



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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May 21, 2019

William Beck
Senior Environmental Project Manager
Stericycle Environmental Solutions
18000 - 72nd Avenue South; Suite 201
Kent, WA 98032-1035

Dear William Beck:

The Department of Ecology (Ecology) has completed its review of the *Final Remedial Investigation Report PSC Washougal Facility, Washougal, Washington*, dated September 2013 (2013 RI Report).

An enclosed memorandum from RIDOLFI Environmental, revised February 21, 2019, includes comments from review of the 2013 RI Report. Ecology has determined that the comments in the memorandum can be addressed in revisions to the Feasibility Study (FS) Report for Stericycle's Washougal Facility. No further revisions of the 2013 RI Report will be required.

Ecology expects to release the 2013 RI Report and the RIDOLFI memorandum for public review and comment along with the revised Feasibility Study (FS) Report for the Washougal facility. We expect the public comment period to take place in fall 2019.

If you have any questions about this letter, please contact me.

Sincerely,

Kaia Petersen
Department of Ecology
Hazardous Waste and Toxics Reduction
Southwest Regional Office
360/407-6359

Enclosure

cc: Taysa Gray, Dalton, Olmsted, and Fuglevand, Inc., ngray@dofnw.com
Bill Beckley, RIDOLFI Environmental, bill@ridolfi.com
Kerry Graber, Department of Ecology, kerry.graber@ecy.wa.gov



MEMORANDUM

DATE: April 10, 2018 (Revised February 21, 2019)

TO: Kerry Graber and Kaia Petersen, Washington Department of Ecology
Hazardous Waste and Toxics Reduction Program

FROM: Bill Beckley, Elena Ramirez, and Tori Niewohner, RIDOLFI Inc.

SUBJECT: **Review of Remedial Investigation Report for the Stericycle-Washougal Site in Washougal, Washington**

At the request of Ecology's project manager, the Ridolfi project team has reviewed the subject document: *Final Remedial Investigation Report PSC Washougal Facility, Washougal, Washington*, dated September 2013 and prepared the following comments.

Our review focused on specific issues identified by the Ecology project manager and addressed overall completeness of the report prior to it being released for public review. We anticipate conducting a more comprehensive review of the subject report, as well the Feasibility Study report for this site, during the public comment period.

Since the draft Final RI Report was submitted in 2013, the corporate structure and the name of the Washougal facility has changed. Burlington Environmental, LLC is the legal owner of the facility. Burlington Environmental, LLC is a wholly-owned subsidiary of PSC Environmental Services, LLC which is a wholly-owned subsidiary of Stericycle Environmental Solutions, Inc. Stericycle Environmental Solutions is identified as the operator of the facility. For simplicity, in our comments we have referred to the site as the Stericycle site or simply "the site."

The following comments are organized by review topic, including preliminary cleanup levels, points of compliance, terrestrial ecological evaluation, and overall completeness. Within each topic section there are general comments followed by specific comments, which are identified by section, title, and page.

PRELIMINARY CLEANUP LEVELS

General Comments

There are several contaminants that have been identified as Constituents of Concern (COCs) in soils and groundwater at this site.

Preliminary cleanup levels for soils were developed based on protection of the most sensitive exposure pathway; either protection of human health through direct contact with soils or protection of groundwater. For on-property soils, human health exposure was evaluated for an adult worker exposure (MTCA Method C), and for off-property soils, human health exposure was based on a child resident exposure (MTCA Method B).

Preliminary cleanup levels for groundwater were developed based on either the protection of human health from direct exposure to groundwater or the protection of surface water beneficial uses where contaminated groundwater may discharge to surface waters. Shallow groundwater was further evaluated for the protection of indoor air.

