

## T E C H N I C A L   M E M O R A N D U M

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**TO:** Marvin Dykman c/o Clark Davis, Davis Law Office, PLLC

**FROM:** Stuart Brown, Project Scientist  
Jeffrey Kaspar, Principal Geologist

**DATE:** November 1, 2019

**RE:** **GROUNDWATER MONITORING REPORT  
THIRD QUARTER 2019  
SOUND BATTERY PROPERTY  
2310 EAST 11<sup>TH</sup> STREET  
TACOMA, WASHINGTON  
FARALLON PN: 1117-001**

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### INTRODUCTION

Farallon Consulting, L.L.C. (Farallon) has prepared this Technical Memorandum to summarize the results of the groundwater monitoring event conducted in third quarter of 2019 at the Sound Battery Property at 2310 East 11<sup>th</sup> Street in Tacoma, Washington (herein referred to as the Site) (Figures 1 and 2). Long-term groundwater monitoring is required by the Washington State Department of Ecology (Ecology) per the Environmental Covenant for Institutional Controls executed pursuant to Chapter 70.105D of the Washington State Model Toxics Control Act (MTCA) and Chapter 64.70 of the Uniform Environmental Covenants Act, between Mr. Marvin Dykman and Ecology dated January 10, 2017, recorded in Pierce County on February 3, 2017. Groundwater monitoring is being conducted at the Site in accordance with the *Long-Term Groundwater Monitoring Plan, Sound Battery Property, 2310 East 11<sup>th</sup> Street, Tacoma, Washington, Washington State Department of Ecology, Facility Site No. 1247, Voluntary Cleanup Program No. SW1208* dated June 1, 2016, prepared by Farallon (Long-Term Groundwater Monitoring Plan). The required groundwater monitoring consisted of three events, to be conducted at an 18-month frequency that began in September 28, 2016. The second and third events were conducted on January 16, 2018 and September 16, 2019. This Technical Memorandum presents the results of the third and final groundwater monitoring event conducted on September 16, 2019. The results of the prior events have been reported in prior Technical Memoranda dated November 30, 2017 and March 6, 2018.



## BACKGROUND

A cleanup action was completed at the Site in February 2015, which included demolition of the Site building and removal of sections of the floor slab, excavation of 277 tons of soil containing lead at concentrations exceeding the MTCA Method A cleanup level for industrial land use as established in Chapter 173-340 of the Washington Administrative Code, off-Site stabilization of lead in the excavated soil, and disposal of stabilized soil at a Subtitle D waste disposal facility in accordance with the Ecology-approved *Cleanup Action Plan, Sound Battery Property, 2310 East 11<sup>th</sup> Street, Tacoma, Washington, Voluntary Cleanup Program No. SW1208* dated July 24, 2014, prepared by Farallon.

An earlier cleanup action, preceding the 2015 cleanup action, was documented in the *Final Cleanup Action Report* dated July 22, 2002, prepared by GeoSystems Analysis, Inc. This cleanup action included excavation of 880 tons of soil containing lead at concentrations exceeding the MTCA Method A cleanup level for unrestricted land use from around the exterior of the Site building and from adjacent areas of the surrounding three parcels of land. The cleanup action conducted in 2002 also included on-Site stabilization of lead in the excavated soil and disposal of stabilized soil at the Subtitle D Pierce County Recycling, Composting, and Disposal Landfill operated by Land Recovery, Inc.

The completed cleanup action is summarized in the *Closure Report, Sound Battery Property, 2310 East 11<sup>th</sup> Street, Tacoma, Washington, Voluntary Cleanup Program No. SW1208* dated July 27, 2015, prepared by Farallon.

A No Further Action determination with restrictions was issued by Ecology under the Voluntary Cleanup Program in the letter regarding No Further Action at the following Site: Sound (Allied) Battery Co. Inc., 2310 East 11<sup>th</sup> Street, Tacoma, Pierce County, WA; Facility/Site No.: 1247; Cleanup Site ID: 3646; VCP Project No.: SW1208 dated October 23, 2017, from Mr. Thomas Middleton of Ecology to Mr. Dykman. Ecology determined that no further remedial action was necessary to clean up contamination at the Site, provided that the results of the three previously cited long-term groundwater monitoring events indicated that lead concentrations in groundwater remained less than the MTCA Method A cleanup level of 15 micrograms per liter ( $\mu\text{g/l}$ ). The Environmental Covenant for Institutional Controls was recorded in Pierce County on February 3, 2017 documenting the need to conduct the long-term groundwater monitoring. The results of the of the September 2016 and January 2018 monitoring events indicated that total and dissolved lead concentrations in groundwater samples collected from monitoring wells MW-1 through MW-4 have been less than the MTCA Method A cleanup level.



## SEPTEMBER 2019 GROUNDWATER MONITORING EVENT

This section summarizes the groundwater sampling protocols and for the September 2019 monitoring event conducted at the Site.

