allowed Bottle Type	WHITE P				onductivity)	<del>_``</del>	rss) (B00			<del></del>	p./co/) (ci	) (SO ₄ )	(NO1) (N	101) (F)		
	ysis Botti	GREEN - P	<u> </u>		(COD)	<u> </u>	miPO ₄ ) (	l'otal Keldahi	Nitrogen)	(NH1) (N	O-NO-)						
	Anal	RED TOTAL	<u> </u>				(Ca) (Cd)	(Co) (Cr)	(Cu) (Fe)	(Pb) (Mg)	(Mn) (Ni)	(Ag) (Se)	(TI) (V) (TI)	Zn) (Hg)	(K) (Na)		
		RED OISSO	OLVE	) - Poly	(As) (Sb)	(Ba) (Be)	(Ca) (Cd) (C	Co) (Cr) (Cu)	(Fe) (Pb)	(Mg) (Mn)	(Ni) (Ag) (S	S•) (∏) (V)	(Zn) (Hg) (1	K) (Na) (Ha	ardness) (S	ilica)	
											<del></del>		T _			41 .	
٩,	WATE	R QUAL	עוו	/ DAT	Δ	Purge	Start Ti	T	<u>:</u>	<del></del>		<u> </u>	<del></del>		niet Dep		
	Meas.	Method	d [§]	Purge	d (gal)	<u></u> <u></u>	H	E Con	d (μS)	°F Te	mp °C	Other	Diss O	2 (mg/l)	<u> </u>	Vater Q	uality
	4						•	<u> </u>			•	<u> </u>	<u> </u>	•			
	3				•		<u>.                                    </u>	<u> </u>			<u></u>		<u></u>	<u>.                                    </u>			
	2	ļ					•	ļ			<u></u>	ļ	<u> </u>	•			
	1				•		•	ļ			•			•			
	0	<u> </u>	]	0.	.00		•	<u></u>	-	<u> </u>	•	<u> </u>	L.,	<u> </u>		(Clarity C	olori
	(Casing)	(Select A	-GI	(Cumulat	twe Totals]		11-	. L	4 h.	(Circle	e unitarj	Ι.	, L	T	7	(CLEINY, C	ラ <u>ー</u>
1	,	Pronp	20	0 1	w SL	) -ga	((0ns	( )	IM	M	ω· -	T U	~(   <u>~</u>		Valle	1250	+
l	14	(Select A.  Promp (MAA  USBN 1 FR.	2	PUMi	P.	Din	reby	mar	+	67	t We	J CV OV	i mu	u-p	+	ه مجرس	F (
	0	1150	60	4	1 H-1	₅ 4	D	dron	45	かんし	J) 2	<b>!</b> •					
	SAMP	LER:	rie	΄,	- 6	a V S 0	и -			-							
			RINT	ED NAME	<u></u>	7,-0				•	(SIGNAT	URE)					

# APPENDIX F HYDRAULIC TESTING DATA





11/12/97         15:15:23         13.26         0.00         4.549         0           11/12/97         15:15:24         13.26         0.00         4.549         0           11/12/97         15:15:25         8.71         4.55         4.549         1           11/12/97         15:15:26         9.91         3.35         4.549         0           11/12/97         15:15:27         11.09         2.17         4.549         0           11/12/97         15:15:28         11.80         1.46         4.549         0           11/12/97         15:15:29         12.10         1.16         4.549         0           11/12/97         15:15:30         12.38         0.88         4.549         0           11/12/97         15:15:31         12.61         0.65         4.549         0           11/12/97         15:15:32         12.73         0.53         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:35         12.98         0.28         4.549         0	.000 .000 .000 .000 .736 .477 .320
Date   Time   DTW (ft)   H-h   H-Ho   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-   H-h/H-	.000 .000 .000 .736 .477
Date	.000 .000 .000 .736 .477
11/12/97         15:15:22         13.26         0.00         4.549         0           11/12/97         15:15:23         13.26         0.00         4.549         0           11/12/97         15:15:24         13.26         0.00         4.549         0           11/12/97         15:15:25         8.71         4.55         4.549         1           11/12/97         15:15:26         9.91         3.35         4.549         0           11/12/97         15:15:27         11.09         2.17         4.549         0           11/12/97         15:15:28         11.80         1.46         4.549         0           11/12/97         15:15:29         12.10         1.16         4.549         0           11/12/97         15:15:30         12.38         0.88         4.549         0           11/12/97         15:15:31         12.61         0.65         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:36         13.03         0.23         4.549         0	.000 .000 .000 .736 .477
11/12/97         15:15:23         13.26         0.00         4.549         0           11/12/97         15:15:24         13.26         0.00         4.549         0           11/12/97         15:15:25         8.71         4.55         4.549         1           11/12/97         15:15:26         9.91         3.35         4.549         0           11/12/97         15:15:27         11.09         2.17         4.549         0           11/12/97         15:15:28         11.80         1.46         4.549         0           11/12/97         15:15:29         12.10         1.16         4.549         0           11/12/97         15:15:30         12.38         0.88         4.549         0           11/12/97         15:15:31         12.61         0.65         4.549         0           11/12/97         15:15:32         12.73         0.53         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:36         13.03         0.23         4.549         0	.000 .000 .736 .477
11/12/97         15:15:23         13.26         0.00         4.549         0           11/12/97         15:15:24         13.26         0.00         4.549         0           11/12/97         15:15:25         8.71         4.55         4.549         1           11/12/97         15:15:26         9.91         3.35         4.549         0           11/12/97         15:15:27         11.09         2.17         4.549         0           11/12/97         15:15:28         11.80         1.46         4.549         0           11/12/97         15:15:29         12.10         1.16         4.549         0           11/12/97         15:15:30         12.38         0.88         4.549         0           11/12/97         15:15:31         12.61         0.65         4.549         0           11/12/97         15:15:32         12.73         0.53         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:35         12.98         0.28         4.549         0	.000 .000 .736 .477
11/12/97         15:15:24         13.26         0.00         4.549         0           11/12/97         15:15:25         8.71         4.55         4.549         1           11/12/97         15:15:26         9.91         3.35         4.549         0           11/12/97         15:15:27         11.09         2.17         4.549         0           11/12/97         15:15:28         11.80         1.46         4.549         0           11/12/97         15:15:29         12.10         1.16         4.549         0           11/12/97         15:15:30         12.38         0.88         4.549         0           11/12/97         15:15:31         12.61         0.65         4.549         0           11/12/97         15:15:32         12.73         0.53         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:35         12.98         0.28         4.549         0           11/12/97         15:15:38         13.03         0.23         4.549         0	.000 .000 .736 .477
11/12/97         15:15:25         8.71         4.55         4.549         1           11/12/97         15:15:26         9.91         3.35         4.549         0           11/12/97         15:15:27         11.09         2.17         4.549         0           11/12/97         15:15:28         11.80         1.46         4.549         0           11/12/97         15:15:29         12.10         1.16         4.549         0           11/12/97         15:15:30         12.38         0.88         4.549         0           11/12/97         15:15:31         12.61         0.65         4.549         0           11/12/97         15:15:32         12.73         0.53         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:35         12.98         0.28         4.549         0           11/12/97         15:15:36         13.03         0.23         4.549         0           11/12/97         15:15:38         13.10         0.16         4.549         0	.000 .736 .477 .320
11/12/97         15:15:26         9.91         3.35         4.549         0           11/12/97         15:15:27         11.09         2.17         4.549         0           11/12/97         15:15:28         11.80         1.46         4.549         0           11/12/97         15:15:29         12.10         1.16         4.549         0           11/12/97         15:15:30         12.38         0.88         4.549         0           11/12/97         15:15:31         12.61         0.65         4.549         0           11/12/97         15:15:32         12.73         0.53         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:35         12.98         0.28         4.549         0           11/12/97         15:15:36         13.03         0.23         4.549         0           11/12/97         15:15:38         13.10         0.16         4.549         0           11/12/97         15:15:39         13.12         0.14         4.549         0	.736 .477 .320
11/12/97         15:15:27         11.09         2.17         4.549         0           11/12/97         15:15:28         11.80         1.46         4.549         0           11/12/97         15:15:29         12.10         1.16         4.549         0           11/12/97         15:15:30         12.38         0.88         4.549         0           11/12/97         15:15:31         12.61         0.65         4.549         0           11/12/97         15:15:32         12.73         0.53         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:35         12.98         0.28         4.549         0           11/12/97         15:15:36         13.03         0.23         4.549         0           11/12/97         15:15:38         13.10         0.16         4.549         0           11/12/97         15:15:39         13.12         0.14         4.549         0           11/12/97         15:15:40         13.14         0.12         4.549         0	.477 .320
11/12/97         15:15:28         11.80         1.46         4.549         0           11/12/97         15:15:29         12.10         1.16         4.549         0           11/12/97         15:15:30         12.38         0.88         4.549         0           11/12/97         15:15:31         12.61         0.65         4.549         0           11/12/97         15:15:32         12.73         0.53         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:35         12.98         0.28         4.549         0           11/12/97         15:15:36         13.03         0.23         4.549         0           11/12/97         15:15:38         13.08         0.18         4.549         0           11/12/97         15:15:38         13.10         0.16         4.549         0           11/12/97         15:15:39         13.12         0.14         4.549         0           11/12/97         15:15:40         13.14         0.12         4.549         0	.320
11/12/97         15:15:29         12.10         1.16         4.549         0           11/12/97         15:15:30         12.38         0.88         4.549         0           11/12/97         15:15:31         12.61         0.65         4.549         0           11/12/97         15:15:32         12.73         0.53         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:35         12.98         0.28         4.549         0           11/12/97         15:15:36         13.03         0.23         4.549         0           11/12/97         15:15:37         13.08         0.18         4.549         0           11/12/97         15:15:38         13.10         0.16         4.549         0           11/12/97         15:15:39         13.12         0.14         4.549         0           11/12/97         15:15:40         13.14         0.12         4.549         0           11/12/97         15:15:41         13.17         0.09         4.549         0	
11/12/97         15:15:30         12.38         0.88         4.549         0           11/12/97         15:15:31         12.61         0.65         4.549         0           11/12/97         15:15:32         12.73         0.53         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:35         12.98         0.28         4.549         0           11/12/97         15:15:36         13.03         0.23         4.549         0           11/12/97         15:15:37         13.08         0.18         4.549         0           11/12/97         15:15:38         13.10         0.16         4.549         0           11/12/97         15:15:39         13.12         0.14         4.549         0           11/12/97         15:15:40         13.14         0.12         4.549         0           11/12/97         15:15:41         13.17         0.09         4.549         0           11/12/97         15:15:42         13.19         0.07         4.549         0	.254
11/12/97         15:15:31         12.61         0.65         4.549         0           11/12/97         15:15:32         12.73         0.53         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:35         12.98         0.28         4.549         0           11/12/97         15:15:36         13.03         0.23         4.549         0           11/12/97         15:15:37         13.08         0.18         4.549         0           11/12/97         15:15:38         13.10         0.16         4.549         0           11/12/97         15:15:39         13.12         0.14         4.549         0           11/12/97         15:15:40         13.14         0.12         4.549         0           11/12/97         15:15:41         13.17         0.09         4.549         0           11/12/97         15:15:42         13.19         0.07         4.549         0           11/12/97         15:15:43         13.19         0.07         4.549         0	
11/12/97         15:15:32         12.73         0.53         4.549         0           11/12/97         15:15:33         12.82         0.44         4.549         0           11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:35         12.98         0.28         4.549         0           11/12/97         15:15:36         13.03         0.23         4.549         0           11/12/97         15:15:37         13.08         0.18         4.549         0           11/12/97         15:15:38         13.10         0.16         4.549         0           11/12/97         15:15:39         13.12         0.14         4.549         0           11/12/97         15:15:40         13.14         0.12         4.549         0           11/12/97         15:15:41         13.17         0.09         4.549         0           11/12/97         15:15:42         13.19         0.07         4.549         0           11/12/97         15:15:43         13.19         0.07         4.549         0           11/12/97         15:15:44         13.21         0.05         4.549         0	.193
11/12/97     15:15:32     12.73     0.53     4.549     0       11/12/97     15:15:33     12.82     0.44     4.549     0       11/12/97     15:15:34     12.91     0.35     4.549     0       11/12/97     15:15:35     12.98     0.28     4.549     0       11/12/97     15:15:36     13.03     0.23     4.549     0       11/12/97     15:15:37     13.08     0.18     4.549     0       11/12/97     15:15:38     13.10     0.16     4.549     0       11/12/97     15:15:39     13.12     0.14     4.549     0       11/12/97     15:15:40     13.14     0.12     4.549     0       11/12/97     15:15:41     13.17     0.09     4.549     0       11/12/97     15:15:42     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:44     13.21     0.05     4.549     0	.142
11/12/97         15:15:34         12.91         0.35         4.549         0           11/12/97         15:15:35         12.98         0.28         4.549         0           11/12/97         15:15:36         13.03         0.23         4.549         0           11/12/97         15:15:37         13.08         0.18         4.549         0           11/12/97         15:15:38         13.10         0.16         4.549         0           11/12/97         15:15:39         13.12         0.14         4.549         0           11/12/97         15:15:40         13.14         0.12         4.549         0           11/12/97         15:15:41         13.17         0.09         4.549         0           11/12/97         15:15:42         13.19         0.07         4.549         0           11/12/97         15:15:43         13.19         0.07         4.549         0           11/12/97         15:15:43         13.19         0.07         4.549         0           11/12/97         15:15:44         13.21         0.05         4.549         0	.117
11/12/97         15:15:35         12.98         0.28         4.549         0           11/12/97         15:15:36         13.03         0.23         4.549         0           11/12/97         15:15:37         13.08         0.18         4.549         0           11/12/97         15:15:38         13.10         0.16         4.549         0           11/12/97         15:15:39         13.12         0.14         4.549         0           11/12/97         15:15:40         13.14         0.12         4.549         0           11/12/97         15:15:41         13.17         0.09         4.549         0           11/12/97         15:15:42         13.19         0.07         4.549         0           11/12/97         15:15:43         13.19         0.07         4.549         0           11/12/97         15:15:43         13.19         0.07         4.549         0           11/12/97         15:15:44         13.21         0.05         4.549         0	.097
11/12/97     15:15:36     13.03     0.23     4.549     0       11/12/97     15:15:37     13.08     0.18     4.549     0       11/12/97     15:15:38     13.10     0.16     4.549     0       11/12/97     15:15:39     13.12     0.14     4.549     0       11/12/97     15:15:40     13.14     0.12     4.549     0       11/12/97     15:15:41     13.17     0.09     4.549     0       11/12/97     15:15:42     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:44     13.21     0.05     4.549     0	.076
11/12/97     15:15:37     13.08     0.18     4.549     0       11/12/97     15:15:38     13.10     0.16     4.549     0       11/12/97     15:15:39     13.12     0.14     4.549     0       11/12/97     15:15:40     13.14     0.12     4.549     0       11/12/97     15:15:41     13.17     0.09     4.549     0       11/12/97     15:15:42     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:44     13.21     0.05     4.549     0	.061
11/12/97     15:15:38     13.10     0.16     4.549     0       11/12/97     15:15:39     13.12     0.14     4.549     0       11/12/97     15:15:40     13.14     0.12     4.549     0       11/12/97     15:15:41     13.17     0.09     4.549     0       11/12/97     15:15:42     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:44     13.21     0.05     4.549     0	.051
11/12/97     15:15:39     13.12     0.14     4.549     0       11/12/97     15:15:40     13.14     0.12     4.549     0       11/12/97     15:15:41     13.17     0.09     4.549     0       11/12/97     15:15:42     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:44     13.21     0.05     4.549     0	.040
11/12/97     15:15:40     13.14     0.12     4.549     0       11/12/97     15:15:41     13.17     0.09     4.549     0       11/12/97     15:15:42     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:44     13.21     0.05     4.549     0	.035
11/12/97     15:15:41     13.17     0.09     4.549     0       11/12/97     15:15:42     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:44     13.21     0.05     4.549     0	.030
11/12/97     15:15:42     13.19     0.07     4.549     0       11/12/97     15:15:43     13.19     0.07     4.549     0       11/12/97     15:15:44     13.21     0.05     4.549     0	.025
11/12/97   15:15:43   13.19   0.07   4.549   0   11/12/97   15:15:44   13.21   0.05   4.549   0	.020
11/12/97 15:15:44 13.21 0.05 4.549 0	.015
1207	.015
	.010
	.010
	.010
11/12/01/10:10:10	.005
1111201 10.10.10	.005
11/12/01 10:10:40	.005
11/12/01 10:10:00	.005
	.005
11/12/97 15:15:52 13.24 0.02 4.549 0	.005
111201 10:10:00	.000
11/12/97 15:15:54 13.26 0.00 4.549 0	.000
11/12/97 15:15:55 13.26 0.00 4.549 0	.000
11/12/5/ 15.15.55 15.25	.000
11/12/97 15:15:57 13.26 0.00 4.549 0	.000
1111201 10:10:00	.000
1111201 10:10:00	.000
1171201 10:10:00	.000
11/1201 10:10:01	
11/12/97 15:16:02 13.26 0.00 4.549 0	.000
11/12/97   15:16:03   13.26   0.00   4.549   0	.000
11/12/97 15:16:04 13.28 -0.02 4.549 -0	.000. 000. 000.
11/12/97 15:16:05 13.26 0.00 4.549 0	.000 .000 .000
11/12/97 15:16:06 13.26 0.00 4.549 0	.000. 000. 000.