The process described in the RI Report for identifying preliminary cleanup levels for COCs in soil and groundwater was generally consistent with the requirements of MTCA; however, since this RI report was prepared, there have been several changes in regulatory values that will require significant updates to both soil and groundwater cleanup levels. Most significantly, in 2016 the U.S. Environmental Protection Agency (USEPA) approved or promulgated new surface water criteria for the protection of human health in Washington State, and in 2015 USEPA updated the National Recommended Water Quality Criteria for human health.

These changes will affect preliminary cleanup levels for groundwater based on the protection of surface water beneficial uses and may also affect preliminary cleanup levels for soils that are based on the protection of groundwater. Additionally, there have been updates to other screening values, including MTCA Method A, B, and C values included in the Cleanup Levels and Risk Calculations (CLARC) tables available on the Department of Ecology's website, as well as USEPA Regional Screening Levels.

Specific Comments

1. Section 9.2, Groundwater Preliminary Cleanup Levels, pages 9-7 and 9-8:
 - **MTCA Groundwater Table Values:** These values should be checked to identify any recent updates or changes to the CLARC Tables.
 - **Surface Water ARARs:** Note that both the Washington State human health water quality criteria and the National Recommended Water Quality Criteria have been updated. This section should be updated and revised accordingly.
 - **MTCA Surface Water Table Values:** These values should be checked to identify any recent updates or changes to the CLARC Tables.
 - **Values Protective of Indoor Air:** These values should be checked based on the CLARC Vapor Intrusion Method B table values.



- **Practical Quantitation Limits:** The project lab identified in this section (Columbia Analytical Services) was recently acquired by ALS Environmental. The PQL values used here should be checked to determine if they are still valid and appropriate.
- **Arsenic Background Values:** The references cited in discussing a background-based arsenic cleanup level appear to be draft documents that we could not obtain for this review. However, the selected cleanup level does not appear unreasonable.

2. Section 9.3, Soil Preliminary Cleanup Levels, pages 9-10 and 9-11:

- MTCA Method A, B, and C values from the CLARC tables should be checked, as they are periodically updated.
- For soil cleanup levels protective of groundwater, these values will need to be recalculated based on updates to groundwater cleanup levels.
- EPA Regional Screening Levels are periodically updated (most recently in November 2017). These values should be checked and updated.
- Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals (MTCA Table 749-3) should be included in the list of potential soil cleanup levels, as discussed in Section 8.4.

3. Section 9 Tables:

- Table 9-1 Groundwater Preliminary Cleanup Levels - MTCA Groundwater Table Values: This table will require minor updates.
- Table 9-2 Groundwater Preliminary Cleanup Levels -Surface Water ARARs: This table will require minor updates to MTCA method B values, and comprehensive updates to human health criteria.
- Table 9-3 Groundwater Preliminary Cleanup Levels - Groundwater Values Protective of Indoor Air: This table will require minor updates based on the CLARC tables.
- Table 9-4 Groundwater Practical Quantitation Limits: Values in this table should be checked to verify that PQL values are still current.
- Table 9-5 Shallow Groundwater Zone Groundwater Preliminary Cleanup Levels: This table will require comprehensive updates based on updates to previous tables.
- Table 9-6 Lower Aquifer Groundwater Zone Groundwater Preliminary Cleanup Levels: This table will require comprehensive updates based on updates to previous tables.
- Table 9-7 Groundwater Preliminary Cleanup Levels Shallow and Deep Groundwater Zones: This table will require comprehensive updates based on updates to previous tables.

- Table 9-8 Soil Practical Quantitation Limits: Values in this table should be checked to verify that PQL values are current values.
- Table 9-9 Soil Preliminary Cleanup Levels for PSC Property Soils: This table will require re-calculation of values for “soil cleanup level protective of groundwater” based on updated groundwater cleanup levels and confirmation of MTCA Method C values and USEPA Regional Screening Levels.
- Table 9-10 Soil Preliminary Cleanup Levels for Off-Property Soils: This table will require re-calculation of values for “soil cleanup level protective of groundwater” based on updated groundwater cleanup levels; as well as confirmation of MTCA Method B values and EPA Regional Screening Levels. Note that MTCA Method A values should be based on unrestricted rather than industrial exposure. Method C values are not appropriate for off-property soils, and EPA Regional Screening Levels should be based on residential rather than industrial exposures.
- Table 9-11 Soil Preliminary Cleanup Levels: This table will require comprehensive updates based on updates to previous tables.

