# Phase II Environmental Site Assessment Old Brewhouse Tumwater, Washington

FEBRUARY1997

Prepared For:

THE CITY OF TUMWATER 555 ISRAEL ROAD S.W. \_\_ TUMWATER, WA 98501



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| 3.3      | GROUNI         | DWATER SAMPLING RESULTS                                              | . 22 |
|----------|----------------|----------------------------------------------------------------------|------|
|          | 3.3.2<br>3.3.3 | Total Petroleum Hydrocarbons                                         | . 22 |
|          | 3.3.4          | Dissolved Metals                                                     | . 25 |
| 4.0 SITE | SUMMAR         | Y AND CONCLUSIONS                                                    | . 27 |
| 4.       | 1 TOPOGE       | RAPHY AND SITE DRAINAGE                                              | . 27 |
| 4.3      | 2 GEOLOG       | GY/HYDROGEOLOGY                                                      | . 28 |
| 4.       | 3 AREAS        | OF INVESTIGATION                                                     | . 28 |
|          | 4.3.2          | Former UST                                                           | . 29 |
|          | 4.3.3          | Electrical Transformer Pad                                           | . 29 |
|          | 4.3.5          | Aboveground Fuel Tank                                                | . 30 |
|          | 4.3.6<br>4.3.7 | Road Construction Debris                                             | . 31 |
| 4.       | 4 SUMMA        | ARY                                                                  | . 31 |
| 5.0 REF  | ERENCES        |                                                                      | . 33 |
| APPEND   | IX A. AN       | ALYTICAL DATA REPORT                                                 |      |
| APPE     | ENDIX A-1.     | . ANALYTICAL DATA REPORT FOR SAMPLES COLLECTED ON<br>16 JANUARY 1997 |      |
| APPI     | ENDIX A-2      | ANALYTICAL DATA REPORT FOR SAMPLES COLLECTED ON 20 JANUARY 1997      |      |

### FIGURES

| Number | <u>Pag</u>                                               | <u>e</u> |
|--------|----------------------------------------------------------|----------|
| 1      | Site Vicinity Map, Old Brewhouse, Tumwater, Washington   |          |
| 2      | Old Brewhouse Site Map, Tumwater, Washington             |          |
| 3      | Old Brewhouse Sample Location Map, Tumwater Washington 6 |          |

#### TABLES

| <u>Number</u> |                                                                                                                                                          | Page |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| . <b>1</b>    | Summary of Field Activities, Phase II Environmental Site Assessment, Old Brewhouse, Tumwater, Washington                                                 | 12   |
| 2             | Field Investigation and Laboratory Analysis Summary, Phase II Environmental Site Assessment, Old Brewhouse, Tumwater, Washington                         | 15   |
| 3             | Summary of Analytical Results for Soil/Sediment Samples Collected During the Phase II Environmental Site Assessment, Old Brewhouse, Tumwater, Washington | 19   |
| 4             | Summary of Soil Sampling Field Observations and Measurements,<br>Phase II Environmental Site Assessment, Old Brewhouse, Tumwater, Washington             | 20   |
| 5             | Summary of Analytical Results for Groundwater Samples Collected During the Phase II Environmental Site Assessment, Old Brewhouse, Tumwater, Washington   | 23   |
| 6             | Summary of Groundwater Sampling Field Observations and Measurements,<br>Phase II Environmental Site Assessment, Old Brewhouse, Tumwater, Washington      | 24   |

Tetra Tech, Inc., under contract to the City of Tumwater, has conducted a Phase II Environmental Site Assessment (ESA) at the Old Brewhouse, located at 3245 Boston Street S.W. in Tumwater, Thurston County, Washington. The objective of the ESA was to assess the potential for historical site operations and activities to have resulted in environmental impairment in the vicinity of the Old Brewhouse and surrounding buildings.

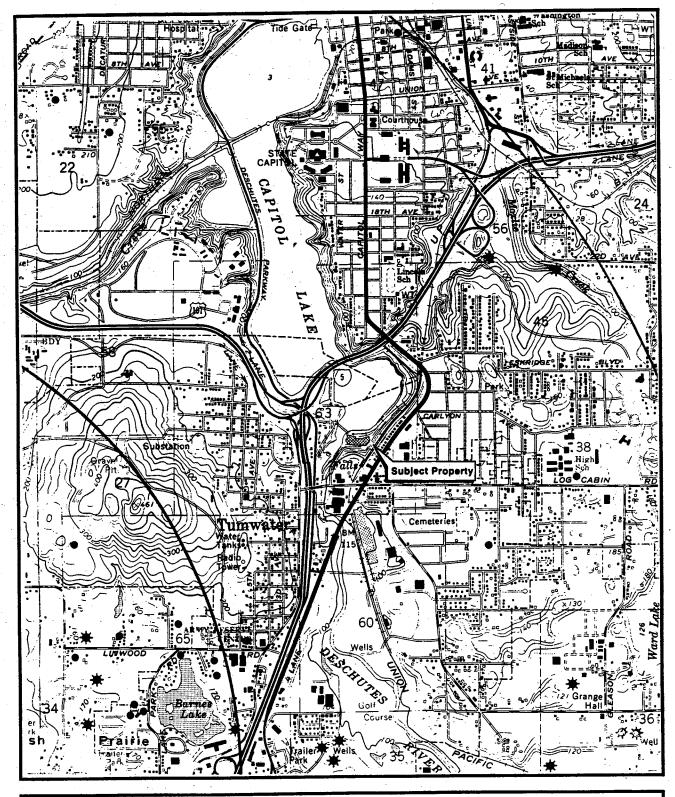
The technical approach employed during the Phase II ESA included: 1) a review of available background information to identify historical property use and site operations, 2) a site inspection to identify specific areas for investigation, and 3) a focused site investigation designed to assess potential soil and groundwater contamination.

This report presents the findings of the Phase II ESA for the Old Brewhouse. It is intended to provide a description of the site, including areas of investigation; as well as a comprehensive description of the January 1997 Phase II ESA, and a summary of site conditions and conclusions. Historical property use and site operations are summarized in the Phase I ESA report prepared for the Old Brewhouse (Tetra Tech 1997).

#### 1.1 SITE DESCRIPTION

The subject property is located in Tumwater, Washington, along the east shore of Capitol Lake at the mouth of the Deschutes River (Figure 1). The property is approximately rectangular in shape and encompasses seven tracts totaling 34.24 acres, including submerged tracts below Capitol Lake and several island marshlands near the shoreline.

The Phase II study area comprises the southern portion of the property which is the site of the original Olympia Brewery complex and adjoining warehouse additions. Figure 2 provides an overview of the Old



Source: USGS TUMWATER, WASH. QUADRANGLE 1981

Figure 1. Site Vicinity Map - Old Brewhouse Tumwater, Washington



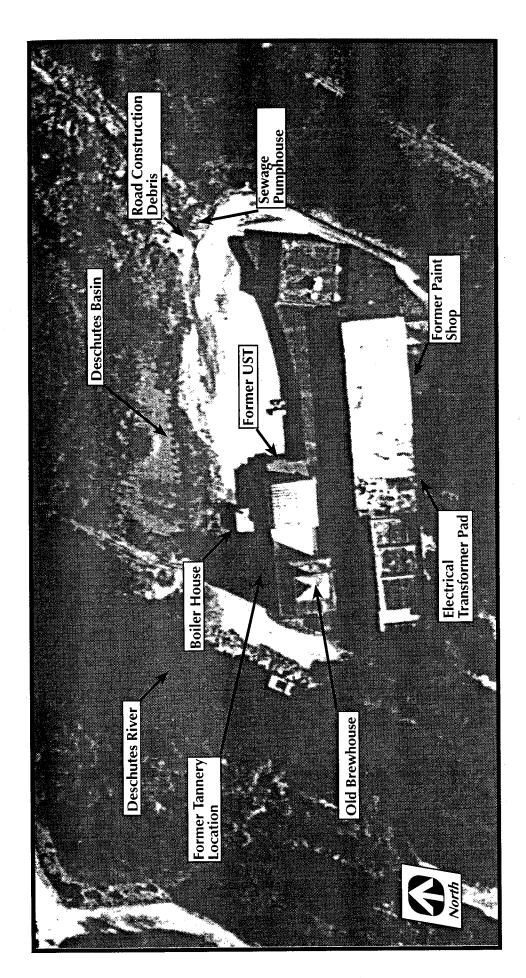


Figure 2. Old Brewhouse Site Map, Tumwater, Washington (Adapted from 1992 Aerial Photograph)

Brewhouse complex and adjacent features. There is a vacant paint shop building located adjacent to the south side of the warehouse, and a boiler building located on the north side of the Old Brewhouse complex. A sewer pumping station owned and operated by the City of Tumwater is located at the northeast corner of the warehouse. The main vehicular access to the subject property and warehouse complex is via a partially paved road that intersects Custer Way from the south. The road loses elevation rapidly as it descends from the uplands on the south to the level graded area that supports the warehouse complex. The graded land surrounding the warehouse is covered with gravel and dirt. An elevated, graded mound near the shoreline north of the warehouse was reportedly formed from the deposition of asphalt and other road construction debris by the City of Tumwater from various road construction projects.

This section describes the areas of investigation and provides a summary of the field observation and sample analysis activities conducted during the January 1997 Phase II ESA. Field sampling activities were conducted on 16 and 20 January 1997. These activities included completing utility locating and surface soil sampling on 16 January, and conducting subsoil and groundwater sampling on 20 January.

#### 2.1 AREAS OF INVESTIGATION

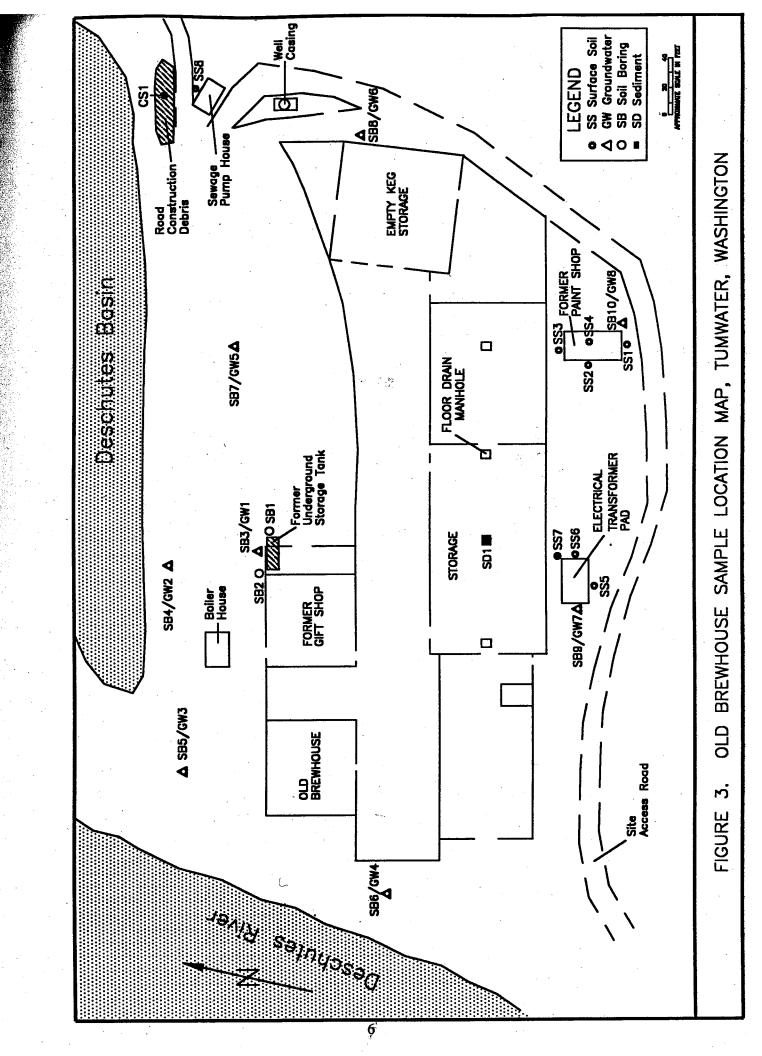
Seven discrete areas were identified for investigation based on review of historical site operations and an initial site inspection, including:

- A former underground storage tank
- A former paint shop building
- An electrical transformer pad
- A floor drain system within the main warehouse complex
- An above ground fuel tank
- Stockpiled road construction debris
- Former tannery and surrounding area.

Figure 3 shows the location of each area investigated during the January 1997 Phase II ESA, including site specific sample locations. A summary of field activities, including field measurements and sample collection procedures is provided in Section 2.2, Field Activities Summary. A summary of analyses conducted for each area of investigation is provided in Section 2.3, Analytical Activities Summary. A brief description of areas investigated during the Phase II ESA is provided below.

#### 2.1.1 Former Underground Storage Tank

The interior of the warehouse complex was originally heated by an oil-fired boiler that was reportedly supplied with diesel fuel from an estimated 20,000-gallon underground storage tank (UST) located on the



north side of the warehouse complex (see Figure 3). The tank was decommissioned and removed in April 1986, as was documented in a series of photographs taken during the removal. There was reportedly no evidence of stained soils or sheen observed in the tank excavation at the time of removal (Eckloff, D., 14 January 1997, personal communication). However, no environmental samples were collected during the removal of the onsite UST.

On 20 January 1997, three soil borings, including borings SB1, SB2, and SB3, were driven in the vicinity of the former UST to evaluate soil and groundwater quality. One subsoil sample (Tumwater-SB3), collected from the soil/groundwater interface at approximately 4.5 feet below ground surface (BGS), and one groundwater sample (Tumwater-GW1) were collected and submitted for analyses of total petroleum hydrocarbons (TPH) (see Section 2.3).

#### 2.1.2 Former Paint Shop

The former paint shop consists of a concrete building approximately 25-feet wide by 40-feet long, located adjacent to the southeast corner of the main warehouse complex (see Figure 3). The former paint shop is suspected to have been used to mix paints during previous operations conducted at the site by a former metal cabinet manufacturer (General Metal Craft) in the 1950's (Tetra Tech 1997). The flooring within this structure is comprised of concrete which was observed to be overlain by approximately 1-inch of soil material during the initial site inspection conducted by Tetra Tech personnel. No evidence of floor drain(s) were observed based on an inspection of the concrete surface within the former paint shop. The area surrounding the former paint shop building between the warehouse complex and the site access road, is comprised of vegetated fill material which was observed to contain brick fragments and concrete aggregate at various locations during the Phase II investigation.

On 16 January 1997, three surface soil samples designated as Tumwater-SS1, -SS2, and -SS3 were collected adjacent to each entrance of the paint shop building, and submitted for volatile organic compound (VOC) and metals analyses (see Section 2.3). An additional composite soil sample designated as Tumwater-SS4 was collected from soils overlying the concrete flooring within the former paint shop. This sample was archived by the laboratory at the request of Tetra Tech pending receipt of the other three surface soil analytical results. On 20 January 1997, one soil boring (SB10) was driven adjacent to the southeast corner of the former paint shop, and one groundwater sample, designated as Tumwater-GW8, was collected and submitted for VOC and metals analyses (see Section 2.3). The alternatives for the

location of this soil boring were limited by the saturated nature of the fill material surrounding the paint shop building, which restricted drill rig access in this area.

#### 2.1.3 Electrical Transformer Pad

The warehouse complex is serviced by six transformers that are located on a concrete pad in a fenced enclosure on the south side of the building (see Figure 3). The transformers were purchased from the Puget Sound Power and Light Company in September 1986 (Tetra Tech 1997). The transformers reportedly were tested prior to their sale and were determined to be free of polychlorinated biphenyls (PCBs) (Eckloff, D., 14 January 1997, personal communication).

On 16 January 1997, three surface soil samples designated as Tumwater-SS5, -SS6, and -SS7 were collected immediately adjacent to the concrete transformer pad at locations where runoff would be expected to flow off the pad. These samples were submitted for VOC and PCB analyses (see Section 2.3). On 20 January 1997, one soil boring (SB9) was driven adjacent to the west side of the concrete transformer pad to assess soil and groundwater quality. One subsoil sample, designated as Tumwater-SB9-3.5, was collected at approximately 3.5 feet BGS from an interval revealing soil discoloration. This subsoil sample was subsequently submitted for PCB analysis. One groundwater sample from this location, designated as Tumwater-GW7, was collected and submitted for VOC and PCB analyses (see Section 2.3). The alternatives for the location of soil boring SB9 was limited due to the saturated nature of the fill material surrounding the southern and eastern portions of the transformer pad, which restricted drill rig access at these locations.

#### 2.1.4 Subfloor Drainage System

A subfloor drainage system runs through the southern portion of the warehouse complex (see Figure 3). The drainage system is comprised of a concrete vault (raceway) which is approximately 2-feet wide and extends approximately 2-feet below the surface of the warehouse flooring. Drainage within the concrete raceway flows from east to west beneath the warehouse, and is accessed through a series of four manhole covers (see Figure 3). Tetra Tech personnel observed water flow within the subfloor drainage system during the initial site inspection. However, the origin of the flow through the system could not be determined. The subfloor drainage system reportedly discharges to a storm sewer system (Eckloff, D., 14 January 1997, personal communication). However, the location of the drainage system discharge has not be established based on information obtained by Tetra Tech to-date.

On 16 January 1997, one sediment sample designated as Tumwater-SD1 was collected from the base of the drainage raceway from the furthest accessible downgradient location (i.e., from the third manhole cover to the west), and submitted for semi-volatile organic compound (SVOC) and metals analyses (see Section 2.3). The western most manhole could not be accessed as the cover could not be removed at the time of the investigation. Approximately 0.5-inches of fine sand sediment was observed overlying the base of the raceway at the time of sample collection. Water within the base of the raceway was approximately 1-inch deep and was flowing at an estimated velocity of 0.25 feet per second at the time of sample collection.

#### 2.1.5 Aboveground Fuel Storage Tank

An aboveground storage tank (AST) with an estimated capacity of 120-gallons was reportedly installed at the site by the City of Tumwater in February 1995 to supply diesel fuel to an emergency generator located in the sewage pumphouse structure (see Figure 3). The AST is situated on an L-shaped concrete pad located on the east side of the pumphouse. The concrete pad incorporates a concrete containment basin intended to capture potential overflow from the tank. The AST is covered by an awning structure which extends from the pumphouse over the tank and associated containment.

During the Phase II investigation, a cloth rag was observed within the fill opening on top of the AST. The rag was reportedly used to secure a temporary fuel line (hose) which ran from the top of the tank over the ground to the emergency generator within the sewage pumphouse (Huff, J., 18 January 1997, personal communication). The temporary fuel line was reportedly used to substitute for the original tank piping (i.e., copper line) due to the suspected presence of water in the original fuel supply line. The emergency overflow concrete catch basin located adjacent to the AST appeared to be nearly full of water at the time of the inspection.

On 20 January 1997, one surface soil sample designated as Tumwater-SS8 was collected adjacent to the AST fill opening approximately 1-foot from the edge of the concrete pad. This sample was subsequently submitted for petroleum hydrocarbon analyses (see Section 2.3).

#### 2.1.6 Road Construction Debris

A graded mound north of the sewage pumphouse was reportedly formed from the deposition of asphalt and gravel material by the City of Tumwater from various road construction projects. The oblong-shaped

road construction debris stockpile was observed to be lightly vegetated at the time of inspection, and measured approximately 160-feet in length, 55-feet in width at the center, and approximately 5-feet in average height.

On 16 January 1997, a composite soil sample designated as Tumwater-CS1 was collected from five locations within the stockpiled material and submitted for petroleum hydrocarbon and metals analyses (see Section 2.3).

#### 2.1.7 Former Tannery and Surrounding Area

A total of five soil borings, including SB4, SB5, SB6, SB7, and SB8 were driven on 20 January 1997, to assess general soil and groundwater quality adjacent to the northern warehouse complex (see Figure 3). Soil borings SB6 and SB8 were driven at the west and east ends of the warehouse complex, respectively. One groundwater sample was collected at soil boring locations SB6 and SB8, including samples Tumwater-GW4 and Tumwater-GW6, respectively. These samples were submitted for VOC and metals analyses (see Section 2.3).

Soil boring SB5 was driven in a location assumed downgradient of a former tannery operation which was reportedly located immediately north of the Old Brewhouse (see Figure 3). One groundwater sample designated as Tumwater-GW3 was collected at this location and submitted for VOC and metals analyses.

Soil boring SB4 was driven adjacent to the Deschutes Basin at a location assumed to be downgradient of the former UST area (see Figure 3). During an initial site inspection Tetra Tech personnel observed a slight sheen on the water surface along a localized portion of the shoreline in the general vicinity of boring location SB4. One groundwater sample designated as Tumwater-GW2 was collected at this location and submitted for VOC, petroleum hydrocarbon, and metals analyses.

Soil boring SB7 was driven between the Deschutes Basin and the northern warehouse complex in a location selected to provide general coverage relative to other soil borings located in assumed downgradient positions relative to the Old Brewhouse Complex. One groundwater sample designated as Tumwater-GW5 was collected and submitted for VOC and metals analyses from this location (see Section 2.3).

#### 2.2 FIELD ACTIVITIES SUMMARY

Table 1 provides a summary of the field activities conducted during the Phase II ESA. A brief description of field activities conducted in support of the Phase II ESA is provided in the following sections.

#### 2.2.1 Site Inspection

Tetra Tech personnel conducted a site inspection of the subject site on 8 January 1997. The purpose of the site inspection was to visually inspect and describe the current conditions at the site and surrounding area, and to compile a photographic log of the site for future reference. Preliminary delineation of the locations for soil borings and surface soil samples were established based on the site inspection and information obtained from review of available background information and facility personnel interviews.

#### 2.2.2 Underground Utilities Locating

On 16 January 1997, a private utility locating service was used to identify and clearly mark underground utilities prior to the start of the intrusive (i.e., subsurface) portion of the investigation.

#### 2.2.3 Field Screening Activities and Measurements

Field screening activities conducted at each sampling location included visual and olfactory observations and use of a photoionization detector (PID) to assess for the potential presence of volatile organic vapors. Field measurements collected and recorded during the Phase II ESA included PID readings during surface soil sampling and soil boring installation; and temperature, pH, and conductivity readings during groundwater sample collection. Field instrument calibration and operation was conducted according to manufacturer specifications. Instrument calibration was conducted and recorded in daily calibration log books for each field instrument used during the investigation.

#### 2.2.4 Soil Sampling

This section provides a brief description of surface soil and subsoil sample collection procedures utilized during the Phase II ESA.

2.2.4.1 Surface Soil. Surface soil samples were collected from approximately 6-inches below the ground surface using a clean stainless steel trowel. Prior to sample collection all surface debris (e.g., cobbles, twigs, grass) was removed. Soil samples collected for VOC and/or petroleum hydrocarbon analysis

|                                     |                    | TABLE 1. PHASE II E                | TABLE 1. SUMMARY OF FIELD ACTIVITIES PHASE II ENVIRONMENTAL SITE ASSESSMENT OLD BREWHOUSE, TUMWATER, WASHINGTON | LD ACTIVITIES<br>TE ASSESSMENT<br>R, WASHINGTON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                      |                  |                         |
|-------------------------------------|--------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------|-------------------------|
|                                     |                    |                                    |                                                                                                                 | Field Activities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                      |                  |                         |
| Areas of Investigation              | Site<br>Inspection | Field Screening<br>and Measurement | Underground<br>Utilities Location                                                                               | Subsurface Investigation<br>(Direct Push Technique)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Sediment<br>Sampling | Soil<br>Sampling | Groundwater<br>Sampling |
| Former Underground<br>Storage Tank  | 1                  | 1                                  | <b>,</b>                                                                                                        | <i>A</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      | <b>\</b>         | •                       |
| Former Paint Shop                   | >                  | <b>,</b>                           | <b>&gt;</b>                                                                                                     | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                      | . /              | 1                       |
| Electrical Transformer Pad          | >                  | <i>/</i>                           | <i>/</i>                                                                                                        | <b>/</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                      | 1                | 1                       |
| Floor Drains                        | >                  | <b>/</b>                           |                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1                    |                  |                         |
| Aboveground Fuel Tank               | <i>&gt;</i>        | 1                                  |                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                      | 1                |                         |
| Road Construction Debris            | 1                  | /                                  |                                                                                                                 | , and the second |                      | /                |                         |
| Former Tannery and Surrounding Area | <b>&gt;</b>        | . /                                | >                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                      |                  | >                       |

were placed directly into appropriately labeled sample containers to avoid potential aeration. Soils for the remaining analyses were placed into a clean stainless steel bowl, thoroughly homogenized, and placed into appropriate sample containers. Sample containers were immediately placed in an ice-filled cooler maintained at an optimum temperature of 4° C. All samples were subsequently transported and delivered to the analytical laboratory under standard chain-of-custody documentation.

2.2.4.2 Subsoil. Soil borings were driven by Cascade Drilling, Inc., of Woodinville, Washington using direct push techniques (i.e., Hydro-punch<sup>TM</sup>). Soil samples were collected continuously for logging and field screening purposes, beginning at 1-foot BGS and extending to first encountered groundwater at each boring location. Undisturbed samples from the borings were collected using a clean stainless steel borehole sampler that was 24 inches long, with an outside diameter of 1.25 inches. Upon retrieval, the soil sampler was placed on clean plastic sheeting, opened, and immediately scanned with a PID for the presence of volatile organic vapors. Subsoil samples were selected and submitted for laboratory analysis based on field screening results. Subsoils submitted for laboratory analyses were placed directly into appropriately labeled sample containers, placed in an ice-filled cooler maintained at 4°C, and transported and delivered to the analytical laboratory under standard chain-of-custody documentation.

At completion, all borings were backfilled using hydrated bentonite chips and capped with soil to match the original surface conditions. A Tetra Tech registered geologist supervised all drilling activities conducted during the investigation.

#### 2.2.5 Floor Drain Sediment Sampling

One floor drain sediment sample was collected from the base of the drainage raceway using a clean stainless steel sample spoon. Sediment was placed into a clean stainless steel bowl, thoroughly homogenized, and placed into appropriately labeled sample containers for subsequent laboratory analysis. The sample containers were immediately placed in an ice-filled cooler maintained at an optimum temperature of 4° C. All samples were transported and delivered to the analytical laboratory under standard chain-of-custody documentation.

#### 2.2.6 Groundwater Sampling

Nine groundwater samples, including one field duplicate sample, were collected from eight of 10 soil boring locations drilled during the Phase II ESA. Groundwater grab samples were collected from a 4-foot

long, 1-inch inside diameter stainless steel screen point (Hydro-punch<sup>™</sup>). The screen point, once driven into the water table aquifer and its protective shield retracted, was in direct contact with formation groundwater. The top of the screened section was placed at approximately 0.5 to 1.0 feet above the water table to assess the potential presence of floating petroleum hydrocarbons. Groundwater samples were collected from the screen point using a peristaltic pump and clean (dedicated) Teflon<sup>™</sup> tubing. Groundwater was purged from each location in an effort to remove fine grained sediment prior to sample collection, and field parameters including temperature, pH, and conductivity were measured (see Section 2.2.3, Field Screening Activities and Measurements). Groundwater field measurement results are summarized in Section 3.3, Groundwater Sampling Results.

#### 2.2.7 Decontamination Procedures

Prior to the start of drilling at the site, the drill rig and other onsite equipment were thoroughly steam cleaned. Subsoil sampling equipment such as borehole samplers, drive points, and stainless steel sampling tools, were decontaminated prior to each use. Each item was scrubbed using Liquinox™, rinsed with potable water, and then final rinsed with distilled water. Surface soil sampling equipment was precleaned, individually wrapped in foil, and sealed in clean plastic bags prior to site entry. No decontamination of surface soil sampling equipment was required between sample locations during the Phase II ESA.

#### 2.3 ANALYTICAL ACTIVITIES SUMMARY

Sample analyses conducted during the Phase II ESA are summarized in Table 2. This table includes the number of samples for each media, the sample type, and the number of analyses and analytical methods for each sample. The analyte selection for each area of investigation was based on suspected and potential hazardous substance(s) anticipated to be associated with historical site uses.

Analysis of samples collected for the Old Brewhouse Phase II ESA was performed by North Creek Analytical laboratory of Bothell, Washington, using procedures based on the following Washington State Department of Ecology (Ecology) and U.S. EPA methods:

|                                        | TABL           | E 2. FIELD I<br>PH.<br>OLI | NVESTIGATION<br>ASE II ENVIRON<br>D BREWHOUSE | TABLE 2. FIELD INVESTIGATION AND LABORATORY ANALYSIS SUMMARY PHASE II ENVIRONMENTAL SITE ASSESSMENT OLD BREWHOUSE, TUMWATER, WASHINGTON | TORY ANALY<br>ASSESSMENT<br>WASHINGTON | SIS SUMMAR   | A                            |        |           |
|----------------------------------------|----------------|----------------------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------|------------------------------|--------|-----------|
|                                        |                |                            |                                               |                                                                                                                                         |                                        | Analyses     |                              |        |           |
| . *                                    |                | M                          | Petroleum H                                   | Petroleum Hydrocarbons                                                                                                                  | Volatile                               | Semivolatile | Dolyoblosisotod              | 1040   | Dissolved |
| Area of Investigation                  | Media          | Samples of                 | WTPH-HCID                                     | WTPH-Diesel                                                                                                                             | Compounds                              | Compounds    | Forycanor mateu<br>Biphenyls | Metals | Metals    |
| Former UST                             | Subsoil        | 1                          |                                               | NA                                                                                                                                      | NA                                     | NA           | NA                           | NA     | NA        |
|                                        | Groundwater    | 1                          | NA                                            | -                                                                                                                                       | NA                                     | NA           | NA                           | NA     | NA        |
| Former Paint Shop                      | Surface soil   | 4                          | NA                                            | NA                                                                                                                                      | 3                                      | NA           | NA                           | 3      | NA        |
| <del> </del>                           | Groundwater    | -                          | NA                                            | NA                                                                                                                                      | 1                                      | NA           | NA                           | 1      | 1         |
| Electrical Transformer                 | Surface soil   | e.                         | NA                                            | NA                                                                                                                                      | 3                                      | NA           | Ф.                           | NA     | NA        |
| Fad                                    | Subsoil        |                            | NA                                            | NA                                                                                                                                      | NA                                     | ΨŇ           | 1                            | Na     | ΝA        |
| 15                                     | Groundwater    | <b>.</b>                   | NA                                            | NA                                                                                                                                      | 1                                      | NA.          | . 1                          | NA     | NA        |
| Floor Drains                           | Sediment       |                            | NA                                            | NA                                                                                                                                      | NA                                     | 1            | NA                           | 1      | NA        |
| Aboveground Fuel Tank                  | Surface soil   |                            | NA                                            | 1                                                                                                                                       | NA                                     | NA           | NA                           | NA     | NA        |
| Road Construction Debris               | Soil Composite | 1                          | 1                                             | NA                                                                                                                                      | NA                                     | NA           | NA                           | 1      | NA        |
| Former Tannery and<br>Surrounding Area | Groundwater    | 2                          | NA                                            | <b></b>                                                                                                                                 | \$                                     | NA           | NA                           | 5      | 1         |

- Ecology Method WTPH-HCID: Hydrocarbon scan (C<sub>7</sub>-C<sub>30</sub>) by gas chromatography.
- Ecology Method WTPH-Diesel/Extended: Diesel-range  $(C_{12}-C_{24})$  and extended oil-range  $(C_{24}-C_{40})$  hydrocarbon analysis by extraction and gas chromatography.
- U.S. EPA Method 8081: PCB analysis by extraction and gas chromatography/electron capture detection (GC/ECD).
- U.S. EPA Method 8270: SVOC analysis by gas chromatography/mass spectroscopy (GC/MS).
- U.S. EPA Method 8240: VOC analysis by gas chromatography/mass spectroscopy (GC/MS).
- U.S. EPA Method 6010A/7000 series: Metals analysis by acid digestion and inductively coupled plasma atomic emission spectroscopy, flame atomic absorption spectroscopy, cold vapor atomic absorption spectroscopy, and graphite furnace atomic absorption spectroscopy.

Field quality assurance/quality control activities conducted during the Phase II ESA are summarized below:

- A trip blank was shipped with the environmental samples sent to the analytical laboratory for analysis of VOCs. Results obtained from the trip blank sample provide a means to evaluate sample accuracy and the potential for VOC cross-contamination.
- Sampling equipment was thoroughly cleaned between each sampling event to prevent potential cross-contamination of the environmental samples.

- A duplicate groundwater sample was collected and submitted blind to the laboratory to evaluate sampling and analytical variability and precision.
- Sample custody was maintained by a Chain-of-Custody record (form) which accompanied all samples submitted for analysis.

This section discusses the results of field and analytical activities conducted in support of the January 1997 Old Brewhouse Phase II ESA. A detailed laboratory analytical data report is provided in Appendix A.

#### 3.1 SOIL SAMPLING RESULTS

Analytical results for soil samples collected during the Phase II ESA are summarized in Table 3. A summary of field observations and measurements collected during soil sampling activities is provided in Table 4.

