

PACIFIC groundwater **GROUP**

**SCOUGAL RUBBER CORP
POST-CLOSURE MONITORING PLAN**

**SUBMITTED TO
WASHINGTON STATE DEPARTMENT OF ECOLOGY
FEBRUARY 11, 2021**

**SCOUGAL RUBBER CORP
POST-CLOSURE GROUNDWATER MONITORING PLAN**

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February 11, 2021

TABLE OF CONTENTS

1.0	INTRODUCTION AND PURPOSE	1
2.0	HYDROGEOLOGIC SETTING	1
3.0	REMEDICATION HISTORY	1
4.0	GROUNDWATER MONITORING PLAN	2
4.1	OBJECTIVES AND DATA NEEDS.....	2
4.2	GROUNDWATER MONITORING WELL LOCATIONS	2
4.3	MONITORING PROGRAM SCHEDULE	2
4.3.1	<i>Well Inspection</i>	3
4.3.2	<i>Water Levels</i>	3
4.3.3	<i>Groundwater Sampling</i>	3
4.3.4	<i>Sample Handling and Custody</i>	3
4.3.5	<i>Laboratory Analyses</i>	3
4.3.6	<i>Field Documentation</i>	4
4.3.7	<i>Quality Assurance and Quality Control Procedures</i>	4
4.4	MANAGEMENT OF INVESTIGATION-DERIVED WASTE.....	4
4.5	DATA REVIEW AND VALIDATION.....	4
4.6	REPORTING	5
5.0	LIMITATIONS	5

FIGURES

Figure 1: Groundwater Monitoring Well Locations

SIGNATURE

This report, and Pacific Groundwater Group's work contributing to this report, were reviewed by the undersigned and approved for release.



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1.0 INTRODUCTION AND PURPOSE

The purpose of this document is to plan post-closure groundwater monitoring for the Site known as Scougal Rubber Corp (Scougal). Scougal is former Voluntary Cleanup Site NW1707 and Washington State Department of Ecology (Ecology) Facility Site #93637295. Scougal's address is 6239 Corson Ave S, Seattle, WA 98108.

As of 2020, Scougal has completed soil and groundwater investigation and remediation to Model Toxics Control Act (MTCA) standards, except localized areas of residual groundwater contamination. This plan describes post-closure groundwater monitoring that will commence with the receipt from Ecology's No Further Action with Environmental Covenant closure documentation to monitor these areas.

This plan maintains the groundwater monitoring activities required to support post-closure.

2.0 HYDROGEOLOGIC SETTING

The Scougal property overlies fine to medium silty sands with scattered, discontinuous silt and gravel stringers. These soils are commonly observed throughout the lower Duwamish area. Depth to groundwater at the site is between 7 and 9 feet. The regional groundwater flow direction is to the southwest toward the Duwamish River, approximately 0.5 miles away. Soil cores collected in 2009 identified a 6- to 12-inch thick silt layer at approximately 16 feet below ground surface (bgs) that appears to be laterally continuous.

3.0 REMEDIATION HISTORY

Petroleum- and chlorinated solvent-impacted soil was identified on the Scougal property in the late 1980s. This discovery led to remedial

action at the Site including removal of underground storage tanks, hotspot excavation, hydraulic containment, and operation of an air sparging soil vapor extraction (SVE) system. The SVE system was designed to reduce contaminant concentrations in soil and groundwater behind the Scougal main plant and beneath the adjacent Ewing Irrigation and Landscape Supply Building (former Machinists Inc., a former auto wrecking yard, property owned by LaBossier Family, L.L.C.) property to the west. The SVE system was operated intermittently from 1994 through 1999.

Operation of the SVE system reduced groundwater concentrations by approximately 90 percent and had some effectiveness in soil. In 1994, trichloroethene (TCE) (1,000 ug/L) and vinyl chloride (VC) (1,300 ug/L) concentrations at MW-14 exceeded cleanup levels. The SVE system was effective at reducing contaminant mass, but soil and groundwater concentrations remained above cleanup levels.

Scougal contacted Pacific Groundwater Group (PGG) in 2006 to develop a plan to further reduce contaminant concentrations to below cleanup levels. PGG performed additional site investigation in 2006 as the basis for further remediation.

PGG developed a Final Remedial Action Plan to address residual contamination, submitted to Ecology in 2007. With that plan, Scougal entered Ecology's Voluntary Cleanup Program (VCP) to receive Ecology's approval of the cleanup approach and to obtain a No Further Action (NFA) letter once the cleanup goals are achieved.