# NCMW4R01

11/12/97	15:16:07	13.26	0.00	4.549	0.000
11/12/97	15:16:08	13.26	0.00	4.549	0.000
11/12/97	15:16:09	13.26	0.00	4.549	0.000
11/12/97	15:16:10	13.26	0.00	4.549	0.000
11/12/97	15:16:11	13.28	-0.02	4.549	-0.005
11/12/97	15:16:12	13.26	0.00	4.549	0.000
11/12/97	15:16:13	13.26	0.00	4.549	0.000
11/12/97	15:16:14	13.26	0.00	4.549	0.000

# **COMPUTATION SHEET**

ROJECT TITLE:		····	PROJECT NO:_	
ESCRIPTION:	s looper		SHEET	_ OF
REP. BY:	•	CHKD BY:	DATE:	
	_			

$$WW^{-4} = \frac{1.0 \text{ c}^2}{\text{t}} \qquad r = 0.083 \text{ fe}$$

$$t = 9.5 : \times 10^{-3} \text{ min}$$

$$b = 15 \text{ ft}$$

$$T = \frac{(0.063 \text{ fe})^2}{9.5 \times 10^{-3} \text{ min}} = 7.25 \times 10^{-1} \text{ ft}^2/\text{min}$$

$$= (7.25 \times 10^{-1} \text{ ft}^2/\text{min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{ min}) (\frac{1}{1} \text{$$

= 
$$\frac{11.2 \text{ cm}^2/\text{sec}}{10.39 \text{ cm}^3} \frac{1 \text{ gal}}{231 \text{ im}^3} \frac{100 \text{ sec}}{1 \text{ min}} \frac{100 \text{ min}}{1 \text{ min}} \frac{100 \text{ min}}{1 \text{ min}} \frac{100 \text{ min}}{3.281 \text{ ft}}$$

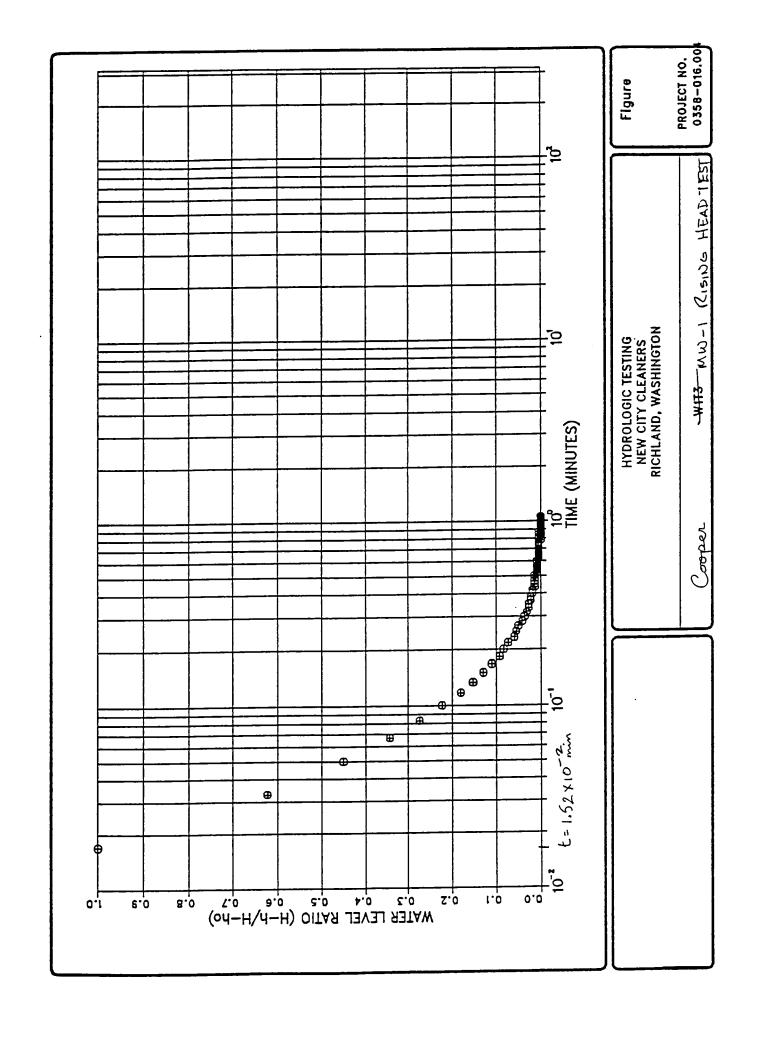
$$K_{b=15} = \frac{11.2 \text{ cm/sec}}{15 \text{ ft}} \left(\frac{3.281 \text{ ft}}{1 \text{ ft}}\right) \left(\frac{1 \text{ m}}{100 \text{ cm}}\right)$$