The sample analysis summary presented in Table 3 includes published Washington State regulatory cleanup levels relevant to the assessment of potential soil contamination at the Old Brewhouse. Washington's hazardous waste cleanup law, the Model Toxics Control Act (MTCA) Cleanup Regulation [Washington Administrative Code (WAC) Chapter 173-340], mandates that site cleanups protect the state's citizens and environment [Revised Code of Washington (RCW) Chapter 70.105D]. The MTCA cleanup regulations establish cleanup requirements for individual sites. The MTCA Method A cleanup criteria defines cleanup levels for 25 of the most common hazardous substances found at sites, and is designed for cleanups that are relatively straight-forward and/or involve only those hazardous substances contained within the Method A list. The use of MTCA Method A soil cleanup levels is appropriate for the initial assessment regarding potential soil contamination at the subject site based on a review of the analytical results obtained during this investigation. Also provided in Table 3, are the published MTCA Method A cleanup levels for industrial soils which may also be applicable to the subject site depending on the future site development plans and current/potential zoning regulations (WAC 173-340-745, as amended January 1996).

|                                                                   |                        |                            |                   |                   |                      |                                |              |        | ,                         |                     |       |         |
|-------------------------------------------------------------------|------------------------|----------------------------|-------------------|-------------------|----------------------|--------------------------------|--------------|--------|---------------------------|---------------------|-------|---------|
|                                                                   |                        |                            |                   | -                 |                      | Analyses (milligrams/kilogram) | grams/kilogr | am)    | ·                         |                     |       |         |
|                                                                   |                        | 1100011                    | T TOU JUNE X      | Volatile          | Semivolatile         | qaoa                           |              |        | Total Metals <sup>C</sup> | fetals <sup>c</sup> |       |         |
| Area of Investigation                                             | Sample" Identification | WIPH-<br>HCID              | w I PH-<br>Diesel | Organic Compounds | Organic<br>Compounds | (Aroclor 1260)                 | Arsenic      | Barium | Cadmium                   | Chromium            | Lead  | Mercury |
| Former UST                                                        | SB3                    | Q.                         | NA                | NA                | NA                   | NA                             | NA           | NA     | NA                        | NA                  | NA    | NA      |
| Former Paint Shop                                                 | SS1                    | NA                         | NA                | QN                | NA                   | NA                             | 10.8         | 237    | 0.47                      | 36.5                | 6.98  | 0.064   |
| -                                                                 | SSZ                    | NA                         | NA                | QN                | NA                   | NA                             | 31.4         | 375    | 90'9                      | 27.2                | 312   | 0.53    |
|                                                                   | SS3                    | NA                         | NA                | QN                | NA                   | NA                             | QN           | 204    | 7.49                      | 39.8                | 205   | 0.17    |
|                                                                   | SS4                    | NA                         | NA                | QN<br>QN          | NA                   | NA                             | NA           | NA     | NA                        | NA                  | NA    | NA      |
| Electrical Transformer Pad                                        | SSS                    | NA                         | NA                | QN<br>QN          | NA                   | QN                             | NA           | NA     | NA                        | NA.                 | NA .  | NA      |
|                                                                   | 988                    | NA                         | NA                | QN                | ĄN                   | 0.143                          | NA           | NA     | ¥N ,                      | NA                  | NA    | NA      |
|                                                                   | SS7                    | NA                         | NA                | QN                | NA                   | 0.229                          | NA           | NA     | NA                        | NA                  | NA    | NA      |
| 19                                                                | SB9                    | NA                         | NA                | NA                | NA                   | QN.                            | NA           | NA     | NA                        | NA                  | NA    | NA      |
| Floor Drains                                                      | SD1                    | NA                         | NA                | NA                | 2.05 <sup>d</sup>    | NA                             | 13.1         | 194    | 1.67                      | 23.9                | 52.0  | ND      |
| Aboveground Fuel Tank                                             | SS8                    | Ν̈́Α                       | 755               | NA                | NA                   | NA                             | NA           | NA     | NA                        | NA                  | NA    | NA      |
| Road Construction Debris                                          | CS-1                   | £                          | NA                | NA                | NA                   | NA                             | ND           | 51.5   | ND.                       | 24.4                | 12.0  | QN<br>N |
| Method Reporting Limits (mg/kg)                                   | ng/kg)                 | 20/50/<br>100 <sup>e</sup> | 10                | 0.2               | 0.2                  | 0.05                           | 10           | 0.5    | 0.25                      | 0.50                | 10    | 0.05    |
| MTCA <sup>f</sup> (mg/kg) Method A Soil Cleanup Level             | /el                    | NA                         | 200               | NA                | NA                   | 1.0                            | 20.0         | NA     | 2.0                       | 100                 | 250   | 1.0     |
| MTCA <sup>f</sup> (mg/kg) Method A Industrial Soils Cleanup Level | Jeanup Level           | NA                         | 200               | NĀ                | NA                   | 10                             | 200          | NA     | 10.0                      | 500                 | 1,000 | 1.0     |
|                                                                   |                        | E                          | 2                 |                   | the grant of         | Lair of anotody, for           |              |        |                           |                     |       |         |

a The formal sample designation incorporates the Tumwater prefix as designated on the sample chain-of-custody form.
b Polychlorinated biphenyls.
c Includes only those metals detected in site soils.
d Bis(2-ethylhexyl)phthalate.
e Gasoline = 20, Diesel = 50, Heavy oil = 100.
f The Model Toxics Control Act Cleanup Regulation [(Chapter 173-340-740(2)(a)(i) and 173-340-745(2)(a)(i) WAC, as amended January 1996].
NA = Not applicable.
ND = Not detected at method reporting limit.

|                                                                                                                               | TA                | TABLE 4. SUMMARY C<br>PH<br>OLD BREW |                          | Y OF SOIL SAMPLING FIELD OBSERVATIONS AND MEASUREMENTS<br>PHASE II ENVIRONMENTAL SITE ASSESSMENT<br>EWHOUSE, TUMWATER, WASHINGTON, JANUARY 1997 | RVATIONS AND M<br>ASSESSMENT<br>TON, JANUARY 1 | IEASUREMENTS<br>997                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------|
|                                                                                                                               | Samulad           | Sample Denth                         | Visual and Olfact        | isual and Olfactory Observations                                                                                                                | PID <sup>C</sup> Reading                       |                                                                                        |
| Area of Investigation                                                                                                         | Identification    | (ff-BGS)                             | Staining                 | Odor                                                                                                                                            | (mdd)                                          | Sample Description                                                                     |
| Former UST                                                                                                                    | SB3               | 4.5                                  | None                     | None                                                                                                                                            | 0                                              | Dark brown sandy gravel with pebbles, well graded, subangular clasts                   |
| Former Paint Shop                                                                                                             | SS1               | 0.5                                  | None                     | None                                                                                                                                            | 0                                              | Dark brown silty sand with some gravel, poorly graded                                  |
|                                                                                                                               | SSZ               | 0.5                                  | None                     | None                                                                                                                                            | 0                                              | Dark brown fine sand with some silt, poorly graded                                     |
|                                                                                                                               | SS3               | 6,5                                  | None                     | None                                                                                                                                            | 0                                              | Dark brown silty sand, porly graded                                                    |
|                                                                                                                               | SS4               | NA                                   | None                     | None                                                                                                                                            | 0                                              | Dark brown sand, poorly graded                                                         |
| Electrical Transformer Pad                                                                                                    | SSS               | 0.5                                  | Dark<br>Discoloration    | None                                                                                                                                            | 0                                              | Dark brown fine sand, poorly graded                                                    |
| · · · · · · · · · · · · · · · · · · ·                                                                                         | 988               | 0.5                                  | None                     | None                                                                                                                                            | 0                                              | Dark brown fine sand, poorly graded                                                    |
| 20                                                                                                                            | SS7               | 0.5                                  | None                     | None                                                                                                                                            | 0                                              | Dark brown sand with some gravel                                                       |
|                                                                                                                               | SB9               | 3.5                                  | Black Cinder<br>Material | None                                                                                                                                            | 2: 0                                           | Dark brown gravelly sand, intermixed fill debris with black charcoal (cinder) material |
| Floor Drain                                                                                                                   | SD1               | NA                                   | None                     | Slight                                                                                                                                          | 0                                              | Brown fine sand, poorly graded                                                         |
| Aboveground Fuel Tank                                                                                                         | SS8               | 0.5                                  | None                     | Petroleum Odor                                                                                                                                  | 0                                              | Brown gravelly sand with pebbles, well graded                                          |
| Road Construction Debris                                                                                                      | CS-1              | 2.5 <sup>d</sup>                     | None                     | None                                                                                                                                            | 0                                              | Dark brown sand with some gravel and cobble, well graded                               |
| <sup>a</sup> The formal sample designation incorporates the Tumwater prefix as designated on the sample chain-of-custody form | on incorporates t | he Tumwater prefi                    | ix as designated on the  | he sample chain-of-cu                                                                                                                           | istody form.                                   |                                                                                        |

The formal sample designation incorporates the Tumwater prefix as designated on the sample chain-of-custody form.

b ft-BGS = feet below ground surface.

<sup>&</sup>lt;sup>c</sup> Photoionization detector reading in parts per million (ppm).

d Composite sample collected at five discrete locations at approximately 2.5 feet into the stockpiled material using a stainless steel hand auger.

#### 3.1.1 Total Petroleum Hydrocarbons

Total petroleum hydrocarbon (TPH) analyses were conducted on soil samples collected from three areas of investigation, including the former UST, the AST located adjacent to the sewage pumphouse, and from the road construction debris stockpile (see Figure 3). Petroleum hydrocarbon identification analysis (WTPH-HCID) revealed no detected concentrations above the respective method reporting limit in soils from the former UST area and road construction debris materials. Diesel-range TPH was detected at a concentration of 755 milligrams/kilogram (mg/kg) in surface soil sample Tumwater-SS8 collected adjacent to the sewage pumphouse AST. The detection of diesel-range TPH in surface soil sample Tumwater-SS8 exceeds the current MTCA Method A soil cleanup level of 200 mg/kg (see Table 3).

#### 3.1.2 Volatile Organic Compounds

No VOCs were detected in soil samples collected during the Phase II ESA (see Table 3 and Appendix A).

#### 3.1.3 Polychlorinated Biphenyls

PCB analysis was conducted on three surface soil samples and one subsoil sample collected from areas surrounding the electrical transformer pad (see Figure 3). Two surface soil samples, including Tumwater-SS6 and Tumwater-SS7 revealed PCBs (Aroclor 1260) at 0.143 mg/kg and 0.229 mg/kg, respectively. The detected concentrations of PCBs in soils are well below the published MTCA Method A soil cleanup level of 1.0 mg/kg (see Table 3).

#### **3.1.4** Metals

Metals detected in site soils include arsenic, barium, cadmium, chromium, lead, and mercury (see Table 3). Elevated metals concentrations (i.e., those exceeding MTCA Method A) were detected in two surface soil samples collected from the former paint shop area. Surface soil sample Tumwater-SS2 revealed arsenic at a concentration of 31.4 mg/kg, cadmium at 6.06 mg/kg, and lead at 312 mg/kg. Surface soil sample Tumwater-SS3 revealed cadmium at 7.49 mg/kg. No metals concentrations detected in site soils exceed the published MTCA Method A soil cleanup levels for industrial soils (see Table 3).

#### 3.2 FLOOR DRAIN SEDIMENT SAMPLING RESULTS

A single floor drain sediment sample designated as Tumwater-SD1 was collected during the Phase II ESA and analyzed for semi-volatile organic compounds and metals. A single semi-volatile compound, bis(2-ethylhexyl)phthalate, was detected at a concentration of 2.05 mg/kg. This semi-volatile compound is a common plasticizer which is likely a laboratory artifact. Metals detected in sediment sample Tumwater-SD1 include arsenic, barium, cadmium, chromium, and lead at concentrations below the established MTCA Method A soil cleanup levels (see Table 3).

#### 3.3 GROUNDWATER SAMPLING RESULTS

Analytical results for groundwater samples collected during the Phase II ESA are summarized in Table 5. A summary of field observations and measurements collected during groundwater sampling activities is provided in Table 6.

The sample analysis summary presented in Table 5 includes state regulatory criteria relevant to the assessment of potential groundwater contamination at the Old Brewhouse, including MTCA Method A groundwater cleanup levels (WAC, Chapter 173-340-720, as amended January 1996) and MTCA Method B criteria from the Cleanup Levels and Risk Calculations (CLARC II) update, dated February 1996.

#### 3.3.1 Total Petroleum Hydrocarbons

Two groundwater samples, including Tumwater-GW1 collected from the former UST location, and Tumwater-GW2 collected in an assumed downgradient location relative to the former UST and adjacent to the Deschutes Basin, were analyzed for diesel and heavy oil range TPH. Diesel-range TPH was detected in sample Tumwater-GW1 at 0.267 milligrams/liter (mg/L), slightly above the method reporting limit and well below the MTCA Method A groundwater cleanup level of 1.0 mg/L (see Table 5).

#### 3.3.2 Volatile Organic Compounds

No VOCs were detected in groundwater samples collected during the Phase II ESA (see Table 3 and Appendix A).

| ·                                                              | ,                                           |                                       |                      |                                       |                                            | Analyses (milligrams/liter)                             | grams/liter)                             |                                                  |                                                  |                                       |                      |
|----------------------------------------------------------------|---------------------------------------------|---------------------------------------|----------------------|---------------------------------------|--------------------------------------------|---------------------------------------------------------|------------------------------------------|--------------------------------------------------|--------------------------------------------------|---------------------------------------|----------------------|
|                                                                | ¢                                           | ,                                     | Volatile             |                                       |                                            |                                                         | Total Metals <sup>C</sup>                |                                                  |                                                  | Dissolved Metals <sup>d</sup>         | Metals <sup>d</sup>  |
| Area of Investigation                                          | Sample <sup>4</sup><br>Identification       | WTPH-<br>Diesel                       | Organic<br>Compounds | PCBs <sup>b</sup>                     | Arsenic                                    | Chromium                                                | Copper                                   | Lead                                             | Zinc                                             | Arsenic                               | Lead                 |
| Former UST                                                     | GW1                                         | 0.267                                 | QN                   | NA                                    | NA                                         | NA                                                      | NA                                       | NA                                               | NA                                               | NA                                    | NA                   |
| Former Paint Shop                                              | GW8                                         | NA                                    | ND                   | NA                                    | 9900.0                                     | QN                                                      | ND                                       | 0.0123                                           | 0.0085                                           | 0.0062                                | 0.0159               |
| Electrical Transformer Pad                                     | CW7                                         | NA                                    | QN.                  | QN                                    | NA                                         | NA                                                      | NA                                       | NA                                               | NA                                               | NA                                    | NA                   |
| Former Tannery and<br>Surrounding Area                         | GW2<br>GW3<br>GW4<br>GW4* dup<br>GW5<br>GW5 | N N N N N N N N N N N N N N N N N N N | 222222               | N N N N N N N N N N N N N N N N N N N | 0.0077<br>0.0068<br>ND<br>0.0091<br>0.0053 | ND<br>0.0227<br>ND<br><b>0.0161</b><br>0.0124<br>0.0125 | ND<br>0.0554<br>ND<br>ND<br>0.0376<br>ND | 0.0047<br>0.0123<br>ND<br>0.0029<br>0.0052<br>ND | 0.0291<br>0.0554<br>ND<br>0.0283<br>0.0390<br>ND | N N N N N N N N N N N N N N N N N N N | NA<br>NA<br>NA<br>NA |
| Method Reporting Limit (mg/L)                                  | /L)                                         | 0.250                                 | 0.0010               | 0.0001                                | 0.0040                                     | 0.0100                                                  | 0.0300                                   | 0.0020                                           | 0.0554                                           | 0.0040                                | 0.0554               |
| MTCA <sup>e</sup> (mg/L)<br>Method A Groundwater Cleanup Level | nup Level                                   | 1.0                                   | NA                   | 0.0001                                | 0.0050                                     | 0.050                                                   | ್ತ್ರ 0.592                               | 0:0020                                           | 4.8 <sup>f</sup>                                 | 0.0050                                | 0.0050               |
|                                                                |                                             |                                       |                      | ,                                     | ,                                          | ,                                                       |                                          |                                                  |                                                  |                                       |                      |

<sup>&</sup>lt;sup>a</sup> The formal sample designation includes the Tumwater prefix as designated on the sample chain-of-custody form.

b Polychlorinated biphenyls.

<sup>&</sup>lt;sup>c</sup> Includes only those metals detected in groundwater.

d Dissolved metals, including arsenic and lead were analyzed for specific samples.

e The Model Toxics Control Act Cleanup Regulation [(Chapter 173-340-720(2)(a)(i) WAC, as amended January 1996].

f Values based on MTCA Method B criteria from The Cleanup Levels and Risk Calculations (CLARC II) update, February 1996.

NA = Not applicable.

ND = Not detected at method reporting limit.

TBD = To be determined:

<sup>\*</sup> Blind duplicate labeled Tumwater-GW15 on custody forms and laboratory report.

|            |                                                                                       |                                       | Denth to                             | Fic                              | Field Measurements | ıts                                         | Visual and Olfactory Observations | ory Observations |                                    |
|------------|---------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------|----------------------------------|--------------------|---------------------------------------------|-----------------------------------|------------------|------------------------------------|
| Area       | Area of Investigation                                                                 | Sample <sup>a</sup><br>Identification | Groundwater<br>(ft-BGS) <sup>b</sup> | Temperature<br>( <sup>o</sup> C) | Hd                 | Conductivity (µmhos/cm)                     | Sheen                             | Odor             | Sample Description                 |
| Former UST | UST                                                                                   | GW1                                   | 4.5                                  | 48.3                             | 7.48               | 192                                         | None                              | None             | Light tan, slightly cloudy         |
| Former     | Former Paint Shop                                                                     | GW8                                   | 6.0                                  | 49.8                             | 7.42               | 392                                         | None                              | None             | Light brown, cloudy                |
| Electrica  | Electrical Transformer Pad                                                            | GW7                                   | 5.0                                  | 50.2                             | 7.34               | 373                                         | None                              | None             | Clear, transparent                 |
| Former     | Former Tannery and                                                                    | GW2                                   | 4.0                                  | 48.9                             | 7.29               | 347                                         | None                              | None             | Light tan, slightly cloudy         |
|            | Stationard Area                                                                       | GW3                                   | 4.5                                  | 49.5                             | 7.24               | 360                                         | None                              | None             | Light tan, slightly cloudy         |
|            |                                                                                       | GW4                                   | 4.5                                  | 49.2                             | 7.12               | 447                                         | None                              | None             | Very light tan, semi-transparent   |
|            |                                                                                       | GW5                                   | 4.0                                  | 48.7                             | 7.47               | 306                                         | None                              | None             | Light tan, slightly cloudy         |
| 2          |                                                                                       | 9MĐ                                   | 5.5                                  | 51.6                             | 7.49               | 218                                         | None                              | None             | Very light amber, semi-transparent |
|            | <sup>a</sup> The formal sample designation includes the Tumwater prefix as designated | ion includes the                      | Tumwater prefix                      | as designated on                 | the sample cha     | gnated on the sample chain-of-custody form. | m.                                |                  |                                    |
| h          | ,                                                                                     |                                       |                                      |                                  | ٠                  |                                             |                                   |                  |                                    |

b ft-BGS = feet below ground surface.

#### 3.3.3 Polychlorinated Biphenyls

No PCBs were detected above specified method reporting limits in sample Tumwater-GW7 which was collected adjacent to the electrical transformer pad (see Table 5).

#### 3.3.4 Total Metals

Total metals (those designated as priority pollutant metals) were analyzed in eight of the nine groundwater samples collected during the Phase II ESA. Metals detected in groundwater at the subject site include arsenic, chromium, copper, lead, and zinc (see Table 5). Arsenic and lead were detected at slightly elevated concentrations (i.e., above MTCA Method A groundwater cleanup levels) in five of the eight samples analyzed, including arsenic at a maximum concentration of 0.0091 mg/L in sample Tumwater-GW15 (duplicate of GW4) and lead at a maximum concentration of 0.0123 mg/L in samples Tumwater-GW8 and Tumwater-GW3.

Groundwater sample Tumwater-GW4 revealed no detected concentrations of metal compounds. However, a duplicate of that sample, Tumwater-GW15 collected concurrently with sample GW4 and submitted blind to the laboratory to avoid detection, revealed arsenic at a concentration of 0.0091 mg/L, lead at 0.0029 mg/L, chromium at 0.0161 mg/L, and zinc at 0.0283 mg/L (see Table 5). These results are an indication of the potential variability in the sample matrix that is believed to be a result of the presence of the suspended fine grain materials (fines) contained within the groundwater samples collected during the site investigation (see Table 6).

#### 3.3.5 Dissolved Metals

To minimize the suspected variability in the groundwater matrix resulting from the presence of suspended fine particulates, two groundwater samples, including Tumwater-GW3 and Tumwater-GW8 were reanalyzed for dissolved metals (arsenic and lead only) on 18 February 1997. Results of the dissolved metals analyses revealed no detectable concentrations of arsenic in sample Tumwater-GW3. However, dissolved lead in sample Tumwater-GW3 and dissolved arsenic and lead in sample Tumwater-GW8 remain at concentrations similar to those for the total metals results in these samples (see Table 5).

The dissolved metals results obtained from the re-analysis of selected samples from the Old Brewhouse site do not necessarily provide conclusive information regarding dissolved metals content in site groundwater due to the presence of the fine-grained sediment and the fact that dissolved metals analyses

are not typically preserved. The groundwater samples collected for total metals analyses were preserved with nitric acid, and were subsequently filtered and reanalyzed for dissolved metals content. The effect of the sample preservative would be to dissolve those metals present in the existing fines into solution over time, thus increasing the potential to detect metals concentrations in groundwater samples where fines may be present.

This section provides a summary of site status and conclusions based on the January 1997 Phase II ESA conducted on behalf of the City of Tumwater at the Old Brewhouse, in Tumwater, Washington.

#### 4.1 TOPOGRAPHY AND SITE DRAINAGE

The Old Brewhouse and associated warehouse complex is bordered to the south and east by a steeply graded hillside which drains the site. The southern portion of the study area, including the area between the southern boundary of the warehouse complex and the site access road slopes gently to the northeast and is situated at an average elevation of approximately 20 feet above mean sea level. The northern portion of the study area, including the area between the warehouse complex and the Deschutes Basin is graded so as to be relatively flat, and is situated at an average elevation of approximately 10 feet above mean sea level.

Surface water runoff from the bordering hillsides is directed along a concrete flow diversion system which extends along the southern and eastern boundaries of the warehouse complex. Flowing water was observed within the flow diversion system during the site investigation. The water from the flow diversion system is culverted along the northern side of the warehouse complex and reportedly connects with the storm sewer drainage system to the north based on information obtained during the location of underground utilities. However, the actual location of surface water discharge could not be determined during the course of this investigation. No surface water outfalls were observed along either the Deschutes River or the Deschutes Basin in the vicinity of the Old Brewhouse and warehouse complex during the site investigation.

#### 4.2 GEOLOGY/HYDROGEOLOGY

Subsoils in the northern portion of the subject area consist primarily of sandy gravels/gravelly sands based on field observations and coring to the maximum depth investigated in this area of 7 feet BGS in soil boring SB1. During the subsoils investigation it was difficult to differentiate potential fill material from native materials in this area.

The southern portion of the subject area includes surficial fill material ranging in thickness from approximately 2 to 3 feet. Subsoils are comprised primarily of silty sand/sandy silt with a competent 2-foot silty clay layer observed from a depth of approximately 7.5 to 9.5 feet BGS adjacent to the electrical transformer pad where the maximum depth investigated was 11 feet BGS in soil boring SB9.

The general direction of surface and shallow subsurface (groundwater) flow is anticipated to be toward the north and northwest based on general site topography and the location of the Deschutes River and Deschutes Basin. During the subsurface investigation, first encountered groundwater was observed at depths ranging from 4.0 to 4.5 feet BGS in the northern portion of the study area (see Table 6). In the southern portion of the study area, the water table was observed at depths ranging from 5.0 to 6.0 feet BGS. The water table detected south of the warehouse complex is likely governed by the lithology and surface drainage associated with the adjacent hillslope. Shallow groundwater in this area is not necessarily in direct communication with the shallow water table on the north side of the warehouse complex. This interpretation is based primarily on the difference in elevation between the southern and northern water table surfaces, and the silty clay layer which would tend to limit vertical groundwater migration in the southern portion of the site.

#### 4.3 AREAS OF INVESTIGATION

This section summarizes the findings and conclusions for those areas investigated during the January 1997 Phase II ESA conducted at the Old Brewhouse, in Tumwater, Washington.

#### 4.3.1 Former UST

There is no indication that residual petroleum hydrocarbon contamination is present at concentrations exceeding MTCA cleanup levels in the vicinity of the former UST. This finding is based on a review of available information regarding tank removal activities performed in April 1986, and the soil and groundwater sample results obtained during the Phase II ESA.

#### 4.3.2 Former Paint Shop

Metals including arsenic, lead, and cadmium were detected in surface soils at concentrations exceeding MTCA Method A soil cleanup levels (see Table 3). However, the concentrations for these metal compounds were below the established MTCA Method A cleanup levels for industrial soils. Soil sampling locations in the paint-shop area were selected to assess soil quality from those areas determined to have the highest potential for past material disposal, paint waste accumulation during operations, and/or subsequent migration from the building.

Arsenic and lead were detected at concentrations slightly above their respective method reporting limits in the shallow groundwater sample collected adjacent to the former paint shop building. The concentrations of arsenic and lead in this sample exceed the MTCA Method A groundwater cleanup level established for these constituents of 0.005 mg/L (see Table 5). The observed variability in the groundwater matrix due to the presence of suspended fine-grained material may contribute to the detected presence of inorganic constituents in groundwater at this site. This assumption is supported based on discussions with the analytical laboratory which noted a direct correlation between the presence of fine-grained sediments within those containers which revealed detectable metals concentrations (Essig, M., 12 February 1997, personal communication). Field screening observations and analytical results for soils and groundwater samples collected during this investigation do not conclusively indicate that a release to the environment has occurred at the paint shop area due to historical site use.

#### 4.3.3 Electrical Transformer Pad

There is no indication that a release of transformer oil or PCB-containing liquids at concentrations exceeding published MTCA Method A cleanup levels has occurred from the use or maintenance of the electrical transformers housed on the concrete pad on the south side of the warehouse complex based on the findings of soil and groundwater sample results obtained during the Phase II ESA.

#### 4.3.4 Subfloor Drainage System

There is no indication that hazardous substance(s) currently exist in sediments contained within the subfloor drainage system located in the southern section of the warehouse complex based on analytical sample results of this material during the Phase II ESA.

#### 4.3.5 Aboveground Fuel Tank

Diesel-range petroleum hydrocarbons were detected at 755 mg/kg in a surface soil sample collected adjacent to the AST located on the east side of the sewage pumphouse. The detected concentration of diesel-range TPH exceeds current MTCA Method A soil cleanup levels established by Ecology of 200 mg/kg. The source of the TPH in soils at this location is suspected to have resulted from overfilling and spillage of diesel fuel during tank refueling activities. The AST reportedly supplies fuel to an emergency generator housed within the sewage pumphouse, and the need to replenish fuel to the 120 gallon tank is assumed to be infrequent.

The AST is situated on an L-shaped concrete pad located on the east side of the sewage pumphouse. The concrete pad incorporates a concrete containment basin to the east which is intended to capture potential overflow from the tank. However, the current design of the containment system does not obviously restrict potential overflow and spillage at the AST from migrating to adjacent soils, nor does it necessarily direct a fuel release from the AST to the adjacent catch basin based on the inspection during the Phase II ESA. The AST is covered by an awning structure which extends from the pumphouse over the tank and associated containment. However, the emergency overflow concrete catch basin located adjacent to the AST appeared to be nearly full of water at the time of the inspection, providing limited ability to contain fuel should a release from the AST occur.

A cloth rag was observed in the AST fill opening during the site inspection. The rag was reportedly used to secure a temporary fuel line (hose) which runs above ground from the top of the tank to the emergency generator within the sewage pumphouse (Huff, J., 18 February 1997, personal communication). Due to the conditions observed during the Phase II ESA, an evaluation of the current AST and associated containment system design is recommended to ensure compliance with applicable Uniform Fire Code (UFC) regulations, and to minimize the potential for future releases of fuel to the environment.

#### 4.3.6 Road Construction Debris

There is no indication that hazardous substance(s) currently exist in the road construction debris stockpiled north of the sewage pumphouse based on field screening observations and sample analytical results from a composite soil sample of this material collected during the Phase II ESA.

#### 4.3.7 Former Tannery and Surrounding Area

No evidence of suspected soil contamination was observed during the advancement of soil borings in these areas based on field screening results, and no environmental subsoil samples were collected and submitted for analysis.

Arsenic and lead were detected at concentrations slightly above their respective method reporting limits in the shallow groundwater samples collected at various locations in the northern portion of the study area. Both the observed arsenic and lead concentrations exceed the MTCA Method A groundwater cleanup level established by Ecology for these compounds at 0.005 mg/L (see Table 5). The documented variability in the groundwater matrix due to the presence of suspended fine-grained material may contribute to the detection of metals constituents in groundwater at these locations. This assumption is supported by Tetra Tech's discussions with the analytical laboratory as discussed previously (Essig, M., 12 February 1997, personal communication). The analytical results for groundwater samples collected during this investigation do not conclusively indicate that a release to the environment has occurred at this site as a result of historical site use.

#### 4.4 SUMMARY

Diesel range petroleum hydrocarbons were detected in the surface soil sample collected adjacent to the sewage pumphouse station at a concentration exceeding MTCA Method A cleanup levels. In addition, while the concentrations of individual metals in two samples in the vicinity of the former paint shop exceeded MTCA Method A cleanup levels, the concentrations recorded were below the published MTCA Method A cleanup levels for industrial soils.

One groundwater sample from the vicinity of the former paint shop and two samples from the former tannery and surrounding area were found to contain arsenic and lead at concentrations exceeding

established MTCA Method A cleanup levels. Observed arsenic concentrations were nominally above the method reporting limits and Method A cleanup levels (i.e., 0.004 and 0.005 mg/L, respectively), and observed lead concentrations ranged from 0.0047 to 0.0123 mg/L. While these samples provide the information necessary to assess the overall environmental status of shallow groundwater at the site, they are likely representative of worst-case contaminant concentrations based on the screening level sampling technique used and entrainment of suspended fine-grained particulates. A definitive determination of metals concentrations in groundwater at the site would require installation of groundwater monitoring wells in accordance with the requirements of WAC 173-160, which is beyond the scope and intent of this screening level site assessment.

Based on the findings of the Phase I ESA (Tetra Tech 1997), the site inspection, and the analysis of soil and groundwater samples at the Old Brewhouse location, their does not appear to have been significant environmental impairment of the subject property due to current or historical property uses. MTCA site discovery and reporting requirements are provided in WAC 173-340-300 and stipulate that any owner or operator who has information that a release of hazardous substances has occurred, and that the release may be a threat to human health or the environment, shall report such information to Ecology. However, the WAC (173-340-720 and 173-340-740) regulation further states that exceedances of the MTCA Method A cleanup levels do not necessarily trigger requirements of cleanup actions.

#### 5.0 REFERENCES

Eckloff, D. 14 January 1997. Personal Communication (discussion with Harry Goren). Plant Engineer, Pabst Brewing Company, Olympia, WA.

Essig, M. 12 February 1997. Personal Communication (telephone by Rick Osgood). Project Manager for North Creek Analytical, Bothell, WA.

Huff, J. 18 January 1997. Personal Communication (telephone by Harry Goren). City of Tumwater Public Works, Tumwater, WA.

Tetra Tech, Inc. 1997. Phase I Environmental Site Assessment, Old Brewhouse, 3425 Boston Street S.W., Tumwater, Washington. Prepared for the City of Tumwater. Tetra Tech, Inc., Redmond, Washington.



### APPENDIX A

# ANALYTICAL DATA REPORT

- A-L ANALYTICAL DATA REPORT FOR SAMPLES COLLECTED. ON 16 JANUARY 1997
- A-2: ANALYTICAL DATA REPORT FOR SAMPLES COLLECTED ON 20 JANUARY 1997

# APPENDIX A-1

ANALYTICAL DATA REPORT FOR SAMPLES COLLECTED ON 16 JANUARY 1997



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

Petra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse Project Number: 1287-02

Sampled: 1/16/97 Received: 1/17/97

Project Manager: Rick Osgood

Reported: 2/3/97 07:34

#### **ANALYTICAL REPORT FOR SAMPLES:**

| Sample Description | Laboratory Sample Number | Sample Matrix | Date Sampled |
|--------------------|--------------------------|---------------|--------------|
| Tumwater-CS1       | B701213-01               | Soil          | 1/16/97      |
| Tumwater-SS1       | B701213-02               | Soil          | 1/16/97      |
| Tumwater-SS2       | B701213-03               | Soil          | 1/16/97      |
| Furnwater-SS3      | B701213-04               | Soil          | 1/16/97      |
| Fumwater-SD1       | B701213-06               | Other dry     | 1/16/97      |
| Tumwater-SS5       | B701213-07               | Soil          | 1/16/97      |
| Fumwater-SS6       | B701213-08               | Soil          | 1/16/97      |
| Tumwater-SS7       | B701213-09               | Soil          | 1/16/97      |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse Project Number: 1287-02

Sampled: 1/16/97

Received: 1/17/97

Project Manager:

Rick Osgood

Reported: 2/3/97 07:34

Hydrocarbon Identification by Washington DOE Method WTPH-HCID North Creek Analytical - Bothell

|                              | Batch           | Date     | Date     | Surrogate    | Reporting |        |           |        |
|------------------------------|-----------------|----------|----------|--------------|-----------|--------|-----------|--------|
| Analyte                      | Number Prepared | Prepared | Analyzed | Limits       | Limit     | Result | Units     | Notes* |
| Tumwater-CS1                 |                 | ·        | B7012    | <u>13-01</u> |           |        | Soil      |        |
| Gasoline Range Hydrocarbons  | 0170331         | 1/20/97  | 1/20/97  |              | 20.0      | ND     | mg/kg dry |        |
| Diesel Range Hydrocarbons    | . 17            | n        | . If     |              | 50.0      | ND     | **        |        |
| Heavy Oil Range Hydrocarbons | H               | n        |          |              | 100       | ND     | n         |        |
| Surrogate: 2-FBP             | . "             | "        | "        | 50.0-150     |           | 103    | % .       |        |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse

Project Number: 1287-02

Project Manager: Rick Osgood

'Sampled: 1/16/97 Received: 1/17/97

Reported: 2/3/97 07:34

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

|              | Batch        | Date     | Date      | Specific  | Reporting |            |             |        |
|--------------|--------------|----------|-----------|-----------|-----------|------------|-------------|--------|
| Analyte      | Number       | Prepared | Analyzed  | Method    | Limit     | Result     | Units       | Notes* |
| Tumwater-CS1 | •            |          | B7012     | 13_01     |           |            | Soil        |        |
| Arsenic      | 0170361      | 1/20/97  | 1/21/97   | EPA 6010A | 10.0      | ND         | mg/kg dry   |        |
| Barium       | 0170301<br>" | 1/20/97  | . 1121/91 | EPA 6010A | 0.500     | 51.5       | ilig/kg diy |        |
| Cadmium      | н            | 11       | 19        | EPA 6010A | 0.300     | ND         | n           |        |
| Chromium     | 10           | 11       |           | EPA 6010A | 0.500     | 24.4       | **          |        |
| Lead         | "            |          |           | EPA 6010A | 10.0      | 12.0       | 11          |        |
| Selenium     | 11           | **       | 19        | EPA 6010A | 7.50      | 12.0<br>ND |             | •      |
|              | 0170358      | 11       | 1/20/97   | •         | 0.0500    | ND         | "           |        |
| Mercury      |              | n ·      |           | EPA 7471A | · ·       |            | 11          |        |
| Silver       | 0170361      |          | 1/22/97   | EPA 7760A | 1.00      | ND         |             |        |
| Tumwater-SS1 |              |          | B70121    | 13-02     | ٠         |            | Soil        |        |
| Arsenic      | 0170361      | 1/20/97  | 1/21/97   | EPA 6010A | 10.0      | 10.8       | mg/kg dry   | ;      |
| Barium       | "            | **       | 11        | EPA 6010A | 0.500     | 237        | ".          |        |
| Cadmium      | n'           | **       | 11        | EPA 6010A | 0.250     | 0.475      | 10          |        |
| Chromium     | n .          |          | **        | EPA 6010A | 0.500     | 36.5       | **          |        |
| Lead         | n ·          | n        | •         | EPA 6010A | 10.0      | 86.9       |             |        |
| Selenium     | ı            | n        | . **      | EPA 6010A | 7.50      | ND         | "           |        |
| Mercury      | 0170358      | n        | 1/20/97   | EPA 7471A | 0.0500    | 0.0647     | m .         |        |
| Silver       | 0170361      | 17       | 1/22/97   | EPA 7760A | 1.00      | ND         | "           |        |
|              |              |          | ¥         |           |           |            |             |        |
| Tumwater-SS2 |              |          | B70121    | 13-03     |           |            | Soil        |        |
| Arsenic      | 0170361      | 1/20/97  | 1/21/97   | EPA 6010A | 10.0      | 31.4       | mg/kg dry   |        |
| Barium       | "            | n        | 17        | EPA 6010A | 0.500     | 375        | 11          |        |
| Cadmium      | n            | 11       | 17        | EPA 6010A | 0.250     | 6.06       | 11          |        |
| Chromium     | "            | ."       | H .       | EPA 6010A | 0.500     | 27.2       | 11          |        |
| Lead         | "            | n        | **        | EPA 6010A | 10.0      | 312        | "           |        |
| Selenium     | . "          |          | 10        | EPA 6010A | 7.50      | ND         | 11          |        |
| Mercury      | 0170358      | 11       | 1/20/97   | EPA 7471A | 0.0500    | 0.531      | **          |        |
| Silver       | 0170361      | 11       | 1/22/97   | EPA 7760A | 1.00      | ND         | 11          |        |
| T            |              |          | D=010     |           |           |            | a           |        |
| Tumwater-SS3 |              |          | B70121    |           |           |            | <u>Soil</u> |        |
| Arsenic      | 0170361      | 1/20/97  | 1/21/97   | EPA 6010A | 10.0      | ND         | mg/kg dry   |        |
| Barium       |              |          |           | EPA 6010A | 0.500     | 204        |             |        |
| Cadmium      | "            | 17       | 11        | EPA 6010A | 0.250     | 7.49       | •           |        |
| Chromium     | "            | 17       |           | EPA 6010A | 0.500     | 39.8       | <b>o</b> .  |        |
| Lead         | "            | 11       | 11        | EPA 6010A | 10.0      | 205        | "           |        |
| Selenium     | "            | 11       | "         | EPA 6010A | 7.50      | ND         | n           |        |
| Mercury      | 0170358      | 19       | 1/20/97   | EPA 7471A | 0.0500    | 0.170      | и           |        |
| Silver       | 0170361      | n        | 1/22/97   | EPA 7760A | 1.00      | ND         |             |        |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc.