4. Section 10: Selection of COCs

- Table 10-6: Soil Screening for Constituents of Potential Concern: Screening levels included in this table are from the 2008 Draft Remedial Investigation Technical Memorandum (Geomatrix, 2008a) and do not match preliminary cleanup levels in Table 9-9. These values should be consistent with updated values in Table 9-9.

POINT OF COMPLIANCE

General Comments

The point of compliance is defined in MTCA as the point (or points) where cleanup levels must be attained. For soils, the point of compliance is dependent on the type of exposure that the cleanup level is intended to protect.

- For soil cleanup levels based on the protection of human health from direct contact, the point of compliance is in soils throughout the site from the ground surface to 15 feet below ground surface (bgs).
- For soil cleanup levels based on the protection of groundwater, the point of compliance is in the soils throughout the site.

- For soil cleanup levels based on the protection of human health from soil vapors, the point of compliance is in the soils throughout the site from the ground surface to the uppermost water table.

For the Stericycle site, soil cleanup levels were developed based on either the protection of human health from direct contact or the protection of groundwater. For COCs with cleanup levels based on the protection of human health, the point of compliance is in soils from the ground surface to 15 feet bgs. For COCs with cleanup levels based on the protection of groundwater, the point of compliance is in soils throughout the site.

The standard point of compliance for groundwater is throughout the site from the uppermost level of the saturated zone extending vertically downward to the lowest depth that could potentially be affected by the site.

Under specific conditions, a conditional point of compliance can be approved by Ecology. The conditions at the Stericycle site may be appropriate for establishing a conditional point of compliance at the property boundary. Approved points of compliance for both soils and groundwater will be determined in the Cleanup Action Plan for this site.

Specific Comments

1. Section 9.1.1.1, Soil Point of Compliance, page 9-4: This section includes the following statements regarding the soil point of compliance for the site.

"For the purposes of the RI, the soil POC extends from the ground surface to the water table."

"...the soil POC will be either the shallower of (a) the SPOC (extending from the land surface to the water table) or (b) the upper 15 feet of soil, depending on the specific COC. The dry season water table on the PSC property ranges from 4 feet bgs on the western portion of the property to 6 feet on the eastern edge of the property."

If the soil cleanup level is based on the protection of human health through direct contact, the POC extends from the ground surface to 15 feet bgs, not only to the water table. If the cleanup level is based on the protection of ground water, the POC is in soils throughout the site.

The POC for soil cleanup levels based on the vapor pathway is the only POC that extends from the ground surface to the water table. The identification of the soil point(s) of compliance needs to comply with MTCA requirements (WAC 173-340-740(6)).

2. Section 9.1.1.2, Groundwater Point of Compliance, page 9-5: The discussion of conditional points of compliance (CPOCs) in this section is confusing and should be revised to be clearer.

This section includes the following seemingly contradictory statements:

"Under WAC 173-340-720(8)(c), a CPOC must be as close as practicable to the source of hazardous substances and not exceed the property boundary."

"Under the MTCA, the groundwater CPOC may be located either within the boundary of the property or beyond the property boundary."

In the first statement above, the phrase "except as provided under (d) of this subsection" has been left out, which tends to make the next statement confusing. Please clarify as necessary.

3. Section 9.1.2.1, Proposed Soil Point of Compliance, page 9-6: This section includes the following statement regarding the soil point of compliance:

"The proposed soil POC includes all soil from the land surface to the water table."