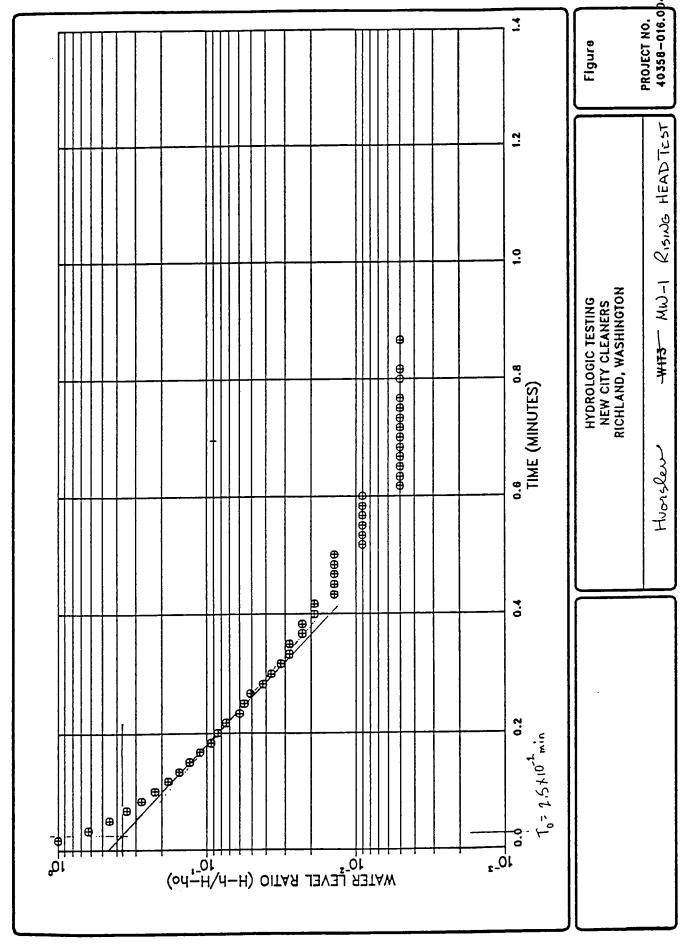
$$K = 2.5 \text{ x} \times 10^{-2} \text{ cm/sec}$$

$$K = 2.5. \times 10^{-2}$$
 cm/sec  
 $b = 40$  ft

$$K_{b=40 \text{ ft}} = \frac{\left(11.2 \text{ cm}^{2}/\text{sec}\right) \left(3.281 \text{ ft}\right) \left(\frac{1 \text{ m}}{100 \text{ cm}}\right)}{40 \text{ ft}}$$

$$K_{b=40} = 9.2 \times 10^{-3} \text{ cm/sec}$$







Date Monday November 17, 1997 12:28 PM							
	PlotFile C:\TERRAWCMW3R01.PRN						
DataFile C	:\TERRAW	CMW1RH3	.RAW				
ncmw1rh3							
Date	Time	DTW (ft)	H-ħ	H-Ho	н-ин-но		
	<u> </u>						
11/12/97			0.00	4.97			
11/12/97	<u> </u>	14.21	0.00	4.97			
11/12/97		14.21	0.00	4.97			
11/12/97		14.23	-0.02	4.97	-0.005		
11/12/97		9.24	4.97	4.97	0.999		
11/12/97	<del></del>	11.11	3,10	4.97	0.623		
11/12/97		11.97	2.24	4.97	0.451		
11/12/97		12.50	1.71	4.97	0.344		
11/12/97			1.36	4,97	0.274		
11/12/97	<del></del>		1.11	4.97	0.223		
11/12/97			0.90	4.97			
11/12/97			0.76				
11/12/97		13.56					
11/12/97			0.55	4.97	0.111		
11/12/97		13.74		4.97			
11/12/97				4.97	0.084		
11/12/97		13.84		4.97	0.074		
11/12/97	<u> </u>			4.97	0.060		
11/12/97				4.97			
11/12/97				4.97			
11/12/97				4.97	0.042		
11/12/97				4.97	0.037		
11/12/97			0.16	4.97	0.032		
11/12/97	13:24:40		0.14	4.97	0.028		
11/12/97		14.07	0.14	4.97	0.028		
11/12/97		14.09	0.12	4.97	0.023		
11/12/97	13:24:43	14.09	0.12	4.97	0.023		
11/12/97	13:24:44	14.11	0.09	4.97	0.019		
11/12/97	13:24:45	14.11	0.09	4.97	0.019		
11/12/97		14.14	0.07				
11/12/97		14.14	0.07	4.97	0.014		
11/12/97		14.14	0.07	4.97	0.014		
11/12/97		14.14	0.07	4.97	0.014		
11/12/97	13:24:50	14.14	0.07	4.97	0.014		
11/12/97	13:24:51	14.16	0.05	4.97	0.009		
11/12/97		14.16	0.05	4.97	0.009		
11/12/97	13:24:53	14.16	0.05	4.97	0.009		
11/12/97	13:24:54	14.16	0.05	4.97	0.009		
11/12/97	13:24:55	14.16	0.05	4.97	0.009		
11/12/97		14.16	0.05	4.97	0.009		
11/12/97		14.18	0.02	4.97	0.005		
11/12/97		14.18	0.02	4.97	0.005		
11/12/97	13:24:59	14.18	0.02	4.97	0.005		
11/12/97	13:25:00	14.18	0.02	4.97	0.005		
11/12/97	13:25:01	14.18	0.02	4.97	0.005		

# NCMW3R01

11/12/97	13:25:02	14.18	0.02	4.97	0.005
11/12/97	13:25:03	14.18	0.02	4.97	0.005
11/12/97	13:25:04	14.18	0.02	4.97	0.005
11/12/97	13:25:05	14.18	0.02	4.97	0.005
11/12/97	13:25:06	14.18	0.02	4.97	0.005
11/12/97	13:25:07	14.21	0.00	4.97	0.000
11/12/97	13:25:08	14.18	0.02	4.97	0.005
11/12/97	13:25:09	14.18	0.02	4.97	0.005
11/12/97	13:25:10	14.21	0.00	4.97	0.000
11/12/97	13:25:11	14.21	0.00	4.97	0.000
11/12/97	13:25:12	14.18	0.02	4.97	0.005
11/12/97	13:25:13	14.21	0.00	4.97	0.000
11/12/97	13:25:14	14.21	0.00	4.97	0.000
11/12/97	13:25:15	14.21	0.00	4.97	0.000
11/12/97	13:25:16	14.21	0.00	4.97	0.000
11/12/97	13:25:17	14.21	0.00	4.97	0.000
11/12/97	13:25:18	14.21	0.00	4.97	0.000
11/12/97	13:25:19	14.21	0.00	4.97	0.000
11/12/97	13:25:20	14.21	0.00	4.97	0.000
11/12/97	13:25:21	14.21	0.00	4.97	0.000
11/12/97	13:25:22	14.21	0.00	4.97	0.000
11/12/97	13:25:23	14.21	0.00	4.97	0.000

ROJECT TITLE:	COMPU	IAHON S	HEE I	O:
ESCRIPTION:	Leve Cooper		SHEET	
REP. BY:	DATE:	CHKD BY:	DATE:	
W173 T=1	$ \begin{array}{ccc}  & & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\  & & & \\ $	0.083 ft 52 × 10 -2 min		
	$\frac{(0.083 \text{ fe})^2}{1.52 \times 10^{-2} \text{ mm}}$ = $(4.53 \times 10^{-1} \text{ fe})$	_	ec)(144 in2/b2/6	0.452 cm²)
	$= 7.02  \text{cm}^2/\text{sec}$	· · · · · · · · · · · · · · · · · · ·	7 70 12	\im^2 /
j.	$\frac{T}{b} = \left(\frac{7.02 \text{ cm}^2}{15 \text{ ft}}\right)$		(100 cph)	
	1.5' × 10-2 cm/=			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	7.02 cm3/sec/cm 2.02 cy/3/sefc/cm)	$(\frac{1 \text{ in}^3}{16.39 \text{ cm}^3})$ [13]	all (60 sec )	The Liday
·	× (100 ont) (1	<del>***</del>		·
17=1	4.88 x 103 gallons/d	an/It		

$$K = \frac{1}{b = 40} = \frac{(7.02 \text{ cm}^2/\text{sec})}{(40 \text{ fb})} \left(\frac{3.281 \text{ fc}}{1 \text{ yr}}\right) \left(\frac{1 \text{ xr}}{100 \text{ cm}}\right)$$

# **COMPUTATION SHEET**

ROJECT TITLE:			PROJECT NO:	
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REP. BY:			DATE:	
$T_0 = 2.5 \times 10^{-1}$ $L = 15 \text{ fo}$ $R = 0.5 \text{ fe}$ $K = r^2 \ln ($		r=0.083fe		
ZL		f. 10.5fe)		
	2 (15 ft)(2	2.5×10 ⁻² min)	5 1 10-4 mulsec	
. =	Į.	40 min/darý) ( 3.53	*Idan;	
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2 (	Fe -(R) =)2 ln (15ft/C) (15ft)(3.7×10) -2 ft/min)(1440	0.5:ft) 0-2min) 0min/day)(3.53 x10	o-tcm/sec) Iday	

EMCON

# **COMPUTATION SHEET**

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Mean 
$$ln(K) = -4.13$$
  
 $exp[Mean ln(K)] = 1.6 \times 10^{-2}$ 

# APPENDIX G DATA VALIDATION REPORTS

# **Data Validation and Management**

All sample data received from the analytical laboratories were reviewed to determine compliance with data quality objectives (DQOs) as specified in the Work Plan. Data were reviewed according to procedures in the Quality Assurance Project Plan, and following data validation guidelines in USEPA Contract Laboratory Program National Functional Guidelines for Inorganic and Organic Data Review (USEPA, 1994a, b). Data that did not meet the validation criteria were assigned data qualifiers to restrict or modify appropriate uses. Results of the data validation process are presented in the data validation reports in Appendix G.

Data were entered into a personal-computer-compatible database with their assigned data qualifiers. Most of the data were transferred directly into the database from electronic deliverables provided by the laboratory, and some data were hand entered. A 100 percent check for accuracy was performed on data that were hand entered, and a minimum 10 percent accuracy check was performed on data that were entered by electronic transfer.