15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse

Project Number: 1287-02

Project Manager: Rick Osgood

Sampled: 1/16/97

Received: 1/17/97

Reported: 2/3/97 07:34

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

|              | Batch       | Date     | Date         | Specific    | Reporting |        |           |        |
|--------------|-------------|----------|--------------|-------------|-----------|--------|-----------|--------|
| Analyte      | Number      | Prepared | Analyzed     | Method      | Limit     | Result | Units     | Notes* |
| Tumwater-SD1 | ,           |          | ` D#013      | 12.06       |           |        | 041       |        |
|              |             |          | <u>B7012</u> | <del></del> |           |        | Other dry |        |
| Arsenic      | 0170361     | 1/20/97  | 1/21/97      | EPA 6010A   | 10.0      | 13.1   | mg/kg dry |        |
| Barium       | , <b>11</b> | n .      | **           | EPA 6010A   | 0.500     | 194    | ,         |        |
| Cadmium      | 'n          | n        | "            | EPA 6010A   | 0.250     | 1.67   | 17        |        |
| Chromium     | 19          | 17 .     | **           | EPA 6010A   | 0.500     | 23.9   | 17        |        |
| Lead         | 11          | **       | **           | EPA 6010A   | 10.0      | 52.0   | 11        |        |
| Selenium     |             | 11       | n .          | EPA 6010A   | 7.50      | . ND   | 11        |        |
| Mercury      | 0170358     | 11       | 1/20/97      | EPA 7471A   | 0.0500    | ND     | n         |        |
| Silver       | 0170361     | 11       | 1/22/97      | EPA 7760A   | 1.00      | ND     | n         | •      |
| •            |             |          |              |             |           |        |           |        |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1287-02

Project Manager: Rick Osgood

Sampled: 1/16/97 Received: 1/17/97

Reported: 2/3/97 07:34

ychlorinated Biphenyls by EPA Method 8081

### Polychlorinated Biphenyls by EPA Method 8081 North Creek Analytical - Bothell

|                |   | Batch   | Date     | Date     | Surrogate    | Reporting |        |             |            |
|----------------|---|---------|----------|----------|--------------|-----------|--------|-------------|------------|
| Analyte        |   | Number  | Prepared | Analyzed | Limits       | Limit     | Result | Units       | Notes*     |
| Tumwater-SS5   |   |         |          | B7012    | 13-07        |           |        | Soil        | 1,2        |
| Aroclor 1016   |   | 0170407 | 1/23/97  | 1/30/97  | 15-07        | 50.0      | NĎ     | ug/kg dry   | 212        |
| Aroclor 1221   |   | "       | 1123171  | "        |              | 50.0      | ND     | "           |            |
| Aroclor 1232   |   | n       | m *      | ,,       |              | 50.0      | ND     | 17          |            |
| Aroclor 1242   |   | **      | "        | n .      |              | 50.0      | ND     | **          |            |
| Aroclor 1248   |   | 11      | ,        | 11       | 42           | 50.0      | ND     |             |            |
| Aroclor 1254   |   | # 25c   |          | **       |              | 50.0      | ND     | **          |            |
| Aroclor 1260   |   | "       | **       |          | •            | 50.0      | ND     | 19          |            |
| Surrogate: TCX |   | "       |          | "        | 38.0-117     |           | 111    | %           |            |
|                |   |         |          |          |              | •         |        |             |            |
| Tumwater-SS6   |   |         |          | B7012    | 13-08        |           |        | Soil        | <u>1,2</u> |
| Aroclor 1016   |   | 0170407 | 1/23/97  | 1/30/97  |              | 50.0      | ND     | ug/kg dry   |            |
| Aroclor 1221   |   | ii.     | n        | " .      | •            | 50.0      | ND     | n           | •          |
| Aroclor 1232   |   |         | **       | **       |              | 50.0      | ND     |             |            |
| Aroclor 1242   |   | ,,      | n        | "        |              | 50.0      | ND     | 11          | •          |
| Aroclor 1248   |   | "       | "        | 11       |              | 50.0      | ND     | "           |            |
| Aroclor 1254   | 4 | " .     | "        | "        |              | 50.0      | ND     | 11          |            |
| Aroclor 1260   |   | "       | **       | . **     |              | 50.0      | 143    | "           |            |
| Surrogate: TCX |   | 17      | "        | ."       | 38.0-117     |           | 99.0   | %           |            |
|                | • |         | •        |          | •            |           |        |             |            |
| Tumwater-SS7   |   |         |          | B7012    | <u>13-09</u> |           |        | <u>Soil</u> | <u>1,2</u> |
| Aroclor 1016   |   | 0170407 | 1/23/97  | 1/30/97  |              | 50.0      | ND     | ug/kg dry   |            |
| Aroclor 1221   |   | H       | ••       | **       |              | 50.0      | ND     | 11          |            |
| Aroclor 1232   |   | H       | i.       | n        |              | 50.0      | ND     | "           |            |
| Aroclor 1242   |   | Ħ       | 11       | 17       |              | 50.0      | ND -   | 11.         |            |
| Aroclor 1248   |   |         | **       | 17       |              | 50.0      | ND     | n           |            |
| Aroclor 1254   |   | 11      | **       | 1.00     |              | 50.0      | ND     | H           |            |
| Aroclor 1260   |   | "       |          | **       | •            | 50.0      | 229    | и .         |            |
| Surrogate: TCX |   | "       | "        | "        | 38.0-117     |           | 79.1   | %           | •          |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse

Project Number: 1287-02

Received: 1/17/97

Sampled: 1/16/97

Project Manager: Rick Osgood

Reported: 2/3/97 07:34

### Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

|                           | Batch   | Date             | Date     | Surrogate | Reporting |            |             |      |
|---------------------------|---------|------------------|----------|-----------|-----------|------------|-------------|------|
| Analyte                   | Number  | Prepared         | Analyzed | Limits    | Limit     | Result     | Units       | Note |
| Tumwater-SS1              |         | •                | B7012    | 13-02     |           |            | <u>Soil</u> |      |
| Acetone                   | 0170502 | 1/26/97          | 1/27/97  |           | 2.00      | ND         | mg/kg dry   |      |
| Benzene                   | "       | "                | "        |           | 0.200     | ND         | "           |      |
| Bromodichloromethane      | "       | n                | "        |           | 0.200     | ND         | **          |      |
| Bromoform                 | 10      | **               | n        |           | 0.200     | ND         | "           |      |
| Bromomethane              | 11      | , ~              | n .      | 84        | 0.200     | ND         | ,           | · :  |
| 2-Butanone                | 10      | <b>n</b> .       | н        | k)<br>, / | 2.00      | ND         | **          |      |
| Carbon disulfide          | . 11    | m <sup>200</sup> | 11       |           | 0.200     | ND         | "           |      |
| Carbon tetrachloride      |         |                  | ,,       |           | 0.200     | ND         | **          |      |
| Chlorobenzene             | 17      | ••               | n        |           | 0.200     | ND         | "           |      |
| Chloroethane              | n       |                  | 11       | •         | 0.200     | ND<br>ND   | Ħ           |      |
| Chloroform                | H.      | n                | 11       |           | 0.200     | ND .<br>ND |             |      |
| Chloromethane             | i)      | ,,               | n        |           | 0.200     | ND<br>ND   |             |      |
| Dibromochloromethane      |         |                  |          |           | 0.200     | ND<br>ND   |             |      |
| 1,1-Dichloroethane        | n       | ,                | 11       |           | 0.200     | ND<br>ND   |             |      |
| •                         | **      | ,,,,             |          |           | 0.200     |            | **          |      |
| 1,2-Dichloroethane        | **      | . ,              |          |           | 0.200     | ND.<br>ND  | . 11        |      |
| 1,1-Dichloroethene        |         | . "              | ,,       |           | 0.200     |            | ,           |      |
| cis-1,2-Dichloroethene    |         | ,,               | "        |           | 0.200     | ND<br>ND   | "           |      |
| trans-1,2-Dichloroethene  |         |                  | "        |           |           |            | ,,          |      |
| 1,2-Dichloropropane       | ,,      | ii .             |          |           | 0.200     | ND         |             |      |
| cis-1,3-Dichloropropene   | ,,      | ,,               | ,,       |           | 0.200     | ND         |             |      |
| trans-1,3-Dichloropropene | , ,     | "                | ,,       |           | 0.200     | ND         | "           |      |
| Ethylbenzene              | "       | "                | "        |           | 0.200     | ND         |             |      |
| 2-Hexanone                |         |                  | "        |           | 2.00      | ND         |             |      |
| Methylene chloride        | "       | n<br>: ,,        | "        |           | 1.00      | ND         | "           |      |
| 4-Methyl-2-pentanone      |         | .,               | **       |           | 2.00      | ND         | **          | - (  |
| Styrene                   | "       | **               | "        |           | 0.200     | ND         | "           |      |
| 1,1,2,2-Tetrachloroethane | 11      | "                | 11       |           | 0.200     | ND         | 11          |      |
| Tetrachloroethene         | 10      | "                | 11       |           | 0.200     | ND         | **          |      |
| Toluene                   | **      | "                | , 11     |           | 0.200     | ND         | 11          |      |
| 1,1,1-Trichloroethane     | 17      | "                | **       | -         | 0.200     | ND         | "           |      |
| 1,1,2-Trichloroethane     | r       |                  | 11       |           | 0.200     | ND         | **          |      |
| Trichloroethene           | "       | 17               |          |           | 0.200     | ND         | 17          |      |
| Vinyl chloride            | **      | 11               | 11       |           | 0.200     | ND         | m '         |      |
| Xylenes (total)           | 11      | 17               | n        |           | 0.400     | ND         | "           |      |
| Surrogate: 1,2-DCA-d4     | "       |                  | "        | 70.0-130  |           | 67.2       | %           | 3    |
| Surrogate: Toluene-d8     | "       | "                | "        | 70.0-130  |           | 72.1       | ,,          | -    |
| Surrogate: 4-BFB          | "       | "                | "        | 70.0-130  |           | 68.6       | "           | 3    |

North Creek Analytical, Inc.

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



PORTLAND **(503)** 643-9200 **FAX** 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1287-02 Project Manager: Rick Osgood Sampled: 1/16/97 Received: 1/17/97

Reported: 2/3/97 07:34

### Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

|                           | Batch      | Date       | Date           | Surrogate   | Reporting   |        |            |                    |
|---------------------------|------------|------------|----------------|-------------|-------------|--------|------------|--------------------|
| Analyte                   | Number     | Prepared   | Analyzed       | Limits      | Limit       | Result | Units      | Notes <sup>3</sup> |
| Tumwater-SS2              | *,         |            | B7012          | 13-03       |             |        | Soil       |                    |
| Acetone                   | 0170502    | 1/26/97    | 1/27/97        | <del></del> | 2.00        | ND     | mg/kg dry  |                    |
| Benzene                   | 11         | 11         |                |             | 0.200       | ND     | "          |                    |
| Bromodichloromethane      | н .        | **         | **             |             | 0.200       | ND     | **         |                    |
| Bromoform                 | **         | ,,         | #              |             | 0.200       | ND     |            |                    |
| Bromomethane              | 11         | **         | n 14           |             | 0.200       | ND     | **         |                    |
| 2-Butanone                | **         | **         | H              | آفي         | 2.00        | ND     |            |                    |
| Carbon disulfide          | 17         | 11         | 11             |             | 0.200       | ND     | n          |                    |
| Carbon tetrachloride      |            | "          | 17             |             | 0.200       | ND     | 11         |                    |
| Chlorobenzene             | 17         |            | 11             |             | 0.200       | ND     | n -        |                    |
| Chloroethane              | n          | "          | H              |             | 0.200       | · ND   | **         |                    |
| Chloroform                | n          | **         | ı <del>i</del> |             | 0.200       | ND     |            |                    |
| Chloromethane             | . 11       | ".         | n              |             | 0.200       | ND     | **         |                    |
| Dibromochloromethane      | H          | "          | n              |             | 0.200       | ND     |            |                    |
| 1,1-Dichloroethane        | n          | 11         | 11             |             | 0.200       | ND     | "          |                    |
| 1,2-Dichloroethane        |            | **         | n              |             | 0.200       | ND     |            |                    |
| 1,1-Dichloroethene        | <b>"</b> . | H          | 11             |             | 0.200       | ND     | 11         |                    |
| cis-1,2-Dichloroethene    | · H        | **         | n ·            |             | 0.200       | ND     | н          | •                  |
| trans-1,2-Dichloroethene  | n          | 19         | 11             | ,           | 0.200       | ND     | и .        |                    |
| 1,2-Dichloropropane       | n          | 19         | 11             |             | 0.200       | ND     |            |                    |
| cis-1,3-Dichloropropene   | H          | **         |                |             | 0.200       | ND     | **         |                    |
| trans-1,3-Dichloropropene | n          | **         | **             |             | 0.200       | ND     | IF.        |                    |
| Ethylbenzene              | н :        | **         | n              |             | 0.200       | ND     |            | 1                  |
| 2-Hexanone                | n          | H .        | n              |             | 2.00        | ND     | It         |                    |
| Methylene chloride        | n          | **         | 11             | *           | 1.00        | ND     | H          |                    |
| 4-Methyl-2-pentanone      | · #        | H '        | **             |             | 2.00        | ND     | n          |                    |
| Styrene                   | 11         | н          | **             |             | 0.200       | ND     |            |                    |
| 1,1,2,2-Tetrachloroethane | **         | n          | "              |             | 0.200       | ND     | I)         |                    |
| Tetrachloroethene         | " "        | 19         | **             |             | 0.200       | ND     | n          |                    |
| Toluene                   | 11         | H .        | 11             |             | 0.200       | ND     | . **       |                    |
| 1,1,1-Trichloroethane     | 11         | **         | 11             |             | 0.200       | ND     | 10         |                    |
| 1,1,2-Trichloroethane     | н          | n          | 11             |             | 0.200       | ND     | 11         |                    |
| Trichloroethene           | 11         | ,          | 11             |             | 0.200       | ND     | н          |                    |
| Vinyl chloride            | • н        | <b>"</b> , | 11             |             | 0.200       | ND     | ."         |                    |
| Xylenes (total)           | n          | 11         | 10             |             | 0.400       | ND     | n          |                    |
| Surrogate: 1,2-DCA-d4     | "          | "          | n              | 70.0-130    | <del></del> | 74.8   | %          | <del> </del>       |
| Surrogate: Toluene-d8     | "          | "          | · <i>m</i>     | 70.0-130    |             | 80.4   | <i>n</i>   |                    |
| Surrogate: 4-BFB          | <i>n</i> . | n          | <b>"</b>       | 70.0-130    |             | 78.0   | <i>n</i> ' |                    |

North Creek Analytical, Inc.

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

Matthew Essig, Project Manager

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1287-02 Project Manager: Rick Osgood Sampled: 1/16/97 Received: 1/17/97

Reported: 2/3/97 07:34

### Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

|                           | Batch   | Date         | Date     | Surrogate | Reporting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |             |        |
|---------------------------|---------|--------------|----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------|--------|
| Analyte                   | Number  | Prepared     | Analyzed | Limits    | Limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Result   | Units       | Notes' |
|                           |         | •            | pana     |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          | <u>Soil</u> |        |
| Tumwater-SS3              | 010000  | 1/0//05      | B70121   | 13-04     | 2.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ND       | mg/kg dry   |        |
| Acetone                   | 0170502 | 1/26/97      | 1/27/97  |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | mg/kg dry   |        |
| Benzene                   | "       | "            | "        |           | the state of the s |          | "           |        |
| Bromodichloromethane      |         |              | "        |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | ri          |        |
| Bromoform                 |         | 17           |          |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | ,,          |        |
| Bromomethane              | • 11    |              |          |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | "           |        |
| 2-Butanone                | 10      | "            | 11       |           | 2.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ND       |             |        |
| Carbon disulfide          | n       | n            | **       |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | ."          | •      |
| Carbon tetrachloride      | n       | **           | 11       |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       |             |        |
| Chlorobenzene             | "       | **           | ••       |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | "           |        |
| Chloroethane              | II .    | n .          | "        |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | "           |        |
| Chloroform                | **      | **           | "        |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | 17          |        |
| Chloromethane             | "       | 19           | H        |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | "           | 1      |
| Dibromochloromethane      |         | ' <b>b</b> . | 11       |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | "           |        |
| 1,1-Dichloroethane        | in .    | ••           |          |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | "           |        |
| 1,2-Dichloroethane        | D .     | . 11         |          |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | 11          |        |
| 1,1-Dichloroethene        |         | n            | . 11     |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | 11          |        |
| cis-1,2-Dichloroethene    | **      | . 11         | н .      |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | 11          |        |
| trans-1,2-Dichloroethene  | n ,     | 17           | 11       | •         | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | ,,          |        |
| 1,2-Dichloropropane       | 1)      |              | 17       | •         | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       |             |        |
| cis-1,3-Dichloropropene   | n.      | **           | **       |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | 11          |        |
| ·                         | 11      | 11           | Ħ        |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | u .         |        |
| trans-1,3-Dichloropropene | ,,      | ,,           | 10       |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | н           |        |
| Ethylbenzene              | ••      | ,,           | 19       |           | 2.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ND       | **          |        |
| 2-Hexanone                | "       | ,,           | ,,       |           | 1.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ND       | 11          |        |
| Methylene chloride        |         |              | "        |           | 2.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ND       |             |        |
| 4-Methyl-2-pentanone      | "       | "            |          |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND<br>ND | n           |        |
| Styrene                   | **      | "            | ,,       |           | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | 10          |        |
| 1,1,2,2-Tetrachloroethane | n ·     | ••           |          |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | ,           |        |
| Tetrachloroethene         | - 17    | **           | **       |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | "           |        |
| Toluene                   | D       | 17           | H .      |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       |             |        |
| 1,1,1-Trichloroethane     | H       | 11           | "        |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | 11          |        |
| 1,1,2-Trichloroethane     | "       |              |          |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | "           |        |
| Trichloroethene           | "       |              | n .      |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | "           |        |
| Vinyl chloride            | . "     | **           | . #      |           | 0.200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | **          |        |
| Xylenes (total)           | 11      | n            | 11       |           | 0.400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ND       | 11          |        |
| Surrogate: 1,2-DCA-d4     | "       | "            | "        | 70.0-130  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 69.2     | %           | 3      |
| Surrogate: Toluene-d8     | "       | "            | n :      | 70.0-130  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 77.4     | "           |        |
| Surrogate: 4-BFB          | "       | ,            | ,,       | 70.0-130  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 74.6     | "           |        |

North Creek Analytical, Inc.

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



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

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1287-02 Project Manager: Rick Osgood Sampled: 1/16/97 Received: 1/17/97

Reported: 2/3/97 07:34

### Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

|                           | Batch                                   | Date         | Date                    | Surrogate | Reporting |             |               | <b>37</b> |
|---------------------------|-----------------------------------------|--------------|-------------------------|-----------|-----------|-------------|---------------|-----------|
| Analyte                   | Number                                  | Prepared     | Analyzed                | Limits    | Limit     | Result      | Units         | Notes*    |
| - 1 000                   | •                                       |              | B7012                   | 13 07     |           |             | Soil          |           |
| Tumwater-SS5              | 0170502                                 | 1/26/97      | <u>B/012</u><br>1/27/97 | 13-07     | 2.00      | ND          | mg/kg dry     |           |
| Acetone                   | 01/0502                                 | 1/26/97      | 1/2//9/                 |           | 0.200     | ND<br>ND    | mg/kg my      |           |
| Benzene                   | "                                       |              | "                       |           | 0.200     | ND<br>ND    | 11            |           |
| Bromodichloromethane      |                                         | . ,,         |                         |           | 0.200     | ND<br>ND    | n             |           |
| Bromoform                 | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | "            | ,,                      | 1 kg      | 0.200     | ND<br>ND    | **            |           |
| Bromomethane              | ,                                       | 11           | W .                     | 141       |           |             | ıı .          |           |
| 2-Butanone                | <b>!</b>                                | 11           | ,,                      |           | 2.00      | ND          | "             |           |
| Carbon disulfide          | **                                      | -            |                         |           | 0.200     | ND          |               |           |
| Carbon tetrachloride      | .11                                     | 17           | "                       |           | 0.200     | ND          | ,             |           |
| Chlorobenzene             | "                                       | 11           | "                       |           | 0.200     | ND          | "             |           |
| Chloroethane              |                                         | ,            | "                       |           | 0.200     | ND          | "             |           |
| Chloroform                | 11                                      | 17           | n                       |           | 0.200     | ND          | "             |           |
| Chloromethane             |                                         |              | "                       |           | 0.200     | ND          |               |           |
| Dibromochloromethane      | 17                                      | 11           | "                       |           | 0.200     | ND          |               |           |
| 1,1-Dichloroethane        | ,                                       | 11           | <b>H</b>                |           | 0.200     | ND          | "             |           |
| 1,2-Dichloroethane        | . "                                     | n            | <b>"</b> ,              |           | 0.200     | ND          | **            | *         |
| 1,1-Dichloroethene        | 11                                      | 11           | 10"                     |           | 0.200     | ND          | "             |           |
| cis-1,2-Dichloroethene    | "                                       | 11           | 11                      |           | 0.200     | ND          | 11            |           |
| trans-1,2-Dichloroethene  | . #                                     | 11           | 11                      |           | 0.200     | ND          | . #           |           |
| 1,2-Dichloropropane       | "                                       | "            | n                       |           | 0.200     | ND          | ti -          |           |
| cis-1,3-Dichloropropene   | **                                      | . 11         | <b>11</b> .             |           | 0.200     | ND          | "             |           |
| trans-1,3-Dichloropropene | n                                       | **           | 19                      |           | 0.200     | ND          | н             |           |
| Ethylbenzene              | n .                                     | 11           | D .                     |           | 0.200     | ND          | "             |           |
| 2-Hexanone                | n                                       | **           | "                       |           | 2.00      | . ND        | "             |           |
| Methylene chloride        | n n                                     | 11           | 11                      |           | 1.00      | ND          | <b>n</b>      |           |
| 4-Methyl-2-pentanone      | "                                       | 11           | **                      |           | 2.00      | ND          | n             |           |
| Styrene                   | 11                                      | "            | "                       |           | 0.200     | ND          | "             | •         |
| 1,1,2,2-Tetrachloroethane | n ,                                     |              | "                       | •         | 0.200     | ND          | 11            |           |
| Tetrachloroethene         | **                                      | 11           | 11                      |           | 0.200     | ND          | <b>n</b>      |           |
| Toluene                   | 11                                      | "            | n                       |           | 0.200     | ND          | 11            |           |
|                           | "                                       | **           | "                       |           | 0.200     | ND          | 11            |           |
| 1,1,1-Trichloroethane     | "                                       | 19           | 11                      |           | 0.200     | ND          | **            | . ,       |
| 1,1,2-Trichloroethane     | 10                                      | ,,           | 17                      |           | 0.200     | ND<br>ND    |               |           |
| Trichloroethene           | <br>D                                   | 11           |                         |           | 0.200     | ND          | 19            | •         |
| Vinyl chloride            | n .                                     | 17           | 17                      |           |           | ND<br>ND    | <b>11</b> · . |           |
| Xylenes (total)           | "                                       | <del>"</del> |                         | 70.0 130  | 0.400     |             | %             | 3         |
| Surrogate: 1,2-DCA-d4     | •                                       |              |                         | 70.0-130  |           | 69.2        | %<br>"        | J         |
| Surrogate: Toluene-d8     | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | "            | <i>"</i>                | 70.0-130  |           | 80.1        | ," .<br>"     |           |
| Surrogate: 4-BFB          | "                                       | "            | "                       | 70.0-130  |           | <i>76.9</i> | **            |           |

North Creek Analytical, Inc.

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



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

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1287-02

Project Manager: Rick Osgood

Sampled: 1/16/97

Received: 1/17/97

Reported: 2/3/97 07:34

### Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

|                           |                                        |          |          |           |           |        | <del></del> |         |
|---------------------------|----------------------------------------|----------|----------|-----------|-----------|--------|-------------|---------|
|                           | Batch                                  | Date     | Date     | Surrogate | Reporting | Dte    | T Turken    | NT-4- * |
| Analyte                   | Number                                 | Prepared | Analyzed | Limits    | Limit     | Result | Units       | Notes*  |
| Tumwater-SS6              |                                        |          | B7012    | 13-08     | •         |        | Soil        |         |
| Acetone                   | 0170502                                | 1/26/97  | 1/27/97  | 15-00     | 2.00      | ND     | mg/kg dry   | 4       |
| Benzene                   | 0170302                                | 1/20/97  | 1/2//9/  |           | 0.200     | ND     | "           |         |
| Bromodichloromethane      | **                                     | 17       | Ð        |           | 0.200     | ND     | 11          |         |
| Bromoform                 | 11                                     | **       |          |           | 0.200     | ND     | ,           |         |
| Bromomethane              | 11                                     | - 11     |          | 31        | 0.200     | ND     | "           |         |
| 2-Butanone                | 11                                     | ,,       |          |           | 2.00      | ND     | ,,          |         |
| Carbon disulfide          |                                        | **       | 11       |           | 0.200     | ND     | ,,          |         |
| Carbon distillide         | 10                                     |          | ••       |           | 0.200     | ND     | y ·         |         |
| Chlorobenzene             |                                        | "        | H.       |           | 0.200     | ND     | ,           |         |
| Chloroethane              | , <b>n</b> ,                           |          | н        | -         | 0.200     | ND     | "           |         |
| Chloroform                | 11                                     |          |          |           | 0.200     | ND     | ,,          |         |
| Chloromethane             | .,                                     | **       | "        |           | 0.200     | ND     | n,          |         |
| Dibromochloromethane      | "                                      |          |          |           | 0.200     | ND     | n           | •       |
| 1,1-Dichloroethane        | **                                     | ,,       | **       |           | 0.200     | ND     | n           |         |
| 1,2-Dichloroethane        | · <b>"</b>                             | **       | ••       |           | 0.200     | ND     | "           |         |
| 1,1-Dichloroethene        |                                        | **       | ,,       |           | 0.200     | ND     | **          |         |
| cis-1,2-Dichloroethene    |                                        | 10       | ,        |           | 0.200     | ND     | "           |         |
| trans-1,2-Dichloroethene  |                                        | 11       |          |           | 0.200     | ND     | "           |         |
| 1,2-Dichloropropane       | "                                      |          | **       |           | 0.200     | ND     | n .         |         |
| cis-1,3-Dichloropropene   | 17                                     | **       | **       |           | 0.200     | ND     | n .         |         |
| trans-1,3-Dichloropropene | H                                      | *10      |          |           | 0.200     | · ND   |             |         |
| Ethylbenzene              | ,,                                     | 17       | 11       |           | 0.200     | ND     | n           |         |
| 2-Hexanone                | **                                     | **       | **       |           | 2.00      | ND     | n ·         |         |
| Methylene chloride        | "                                      | **       | **       |           | 1.00      | ND     |             |         |
| 4-Methyl-2-pentanone      | ,,                                     |          | **       |           | 2.00      | ND     | **          |         |
| Styrene                   | **                                     | **       | . "      |           | 0.200     | ND     | 11          |         |
| 1,1,2,2-Tetrachloroethane | ,,                                     | <b>.</b> | 1)       |           | 0.200     | ND     | 11          | e.      |
| Tetrachloroethene         | **                                     | 11       | "        |           | 0.200     | ND     | 11          |         |
| Toluene                   | **                                     | 11       | H        |           | 0.200     | ND     | "           |         |
| 1,1,1-Trichloroethane     | ,,                                     | 11       | н        |           | 0.200     | ND     | 11          |         |
| 1,1,2-Trichloroethane     | . "                                    | · ·      | n        |           | 0.200     | ND     | "           |         |
| Trichloroethene           | ************************************** | ,,       | . #      |           | 0.200     | ND     | 11          |         |
| Vinyl chloride            | "                                      | **       | 11       | •••       | 0.200     | ND     | n           | • •     |
| Xylenes (total)           | n                                      | 13       | 11       |           | 0.400     | ND     | n .         |         |
| Surrogate: 1,2-DCA-d4     | <i>n</i>                               |          | ,,       | 70.0-130  | 0.700     | 68.3   | %           | 3       |
|                           | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | "        | ,,       | 70.0-130  |           | 77.9   | "           |         |
| Surrogate: Toluene-d8     | "                                      | "        | ,,       | 70.0-130  |           | 74.7   | <b>"</b>    |         |
| Surrogate: 4-BFB          | **                                     |          |          | /0.0-130  |           | 14.1   |             | •       |

North Creek Analytical, Inc.

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

Matthew Essig, Project Manager

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Sampled: 1/16/97 Received: 1/17/97

Project Number: 1287-02
Project Manager: Rick Osgood

Rece

Reported: 2/3/97 07:34

### Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

|                           | Batch       | Date       | Date         | Surrogate    | Reporting |        | - 200     |             |
|---------------------------|-------------|------------|--------------|--------------|-----------|--------|-----------|-------------|
| Analyte                   | Number      | Prepared   | Analyzed     | Limits       | Limit     | Result | Units     | Notes*      |
|                           |             |            |              |              | •         |        |           | •           |
| Tumwater-SS7              |             |            | <u>B7012</u> | <u>13-09</u> |           |        | Soil      |             |
| Acetone                   | 0170502     | 1/26/97    | 1/27/97      |              | 2.00      | ND     | mg/kg dry |             |
| Benzene                   | 11          | . "        | 17           |              | 0.200     | ND     |           |             |
| Bromodichloromethane      | "           | 17         | 11           |              | 0.200     | ND     |           |             |
| Bromoform                 | "           | . "        | 17           |              | 0.200     | ND     | H         | *           |
| Bromomethane              | . "         |            | "            |              | 0.200     | ND     | **        |             |
| 2-Butanone                | "           |            | 11           |              | 2.00      | ND     | **        |             |
| Carbon disulfide          | "           | <b>"</b> . |              |              | 0.200     | ND     | 19        | \$          |
| Carbon tetrachloride      | 11          | 11         | "            |              | 0.200     | ND     | 11        |             |
| Chlorobenzene             | 11          |            | 10,          | ,            | 0.200     | ND     | 16        |             |
| Chloroethane              | **          | ,,         |              |              | 0.200     | ND     |           | ·           |
| Chloroform                |             | **         | 11           |              | 0.200     | ND     | 11        |             |
| Chloromethane             | . "         | 11         | 11           |              | 0.200     | ND     | η.        |             |
| Dibromochloromethane      | u U         | **         | . 11         |              | 0.200     | ND     | **        |             |
| 1,1-Dichloroethane        | - 10        | "          | . 11         |              | 0.200     | ND     |           |             |
| 1,2-Dichloroethane        | "           | "          | ".           |              | 0.200     | ND     | .n        |             |
| 1,1-Dichloroethene        |             |            | "            |              | 0.200     | ND     | ,,        |             |
| cis-1,2-Dichloroethene    | **          | 11         | **           |              | 0.200     | ND     | "         |             |
| trans-1,2-Dichloroethene  | "           | "          | 11           |              | 0.200     | ND     | "         |             |
| 1,2-Dichloropropane       | , m         | n          |              |              | 0.200     | ND     | **        |             |
| cis-1,3-Dichloropropene   | Ħ           | n          | "            |              | 0.200     | ND     | 11        |             |
| trans-1,3-Dichloropropene | n .         | n          | "            |              | 0.200     | ND     | 17        |             |
| Ethylbenzene              | in a second | 11         | 19           | •            | 0.200     | ND -   | 11        |             |
| 2-Hexanone                | "           |            | II.          |              | 2.00      | ND     | 11        |             |
| Methylene chloride        | n           | 19         | IF ,         |              | 1.00      | ND     |           |             |
| 4-Methyl-2-pentanone      | "           | 11         | 10           |              | 2.00      | ND     | 17        |             |
| Styrene                   | n           | 11         | .00          |              | 0.200     | ND     | 11        |             |
| 1,1,2,2-Tetrachloroethane | "           | **         | 11           |              | 0.200     | ND     | 11,       |             |
| Tetrachloroethene         | 11          | 19         | **           |              | 0.200     | ND     | 'n        |             |
| Toluene                   | **          | n .        | . 11         |              | 0.200     | ND .   | 19        | •           |
| 1,1,1-Trichloroethane     | <b>"</b> "  | n          | H            |              | 0.200     | ND     | "         |             |
| 1,1,2-Trichloroethane     | **          | " -        | 17           |              | 0.200     | ND     | n         |             |
| Trichloroethene           | n           | 17         |              |              | 0.200     | ND     |           |             |
| Vinyl chloride            | и.          | 11         |              |              | 0.200     | ND     | **        |             |
| Xylenes (total)           | n           | . 11       | n            |              | 0.400     | ND     | "         | •           |
| Surrogate: 1,2-DCA-d4     | <b>"</b>    | "          | <i>n</i>     | 70.0-130     |           | 71.1   | %         | <del></del> |
| Surrogate: Toluene-d8     | "           | "          | "            | 70.0-130     |           | 80.2   | "         |             |
| Surrogate: 4-BFB          | "           | "          | "            | 70.0-130     |           | 78.5   | ,,        |             |
| - Swittegate, T-DI-D      |             |            |              | 70.0 130     |           | , 0.5  |           | •           |

North Creek Analytical, Inc.

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PORTLAND • (503) 643-9200 • FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1287-02 Project Manager: Rick Osgood Sampled: 1/16/97 Received: 1/17/97

Reported: 2/3/97 07:34

### Semivolatile Organic Compounds by EPA Method 8270 North Creek Analytical - Bothell

|                                     | Batch    | Date     | Date      | Surrogate          | Reporting      |            |           |        |
|-------------------------------------|----------|----------|-----------|--------------------|----------------|------------|-----------|--------|
| Analyte                             | Number   | Prepared | Analyzed  | Limits             | Limit          | Result     | Units     | Notes* |
| Parameter CD1                       |          |          | B70121    | 13.06              | -              | •          | Other dry |        |
| <u>Tumwater-SD1</u><br>Acenaphthene | 0170479  | 1/27/97  | 1/31/97   | 13-00              | 0.200          | ND         | mg/kg dry |        |
| N. 178 C                            | 01/04/9  | 1/2//9/  | 1/31/9/   |                    | 0.200          | ND<br>ND   | mg/kg dry |        |
| Acenaphthylene                      | 11       | 11       | " (       |                    | 0.200          | ND<br>ND   | 11        |        |
| Aniline                             | · · ·    | "        | 11        |                    | 0.200          | ND<br>ND   | n         |        |
| Anthracene Rengoia Acid             | . 11     | "        | "<br>IF   | *   <b>k</b> g<br> | 1.00           | ND<br>ND   | 11        |        |
| Benzoic Acid                        | 11       | "        | 11        | 12                 | 0.200          | ND<br>ND   | 11        |        |
| Benzo (a) anthracene                | ,,       | "        | "         |                    | 0.200          | ND<br>ND   | "         |        |
| Benzo (b) fluoranthene              | ;;<br>11 | "        |           |                    | 0.200          | ND<br>ND   | "         |        |
| Benzo (k) fluoranthene              |          | "        | 17        |                    | 0.200          | ND<br>ND   | . "       |        |
| Benzo (ghi) perylene                | ,,       | "        | "         |                    | 0.200          | ND<br>ND   | n '       |        |
| Benzo (a) pyrene                    | "        | 11       | "         | •                  | 0.200<br>0.200 | ND<br>ND   |           |        |
| Benzyl alcohol                      |          | "        | ,,        |                    | 0.200<br>0.200 | ND<br>ND   | <br>n     | •      |
| Bis(2-chloroethoxy)methane          | "        | "        | "         |                    | 0.200<br>0.200 | ND<br>ND   | "         |        |
| Bis(2-chloroethyl)ether             | "        | "        |           |                    | 0.200          | ND ·       |           |        |
| Bis(2-chloroisopropyl)ether         | "        | **       | "         |                    | 0.200<br>1.00  | 2.05       | <b>n</b>  |        |
| Bis(2-ethylhexyl)phthalate          | "        | "        | ,,        |                    | 0.200          | 2.05<br>ND |           |        |
| 4-Bromophenyl phenyl ether          | . "      | . 0      | · n       |                    | 0.200          | ND<br>ND   |           |        |
| Butyl benzyl phthalate              |          | . "      | "         |                    |                |            | 19        |        |
| Carbazole                           | "        | n'       | "         |                    | 1.00           | ND         | "         |        |
| 4-Chloroaniline                     | "        | "        | #<br>#    |                    | 0.200          | ND         | #<br>#    |        |
| 2-Chloronaphthalene                 | "        | "        | "         |                    | 0.200          | ND         | 17        |        |
| 4-Chloro-3-methylphenol             | 19       | "        | . "<br>   |                    | 0.200          | ND         | n         |        |
| 2-Chlorophenol                      | H<br>H   | "        | H         |                    | 0.200          | ND         | n         |        |
| 4-Chlorophenyl phenyl ether         | "        |          | •         |                    | 0.200          | ND         | "         |        |
| Chrysene                            | ••       |          | " .       |                    | 0.200          | ND .       |           |        |
| Dibenzo (a,h) anthracene            | "        |          | **        |                    | 0.200          | ND         | "         |        |
| Dibenzofuran                        | n<br>    |          |           |                    | 0.200          | ND         |           |        |
| Di-n-butyl phthalate                | 19*      | "        |           |                    | 1.00           | ND         | "         | •      |
| 1,3-Dichlorobenzene                 | . 11     | IF       | " .       |                    | 0.200          | ND         | "         |        |
| 1,4-Dichlorobenzene                 | . #      |          | **        |                    | 0.200          | ND         | "         | • ,    |
| 1,2-Dichlorobenzene                 | **       | "        | 17        |                    | 0.200          | ND         |           |        |
| 3,3'-Dichlorobenzidine              |          |          | "         |                    | 10.0           | ND         | н         |        |
| 2,4-Dichlorophenol                  | **       | **       |           |                    | 0.200          | ND         | 11        |        |
| Diethyl phthalate                   | **       | **       | **        |                    | 0.200          | ND         | n         |        |
| 2,4-Dimethylphenol                  | 17       | **       | <b>11</b> |                    | 0.200          | ND         | 11        |        |
| Dimethyl phthalate                  |          |          | "         |                    | 0.200          | ND         |           |        |
| 4,6-Dinitro-2-methylphenol          |          | "        | "         |                    | 1.00           | ND         |           |        |
| 2,4-Dinitrophenol                   | 17       | n        | 11        |                    | 1.00           | ND         | **        |        |
| 2,4-Dinitrotoluene                  | 11       | **       | · n       |                    | 0.200          | ND         | "         |        |

North Creek Analytical, Inc.