### SAMPLING PROTOCOLS

Groundwater samples were collected at the Site on September 16, 2019 from monitoring wells MW-1 through MW-4 (Figure 2). The monitoring wells were opened, and groundwater levels were permitted to equilibrate with atmospheric pressure before groundwater-level measurements were obtained. The depth to groundwater in each monitoring well was measured to the nearest 0.01 foot using an electronic water-level measuring device. Depth to groundwater measurements are presented in Table 1.

Prior to sampling, groundwater was purged from the monitoring wells in accordance with U.S. Environmental Protection Agency (EPA) low-flow sampling protocols. The well purging and sampling were performed using a peristaltic pump and Teflon tubing at a flow rate of approximately 100 milliliters per minute. The tubing intake was placed at the approximate middle portion of the water column in each monitoring well. Water quality was monitored during purging for pH, temperature, turbidity, specific conductivity, dissolved oxygen, and oxidation-reduction potential (ORP) using a YSI Model ProDSS water-quality analyzer equipped with a flow-through cell. Groundwater samples were collected after the groundwater parameters stabilized. Groundwater parameters at the time of sampling are presented in Table 2.

Following purging, groundwater samples were collected directly from the pump outlet tubing upstream of the flow-through cell and placed into laboratory-prepared sample containers. Care was taken to not handle the container seal or lid when the samples were placed into the containers. The containers were filled to eliminate headspace, and the seal and lid were secured. Groundwater samples analyzed for dissolved lead were field filtered prior to sample collection. The sample containers were placed on ice in a cooler and transported under standard chain-of-custody protocols to OnSite Environmental Inc. of Redmond, Washington (OnSite) for laboratory analysis. Groundwater samples were submitted for laboratory analysis for total and dissolved lead by EPA Method 200.8.

### GROUNDWATER MONITORING RESULTS

This section presents results of the September 2019 monitoring event and the data validation conducted. Table 1 and Figure 3 include the groundwater elevations. The groundwater analytical results for total and dissolved lead are included in Table 3 and on Figure 4. The laboratory analytical report is provided in Appendix A.

Groundwater elevations measured in the Site monitoring wells on September 16, 2019 ranged from approximately 4.77 feet at monitoring well MW-2 to 3.53 feet at monitoring well MW-1 (Table 1). The approximate groundwater flow direction was to the northwest toward Commencement Bay (Figure 3).



Total and dissolved lead concentrations were less than the laboratory practical quantitation limit of 1.1 and 1.0 µg/l, respectively, in groundwater samples collected from monitoring wells MW-1 through MW-4 (Table 3; Figure 4). These results are less than the MTCA Method A cleanup level of 15 µg/l.

Farallon reviewed the analytical data package provided by OnSite for sample delivery group 1909-175, which included the groundwater samples for the September 2019 monitoring event (Attachment A). The groundwater samples were analyzed for total and dissolved lead by EPA Method 200.8, within the prescribed holding times. The quality assurance/quality control testing performed by OnSite included evaluation of duplicates and matrix spikes. Results from the quality assurance/quality control testing were within established laboratory method control limits. Based on Farallon's review of the quality assurance/quality control results, the groundwater analytical data are acceptable for use in characterizing groundwater quality at the Site.

## CONCLUSIONS

The September 2019 groundwater monitoring event marks the third of the Ecology-required long-term groundwater monitoring events conducted at the Site; in which neither total nor dissolved lead were detected at concentrations exceeding the laboratory practical quantitation limits. The overall groundwater monitoring results from 2016 through 2019 indicate that the cleanup activities have successfully eliminated the source of lead affecting groundwater. Since total and dissolved lead concentrations have remained less than the MTCA Method A cleanup level for all three groundwater monitoring events, an unrestricted No Further Action determination should be issued by Ecology that includes removal of the existing Environmental Covenant for Institutional Controls.

Attachments: Figure 1, *Vicinity Map*  
Figure 2, *Site Map*  
Figure 3, *Groundwater Elevations for September 16, 2019*  
Figure 4, *Groundwater Analytical Results for Total and Dissolved Lead*  
Table 1, *Groundwater Elevations*  
Table 2, *Groundwater Quality Data*  
Table 3, *Groundwater Analytical Results*  
Attachment A, *Laboratory Analytical Reports*

SB/JK:cm

## **FIGURES**

### **GROUNDWATER MONITORING REPORT**

Sound Battery Property

2310 East 11<sup>th</sup> Street

Tacoma, Washington

Farallon PN: 1117-001

## **TABLES**

### **GROUNDWATER MONITORING REPORT**

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2310 East 11<sup>th</sup> Street

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**ATTACHMENT A**  
**LABORATORY ANALYTICAL REPORTS**

**GROUNDWATER MONITORING REPORT**

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