The laboratory assigned data qualifiers that were retained in the project database were as follows:

- < (a less than symbol) The analyte was not detected at the method detection limit (MDL) shown.
- A Out of limits due to matrix interference.
- B Out of limits due to matrix effects.

Data qualifiers assigned during data validation review were as follows:

• E - The associated numerical value is an estimated quantity.

Data were judged to meet QA objectives for precision, accuracy, representativeness, and comparability, and were judged acceptable for their intended use. All sample analyses exceeded the QA objectives for completeness of 95 percent. Some of the data were assigned laboratory and data validation qualifiers which modify their usefulness. The data qualifier definitions are as defined above. The usefulness of individual results are modified by assigned data qualifiers.

### **Data Evaluation Procedures**

Data were evaluated using the procedures described in the Work Plan. Statistical analyses of soil and groundwater data were conducted following procedures in Statistical Guidance for Ecology Site Managers (Ecology, 1992, as amended), and using MTCAStat v2.1 site module software developed by Ecology.

The groundwater results were evaluated by analytical method and compound. Data from off-site wells were not included in the groundwater statistics.

Consistent with WAC 173-340-720(8)(g) and -740 (7)(g), detectable levels below the practical quantitation limit (PQL) were assigned a value equal to the method detection limit (MDL), and non-detects were assigned a value equal to one-half the MDL. For samples that required dilution in order to accurately quantify compounds, the PQLs were conservatively assumed to be identical to "non-diluted" compound PQLs. The substitution of an MDL value for a detectable level less than the PQL in a diluted sample would have resulted in under estimation of some values. A factor of 10 times the minimum detection limit was used as a guideline for assigning MDL values to concentrations that were less than PQLs. TPH-D and TPH-O results were reported by the laboratory using "reporting limits" therefore, no adjustments were made for values between the MDL and PQL.

MTCAStat software requires that censored values (non-detects) for a compound have the same PQL/MDL in order to evaluate the distribution and to calculate an upper confidence limit (UCL) on mean concentrations. Soil sample distributions were evaluated using the minimum and maximum MDLs because the non-detect concentrations varied when converted to a dry-weight basis. The data distributions were either normal, lognormal, or neither.

Compounds that showed between 15 and 50 percent non-detects were evaluated by substituting the minimum MDL for the non-detects. The data distributions were evaluated using the probability plot function. Based on the distribution evaluation, the UCL was then determined using the normal or lognormal functions. For compound distributions that were neither lognormal or normal, the maximum value was reported for the UCL.

# DATA VALIDATION REPORT

# NEW CITY CLEANERS RICHLAND, WASHINGTON

# PHASE 1 SOIL AND WATER SAMPLING March 1997

This report summarizes the review of analytical results for soil and water sampling conducted at the New City Cleaners site in Richland, Washington. Data validation was performed following procedures specified in Section 5 of the Work Plan (EMCON, 1997). A total of forty-six soil samples, three soil field duplicate samples, eleven water samples, one water field duplicate sample, and two trip blanks were collected March 10 through 13, 1997. Sample numbers, dates collected, and laboratory sample numbers are presented in Table 1. Samples were analyzed by Columbia Analytical Services (CAS), at their Kelso, Washington, facility, and are associated with Service Request Numbers K9701638, K9701662, K9701685 and K9703664.

### **Data Qualifications**

The following comments refer to the laboratory performance in meeting the quality assurance/quality control (QA/QC) guidelines outlined in the Work Plan. Laboratory results were reviewed following USEPA procedures (USEPA, 1994a,b) and method-specific QC guidelines (USEPA 1983, 1986; Ecology, 1992).

The data were judged to be acceptable for their intended use. Definitions of data qualifiers assigned as a result of this data validation review are as follows:

• E - The associated numerical value is an estimated quantity.

Unless specifically noted below, laboratory results for the samples listed in Table 1 were within QC criteria, and no data qualifiers were assigned during data validation review. The laboratory assigned the following data qualifiers:

- < Analyte was not detected at the reporting limit specified.
- F Out of limits due to matrix interference.

The data qualifiers retained in the data base are those from EMCON's data validation and those qualifiers assigned by the laboratory.

# **Holding Times**

All sample analyses were conducted within holding times with the following exceptions. The 8260A analysis on sample SS-C2, the WTPH as gasoline analyses on samples GPW-10-397-17 and GPW-6-397-15, and the WTPH as gasoline, diesel, and oil analyses on samples GP2-5 and GP2-21, were performed past the recommended hold times. Estimated (E) data qualifiers were assigned to these sample results based on holding time criteria.

### Method Blank Results

Method blanks were analyzed at the required frequency. No compounds were detected in the method blanks and no data qualifiers were assigned to sample results based on method blank results.

# Field Duplicates

Four field duplicate samples (three soil duplicates and one water duplicate) were collected and analyzed during Phase 1 sampling. Results for compounds detected in the field duplicate analyses are presented in Table 2. Based on USEPA guidance for laboratory duplicate analyses (USEPA, 1994a), and professional judgment, the relative percent difference (RPD) between concentrations reported for duplicate samples was used to evaluate precision, with an objective of  $\leq$  20 percent RPD for soil TOC analyses,  $\leq$  10 percent RPD for water TSS analyses,  $\leq$  25 percent for water organic analyses, and  $\leq$  35 to 40 percent RPD for soil organic analyses. Compounds that showed a variability greater than the objectives were TSS in sample GPW-9-397-15 and trichloroethene and tetrachloroethene in sample GP-6-11-15. Estimated (E) data qualifiers were assigned to these sample results based on field duplicate analyses.

# **Laboratory Duplicates**

Laboratory duplicate analyses were conducted at the required frequencies. The RPD between concentrations reported for laboratory duplicate results was used to evaluate analytical precision, with an objective of ≤ 25 percent RPD for inorganic analyses per USEPA (1994a) guidelines. All laboratory duplicate analyses were within the objective and no data qualifiers were assigned to sample results based on laboratory duplicate analyses.

# Surrogate Recovery Results

Surrogate recoveries were within QC criteria except for the sample analyses listed in Table 3. Estimated (E) data qualifiers were assigned to results for samples with surrogate recoveries that did not meet QC limits based on USEPA (1994b) guidelines.

# Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed at the required frequency for all analyses. All MS and MSD percent recoveries, and the RPDs between the duplicate results, were within acceptance criteria. No data qualifiers were assigned to sample results based on MS/MSD analyses.

# **Reporting Limits**

Sample results were reported using method reporting limits. Method reporting limits for some samples were elevated because the samples required diluting. The method reporting limit for chloromethane in samples GP6-25 and GP-1-5 was raised due to matrix interferences in the laboratory blank.

# Completeness

Completeness of the data was evaluated by comparison of the number of analyses planned for the samples collected versus the number of analyses that were conducted. All planned sample analyses were conducted, giving a completeness of 100 percent.

### Overall Assessment of Data

The usefulness of the data were assessed on guidelines established in USEPA (1994a, b), the analytical methods, and the Work Plan. Data qualifiers were assigned to sample results during this data validation review based on missed holding times, RPDs of field duplicates, and surrogate recoveries. The data are judged to be ACCEPTABLE for their intended use. The usefulness of individual results is modified by the assigned data qualifier.

# REFERENCES

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- EMCON. 1997. Remedial Investigation Work Plan, New City Cleaners, Richland, WA. Prepared for Copeland, Landye, Bennett and Wolf, LLP. February 13.
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Table 1
Phase 1 Soil and Water Samples for Laboratory Analysis
March 1997
New City Cleaners

Pa	ge	1	of	•

		7	<del></del>	<del></del>	Page 1 of
		Eigld Doorth		CAS	
		Field Duplicate Sample	Date	Service Request	CAS Sample
Sampling Location	Sample Number	Number	Collected	Number	Number Number
SS-D4	SS-D4		3/10/97	K9701638	K9701638-1
SS-B5	SS-B5		3/10/97	K9701638	K9701638-2
SS-C4	SS-C4		3/10/97	K9701638	K9701638-3
SS-G4	SS-G4		3/10/97	K9701638	K9701638-4
SS-I4	SS-I4		3/10/97	K9701638	K9701638-5
SS-I3	SS-I3		3/10/97	K9701638	K9701638-6
SS-G3	SS-G3	ļ	3/10/97	K9701638	K9701638-7
SS-E3	SS-E3		3/10/97	K9701638	K9701638-8
SS-C3	SS-C3		3/10/97	K9701638	K9701638-9
SS-A3	SS-A3		3/10/97	K9701638	K9701638-10
SS-C1	SS-C1		3/10/97	K9701638	K9701638-11
SS-A1	SS-A1	j	3/10/97	K9701638	K9701638-12
SS-A2	SS-A2	l	3/10/97	K9701638	K9701638-13
SS-C2	SS-C2		3/10/97	K9701638	K9701638-14
SS-E2	SS-E2		3/10/97	K9701638	K9701638-15
SS-G2	SS-G2		3/10/97	K9701638	K9701638-16
GP-8-1'	GP-8-1'		3/11/97	K9701638	K9701638-17
GP-8-15'	GP-8-15'		3/11/97	K9701638	K9701638-18
GP-8-21'	GP-8-21'		3/11/97	K9701638	K9701638-19
GPW-8-397-10	GPW-8-397-10		3/11/97	K9701638	K9701638-20
GP-9-12'	GP-9-12'		3/11/97	K9701638	K9701638-21
GPW-9-397-15'	GPW-9-397-15'	GPW-9-397-25	3/11/97	K9701638	K9701638-22;23
GP-9-23	GP-9-23		3/11/97	K9701638	K9701638-24
	TB-1-397ª		3/11/97	K9701638	K9701638-25
GP-5-11	GP-5-11		3/11/97	K9701638	K9701638-26
GP-5-21.5	GP-5-21.5		3/11/97	K9701638	K9701638-27
SS-E4	SS-E4		3/11/97	K9701638	K9701638-28
SS-F5	SS-F5	·	3/12/97	K9701662	K9701662-1
SS-16	SS-16	ĺ	3/12/97	K9701662	K9701662-2
GP-7-15	GP-7-15		3/12/97	K9701662	K9701662-3
GP-7-21.5	GP-7-21.5		3/12/97	K9701662	K9701662-4
SS-A4	SS-A4		3/12/97	K9701662	K9701662-5

Table 1
Phase 1 Soil and Water Samples for Laboratory Analysis
March 1997
New City Cleaners

