

Kennedy/Jenks Consultants

Engineers & Scientists

32001 32nd Avenue South, Suite 100
Federal Way, Washington 98001
253-835-6400
FAX: 253-952-3435

27 April 2010

Mr. Steve Teel
Department of Ecology
Toxics Cleanup Program
Southwest Regional Office
P.O. Box 47775
Olympia, Washington 98504-7775

Subject: Groundwater Investigation Work Plan
Puyallup River Side Channel Investigation
Former Tacoma Metals Facility
K/J 996098.00

Dear Mr. Teel:

This letter presents the work plan for a groundwater investigation at off-property locations associated with the former Tacoma Metals property located at 1919 Portland Avenue in Tacoma, Washington (site). This Groundwater Investigation Work Plan (Work Plan) identifies the scope of work to be performed to further define the lateral limits of hydrocarbon compounds observed in groundwater at the site. Specifically, this investigation includes off-property investigations east of the site boundary.

Background

Since completion of the Remedial Investigation/Feasibility Study (RI/FS) in 2001, four additional on-property investigations (August 2002, February/March 2003, November/December 2003, and July 2008) have been conducted in the northwestern portion of the property, and three off-property investigations (March 2004, March 2005, February 2006) have been conducted in the East 18th Street right-of-way, Simpson property, and the JJ Port property northwest of the former Tacoma Metals property boundary. These investigations have been performed in the vicinity of a former retort located near the northwestern corner of the site and surrounding areas. Existing monitoring wells and previous soil boring locations are shown on Figure 1 (attached).

The results of these previous onsite and off-property investigations are summarized in Kennedy/Jenks Consultants *Site Data Summary* report and the 2008 *Soil and Groundwater Investigation Results – Data Transmittal*, which includes data tables, analyte concentration contour maps, and copies of analytical reports. These past investigation indicate that the lateral extent of hydrocarbon compounds in groundwater have been defined throughout the site except

Mr. Steve Teel
Department of Ecology
27 April 2010
Page 2

to the east of monitoring well MW-8R. The purpose of this investigation is to collect samples indicative of groundwater migrating from the vicinity of MW-8R towards to Puyallup River Side Channel (PRSC) constructed habitat area. Previous site inspection activities have not indicated the presences of any surface water seeps on the PRSC bank; therefore, surface water sampling is not included in this Work Plan.

Scope of Work

The scope of work for this investigation includes the following general tasks:

- Install up to three temporary groundwater piezometers along the PRSC.
- Collect groundwater samples from these new piezometers for chemical analysis of polycyclic aromatic hydrocarbons (PAHs) and benzene, ethylbenzene, toluene and xylene (BTEX).
- Collect groundwater samples from selected monitoring wells located in the northwestern portion of the site for chemical analysis of PAHs and BTEX.

Specific field activities related to the implementation and performance of these tasks are described below.

Field Activities

Field activities will be conducted in general accordance with the standard operating guidelines presented in the *Work Plan/Sampling and Analysis Plan, Tacoma Metals, Inc. Site*, dated June 1998, prepared for the RI/FS.

Prior to drilling activities, a utility survey will be performed to evaluate the potential for underground utilities at each proposed soil boring/well location.

Temporary Piezometer Installation

Three hand-driven piezometers will be installed at off-property locations within the levee back slope (facing the Puyallup River) at the approximate locations shown on Figure 2 (attached). Actual piezometer locations are subject to change based on field conditions. Kennedy/Jenks Consultants will coordinate access to the PRSC bank through the Army Corp of Engineers (Corps).

Piezometers will be constructed of 1-inch to 2-inch-diameter stainless steel well points. The screen portion of the well points will consist of a 2-foot section of stainless steel screen with 0.010-inch slot size (or smaller). The drive pipe will consist of galvanized steel pipe coupled to the drive point. The piezometers will be advanced with a slide hammer or similar techniques to approximately 5 feet below the top of the water table at low tide or until refusal. Because the piezometers are temporary, a well seal will not be installed. [Note: If necessary, a variance for

Mr. Steve Teel
Department of Ecology
27 April 2010
Page 3

the piezometer construction will be obtained from the Washington State Department of Ecology (Ecology) prior to beginning this work].

Upon reaching the target depth, the piezometers will be purged until relatively clear groundwater is produced. Groundwater samples will be collected using a peristaltic pump with the bottom of the intake tube positioned just above the top of the screen interval. During sampling, piezometers will be purged at a slow rate [less than 0.25 gallons per minute (gpm)] to minimize sample turbidity until field parameters (pH, temperature, and conductivity) are stabilized (approximately three casing volumes). Sampling purge water will be contained in drums and retained on the former Tacoma Metals property, pending disposal.

