ADDENDUM NO. 1
SAMPLING AND ANALYSIS PLAN

Groundwater Compliance Monitoring
Eldridge Municipal Landfill Site

Prepared for

City of Bellingham
Public Works Department – Natural Resources
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Figure 1 – Groundwater Station Locations
## ACRONYMS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>City</td>
<td>City of Bellingham</td>
</tr>
<tr>
<td>Ecology</td>
<td>Washington State Department of Ecology</td>
</tr>
<tr>
<td>HASP</td>
<td>Health and Safety Plan</td>
</tr>
<tr>
<td>Herrenkohl</td>
<td>Herrenkohl Consulting LLC</td>
</tr>
<tr>
<td>MTCA</td>
<td>Model Toxics Control Act</td>
</tr>
<tr>
<td>SAP</td>
<td>sampling and analysis plan</td>
</tr>
<tr>
<td>WSDOT</td>
<td>Washington State Department of Transportation</td>
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</table>
CERTIFICATION

I, Mark J. Herrenkohl, a licensed engineering geologist in the State of Washington, certify that I have reviewed the geosciences portions of this document.

Signature and Stamp of Geologist:

Name: Mark J. Herrenkohl  Date: February 23, 2016
1 INTRODUCTION

This document is an addendum to the sampling and analysis plan (SAP) for the Eldridge Municipal Landfill Site (Site) in Bellingham, Washington. It outlines compliance groundwater sampling and testing activities proposed for the Site, activities supplementary to work completed under the SAP dated April 27, 2012 (Herrenkohl Consulting 2012).

This addendum provides specific guidance for field and laboratory methodology that will be followed by Herrenkohl Consulting LLC (Herrenkohl Consulting) and its subcontractors. Herrenkohl Consulting is conducting this work under contract with the City of Bellingham, Public Works Department – Natural Resources (City), with direction from the Washington State Department of Ecology Toxics Cleanup Program (Ecology). The addendum to the SAP was prepared in accordance with a Consent Decree negotiated between the City and Ecology and signed on December 30, 2015 (Document No. 15-2-02409-1).

As described in the Consent Decree, groundwater samples will be collected during the wettest season (December – March) over two years of monitoring (2016 and 2017). The samples will be collected from monitoring wells EML-SB-01, -02, -03, and -04, and analyzed for dissolved arsenic and iron following methods described in the SAP (Herrenkohl Consulting 2012). Standard field parameters (pH, temperature, conductivity, dissolve oxygen, turbidity, and the redox potential) will also be measured during each sampling event.

After the last sampling event is completed, the results will be evaluated to determine if the dissolved arsenic and iron concentrations have reached or are reaching background conditions. Additional sampling, or other steps, may be required depending on the results of that evaluation.

Following this introduction, the document has been organized into four additional sections. Section 2 describes the field and analytical approach for the additional groundwater sampling. Sections 3 and 4 describe the health and safety requirements and handling of investigation-derived waste, respectively. References are presented in Section 5.

Figure 1 is provided after the report text.
2 GROUNDWATER SAMPLING

Groundwater samples will be collected from four site monitoring wells (EML-SB-01, -02, -03, and -04) (Figure 1) during two sampling events. The first groundwater sampling event is scheduled for March 2016. The second groundwater sampling event will be scheduled for February – March 2017.

The groundwater samples will be collected using the procedures described in the SAP with the following addition:

- Redox potential will be added to the measured field parameters during purging and sampling of the wells.

Water level data will be measured for all wells sampled following procedures in the SAP.

2.1 LABORATORY ANALYSES

The groundwater samples collected from the existing monitoring wells will be analyzed for:

- Dissolved arsenic and iron by EPA Method 200.8.

Target reporting limits for each analysis and quality control/quality assurance procedures will be those specified in the SAP (Herrenkohl Consulting 2012).
3 HEALTH AND SAFETY

Herrenkohl Consulting and subcontractor personnel will follow the relevant health and safety procedures provided in the site health and safety plan (HASP) dated June 24, 2011 (Herrenkohl Consulting 2011).
4 INVESTIGATION-DERIVED WASTE

Investigation-derived waste generated during groundwater sampling, including purge water and decontamination water, will be allowed to re-infiltrate into the soils located near the center of the landfill site (in the vicinity of station EML-SB-03) after sampling is complete. This change from the SAP is warranted since much of the landfill material and contaminated soils were removed during the interim action and groundwater concentrations of arsenic and iron are not expected to require special treatment or disposal based on previous measured concentrations\footnote{Arsenic and iron concentrations in groundwater measured previously at the site ranged from 1.4 to 17.7 mg/L and 4,230 to 9,320 mg/L, respectively (Herrenkohl Consulting and Integral Consulting 2015).}. \footnote{Arsenic and iron concentrations in groundwater measured previously at the site ranged from 1.4 to 17.7 mg/L and 4,230 to 9,320 mg/L, respectively (Herrenkohl Consulting and Integral Consulting 2015).}
5 REFERENCES


FIG 9

- FIGS
- OF
- SHEET
- 2014-016
- AS SHOWN
- JOB NUMBER
- DATE
- SCALE
- CHECKED BY
- DRAWN BY
- DESIGNED BY
- JGS/BAH/RDN

EAS

ELDRIDGE MUNICIPAL LANDFILL RI/FS

SOIL BORING/MONITORING WELL LOCATIONS

W:

2014


Dwg

Exhibits

Fig9 Monitoring Wells.dwg

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