Page 2 of 2

Sampling Location	Sample Number	Field Duplicate Sample Number	Date Collected	CAS Service Request Number	CAS Sample Number
SS-A6	SS-A6	SS-J4	3/12/97	K9701662	K9701662-6;7
GP-10-17	GP-10-17		3/12/97	K9701662	K9701662-8
GP-10-21	GP-10-21		3/12/97	K9701662	K9701662-9
GPW-10-397-17	GPW-10-397-17		3/12/97	K9701662	K9701662-10
GP6-11-15	GP6-11-15	GP6-25	3/12/97	K9701662	K9701662-11;12
GP6-21.5	GP6-21.5		3/12/97	K9701662	K9701662-13
GPW-6-397-15	GPW-6-397-15		3/12/97	K9701662	K9701662-14
SS-E6	SS-E6	SS-F6	3/12/97	K9701662	K9701662-15;16
GP-1-5	GP-1-5		3/12/97	K9701662	K9701662-17
GP-1-19	GP-1-19		3/12/97	K9701662	K9701662-18
GPW-1-397-15	GPW-1-397-15		3/12/97	K9701662	K9701662-19
GP3-19	GP3-19		3/13/97	K9701662	K9701662-20
GP3-15	GP3-15		3/13/97	K9701662	K9701662-21
GPW-3-397-19(3/12)	GPW-3-397-19(3/12)		3/12/97	K9701662	K9701662-22
GPW-3-397-19(3/13)	GPW-3-397-19(3/13)		3/13/97	K9701662	K9701662-23
SS-G6	SS-G6		3/13/97	K9701662	K9701662-24
SS-C6	SS-C6		3/13/97	K9701662	K9701662-25
GPW-5-397-19	GPW-5-397-19		3/12/97	K9701685	K9701685-1
GPW-2-397-17	GPW-2-397-17		3/12/97	K9701685	K9701685-2
GPW-7-397-11	GPW-7-397-11		3/12/97	K9701685	K9701685-3
GPW-4-397-19	GPW-4-397-19		3/12/97	K9701685	K9701685-4
GP4-19	GP4-19		3/13/97	K9701685	K9701685-5
SS-B7	SS-B7		3/13/97	K9701685	K9701685-6
GP4-7	GP4-7		3/12/97	K9701685	K9701685-7
GP2-5	GP2-5		3/13/97	K9701685	K9701685-8
GP2-21	GP2-21	-	3/13/97	K9701685	K9701685-9
	TB-2-397*		3/13/97	K9701685	K9701685-10
* Trip blank sample.					

# Table 2 Phase 1 Soil and Water Sample Field Duplicate Results March 1997 New City Cleaners

		Con	centi	ations	tions				
Compound	Units	Sample	Q	Duplicate	Q	Average	(percent)		
Sample Location: GPW-9-397-15		Ī							
TSS	mg/L	278		402		340	36		
Diesel	μg/L	250	<	250	<	NA	NC		
Oil	μg/L	750	<	750	<	NA	NC		
Gasoline	μg/L	1100		1200		1150	9		
Tetrachloroethene	μg/L	2200		2200		2200	0		
Sample Location: GP-6-11-15									
Diesel	mg/kg	25	<	25	<	NA	NC		
Oil	mg/kg	100	<	100	<	NA	NC		
Gasoline	mg/kg	470		510		490	8		
Trichloroethene	mg/kg	0.6	E	1.3	Ε	0.95	74		
Tetrachloroethene	mg/kg	0.6	Е	1.0	E	0.8	50		
Sample Location: SS-A6		,							
Tetrachloroethene	μ <b>g</b> /kg	180	E	130	E	155	32		
Sample Location: SS-E6						-			
Tetrachloroethene	μg/kg	6	j	5		5.5	18		

NOTES:

NA = not applicable, one or both of the samples is non-detect.

NC = not calculated.

Q columns contain data qualifiers: see report for data qualifier definitions.

# Table 3 Surrogate Recoveries Not Meeting QC Criteria Phase 1 Soil and Water Sampling March 1997 New City Cleaners

Analysis	Surrogate Recovery	Qualifier
VOCs	54 percent	E - All VOCs
VOCs	54 percent	E - All VOCs
VOCs	65 percent	E - All VOCs
VOCs	164 percent	E - All VOCs
VOCs	48 percent	E - All VOCs
VOCs	62 percent	E - All VOCs
VOCs	161 percent	E - All VOCs
VOCs	165 percent	E - All VOCs
WTPH-G	207 percent	E-TPH-G
WTPH-G	308 percent	E - TPH-G
	VOCs VOCs VOCs VOCs VOCs VOCs VOCs VOCs	VOCs         54 percent           VOCs         65 percent           VOCs         164 percent           VOCs         48 percent           VOCs         62 percent           VOCs         161 percent           VOCs         165 percent           WTPH-G         207 percent

E - The associated numerical value is an estimated quantity.

# DATA VALIDATION REPORT

# NEW CITY CLEANERS RICHLAND, WASHINGTON

# PHASE 2 SOIL SAMPLING April/May 1997

This report summarizes the review of analytical results for soil sampling conducted at the New City Cleaners site in Richland, Washington. Data validation was performed following procedures specified in Section 5 of the Work Plan (EMCON, 1997). A total of twenty-one soil samples and three field duplicate samples were collected April 29 through May 2, 1997. Sample numbers, dates collected, and laboratory sample numbers are presented in Table 1. Samples were analyzed by Columbia Analytical Services (CAS), at their Kelso, Washington, facility, and are associated with Service Request Numbers K9702899, K9702929, K9702981, and K9703203.

# **Data Qualifications**

The following comments refer to the laboratory performance in meeting the quality assurance/quality control (QA/QC) guidelines outlined in the Work Plan. Laboratory results were reviewed following USEPA procedures (USEPA, 1994a,b) and method-specific QC guidelines (USEPA 1983, 1986; Ecology, 1992).

The data were judged to be acceptable for their intended use. Definitions of data qualifiers assigned as a result of this data validation review are as follows:

• E - The associated numerical value is an estimated quantity.

Unless specifically noted below, laboratory results for the samples listed in Table 1 were within QC criteria, and no data qualifiers were assigned during data validation review. The laboratory assigned the following data qualifiers:

- < Analyte was not detected at the reporting limit specified.
- A Out of limits due to matrix interference.
- B Out of limits due to matrix effects.

The data qualifiers retained in the data base are those from EMCON's data validation and those qualifiers assigned by the laboratory.

# **Holding Times**

All sample analyses were conducted within holding times with the exception of the WTPH-G matrix spike and duplicate matrix spike performed on sample MW-4a-9. The primary sample analysis was performed within the recommended holding time, and the spike recoveries were within acceptance limits. Data quality does not appear to be affected and no data qualifiers were assigned to sample results based on holding time criteria.

### Method Blank Results

Method blanks were analyzed at the required frequency. No compounds were detected in the method blanks and no data qualifiers were assigned to sample results based on method blank results.

# Field Duplicates

Three field duplicate samples were collected and analyzed during Phase 2 sampling. Results for compounds detected in the field duplicate analyses are presented in Table 2. Based on USEPA guidance for laboratory duplicate analyses (USEPA, 1994a) and professional judgment, the relative percent difference (RPD) between concentrations reported for duplicate samples was used to evaluate precision, with an objective of  $\leq 35$  to 40 percent RPD for organic analyses. The only compound that showed a variability greater than the objectives was tetrachloroethene in sample MW-2-12.5. An estimated (E) data qualifier was assigned to this sample result based on field duplicate analyses.

# **Laboratory Duplicates**

Laboratory duplicate analyses were conducted at the required frequencies. The RPD between concentrations reported for laboratory duplicate results was used to evaluate analytical precision, with an objective of  $\leq 20$  percent RPD for TOC analyses and  $\leq 35$  percent for diesel and oil analyses per USEPA (1994a) guidelines. All laboratory duplicate analyses were within the objectives and no data qualifiers were assigned to sample results based on laboratory duplicate analyses.

# Surrogate Recovery Results

Surrogate recoveries were within QC criteria except for the sample analyses listed in Table 3. Estimated (E) data qualifiers were assigned to results for samples with surrogate recoveries that did not meet QC limits based on USEPA (1994b) guidelines.

# Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed at the required frequency for all analyses. All MS and MSD percent recoveries, and the RPDs between the duplicate results, were within acceptance criteria with the exception of the diesel MS recovery in sample SB-2-7. The estimated (E) data qualifier was assigned to this sample result based on the MS analysis.

#### **Reporting Limits**

Sample results were reported using method reporting limits. EPA Method 8260A method reporting limits for some samples were elevated because the samples required diluting.

#### Completeness

Completeness of the data were evaluated by comparison of the number of analyses planned for the samples collected versus the number of analyses that were conducted. All planned sample analyses were conducted, giving a completeness of 100 percent.

#### Overall Assessment of Data

The usefulness of the data were assessed on guidelines established in USEPA (1994a, b), the analytical methods, and the Work Plan. Data qualifiers were assigned to sample results during this data validation review based on RPDs of field duplicates, surrogate recoveries, and matrix spike recoveries. The data are judged to be ACCEPTABLE for their intended use. The usefulness of individual results is modified by the assigned data qualifier.

#### REFERENCES

- Ecology. 1992. Total Petroleum Hydrocarbons Analytical Methods for Soil and Water.
  Washington State Department of Ecology Guidance for Remediation of Releases from
  Underground Storage Tanks. Appendix L.
- EMCON. 1997. Remedial Investigation Work Plan, New City Cleaners, Richland, WA. Prepared for Copeland, Landye, Bennett and Wolf, LLP. February 13.
- USEPA. 1983. Methods for Chemical Analysis of Water and Wastes. U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. EPA-600/4-79-020.
- USEPA. 1986. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA-530/SW-846.
- USEPA. 1994a. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/R-94/013. February.
- USEPA. 1994b. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/R-94/012. February.

Table 1

Phase 2 Soil Samples for Laboratory Analysis

April/May 1997

New City Cleaners

Sampling Location	Sample Number	Field Duplicate Sample Number	Date Collected	CAS Service Request Number	CAS Sample Number
MW-4a	MW-4a-1		4/29/97	K9702899	K9702899-1
MW-4a	MW-4a-9		4/29/97	K9702899	K9702899-2
MW-4a	MW-4a-17.5		4/29/97	K9702899	K9702899-3
MW-4a	MW-4a-29		4/29/97	K9702899	K9702899-4
MW-3	MW-3-9		4/30/97	K9702899	K9702899-5
MW-3	MW-3-27		4/30/97	K9702899	K9702899-6
MW-1	MW-1-7		5/1/97	K9702929	K9702929-1
MW-1	MW-1-17.5		5/1/97	K9702929 ·	K9702929-2
MW-1	MW-1-27		5/1/97	K9702929	K9702929-3
MW-2	MW-2-7	MW-10-7	4/30/97	K9702929	K9702929-4;7
MW-2	MW-2-12.5	MW-10-12.5	4/30/97	K9702929	K9702929-5;8
MW-2	MW-2-27	MW-10-27	4/30/97	K9702929	K9702929-6;9
SB-2	SB-2-7		5/1/97	K9702981	K9702981-1
SB-2	SB-2-9		5/1/97	K9702981	K9702981-2
SB-2	SB-2-35		5/1/97	K9702981	K9702981-3
SB-1	SB-1-7		5/1/97	K9702981	K9702981-4
SB-1	SB-1-9		5/1/97	K9702981	K9702981-5
SB-1	SB-1-12.5		5/1/97	K9702981	K9702981-6
SB-1	SB-1-40		5/2/97	K9702981	K9702981-7
SB-1	SB-1-27		5/1/97	K9703203	K9703203-21

### Table 2 Soil and Water Sample Field Duplicate Results Phase 2, April/May 1997 **New City Cleaners**

·		C	nce	ntrations			RPD
Compound	Units	Sample	Q	Duplicate	Q	Average	(percent)
Sample Location: MW-2-7			_				
Diesel	mg/kg	25	<	25	<	NA	NC
Oil	mg/kg	100	<	100	<	NA	NC
Gasoline	mg/kg	5	<	5	<	NA	NC
Sample Location: MW-2-12.5 Tetrachloroethene	μ <b>g</b> /kg	68		16		42	124
Sample Location: MW-2-27 Tetrachloroethene	μ <b>g</b> /kg	6		6		6	0

NOTES:

NA - not applicable, one or both of the samples is non-detect.