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



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

Reported: 2/3/97 07:34

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse Project Number: 1287-02

vater Brewhouse Sampled: 1/16/97 02 Received: 1/17/97

Project Manager: Rick Osgood

### Semivolatile Organic Compounds by EPA Method 8270 North Creek Analytical - Bothell

| 919.<br>Ver <b>6</b><br>And <b>6</b>             | Batch     | Date     | Date     | Surrogate    | Reporting |        |                                       | <del></del> |
|--------------------------------------------------|-----------|----------|----------|--------------|-----------|--------|---------------------------------------|-------------|
| Analyte                                          | Number    | Prepared | Analyzed | Limits       | Limit     | Result | Units                                 | Notes*      |
|                                                  |           |          |          | 42.06        |           |        | 0.1                                   |             |
| Tumwater-SD1 (continued)                         |           |          | B7012    | <u>13-06</u> |           |        | Other dry                             |             |
| 2,6-Dinitrotoluene                               | 0170479   | 1/27/97  | 1/31/97  | -            | 0.200     | ND     | mg/kg dry                             |             |
| Di-n-octyl phthalate                             | · 19<br>· |          |          |              | 0.200     | ND     |                                       |             |
| Fluoranthene                                     | n         | n        |          |              | 0.200     | ND     |                                       |             |
| Fluorene                                         | 11        | * .      | 11       |              | 0.200     | ND     | n '                                   |             |
| Hexachlorobenzene                                | 11        | "        | n        | , <b>6</b> 7 | 0.200     | ND     | 19                                    |             |
| Hexachlorobutadiene                              | H         | "        | •• .     |              | 0.200     | ND     |                                       |             |
| Hexachlorocyclopentadiene                        | H*        | **       | **       |              | 0.200     | ND     | **                                    | •           |
| Hexachloroethane                                 | n         | 11       | "        |              | 0.200     | ND     | "                                     |             |
| Indeno (1,2,3-cd) pyrene                         | n         | "        | 11       |              | 0.200     | ND     | II .                                  | •           |
| Isophorone                                       | 11        | ii -     | **       |              | 0.200     | ND     | , <b>n</b>                            |             |
| 2-Methylnaphthalene                              | **        | 11       | n        |              | 0.200     | ND     | 11                                    |             |
| 2-Methylphenol                                   | 19        | n        |          |              | 0.200     | ND     | 11                                    |             |
| 4-Methylphenol                                   | · " "     | . **     |          |              | 0.200     | ND     | It                                    |             |
| Naphthalene                                      |           | 11       |          |              | 0.200     | ND     | п                                     |             |
| 2-Nitroaniline                                   |           | 11       | n        |              | 1.00      | ND     | n                                     |             |
| 3-Nitroaniline                                   | 11        | 1 11     | 10       |              | 1.00      | ND     | n                                     | •           |
| 4-Nitroaniline                                   | . "       | H .      | "        |              | 1.00      | ND     | 11                                    |             |
| Nitrobenzene                                     | H .       | 11       | 17       |              | 0.200     | ND     | n                                     | *           |
| 2-Nitrophenol                                    | 11        | n        | H        |              | 0.200     | ND     | <b>n</b> , ,                          |             |
| 4-Nitrophenol                                    | н         | **       | **       |              | 1.00      | ND     | н                                     |             |
| N-Nitrosodiphenylamine                           | •         | **       | ".       |              | 0.400     | ND     | н .                                   |             |
| N-Nitrosodi-n-propylamine                        | 11        | **       | 28       |              | 0.200     | ND     | H                                     |             |
| Pentachlorophenol                                | tr        | **       | **       |              | 1.00      | ND     | H                                     |             |
| Phenanthrene                                     | **        |          | 11,      |              | 0.200     | ND     | H                                     |             |
| Phenol                                           | 11        | н        | "        |              | 0.200     | ND     | н ,                                   |             |
| Pyrene                                           | 11        | ***      |          |              | 0.200     | ND     | n                                     |             |
| 1,2,4-Trichlorobenzene                           | H         | 11       | **       |              | 0.200     | ND     | 10                                    |             |
| 2,4,5-Trichlorophenol                            | **        | 10       | **       |              | 1.00      | ND     | "                                     |             |
| 2,4,6-Trichlorophenol                            | 11        | 11       | 11       |              | 0.200     | ND     | **                                    | •           |
| Surrogate: 2-FP                                  | ,,        |          | "        | 19.0-141     | 0.200     | 64.7   | %                                     |             |
| Surrogate: Phenol-d6                             | "         | "        | "        | 44.0-128     |           | 65.0   | "                                     |             |
| Surrogate: 2,4,6-TBP                             | ,,        | <b>,</b> | "        | 10.0-137     |           | 74.2   | "                                     | . *         |
| Surrogate: 2,4,0-1 BF Surrogate: Nitrobenzene-d5 | ,,        | "        | ,,       | 33.0-108     |           | 54.4   | "                                     |             |
|                                                  | "         | "        | "        | 51.0-124     |           | 71.2   | , , , , , , , , , , , , , , , , , , , |             |
| Surrogate: 2-FBP                                 | ,,        | ,,       | "        |              |           | 80.6   | ,,                                    |             |
| Surrogate: p-Terphenyl-d14                       |           |          | ••       | 48.0-149     |           | ov.0   |                                       |             |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Project: Tumwater Brewhouse

Sampled: 1/16/97 Received: 1/17/97

Redmond, WA 98052

Project Number: 1287-02 Project Manager: Rick Osgood

Reported: 2/3/97 07:34

### Dry Weight Determination North Creek Analytical - Bothell

| Sample Name  | Lab ID     | Matrix    | Result | Units |
|--------------|------------|-----------|--------|-------|
| Tumwater-CS1 | B701213-01 | Soil      | 87.3   | %     |
| Tumwater-SS1 | B701213-02 | Soil      | 61.8   | %     |
| Tumwater-SS2 | B701213-03 | Soil      | 73.3   | %     |
| Tumwater-SS3 | B701213-04 | Soil      | 64.2   | %     |
| Tumwater-SD1 | B701213-06 | Other dry | 64.9   | %     |
| Tumwater-SS5 | B701213-07 | Soil      | 72.1   | %     |
| Tumwater-SS6 | B701213-08 | Soil      | 72.7   | %     |
| Tumwater-SS7 | B701213-09 | Soil      | 68.8   | %     |

North Creek Analytical, Inc.



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 5400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse Project Number:

1287-02

Project Manager: Rick Osgood Sampled: 1/16/97

Received: 1/17/97

Reported: 2/3/97 07:34

### Hydrocarbon Identification by Washington DOE Method WTPH-HCID/Quality Control North Creek Analytical - Bothell

|                              | Date              | Spike       | Sample   | QC     | Re         | porting Limit R | Recov. RP     | D RPD | )      |
|------------------------------|-------------------|-------------|----------|--------|------------|-----------------|---------------|-------|--------|
| Analyte                      | Analyzed          | Level       | Result   | Result | Units      | Recov. Limits   | % Lin         | nit % | Notes* |
|                              |                   |             |          |        |            |                 |               |       |        |
| Batch: 0170331               | <u>Date Prepa</u> | red: 1/20/9 | <u> </u> |        | Extraction | n Method: HCII  | <u>) (WA)</u> |       |        |
| <u>Blank</u>                 | 0170331-BI        | <u>LK1</u>  |          |        |            |                 |               |       |        |
| Gasoline Range Hydrocarbons  | 1/20/97           |             |          | ND     | mg/kg dry  | 20.0            |               |       | •      |
| Diesel Range Hydrocarbons    |                   |             |          | ND     | ••         | 50.0            |               |       | •      |
| Heavy Oil Range Hydrocarbons |                   |             |          | ND     | 11         | 100             |               |       |        |
| Surrogate: 2-FBP             | "                 | DET         |          | DET    | "          | 50.0-150        | 116           | ,     |        |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Project: Tumwater Brewhouse

Sampled: 1/16/97

Redmond, WA 98052

Project Number: 1287-02 Project Manager: Rick Osgood Received: 1/17/97 Reported: 2/3/97 07:34

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

|                  | Date                | Spike               | Sample           | QC                 | Re                 | porting Limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Recov.           | RPD        | RPD  |        |
|------------------|---------------------|---------------------|------------------|--------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------|------|--------|
| Analyte          | Analyzed            | Level               | Result           | Result             | Units              | Recov. Limits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | %                | Limit      | %    | Notes* |
|                  |                     |                     |                  | Sec. 1             |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |            |      |        |
| Batch: 0170358   | Date Prepa          |                     | <u>7</u>         |                    | Extraction         | Method: BrC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | I Digest         | <u>ion</u> | ¥    |        |
| <u>Blank</u>     | 0170358-BI          | <u>LK1</u>          |                  |                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |            | •    |        |
| Mercury          | 1/20/97             |                     |                  | ND                 | mg/kg dry          | 0.0500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | F 12             |            |      |        |
| LCS              | 0170358-BS          | 31                  |                  |                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |            |      |        |
| Mercury          | 1/20/97             | 0.25                | 44.1             | <b>∴</b> 0.262     | → mg/kg dry        | 80.0-120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 105              |            |      |        |
| Moreary          | 1/20/57             | 0.25                |                  | .) . <b>V.2U</b> Z | → mg/kg/ury        | 80.0-120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 105              |            | ٠,   |        |
| <u>Duplicate</u> | 0170358-DI          | U <b>P1</b> B7      | <u>01213-01</u>  |                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 9                |            |      |        |
| Mercury          | 1/20/97             |                     | ND               | ND                 | mg/kg dry          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | e eje            | 20.0       |      |        |
|                  |                     |                     |                  |                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |            |      |        |
| Matrix Spike     | 0170358-M           | <u>S1</u> <u>B7</u> | <u>/01213-01</u> |                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |            |      |        |
| Mercury          | 1/20/97             | 0.286               | ND               | 0.364              | mg/kg dry          | 80.0-120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 127              | •          | •    | 4      |
|                  |                     |                     |                  |                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |            |      |        |
| Matrix Spike Dup | 0170358-M           | SD1 <u>B</u> 7      | 01213-01         |                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |            |      |        |
| Mercury          | 1/20/97             | 0.286               | ND               | 0.369              | mg/kg dry          | 80.0-120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 129              | 20.0       | 1.56 | 4      |
|                  |                     |                     |                  | 47. 7.             |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |            |      |        |
| Batch: 0170361   | Date Prepa          |                     | <u> 7</u>        |                    | Extraction         | Method: EPA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 3050             |            |      |        |
| <u>Blank</u>     | <u>0170361-BI</u>   | <u>K1</u>           |                  |                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |            |      |        |
| Arsenic          | 1/21/97             |                     |                  | ND*                | mg/kg dry          | 10.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                  |            |      |        |
| Barium           | "                   |                     |                  | ND.                |                    | 0.500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>1</b> -       |            |      |        |
| Cadmium          |                     |                     |                  | ND.                | Marine Contraction | 0.250                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                  |            |      |        |
| Chromium         |                     |                     |                  | ND.                |                    | 0.500                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                  |            |      |        |
| Lead             | "                   |                     |                  | ND                 |                    | 10.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                  |            |      |        |
| Selenium         |                     |                     |                  | ND                 |                    | 7.50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                  |            |      |        |
| Silver           | 1/22/97             |                     |                  | ND.                |                    | 1.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                  |            |      |        |
| X 00             | 04 <b>5</b> 0264 D6 |                     |                  |                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |            |      |        |
| LCS              | 0170361-BS          |                     |                  | 36.9               | me/kg/dry          | 70.0-130                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 72.0             |            |      |        |
| Arsenic          | 1/21/97             | 50<br>50            | 4                | 37.1               | THE NEW Y          | 70.0-130                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 73.8             |            |      |        |
| Barium           |                     | 50                  |                  | 36.62              |                    | 70.0-130                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 74.2<br>73.2     | · ·        |      |        |
| Character        | . "                 | 50                  |                  | 389                |                    | 70.0-130<br>70.0-130                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | grand the second |            |      |        |
| Chromium<br>Lead | "                   | 50<br>50            |                  | 17.0               |                    | 70.0-130<br>70.0-130                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 77.8<br>75.8     |            |      |        |
|                  | ,                   |                     |                  | 391                |                    | 70.0-130                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 73.8<br>78.2     |            |      |        |
| Selenium         | 1/00/05             | 50                  |                  | 117                | A Company          | 75:0-136<br>75:0-125                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | A. T             |            | •    |        |
| Silver           | 1/22/97             | 12.5                |                  | 11.                |                    | - /v.U-143                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 93.6             |            |      |        |
| <u>Duplicate</u> | 0170361-DI          | IP1 R7              | 01211-02         |                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |            |      |        |
| Arsenic          | 1/21/97             | <u> </u>            | ND               | ND                 | mg/kg dry          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  | 20.0       |      |        |
| Barium           | 1/21/9/             |                     | 47.7             | 40.0               |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  | 20.0       | 13.7 |        |
| Cadmium          | "                   | *                   | ND               | ND.                |                    | VALUE OF THE PROPERTY OF THE P |                  | 20.0       | 13.7 |        |
| Cadimuni         |                     |                     |                  |                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ¥.,              | 20.0       |      |        |

North Creek Analytical, Inc.

description of report for text of notes and definitions.

Project Manager

18939 120th Avenue N.E., Suite 101, Scipil (1998) East 11115 Montgomery, Suite B, Spolance W. S. S. 9405 S.W. Nimbus Avenue, Beaventer, 18, 77(18)



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc.

Project: Tumwater Brewhouse

Sampled: 1/16/97

15400 NE 90th, Ste 100 Redmond, WA 98052

Project Number: 1287-02
Project Manager: Rick Osgood

Received: 1/17/97

Received: 1/17/97
Reported: 2/3/97 07:34

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

| Analyte                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | RPD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chromium         1/21/97         17.9         15.7         mg/kg dry         20.0           Lead         "ND ND ND ND "         20.0           Selenium         ND ND ND "         20.0           Silver         1/22/97 ND ND ND "         20.0           Matrix Spike         0170361-MS1 B701211-02         85.8 ND 45.7 mg/kg dry 60.0-140 77.7         77.7           Barium         "58.8 ND 45.7 mg/kg dry 70.0-130 77.4         70.0-130 73.6         77.0-130 73.6           Chromium         "58.8 ND 43.3 " 70.0-130 73.6         76.0         70.0-130 73.6           Chromium         "58.8 ND 50.2 " 70.0-130 76.0         85.4           Selenium         "58.8 ND 50.2 " 70.0-130 76.0         85.4           Silver         1/22/97 14.7 ND 15.2 " 75.0-125 103           Matrix Spike         0170361-MS2 870211-02         87.0-125 103           Arsenic         1/21/97 118 ND 102 mg/kg dry 60.0-140 86.4           Barium         " 118 ND 104 " 70.0-130 94.3           Cadmium         " 118 ND 104 " 70.0-130 98.1           Chromium         " 118 ND 104 " 70.0-130 98.1           Lead         " 118 ND 104 " 70.0-130 88.1           Selenium         " 118 ND 104 " 70.0-130 88.1           Selenium         " 118 ND 104 " 70.0-130 88.1           Selenium                                    | % Notes*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Chromium         1/21/97         17.9         15.7         mg/kg dry         20.0           Lead         "         ND         ND         "         20.0           Selenium         "         ND         ND         "         20.0           Silver         1/22/97         ND         ND         "         20.0           Matrix Spike         0170361-MS1         B701211-02         B701211-02         B701211-02         B701211-02         To.0-130         To.0-130         To.7         D7.7         D7.7         D7.7         D8.8         ND         45.7         mg/kg dry         60.0-140         77.7         D7.7         D7.0         D8.0         D8.0         D8.0         D8.0         D8.0         D8.0         D8.0         D8.0         D8.0         D7.0         D7.0         D7.0         D7.0         D7.0         D8.0         D8.0 <td></td>                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ND ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Sclenium         " ND ND ND "         20.0           Silver         1/22/97         ND ND ND "         20.0           Matrix Spike         0170361-MS1         B701211-02         ND 45.7         mg/kg dry 60.0-140         77.7           Barium         " 58.8         ND 43.3         " 70.0-130         77.4           Cadmium         " 58.8         ND 43.3         " 70.0-130         73.6           Chromium         " 58.8         ND 43.3         " 70.0-130         76.0           Lead         " 58.8         ND 50.2         " 70.0-130         85.4           Selenium         " 58.8         ND 42.9         60.0-140         73.0           Silver         1/22/97         14.7         ND 15.2         " 75.0-125         103           Matrix Spike         0170361-MS2         B701211-02         Matrix Spike         0170361-MS2         B701211-02         Matrix Spike         0170361-MS2         ND 104         " 70.0-130         94.3           Cadmium         " 118         ND 104         " 70.0-130         94.3         **           Cadmium         " 118         ND 104         " 70.0-130         94.3           Celenium         " 118         ND 104         " 70.0-130         98.1     <                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Matrix Spike   1/22/97   ND   ND   ND   ND   ND   ND   ND   N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Matrix Spike         0170361-MS1         B701211-02           Arsenic         1/21/97         58.8         ND         45.7         mg/kg dry         60.0-140         77.7           Barium         "58.8         47.7         93.2         70.0-130         77.4           Cadmium         "58.8         ND         43.3         70.0-130         73.6           Chromium         "58.8         ND         62.6         70.0-130         76.0           Lead         "58.8         ND         50.2         70.0-130         76.0           Lead         "58.8         ND         42.9         60.0-140         73.0           Silver         1/22/97         14.7         ND         15.2         75.0-125         103           Marrix Spike         0170361-MS2         B701211-02         86.4         86.4         86.4           Barium         "118         ND         102         mg/kg dry         60.0-140         86.4           Cadmium         "118         ND         104         "70.0-130         94.3           Chromium         "118         ND         104         "70.0-130         90.8           Lead         "118         ND         104 <t< td=""><td></td></t<>                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Matrix Spike         0170361-MS1         B701211-02           Arsenic         1/21/97         58.8         ND         45.7         mg/kg dry         60.0-140         77.7           Barium         "58.8         47.7         93.2         "70.0-130         77.4           Cadmium         "58.8         ND         43.3         "70.0-130         73.6           Chromium         "58.8         ND         62.6         "70.0-130         76.0           Lead         "58.8         ND         50.2         70.0-130         85.4           Selenium         "58.8         ND         42.9         60.0-140         73.0           Silver         1/22/97         14.7         ND         15.2         "75.0-125         103           Matrix Spike         0170361-MS2         B701211-02         B701211-02         B80.0         42.9         60.0-140         86.4           Barium         "118         ND         102         mg/kg dry         60.0-140         86.4           Barium         "118         ND         104         "70.0-130         94.3           Cadmium         "118         ND         104         "70.0-130         90.8           Lead                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Arsenic       1/21/97       58.8       ND       45.7       mg/kg dry       60.0-140       77.7         Barium       "       58.8       47.7       93.2       "       70.0-130       77.4         Cadmium       "       58.8       ND       43.3       "       70.0-130       73.6         Chromium       "       58.8       ND       43.3       "       70.0-130       73.6         Chromium       "       58.8       ND       50.2       "       70.0-130       76.0         Lead       "       58.8       ND       50.2       "       70.0-130       85.4         Selenium       "       58.8       ND       42.9       "       60.0-140       73.0         Silver       1/22/97       14.7       ND       15.2       "       75.0-125       103         Matrix Spike       0170361-MS2       B701211-02         Arsenic       1/21/97       118       ND       104       "       70.0-130       94.3         Cadmium       "       118       ND       104       "       70.0-130       90.8         Lead       "       118       ND       104       "                                                                                                                                                                                                                                                                       | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Barium       "       58.8       47.7       93.2       "       70.0-130       77.4         Cadmium       "       58.8       ND       43.3       "       70.0-130       73.6         Chromium       "       58.8       ND       62.6       "       70.0-130       76.0         Lead       "       58.8       ND       50.2       "       70.0-130       85.4         Selenium       "       58.8       ND       42.9       "       60.0-140       73.0         Silver       1/22/97       14.7       ND       15.2       "       75.0-125       103         Matrix Spike       0170361-MS2       B701211-02       B701211-02         Arsenic       1/21/97       118       ND       104       "       70.0-130       94.3         Cadmium       "       118       ND       104       "       70.0-130       98.1         Chromium       "       118       ND       104       "       70.0-130       98.1         Lead       "       118       ND       104       "       70.0-130       88.1         Selenium       "       118       ND       104       "                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Sarium       " 58.8 ND 43.3 " 70.0-130 73.6         Chromium       " 58.8 ND 43.3 " 70.0-130 73.6         Chromium       " 58.8 ND 50.2 " 70.0-130 85.4         Selenium       " 58.8 ND 42.9 " 60.0-140 73.0         Silver       1/22/97 14.7 ND 15.2 " 75.0-125 103         Matrix Spike       0170361-MS2 B701211-02         Arsenic       1/21/97 118 ND 102 mg/kg dry 60.0-140 86.4         Barium       " 118 A7.7 159 " 70.0-130 94.3         Cadmium       " 118 ND 104 " 70.0-130 88.1         Chromium       " 118 ND 104 " 70.0-130 88.1         Lead       " 118 ND 104 " 70.0-130 88.1         Selenium       " 118 ND 104 " 70.0-130 70.0-130 70.0 70.0 70.0 70.0 70.0 70.0 70.0 70                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Chromium       "       58.8       17.9       62.6       "       70.0-130       76.0         Lead       "       58.8       ND       50.2       "       70.0-130       85.4         Selenium       "       58.8       ND       42.9       "       60.0-140       73.0         Silver       1/22/97       14.7       ND       15.2       "       75.0-125       103         Matrix Spike       0170361-MS2       B701211-02         Arsenic       1/21/97       118       ND       102       mg/kg dry       60.0-140       86.4         Barium       "       118       ND       104       "       70.0-130       94.3         Cadmium       "       118       ND       104       "       70.0-130       88.1         Chromium       "       118       ND       104       "       70.0-130       90.8         Lead       "       118       ND       104       "       70.0-130       88.1         Selenium       "       118       ND       104       "       60.0-140       88.1         Matrix Spike Dup       0170361-MSD1       B701211-02       B701211-02       B70121                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Lead       "       58.8       ND       50.2       "       70.0-130       85.4         Selenium       "       58.8       ND       42.9       "       60.0-140       73.0         Silver       1/22/97       14.7       ND       15.2       "       75.0-125       103         Matrix Spike       0170361-MS2       B701211-02       B8.1       B8.1 <t< td=""><td></td></t<>                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Selenium       "       58.8       ND       42.9       "       60.0-140       73.0         Silver       1/22/97       14.7       ND       15.2       "       75.0-125       103         Matrix Spike       0170361-MS2       B701211-02       B8701211-02       B8701211-02       B8.4       B8.4       B9701211-02       B9701211-02 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Matrix Spike       0170361-MS2       B701211-02         Arsenic       1/21/97       118       ND       102       mg/kg dry       60.0-140       86.4         Barium       "       118       47.7       159       "       70.0-130       94.3         Cadmium       "       118       ND       104       "       70.0-130       98.1         Chromium       "       118       17.9       125       "       70.0-130       90.8         Lead       "       118       ND       104       "       70.0-130       88.1         Selenium       "       118       ND       104       "       70.0-130       88.1         Matrix Spike Dup       "       118       ND       104       "       60.0-140       88.1         Matrix Spike Dup       0170361-MSD1       B701211-02       B701211-02       A70.0-130       47.4       20.0         Barium       "       58.8       ND       41.3       mg/kg dry       60.0-140       70.2       20.0         Cadmium       "       58.8       ND       42.5       "       70.0-130       72.3       20.0                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Matrix Spike         0170361-MS2         B701211-02           Arsenic         1/21/97         118         ND         102         mg/kg dry         60.0-140         86.4           Barium         ,"         118         47.7         159         "         70.0-130         94.3           Cadmium         "         118         ND         104         "         70.0-130         88.1           Chromium         "         118         ND         104         "         70.0-130         90.8           Lead         "         118         ND         104         "         70.0-130         88.1           Selenium         "         118         ND         104         "         60.0-140         88.1           Matrix Spike Dup         0170361-MSD1         B701211-02         B701211-02         Arsenic         1/21/97         58.8         ND         41.3         mg/kg dry         60.0-140         70.2         20.0           Barium         "         58.8         ND         42.5         "         70.0-130         47.4         20.0           Cadmium         "         58.8         ND         42.5         "         70.0-130         72.3         20.0                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Arsenic       1/21/97       118       ND       102       mg/kg dry       60.0-140       86.4         Barium       ,"       118       47.7       159       "       70.0-130       94.3         Cadmium       "       118       ND       104       "       70.0-130       88.1         Chromium       "       118       ND       104       "       70.0-130       90.8         Lead       "       118       ND       104       "       70.0-130       88.1         Selenium       "       118       ND       104       "       60.0-140       88.1         Matrix Spike Dup       0170361-MSD1       B701211-02       B701211-02         Arsenic       1/21/97       58.8       ND       41.3       mg/kg dry       60.0-140       70.2       20.0         Barium       "       58.8       ND       41.3       mg/kg dry       60.0-140       70.2       20.0         Cadmium       "       58.8       ND       42.5       "       70.0-130       72.3       20.0                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Arsenic       1/21/97       118       ND       102       mg/kg dry       60.0-140       86.4         Barium       ,"       118       47.7       159       "       70.0-130       94.3         Cadmium       "       118       ND       104       "       70.0-130       88.1         Chromium       "       118       ND       104       "       70.0-130       90.8         Lead       "       118       ND       104       "       70.0-130       88.1         Selenium       "       118       ND       104       "       60.0-140       88.1         Matrix Spike Dup       0170361-MSD1       B701211-02       B701211-02         Arsenic       1/21/97       58.8       ND       41.3       mg/kg dry       60.0-140       70.2       20.0         Barium       "       58.8       ND       41.3       mg/kg dry       60.0-140       70.2       20.0         Cadmium       "       58.8       ND       42.5       "       70.0-130       72.3       20.0                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Barium       ,"       118       47.7       159       "       70.0-130       94.3         Cadmium       "       118       ND       104       "       70.0-130       88.1         Chromium       "       118       17.9       125       "       70.0-130       90.8         Lead       "       118       ND       104       "       70.0-130       88.1         Selenium       "       118       ND       104       "       60.0-140       88.1         Matrix Spike Dup       0170361-MSD1       B701211-02       B701211-02         Arsenic       1/21/97       58.8       ND       41.3       mg/kg dry       60.0-140       70.2       20.0         Barium       "       58.8       47.7       75.6       "       70.0-130       47.4       20.0         Cadmium       "       58.8       ND       42.5       "       70.0-130       72.3       20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Cadmium       "       118       ND       104       "       70.0-130       88.1         Chromium       "       118       17.9       125       "       70.0-130       90.8         Lead       "       118       ND       104       "       70.0-130       88.1         Selenium       "       118       ND       104       "       60.0-140       88.1         Matrix Spike Dup       0170361-MSD1       B701211-02       B701211-02         Arsenic       1/21/97       58.8       ND       41.3       mg/kg dry       60.0-140       70.2       20.0         Barium       "       58.8       47.7       75.6       "       70.0-130       47.4       20.0         Cadmium       "       58.8       ND       42.5       "       70.0-130       72.3       20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Chromium       "       118       17.9       125       "       70.0-130       90.8         Lead       "       118       ND       104       "       70.0-130       88.1         Selenium       "       118       ND       104       "       60.0-140       88.1         Matrix Spike Dup       0170361-MSD1       B701211-02                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Lead       "       118       ND       104       "       70.0-130       88.1         Selenium       "       118       ND       104       "       60.0-140       88.1         Matrix Spike Dup       0170361-MSD1       B701211-02                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Matrix Spike Dup       0170361-MSD1       B701211-02         Arsenic       1/21/97       58.8       ND       41.3       mg/kg dry       60.0-140       70.2       20.0         Barium       "       58.8       47.7       75.6       "       70.0-130       47.4       20.0         Cadmium       "       58.8       ND       42.5       "       70.0-130       72.3       20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Matrix Spike Dup         0170361-MSD1         B701211-02           Arsenic         1/21/97         58.8         ND         41.3         mg/kg dry         60.0-140         70.2         20.0           Barium         "         58.8         47.7         75.6         "         70.0-130         47.4         20.0           Cadmium         "         58.8         ND         42.5         "         70.0-130         72.3         20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Matrix Spike Dup         0170361-MSD1         B701211-02           Arsenic         1/21/97         58.8         ND         41.3         mg/kg dry         60.0-140         70.2         20.0           Barium         "         58.8         47.7         75.6         "         70.0-130         47.4         20.0           Cadmium         "         58.8         ND         42.5         "         70.0-130         72.3         20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Arsenic       1/21/97       58.8       ND       41.3       mg/kg dry       60.0-140       70.2       20.0         Barium       "       58.8       47.7       75.6       "       70.0-130       47.4       20.0         Cadmium       "       58.8       ND       42.5       "       70.0-130       72.3       20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | . '                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Arsenic       1/21/97       58.8       ND       41.3       mg/kg dry       60.0-140       70.2       20.0         Barium       "       58.8       47.7       75.6       "       70.0-130       47.4       20.0         Cadmium       "       58.8       ND       42.5       "       70.0-130       72.3       20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Barium " 58.8 47.7 75.6 " 70.0-130 47.4 20.0 Cadmium " 58.8 ND 42.5 " 70.0-130 72.3 20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 10.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Cadmium " 58.8 ND 42.5 " 70.0-130 72.3 20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | the state of the s |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Chromium " 58.8 17.9 59.8 " 70.0-130 71.3 20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Lead " 58.8 ND 44.5 " 70.0-130 75.7 20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Selenium " 58.8 ND 40.3 " 60.0-140 68.5 20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Silver 1/22/97 14.7 ND 13.8 " 75.0-125 93.9 20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

North Creek Analytical, Inc.

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



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

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse
Project Number: 1287-02

Project Manager: Rick Osgood

Sampled: 1/16/97

Received: 1/17/97

Reported: 2/3/97 07:34

# Polychlorinated Biphenyls by EPA Method 8081/Quality Control North Creek Analytical - Bothell

|                  | Date              | Spike         | Sample    | QC     | Rej               | porting Limit | Recov.                                | RPD   | RPD         |        |
|------------------|-------------------|---------------|-----------|--------|-------------------|---------------|---------------------------------------|-------|-------------|--------|
| Analyte          | Analyzed          | Level         | Result    | Result | Units             | Recov. Limits | %                                     | Limit | %           | Notes* |
| \$ # T           |                   |               |           |        |                   |               |                                       |       |             | 1 1    |
| Batch: 0170407   | Date Prepa        | red: 1/23/9   | <u> </u>  |        | Extraction        | Method: EPA   | <u> 3550</u>                          |       |             | •      |
| <u>Blank</u>     | <u>0170407-BI</u> | <u>.K1</u>    | •         |        |                   |               |                                       |       |             | 1,2    |
| Aroclor 1016     | 1/30/97           |               |           | ND     | ug/kg dry         | 50.0          |                                       |       |             |        |
| Aroclor 1221     | "                 | •             | •         | ND     | , n               | 50.0          |                                       | v .   |             |        |
| Aroclor 1232     | #<br>*:           |               |           | ND     |                   | 50.0          |                                       |       |             |        |
| Aroclor 1242     | ń                 | * .           |           | ND     | II .              | 50.0          |                                       |       | •           |        |
| Aroclor 1248     | H is              |               |           | ND     | •                 | 50.0          |                                       |       |             | 1 1    |
| Aroclor 1254     | <b>m</b>          |               |           | ND     | Program           | 50.0          |                                       |       | ng formula. |        |
| Aroclor 1260     | 19                |               |           | ND     |                   | 50.0          | e e e e e e e e e e e e e e e e e e e |       |             |        |
| Surrogate: TCX   | "                 | 6.67          |           | 6.32   | "                 | 38.0-117      | 94.8                                  |       |             |        |
|                  |                   |               |           |        |                   |               |                                       |       |             | 2.3    |
| <u>LCS</u>       | 0170407-BS        | <u> </u>      |           |        |                   |               |                                       |       | •           | 1,2    |
| Aroclor 1260     | 1/30/97           | 333           |           | 304    | ug/kg dry         | 37.0-98.0     | 91.3                                  |       |             |        |
| Surrogate: TCX   | "                 | 6.67          |           | 5.93   | "                 | 38.0-117      | 88.9                                  |       |             |        |
|                  |                   |               |           |        |                   |               |                                       |       |             |        |
| Matrix Spike     | 0170407-M         | <u>81 B7</u>  | 701213-07 |        |                   |               |                                       |       |             | 1,2    |
| Aroclor 1260     | 1/30/97           | 462           | ND        | 345    | ug/kg dry         | 37.0-98.0     | 74.7                                  |       |             |        |
| Surrogate: TCX   | "                 | 9.25          | 4.5       | 10.2   | "                 | 38.0-117      | 110                                   |       |             |        |
| 0.000            |                   |               |           |        |                   |               |                                       | . •   |             |        |
| Matrix Spike Dup | 0170407-M         | SD1 <u>B7</u> | 01213-07  |        |                   |               |                                       |       |             | 1,2    |
| Aroclor 1260     | 1/30/97           | 462           | ND        | 329    | ug/kg dry         | 37.0-98.0     | 71.2                                  | 38.0  | 4.80        |        |
| Surrogate: TCX   | "                 | 9.25          |           | 9.96   | <del>"</del>      | 38.0-117      | 108                                   |       |             |        |
|                  |                   |               |           |        | Carlotte State of |               |                                       |       |             |        |

North Creek Analytical, Inc.

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



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

Project: Tumwater Brewhouse ra Tech, Inc. 00 NE 90th, Ste 100 Project Number: 1287-02 lmond, WA 98052 Project Manager: Rick Osgood

1/17/97 Reported: 2/3/97 07:34

### Volatile Organic Compounds by EPA Method 8240B/Quality Control. North Creek Analytical - Bothell

|                       | Date       | Spike Sample   | QC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Ren                                            | orting Limit R | ecov. RPD                                                                                                                 | RPD                                     |
|-----------------------|------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| alyte                 | Analyzed   | Level Result   | Result                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                | Recov. Limits  | % Limit                                                                                                                   | % Notes*                                |
| 0.150503              | D-4 D      |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                |                |                                                                                                                           |                                         |
| ch: 0170502           |            | red: 1/26/97   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Extraction</b>                              | Method: MeO    | H Extraction                                                                                                              |                                         |
| <u>nk</u>             | 0170502-B  | <u>LKI</u>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 100                                            |                |                                                                                                                           |                                         |
| tone                  | 1/27/97    |                | ND.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | mg/kg dry                                      | 2.00           |                                                                                                                           |                                         |
| zene                  |            |                | ⇒ ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 11.                                            | 0.200          |                                                                                                                           |                                         |
| modichloromethane     |            |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                | 0.200          | 41.                                                                                                                       |                                         |
| moform                | "          |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                | 0.200          |                                                                                                                           |                                         |
| momethane             | . "        |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | " 2                                            | 0.200          |                                                                                                                           |                                         |
| utanone               | "          |                | · · ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Ha                                             | 2.00           |                                                                                                                           |                                         |
| bon disulfide         | **         |                | E ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>n</b>                                       | 0.200          |                                                                                                                           |                                         |
| bon tetrachloride     | "          |                | : ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 10±                                            | 0.200          |                                                                                                                           |                                         |
| orobenzene            | H          |                | . ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                | 0.200          |                                                                                                                           |                                         |
| oroethane             |            |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                | 0.200          |                                                                                                                           |                                         |
| oroform               | *          |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                | 0.200          |                                                                                                                           |                                         |
| oromethane            |            |                | 'ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 16                                             | 0.200          |                                                                                                                           |                                         |
| romochloromethane     |            |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | H .                                            | 0.200          |                                                                                                                           |                                         |
| Dichloroethane        | **         |                | ∑ ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | u.                                             | 0.200          |                                                                                                                           |                                         |
| Dichloroethane        | 11         |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | •                                              | 0.200          |                                                                                                                           |                                         |
| Dichloroethene        | 11         |                | ° ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                | 0.200          | ting<br>Visit                                                                                                             |                                         |
| 1,2-Dichloroethene    | **         |                | . ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                | 0.200          | 원 경기의 :<br>- 1112년 - 1212년 - 1212 |                                         |
| s-1,2-Dichloroethene  | 11         |                | ⊒ ∰ ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                | 0.200          |                                                                                                                           |                                         |
| Dichloropropane       | 11         |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | . 10                                           | 0.200          |                                                                                                                           |                                         |
| 1,3-Dichloropropene   |            | a c            | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                | 0.200          |                                                                                                                           |                                         |
| s-1,3-Dichloropropene | H          |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | •                                              | 0.200          |                                                                                                                           |                                         |
| ylbenzene             | ı <b>y</b> |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                | 0.200          | er en                                                                                 |                                         |
| exanone               | n          |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.50                                           | 2.00           |                                                                                                                           |                                         |
| thylene chloride      | ,          | Season Company | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                | 2.00<br>1.00   | lan, et e                                                                                                                 |                                         |
|                       | ,,         |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | •                                              |                |                                                                                                                           |                                         |
| fethyl-2-pentanone    | **         |                | ND ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                | 2.00           | 2                                                                                                                         |                                         |
| rene                  | . " ,      |                | ND ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                | 0.200          |                                                                                                                           | 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - |
| 2,2-Tetrachloroethane |            |                | A COLUMN TO THE PARTY OF THE PA |                                                | 0.200          |                                                                                                                           |                                         |
| rachloroethene        | "          |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                | 0.200          |                                                                                                                           |                                         |
| uene                  | n .        |                | ND ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                | 0.200          |                                                                                                                           |                                         |
| 1-Trichloroethane     | n          |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                | 0.200          |                                                                                                                           | <b>.</b><br>                            |
| 2-Trichloroethane     | U ,        |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                | 0.200          |                                                                                                                           |                                         |
| chloroethene          | n .        |                | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                | 0.200          |                                                                                                                           |                                         |
| yl chloride           | "          |                | ND ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                | 0.200          |                                                                                                                           | -                                       |
| enes (total)          |            | 1940           | , ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>"</b> , , , , , , , , , , , , , , , , , , , | 0.400          | •                                                                                                                         |                                         |
| rogate: 1,2-DCA-d4    | "          | 2.5            | 2.12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                | 70.0-130       | 84.8                                                                                                                      |                                         |
| rogate: Toluene-d8    | <i>n</i>   | 2.3            | 2.46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                | 70.0-130       | 98.4                                                                                                                      | •                                       |
| rogate: 4-BFB         | "          | 2.5            | 231                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                | 70.0-130       | 92.4                                                                                                                      |                                         |

th Creek Analytical, Inc.