Upon review of the existing site documents and the Final Remedial Action Plan, Ecology provided approval of the plan on April 12, 2007. PGG then implemented the planned removal of shallow impacted soil, in-situ chemical oxidation with potassium permanganate (KMnO₄), and confirmation sampling.

All confirmation soil samples within the treatment area were non-detect for chlorinated sol-

vents. Groundwater petroleum compound concentrations were reduced to below cleanup levels. Groundwater chlorinated ethene concentrations were reduced an additional 90 percent to approximately 1 percent of the pre-remediation (1993) levels. However, TCE and vinyl chloride concentrations remained above MTCA Method A groundwater cleanup values at the end of 2008.

In 2009, PGG developed and implemented a targeted ozone injection system to further reduce concentrations. Briefly, between 2,500 and 3,000 pounds of ozone were delivered to groundwater sparge points during ozone operations through November 2015. Ozone treatment was discontinued in 2016. In 2017, the north yard was excavated, and low level TCE-contaminated soils were removed. Prior to replacement with clean fill, a subsurface oxidant infiltration system was installed for additional in-situ chemical oxidation. Injections of KMnO4 began in June 2017 with six injections occurring through February 2019.

4.0 GROUNDWATER MONITORING PLAN

This plan defines the groundwater monitoring tasks that will take place during the post-closure period after the receipt of the No Further Action with Environmental Covenant from Ecology.

4.1 OBJECTIVES AND DATA NEEDS

Groundwater monitoring will address two project objectives:

- Groundwater monitoring to observe long-term trends that concentrations are generally stable or decreasing, with minor fluctuations in concentrations expected.
- In the future, when groundwater concentrations are below appropriate cleanup levels, Scougal may request Ecology's concurrence to cease monitoring when one of the follow-

ing conditions are met: 1) if TCE and VC are not detected for two quarters, monitoring may cease; or 2) if TCE and VC are below Method A cleanup levels for four quarters, monitoring may cease. If either of these conditions are met, Scougal may request Ecology's concurrence to end groundwater monitoring, remove the Site from the Confirmed or Suspected Contaminated Sites List, and remove the deed restriction from Scougal Site parcels.

The proposed groundwater monitoring program is summarized in subsequent sections.

4.2 GROUNDWATER MONITORING WELL LOCATIONS

The locations of post-closure groundwater monitoring wells are shown on Figure 1, as well as the areas where groundwater concentrations exceed MTCA Method A cleanup levels. As shown on Figure 1, the following wells will be sampled:

- MW-12,
- MW-13,
- MW-14, and
- MW-17.

4.3 MONITORING PROGRAM SCHEDULE

Starting with the receipt of the completed No Further Action and Environmental Covenant, the four wells will be sampled every six months for two years. After that time, if concentrations do not increase by more than 100 percent, the frequency of groundwater monitoring will decrease to once per year until five years after receipt of the No Further Action with Environmental Covenant from Ecology.

At five years after the receipt of the No Further Action with Environmental Covenant, the fre-

quency of longer-term monitoring will be proposed. It is anticipated that longer-term monitoring would reduce the number of wells and frequency.

The groundwater monitoring program consists of three components:

- Well condition inspection
- Routine water level monitoring
- Groundwater quality sampling

4.3.1 Well Inspection

An inspection of the condition of each in-service monitoring well will be completed on the same frequency as the monitoring program (described below). Field personnel will take note of the condition of the monument seal and casing and identify required maintenance.

4.3.2 Water Levels

Water levels will be collected with each sampling round during the post-closure monitoring period. Water levels will be recorded to the nearest 0.01 ft.

4.3.3 Groundwater Sampling

Groundwater quality sampling will be conducted using standard low flow methods. Field water quality instruments will be calibrated at the beginning (prior to sampling) of the day. Calibration data will be recorded in field notes.

Groundwater samples will be collected with a peristaltic pump using dedicated tubing stored in the well, according to standard low-flow sampling protocols. After purging and stabilizing field parameters, samples will be collected from all four wells.

Standard field procedures will be used to maintain data quality and consistency throughout the duration of groundwater sampling. As sampling equipment will not be reused, no rinseate field blank is required. For the post-closure monitor-

ing period, no field quality assurance/quality control (no field blanks or duplicates) samples are proposed.

4.3.4 Sample Handling and Custody

Following collection, groundwater samples will be handled in the manner described below.