NC = not calculated.

Q columns contain data qualifiers: see report for data qualifier definitions.

Table 3

# Surrogate Recoveries Not Meeting QC Criteria Phase 2 Soil Sampling April/May 1997 New City Cleaners

Sample	Analysis	Surrogate Recovery	Qualifier	
SB-1-12.5	VOCs	414 percent	E - All VOCs	
SB-2-9	WTPH-D	74 percent	E - TPH-D and Oil	
SB-1-7	WTPH-D	134 percent	E - TPH-D and Oil	
SB-1-7 (Lab duplicate)	WTPH-D	136 percent	E - TPH-D and Oil	

#### DATA VALIDATION REPORT

## NEW CITY CLEANERS RICHLAND, WASHINGTON

# FIRST ROUND GROUNDWATER SAMPLING May 1997

This report summarizes the review of analytical results for water sampling conducted at the New City Cleaners site in Richland, Washington. Data validation was performed following procedures specified in Section 5 of the Work Plan (EMCON, 1997). A total of six water samples, one field duplicate sample, one rinsate blank, and one trip blank were collected May 8 and 12, 1997, from monitoring wells MW-1 through MW-4, MW-D and MW-E. Sample numbers, dates collected, and laboratory sample numbers are presented in Table 1. Samples were analyzed by Columbia Analytical Services (CAS), at their Kelso, Washington, facility, and are associated with Service Request Numbers K9703152 and K9703242.

#### **Data Qualifications**

The following comments refer to the laboratory performance in meeting the quality assurance/quality control (QA/QC) guidelines outlined in the Work Plan. Laboratory results were reviewed following USEPA procedures (USEPA, 1994a,b) and method-specific QC guidelines (USEPA 1983, 1986; Ecology, 1992).

Laboratory results for the samples listed in Table 1 were within QC criteria, and no data qualifiers were assigned during data validation review. The data were judged to be acceptable for their intended use. The laboratory assigned the following data qualifiers:

- < Analyte was not detected at the reporting limit specified.</li>
- A Outside acceptance limits.

The data qualifiers retained in the data base are those qualifiers assigned by the laboratory.

# **Holding Times**

All sample analyses were conducted within holding times and no data qualifiers were assigned to these sample results based on holding time criteria.

#### Method Blank Results

Method blanks were analyzed at the required frequency. No compounds were detected in the method blanks and no data qualifiers were assigned to sample results based on method blank results.

#### Field Duplicates

One field duplicate sample was collected and analyzed during First Round groundwater monitoring. Results for compounds detected in the field duplicate analyses are presented in Table 2. Based on USEPA guidance for laboratory duplicate analyses (USEPA, 1994a), and professional judgment, the relative percent difference (RPD) between concentrations reported for duplicate samples was used to evaluate precision, with an objective of  $\leq 25$  percent for organic analyses. All detected compounds were within this objective and no data qualifiers were assigned to these sample results based on field duplicate analyses.

#### **Laboratory Duplicates**

Laboratory duplicate analyses were conducted at the required frequencies. The RPD between concentrations reported for laboratory duplicate results was used to evaluate analytical precision, with an objective of  $\leq 25$  percent RPD for organic analyses per USEPA (1994a) guidelines. All laboratory duplicate analyses were within the objective and no data qualifiers were assigned to sample results based on laboratory duplicate analyses.

### Surrogate Recovery Results

Surrogate recoveries were within QC criteria and no data qualifiers were assigned to sample results based on surrogate recovery results.

# Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed at the required frequency for all analyses. All MS and MSD percent recoveries, and the RPDs between the duplicate results, were within acceptance criteria. No data qualifiers were assigned to sample results based on MS/MSD analyses.

### **Reporting Limits**

Sample results were reported using routine method reporting limits.

#### Completeness

Completeness of the data was evaluated by comparison of the number of analyses planned for the samples collected versus the number of analyses that were conducted. The trip blank, TB-1-0597, was not analyzed for EPA Method 8260A due to a laboratory oversight, and sample MW-1-0597 was not analyzed for WTPHD because the sample bottle broke in transit. This gives a completeness of 92 percent, just below the objective of 95 percent.

#### **Overall Assessment of Data**

The usefulness of the data were assessed on guidelines established in USEPA (1994a, b), the analytical methods, and the Work Plan. No data qualifiers were assigned during this data validation, and the data are judged to be acceptable for their intended use.

#### REFERENCES

- Ecology. 1992. Total Petroleum Hydrocarbons Analytical Methods for Soil and Water. Washington State Department of Ecology Guidance for Remediation of Releases from Underground Storage Tanks. Appendix L.
- EMCON. 1997. Remedial Investigation Work Plan, New City Cleaners, Richland, WA. Prepared for Copeland, Landye, Bennett and Wolf, LLP. February 13.
- USEPA. 1983. Methods for Chemical Analysis of Water and Wastes. U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. EPA-600/4-79-020.
- USEPA. 1986. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
  U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.
  EPA-530/SW-846.
- USEPA. 1994a. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/R-94/013. February.
- USEPA. 1994b. USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/R-94/012. February.

Table 1

First Round Groundwater Samples for Laboratory Analysis
May 1997

New City Cleaners, Richland, Washington

Sampling Location	Sample Number	Field Duplicate Sample Number	Date Collected	CAS Service Request Number	CAS Sample Number
MW-1	MW-1-0597	MW-20-0597	5/8/97	K9703152	K9703152-1;2
MW-2	MW-2-0597		5/8/97	K9703152	K9703152-3
	MW-10-0597*		5/8/97	K9703152	K9703152-4
MW-3	MW-3-0597		5/8/97	K9703152	K9703152-5
MW-4	MW-4-0597		5/8/97	K9703152	K9703152-6
	TB1-0597 ^b		5/8/97	K9703152	K9703152-7
MW-D	MW-D-0597		5/12/97	K9703242	K9703242-1
MW-E	MW-E-0597		5/12/97	K9703242	K9703242-2

#### NOTE:

Rinsate blank sample.

Trip blank sample.

# Table 2 Water Sample Field Duplicate Results First Round, May 1997 New City Cleaners Richland, Washington

		Co	ncentr	ations			RPD
Compound	Units	Sample	δ	Duplicate	Q	Average	(percent)
Sample Location: MW-1-0597	1						
Diesel	μg/L	<u> </u>		250	<	NA	NC
Oil	μg/L	_	<	750	<	NA	NC
Gasoline	μg/L	50		50	<	NA	NC
Tetrachloroethene	μg/L	2.8		3.3	l	3.05	. 16
	·						1

#### NOTES

--- = Sample not analyzed, bottle was broken in transit to laboratory.

NA = not applicable, one or both of the samples is non-detect.

NC = not calculated.

Q columns contain data qualifiers: see report for data qualifier definitions.

#### DATA VALIDATION REPORT

### NEW CITY CLEANERS RICHLAND, WASHINGTON

# WATER SAMPLING August 1997

This report summarizes the review of analytical results for water sampling conducted at the New City Cleaners in Richland, Washington. Data validation was performed following procedures specified in Section 5 of the Work Plan (EMCON, 1996). A total of six water samples, one field duplicate sample, one rinsate blank, and one trip blank were collected August 20, 1997. Sample numbers, dates collected, and laboratory sample numbers are presented in Table 1. Samples were analyzed by Columbia Analytical Services (CAS), at their Kelso, Washington, facility.

#### Data Qualifications

The following comments refer to the laboratory performance in meeting the quality assurance/quality control (QA/QC) guidelines outlined in the Work Plan. Laboratory results were reviewed following USEPA procedures (USEPA, 1994a,b) and method-specific QC guidelines (USEPA 1983, 1986; Ecology, 1992).

Laboratory results for the samples listed in Table 1 were within QC criteria, and no data qualifiers were assigned during data validation review. The data were judged to be acceptable for their intended use. The laboratory assigned the following data qualifier:

< - Analyte was not detected.</li>

The data qualifiers retained in the data base are those qualifiers assigned by the laboratory.

### **Holding Times**

All sample analyses were conducted within holding times and no data qualifiers were assigned to these sample results based on holding time criteria.

#### Method Blank Results

Method blanks were analyzed at the required frequency. No compounds were detected in the method blanks and no data qualifiers were assigned to sample results based on method blank results.

#### Field Duplicates

One field duplicate sample was collected and analyzed. Results for compounds detected in the field duplicate analyses are presented in Table 2. Based on USEPA guidance for laboratory duplicate analyses (USEPA, 1994a), and professional judgment, the relative percent difference (RPD) between concentrations reported for duplicate samples was used to evaluate precision, with an objective of  $\leq$  25 percent for organic analyses. All detected compounds were within this objective and no data qualifiers were assigned to these sample results based on field duplicate analyses.

#### **Laboratory Duplicates**

Laboratory duplicate analyses were not performed during this round of sampling. However, laboratory precision was adequately demonstrated through acceptable RPDs between matrix spike and matrix spike duplicate analyses. Data usability is likely not affected by the absence of laboratory duplicates.

#### Surrogate Recovery Results

Surrogate recoveries were within QC criteria and no data qualifiers were assigned to sample results based on surrogate recovery results.

## Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

Matrix spike/matrix spike duplicate (MS/MSD) samples were analyzed at the required frequency for all analyses. All MS and MSD percent recoveries, and the RPDs between the duplicate results, were within acceptance criteria. No data qualifiers were assigned to sample results based on MS/MSD analyses.

# Reporting Limits

Sample results were reported using routine method reporting limits.

# Completeness

Completeness of the data were evaluated by comparison of the number of analyses planned for the samples collected versus the number of analyses that were conducted. All planned sample analyses were conducted, giving a completeness of 100 percent.