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

tthew Essig, Project Manager

18939 120th Avenue N.E. Suito 1837 Bothell, WA 98011-9508 East 11115 Montgorger, Suite & Stokane, WA 99206-4776 9405 S.W. Nimbus Avenue, Berverton, OR 97008-7132



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Project: Tumwater Brewhouse

Sampled: 1/16/97 Received: 1/17/97

Redmond, WA 98052

Project Number: 1287-02
Project Manager: Rick Osgood

Reported: 2/3/97 07:34

### Volatile Organic Compounds by EPA Method 8240B/Quality Control North Creek Analytical - Bothell

|                       | Date         | Spike        | Sample     | QC.          | R        | eporting Limit | Recov. | RPD   | RPD  |        |
|-----------------------|--------------|--------------|------------|--------------|----------|----------------|--------|-------|------|--------|
| Analyte               | Analyzed     | Level        | Result     | Result       | Units    | Recov. Limits  | %      | Limit | . %  | Notes* |
|                       |              |              |            |              |          |                | -      |       | -    |        |
| Matrix Spike          | 0170502-MS   | 1            | B701213-09 |              |          |                | V 1,   |       |      | •      |
| Benzene               | 1/27/97      | 0.727        | ND         | 0.548        | mg/kg dr | y 70.0-130     | 75.4   |       |      |        |
| Chlorobenzene         | <b>"</b> .   | 0.727        | ND         | 0.535        | n -      | 70.0-130       | 73.6   |       |      |        |
| 1,1-Dichloroethene    |              | 0.727        | ND         | 0.447        | "        | 70.0-130       | 61.5   |       | •    | . 6    |
| Toluene               | "            | 0.727        | ND         | 0.561        | . 10     | 70.0-130       | 77.2   |       |      |        |
| Trichloroethene       | "            | 0.727        | ND         | <b>0.534</b> | 11       | 70.0-130       | 73.5   |       |      |        |
| Surrogate: 1,2-DCA-d4 | <del>"</del> | 3.63         |            | 2.49         | . 11     | 70.0-130       | 68.6   | ·     |      | . 3    |
| Surrogate: Toluene-d8 | ,,           | 3.63         |            | 2.81         | "        | 70.0-130       | 77.4   |       |      |        |
| Surrogate: 4-BFB      | "            | 3.6 <b>3</b> |            | 2.72         |          | 70.0-130       | 74.9   |       |      |        |
|                       |              |              |            |              |          | **             |        | •     |      |        |
| Matrix Spike Dup      | 0170502-MS   | <u>D1</u>    | B701213-09 |              |          |                |        |       |      |        |
| Benzene               | 1/27/97      | 0.727        | ND         | 0.565        | mg/kg dr | y 70.0-130     | 77.7   | 15.0  | 3.00 |        |
| Chlorobenzene         | n            | 0.727        | ND         | 0.572        | "        | 70.0-130       | 78.7   | 15.0  | 6.70 |        |
| 1,1-Dichloroethene    | "            | 0.727        | ND         | 0.484        | "        | 70.0-130       | 66.6   | 15.0  | 7.96 | 6      |
| Toluene               | "            | 0.727        | ND         | 0.594        |          | 70.0-130       | 81.7   | 15.0  | 5.66 |        |
| Trichloroethene       | ,            | 0.727        | ND.        | 0.573        | . 11     | 70.0-130       | 78.8   | 15.0  | 6.96 |        |
| Surrogate: 1,2-DCA-d4 | "            | 3.63         |            | 2.62         | " .      | 70.0-130       | 72.2   |       |      |        |
| Surrogate: Toluene-d8 | "            | 3.63         |            | 2.96         | , "      | 70.0-130       | 81.5   |       |      |        |
| Surrogate: 4-BFB      | "            | 3.63         |            | 2.90         | n        | 70.0-130       | 79.9   |       |      |        |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100

Project: Project Number:

Tumwater Brewhouse

Sampled: 1/16/97 Received: 1/17/97

Redmond, WA 98052

1287-02 Project Manager: Rick Osgood

Reported: 2/3/97 07:34

### Semivolatile Organic Compounds by EPA Method 8270/Quality Control North Creek Analytical - Bothell

|                             | Date              | Spike      | Sample   | QC                                      | Reporting                | z Limit |        | RPD   | RPD                                                                                                           |
|-----------------------------|-------------------|------------|----------|-----------------------------------------|--------------------------|---------|--------|-------|---------------------------------------------------------------------------------------------------------------|
| Analyte                     | Analyzed          | Level      | Result   | Result                                  | Units Recov.             | Limits  | %      | Limit | % Notes*                                                                                                      |
| 1                           |                   |            |          |                                         |                          |         |        | 140   |                                                                                                               |
| Batch: 0170479              | Date Prepar       |            | <u>7</u> |                                         | Extraction Meth-         | od: EP  | A 3550 |       |                                                                                                               |
| <u>Blank</u>                | <u>0170479-BI</u> | <u>.K1</u> |          | * * * * * * * * * * * * * * * * * * * * |                          |         |        | -     |                                                                                                               |
| Acenaphthene                | 1/28/97           | •          | •        | ND                                      | mg/kg dry                | 0.100   |        |       |                                                                                                               |
| Acenaphthylene              | H                 |            |          | ND                                      | en.                      | 0.100   |        |       |                                                                                                               |
| Aniline                     | H*                |            |          | ND                                      | <b>11</b>                | 0.100   |        |       |                                                                                                               |
| Anthracene                  | H                 |            |          | ND                                      | ,                        | 0.100   |        |       |                                                                                                               |
| Benzoic Acid                |                   |            | ,        | ND                                      | <b>n</b>                 | 0.500   |        |       |                                                                                                               |
| Benzo (a) anthracene        | ii .              |            |          | ND                                      | #                        | 0.100   |        |       |                                                                                                               |
| Benzo (b) fluoranthene      | ff .              |            |          | ND                                      | 11                       | 0.100   |        |       |                                                                                                               |
| Benzo (k) fluoranthene      | **                |            |          | ND                                      |                          | 0.100   | ;      |       |                                                                                                               |
| Benzo (ghi) perylene        | 11                |            |          | ND                                      | <b>11</b>                | 0.100   |        | ,     |                                                                                                               |
| Benzo (a) pyrene            | "                 |            |          | ND                                      | · · ·                    | 0.100   |        |       |                                                                                                               |
| Benzyl alcohol              | **                |            |          | ND                                      | n                        | 0.100   |        |       |                                                                                                               |
| Bis(2-chloroethoxy)methane  | IF .              |            |          | ND                                      | n                        | 0.100   |        |       |                                                                                                               |
| Bis(2-chloroethyl)ether     | 11                |            | •        | ND                                      | H                        | 0.100   | •      | ÷     |                                                                                                               |
| Bis(2-chloroisopropyl)ether | H                 |            |          | ND                                      | n                        | 0.100   |        |       |                                                                                                               |
| Bis(2-ethylhexyl)phthalate  | n                 |            |          | ND                                      | H                        | 0.500   |        |       | · · · · · ·                                                                                                   |
| 4-Bromophenyl phenyl ether  | . H               |            | •        | ND                                      | #                        | 0.100   |        |       |                                                                                                               |
| Butyl benzyl phthalate      | 17                |            |          | ND                                      | #                        | 0.100   |        |       |                                                                                                               |
| Carbazole                   | n.                |            |          | ND                                      | "                        | 0.500   |        |       |                                                                                                               |
| 4-Chloroaniline             | tt                |            |          | ND                                      | . "n                     | 0.100   |        |       |                                                                                                               |
| 2-Chloronaphthalene         | n .               |            |          | ND                                      | Ħ                        | 0.100   |        |       |                                                                                                               |
| 4-Chloro-3-methylphenol     | "                 |            |          | ND                                      | If "                     | 0.100   |        |       |                                                                                                               |
| 2-Chlorophenol              | "                 |            |          | ND                                      | . "                      | 0.100   |        |       |                                                                                                               |
| 4-Chlorophenyl phenyl ether |                   | •          |          | ND                                      | H .                      | 0.100   |        |       |                                                                                                               |
| Chrysene                    | **                |            |          | ND                                      | H                        | 0.100   |        |       |                                                                                                               |
| Dibenzo (a,h) anthracene    | 11                |            |          | ND                                      | H ·                      | 0.100   |        |       |                                                                                                               |
| Dibenzofuran                | n                 | *          |          | ND                                      | Ħ                        | 0.100   |        |       | •                                                                                                             |
| Di-n-butyl phthalate        | . "               |            |          | ND                                      | Ħ                        | 0.500   |        |       |                                                                                                               |
| 1,3-Dichlorobenzene         | "                 | ,          |          | ND                                      | •                        | 0.100   |        |       |                                                                                                               |
| 1,4-Dichlorobenzene         |                   |            | •        | ND                                      |                          | 0.100   |        |       |                                                                                                               |
| 1,2-Dichlorobenzene         | "                 |            |          | ND                                      | "                        | 0.100   | •      |       |                                                                                                               |
| 3,3'-Dichlorobenzidine      | "                 | *          |          | ND                                      | H                        | 5.00    |        |       |                                                                                                               |
| 2,4-Dichlorophenol          | . 11              |            |          | ND                                      | Ħ                        | 0.100   |        |       |                                                                                                               |
| Diethyl phthalate           | "                 |            |          | ND                                      | *                        | 0.100   |        | •     |                                                                                                               |
| 2,4-Dimethylphenol          | 11                | •          |          | ND                                      | "                        | 0.100   |        |       |                                                                                                               |
| Dimethyl phthalate          |                   | •          |          | ND                                      |                          | 0.100   |        |       |                                                                                                               |
| 4,6-Dinitro-2-methylphenol  | 11                |            |          | ND                                      | n                        | 0.500   |        |       |                                                                                                               |
| 2,4-Dinitrophenol           | 0                 | *          |          | ND                                      |                          | 0.500   |        |       | e de la companya de |
|                             |                   |            |          |                                         | Programme and the second |         |        |       |                                                                                                               |

North Creek Analytical, Inc.

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

Matthew Essig, Project Manager

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Tetra Tech, Inc.

15400 NE 90th, Ste 100

Redmond, WA 98052

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

Project: Tumwater Brewhouse Sampled: 1/16/97

Number: 1287-02 Received: 1/17/97

Project Number: 1287-02 Received: 1/17/97
Project Manager: Rick Osgood Reported: 2/3/97 07:34

# Semivolatile Organic Compounds by EPA Method 8270/Quality Control North Creek Analytical - Bothell

|                            | Date              | Spike        | Sample      | QC           |         | Reporting Limit | Recov.       | RPD        | RPD                                   |
|----------------------------|-------------------|--------------|-------------|--------------|---------|-----------------|--------------|------------|---------------------------------------|
| Analyte                    | Analyzed          | Level        | Result      | Result       | Units   | Recov. Limits   | %            | Limit      | % Notes*                              |
|                            |                   |              |             |              |         |                 | . ) .        |            |                                       |
| Blank (continued)          | <u>0170479-BL</u> | <u>K1</u>    |             |              |         |                 |              |            |                                       |
| 2,4-Dinitrotoluene         | 1/28/97           |              |             | ND           | mg/kg c |                 |              |            |                                       |
| 2,6-Dinitrotoluene         | 17                |              |             | ND           | 19      | 0.100           |              |            |                                       |
| Di-n-octyl phthalate       | n .               |              |             | ND           | "       | 0.100           |              |            |                                       |
| Fluoranthene               |                   |              | •           | ND           | n .     | 0.100           |              | . <u>.</u> |                                       |
| Fluorene                   | "                 |              | V.          | ී ND         |         | 0.100           |              |            |                                       |
| Hexachlorobenzene          | "                 | •            |             | ND           |         | 0.100           |              |            |                                       |
| Hexachlorobutadiene        | "                 |              |             | ND           | 0       | 0.100           |              |            |                                       |
| Hexachlorocyclopentadiene  | n n               |              |             | ND           | н       | 0.100           |              |            |                                       |
| Hexachloroethane           | **                | •            |             | ND           | ***     | 0.100           |              |            |                                       |
| Indeno (1,2,3-cd) pyrene   | 11                |              |             | ND.          | n n     | 0.100           |              |            |                                       |
| Isophorone                 | · n               |              |             | ND           | n j     | 0.100           | *.           |            |                                       |
| 2-Methylnaphthalene        |                   |              |             | ND           | Ħ.      | 0.100           |              |            |                                       |
| 2-Methylphenol             | n                 |              |             | ND           | ii      | 0.100           |              |            |                                       |
| 4-Methylphenol             | II .              |              |             | ND           | n .     | 0.100           |              |            |                                       |
| Naphthalene                | n                 |              |             | ND           | n       | 0.100           |              |            |                                       |
| 2-Nitroaniline             | n n               |              |             | ND           | n       | 0.500           |              | ,          |                                       |
| 3-Nitroaniline             | "                 |              | 1.00        | ND           |         | 0.500           |              |            |                                       |
| 4-Nitroaniline             | 11                |              |             | ND           | . "     | 0.500           |              |            |                                       |
| Nitrobenzene               | v.                |              |             | ND           | 11 .    | 0.100           |              |            |                                       |
| 2-Nitrophenol              | "                 | •            |             | ND           | #       | 0.100           |              |            |                                       |
| 4-Nitrophenol              |                   |              |             | ND           | н 1     | 0.500           |              | •          |                                       |
| N-Nitrosodiphenylamine     | #                 |              |             | ND           | н ',    | 0.200           |              |            |                                       |
| N-Nitrosodi-n-propylamine  | н                 |              |             | ND           | "       | 0.100           |              |            |                                       |
| Pentachlorophenol          | ir .              |              | •           | ND           | n .     | 0.500           |              |            |                                       |
| Phenanthrene               |                   |              |             | ND           | n       | 0.100           |              |            |                                       |
| Phenol                     | 11                |              |             | ND           |         | 0.100           |              |            |                                       |
| Pyrene                     | . 11              |              |             | ND           |         | 0.100           |              |            |                                       |
| 1,2,4-Trichlorobenzene     |                   |              | ٠.          | ND           | 11      | 0.100           |              |            | 3111                                  |
| 2,4,5-Trichlorophenol      |                   |              |             | ND           | 19      | 0.500           |              | • .        |                                       |
| 2,4,6-Trichlorophenol      |                   | 100          |             | ND           | н       | 0.100           |              |            |                                       |
| Surrogate: 2-FP            |                   | 3.34         | <del></del> | 2.33         | "       | 19.0-141        | 69.8         | · · ·      | 7 7                                   |
| Surrogate: Phenol-d6       | <b>"</b>          | 3.34         |             | 2.32         | "       | 44.0-128        | 69.5         |            | •                                     |
| Surrogate: 2,4,6-TBP       | "                 | 3.34         |             | 2.60         | ,,      | 10.0-137        | 77.8         |            |                                       |
| Surrogate: Nitrobenzene-d5 | <b>"</b>          | 3.34         |             | 2.33         | ,,      | 33.0-108        | 69.8         |            |                                       |
| Surrogate: Nitrooenzene-as | <b>"</b>          | 3.34<br>3.34 |             | 2.53<br>2.61 | ,,      | 51.0-124        | 78.1         |            |                                       |
|                            | "                 | 3.34         | •           | 2.55         | ,,      | 48.0-149        | 76.1<br>76.3 |            | ٠                                     |
| Surrogate: p-Terphenyl-d14 |                   | 3.34         |             | 2.33         |         | 40.0-149        | /0.3         |            | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Sampled: 1/16/97

Project Number: 1287-02 Project Manager: Rick Osgood Received: 1/17/97 Reported: 2/3/97 07:34

# Semivolatile Organic Compounds by EPA Method 8270/Quality Control North Creek Analytical - Bothell

|                            |              | 0 11           | 0 1      |             |          |                 |              | P.DE  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|--------------|----------------|----------|-------------|----------|-----------------|--------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| S. Juto                    | Date         | Spike          | Sample   | QC          |          | Reporting Limit |              | RPD   | RPD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Analyte                    | Analyzed     | Level          | Result   | Result      | Units    | Recov. Limits   | %            | Limit | % Notes*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| L <u>CS</u>                | 0170479-BS1  |                |          |             |          |                 |              |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Acenaphthene               | 1/28/97      | 3.34           |          | 2.88        | mg/kg dı | y 48.0-110      | 86.2         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 4-Chloro-3-methylphenol    | 1,20,5,      | 6.68           |          | 4.24        | "        | 34.0-115        | 63.5         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 2-Chlorophenol             | **           | 6.69           |          | 4.21        |          | 57.0-110        | 62.9         |       | in the state of th |
| 1,4-Dichlorobenzene        | **           | 3.34           |          | 2.54        | 17       | 39.0-110        | 76.0         |       | *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 2.4-Dinitrotoluene         | ••           | 3.34           |          | 2.88        | H        | 50.0-110        | 86.2         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 4-Nitrophenol              |              | 6.68           |          | 4.89        |          | 26.0-116        | 73.2         |       | and the first                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| N-Nitrosodi-n-propylamine  | n            | 3.35           |          | 3.05        | 11       | 28.0-147        | 91.0         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Pentachlorophenol          | n            | 6.68           |          | 5.04        | H .      | 46.0-120        | 75.4         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Phenol                     | 11           | 6.68           |          | 4.05        |          | 35.0-110        |              |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Pyrene                     | 11           | 3.34           |          | 2.71        | "        | 35.0-143        | 81.1         | 1.    | - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1,2,4-Trichlorobenzene     | n            | 3.35           |          | 2.56        | 11       | 39.0-110        | 76.4         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Surrogate: 2-FP            | "            | 3.34           |          | 2.27        | "        | 19.0-141        | 68.0         |       | · · · · · · · · · · · · · · · · · · ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Surrogate: Phenol-d6       | "            | 3.34           |          | 2.36        | "        | 44.0-128        | 70.7         |       | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Surrogate: 2,4,6-TBP       | <i>n</i> ·   | 3.34           |          | 2.89        | "        | 10.0-137        | 86.5         |       | : -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Surrogate: Nitrobenzene-d5 | "            | <i>3.34</i> √□ |          | 2.29        | "        | 33.0-108        | 68.6         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Surrogate: 2-FBP           | "            | 3.34           |          | 2.69        | "        | 51.0-124        | 80.5         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Surrogate: p-Terphenyl-d14 | "            | 3.34           |          | 2.69        | "        | 48.0-149        | 80.5         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                            |              |                |          |             |          |                 | * .          |       | - * ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Matrix Spike               | 0170479-MS1  | <u>B7</u>      | 01213-06 | * .         |          |                 |              | •     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Acenaphthene               | 1/28/97      | 5.15           | ND       | 4.28        | mg/kg dr | y 34.0-122      | 83.1         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 4-Chloro-3-methylphenol    |              | 10.3           | ND       | 7.20        | 11       | 26.0-129        | 69.9         | ,     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 2-Chlorophenol             |              | 10.3           | ND       | 7.71        | **       | 43.0-131        | 74.9         |       | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| I,4-Dichlorobenzene        | 11           | 5.15           | ND       | 3.29        |          | 34.0-131        | 63.9         |       | •                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 2.4-Dinitrotoluene         | **           | 5.15           | ND       | 3.45        |          | 10.0-126        | 67.0         |       | <del>-</del>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 4-Nitrophenol              | H            | 10.3           | ND       | 6.37        |          | 10.0-111        | 61.8         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| N-Nitrosodi-n-propylamine  | H .          | 5.16           | ND       | 4.34        | n .      | 29.0-160        | 84.1         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Pëntachlorophenol          | ••           | 10.3           | ND       | 6.32        | . #      | 46.0-120        | 61.4         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Phenol                     | "            | 10.3           | ND       | 7.40        | in .     | 41.0-118        | 71.8         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Pyrene                     | **           | 5.15           | ND       | 4.32        | . "      | 44.0-122        | 83.9         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 12,4-Trichlorobenzene      | •            | 5.16           | ND       | 3.96        |          | 10.0-176        | 76.7         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Surrogate: 2-FP            | <del>"</del> | 5.15           |          | 3.46        | "        | 19.0-141        | 67.2         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Surrogate: Phenol-d6       | "            | <i>5.15</i> .  |          | 3.66        | "        | 44.0-128        | 71.1         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Surrogate: 2,4,6-TBP       |              | 5.15           |          | 3.41        | . "      | 10.0-137        | 66.2         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Surrogate: Nitrobenzene-d5 | · " <b>"</b> | 5.15           |          | <i>3.33</i> | "        | 33.0-108        | 64.7         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Surrogate: 2-FBP           | <i>"</i>     | 5.14           |          | 3.96        | <b>"</b> | 51.0-124        | 77. <b>0</b> |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Surrogate: p-Terphenyl-d14 | "            | 5.15           |          | 4.15        | "        | 48.0-149        | 80.6         |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc.Project:Tumwater BrewhouseSampled:1/16/9715400 NE 90th, Ste 100Project Number:1287-02Received:1/17/97Redmond, WA 98052Project Manager:Rick OsgoodReported:2/3/97 07:34

# Semivolatile Organic Compounds by EPA Method 8270/Quality Control North Creek Analytical - Bothell

|                            | Date      | Spike       | Sample     | QC          |                | Reporting Limit | Recov.      | RPD   | RPD   |        |
|----------------------------|-----------|-------------|------------|-------------|----------------|-----------------|-------------|-------|-------|--------|
| Analyte                    | Analyzed  | Level       | Result     | Result      | Units          | Recov. Limits   | %           | Limit | %     | Notes* |
| Matrix Spike Dup           | 0170479-M | SD1         | B701213-06 | •           | • 1            |                 |             |       |       |        |
| Acenaphthene               | 1/28/97   | 5.15        | ND         | 4.88        | mg/kg d        | ry 34.0-122     | 94.8        | 56.0  | 13.2  | - 4    |
| 4-Chloro-3-methylphenol    | tt .      | 10.3        | ND         | 7.25        | 11.            | 26.0-129        | 70.4        | 29.0  | 0.713 | +.**.  |
| 2-Chlorophenol             | 11        | 10.3        | ND         | 7.35        |                | 43.0-131        | 71.4        | 27.0  | 4.78  |        |
| 1,4-Dichlorobenzene        | 17        | 5.15        | ND         | 3.83        | 11             | 34.0-131        | 74.4        | 23.0  | 15.2  |        |
| 2,4-Dinitrotoluene         | **        | 5.15        | ND         | 3.86        | H              | 10.0-126        | 75.0        | 22.0  | 11.3  |        |
| 4-Nitrophenol              | • •       | 10.3        | ND         | 6.48        | H              | 10.0-111        | 62.9        | 43.0  | 1.76  |        |
| N-Nitrosodi-n-propylamine  | **        | 5.16        | ND         | 5.06        | · , #          | 29.0-160        | 98.1        | 25.0  | 15.4  |        |
| Pentachlorophenol          | "         | 10.3        | ND.        | 6.22        | R <sub>.</sub> | 46.0-120        | 60.4        | 29.0  | 1.64  |        |
| Phenol                     | H ·       | 10.3        | ND         | 7.20        | 11             | 41.0-118        | 69.9        | 29.0  | 2.68  |        |
| Pyrene                     | ir        | 5.15        | ND .       | 4.65        | 11             | 44.0-122        | 90.3        | 31.0  | 7.35  | 100    |
| 1,2,4-Trichlorobenzene     | "         | 5.16        | ND ·       | 4.66        | 11             | 10.0-176        | 90.3        | 24.0  | 16.3  |        |
| Surrogate: 2-FP            | "         | 5.15        |            | 4.07        | "              | 19.0-141        | 79.0        |       |       | 4      |
| Surrogate: Phenol-d6       | "         | <i>5.15</i> |            | 4.17        | "              | 44.0-128        | 81.0        |       |       |        |
| Surrogate: 2,4,6-TBP       | "         | 5.15        |            | 4.57        | "              | 10.0-137        | 88.7        | •     |       | **     |
| Surrogate: Nitrobenzene-d5 | . "       | <i>5.15</i> |            | <i>3.88</i> | "              | 33.0-108        | <i>75.3</i> |       |       |        |
| Surrogate: 2-FBP           | "         | 5.14        |            | 4.38        | "              | 51.0-124        | 85.2        |       |       |        |
| Surrogate: p-Terphenyl-d14 | <b>"</b>  | 5.15        |            | 4.58        | " "            | 48.0-149        | 88.9        |       |       |        |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc.

Project: Tumwater Brewhouse
Sampled: 1/16/97

15400 NE 90th, Ste 100
Project Number: 1287-02
Redmond, WA 98052
Project Manager: Rick Osgood
Reported: 2/3/97 07:34

#### Notes and Definitions

| #      | Note                                                                                                                                                                                                                |  |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 1      | To reduce matrix interference, the sample extract has undergone sulfuric acid clean-up, method 3665, which is specific to hydrocarbon contamination.                                                                |  |
| 2      | To reduce matrix interference, the sample extract has undergone copper clean-up, method 3660, which is specific to sulfur contamination.                                                                            |  |
| 3      | The surrogate recovery for this sample is outside of established control limits. Review of associated QC indicates the recovery for this surrogate does not represent an out-of-control condition.                  |  |
| 4      | The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch. |  |
| 5      | The RPD value for this QC sample is above the established control limit. Review of associated QC indicates the high RPD does not represent an out-of-control condition for the batch.                               |  |
| 6      | The spike recovery for this QC sample is outside of NCA established control limits due to sample matrix interference.                                                                                               |  |
| DET    | Analyte DETECTED                                                                                                                                                                                                    |  |
| ND     | Analyte NOT DETECTED at or above the reporting limit                                                                                                                                                                |  |
| NR     | Not Reported                                                                                                                                                                                                        |  |
| dry    | Sample results reported on a dry weight basis                                                                                                                                                                       |  |
| Recov. | Recovery                                                                                                                                                                                                            |  |
| RPD    | Relative Percent Difference                                                                                                                                                                                         |  |

North Creek Analytical, Inc.

DOCUMENT BADIA13

TETRA TECH, INC. 15400 NE 90th, Suite 100 Redmond, Washington 98052 (206) 883-1912 FAX (206) 881-6997

CHAIN OF CUSTODY

Chold for and 1515 TEMPERATURE UPON RECEIPT Sta LA REMARKS 0 7 DATE/TIME 1-[447, Archive 5 57.5 (Signature) CONDITION OF CONTENTS RECEIVED FOR LAB BY REMARKS AIRBILL NO. DATE/TIME DATE/TIME 8 NUMBER OF CONTAINERS 2 **TOTAL NUMBER OF CONTAINERS** 7 3 7 4  $\sim$ S 1-02 RELINQUISHED BY (signature) PROJECT NO. Sediment RECEIVED BY (signature) METHOD OF SHIPMENT MEDIA lio2 Ground Water Surface Water Tumuster Brushouse ΊĀ SAMPLERS: (signature) Figh & Oxylou 1174144640 DATE/TIME DATE/TIME DATE/TIME DATE/TIME DATE 1450 Selection 320 330 335 1430 1420 0/7/ 1245 310 RELINQUISHED BY (signature) RELINOUNGHED BY (signatura) Tumucter-SS6 immeter-557 Amuster - SSS humuster-553 umurter-554 Imustater-SD Imenter-SS2 Rumalater-CS RECEIVED BY (signature) RECEIVED BY (signature) PROJECT NAME .-Tt Contact: SAMPLE ID

Distribution: Original - Lab Copy Yellow copy - Final Tetra Tech Copy

Pink Copy - Field File Copy

### APPENDIX A-2

ANALYTICAL DATA REPORT FOR SAMPLES COLLECTED ON 20 JANUARY 1997



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97

Received: 1/21/97

Reported: 2/4/97 14:16

### ANALYTICAL REPORT FOR SAMPLES:

| Sample Description | Laboratory Sample Number | Sample Matrix | Date Sampled |
|--------------------|--------------------------|---------------|--------------|
| TRIP BLANK         | B701242-01               | Water         | 1/20/97      |
| TUMWATER-SB3-4.0   | B701242-02               | Soil          | 1/20/97      |
| TUMWATER-GW1       | B701242-03               | Water         | 1/20/97      |
| TUMWATER-GW2       | B701242-04               | Water         | 1/20/97      |
| TUMWATER-GW3       | B701242-05               | Water         | 1/20/97      |
| TUMWATER-GW4       | B701242-06               | Water         | 1/20/97      |
| TUMWATER-GW5       | B701242-07               | Water         | 1/20/97      |
| TUMWATER-GW6       | B701242-08               | Water         | 1/20/97      |
| TUMWATER-SB9-3.5   | B701242-09               | Soil          | 1/20/97      |
| TUMWATER-GW7       | B701242-10               | Water         | 1/20/97      |
| TUMWATER-GW8       | B701242-11               | Water         | 1/20/97      |
| TUMWATER-GW15      | B701242-12               | Water         | 1/20/97      |
| TUMWATER-SS8       | B701242-13               | Soil          | 1/20/97      |
|                    |                          |               |              |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97

Received: 1/21/97 Reported: 2/4/97 14:16

### Hydrocarbon Identification by Washington DOE Method WTPH-HCID North Creek Analytical - Bothell

| Analyte                      | Batch<br>Number | Date<br>Prepared | Date<br>Analyzed | Surrogate<br>Limits | Reporting<br>Limit | Result | Units       | Notes* |
|------------------------------|-----------------|------------------|------------------|---------------------|--------------------|--------|-------------|--------|
|                              |                 |                  |                  |                     |                    |        |             |        |
| TUMWATER-SB3-4.0             |                 |                  | B70124           | <u>42-02</u>        |                    |        | <u>Soil</u> |        |
| Gasoline Range Hydrocarbons  | 0170389         | 1/22/97          | 1/24/97          |                     | 20.0               | ND     | mg/kg dry   | •      |
| Diesel Range Hydrocarbons    | Ħ               | **               | н                |                     | 50.0               | ND     | 10          |        |
| Heavy Oil Range Hydrocarbons | H               | "                | н                |                     | 100                | ND     | H* ÷        |        |
| Surrogate: 2-FBP             | "               | n .              | "                | 50.0-150            |                    | 109    | %           |        |

North Creek Analytical, Inc.

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



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

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97

Received: 1/21/97 Reported: 2/4/97 14:16

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

| Analyte                   | Batch<br>Number | Date<br>Prepared | Date<br>Analyzed | Surrogate<br>Limits                    | Reporting<br>Limit | Result | Units     | Notes*      |
|---------------------------|-----------------|------------------|------------------|----------------------------------------|--------------------|--------|-----------|-------------|
| TUMWATER-SS8              |                 |                  | <u>B7012</u>     | 42- <u>13</u>                          |                    |        | Soil      | 1           |
| Diesel Range Hydrocarbons | 0170457         | 1/24/97          | 1/27/97          | ······································ | 10.0               | 755    | mg/kg dry | _           |
| Surrogate: 2-FBP          | "               | 77               | "                | 50.0-150                               |                    | 80.6   | %         | <del></del> |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse Project Number: 1278-02

Sampled: 1/20/97 Received: 1/21/97

Project Manager: Rick Osgood

Reported: 2/4/97 14:16

#### Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) North Creek Analytical - Bothell

|                              | Batch   | Date     | Date     | Surrogate        | Reporting |        |       | ·      |
|------------------------------|---------|----------|----------|------------------|-----------|--------|-------|--------|
| Analyte                      | Number  | Prepared | Analyzed | Limits           | Limit     | Result | Units | Notes* |
| TUMWATER-GW1                 | · • .   |          | B7012    | 42_03            |           |        | Water |        |
| Diesel Range Hydrocarbons    | 0170394 | 1/22/97  | 1/24/97  | · ·              | 0.250     | 0.267  | mg/l  |        |
| Heavy Oil Range Hydrocarbons | 11      | 11       | H        | 4                | 0.750     | ND     | "     |        |
| Surrogate: 2-FBP             | "       | "        | "        | 50.0-150         |           | 80.2   | %     |        |
|                              |         |          |          | •                |           |        |       |        |
| TUMWATER-GW2                 |         |          | B7012    | <del>12-04</del> | •         |        | Water |        |
| Diesel Range Hydrocarbons    | 0170394 | 1/22/97  | 1/24/97  | ·                | 0.250     | ND     | mg/l  |        |
| Heavy Oil Range Hydrocarbons | "       | **       |          |                  | 0.750     | ND     | ,,    |        |
| Surrogate: 2-FBP             | "       | "        | " .      | 50.0-150         |           | 82.4   | %     |        |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Project Number: 1278-02

Tumwater Brewhouse

Project Manager: Rick Osgood Sampled: 1/20/97

Received: 1/21/97

Reported: 2/4/97 14:16

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

|                |              |          |          |                               |           |         | •             |        |
|----------------|--------------|----------|----------|-------------------------------|-----------|---------|---------------|--------|
|                | Batch        | Date     | Date     | Specific                      | Reporting |         |               |        |
| Analyte        | Number       | Prepared | Analyzed | Method                        | Limit     | Result  | Units         | Notes* |
| TUMWATER-GW2   |              |          | D7013    | 42.04                         |           |         | <b>33</b> 7 4 |        |
| Antimony       | 0170454      | 1/23/97  | B70124   | <del>12-04</del><br>EPA 6010A | 0.100     | NID     | <u>Water</u>  |        |
| Beryllium      | U1/U434<br>" | 1/23/97  | 1/24/97  |                               |           | ND      | mg/l<br>"     |        |
| Cadmium        | n            | n        | 11       | EPA 6010A                     | 0.00500   | ND      | "             | •      |
| Chromium       | "            | ,,       | "        | EPA 6010A                     | 0.00500   | ND      | , ,           | •      |
| ( <del>7</del> | ,,           | "        | n        | EPA 6010A                     | 0.0100    | ND      | ,,            | •      |
| Copper         | "            | ,        | "        | ÉPA 6010A                     | 0.0300    | ND      | "             |        |
| Nickel         | ".           | "        | "        | EPA 6010A                     | 0.0300    | ND      |               |        |
| Thallium       | "            | ."       | "        | EPA 6010A                     | 0.200     | ND      | H ,           |        |
| Zinc           | <del>"</del> |          |          | EPA 6010A                     | 0.0200    | 0.0291  | . "           |        |
| Arsenic        | 0170447      | 11       | 1/30/97  | EPA 7060A                     | 0.00400   | 0.00770 | n             |        |
| Lead           | "            | 11       | 1/24/97  | EPA 7421                      | 0.00200   | 0.00471 | "             |        |
| Mercury        | 0170427      | 11       | 1/23/97  | EPA 7470A                     | 0.00100   | ND      | "             |        |
| Selenium       | 0170447      | H        | 1/29/97  | EPA 7740                      | 0.00500   | ND      | "             |        |
| Silver         | 0170446      | 11       | 1/24/97  | EPA 7760A                     | 0.0200    | ND      | " .           |        |
| TUMWATER-GW3   |              |          | B70124   | 12.05                         | ,         |         | Water         | . •    |
| Antimony       | 0170454      | 1/23/97  | 1/24/97  | EPA 6010A                     | 0.100     | ND      |               |        |
| Beryllium      | 0170434      | 1/23/9/  | 1/24/97  | EPA 6010A                     | 0.100     |         | mg/l          | . !    |
| Cadmium        | ,            | ,        |          |                               |           | ND      | "             |        |
|                |              |          | n        | EPA 6010A                     | 0.00500   | ND      | 11            |        |
| Chromium       |              | "        | "        | EPA 6010A                     | 0.0100    | 0.0227  | "             |        |
| Copper         |              | "        | "        | EPA 6010A                     | 0.0300    | 0.0463  | "<br>"        |        |
| Nickel         | ,,           | ,        | "        | EPA 6010A                     | 0.0300    | ND      | <br>          |        |
| Thallium       | ,,           | "        | " .      | EPA 6010A                     | 0.200     | ND      | "<br>H        |        |
| Zine           |              | "        |          | EPA 6010A                     | 0.0200    | 0.0554  |               |        |
| Arsenic        | 0170447      |          | 1/30/97  | EPA 7060A                     | 0.00400   | 0.00680 |               |        |
| Lead           |              |          | 1/24/97  | EPA 7421                      | 0.00200   | 0.0123  | n'            |        |
| Mercury        | 0170427      |          | 1/23/97  | EPA 7470A                     | 0.00100   | ND      | "             |        |
| Selenium       | 0170447      | н        | 1/29/97  | EPA 7740                      | 0.00500   | ND      | "             | •      |
| Silver         | 0170446      | "        | 1/24/97  | EPA 7760A                     | 0.0200    | ND      | H             |        |
| TUMWATER-GW4   |              |          | B70124   | 12.06                         |           |         | Water         |        |
| Antimony       | 0170454      | 1/23/97  | 1/24/97  | EPA 6010A                     | 0.100     | ND      | mg/l          |        |
| Beryllium      | 0170434      | 1/23/5/  | 1/24/9/  |                               |           |         | 111g/1        |        |
| Cadmium        | tt.          | 11       |          | EPA 6010A                     | 0.00500   | ND      |               |        |
|                | н            | ",       | "        | EPA 6010A                     | 0.00500   | ND      | "             |        |
| Chromium       | **           |          | "        | EPA 6010A                     | 0.0100    | ND      | "<br>"n       |        |
| Copper         | **           | "        | "        | EPA 6010A                     | 0.0300    | ND      |               |        |
| Nickel         | "            | "        | "        | EPA 6010A                     | 0.0300    | ND      |               |        |
| Thallium       |              |          | **       | EPA 6010A                     | 0:200     | ND      | "             |        |
| Zinc           | <b>11</b>    | **       | ni.      | EPA 6010A                     | 0.0200    | ND      | " .           |        |

North Creek Analytical, Inc.