- Place sample bottles in clean, insulated containers (ice chests) containing frozen gel, ice, or another compound to maintain temperature near, but not at or below, freezing. Use sufficient cooling materials to maintain temperature near freezing during the entire time of transport to the lab.
- Maintain custody of samples from time of sampling to receipt at the laboratory. "Custody" means that samples remain in direct possession of a person who is recorded on the Chain-of-Custody form or locked in secure vehicles or offices.
- Complete the appropriate Chain-of-Custody forms and any other pertinent sampling/shipping documentation to accompany the samples.
- Samples will be transferred to the analytical laboratory, accompanied by Chain-of-Custody forms and any other pertinent shipping/sampling documentation. One set of Chain-of-Custody forms will be used per laboratory shipment. Sample container custody seals will be used for all shipped containers not delivered directly to the lab by PGG personnel. Seals will consist of breakable tape (such as paper masking tape) signed in ink by the person relinquishing the sample. The tape will be placed in such manner that the tape must be broken in order to open the sample container.

4.3.5 Laboratory Analyses

Samples will be submitted for analysis by a Washington-certified laboratory using U.S. Environmental Protection Agency Method 8260 to report concentrations of the following analytes with the MTCA Method A (or Method B for

DCE) cleanup levels (micrograms per liter or ug/L) listed:

- Trichloroethylene 5 ug/L
- 1,2-Dichloroethylene 72 ug/L
- Vinyl Chloride 0.2 ug/L

4.3.6 Field Documentation

Prepared field forms will be used to document observations and data collected under this groundwater monitoring program. Water level measurements and well condition inspection notes will both be recorded.

Groundwater sampling activities will be documented using a Groundwater Sampling Form. Details included in the sampling form include field parameters, purge measurements, sample bottle inventory, and a listing of equipment used.

4.3.7 Quality Assurance and Quality Control Procedures

A Washington-accredited laboratory will perform analyses for the project per WAC 173-50, Accreditation of Environmental Laboratories. EPA Contract Laboratory Program (CLP) QA/QC procedures or similar efforts will be used for the analyses.

QA/QC samples processed with collected groundwater samples are:

- One method blank per batch. The method blank is used to assess the preparation batch for possible contamination during the preparation and processing steps. It is processed along with and under the same conditions as the associated samples. The goal for the method blank is no detected contaminants. If contaminants are detected in the method blank, the nature of the interference and the effect on the analysis of each sample collected will be evaluated.
- Matrix specific QA/QC samples indicate the effect of the sample matrix on the precision and accuracy of the results generated using the selected method. The information from

these controls is sample/matrix specific and is not normally used to determine the validity of an entire batch of samples. Matrix spike results are expressed as percent recovery, and compared to established acceptance criteria, from 65% to 135%.

- Matrix duplicates are replicate aliquots of the same sample taken through the entire analytical procedure. The results from this analysis indicate the precision of the results for the specific sample using the selected method. One duplicate sample is analyzed with each preparation batch. If sufficient sample is provided, this will be either a matrix spike duplicate or a matrix duplicate. If not, a laboratory control sample duplicate will be analyzed. The acceptance criteria for matrix duplicate analyses is a relative percent difference of 35%.

4.4 MANAGEMENT OF INVESTIGATION-DERIVED WASTE

Purge water from the monitoring wells will be collected and returned to the Scougal facility where it will be secured and consolidated for disposal. During purging, water will be field screened for signs of contamination (odor, sheen, etc.) and notes will be recorded on the Groundwater Sampling Forms. Disposition of development/purge water will be determined based on groundwater analytical data from that well. Purge water will be disposed of at an appropriate disposal facility, such as Marine Vacuum Service or Emerald Services.

4.5 DATA REVIEW AND VALIDATION

The data generated from field and laboratory measurements will be reviewed for data quality objectives using Contract Laboratory Program level 3 validation (CLP 2017).

Following verification and validation of the data, the data will be assessed for usability. Data validation will be summarized in the final report.

4.6 REPORTING

Groundwater monitoring results will be reported annually as data reports with sampling documentation, data summary, and analytical laboratory reports. Field observations and analytical data will be documented in a data summary report after four quarters of sampling. Analytical data will be uploaded to the Ecology Environmental Information Management (EIM) database.

5.0 LIMITATIONS

Work for this project was performed and this report prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of Scougal Rubber for specific application to the referenced property. No other warranty, express or implied, is made.

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EagleView Technologies, Inc.

Monitoring Wells



0 Feet 50

2019 Aerial from King County

Figure 1
Groundwater Monitoring
Well Locations
Scougal Rubber Site



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