## Overall Assessment of Data

The usefulness of the data were assessed on guidelines established in USEPA (1994a, b), the analytical methods, and the Work Plan. No data qualifiers were assigned during this data validation, and the data are judged to be acceptable for their intended use.

#### REFERENCES

- Ecology. 1992. Total petroleum hydrocarbons analytical methods for soil and water. Washington State Department of Ecology Guidance for Remediation of Releases from Underground Storage Tanks Appendix L.
- EMCON. 1995. Remedial investigation work plan UNOCAL Edmonds bulk fuel terminal.

  Prepared for UNOCAL Corporation. Prepared by EMCON.
- USEPA. 1983. Methods for chemical analysis of water and wastes. U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. EPA-600/4-79-020.
- USEPA. 1986. Test methods for evaluating solid waste: physical/chemical methods.

  U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response.

  EPA-530/SW-846.
- USEPA. 1994a. USEPA contract laboratory program national functional guidelines for inorganic data review. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/R-94/013. February.
- USEPA. 1994b. USEPA contract laboratory program national functional guidelines for organic data review. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540/R-94/012. February.

# Table 1 Water Samples for Laboratory Analysis August 1997 New City Cleaners, Richland, Washington

Page 1 of 1

Sampling Location	Sample Number	Field Duplicate Sample Number	Date Collected	CAS Service Request Number	CAS Sample Number
· · · · · · · · · · · · · · · · · · ·	MW-B-0897*		8/20/97	K9706067	K9706067-1
MW-D	MW-D-0897		8/20/97	K9706067	K9706067-2
MW-E	MW-E-0897		8/20/97	K9706067	K9706067-3
MW-1	MW-1-0897		8/20/97	K9706067	K9706067-4
MW-2	MW-2-0897	MW-5-0897	8/20/97	K9706067	K9706067-5;8
MW-3	MW-3-0897		8/20/97	K9706067	K9706067-6
MW-4	MW-4-0897		8/20/97	K9706067	K9706067-7
	TB1-0897 ^b		8/20/97	K9706067	K9706067-9

Notes

Rinsate blank sample.

Trip blank sample.

# Table 2 . Water Sample Field Duplicate Results August 1997 New City Cleaners Richland, Washington

		Concentrations	8				RPD
Compound	Units	Sample	QD	plicate	Q	Average	(percent)
Sample Location:	MW-2-08	97					
Diesel	μg/L,	250	<	250	<	NA	NC
Gasoline	μg/L	50	<	50	<	NA	NC
Trichloroethene	μg/L	5.7		5.8		5.75	2
Tetrachloroethene	µg/L	58		65		61.5	11

# APPENDIX H INTERIM TPH EVALUATION

Risks for direct contact with soil were calculated according to the Policy.

Table H-1 summarizes the soil concentrations used in the evaluation. The maximum detected concentrations of total petroleum hydrocarbons (TPH) as gasoline (TPH-G), diesel (TPH-D), and oil (TPH-O) were divided into aliphatic and aromatic compound groups according to default assumptions presented by Steve Robb of Ecology.

Table H-2 summarizes the chemical-specific parameters used in the evaluation (e.g., reference doses).

Table H-3 shows the calculation of residual soil saturation concentration, which forms the upper limit for soil cleanup levels. Above the residual saturation concentration, product can flow down through soil due to gravity alone (i.e., no infiltration is necessary).

Table H-4 shows the calculation of hazard indices (HIs) for direct contact with soil under a Method B residential scenario. Hazard quotients (HQs) are calculated for each compound group and then summed to produce the total HI. HIs are calculated separately for TPH-G, TPH-D, and TPH-O. The results are summarized in the report.

Table H-1

## Soil Concentrations (mg/kg)^a New City Cleaners Site Richland, Washington

Compound			
Group	TPH-G	TPH-D	TPH-O
Noncarcinogens			
Aliphatics EC5-EC6	345	0	0
Aliphatics >EC6-EC8	345	0	0
Aliphatics >EC8-EC10	460	104	145
Aliphatics >EC10-EC12	0	104	145
Aliphatics >EC12-EC16	0	104	145
Aliphatics >EC16	0	104	145
Aromatics EC5-EC7	0	0	0
Aromatics >EC7-EC8	0	0	0
Aromatics >EC8-EC10	1,138	156	218
Aromatics >EC10-EC12	0	156	218
Aromatics >EC12-EC16	0	156	218
Aromatics >EC16-EC21	0	156	218
Aromatics >EC21-EC35	0	0	0
Total "TPH"	2,300	1,040	1,450
Toluene	0	NA	NA
Ethylbenzene	0	NA	NA
Xylenes	12	NA	NA
Carcinogens			
Benzene	0	NA	NA
Benzo(a)pyrene	NA	0	0

#### NOTE:

EC = Equivalent carbon number.

NA = Not applicable.

TPH = Total petroleum hydrocarbons.

^a The TPH values were distributed among the EC ranges according to the default soil compositions recommended by Steve Robb at New Directions for Petroleum Cleanups: Interim TPH Policy. April 24, 1997, Bellevue, Washington. The concentration of xylenes was subtracted from the aromatics >EC8-EC10 range in TPH-G to avoid double-counting the xylenes.

# Table H-2

# Chemical-Specific Parameters New City Cleaners Site Richland, Washington

Compound	Surrogate	MM	S	11	Koc	ORID	OCPF	INI	ABI	ABS
Group	Chemical	(g/mol)	(mg/L)	$(cm^3/cm^3)$	(L/kg)	(mg/kg/day)	(mg/kg/day) ⁻¹	(unitless)	(unitless)	(unitless)
		Interim								
Source	Interim Policy	Policy	Interim Policy	Interim Policy Interim Policy Interim Policy	Interim Policy	Interim Policy	Interim Policy	ВРЈ	Default	Default
Noncarcinogens										
Aliphatics EC5-EC6	n-Hexane	81	2.80E+01	3.40E+01	7.94E+02	90.0	AN	7	_	-
Aliphatics >EC6-EC8	n-Hexane	100	4.20E+00	5.10E+01	3.98E+03	90.0	NA	7	-	-
Aliphatics >EC8-EC10	n-Hexane	130	3.30E-01	8.20E+01	3.16E+04	90:0	NA	2	-	_
Aliphatics >EC10-EC12	n-Hexane	160	2.60E-02	1.30E+02	2.51E+05	90.0	NA	7	-	-
Aliphatics >EC12-EC16	n-Hexane	200	5.90E-04	5.40E+02	5.01E+06	90.0	NA	_	_	-
Aliphatics >EC16	n-Hexane	270	1.00E-06	6.40E+03	1.00E+09	90.0	NA	_	_	_
	Benzene/									
Aromatics EC5-EC7	Pyrene	78	1.80E+03	2.30E-01	7.94E+01	0.03	NA	2	-	_
Aromatics >EC7-EC8	Toluene	92	5.20E+02	2.70E-01	2.51E+02	0.03	NA	2		-
Aromatics >EC8-EC10	Pyrene	120	6.50E+01	4.90E-01	1.58E+03	0.03	NA	2	-	-
Aromatics > EC10-EC12	Pyrene	130	2.50E+01	1.40E-01	2.51E+03	0.03	NA	7	-	-
Aromatics >EC12-EC16	Pyrene	150	5.80E+00	5.40E-02	5.01E+03	0.03	NA	-	-	-
Aromatics >EC16-EC21	Pyrene	190	5.10E-01	1.30E-02	1.58E+04	0.03	NA		-	-
Aromatics >EC21-EC35	Pyrene	240	6.60E-03	6.80E-04	1.26E+05	0.03	NA	-		-
Toluene	N A	92	5.20E+02	2.70E-01	2.51E+02	0.2	NA	2		-
Ethylbenzene	NA	901	1.52E+02		1.10E+03	0.1	NA	7		-
Xylenes	N A	106	1.98E+02		2.40E+02	2	NA	2	_	-
Carcinogens										
Benzene	NA	78	1.80E+03	2.30E-01	7.94E+01	NA	0.029	. 7	-	-
Benzo(a)pyrene	NA	252	1.20E-03		5.50E+06	NA	7.3		-	-
NOTE:										
AB1 = Gastrointestinal absorption factor.	factor.									
ABS = Inhalation absorption factor.	ن									
BPJ = Best professional judgement	Į.									
C _{sat} = Soil concentration at which dissolved pore-water and vapor phases become saturated.	dissolved pore-wa	ter and vap	or phases become	saturated.						
EC = Equivalent carbon number.										
f = Fraction of compound group in petroleum mixture.	ı petroleum mixtur	οί								
H = Henry's law constant.										
INH = Inhalation correction factor.										

Interim Policy = Ecology. January 1997. Interim Interpretive and Policy Statement Cleanup of Total Petroleum Hydrocarbons (TPH). Publication No. ECY97-600. Koc = Soil organic carbon/water partition coefficient.

NA = Not applicable.

OCPF = Oral cancer potency factor.

ORID = Oral reference dose.

S = Water solubility.

# Table H-3

# Residual Soil Saturation Concentrations New City Cleaners Site Richland, Washington

		Portion of				
Soil	Soil Bulk	Vadose Zone		Product Density		Residual Saturation
Porosity	Density	Saturated	Gasoline	Diesel	Oil	Gasoline Diesel Oil
qr	Гь	%	Гр	Γp	Γp	RS RS RS
(cm ₃ /cm ₃ )	(g/cm ³ )	(unitless)	(g/ml)	(g/ml)	(g/ml)	(mg/kg) (mg/kg) (mg/kg)
0.3	1.85	0.15	0.7	8.0	6.0	19,459
NOTE:						
Equation: RS	3 = q _T x % x r _p x	Equation: RS = $q_T \times \% \times r_p \times 10^3$ mg/g / ( $r_b \times 10^3$ kg/g).	0 ⁻³ kg/g).			