Groundwater samples will be submitted for chemical analysis of total and dissolved PAHs by EPA Method 8270C, in SIM mode where practicable, and BTEX using EPA Method 8260B. Samples analyzed for dissolved PAHs will be filtered by the analytical laboratory using a 0.70-micron glass fiber filter to minimize entrained particulate matter in the samples. Groundwater samples for chemical analysis will be stored in a cooled ice chest pending transportation to a certified analytical laboratory under chain-of-custody protocol.

It is anticipated that piezometer installation, completion and groundwater sampling will be facilitated within the same day.

Following sample collection, piezometers will be removed and the borings sealed immediately in accordance with the requirements of Washington Administrative Code (WAC) Chapter 173-160-450(4)(a)(ii). This includes sealing the annular space of each boring (approximately 2 inches in diameter) with granular bentonite hydrated with water. This sealing method used will result in a continuous and effective seal meeting the minimum sealing standards of WAC Chapter 173-160. Should installation, completion, and sampling activities require time in excess of one day, piezometers will be removed without delay after sampling has been completed.

Groundwater Monitoring Well Sampling

Concurrent with piezometer sampling, selected conditional point-of-compliance (CPOC) wells (both on-property and off-property) in the northwestern portion of the site (along the northern/eastern site boundary) will be sampled to assess groundwater concentrations migrating to the PRSC. The wells that will be sampled include MW-19, MW-20, MW-23, MW-29, and MW-35 (refer to Figure 1). Analytical results from these sampling activities will be used to provide a contemporaneous comparison of PAH concentrations with the piezometer sampling results.

Groundwater samples will be collected using a peristaltic pump with the bottom of the intake tube positioned just above the top of the well screen interval. The tube intake position is intended to maximize the potential for the entire well screen interval to be represented in the sample. Wells will be purged at a slow rate (less than 0.25 gpm) to minimize sample turbidity until field parameters (pH, temperature, and conductivity) are stabilized (approximately three

Mr. Steve Teel
Department of Ecology
27 April 2010
Page 4

casing volumes). Sampling purge water will be contained in 55-gallon drums and retained on the former Tacoma Metals property pending disposal.

Groundwater samples will be submitted for chemical analysis of total and dissolved PAHs by EPA Method 8270C, in SIM mode where practicable, and BTEX using EPA Method 8260B. Samples analyzed for dissolved PAHs will be filtered by the analytical laboratory using a 0.70-micron glass fiber filter to minimize entrained particulate matter in the samples.

Groundwater samples for chemical analysis will be stored in a cooled ice chest pending transportation to a certified analytical laboratory under chain-of-custody protocol.

Laboratory Analyses

Groundwater samples will be submitted under standard chain-of-custody protocol to Freidman & Bruya, Inc. of Seattle, Washington, (or equivalent laboratory) for analysis, and will be analyzed on a standard turn-around basis (approximately 3 weeks).

Schedule

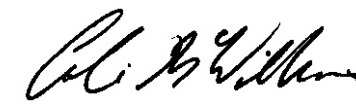
This schedule is dependent upon the Corps' and Ecology's approval of this Work Plan and contingent upon arranging access to the PRSC. Field activities are anticipated to be conducted within approximately 1 week after receipt of the Corps and Ecology approval and after securing access to the sampling area.

If you have any questions regarding the information presented in this Work Plan, please call us at (253) 835-6400.