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

Project Manager



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Project Number: Project Manager:

Tumwater Brewhouse

1278-02

Rick Osgood

Sampled:

1/20/97 Received: 1/21/97

Reported: 2/4/97 14:16

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

| <i>l</i> .              | Batch        | Date            | Date               | Specific              | Reporting | Demile        | I Init-  | NI_+  |
|-------------------------|--------------|-----------------|--------------------|-----------------------|-----------|---------------|----------|-------|
| Analyte                 | Number       | Prepared        | Analyzed           | Method                | Limit     | Result        | Units    | Notes |
| UMWATER-GW4 (continued) |              |                 | B70124             | 42-06                 |           |               | Water    |       |
| Arsenic                 | 0170447      | 1/23/97         | 1/30/97            | EPA 7060A             | 0.00400   | ND            | mg/l     |       |
| ead                     | n            | 11              | 1/24/97            | EPA 7421              | 0.00200   | ND            | n .      |       |
| Mercury                 | 0170427      | 11              | 1/23/97            | EPA 7470A             | 0.00100   | ND            | 70       |       |
| Selenium                | 0170447      | **              | 1/29/97            | EPA 7740              | 0.00500   | ND            | 17       |       |
| Silver                  | 0170446      | "               | 1/24/97            | EPA 7760A             | 0.0200    | ND            | "        |       |
| TIMES A TED CIVE        |              |                 | B7012              | 4207                  |           |               | Water    |       |
| TUMWATER-GW5            | 0170454      | 1/23/97         | 1/24/97            | EPA 6010A             | 0.100     | ND            | mg/l     |       |
| Antimony                | 01/0434<br>" | . 1/23/9/<br>!! | 1/24/3/            | EPA 6010A             | 0.00500   | ND            | "        |       |
| Beryllium               | H .          |                 | ,,                 | EPA 6010A             | 0.00500   | ND            |          |       |
| Cadmium ,               | ,,           | "               | ,,                 | EPA 6010A             | 0.0100    | 0.0124        | **       |       |
| Chromium                | "            | 11              | 11 .               | EPA 6010A             | 0.0300    | 0.0124        | . H      |       |
| Copper                  |              | n,              | . 19               | EPA 6010A             | 0.0300    | ND            | ••       |       |
| lickel                  |              | 11              | "                  | EPA 6010A             | 0.200     | ND            | 11       |       |
| hallium<br>             | H            | 19              | "                  | EPA 6010A             | 0.0200    | 0.0390        | **       |       |
| linc                    |              | "               | 1/30/97            | EPA 7060A             | 0.0200    | 0.00530       | ,,       |       |
| Arsenic                 | 0170447      |                 |                    | EPA 7000A<br>EPA 7421 | 0.00400   | 0.00533       | 11       |       |
| ead                     |              | "               | 1/24/97<br>1/23/97 | EPA 7470A             | 0.00200   | 0.00325<br>ND | 11       |       |
| Mercury                 | 0170427      | "               |                    | EPA 7470A<br>EPA 7740 | 0.00100   | ND<br>ND      | 11       |       |
| Selenium                | 0170447      | "               | 1/29/97            |                       | 0.0200    | ND<br>ND      |          |       |
| ilver                   | 0170446      | "               | 1/24/97            | EPA 7760A             | 0.0200    | ND            |          |       |
| UMWATER-GW6             | •            |                 | B7012              | 42-08                 |           |               | Water    |       |
| Antimony                | 0170454      | 1/23/97         | 1/24/97            | EPA 6010A             | 0.100     | ND            | mg/l     |       |
| Beryllium               | n            | P               | 11                 | EPA 6010A             | 0.00500   | ND            |          | ÷     |
| Cadmium -               | **           | n               | 11                 | EPA 6010A             | 0.00500   | ND            | n'       |       |
| Chromium                | 11 .         | · n             | "                  | EPA 6010A             | 0.0100    | 0.0125        | **       |       |
| Copper                  |              | 11              |                    | EPA 6010A             | 0.0300    | ND            | . "      |       |
| Nickel                  | **           | . 11            | 17                 | EPA 6010A             | 0.0300    | ND            | 11       |       |
| Thallium_               | **           | n               | H                  | EPA 6010A             | 0.200     | ND            |          |       |
| Zine                    | **           | 11              | 11                 | EPA 6010A             | 0.0200    | ND            | H        |       |
| Arsenic                 | 0170447      | n .             | 1/30/97            | EPA 7060A             | 0.00400   | ND            |          |       |
| Lead                    | "            | 17              | 1/24/97            |                       | 0.00200   | ND            | 11 .     |       |
| Mercury                 | 0170427      | <b>?</b> 1      | 1/23/97            | EPA 7470A             | 0.00100   | ND            | H,       |       |
| Selenium                | 0170427      | 11              | 1/29/97            | EPA 7740              | 0.00500   | ND            | n        |       |
| Silver                  | 0170446      | 11              | 1/24/97            | EPA 7760A             | 0.0200    | ND            | <b>"</b> |       |
| PIIMWATED CWQ           | •            |                 | B7012              | 42-11                 | •         |               | Water    |       |
| TUMWATER-GW8            | 0170454      | 1/23/97         | 1/24/97            | EPA 6010A             | 0.100     | ND            | mg/l     |       |
| Antimony                | 01/0434      | 1/43/7/         | 1/24/7/            | LIAUUIVA              | 0.100     | 140           | •••      |       |
|                         |              |                 |                    |                       |           |               |          |       |

North Creek Analytical, Inc.

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

Matthew Essig, Project Manager



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97

Received: 1/21/97

Reported: 2/4/97 14:16

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

|                          | Batch   | Date       | Date     | Specific  | Reporting |         |       | ·      |
|--------------------------|---------|------------|----------|-----------|-----------|---------|-------|--------|
| Analyte                  | Number  | Prepared   | Analyzed | Method    | Limit     | Result  | Units | Notes* |
| TUMWATER-GW8 (continued) |         |            | B7012    | 42-11     |           |         | Water |        |
| Beryllium                | 0170454 | 1/23/97    | 1/24/97  | EPA 6010A | 0.00500   | ND      | mg/l  | •      |
| Cadmium                  | "       | 17 237 3 1 | 11       | EPA 6010A | 0.00500   | ND      | ".    |        |
| Chromium                 | n'      | 19         | н        | EPA 6010A | 0.0100    | ND      | 11    |        |
| Copper                   | 11      | • н        | n        | EPA 6010A | 0.0300    | ND      | n     |        |
| Nickel                   | 11      | H,         | н        | EPA 6010A | 0.0300    | ND      | n     |        |
| Thallium                 |         |            | n        | EPA 6010A | 0.200     | ND      |       |        |
| Zinc                     | **      | 11         |          | EPA 6010A | 0.0200    | 0.0285  | 17    |        |
| Arsenic                  | 0170447 | "          | 1/30/97  | EPA 7060A | 0.00400   | 0.00660 | 19    | ·      |
| Lead                     | 11      | u ·        | 1/24/97  | EPA 7421  | 0.00200   | 0.0123  | "     |        |
| Mercury                  | 0170427 | "          | 1/23/97  | EPA 7470A | 0.00100   | ND      | **    |        |
| Selenium                 | 0170447 | 19         | 1/29/97  | EPA 7740  | 0.00500   | ND      | . 11  |        |
| Silver                   | 0170446 | 11         | 1/24/97  | EPA 7760A | 0.0200    | ND      |       | •      |
|                          |         |            |          |           | • •       |         |       |        |
| TUMWATER-GW15            |         |            | B7012    | 42-12     |           |         | Water |        |
| Antimony                 | 0170454 | 1/23/97    | 1/24/97  | EPA 6010A | 0.100     | ND      | mg/l  |        |
| Beryllium                | ,,      | "          | **       | EPA 6010A | 0.00500   | ND      | "     |        |
| <b>Cadmium</b>           | n       |            | . "      | EPA 6010A | 0.00500   | ND      | 11    |        |
| Chromium                 |         | "          | **       | EPA 6010A | 0.0100    | 0.0161  | n .   |        |
| Copper                   |         | "          |          | EPA 6010A | 0.0300    | ND      | n     | •      |
| Nickel                   | **      | n          | "        | EPA 6010A | 0.0300    | ND      | n     |        |
| Thallium                 | **      | H.         | "        | EPA 6010A | 0.200     | ND      | 19    | 1.     |
| Žine                     | **      | "          | n        | EPA 6010A | 0.0200    | 0.0283  | 11    |        |
| Arsenic                  | 0170447 | *          | 1/30/97  | EPA 7060A | 0.00400   | 0.00910 | n     |        |
| Lead                     | "       | n          | 1/24/97  | EPA 7421  | 0.00200   | 0.00291 | 17    |        |
| Mercury                  | 0170427 | H .        | 1/23/97  | EPA 7470A | 0.00100   | ND      | **    |        |
| Selenium                 | 0170447 | **         | 1/29/97  | EPA 7740  | 0.00500   | ND      | **    |        |
| Silver                   | 0170446 | **         | 1/24/97  | EPA 7760A | 0.0200    | ND      | "     |        |
|                          |         |            |          |           |           |         |       |        |

Creek Analytical, Inc.

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

Essig, Project Manager



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100

Project: Tumwater Brewhouse Project Number:

Sampled: 1/20/97

1278-02

Received: 1/21/97

Redmond, WA 98052

Project Manager: Rick Osgood

Reported: 2/4/97 14:16

# Polychlorinated Biphenyls by EPA Method 8081 North Creek Analytical - Bothell

|                  | Batch                                  | Date     | Date     | Surrogate                             | Reporting |        | 1.             |            |
|------------------|----------------------------------------|----------|----------|---------------------------------------|-----------|--------|----------------|------------|
| Analyte          | Number                                 | Prepared | Analyzed | Limits                                | Limit     | Result | Units          | Notes      |
| TUMWATER-SB9-3.5 |                                        |          | B7012    | 42-09                                 |           |        | Soil           | <u>2,3</u> |
| Aroclor 1016     | 0170551                                | 1/29/97  | 1/30/97  | · · · · · · · · · · · · · · · · · · · | 50.0      | ND     | ug/kg          | 2/2        |
| Aroclor 1221     | 11                                     | **       | n        |                                       | 50.0      | ND     | "              |            |
| Aroclor 1232     | 11                                     | "        | ***      |                                       | 50.0      | ND     | 11             |            |
| Aroclor 1242     | tt                                     | •        | **       |                                       | 50.0      | ND     | <b>"</b>       |            |
| Aroclor 1248     | n                                      | 17       | 11       | * 18g                                 | 50.0      | ND     | i <del>i</del> |            |
| Aroclor 1254     | ,, , , , , , , , , , , , , , , , , , , | "        | "        | .,                                    | 50.0      | ND     | - 10           |            |
| Aroclor 1260     | " .                                    | **       | **       |                                       | 50.0      | ND     | 11             |            |
| Surrogate: TCX   | "                                      | "        | . "      | 38.0-117                              |           | 86.1   | %              |            |
| THE CAME         |                                        |          | 75044    |                                       | •         |        |                | ,          |
| TUMWATER-GW7     |                                        |          | B7012    | <u>42-10</u>                          |           |        | <u>Water</u>   | <u>2,3</u> |
| Aroclor 1016     | 0170416                                | 1/23/97  | 1/31/97  |                                       | 0.100     | ND     | ug/l           | •          |
| Aroclor 1221     | 17                                     |          | **       |                                       | 0.100     | ND     | 17             |            |
| Aroclor 1232     | <b>u</b> . ,                           | "        | 17       |                                       | 0.100     | ND     | "              |            |
| Aroclor 1242     | , <b>n</b>                             |          | 'n       |                                       | 0.100     | ND     | н              |            |
| Aroclor 1248     | "                                      | 19       | " .      |                                       | 0.100     | ND     | n              |            |
| Aroclor 1254     | m ,                                    | n        | **       |                                       | 0.100     | ND     | 11             |            |
| Aroclor 1260     | "                                      | "        | "        |                                       | 0.100     | ND     | "              |            |
| Surrogate: TCX   | "                                      | "        | n        | 40.0-130                              |           | 96.4   | %              |            |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97

Received: 1/21/97 Reported: 2/4/97 14:16

# Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

|                           | Batch   | Date                  | Date                    | Surrogate        | Reporting |        | :           |        |
|---------------------------|---------|-----------------------|-------------------------|------------------|-----------|--------|-------------|--------|
| Analyte                   | Number  | Prepared              | Analyzed                | Limits           | Limit     | Result | Units       | Notes* |
| TRIP BLANK                | •       |                       | D7012                   | 42.01            |           |        |             |        |
| Acetone                   | 0170566 | 1/29/97               | <u>B7012</u><br>1/29/97 | <del>42-01</del> | 10.0      |        | Water       |        |
| Benzene                   | U17U300 | 1/ <i>29/9 /</i><br>" | 1/29/97                 |                  | 10.0      | ND     | ug/l<br>"   | -      |
| Bromodichloromethane      |         | **                    | **                      |                  | 1.00      | ND     | "           |        |
| Bromoform                 | ,,      | 11                    | **                      |                  | 1.00      | ND     | ",          | •      |
| Bromomethane              | **      | , · · ·               | ,,                      |                  | 1.00      | ND ·   |             |        |
| 2-Butanone                | ,,      | ,,                    | ,                       | 1 ig             | 1.00      | ND     |             |        |
| Carbon disulfide          | n       | n                     | 17                      |                  | 10.0      | ND     | 19          |        |
| Carbon tetrachloride      | **      | n                     |                         |                  | 1.00      | ND     |             |        |
| Chlorobenzene             | "       | ,,                    |                         |                  | 1.00      | ND     | n ·         |        |
| Chloroethane              | ,,      | ,,                    | •                       |                  | 1.00      | ND     |             |        |
| Chloroform                | ,       |                       | ,,                      |                  | 1.00      | ND     | 11          |        |
| Chloromethane             | ,       | <br>                  | "                       |                  | 1.00      | ND     |             |        |
| Dibromochloromethane      |         |                       | "                       |                  | 1.00      | ND     | "           |        |
| 1,1-Dichloroethane        | 19      | "                     |                         |                  | 1.00      | ND     | "           |        |
| 1,2-Dichloroethane        | 11      | "                     | "                       |                  | 1.00      | ND     | <b>I7</b> . |        |
| 1,1-Dichloroethene        |         |                       | "                       |                  | 1.00      | ND     | . 17        |        |
| cis-1,2-Dichloroethene    | 10      | ,,                    | "                       | •                | 1.00      | ND     | **          |        |
| trans-1,2-Dichloroethene  | "       | " .                   | ,,                      |                  | 1.00      | ND     |             |        |
|                           |         | " .<br>"              | ,                       |                  | 1.00      | ND     | 11          | 2      |
| 1,2-Dichloropropane       | . 11    | "                     | "                       |                  | 1.00      | ND     | H .         |        |
| cis-1,3-Dichloropropene   | "       |                       | " .<br>n                |                  | 1.00      | ND     | H.          |        |
| trans-1,3-Dichloropropene | "       | **                    | "                       |                  | 1.00      | ND     | **          |        |
| Ethylbenzene 2-Hexanone   | " .     | "                     |                         |                  | 1.00      | ND     |             | -      |
| \$\$\$                    |         | "                     | 11.                     |                  | 10.0      | ND     | **          |        |
| Methylene chloride        | * "     | "                     | Ħ                       |                  | 5.00      | ND     | n           |        |
| 4-Methyl-2-pentanone      | "       |                       | 11                      |                  | 10.0      | ND     | н *         | •      |
| Styrene                   |         | 17                    | 11                      |                  | 1.00      | ND     | "           |        |
| 1,1,2,2-Tetrachloroethane | "       | 11                    | . 11                    |                  | 1.00      | ND     |             |        |
| Tetrachloroethene         | "       |                       | "                       |                  | 1.00      | ND     |             |        |
| Toluene                   | "       | n                     | **                      |                  | 1.00      | ND     | "           |        |
| 1,1,1-Trichloroethane     | "       | 11                    | n                       |                  | 1.00      | ND     | n           |        |
| 1,1,2-Trichloroethane     | "       | "                     | ij                      |                  | 1.00      | ND     | "           |        |
| Trichloroethene           | " "     | 11                    | 11                      |                  | 1.00      | ND     | . "         |        |
| Vinyl chloride            |         | 11                    | n                       |                  | 1.00      | ND     |             |        |
| Xylenes (total)           | . It    | "                     | "                       |                  | 2.00      | ND     |             |        |
| Surrogate: 1,2-DCA-d4     | "       | "                     | "                       | 80.0-120         |           | 99.2   | %           |        |
| Surrogate: Toluene-d8     | "       | "                     | "                       | 80.0-120         |           | 102    | "           |        |
| Surrogate: 4-BFB          | "       | "                     | "                       | 80.0-120         |           | 99.2   | "           |        |
| -1:                       |         |                       |                         |                  |           |        |             |        |

North Creek Analytical, Inc.

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



BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290 BODTI AND = (503) 643 8200 = FAX (244 8200

PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97

Received: 1/21/97

Reported: 2/4/97 14:16

## Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

|                            | Batch   | Date          | Date     | Surrogate        | Reporting |          | •                    |        |
|----------------------------|---------|---------------|----------|------------------|-----------|----------|----------------------|--------|
| Analyte                    | Number  | Prepared      | Analyzed | Limits           | Limit     | Result   | Units                | Notes* |
| TUMWATER-GW2               |         |               | B70124   | 42 04            |           |          | Water                |        |
| Acetone                    | 0170566 | 1/29/97       | 1/29/97  | <del>12-04</del> | 10.0      | ND       | <u>Water</u><br>ug/l |        |
| Benzene                    | "       | - 11 4 21 2 1 | 1/23/37  |                  | 1.00      | ND<br>ND | ug/i                 |        |
| Bromodichloromethane       | **      | n             |          |                  | 1.00      | ND<br>ND | n                    |        |
| Bromoform                  | н       | "             | "        |                  | 1.00      | ND       | ,,                   |        |
| Bromomethane               | 11      | , `           | ,,       | ha .             | 1.00      | ND<br>ND |                      |        |
| ×2-Butanone                |         | . 11          |          | · M              | 10.0      | ND<br>ND | **                   |        |
| Carbon disulfide           |         | **            | **       |                  | 1.00      | ND<br>ND | "                    |        |
| Carbon tetrachloride       |         | "             | **       |                  | 1.00      | ND<br>ND | "                    | •      |
| Chlorobenzene              |         | n             | 19       |                  | 1.00      | ND<br>ND | 11                   | -      |
| Chloroethane               | **      | #             | **       |                  | 1.00      |          | ,,                   |        |
| Chloroform                 | 17      | **            | **       |                  | 1.00      | ND<br>ND | ,                    |        |
| Chloromethane              |         | "             | **       |                  | 1.00      |          | "                    |        |
| Dibromochloromethane       |         | H             | 17       |                  |           | ND       | <br>H                |        |
| 1,1-Dichloroethane         | n       | "             | ,,       |                  | 1.00      | ND       | . "<br>H             |        |
| 1,2-Dichloroethane         |         | n             |          |                  | 1.00      | ND       |                      |        |
| 1,1-Dichloroethene         |         | **            |          |                  | 1.00      | ND       | "<br>"               |        |
| cis-1,2-Dichloroethene     | **      | 17            |          |                  | 1.00      | ND       | "                    | •      |
| trans-1,2-Dichloroethene   | ,,      | "             |          |                  | 1.00      | ND       |                      |        |
| 1,2-Dichloropropane        | ,       | <br>n         |          |                  | 1.00      | ND       |                      |        |
| cis-1,3-Dichloropropene    |         | "             |          |                  | 1.00      | ND       |                      |        |
|                            | "       |               | ,,       |                  | 1.00      | ND       |                      |        |
| trans-1,3-Dichloropropene  | , ,     | "             | "        |                  | 1.00      | ND       |                      |        |
| Ethylbenzene<br>2-Hexanone |         | " "           |          | •                | 1.00      | ND       | **                   |        |
| Section 1                  | "       | "             | ,,       |                  | 10.0      | ND       | 11                   |        |
| Methylene chloride         | "       | "             |          |                  | 5.00      | ND       |                      |        |
| 4-Methyl-2-pentanone       |         | "             | "        |                  | 10.0      | ND       | "                    |        |
| Styrene                    |         |               | 17       |                  | 1.00      | ND       | "                    |        |
| 1,1,2,2-Tetrachloroethane  |         | n             | "        |                  | 1.00      | ND       | "                    |        |
| Tetrachloroethene          | . "     | 11            | **       |                  | 1.00      | ND       | "                    |        |
| Toluene                    | **      |               |          |                  | 1.00      | ND       | 11                   |        |
| 1,1,1-Trichloroethane      | "       | 27            |          | •                | 1.00      | ND       | "                    |        |
| 1,1,2-Trichloroethane      | n .     |               | "        |                  | 1.00      | ND       | 11                   |        |
| Trichloroethene            | n       |               |          | •                | 1.00      | ND       | n                    |        |
| Vinyl chloride             | **      | "             | Ħ        | •                | 1.00      | ND       | "                    |        |
| Xylenes (total)            |         |               | 11       | •                | 2.00      | ND       | **                   |        |
| Surrogate: 1,2-DCA-d4      | "       | "             | "        | 80.0-120         |           | 103      | %                    |        |
| Surrogate: Toluene-d8      | -11     | n             | "        | 80.0-120         |           | 100      | "                    |        |
| Surrogate: 4-BFB           | "       | "             | "        | 80.0-120         |           | 97.6     | "                    |        |
| 963-A -                    |         |               |          |                  |           |          |                      |        |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse Project Number:

Project Manager:

1278-02

Rick Osgood

Sampled: Received:

1/20/97 1/21/97

Reported: 2/4/97 14:16

## Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

|                           | Batch    | Date     | Date      | Surrogate        | Reporting |        |       |        |
|---------------------------|----------|----------|-----------|------------------|-----------|--------|-------|--------|
| Analyte                   | Number   | Prepared | Analyzed  | Limits           | Limit     | Result | Units | Notes* |
| TUMWATER-GW3              | •        |          | B7012     | 42_05            |           |        | Water |        |
| Acetone                   | 0170566  | 1/29/97  | 1/29/97   | <del>12-03</del> | 10.0      | ND     | ug/l  |        |
| Benzene                   | 11       | "        | 11 231 37 |                  | 1.00      | ND     | ug/i  |        |
| Bromodichloromethane      | H        | **       | 12        |                  | 1.00      | ND     | "     |        |
| Bromoform                 | **       | 11       |           |                  | 1.00      | ND     | "     |        |
| Bromomethane              | n        |          | n         | 3:               | 1.00      | ND     | "     |        |
| 2-Butanone                |          | **       |           | e e e            | 10.0      | ND     | **    |        |
| Carbon disulfide          | 11       |          | **        |                  | 1.00      | ND     | 11    | •      |
| Carbon tetrachloride      | n ·      |          |           |                  | 1.00      | ND     |       | (      |
| Chlorobenzene             | **       | "        |           |                  | 1.00      | ND     | **    |        |
| Chloroethane              | H        |          | n .       |                  | 1.00      | ND     | 11    |        |
| Chloroform                | "        |          | **        |                  | 1.00      | ND     | 10    |        |
| Chloromethane             | ,,       | "        |           |                  | 1.00      | ND     | 11    |        |
| Dibromochloromethane      |          | "        | 19        |                  | 1.00      | ND     |       |        |
| 1.1-Dichloroethane        | ,n       | "        | 19        |                  | 1.00      | ND     | 11    |        |
| 1,2-Dichloroethane        | **       | 11       | **        |                  | 1.00      | ND     | 11    |        |
| I,1-Dichloroethene        | n        | **       | **        |                  | 1.00      | ND     | 11    |        |
| cis-1,2-Dichloroethene    | 19       | **       |           |                  | 1.00      | ND     |       |        |
| trans-1,2-Dichloroethene  | . "      |          | **        | •                | 1.00      | ND     | **    |        |
| 1,2-Dichloropropane       | "        |          | 11        |                  | 1.00      | ND     | 10    |        |
| cis-1,3-Dichloropropene   | n        | 11       | **        |                  | 1.00      | ND     | "     |        |
| trans-1,3-Dichloropropene | "        | 17       | **        | •                | 1.00      | ND     |       |        |
| Ethylbenzene              | "        | **       |           |                  | 1.00      | ND     | н     | *      |
| 2-Hexanone                |          | "        | 11        |                  | 10.0      | ND     | "     |        |
| Methylene chloride        | ".       | ,,       | •         | •                | 5.00      | ND     | "     |        |
| 4-Methyl-2-pentanone      | 11       | n        | n         |                  | 10.0      | ND     | 10    |        |
| Nyrene                    | **       | rt       | "         |                  | 1.00      | ND     | н     |        |
| 1,1,2,2-Tetrachloroethane |          | , m      | n         |                  | 1.00      | ND     | **    |        |
| Detrachloroethene         | "        | 11       | •         |                  | 1.00      | ND     |       |        |
| loluene                   | n        | **       |           |                  | 1.00      | ND     | **    |        |
| 1-1-Trichloroethane       |          | **       | H         |                  | 1.00      | ND     | 17    | •      |
| 2-Trichloroethane         | "        | н _      | II        |                  | 1.00      | ND     |       | •      |
| iichloroethene            | "        | "        | ,         |                  | 1.00      | ND     | **    |        |
| Vinyl chloride            | n        | n        | n         |                  | 1.00      | ND     | "     |        |
| Vlenes (total)            | ,,       | n        | n         | × ×              | 2.00      | ND     | "     |        |
| Surrogate: 1,2-DCA-d4     | "        | "        | "         | 80.0-120         | 2.00      | 98.4   | %     |        |
| wrogate: Toluene-d8       | <i>n</i> | . "      | "         | 80.0-120         |           | 97.6   | "     |        |
| Wiffogate: 4-BFB          | "        | "        |           | 80.0-120         |           | 99.2   | ,,    |        |
|                           |          |          |           | 00.0-120         |           | 77.4   |       |        |

th Creek Analytical, Inc.

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

g, Project/Manager



Redmond, WA 98052

BOTHELL = (206) 481-9200 = FAX 485-2992 SPOKANE = (509) 924-9200 = FAX 924-9290

PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc.
Project: Tumwater Brewhouse
15400 NE 90th, Ste 100
Project Number: 1278-02

Sampled: 1/20/97 Received: 1/21/97

Project Manager: Rick Osgood

Reported: 2/4/97 14:16

#### Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

| Number 0170566 "" "" "" "" "" "" | 1/29/97                                  | Analyzed  B7012 1/29/97 " " " |          | 10.0<br>1.00<br>1.00 | ND<br>ND<br>ND<br>ND                                                                                                                                                                                                                                                                                                                                                                                                                                        | Units Water ug/l                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Notes*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------------|------------------------------------------|-------------------------------|----------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| n<br>n                           | 11<br>11<br>11                           | 1/29/97                       |          | 1.00<br>1.00         | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ug/l                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| n<br>n                           | 11<br>11<br>11                           | 1/29/97                       |          | 1.00<br>1.00         | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ug/l                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| n<br>n                           | 11<br>11<br>11                           | 11<br>11<br>11                |          | 1.00<br>1.00         | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>"</b>                         | 11<br>11                                 | 11                            |          |                      | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| n '                              | H<br>H                                   | "                             |          | 1.00                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| n '                              | n                                        |                               |          | 1.00                 | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          | "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| n<br>n                           |                                          |                               | (No.     | 1.00                 | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          | "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| n .                              | н                                        | "                             |          | 10.0                 | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ,,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                  |                                          | **                            |          | 1.00                 | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          | "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                                  | II .                                     | "                             |          | 1.00                 | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          | **                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 19                               | n                                        | "                             | •        | 1.00                 | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          | n                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| "                                | <b>u</b>                                 | **                            | •        | 1.00                 | ND .                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>n</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <b>11</b>                        |                                          | 11                            |          | 1.00                 | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| u ·                              | "                                        | n                             |          | 1.00                 | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          | n                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| "                                | **                                       | 17                            |          | 1.00                 | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| **                               |                                          | 17                            |          | 1.00                 | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          | **                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| **                               | "                                        | 11                            |          | 1.00                 | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                          | H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| "                                | "                                        | "                             | 80.0-120 |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                             | %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| "                                | "                                        | "                             |          |                      | 93.6                                                                                                                                                                                                                                                                                                                                                                                                                                                        | "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| "                                | "                                        | <i>"</i>                      | 80.0-120 |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                             | "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse Project Number:

Project Manager:

1278-02

Rick Osgood

Sampled: 1/20/97

Received: 1/21/97

Reported: 2/4/97 14:16

## Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

|                           | Batch                                   | Date         | Date     | Surrogate    | Reporting |          |       |        |
|---------------------------|-----------------------------------------|--------------|----------|--------------|-----------|----------|-------|--------|
| Analyte                   | Number                                  | Prepared     | Analyzed | Limits       | Limit     | Result   | Units | Notes* |
| TUMWATER-GW5              |                                         |              | B7012    | 42-07        |           |          | Water |        |
| Acetone                   | 0170566                                 | 1/29/97      | 1/29/97  | <u></u>      | 10.0      | ND       | ug/l  |        |
| Benzene                   | "                                       | 11           | 11 25,57 |              | 1.00      | ND       | "     |        |
| Bromodichloromethane      | n                                       | "            | 'n       |              | 1.00      | ND       | n .   |        |
| Bromoform                 | n                                       |              | H .      |              | 1.00      | ND       | и .   |        |
| Bromomethane              | 17                                      | 17           |          | <b>4</b> "   | 1.00      | ND       | II .  | •      |
| 2-Butanone                | n .                                     | 11           |          | , <b>t</b> q | 10.0      | ND       | n .   |        |
| Carbon disulfide          | P                                       | 17           |          |              | 1.00      | ND       | **    |        |
| Carbon tetrachloride      | **                                      | 19           | **       |              | 1.00      | ND       | n     |        |
| Chlorobenzene             |                                         | **           | 11       |              | . 1.00    | ND       | 11    |        |
| Chloroethane              |                                         | 11           | *        |              | 1.00      | ND       | 11    |        |
| Chloroform                | n                                       | 10           | 11       |              | 1.00      | ND       | 11    |        |
| Chloromethane             |                                         | 10           | 11       |              | 1.00      | ND       |       |        |
| Dibromochloromethane      |                                         | 10           |          |              | 1.00      | ND       | 10    |        |
| 1,1-Dichloroethane        | 11                                      | "            | 11       |              | 1.00      | ND       | 13    |        |
| 1,2-Dichloroethane        | **                                      | 11           | 11.      |              | 1.00      | .ND      | n .   |        |
| 1,1-Dichloroethene        | 11                                      | **           | ••       |              | 1.00      | ND       | 17    |        |
| cis-1,2-Dichloroethene    | "                                       | 11           | ,,       |              | 1.00      | ND       | н     |        |
| trans-1,2-Dichloroethene  |                                         | 11           | **       |              | 1.00      | ND       | p ·   |        |
| 1,2-Dichloropropane       | "                                       | **           | ••       |              | 1.00      | ND       | и.    |        |
| cis-1,3-Dichloropropene   | <b>,</b> 1                              | **           | **       |              | 1.00      | ND       | **    | **     |
| trans-1,3-Dichloropropene | **                                      | n            | •        |              | 1.00      | ND       | n .   |        |
| Ethylbenzene              | **                                      |              |          |              | 1.00      | ND       | - n   |        |
| 2-Hexanone                | "                                       | ,,           | ••       |              | 10.0      | ND       | **    |        |
| Methylene chloride        | "                                       |              | "        | •            | 5.00      | ND       | 11    |        |
| 4-Methyl-2-pentanone      | . ,,                                    | "            |          |              | 10.0      | ND       | m.    | •      |
| Styrene                   | 11                                      | <b>n</b>     |          |              | 1.00      | ND       | "     |        |
| 1,1,2,2-Tetrachloroethane | **                                      |              | **       |              | 1.00      | ND       | 11    |        |
| Tetrachloroethene         | **                                      |              | ,,       |              | 1.00      | ND       | "     |        |
| Toluene                   | <b>11</b>                               | "            |          |              | 1.00      | ND       | Hr.   |        |
| 1,1,1-Trichloroethane     | 11                                      | ,,           | 11       |              | 1.00      | ND       |       |        |
| 1,1,2-Trichloroethane     | **                                      | n .          |          | :            | 1.00      | ND<br>ND | ,     | *•     |
| Trichloroethene           |                                         | **           | . #      |              | 1.00      | ND<br>ND |       |        |
| Vinyl chloride            |                                         | 11           |          |              | 1.00      | ND<br>ND |       |        |
| F , = =                   | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | 11           | ,,       |              | 2.00      | ND<br>ND |       | •      |
| Xylenes (total)           | <u>"</u>                                | <del>"</del> | <u>"</u> | 90.0.120     | 4.00      |          |       |        |
| Surrogate: 1,2-DCA-d4     | <i>"</i>                                | "            | ,,       | 80.0-120     |           | 102      | %     |        |
| Surrogate: Toluene-d8     | <i>"</i>                                | "            | "<br>"   | 80.0-120     |           | 99.2     | "     |        |
| Surrogate: 4-BFB          | "                                       |              |          | 80.0-120     |           | 99.2     |       |        |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Project Number: Tumwater Brewhouse

1278-02

Rick Osgood Project Manager:

Sampled: 1/20/97 Received: 1/21/97

Reported: 2/4/97 14:16

## Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

|                           | Batch   | Date                                  | Date         | Surrogate            | Reporting |              |            |        |
|---------------------------|---------|---------------------------------------|--------------|----------------------|-----------|--------------|------------|--------|
| Analyte                   | Number  | Prepared                              | Analyzed     | Limits               | Limit     | Result       | Units      | Notes* |
| -                         |         |                                       |              |                      |           |              |            |        |
| TUMWATER-GW6              |         |                                       | <u>B7012</u> | <u>42-08</u>         |           |              | Water      |        |
| Acetone                   | 0170566 | 1/29/97                               | 1/29/97      |                      | 10.0      | ND           | ug/l       |        |
| Benzene                   | . "     | . "                                   | 11           |                      | 1.00      | ND           |            |        |
| Bromodichloromethane      | **      | 17                                    | n            |                      | 1.00      | ND           | **         |        |
| Bromoform                 | "       | 11                                    | H            |                      | 1.00      | ND           | 11         |        |
| Bromomethane              | 17      | 1)                                    |              |                      | 1.00      | ND           | 19         |        |
| 2-Butanone                | 11      |                                       |              |                      | 10.0      | ND           | , <b>n</b> |        |
| Carbon disulfide          | "       | "                                     | 99           |                      | 1.00      | ND           | 17         |        |
| Carbon tetrachloride      | 11      | "                                     | "            |                      | 1.00      | , ND         | *H         |        |
| Chlorobenzene             | "       | . 11                                  | **           |                      | 1.00      | ND           | n          |        |
| Chloroethane              | •       | 11                                    | **           |                      | 1.00      | ND           | "          |        |
| Chloroform                | n       | " /                                   | ,            |                      | 1.00      | ,ND          | **         |        |
| Chloromethane             | 19      | H                                     | 17           |                      | 1.00      | ND           | 11-        |        |
| Dibromochloromethane      | **      | 17                                    | н            |                      | 1.00      | ND           | 11         |        |
| 1,1-Dichloroethane        | 17      | н                                     | n            |                      | 1.00      | ND           | n          |        |
| 1,2-Dichloroethane        | "       |                                       | . н          |                      | 1.00      | ND           | · 10       |        |
| 1,1-Dichloroethene        | n       | n                                     | "            |                      | 1.00      | ND           | **         |        |
| cis-1,2-Dichloroethene    | 11      | 11                                    | "            |                      | 1.00      | ND           | **         |        |
| trans-1,2-Dichloroethene  | 'n      | 11                                    | **           |                      | 1.00      | ND           | "          | -      |
| 1,2-Dichloropropane       | n       | 11                                    | 11           |                      | 1.00      | ND           | "          |        |
| cis-1,3-Dichloropropene   | n       | H .                                   | . 11         |                      | 1.00      | ND           | 10         |        |
| trans-1,3-Dichloropropene | "       | **                                    | 17           |                      | 1.00      | ND           | . "        |        |
| Ethylbenzene              | "       | n                                     | n            |                      | 1.00      | ND           | H          |        |
| 2-Hexanone                | ••      | **                                    | 17           |                      | 10.0      | ND           | 11         |        |
| Methylene chloride        | 10      | n .                                   | v            |                      | 5.00      | ND           | n          | •      |
| 4-Methyl-2-pentanone      |         | **                                    | **           |                      | 10.0      | ND           | н.         |        |
| Styrene                   | n       | · #                                   | . 11         |                      | 1.00      | ND           | **         |        |
| 1,1,2,2-Tetrachloroethane | n       | H                                     | **           |                      | 1.00      | ND           | 11         |        |
| Tetrachloroethene         |         | n                                     | 11           | •                    | 1.00      | ND           | 19         |        |
| Toluene                   | 11      | t)                                    | 11           | •                    | 1.00      | ND           | 11         |        |
| 1,1,1-Trichloroethane     | н .     | **                                    | n            |                      | 1.00      | ND           | **         |        |
| 1,1,2-Trichloroethane     | H .     | **                                    | ,,           |                      | 1.00      | ND           | "          |        |
| Trichloroethene           | ,       |                                       |              |                      | 1.00      | ND           |            |        |
| Vinyl chloride            | n .     | ,<br>n                                | 11           |                      | 1.00      | ND           | 11         |        |
| Xylenes (total)           | #       | 11                                    | ,,           |                      | 2.00      | ND           |            |        |
| Surrogate: 1,2-DCA-d4     |         | · · · · · · · · · · · · · · · · · · · | "            | 80.0-120             | 2.00      | 103          | %          |        |
|                           | "       | "                                     | "            | 80.0-120<br>80.0-120 |           | 95.2         | 70<br>. 11 |        |
| Surrogate: Toluene-d8     | ,,      | ,,<br>,,                              | .,,          | 80.0-120<br>80.0-120 |           | 93.2<br>97.6 |            |        |
| Surrogate: 4-BFB          |         | **                                    |              | 00.0-120             |           | 7/.0         |            |        |

North Creek Analytical, Inc.