# Table H-4 Protection of Direct Contact for Method B Residential Scenario TPH-G Concentrations New City Cleaners Site Richland, Washington

٠					(Company Company )
Concentration	Dose	Factor	Ingestion		
SC	ORED	OCPF	Factor	Multiplier	HQ or Risk
(mg/kg)	(mg/kg/day)	(mg/kg/day) 1	(1/day)	(kg/mg)	(unitless)
Table H-1	Table H-2	Table H-2	Expo.Param.	Equations 1&2	Equations 3&
			•	•	
345	0.06	NA	1.25E-05	2.08E-04	0.07
345	0.06	NA	1.25E-05	2.08E-04	0.07
460	0.06	NA	1.25E-05	2.08E-04	0.10
0	0,06	NA	1.25E-05	2.08E-04	0,00
0	0.06	NA	1.25E-05	2.08E-04	0.00
0	0.06	NA	1.25E-05	2.08E-04	0.00
0	0.03	NA	1.25E-05	4.17E-04	0,00
0	0.03	NA	1.25E-05	4.17E-04	0.00
1,138	0.03	NA			0.47
Ô					0.00
0					0.00
0				·	0,00
0					0,00
=	3,35		1.222 32	,2 01	0.71
=	0.2	NA	1.25E-05	6.25E-05	0.00
					0,00
=					7.50E-05
				5,252 55	0.71
0	NA	0.029	1.00E-06	2.90E-08	0.00E+00
					NA.
					0.00E+00
	Evnoguro	Daramatara	-		
A bbreviation	-		Source		
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ractor	1,005-00	17uay	SIK-FOC-DOR	JU"I DA" W DA)	r "LIFE)
		EQUATIONS:			
		-	•		
		-	•		
			s: HQ = SC * Multip		
		4: Carcinogens: R	tisk = SC * Multiplie	r _c	
	(mg/kg) Table H-1  345 345 460 0 0 0 0 1,138 0 0 0	(mg/kg)         (mg/kg/day)           Table H-1         Table H-2           345         0.06           345         0.06           460         0.06           0         0.06           0         0.06           0         0.03           0         0.03           0         0.03           0         0.03           0         0.03           0         0.03           0         0.03           2,288         0           0         0.1           12         2    Exposure  Value  Abbreviation  ABW  16 SIR 200  FOC 1 LIFE 75 DUR 6 ABI 1 UCF 1.00E+06 Factor, 1.25E-05 Factor, 1.25E-05 Factor, 1.00E-06	(mg/kg)         (mg/kg/day)         (mg/kg/day) ⁻¹ Table H-1         Table H-2         Table H-2           345         0.06         NA           345         0.06         NA           460         0.06         NA           0         0.03         NA           0         0.1         NA           12         2         NA     Exposure Parameters  Abbreviation  Value  Units  ABW  16 kg  SIR  200 mg/day  FOC  1 unitless  LIFE  75 yr  DUR  6 yr  AB1 1 unitless  UCF 1.00E+06 mg/kg  Factor 1.25E-05 1/day  Factor 1.00E+06 mg/kg  Factor 1.00E+06 mg/kg  Factor 1.00E+06 1/day  EQUATIONS: 1: Noncarcinogen 2: Carcinogens: Na	(mg/kg)         (mg/kg/day)         (mg/kg/day) ⁻¹ (1/day)           Table H-1         Table H-2         Expo.Param.           345         0.06         NA         1.25E-05           345         0.06         NA         1.25E-05           460         0.06         NA         1.25E-05           0         0.03         NA         1.25E-05           0         0.03         NA         1.25E-05           1,138         0.03         NA         1.25E-05           0         0.03         NA         1.25E-05           0         0.03         NA         1.25E-05           0         0.03         NA         1.25E-05           2,288         0         0.2         NA         1.25E-05           0         NA         NA         1.25E-05           12         2         NA         1.25	mg/kg  mg/kg/day  mg/kg/day  (1/day) kg/mg    Table H-1

# Table H-4 Protection of Direct Contact for Method B Residential Scenario TPH-G Concentrations New City Cleaners Site Richland, Washington

	Soil	Reference	Potency	Soil		
	Concentration	Dose	Factor	Ingestion		
Compound	SC	ORfD	OCPF	Factor	Multiplier	HQ or Risk
Group	(mg/kg)	(mg/kg/day)	(mg/kg/day) ⁻¹	(1/day)	(kg/mg)	(unitless)
Source	Table H-1	Table H-2	Table H-2	Expo.Param.	Equations 1&2	Equations 3&4
Noncarcinogens						
Aliphatics EC5-EC6	0	0.06	NA	1.25E-05	2.08E-04	0.00
Aliphatics >EC6-EC8	0	0.06	NA	1.25E-05	2.08E-04	0.00
Aliphatics >EC8-EC10	104	0.06	NA	1.25E-05	2.08E-04	0.02
Aliphatics >EC10-EC12	104	0.06	NA	1.25E-05	2.08E-04	0.02
Aliphatics >EC12-EC16	104	0.06	NA	1.25E-05	2.08E-04	0.02
Aliphatics >EC16	104	0.06	NA	1.25E-05	2.08E-04	0,02
Aromatics EC5-EC7	0	0.03	. NA	1.25E-05	4.17E-04	0,00
Aromatics >EC7-EC8	0	0.03	NA	1.25E-05	4.17E-04	0.00
Aromatics >EC8-EC10	156	0.03	NA	1.25E-05	4.17E-04	0.07
Aromatics >EC10-EC12	156	0.03	NA	1.25E-05	4.17E-04	0.07
Aromatics >EC12-EC16	156	0.03	NA	1.25E-05	4.17E-04	0.07
Aromatics >EC16-EC21	156	0.03	NA	1.25E-05	4.17E-04	0.07
Aromatics >EC21-EC35	0	0.03	NA	1.25E-05	4.17E-04	0.00
Total "TPH"	1,040					0.35
Toluene	NA	0.2	NA	1.25E-05	6.25E-05	NA
Ethylbenzene	NA	0.1	NA	1.25E-05	1.25E-04	NA
Xylenes	NA	2	NA	1.25E-05	6.25E-06	NA
Total Hazard Index						0.35
Carcinogens						
Benzene	NA	NA	0.029	1.00E-06	2.90E-08	NA
Benzo(a)pyrene	0	NA	7.3	1.00E-06	7.30E-06	0.00E+00
Total Cancer Risk						0.00E+00

Exposure Parameters									
Parameter	Abbreviation	Value	Units	Source					
Average body weight	ABW	16	kg	WAC 173-340-740					
Soil ingestion rate	SIR	200	mg/day	WAC 173-340-740					
Frequency of contact	FOC	1	unitless	WAC 173-340-740					
Lifetime	LIFE	75	yr	WAC 173-340-740					
Duration of exposure	DUR	6	yr	WAC 173-340-740					
Gastrointestinal absorption rate	AB1	1	unitless	WAC 173-340-740					
Units conversion factor	UCF	1.00E+06	mg/kg	WAC 173-340-740					
Noncancer soil ingestion factor	Factor _n	1.25E-05	1/day	SIR*FOC/(ABW*AB1*UCF)					
Cancer soil ingestion factor	Factor _c	1.00E-06	1/day	SIR*FOC*DUR/(ABW*AB1*UCF*LIFE)					

#### NOTE:

EC = Equivalent carbon number.

HQ = Hazard quotient.

NA = Not applicable.

OCPF = Oral carcinogenic potency factor.

ORfD = Oral reference dose.

TPH = Total petroleum hydrocarbons.

#### **EQUATIONS:**

- 1: Noncarcinogens: Multiplier_n = Factor_n / ORfD
- 2: Carcinogens: Multiplier_c = Factor_c * OCPF
- 3: Noncarcinogens: HQ = SC * Multiplier_n
- 4: Carcinogens: Risk = SC * Multiplierc

# Table H-4 Protection of Direct Contact for Method B Residential Scenario TPH-G Concentrations New City Cleaners Site Richland, Washington

		Richiand, V	wasningtor	1			
	Soil	Reference	Potency	Soil			
	Concentration	Dose	Factor	Ingestion			
Compound	SC	ORfD	OCPF	Factor	Multiplier	HQ or Risk	
Group	(mg/kg)	(mg/kg/day)	(mg/kg/day)-1	(1/day)	(kg/mg)	(unitless)	
Source	Table H-1	Table H-2	Table H-2	Expo.Param.	Equations 1&2	Equations 3&	
Noncarcinogens							
Aliphatics EC5-EC6	0	0.06	NA	1.25E-05	2.08E-04	0.00	
Aliphatics >EC6-EC8	l 0	0.06	NA	1.25E-05	2.08E-04	0.00	
Aliphatics >EC8-EC10	145	0.06	NA	1.25E-05	2.08E-04	0.03	
Aliphatics >EC10-EC12	145	0.06	NA	1.25E-05	2.08E-04	0.03	
Aliphatics >EC12-EC16	145	0.06	NA	1.25E-05	2.08E-04	0.03	
Aliphatics >EC16	145	0.06	NA	1.25E-05	2.08E-04	0.03	
Aromatics EC5-EC7	0	0.03	NA	1.25E-05	4.17E-04	0,00	
Aromatics >EC7-EC8	0	0.03	NA	1.25E-05	4.17E-04	0.00	
Aromatics >EC8-EC10	218	0.03	NA	1.25E-05	4.17E-04	0.09	
Aromatics >EC10-EC12	218	0.03	NA	1.25E-05	4.17E-04	0,09	
Aromatics >EC12-EC16	218	0.03	NA	1.25E-05	4.17E-04	0.09	
Aromatics >EC16-EC21	218	0.03	NA	1.25E-05	4.17E-04	0,09	
Aromatics >EC21-EC35	0	0.03	NA	1.25E-05	4.17E-04	0.00	
Total "TPH"	1,450					0.48	
Toluene	NA	0.2	NA	1.25E-05	6.25E-05	NA	
Ethylbenzene	NA	0.1	NA	1.25E-05	1.25E-04	NA NA	
Xylenes	NA	2	NA	1.25E-05	6.25E-06	NA	
Total Hazard Index						0,48	
Carcinogens							
Benzene	NA	NA	0.029	1.00E-06	2.90E-08	NA	
Benzo(a)pyrene	0	NA	7.3	1.00E-06	7.30E-06	0.00E+00	
Fotal Cancer Risk						0.00E+00	
		Exposure l	Parameters				
Parameter	Abbreviation	Value	Units	Source			
Average body weight	ABW	16	kg	WAC 173-340	-740		
Soil ingestion rate	SIR	200	mg/day	WAC 173-340	-740		
Frequency of contact	FOC	1	unitless	WAC 173-340-740			
Lifetime	LIFE	75	yr	WAC 173-340-740			
Duration of exposure	DUR	6	yr	WAC 173-340-740			
Gastrointestinal absorption rate	AB1	1	unitless	WAC 173-340-740			
Units conversion factor	UCF	1.00E+06	mg/kg	WAC 173-340			
Noncancer soil ingestion factor	Factor _n	1.25E-05	1/day	SIR*FOC/(ABW*AB1*UCF)			
O	<b>-</b>	1 000 06		din to denim (A nitre a new control to 1			

#### NOTE:

EC = Equivalent carbon number.

Cancer soil ingestion factor

HQ = Hazard quotient.

NA = Not applicable.

OCPF = Oral carcinogenic potency factor.

ORtD = Oral reference dose.

TPH = Total petroleum hydrocarbons.

#### **EQUATIONS:**

1/day

1.00E-06

1: Noncarcinogens: Multiplier_n = Factor_n / ORfD

SIR*FOC*DUR/(ABW*AB1*UCF*LIFE)

- 2: Carcinogens: Multiplier_c = Factor_c * OCPF
- 3: Noncarcinogens: HQ = SC * Multiplier_n
- 4: Carcinogens: Risk = SC * Multiplier_c

Factor_c