Very truly yours,

KENNEDY/JENKS CONSULTANTS

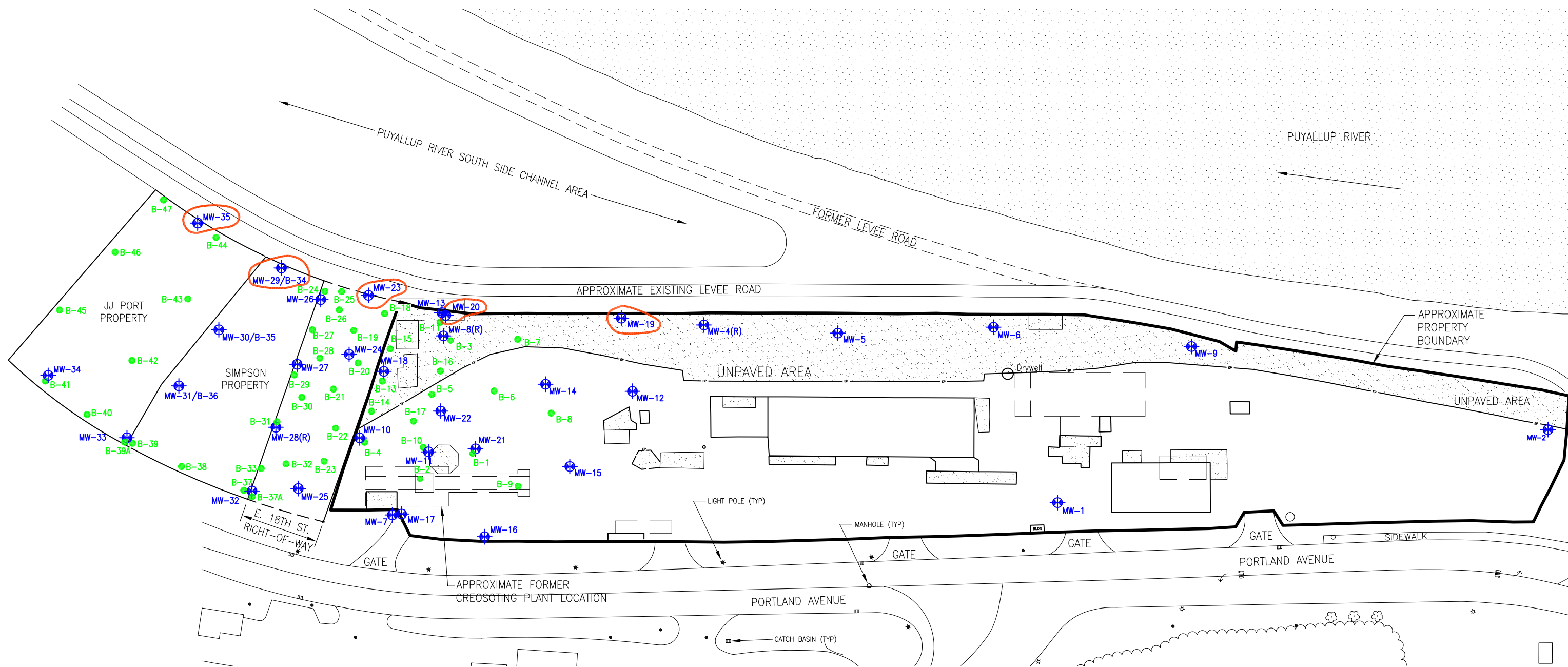

Ty C. Schreiner, L.Hg.
Industrial Services Manager


Colin McWilliams, CPSSc
Environmental Scientist

Attachments

cc: Mr. Guy Sternal, Eisenhower & Carlson, PLLC
Mr. Bill Hengemihle, LECG
Mr. Anthony Doersam, US Army Corps of Engineers

Figures

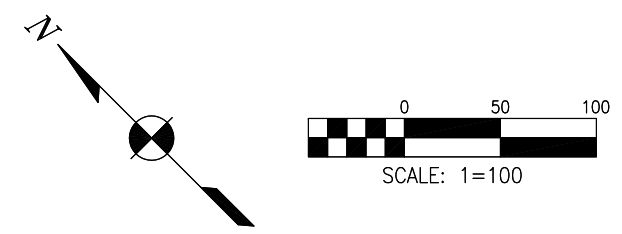


LEGEND:

- B-1 SOIL BORING LOCATION
- ⊕ MW-26 MONITORING WELL LOCATION
- ⊕ MONITORING WELL TO BE SAMPLED
- UNPAVED AREA
- APPROXIMATE PREVIOUS STRUCTURE LOCATION (IDENTIFIED IN HISTORICAL AERIAL PHOTOGRAPHS AND/OR SANBORN MAPS)

NOTES:

- BORING AND WELL LOCATIONS ARE BASED ON SITE SURVEY BY EARTH TECH, INC. ON 28 MARCH 2000, 13 MARCH 2003, 31 DECEMBER 2003, 14 APRIL 2004, 21 APRIL 2005, 29 MARCH 2006, AND 11 APRIL 2008.



Kennedy/Jenks Consultants
 FORMER TACOMA METALS FACILITY
 TACOMA, WA

MONITORING WELL AND BORING LOCATION MAP




996098.00\2010 GW WORKPLAN\FIG_01

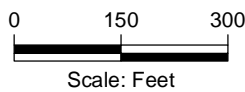
FIGURE 1



Path:

Legend

-  Proposed Temporary Piezometer Locations
-  Roads
-  Site Boundary



AERIAL SOURCE: PORT OF TACOMA 2007

Kennedy/Jenks Consultants

FORMER TACOMA METALS SITE
TACOMA, WASHINGTON

**PROPOSED TEMPORARY
PIEZOMETER LOCATIONS**

0996098*00
MARCH 2010

FIGURE 2