



ROBINSON[™]
NOBLE

FOUNDER'S CHOICE CABINETS
AND COUNTERTOPS (SW1292)
1517 S. TACOMA WAY
TACOMA, WASHINGTON
LONG-TERM GROUNDWATER MONITORING PLAN

OCTOBER 2013

by

DRAFT

John F. Hildenbrand
Associate Environmental Scientist
Environmental Services Manager

Founder’s Choice Cabinets and Countertops (SW1292)
1517 S. Tacoma Way, Tacoma, Washington
Long-Term Groundwater Monitoring Plan
October 2013

1.0 INTRODUCTION 1
 1.1 PURPOSE AND SITE IDENTIFICATION 1
 1.2 REGIONAL GEOLOGY/HYDROGEOLOGY 1
2.0 BACKGROUND 1
3.0 PERIODIC MONITORING 1
 3.1 SCHEDULE..... 1
 3.2 METHODOLOGY..... 1
4.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)..... 2
 4.1 DAILY FIELD QA/QC 2
 4.2 SAMPLE PACKAGING AND SHIPPING..... 2
 4.3 CHAIN-OF-CUSTODY..... 2
 4.4 LABORATORY QA/QC 2
5.0 REPORTING 2

TABLES

- TABLE 1 PROPOSED SAMPLING DATES: FIRST FIVE-YEAR INTERVAL
- TABLE 2 CONTAMINANT OF CONCERN

FIGURES

- FIGURE 1 AREAS OF RESIDUAL CONTAMINATED SOIL
- FIGURE 2 MONITOR WELL LOCATION MAP

Founder's Choice Cabinets and Countertops (SW1292)
1517 S. Tacoma Way, Tacoma, Washington
Long-Term Groundwater Monitoring Plan
October 2013

1.0 Introduction

1.1 Purpose and Site Identification

This work plan details the post-no-further-action groundwater monitoring required by the environmental covenant for Founder's Choice Cabinets and Countertops at 1517 South Tacoma Way, Tacoma, Washington. Soil contamination at the subject site is being addressed under the Washington State Department of Ecology (Ecology) voluntary cleanup program (VCP).

2.0 Background

The impacted area encompasses portions of the subject contaminated by heating oil-range hydrocarbons in soil proximal to the former location of a 500-gallon heating-oil tank removed from the site. Previous efforts have established that groundwater is not impacted. However, approximately 875 tons of impacted soils remain on site as depicted in Figure 1. Implementation of institutional controls has been selected as the most appropriate closure mechanism for this residual soil impact. These controls are specified in the environmental covenant to which this long-term monitoring plan is appended.

3.0 Periodic Monitoring

3.1 Schedule

The five existing monitoring wells (see Figure 2) will be sampled at 18-month intervals for a minimum of 5 years. The first monitoring event will occur in April 2015. Each additional sampling event will be completed every 18 months thereafter. The following table shows the anticipated month and year of the sampling events.

Table 1. Proposed sampling dates

Event *	Date
1	April 2015
2	December 2016
3	August 2017

*To reoccur on an 18-month interval unless Ecology approves a change in frequency.

After completion of the first five-year interval, Ecology will be asked to review the data and determine whether or not monitoring can be terminated.

3.2 Methodology

Prior to sampling, water levels will be sounded and the wells opened and allowed to stabilize. Water levels from the three wells will be used to calculate the groundwater gradient which will be presented in the monitoring reports.

A peristaltic pump and dedicated tubing will be used to sample each well. Samples will be collected after at least three volumes of water are purged from the wells and field measurements of temperature, conductivity, total dissolved solids, and dissolved oxygen stabilize (within measurement error limits).

Water samples will be placed into laboratory-supplied, pre-cleaned containers with proper preservatives for delivery to an accredited laboratory. The samples will be transferred to in a laboratory-supplied, thick-walled cooler containing blue ice. The samples will then be delivered to Libby Environmental, Inc. of Olympia, Washington. The samples will be analyzed using Ecology NWTPH-Dx for heating-oil (diesel) range petroleum hydrocarbons.

Table 2. Contaminant of concern

Analyte	MTCA Method A Cleanup Levels ($\mu\text{g/L}$)
Diesel	500

4.0 Quality Assurance/Quality Control (QA/QC)

4.1 Daily Field QA/QC

The project manager will review documentation including sample logs, custody forms, and field logs prior to samples being delivered to the laboratory. Review will be done for completeness, accuracy, and consistency.

4.2 Sample Packaging and Shipping

The groundwater samples collected for chemical analysis will be kept out of direct sunlight and checked for label completeness and cap tightness. All samples submitted to the laboratory shall be thermally preserved in the field (four degrees Celsius) immediately after sample collection by placing them upright in a pre-cooled, insulated ice chest containing uncontaminated blue ice[®]. Only coolers constructed of plastic or fiberglass standard to those provided by environmental analytic laboratories will be used. The coolers will not have drains.

4.3 Chain-of-Custody

A chain-of-custody form will accompany samples submitted to the laboratory.

4.4 Laboratory QA/QC

A narrative regarding quality assurance and quality control will be provided with the laboratory analysis reports. This narrative will indicate whether or not quality control is within acceptable limits.