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Project Manager: Rick Osgood

Sampled: 1/20/97

Received: 1/21/97

Reported: 2/4/97 14:16

#### Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

| Analyte                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Notes*  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Acetone       0170566       1/29/97       1/29/97       10.0       ND       ug/l         Benzene       "       "       "       1.00       ND       "         Bromodichloromethane       "       "       "       1.00       ND       "         Bromoform       "       "       "       1.00       ND       "         Bromomethane       "       "       "       1.00       ND       "         Bromomethane       "       "       "       1.00       ND       "         2-Butanone       "       "       "       10.0       ND       "         Carbon disulfide       "       "       "       1.00       ND       "         Carbon tetrachloride       "       "       "       1.00       ND       "         Chlorobenzene       "       "       "       1.00       ND       "         Chlorobenzene       "       "       "       1.00       ND       "         Chloroform       "       "       "       1.00       ND       "         Chloroform       "       "       "       1.00       ND       "         Ch                    |         |
| Acetone       0170566       1/29/97       1/29/97       10.0       ND       ug/l         Benzene       "       "       "       1.00       ND       "         Bromodichloromethane       "       "       "       1.00       ND       "         Bromoform       "       "       "       1.00       ND       "         Bromomethane       "       "       "       1.00       ND       "         Bromomethane       "       "       "       1.00       ND       "         2-Butanone       "       "       "       10.0       ND       "         Carbon disulfide       "       "       "       1.00       ND       "         Carbon tetrachloride       "       "       "       1.00       ND       "         Chlorobenzene       "       "       "       1.00       ND       "         Chlorobethane       "       "       "       1.00       ND       "         Chloroform       "       "       "       1.00       ND       "         Chloromethane       "       "       "       1.00       ND       " <td< td=""><td></td></td<> |         |
| Benzene       " " " " " " 1.00 ND "         Bromodichloromethane       " " " " " 1.00 ND "         Bromoform       " " " " " 1.00 ND "         Bromomethane       " " " " 1.00 ND "         2-Butanone       " " " " 1.00 ND "         Carbon disulfide       " " " " 1.00 ND "         Carbon tetrachloride       " " " " " 1.00 ND "         Chlorobenzene       " " " " " 1.00 ND "         Chloroethane       " " " " 1.00 ND "         Chloroform       " " " " 1.00 ND "         Chloromethane       " " " " 1.00 ND "         Dibromochloromethane       " " " " 1.00 ND "         1,1-Dichloroethane       " " " " 1.00 ND "         1,2-Dichloroethane       " " " " 1.00 ND "         1,1-Dichloroethene       " " " " 1.00 ND "         cis-1,2-Dichloroethene       " " " " " 1.00 ND "                                                                                                                                                                                                                                |         |
| Bromodichloromethane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |
| Bromoform         " " " " " 1.00 ND "           Bromomethane         " " " " 1.00 ND "           2-Butanone         " " " 1.00 ND "           Carbon disulfide         " " " " 1.00 ND "           Carbon tetrachloride         " " " " 1.00 ND "           Chlorobenzene         " " " " 1.00 ND "           Chlorothane         " " " " 1.00 ND "           Chloroform         " " " " 1.00 ND "           Chloromethane         " " " " 1.00 ND "           Dibromochloromethane         " " " " 1.00 ND "           1,1-Dichloroethane         " " " " 1.00 ND "           1,2-Dichloroethane         " " " " 1.00 ND "           1,1-Dichloroethene         " " " " 1.00 ND "           cis-1,2-Dichloroethene         " " " " " 1.00 ND "                                                                                                                                                                                                                                                                                    | • • • • |
| Bromomethane       " " " " " 1.00 ND "         2-Butanone       " " " 10.0 ND "         Carbon disulfide       " " " 1.00 ND "         Carbon tetrachloride       " " " " 1.00 ND "         Chlorobenzene       " " " " 1.00 ND "         Chloroethane       " " " " 1.00 ND "         Chloroform       " " " " 1.00 ND "         Chloromethane       " " " " 1.00 ND "         Dibromochloromethane       " " " " 1.00 ND "         1,1-Dichloroethane       " " " " 1.00 ND "         1,2-Dichloroethane       " " " " 1.00 ND "         1,1-Dichloroethene       " " " " 1.00 ND "         cis-1,2-Dichloroethene       " " " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                     |         |
| 2-Butanone       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "       "                                                 |         |
| Carbon disulfide       " " " " " " 1.00 ND "         Carbon tetrachloride       " " " " " 1.00 ND "         Chlorobenzene       " " " " 1.00 ND "         Chloroethane       " " " " 1.00 ND "         Chloroform       " " " " 1.00 ND "         Chloromethane       " " " " 1.00 ND "         Dibromochloromethane       " " " " 1.00 ND "         1,1-Dichloroethane       " " " " 1.00 ND "         1,2-Dichloroethane       " " " " 1.00 ND "         1,1-Dichloroethene       " " " 1.00 ND "         cis-1,2-Dichloroethene       " " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
| Carbon tetrachloride       " " " " " 1.00 ND "         Chlorobenzene       " " " " 1.00 ND "         Chloroethane       " " " " 1.00 ND "         Chloroform       " " " " 1.00 ND "         Chloromethane       " " " " 1.00 ND "         Dibromochloromethane       " " " " 1.00 ND "         1,1-Dichloroethane       " " " " 1.00 ND "         1,2-Dichloroethane       " " " " 1.00 ND "         1,1-Dichloroethane       " " " 1.00 ND "         1,1-Dichloroethene       " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
| Chlorobenzene       " " " " " 1.00 ND "         Chloroethane       " " " " 1.00 ND "         Chloroform       " " " " 1.00 ND "         Chloromethane       " " " " 1.00 ND "         Dibromochloromethane       " " " " 1.00 ND "         1,1-Dichloroethane       " " " " 1.00 ND "         1,2-Dichloroethane       " " " " 1.00 ND "         1,1-Dichloroethene       " " " 1.00 ND "         cis-1,2-Dichloroethene       " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |
| Chlorofethane       " " " " " 1.00 ND "         Chloroform       " " " " 1.00 ND "         Chloromethane       " " " 1.00 ND "         Dibromochloromethane       " " " " 1.00 ND "         1,1-Dichloroethane       " " " " 1.00 ND "         1,2-Dichloroethane       " " " 1.00 ND "         1,1-Dichloroethene       " " " 1.00 ND "         cis-1,2-Dichloroethene       " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ٠ .     |
| Chloroform       "       "       "       1.00       ND       "         Chloromethane       "       "       "       1.00       ND       "         Dibromochloromethane       "       "       "       1.00       ND       "         1,1-Dichloroethane       "       "       "       1.00       ND       "         1,2-Dichloroethane       "       "       "       1.00       ND       "         1,1-Dichloroethene       "       "       "       1.00       ND       "         cis-1,2-Dichloroethene       "       "       "       1.00       ND       "                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         |
| Chloromethane       " " " " 1.00 ND "         Dibromochloromethane       " " " 1.00 ND "         1,1-Dichloroethane       " " " 1.00 ND "         1,2-Dichloroethane       " " " 1.00 ND "         1,1-Dichloroethene       " " " 1.00 ND "         cis-1,2-Dichloroethene       " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |
| Dibromochloromethane       " " " " 1.00 ND "         1,1-Dichloroethane       " " " 1.00 ND "         1,2-Dichloroethane       " " " 1.00 ND "         1,1-Dichloroethene       " " " 1.00 ND "         cis-1,2-Dichloroethene       " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |
| 1,2-Dichloroethane       " " " " 1.00 ND "         1,1-Dichloroethene       " " " 1.00 ND "         cis-1,2-Dichloroethene       " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |
| 1,2-Dichloroethane       " " " " 1.00 ND "         1,1-Dichloroethene       " " " 1.00 ND "         cis-1,2-Dichloroethene       " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |
| 1,1-Dichloroethene       " " " 1.00 ND "         cis-1,2-Dichloroethene       " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |         |
| · · · · · · · · · · · · · · · · · · ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |
| trans-1,2-Dichloroethene " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
| 1,2-Dichloropropane " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |         |
| cis-1,3-Dichloropropene " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |
| trans-1,3-Dichloropropene " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         |
| Ethylbenzene " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |
| 2-Hexanone " " " 10.0 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |
| Methylene chloride " " " 5.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |
| 4-Methyl-2-pentanone " " " 10.0 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |
| Styrene " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |
| 1,1,2,2-Tetrachloroethane " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | . 5     |
| Tetrachloroethene " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |
| Toluene " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |
| 1,1,1-Trichloroethane " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |
| 1,1,2-Trichloroethane " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |
| Trichloroethene " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
| Vinyl chloride " " " 1.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |
| Xylenes (total) " " " 2.00 ND "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |
| Surrogate: 1,2-DCA-d4 " " 80.0-120 106 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |
| Surrogate: Toluene-d8 " " " 80.0-120 96.0 "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |         |
| Surrogate: 4-BFB " " " 80.0-120 99.2 "                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |

North Creek Analytical, Inc.

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



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Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1278-02

Project Manager: Rick Osgood

/8-02 sk Oggod Sampled: 1/20/97 Received: 1/21/97 Reported: 2/4/97 14:16

Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

|                           | Batch    | Date     | Date           | Surrogate        | Reporting |          |        |        |
|---------------------------|----------|----------|----------------|------------------|-----------|----------|--------|--------|
| Analyte                   | Number   | Prepared | Analyzed       | Limits           | Limit     | Result   | Units  | Notes* |
| CHIANILA TED CIVIO        |          |          | D#012          | 43 11            |           |          | Water  |        |
| TUMWATER-GW8              | 0170566  | 1/00/07  | B70124         | <del>12-11</del> | 10.0      | ND       | ug/l   |        |
| Acetone                   | 0170566  | 1/29/97  | 1/29/97        |                  | 10.0      | ND<br>ND | ug/i   |        |
| Benzene                   | "        | ,        | "              |                  | 1.00      | ND<br>ND | ,,     | •      |
| Bromodichloromethane      | "        | . ,,     | ,,             | *                | 1.00      |          | . ,    |        |
| Bromoform                 | "        | "        | "              | <b>.</b>         | 1.00      | ND       | ,,     |        |
| Bromomethane              | "        | "        | **             | Bg.,             | 1.00      | ND       | "      |        |
| 2-Butanone                |          |          |                |                  | 10.0      | ND       | 17     |        |
| Carbon disulfide          | H        | 10 .     | ; <del>"</del> |                  | 1.00      | ND       |        |        |
| Carbon tetrachloride      | *        | 11       | 11.            |                  | 1.00      | . ND     | "      |        |
| Chlorobenzene             | n        | 19       |                |                  | 1.00      | ND       | **     |        |
| Chloroethane              |          | "        | "              |                  | 1.00      | ND       | 0      |        |
| Chloroform                | tt       | II .     | "              |                  | 1.00      | ND       | "      |        |
| Chloromethane             | n        |          | n -            |                  | 1.00      | ND       |        |        |
| Dibromochloromethane      | 11       | 11       | •              | •                | 1.00      | ND       | D      |        |
| 1,1-Dichloroethane        | 11       | n        |                |                  | 1.00      | ND       | "      |        |
| 1,2-Dichloroethane        | "        | n        | 17             |                  | 1.00      | ND       | "      |        |
| 1,1-Dichloroethene        | "        | ,,       | **             |                  | 1.00      | ND       | 11     |        |
| cis-1,2-Dichloroethene    | n        | **       |                |                  | 1.00      | ND       | 17     |        |
| trans-1,2-Dichloroethene  | # · · ·  | 31       | •              |                  | 1.00      | ND       | "      |        |
| 1,2-Dichloropropane       | n        | 11       | **             |                  | 1.00      | ND       | 11     |        |
| cis-1,3-Dichloropropene   | · n      | 11       | "              |                  | 1.00      | ND       |        | •      |
| trans-1,3-Dichloropropene | 11       | H        | ••             |                  | 1.00      | ND       | 11     |        |
| Ethylbenzene              | 11       |          | **             |                  | 1.00      | ND       | 11     |        |
| 2-Hexanone                | • н      | 11       | 10             |                  | 10.0      | ND       | H      |        |
| Methylene chloride        | n        | n        | **             |                  | 5.00      | ND       | н      |        |
| 4-Methyl-2-pentanone      | n ,      | Ħ        | 10             |                  | 10.0      | ND       | n'     |        |
| Styrene                   |          | "        | 11             |                  | 1.00      | ND       | 11     | •      |
| 1,1,2,2-Tetrachloroethane | **       | **       | H 1            |                  | 1.00      | ND       | 11     |        |
| Tetrachloroethene         | "        |          | 11             |                  | 1.00      | ND       |        |        |
| Toluene                   | 11       | . 11     | ıı .           |                  | 1.00      | ND       | "      |        |
| l, 1, 1-Trichloroethane   | 11       | "        | **             |                  | 1.00      | ND       | 11     |        |
| 1,1,2-Trichloroethane     | 11       | •        | 17.            |                  | 1.00      | ND       | 11     |        |
| Trichloroethene           | <b>H</b> |          | 11             |                  | 1.00      | ND       | n .    |        |
|                           | "        | n        | ,              | ••               | 1.00      | ND<br>ND | n      |        |
| Vinyl chloride            | **       | "        |                |                  | 2.00      | ND<br>ND | **     |        |
| Xylenes (total)           | "        |          |                | 80.0-120         | 2.00      | 106      | %      |        |
| Surrogate: 1,2-DCA-d4     | . "      | ,,       | "<br>"         |                  |           |          | %<br>" |        |
| Surrogate: Toluene-d8     | "        | ,,       | <i>"</i>       | 80.0-120         |           | 96.8     | <br>,, |        |
| Surrogate: 4-BFB          | . "      |          | . <b>"</b>     | 80.0-120         |           | 101      |        |        |

North Creek Analytical, Inc.

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

Matthew Essig, Project Manager



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Tumwater Brewhouse Project: Project Number: 1278-02

Rick Osgood Project Manager:

Sampled: 1/20/97 Received: 1/21/97

Reported: 2/4/97 14:16

#### Volatile Organic Compounds by EPA Method 8240B North Creek Analytical - Bothell

| **                        | Batc | •                                       |              | Date     | Surrogate    | Reporting |          |           |        |
|---------------------------|------|-----------------------------------------|--------------|----------|--------------|-----------|----------|-----------|--------|
| Analyte                   | Num  | ber Pre                                 | epared       | Analyzed | Limits       | Limit     | Result   | Units     | Notes* |
| 2.                        |      | · ———                                   |              | <b>P</b> | 42 12        |           |          | Watan     |        |
| TUMWATER-GW15             |      |                                         | 10.105       | B70124   | <u>42-12</u> | 10.0      | NITS     | Water     |        |
| Acetone                   | 0170 | )566 1/2<br>"                           | 29/97        | 1/29/97  |              | 10.0      | ND<br>ND | ug/l<br>" |        |
| Benzene                   | "    | "                                       |              | ".       |              | 1.00      |          |           |        |
| Bromodichloromethane      | "    | "                                       |              | " .      |              | 1.00      | ND       | <br>n     |        |
| Bromoform                 | "    | "                                       |              | и        | <b>&gt;</b>  | 1.00      | ND       | "         | •      |
| Bromomethane              | **   | "                                       | •            | "        | 19<br>. 4    | 1.00      | ND       | "         |        |
| 2-Butanone                | "    | "                                       |              |          |              | 10.0      | ND       | <br>H     |        |
| Carbon disulfide          | "    | "                                       |              | "        |              | 1.00      | ND       | <br>H     | •      |
| Carbon tetrachloride      |      | "                                       |              | "        |              | 1.00      | ND       | <br>H     |        |
| Chlorobenzene             | 11   |                                         |              |          |              | 1.00      | ND       | ,,        |        |
| Chloroethane              | "    |                                         |              |          |              | 1.00      | ND       | . ,,      |        |
| Chloroform                | . "  | .,                                      |              |          |              | 1.00      | ND       | .00       |        |
| Chloromethane             | "    | 11                                      |              | "        |              | 1.00      | ND       | 17        |        |
| Dibromochloromethane      | . "  | 11                                      |              |          |              | 1.00      | ND       | "         |        |
| 1,1-Dichloroethane        | 19   | H                                       |              | "        |              | 1.00      | ND       |           |        |
| 1,2-Dichloroethane        | . "  |                                         |              |          |              | 1.00      | ND       | "         |        |
| 1,1-Dichloroethene        | "    | "                                       |              | "        |              | 1.00      | ND       |           |        |
| cis-1,2-Dichloroethene    | **   | "                                       |              | 11       |              | 1.00      | ND       | ,,        |        |
| trans-1,2-Dichloroethene  | 11   | **                                      |              |          |              | 1.00      | ND       | 11        |        |
| 1,2-Dichloropropane       | 11   | 11                                      |              | n        |              | 1.00      | ND       | "         |        |
| cis-1,3-Dichloropropene   |      | 1)                                      |              | n        |              | 1.00      | ND       | 17        |        |
| trans-1,3-Dichloropropene | 11   | "                                       |              | . 11     |              | 1.00      | ND       |           |        |
| Ethylbenzene              | 11   | **                                      |              | 11       |              | 1.00      | ND       | "         | •      |
| 2-Hexanone                | 11   |                                         |              | "        |              | 10.0      | ND       | 11        |        |
| Methylene chloride        | 11   | n                                       |              | H        |              | 5.00      | ND       | ".        |        |
| 4-Methyl-2-pentanone      | 17   | **                                      |              | 17       |              | 10.0      | ND       | "         |        |
| Styrene                   | 11   |                                         |              | 11       |              | 1.00      | ND       | **        | •      |
| 1,1,2,2-Tetrachloroethane | 19   |                                         |              | **       |              | 1.00      | ND       | 11        |        |
| Tetrachloroethene         | **   | 17                                      |              | *        |              | 1.00      | ND.      | D,        |        |
| Toluene                   | 11   | "                                       |              |          | •            | 1.00      | ND       | и .       |        |
| 1,1,1-Trichloroethane     | . "  | 11                                      |              | **       |              | 1.00      | ND       | H         |        |
| 1,1,2-Trichloroethane     | n    | H                                       | ,            | "        |              | 1.00      | ND       | "         |        |
| Trichloroethene           | **   | , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, |              | 11       |              | 1.00      | ND       | "         |        |
| Vinyl chloride            |      | 7)                                      |              | **       | •            | 1.00      | ND       | 19        |        |
| Xylenes (total)           |      | D                                       |              | n        |              | 2.00      | ND       | n         | •      |
| Surrogate: 1,2-DCA-d4     |      | "                                       | <del>_</del> |          | 80.0-120     |           | 107      | %         |        |
| Surrogate: Toluene-d8     | "    | "                                       |              | "        | 80.0-120     |           | 88.8     | "         |        |
| Surrogate: 4-BFB          | "    | "                                       |              | "        | 80.0-120     |           | 98.4     | "         |        |
| Sarroguie. 7-Di D         |      |                                         |              |          |              |           |          |           |        |

North Creek Analytical, Inc.

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

Matthew Essig, Project Manager



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

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project:

Tumwater Brewhouse

Project Number: 1278-02 Project Manager: Rick Osgood

Sampled: 1/20/97 Received: 1/21/97

Reported: 2/4/97 14:16

## **Dry Weight Determination** North Creek Analytical - Bothell

| Sample Name      | Lab ID     | Matrix |    | Result | Units |
|------------------|------------|--------|----|--------|-------|
| TUMWATER-SB3-4.0 | B701242-02 | Soil   | ٠. | 93.2   | %     |
| TUMWATER-SB9-3.5 | B701242-09 | Soil   |    | 79.9   | %     |
| TUMWATER-SS8     | B701242-13 | Soil   |    | 85.4   | %     |

North Creek Analytical, Inc.

Matthew Essig, Project Manager



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc.

Project: Tumwater Brewhouse
Sampled: 1/20/97

15400 NE 90th, Ste 100
Project Number: 1278-02
Redmond, WA 98052
Project Manager: Rick Osgood
Reported: 2/4/97 14:16

# Hydrocarbon Identification by Washington DOE Method WTPH-HCID/Quality Control North Creek Analytical - Bothell

| Analyte                      | Date<br>Analyzed | Spike<br>Level | Sample<br>Result | QC<br>Result | Units   | Reporting Limit<br>Recov. Limits | Recov. | RPD<br>Limit | RPD<br>% | Notes*   |
|------------------------------|------------------|----------------|------------------|--------------|---------|----------------------------------|--------|--------------|----------|----------|
| Batch: 0170389               | Date Prepa       | red: 1/22/     | <u>97</u>        |              | Extrac  | tion Method: EP.                 | A 3550 | ,            |          | •        |
| <u>Blank</u>                 | 0170389-BI       | LK1            |                  |              |         |                                  |        |              |          |          |
| Gasoline Range Hydrocarbons  | 1/23/97          |                |                  | ND           | mg/kg ( | dry <b>20.0</b>                  |        |              |          |          |
| Diesel Range Hydrocarbons    | in .             |                |                  | ND           | н       | 50.0                             |        |              |          |          |
| Heavy Oil Range Hydrocarbons | H                |                | *                | ND           | n       | 100                              |        |              |          | <u> </u> |
| Surrogate: 2-FBP             | , ,              | DET            |                  | DET          | "       | 50.0-150                         | 107    |              |          |          |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97 Received: 1/21/97

Reported: 2/4/97 14:16

# Diesel Hydrocarbons (C12-C24) by WTPH-D/Quality Control North Creek Analytical - Bothell

|                           | Date               | Spike         | Sample      | QC     | R          | eporting Limit | Recov.               | RPD   | RPD  |                                                |
|---------------------------|--------------------|---------------|-------------|--------|------------|----------------|----------------------|-------|------|------------------------------------------------|
| Analyte                   | Analyzed           | Level         | Result      | Resuit | Units      | Recov. Limits  | %                    | Limit | % N  | otes*                                          |
|                           |                    |               |             |        | _          |                |                      | •     |      |                                                |
| Batch: 0170457            | Date Prepa         |               | <u>97</u> . |        | Extraction | n Method: EP   | A 3550               |       |      |                                                |
| <u>Blank</u>              | <u>0170457-B</u> 1 | <u>LK1</u>    |             |        |            |                |                      |       |      |                                                |
| Diesel Range Hydrocarbons | 1/27/97            |               |             | ND     | mg/kg dr   | y <b>10.0</b>  |                      |       |      | <u> </u>                                       |
| Surrogate: 2-FBP          | "                  | 11.5          |             | 8.43   | "          | 50.0-150       | <i>73.3</i>          |       |      |                                                |
|                           |                    |               |             | •      |            |                |                      |       |      |                                                |
| LCS                       | <u>0170457-B</u>   | <u>S1</u>     |             | .30    |            | t.             |                      |       |      |                                                |
| Diesel Range Hydrocarbons | 1/27/97            | 68            |             | 62.0   | mg/kg dr   | y 59.0-135     | 91.2                 |       |      |                                                |
| Surrogate: 2-FBP          | ".                 | 11.5          |             | 7.86   | "          | 50.0-150       | <i>6</i> 8. <i>3</i> |       | *    |                                                |
|                           |                    |               |             |        |            |                |                      |       |      |                                                |
| <u>Duplicate</u>          | 0170457-D          | <u>UP1 B'</u> | 701313-01   |        |            |                |                      |       |      | 4                                              |
| Diesel Range Hydrocarbons | 1/27/97            |               | 423         | 502    | mg/kg dr   | у              |                      | 50.0  | 17.1 | <u>.                                      </u> |
| Surrogate: 2-FBP          | n ·                | 16.5          |             | 13.0   | "          | 50.0-150       | 78.8                 |       | •    |                                                |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Tumwater Brewhouse Project:

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97

Received: 1/21/97

Reported: 2/4/97 14:16

# Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended)/Quality Control North Creek Analytical - Bothell

|                              | Date       | Spike       | Sample            | QC         |        | Reporting Limit | Recov.   | RPD       | RPD  |          |
|------------------------------|------------|-------------|-------------------|------------|--------|-----------------|----------|-----------|------|----------|
| Analyte                      | Analyzed   | Level       | Result            | Result     | Units  | Recov. Limits   | %        | Limit     | %    | Notes*   |
| Batch: 0170394               | Date Prepa | red: 1/22/9 | <u>97</u>         |            | Extrac | tion Method: EP | A 3520/6 | 00 Series |      |          |
| Blank                        | 0170394-B  |             | <del>-</del> .    |            |        |                 |          |           |      |          |
| Diesel Range Hydrocarbons    | 1/23/97    |             |                   | ND         | mg/l   | 0.250           |          |           |      |          |
| Heavy Oil Range Hydrocarbons | **         |             |                   | ND         | **     | 0.750           |          |           |      |          |
| Surrogate: 2-FBP             | " .        | 0.344       |                   | 0.238      | "      | 50.0-150        | 69.2     |           |      |          |
|                              |            |             |                   | <b>1</b> 9 |        |                 |          |           |      |          |
| <u>LCS</u>                   | 0170394-B  | <u>S1</u>   |                   |            |        |                 |          |           | _    |          |
| Diesel Range Hydrocarbons    | 1/23/97    | 2.04        | •                 | 1.75       | mg/l   | 52.0-131        | 85.8     |           |      |          |
| Surrogate: 2-FBP             | "          | 0.344       |                   | 0.233      | "      | 50.0-150        | 67.7     |           | ,    |          |
| <u>Duplicate</u>             | 0170394-D  | UP1 B       | 701223 <u>-03</u> |            |        |                 |          |           |      | <u>5</u> |
| Diesel Range Hydrocarbons    | 1/23/97    | <del></del> | ND                | ND         | mg/l   |                 |          | 44.0      |      |          |
| Surrogate: 2-FBP             | "          | 0.687       |                   | 0.568      | "      | 50.0-150        | 82.7     |           |      |          |
| Duplicate                    | 0170394-D  | UP2 B       | 701223-0 <u>4</u> | •          |        |                 |          |           |      |          |
| Diesel Range Hydrocarbons    | 1/23/97    | <del></del> | 0.396             | 0.478      | mg/l   | ·               |          | 44.0      | 18.8 | 5        |
| Surrogate: 2-FBP             | "          | 0.687       |                   | 0.573      | "      | 50.0-150        | 83.4     |           |      |          |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Tumwater Brewhouse Project:

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97 Received: 1/21/97

Reported: 2/4/97 14:16

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

| The state of the s | Date                        | Spike                 | Sample           | QC      |        | Reporting Limit  | Recov.     | RPD        | RPD      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------|------------------|---------|--------|------------------|------------|------------|----------|
| Analyte                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Analyzed                    | Level                 | Result           | Result  | Units  | Recov. Limits    | %          | Limit      | % Notes* |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                       |                  |         |        |                  |            |            |          |
| Batch: 0170427                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Date Prepa                  | red: 1/23/9           | <u>97</u>        |         | Extrac | tion Method: Br  | Cl Digesti | <u>ion</u> | *        |
| Blank                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0170427-BI                  | LK1                   |                  |         |        |                  |            |            |          |
| Mercury                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1/23/97                     | <u></u>               |                  | ND      | mg/l   | 0.00100          |            |            |          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                       |                  |         |        |                  |            |            |          |
| LCS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0170427-BS                  | <u>S1</u>             |                  | *       |        |                  |            |            |          |
| Mercury                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1/23/97                     | 0.005                 |                  | 0.00559 | mg/l   | 70.0-130         | 112        |            |          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | •                           |                       | :                |         |        |                  |            |            |          |
| <u>Duplicate</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0170427-D                   | <u>UP1 B</u>          | 701171-06        |         |        |                  |            |            |          |
| Mercury                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1/23/97                     |                       | ND               | ND      | mg/l   |                  |            | 20.0       |          |
| · · ·                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                             |                       |                  |         |        |                  |            |            |          |
| Matrix Spike                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0170427-M                   |                       | <u>701171-06</u> |         |        |                  |            |            |          |
| Mercury                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1/23/97                     | 0.005                 | ND               | 0.00595 | mg/l   | 75.0-125         | 119        |            |          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                       |                  |         |        |                  |            |            |          |
| Matrix Spike Dup                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0170427-M                   |                       | <u>701171-06</u> |         |        |                  |            |            | 4 (8     |
| Mercury                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1/23/97                     | 0.005                 | ND               | 0.00605 | mg/l   | 75.0-125         | 121        | 20.0       | 1.67     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                       |                  |         |        |                  |            |            |          |
| Batch: 0170446                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Date Prepa                  |                       | <u>97</u>        | ~       | Extrac | ction Method: El | 'A 3010    |            |          |
| <u>Blank</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <u>0170446-B</u>            | <u>LK1</u>            |                  |         |        | 0.0000           |            |            |          |
| Silver                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1/24/97                     |                       |                  | ND      | mg/l   | 0.0200           |            |            |          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                       |                  |         |        |                  |            |            |          |
| <u>LCS</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0170446-B                   |                       |                  | 0.005   |        | 75.0-125         | 82.0       |            |          |
| Silver                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1/24/97                     | 0.25                  |                  | 0.205   | mg/l   | 75.0-123         | 02.0       |            |          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                       |                  |         |        |                  |            |            |          |
| <u>Duplicate</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <u>0170446-D</u>            | <u>UP1 B</u>          | 701242-06        | NID.    | /1     |                  | -          | 20.0       |          |
| Silver                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1/24/97                     |                       | ND               | ND      | mg/l   |                  |            | . 20.0     |          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 04#0445 %                   |                       | 701242.00        | •       |        |                  |            |            |          |
| Matrix Spike                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0170446-M                   |                       | 701242-06        | 0.247   | mg/l   | 75.0-125         | 98.8       |            |          |
| Silver                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1/24/97                     | 0.25                  | ND               | 0.247   | mg/1   | / J.U-12.        | , ,,,,,,   |            |          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0170446 3                   | rent n                | 701242-06        |         |        |                  |            |            |          |
| Matrix Spike Dup                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0170446-M                   | <u>18D1 в</u><br>0.25 | ND               | 0.232   | mg/l   | 75.0-12:         | 92.8       | 20.0       | 6.26     |
| Silver                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1/24/97                     | 0.43                  | ND               | 0.232   | mg/1   | , 5.5-12.        | , ,        |            |          |
| D. A. D. 0170447                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Data Duan                   | ared: 1/23/           | /97              |         | Extra  | ction Method: E  | PA 3020    | •          |          |
| Batch: 0170447                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0170447-B                   |                       | <u> </u>         | 7       | BALLA  |                  |            |            |          |
| Blank Blank                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <u>01/044/-в</u><br>1/30/97 | LIXI                  |                  | ND      | mg/l   | 0.0040           | 9          |            |          |
| Arsenic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1/30/97                     |                       |                  | ND      | n n    | 0.0020           |            |            |          |
| Lead                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                             |                       |                  | ND      | 11     | 0.0050           |            | •          |          |
| Selenium                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1/29/97                     |                       |                  | М       |        | 0.0050           | -          | -          |          |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97 Received: 1/21/97

Reported: 2/4/97 14:16

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

|                    |            |              | Comple             | QC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |           | Reporting Limit      | Recov.        | RPD   | RPD  |        |
|--------------------|------------|--------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------|---------------|-------|------|--------|
|                    | Date       | Spike        | Sample             | Result                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Units     | Recov. Limits        | %             | Limit |      | Notes* |
| Analyte            | Analyzed   | Level        | Result             | Kesuit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Onto      | ACCOV. Dimits        |               |       |      |        |
| LCS                | 0170447-BS | S1           |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                      |               |       |      |        |
| Arsenic            | 1/30/97    | 0.05         |                    | 0.0502                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | mg/l      | 75.0-125             | 100           |       |      | -      |
|                    | 1/24/97    | 0.025        |                    | 0.0235                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | н         | 75.0-125             | 94.0          |       |      |        |
| Lead               | 1/29/97    | 0.025        |                    | 0.0236                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | **        | 75.0-125             | 94.4          |       |      |        |
| Selenium           | 1,25,57    |              |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                      |               |       |      |        |
| Duplicate          | 0170447-D  | <u>UP1 B</u> | 701242-04          | ing .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ,         |                      |               | 20.0  | 3.97 |        |
| Arsenic            | 1/30/97    |              | 0.00770            | 0.00740                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | mg/l<br>" |                      |               | 20.0  | 16.3 | 5      |
| Lead               | 1/24/97    |              | 0.00471            | 0.00400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | "         |                      |               | 20.0  | 10.5 |        |
| Selenium           | 1/29/97    |              | ND                 | ŅD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | "         | •                    |               | 20.0  |      |        |
|                    | 04#044# 34 | 101 10       | 701242-04          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           | -                    |               |       |      |        |
| Matrix Spike       | 0170447-M  |              | 0.00770            | 0.0571                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | mg/l      | 70.0-130             | 98.8          |       |      |        |
| Arsenic            | 1/30/97    | 0.05         | 0.00770            | 0.0371                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | III EJ I  | 70.0-130             | 84.8          |       | •    |        |
| Lead               | 1/24/97    | 0.025        |                    | 0.0239                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | H         | 70.0-130             | 70.0          |       |      |        |
| Selenium           | 1/29/97    | 0.025        | ND                 | 0.0173                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           | 70.0-130             | , 0.10        |       |      |        |
| M. Anim Smiles Dum | 0170447-M  | ISD1 E       | 370 <u>1242-04</u> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           | -                    |               |       |      |        |
| Matrix Spike Dup   | 1/30/97    | 0.05         | 0.00770            | 0.0583                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | mg/l      | 70.0-130             | 101           | 20.0  | 2.20 |        |
| Arsenic            | 1/24/97    | 0.025        | 0.00471            | 0.0262                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | "         | 70.0-130             | 86.0          | 20.0  | 1.41 |        |
| Lead               | 1/29/97    | 0.025        | ND                 | 0.0193                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | **        | 70.0-130             | 77.2          | 20.0  | 9.78 |        |
| Selenium           | 1/23/37    | 0.025        |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                      |               |       |      |        |
| Batch: 0170454     | Date Prep  | ared: 1/23   | <u> 197</u>        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Extrac    | tion Method: EP      | A 3010        |       |      |        |
| Blank              | 0170454-B  | LK1          |                    | ٠.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |           |                      |               |       |      |        |
| Antimony           | 1/24/97    |              |                    | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | mg/l      | 0.100                |               |       |      | *      |
| Beryllium          | 11         |              |                    | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | . "       | 0.00500              |               |       |      |        |
| Cadmium            | #          |              |                    | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | n         | 0.00500              |               |       |      |        |
| Chromium           | IF.        |              |                    | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |           | 0.0100               |               |       |      |        |
| Copper             | n          |              |                    | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | "         | 0.0300               |               |       |      |        |
| Nickel             | ii .       |              |                    | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | -10       | 0.0300               |               | ,     |      |        |
| Thallium           | n          |              |                    | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | **        | 0.200                |               |       |      |        |
| Zinc               | 11         |              |                    | ND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | **        | 0.0200               | )             |       |      |        |
| (A)                |            |              |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                      |               |       | •    |        |
| LCS                | 0170454-1  |              |                    | 0.882                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | mg/l      | 80.0-120             | 88.2          | ,     |      |        |
| Antimony           | 1/24/97    | 1            |                    | 0.875                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1118/1    | 80.0-120             |               |       |      | •      |
| Beryllium          | 11         | 1            |                    | 0.863                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | н         | 80.0-120             |               |       |      |        |
| Cadmium            | "          | 1            |                    | The second secon | 11        | 80.0-120             |               |       |      |        |
| Chromium           |            | 1            |                    | 0.906                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 11        | 80.0-120             |               |       |      |        |
| Copper             | "          | 1            |                    | 0.905                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ,,<br>1j  | 80.0-120             |               |       |      |        |
| Nickel             |            | 1            |                    | 0.904                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | "         | 80.0-120<br>80.0-120 |               |       |      |        |
| Thallium           | . 11       | 1            |                    | 0.817                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           | 6U.U-12(             | <i>J</i> 61.7 |       |      | *      |