5.0 Reporting

Each monitoring event will be documented in a report that will be submitted to Ecology. The report will document the collection and analysis of the samples, present the analytical data, and comment on the quality assurance and quality control for the project. The reports will include interpretation of the data and include any recommendations that the data may warrant.

FIGURES

Legend:

- B12 - 14' Sample Identification and Depth
- Excavation Boundary
- Approximate Contamination Boundary
- Boring Location Concentration above MTCA Method A Cleanup Level
- Boring Location Concentration below MTCA Method A Cleanup Level

Standard MTCA A Cleanup Levels
Diesel Range Organics | 2,000 mg/kg

Note:
Red indicate concentrations above Standard MTCA Method A cleanup levels.
ND No Detection (< 25 mg/kg)

B12 - 14' = 6,810 mg/kg
B12 - 18' = ND

BUILDING

B8 - 14' = 28,000 mg/kg
B8 - 18.5' = ND

B15 - 15.5' = 6,350 mg/kg
B15 - 18' = ND

B19 - 14' = 18,700 mg/kg

B3 - 13.5' = 4,090 mg/kg
B3 - 19' = ND

ASPHALT

B13 - 24' = 7,370 mg/kg

BUILDING

B14 - 14.5' = 6,780 mg/kg

LANDSCAPING

SOUTH TACOMA WAY



PM: JFH
Oct 2013
2754-001A/B

Pierce County
T 20 N/R 03 E - 08
Scale 1" = 20'

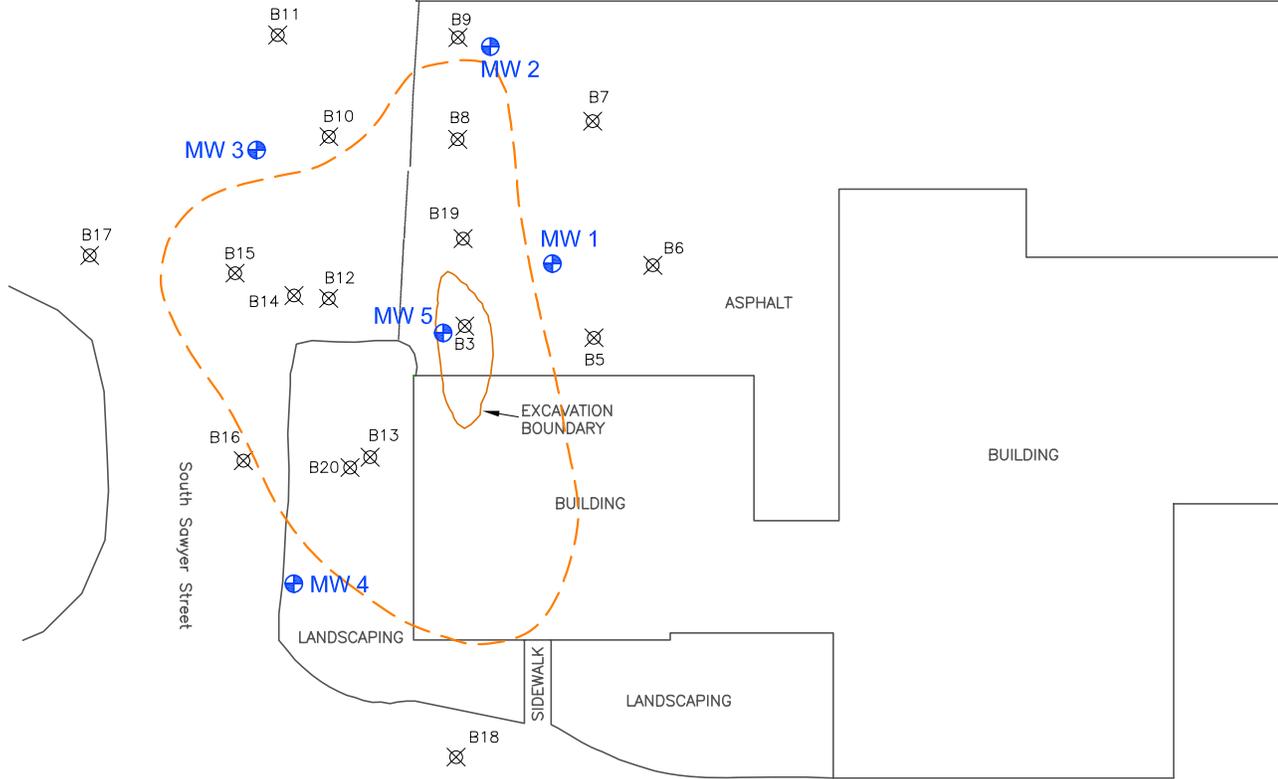
Long-Term Groundwater Monitoring Plan Figure 1
Heating Oil Tank Investigation Boring Location and
Contamination Boundary Map
Founder's Choice Cabinets: 1517 South Tacoma Way Site Investigation

Legend:

-  Monitoring Well Location
-  Boring Location
-  Plume Boundary
-  Excavation Boundary



BUILDING



SOUTH TACOMA WAY



PM: JFH
 Oct. 2013
 2754-001D

Pierce County
 T 20 N/R 03 E - 08
 Scale 1" = 20'

Long-Term Groundwater Monitoring Plan Figure 2

Monitoring Well Location Map

Founder's Choice: GW Characterization & Remedial Feas. Study