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97

Received: 1/21/97

Reported: 2/4/97 14:16

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

|                  | Date           | Spike              | Sample            | QC     |       | Reporting Limit | Recov. | RPD   | RPD   |        |
|------------------|----------------|--------------------|-------------------|--------|-------|-----------------|--------|-------|-------|--------|
| Analyte          | Analyzed       | Level              | Result            | Result | Units | Recov. Limits   | %      | Limit | % l   | Notes* |
| LCS (continued)  | 0170454-BS     | <b>:1</b>          |                   |        | :     |                 |        |       |       | •      |
| Zinc Zinc        | 1/24/97        | <u>,,</u>          | ,                 | 0.873  | mg/l  | 80.0-120        | 87.3   |       |       |        |
| Zinc             | 1/2-1//        | •                  | '.                | 0.075  |       | 55.0 120        |        |       |       |        |
| Duplicate        | 0170454-DI     | JP1 B              | 701242-06         |        |       |                 |        |       |       |        |
| Antimony         | 1/24/97        |                    | ND                | ND     | mg/l  |                 |        | 20.0  |       |        |
| Beryllium        | 11             |                    | ND                | .59 ND | "     |                 | •      | 20.0  |       |        |
| Cadmium          | 11             |                    | ND                | ND     | *     |                 |        | 20.0  |       |        |
| Chromium         | 11             |                    | ND                | ND     | **    |                 |        | 20.0  |       |        |
| Copper           | 11             |                    | ND                | ND     | **    |                 |        | 20.0  |       |        |
| Nickel           | , in           |                    | ND                | ND     | **    | •               |        | 20.0  |       |        |
| Thallium         | m <sub>.</sub> |                    | ND                | ND     | **    |                 |        | 20.0  |       |        |
| Zinc             | 11             |                    | ND                | ND     | **    |                 |        | 20.0  |       |        |
|                  |                |                    |                   |        |       |                 |        |       |       |        |
| Matrix Spike     | 0170454-M      | <u>S1</u> <u>B</u> | 701242-06         |        |       |                 | **     |       | *     |        |
| Antimony         | 1/24/97        | 1                  | ND                | 0.901  | mg/l  | 80.0-120        | 90.1   |       |       |        |
| Beryllium        | Ħ              | 1                  | ND                | 0.888  | **    | 80.0-120        | 88.8   | •     |       |        |
| Cadmium          | H              | 1                  | ND                | 0.885  | n     | 80.0-120        | 88.5   |       |       |        |
| Chromium         | 11             | . 1                | ND                | 0.916  | 11    | 80.0-120        | 91.6   |       |       |        |
| Copper           | n              | 1                  | ND                | 0.909  | **    | 80.0-120        | 90.9   |       |       |        |
| Nickel           | **             | 1                  | ND                | 0.893  | **    | 80.0-120        | 89.3   |       |       |        |
| Thallium         | "              | 1                  | ND                | 0.835  | 17    | 80.0-120        | 83.5   |       |       |        |
| Zinc             | 11             | 1                  | ND                | 0.907  | n '   | 80.0-120        | 90.7   |       | •     |        |
|                  |                |                    |                   |        |       |                 |        |       |       |        |
| Matrix Spike Dup | 0170454-M      | SD1 B              | 701242-0 <u>6</u> |        |       |                 |        |       |       |        |
| Antimony         | 1/24/97        | 1                  | ND                | 0.902  | mg/l  | 80.0-120        | 90.2   | 20.0  | 0.111 |        |
| Beryllium        | ,,             | . 1                | ND                | 0.882  | **    | 80.0-120        | 88.2   | 20.0  | 0.678 |        |
| Cadmium          | "              | 1                  | ND                | 0.865  | **    | 80.0-120        | 86.5   | 20.0  | 2.29  |        |
| Chromium         | n,             | 1                  | ND                | 0.896  | 17    | 80.0-120        | 89.6   | 20.0  | 2.21  |        |
| Copper           | "              | 1                  | ND                | 0.876  |       | 80.0-120        | 87.6   | 20.0  | 3.70  |        |
| Nickel           |                | 1                  | ND                | 0.871  | **    | 80.0-120        | 87.1   | 20.0  | 2.49  | ,      |
| Thallium         | . #            | 1                  | ND                | 0.798  | 19    | 80.0-120        | 79.8   | 20.0  | 4.53  | . (    |
| Zinc             |                | .1                 | ND                | 0.884  | 11    | 80.0-120        | 88.4   | 20.0  | 2.57  |        |

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



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

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052

Project: Tumwater Brewhouse

Project Number: 1278-02 Project Manager: Rick Osgood Sampled: 1/20/97

Received: 1/21/97

Reported: 2/4/97 14:16

### Polychlorinated Biphenyls by EPA Method 8081/Quality Control North Creek Analytical - Bothell

|                         | Date       | Spike       | Sample            | QC     |           | eporting Limit |          | RPD       | RPD  |            |
|-------------------------|------------|-------------|-------------------|--------|-----------|----------------|----------|-----------|------|------------|
| Analyte                 | Analyzed   | Level       | Result            | Result | Units     | Recov. Limits  | %        | Limit     | %    | Notes*     |
| Batch: 0170407          | Date Prepa | red: 1/23/9 | <u>97</u>         |        | Extractio | n Method: EP.  | A 3550   |           |      |            |
| Blank                   | 0170407-BI | LK1         |                   |        |           |                |          |           |      | 2,3        |
| Aroclor 1016            | 1/30/97    |             |                   | ND     | ug/kg dry | 50.0           |          |           |      |            |
| Aroclor 1221            | 11         |             |                   | ND     | H         | 50.0           |          |           |      |            |
| Aroclor 1232            | "          |             |                   | ND     | ".        | 50.0           |          |           |      |            |
| Aroclor 1242            | 11         |             |                   | ∴ ND   | 11        | 50.0           |          |           |      | •          |
| Aroclor 1248            |            |             |                   | ND     | "         | 50.0           |          |           |      |            |
| Aroclor 1254            | H .        |             |                   | ND     | ,         | 50.0           |          |           |      |            |
| Aroclor 1260            | <b>n</b>   |             |                   | ND     | "         | 50.0           |          |           |      |            |
| Surrogate: TCX          | 11         | 6.67        |                   | 6.32   | "         | 38.0-117       | 94.8     |           |      |            |
| LCS                     | 0170407-BS | S1          |                   |        |           |                | ٠.       |           |      | <u>2,3</u> |
| Aroclor 1260            | 1/30/97    | 333         | -                 | 304    | ug/kg dry | 37.0-98.0      | 91.3     |           |      |            |
| Surrogate: TCX          | "          | 6.67        | ,                 | 5.93   | "         | 38.0-117       | 88.9     |           |      | -          |
| Matrix Spike            | 0170407-M  | S1 B        | 701213- <u>07</u> |        |           |                |          |           |      | 2,3        |
| Aroclor 1260            | 1/30/97    | 462         | ND                | 345    | ug/kg dry | 37.0-98.0      | 74.7     |           |      |            |
| Surrogate: TCX          | "          | 9.25        | <del> </del>      | 10.2   | "         | 38.0-117       | 110      |           |      | ,          |
| <u>Matrix Spike Dup</u> | 0170407-M  | SD1 B'      | 701213-07         |        |           | •              |          |           |      | <u>2,3</u> |
| Aroclor 1260            | 1/30/97    | 462         | ND                | 329    | ug/kg dry | 37.0-98.0      | 71.2     | 38.0      | 4.80 |            |
| Surrogate: TCX          | "          | 9.25        |                   | 9.96   | "         | 38.0-117       | 108      |           |      |            |
| Batch: 0170416          | Date Prepa | red: 1/23/9 | 97                |        | Extractio | n Method: EP.  | A 3520/6 | 00 Series | \$   | •          |
| Blank                   | 0170416-BI |             |                   |        |           | -              |          |           | -    | 2,3        |
| Aroclor 1016            | 1/31/97    |             |                   | ND     | ug/l      | 0.100          |          |           |      |            |
| Aroclor 1221            | **         |             |                   | ND     | "         | 0.100          |          |           |      |            |
| Aroclor 1232            | 11         |             |                   | ND     | 11        | 0.100          |          |           |      |            |
| Aroclor 1242            | n          |             |                   | ND     | **        | 0.100          |          |           |      |            |
| Aroclor 1248            | n .        |             |                   | ND     | "         | 0.100          |          |           |      |            |
| Aroclor 1254            | H          |             |                   | ND     | "         | 0.100          |          |           |      |            |
| Aroclor 1260            | n          | -           |                   | ND     | 11        | 0.100          |          |           |      |            |
| Surrogate: TCX          | "          | 0.2         | -                 | 0.186  | 11        | 40.0-130       | 93.0     |           | ,    |            |
| <u>LCs</u>              | 0170416-BS | S1          |                   |        |           |                |          |           |      | 2,3        |
| Aroclor 1260            | 1/31/97    | 10          |                   | 9.17   | ug/l      | 33.0-122       | 91.7     |           |      |            |
| Surrogate: TCX          | "          | 0.2         |                   | 0.193  | "         | 40.0-130       | 96.5     |           |      |            |

North Creek Analytical, Inc.

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

Tetra Tech, Inc. 15400 NE 90th, Ste 100

Tumwater Brewhouse Project:

Sampled: 1/20/97 Received: 1/21/97

Redmond, WA 98052

Project Number: 1278-02 Project Manager: Rick Osgood

Reported: 2/4/97 14:16

# Polychlorinated Biphenyls by EPA Method 8081/Quality Control North Creek Analytical - Bothell

|                  |                                       |             | 0 1          | 000    | · · · · · · · · · · · · · · · · · · · | D I !!4          | Paces: | RPD   | RPD  |            |
|------------------|---------------------------------------|-------------|--------------|--------|---------------------------------------|------------------|--------|-------|------|------------|
|                  | Date                                  | Spike       | Sample       | QC     |                                       | Reporting Limit  | Kecov. | Limit |      | Notes*     |
| Analyte          | Analyzed                              | Level       | Result       | Result | Units                                 | Recov. Limits    | %      | Limit | 70   | Mores.     |
| - CO D           | 015041C D6                            | en.         |              |        |                                       |                  |        |       |      | <u>2,3</u> |
| LCS Dup          | 0170416-BS                            |             |              | 8.71   | /I                                    | 33.0-122         | 87.1   | 21.0  | 5.15 | ===        |
| Aroclor 1260     | 1/31/97                               | 10          |              |        | ug/l                                  | 40.0-130         | 98.0   |       |      |            |
| Surrogate: TCX   | "                                     | 0.2         | •            | 0.196  |                                       | 40.0-130         | 90.0   |       |      |            |
| Batch: 0170551   | Date Prepa                            | red: 1/29/9 | 97           |        | Extra                                 | ction Method: EP | A 3550 |       |      |            |
| Blank            | 0170551-B                             |             | <del>-</del> | 10     |                                       |                  |        |       |      | <u>2,3</u> |
| Aroclor 1016     | 1/30/97                               | <del></del> |              | ND     | ug/kg                                 | 50.0             | -      |       |      |            |
| Aroclor 1221     | 11                                    |             |              | ND     | "                                     | 50.0             |        |       |      |            |
| Aroclor 1232     | 11                                    |             |              | ND     | "                                     | 50.0             |        |       |      |            |
| Aroclor 1242     | **                                    |             |              | ND     | H.                                    | 50.0             |        |       |      |            |
| Aroclor 1248     | 11                                    |             |              | ND     | **                                    | 50.0             |        |       |      | •          |
| Aroclor 1254     | 11                                    |             |              | ND     | **                                    | 50.0             |        | •     |      |            |
| Aroclor 1260     | n .                                   |             |              | ND     | н .                                   | 50.0             |        |       |      |            |
| Surrogate: TCX   | · · · · · · · · · · · · · · · · · · · | 6.67        |              | 6.28   | "                                     | 38.0-117         | 94.2   |       |      |            |
| Burroguie. Tex   |                                       | 0.07        |              |        |                                       |                  | ***    |       |      |            |
| LCS              | 0170551-B                             | S1          |              | ÷      |                                       |                  |        |       |      | <u>2,3</u> |
| Aroclor 1260     | 1/30/97                               | 333         |              | 271    | ug/kg                                 | 37.0-98.0        | 81.4   |       |      |            |
| Surrogate: TCX   | "                                     | 6.67        |              | 6.47   | "                                     | 38.0-117         | 97.0   |       |      |            |
| -<br>-           |                                       |             |              |        |                                       |                  |        |       |      | 2.2        |
| Matrix Spike     | <u>0170551-M</u>                      |             | 701339-01    |        |                                       |                  | 404    |       |      | 2,3        |
| Aroclor 1260     | 1/30/97                               | 333         | ND           | 337    | ug/kg                                 |                  |        |       |      | 6          |
| Surrogate: TCX   | · · · · · · · · · · · · · · · · · · · | 6.67        |              | 7.35   | "                                     | 38.0-117         | 110    |       |      |            |
| Matrix Spike Dup | 0170551-M                             | ISD1 B      | 701339-01    |        |                                       |                  |        |       |      | <u>2,3</u> |
| Aroclor 1260     | 1/30/97                               | 333         | ND           | 324    | ug/kg                                 | 37.0-98.0        | 97.3   | 38.0  | 3.73 |            |
| Surrogate: TCX   | "                                     | 6.67        |              | 7.36   | "                                     | 38.0-117         | 110    |       |      |            |
| Duitoguie. ICA   |                                       | 0.07        |              |        |                                       |                  |        |       |      |            |

North Creek Analytical, Inc.

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

Matthew Essig,



PORTLAND • (503) 643-9200 • FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse
Project Number: 1278-02

whouse Sampled: 1/20/97 Received: 1/21/97

Project Manager: Rick Osgood

Reported: 2/4/97 14:16

# Volatile Organic Compounds by EPA Method 8240B/Quality Control North Creek Analytical - Bothell

|                           | Date       | Spike      | Sample   | QC     |         | Reporting Limit    | Recov.       | RPD   | RPD      |
|---------------------------|------------|------------|----------|--------|---------|--------------------|--------------|-------|----------|
| Analyte                   | Analyzed   | Level      | Result   | Result | Units   | Recov. Limits      | %            | Limit | % Notes* |
| Batch: 0170566            | Date Prepa | red: 1/29/ | 97       |        | Extrac  | tion Method: EPA   | A 5030       |       |          |
| Blank                     | 0170566-BI |            | <u> </u> |        | ZATITUE | cion interious B11 | <u> </u>     |       |          |
| Acetone                   | 1/29/97    | <u> </u>   |          | ND     | ug/l    | 10.0               |              |       |          |
| Benzene                   | 11 23131   |            |          | ND     | "       | 1.00               |              |       |          |
| Bromodichloromethane      | Ħ          |            |          | ND     | "       | 1.00               |              |       |          |
| Bromoform                 | n          |            |          | ⊵ ND   | **      | 1.00               |              |       |          |
| Bromomethane              |            |            |          | ND     | n       | 1.00               |              |       | •        |
| 2-Butanone                | n          |            |          | ND     | "       | 10.0               |              |       |          |
| Carbon disulfide          | n          |            |          | ND     | "       | 1.00               |              |       |          |
| Carbon tetrachloride      | 'n         |            |          | ND     | "       | 1.00               |              |       |          |
| Chlorobenzene             | n ·        |            |          | ND     | "       | 1.00               |              |       |          |
| Chloroethane              |            |            |          | ND     | "       | 1.00               | • •          |       |          |
| Chloroform                | n .        |            |          | ND     | **      | 1.00               |              |       |          |
| Chloromethane             | n ·        |            |          | ND     | . "     | 1.00               |              |       | •        |
| Dibromochloromethane      | U          | •          |          | ND     | . 11    | 1.00               |              |       |          |
| 1,1-Dichloroethane        | n          |            |          | ND     | n       | 1.00               |              |       | * *      |
| 1,2-Dichloroethane        | , " u      |            |          | ND     | H       | 1.00               |              |       |          |
| 1,1-Dichloroethene        | "          |            |          | ND     | н       | 1.00               |              |       |          |
| cis-1,2-Dichloroethene    |            |            |          | ND     | . 17    | 1.00               |              |       |          |
| trans-1,2-Dichloroethene  | "          |            |          | ND     | 11      | 1.00               |              |       |          |
| 1,2-Dichloropropane       | n          |            |          | ND     | "       | 1.00               |              |       |          |
| cis-1,3-Dichloropropene   | n          |            |          | ND     | "       | 1.00               |              |       | V        |
| trans-1,3-Dichloropropene | "          |            |          | ND     | 11      | 1.00               |              |       |          |
| Ethylbenzene              | 11         |            |          | ND     | "       | 1.00               |              |       |          |
| 2-Hexanone                | 11         |            |          | ND     | "       | 10.0               |              |       |          |
| Methylene chloride        | 11         |            |          | ND     | **      | 5.00               |              |       |          |
| 4-Methyl-2-pentanone      | . 10       |            |          | ND     | . "     | 10.0               |              |       |          |
| Styrene                   | n          |            |          | ND     | **      | 1.00               |              |       |          |
| 1,1,2,2-Tetrachloroethane | 11         |            |          | . ND   | 11      | 1.00               |              |       |          |
| Tetrachloroethene         | D.         |            |          | ND     | 11      | 1.00               |              |       |          |
| Toluene                   | 19         |            |          | ND     | 19      | 1.00               |              |       | -        |
| 1,1,1-Trichloroethane     | 11         |            |          | ND     | 11      | 1.00               |              |       |          |
| 1,1,2-Trichloroethane     | n          |            | ÷ . •    | ND     | n       | 1.00               |              |       |          |
| Trichloroethene           | n          |            | ~        | ND     |         | 1.00               |              |       |          |
| Vinyl chloride            | "          |            |          | ND     | **      | 1.00               |              |       |          |
| Xylenes (total)           |            |            |          | ND     | **      | 2.00               |              |       |          |
| Surrogate: 1,2-DCA-d4     | ,,         | 12.5       | ·        | 12.3   | "       | 80.0-120           | 98.4         |       |          |
| Surrogate: Toluene-d8     | "          | 12.5       |          | 12.6   | "       | 80.0-120           | <i>101</i> . |       |          |
| Surrogate: 4-BFB          | , <b>"</b> | 12.5       |          | 12.3   | "       | 80.0-120           | 98.4         |       | 1.       |
|                           | •          |            |          |        |         |                    |              |       |          |

North Creek Analytical, Inc.

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



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Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Sampled: 1/20/97 Received: 1/21/97

Project Number: 1278-02 Project Manager: Rick Osgood

Reported: 2/4/97 14:16

# Volatile Organic Compounds by EPA Method 8240B/Quality Control North Creek Analytical - Bothell

|                          | Date       | Spike               | Sample           | QC      |            | Reporting Limit | Recov.      | RPD        | RPD   |        |
|--------------------------|------------|---------------------|------------------|---------|------------|-----------------|-------------|------------|-------|--------|
| Analyte                  | Analyzed   | Level               | Result           | Result  | Units      | Recov. Limits   | %           | Limit      | - %   | Notes* |
| •                        |            |                     |                  |         |            |                 |             |            |       |        |
| Matrix Spike             | 0170566-M  | <u>S1</u> <u>B</u>  | <u>701242-04</u> |         |            |                 |             |            |       |        |
| Benzene                  | 1/29/97    | 5                   | ND               | 5.28    | ug/l       | 80.0-120        | 106         |            |       |        |
| Chlorobenzene            | "          | 5                   | ND               | 5.13    | **         | 80.0-120        | 103         |            |       |        |
| 1,1-Dichloroethene       | "          | 5                   | ND               | 5.19    | H          | 80.0-120        | 104         |            |       |        |
| Toluene                  | n .        | 5                   | ND               | 5.08    | 11         | 80.0-120        | 102         | .s .       |       |        |
| Trichloroethene          | 'n         | 5                   | ND .             | hg 5.28 | **         | 80.0-120        | 106         | <u>ر</u> ۲ |       |        |
| Surrogate: 1,2-DCA-d4    | . "        | 12.5                |                  | 13.0    | "          | 80.0-120        | 104         |            |       |        |
| Surrogate: Toluene-d8    | <b>"</b> . | 12.5                |                  | 12.5    | "          | 80.0-120        | 100         |            |       |        |
| Surrogate: 4-BFB         | "          | 12.5                |                  | 12.4    | "          | 80.0-120        | <i>99.2</i> |            |       |        |
| Matuir Sailea Dun        | 0170566-M  | eni p               | 701242-04        |         |            | •               |             |            |       |        |
| Matrix Spike Dup Benzene | 1/29/97    | <u>5D1</u> <u>D</u> | 701242-04<br>ND  | 5.24    | ug/l       | 80.0-120        | 105         | 15.0       | 0.948 |        |
| Chlorobenzene            | . "        | 5                   | ND               | 5.07    | ug/1       | 80.0-120        |             | 15.0       | 1.96  |        |
| 1,1-Dichloroethene       | "          | 5                   | ND               | 5.11    | 11         | 80.0-120        |             | 15.0       | 1.94  | •      |
| Toluene                  |            | 5                   | ND               | 5.05    | 17         | 80.0-120        |             | 15.0       | 0.985 |        |
| Trichloroethene          |            | 5                   | ND               | 5.26    | n .        | 80.0-120        |             | 15.0       | 0.948 |        |
| Surrogate: 1,2-DCA-d4    | "          | 12.5                | 1112             | 12.9    | "          | 80.0-120        | 103         |            |       |        |
| Surrogate: Toluene-d8    | "          | 12.5                |                  | 12.5    | "          | 80.0-120        | 100         |            |       |        |
| Surrogate: 4-BFB         |            | 12.5<br>12.5        |                  | 12.3    | <b>"</b> . | 80.0-120        | 98.4        |            |       |        |
|                          |            |                     |                  |         |            |                 |             |            | *     | _      |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97

Received: 1/21/97

Reported: 2/4/97 14:16

#### **Notes and Definitions**

| #      | Note                                                                                                                                                                                                                |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.                                                                                                                        |
| 2      | To reduce matrix interference, the sample extract has undergone sulfuric acid clean-up, method 3665, which is specific to hydrocarbon contamination.                                                                |
| 3      | To reduce matrix interference, the sample extract has undergone copper clean-up, method 3660, which is specific to sulfur contamination.                                                                            |
| 4      | The sample chromatographic pattern does not resemble the fuel standard used for quantitation.                                                                                                                       |
| 5      | Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit.                                                                                                        |
| 6      | The spike recovery for this QC sample is outside of established control limits. Review of associated batch QC indicates the recovery for this analyte does not represent an out-of-control condition for the batch. |
| DET    | Analyte DETECTED                                                                                                                                                                                                    |
| ND     | Analyte NOT DETECTED at or above the reporting limit                                                                                                                                                                |
| NR     | Not Reported                                                                                                                                                                                                        |
| dry    | Sample results reported on a dry weight basis                                                                                                                                                                       |
| Recov. | Recovery                                                                                                                                                                                                            |
| RPD .  | Relative Percent Difference                                                                                                                                                                                         |

North Creek Analytical, Inc.

DOCUMENT BTOL 242

# CHAIN OF CUSTODY

TETRA TECH, INC. 15400 NE 90th, Suite 100 Redmond, Washington 98052 (206) 883-1912 FAX (206) 881-6997

| PROJECT NAME                            | Sunday -                            | 370          | , Q                     | S 7                       | PROJECT NO.                 | 10.<br>5.02 |                 |        |             |          | 11072                 |                          |         |
|-----------------------------------------|-------------------------------------|--------------|-------------------------|---------------------------|-----------------------------|-------------|-----------------|--------|-------------|----------|-----------------------|--------------------------|---------|
| SAMPLERS: (signature)                   | CS (                                | CANACO       | The                     |                           |                             |             |                 |        | /S/17       | _        |                       | _                        | -       |
| Tt Contact:                             | _                                   |              |                         |                           | MEDIA                       | -           | Γ               |        | $\bigcirc$  | V ,      | 7-                    | _                        |         |
|                                         |                                     |              | -                       |                           | . 1                         |             |                 |        | _           | ٠. `     | / /b/50/              |                          |         |
| SAMPLE ID T                             | TIME DATE                           |              | jir<br>Surface<br>Water | Sround<br>Stound<br>Vater | lios                        | fuemibes    | NATION          | MUMBER | TOH<br>TOH  |          | PC E                  | REMARKS                  |         |
| Trio Blink                              | 1/20                                | 40/02        | 1                       |                           | ┼                           | 12          |                 | 2      |             | ×        |                       | B701242-01               |         |
| 3-40                                    | 0920                                |              |                         |                           | ×                           |             |                 |        |             |          |                       | 60-                      |         |
| 1                                       | 0630                                |              |                         | X                         |                             |             | •               | ,<br>T | X           |          |                       | - 63                     |         |
| 22                                      | 040/                                |              |                         | X                         |                             |             |                 | 70     | ×           | X        |                       | さり                       |         |
|                                         | 1120                                |              |                         | X                         |                             |             |                 | 3      |             | XX       |                       | -05                      |         |
| ۱,                                      | 1155                                |              |                         | X                         |                             | -           |                 | 3      |             | X        |                       | 9() -                    |         |
| ١١                                      | 1255                                |              |                         | ×                         |                             |             |                 | 3      |             | X        |                       | -01                      |         |
| 1                                       | 1340                                |              |                         | X                         |                             |             |                 | 3      |             | X        | ~                     | - 08                     |         |
| 153                                     | 14/40                               |              |                         |                           | X                           |             |                 |        |             | X        |                       | 50 -                     |         |
| 301                                     | 1455                                |              |                         | ×                         | •                           |             |                 | 3      |             | X        |                       | Ol -                     |         |
| Tim rater - GW 8                        | 049/                                |              |                         | X                         |                             |             |                 | 3      |             | X        |                       |                          |         |
| Tunscher GNIS                           | 1700                                |              |                         | ×                         |                             | -           |                 | i      |             | X        |                       |                          |         |
|                                         | 17/5                                |              |                         | .                         | X                           |             | ·               |        |             |          | <u> </u>              | 115/2 For Amelys         | 515     |
|                                         |                                     |              |                         |                           |                             |             |                 |        |             |          |                       | -                        | ,       |
|                                         |                                     |              | -                       |                           |                             |             |                 |        |             |          |                       |                          |         |
|                                         |                                     |              |                         |                           |                             |             |                 |        | +           |          |                       |                          |         |
|                                         |                                     |              | _                       | _                         |                             | -           |                 |        |             |          |                       |                          |         |
|                                         |                                     |              |                         |                           |                             |             |                 |        |             |          |                       |                          |         |
|                                         |                                     |              |                         | _                         |                             | $\dashv$    |                 |        | _           |          |                       |                          |         |
|                                         |                                     |              | -                       | _                         |                             | $\dashv$    |                 | -      | 1           | T Scar   |                       | DATECTIME                |         |
| RELINQUISHED BY (signature)             | DATE/TIME                           | TIME //35:07 | 101                     | TOTAL NUMBEI              | MBER                        | OF CC       | R OF CONTAINERS | RS     |             | KE CIVE  | MARKET TOWN (A)       | 151 46-12-1              | 20      |
| RECEIVED BY (signature)                 | DATE/TIME                           |              | RELINC                  | RELINQUISHED BY           | D BY (s                     | (signature) | (6              | DA     | DATE/TIME   | CONDITIC | CONDITION OF CONTENTS | TEMPERATURE UPON RECEIPT | RECEIPT |
| RELINQUISHED BY (signature)             | DATE/TIME                           | † -          | RECEN                   | /ED BY                    | RECEIVED BY (signature)     | ure)        |                 | DA     | DATE/TIME   | REMARKS  | 1                     |                          |         |
| RECEIVED BY (signature)                 | DATE/TIME                           |              | METHOD OF SHIPM         | DO OF                     | HIPME                       | ENT         |                 | AIF    | AIRBILL NO. |          |                       |                          |         |
| Distribution: Original - Lab Copy Yello | Yellow copy - Final Tetra Tech Copy | ech Cop      |                         | k Copy                    | Pink Copy - Field File Copy | Copy        |                 |        |             | :        |                       |                          | ) « (   |



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Redmond, WA 98052 Project: Tumwater Brewhouse

Project Number: 1278-02

Project Manager: Rick Osgood

Sampled: 1/20/97

Received: 2/12/97 Reported: 2/18/97 16:28

## ANALYTICAL REPORT FOR SAMPLES:

| Sample Description | Laboratory Sample Number | Sample Matrix | Date Sampled |
|--------------------|--------------------------|---------------|--------------|
| TUMWATER-GW3       | B702145-01               | Water         | 1/20/97      |
| TUMWATER-GW8       | B702145-02               | Water         | 1/20/97      |

orth Creek Analytical, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document.

This analytical report must be reproduced in its entirety.

latthew Essig, Project Manager



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. 15400 NE 90th, Ste 100 Project:

Tumwater Brewhouse

Sampled: 1/20/97

Redmond, WA 98052

Project Number: 1278-02

Received: 2/12/97

Project Manager: Rick Osgood

2/18/97 16:28 Reported:

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

| Analyte      | Batch<br>Number | Date<br>Prepared | Date<br>Analyzed | Specific<br>Method | Reporting<br>Limit | Result  | Units | Notes* |
|--------------|-----------------|------------------|------------------|--------------------|--------------------|---------|-------|--------|
| TUMWATER-GW3 |                 |                  | B7021            | 45-01              |                    |         | Water | . ?    |
| Arsenic      | 0270290         | 2/18/97          | 2/18/97          | EPA 7060A          | 0.00400            | ND      | mg/l  |        |
| Lead         | . 11            | . "              | <b>11</b> .      | EPA 7421           | 0.00200            | 0.0126  | "     |        |
| TUMWATER-GW8 |                 |                  | B7021            | <u>45-02</u>       |                    |         | Water |        |
| Arsenic      | 0270290         | 2/18/97          | 2/18/97          | EPA 7060A          | 0.00400            | 0.00620 | mg/l  |        |
| Lead         | H               | **               | 11               | EPA 7421           | 0.00200            | 0.0159  | . #   |        |

North Creek Analytical, Inc.

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



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

Tetra Tech, Inc.

Project: Tumwater Brewhouse

Sampled: 1/20/97

15400 NE 90th, Ste 100 Redmond, WA 98052

Project Number: 1278-02

Received: 2/12/97

Project Manager: Rick Osgood

Reported: 2/18/97 16:28

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

|                  | Date                        | Spike      | Sample            | QC              |           | Reporting Limit  | Recov.         | RPD >   | RPD     |
|------------------|-----------------------------|------------|-------------------|-----------------|-----------|------------------|----------------|---------|---------|
| Analyte          | Analyzed                    | Level      | Result            | Result          | Units     | Recov. Limits    | %              | Limit 5 | % Notes |
| Batch: 0270290   | Date Prepa                  |            | <u>97</u>         |                 | Extra     | ction Method: EP | <u> 4 3020</u> | •       |         |
| Blank<br>Arsenic | <u>0270290-B</u><br>2/18/97 | <u>LK1</u> |                   | ND              | mg/l      | 0.00400          |                |         |         |
| Lead             | 11                          |            | •                 | ND              | **        | 0.00200          |                |         | ·       |
| LCS              | 0270290-В                   |            |                   | 10 04 <b>50</b> | ,,        | 75.0.125         | 06.6           |         |         |
| Arsenic          | 2/18/97                     | 0.0500     |                   | 0.0478          | mg/l<br>" | 75.0-125         | 95.6           |         |         |
| Lead             | ••                          | 0.0250     |                   | 0.0264          | "         | 75.0-125         | 106            |         |         |
| <u>Duplicate</u> | 0270290-D                   | UP1 B      | 702145 <u>-01</u> |                 |           |                  |                |         |         |
| Arsenic          | 2/18/97                     |            | ND                | ND              | mg/l      |                  |                | 20.0    |         |
| Lead             | 11                          |            | 0.0126            | 0.0126          | **        | <del></del>      |                | 20.0    | 0       |
| Matrix Spike     | 0270290-M                   | IS1 B      | 702145-01         |                 |           |                  |                |         |         |
| Arsenic          | 2/18/97                     | 0.0500     | ND                | 0.0515          | mg/l      | 70.0-130         | 103            |         |         |
| Lead             | <u>"</u>                    | 0.0250     | 0.0126            | 0.0408          | n         | 70.0-130         | 113            |         |         |
| Matrix Spike Dup | 0270290-M                   | ISD1 B     | 702145-01         |                 |           |                  |                |         |         |
| Arsenic          | 2/18/97                     | 0.0500     | ND                | 0.0486          | mg/l      | 70.0-130         | 97.2           | 20.0    | 5.79    |
| Lead             | . ••                        | 0.0250     | 0.0126            | 0.0402          | "         | 70.0-130         | 110            | 20.0    | 2.69    |
|                  |                             |            |                   |                 |           |                  |                |         | 1 1910  |

North Creek Analytical, Inc.

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



PORTLAND = (503) 643-9200 = FAX 644-2202

Tetra Tech, Inc. Project:

15400 NE 90th, Ste 100 Project Number: 1278-02

Redmond, WA 98052 Project Manager: Rick Osgood

Sampled: 1/20/97

Received: 2/12/97 Reported: 2/18/97 16:28

#### **Notes and Definitions**

Tumwater Brewhouse

Note

•

Analyte DETECTED

ND

DET

Analyte NOT DETECTED at or above the reporting limit

NR

Not Reported

dry

Sample results reported on a dry weight basis

Recov.

Recovery

**RPD** 

Relative Percent Difference

North Creek Analytical, Inc.

Matthew Essig, Project Manager

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

Page 4 of 4

Redmond, Washington 98052 (206) 883-1912 FAX (206) 881-6997 TETRA TECH, INC. 15400 NE 90th, Suite 100

# CHAIN OF CUSTODY

DOCUMENT BTOLZY A

Analysis 15 TEMPERATURE UPON RECEIPT 50 -05 = -06 101 さノ -03 - 63 B701242-0 DATE/TIME |-2|-97 REGEIVED FOR LAB BY (Signature) CONDITION OF CONTENTS, X DATE/TIME SISYTAMA **TOTAL NUMBER OF CONTAINERS** NUMBER OF CONTAINERS RW 3 3 ç 3 M 3 PROJECT NO. 127-8-03 MAYER RELINQUISHED BY (signature) Sediment MEDIA X lios Ground Water X Surface Water - Brewhouse ٦iA 40/04 (2/4/135O DATE/TIME DATE/TIME DATE 0920 1455 1700 0630 040 1440 049 715 1340 1255 120 1155 TIME SAMPLERS: (signature) Rel Tumwater-583-40 RELINGUISHED BY (signature) Tumwater-589-3.5 umukater-GW2 Tumoder-GW15 Turnster-6W6 humster-6W5 Tumwater-Gw7 Tumuster-GWH Lumweer-6W3 Tumsater-GW8 Tumboder- SS B RECEIVED BY (signardine) umister-GWI Trip Blank PROJECT NAME SAMPLE ID Tt Contact:

Pink Copy - Field File Copy

REMARKS

DATE/TIME

RECEIVED BY (signature)

DATE/TIME

RELINQUISHED BY (signature)

RECEIVED BY (signature)

METHOD OF SHIPMENT

DATE/TIME

AIRBILL NO.

Iginal Lab Copy Yellow copy - Final Tetra Tech Copy