As noted above, the soil POC for cleanup levels based on the protection of human health must be in the soils throughout the site from the ground surface to 15 feet bgs. For soil cleanup levels based on the protection of groundwater, the point of compliance shall be established in the soils throughout the site. Note that many of the soil cleanup levels are based on the protection of groundwater for which the soil POC will be in soils throughout the site. The identification of the soil point(s) of compliance needs to comply with MTCA requirements (WAC 173-340-740(6)).

TERRESTRIAL ECOLOGICAL EVALUATION

General Comments

An ecological evaluation in support of this RI Report is included as Appendix M and is titled "Steigerwald Lake National Wildlife Refuge and Gibbons Creek Remnant Channel Site-Specific Terrestrial Ecological Evaluation". Procedures for conducting a terrestrial ecological evaluation are included in sections 7490 through 7494 of MTCA (WAC 173-340-7490 through 7494) and in draft guidance titled "Technical Document: Terrestrial Ecological Evaluations under the Model Toxics Control Act" dated February 2017.

The stated purpose of Appendix M is to provide "an assessment of the potential ecological risk posed by chemicals detected in surficial sediments and porewater collected in the Steigerwald

Lake National Wildlife Refuge (SLNWR) adjacent to the Burlington Environmental LLC.” However, the procedures for conducting terrestrial ecological evaluations (TEEs) in MTCA clearly indicate that “[t]hese procedures are not intended to be used to evaluate potential threats to ecological receptors in sediments, surface water, or wetlands” [WAC 173-340-7490(1)(c)]. The draft TEE guidance states that the TEE procedures are not intended to provide risk assessment to ecological receptors in surface water, sediments, wetlands, or any other environments other than upland soils, and that procedures for wetland evaluations shall be determined by Ecology on a case-by-case basis.

Specific Comments

1. Appendix M, Section 2.2, Method Selection: The use of the TEE procedures included in MTCA is not appropriate for use in surface water, sediments, or wetlands, and alternative procedures specific to those media and environments should be used instead.
2. Appendix M, Section 2.2.2, Wildlife Exposure Models, page 7: The source of Equation 2 is unclear, since a reference citation, other than the MTCA TEE procedures, is not provided. The use of an Area Use Factor (AUF), included in Equation 2, is not a concept that’s included in MTCA TEE procedures.
3. Section 2.2.2, Wildlife Exposure Models, page 8: The AUF used in the great blue heron exposure model (Equation 2) was derived by dividing the heron’s mean foraging range by the area of the SLNWR site identified as impacted by site releases. Because the foraging range is so much larger than the impacted area, the model assumes that a heron would spend so little time foraging at this site that its exposure would be negligible, and therefore would not result in unacceptable risk. This is not a valid approach to evaluating site-specific ecological risks, and a more appropriate model should be developed in consultation with Ecology.

OVERALL COMPLETENESS

General Comments

Based on our initial review, the RI Report generally conforms to MTCA requirements; however, several regulatory values have changed since this draft RI Report was prepared, and site conditions represented by sampling data included in the report probably do not reflect current site conditions. The following comments are intended to facilitate public review of the RI Report and to assist Ecology in selecting an appropriate remedy for the site.

Specific Comments

Introduction

1. In Section 3.2.1 Site History, there does not appear to be a discussion of potential or known off-site sources of contamination, spills, or other releases beyond the three properties immediately adjacent to the site.
2. There does not seem to be a clear distinction between the property boundary and the MTCA site boundary, which is determined by the extent of contamination and where contaminants from the site have come to be located. The figures do not appear to identify the site boundary or indicate that the site boundary is different from the property boundary. Based on existing information, the indicated site boundary should be shown in the RI figures.
3. There should be a figure that identifies surface cover and soil types on the property and on surrounding properties.

Sampling and Analytical Results

4. The SI Report should include summary tables that show the sample locations, type of samples, media sampled, analytes, method by date, and solid waste management unit (SWMU) to show all the sample that have been collected during the investigational history of the site.
5. The SI Report should include summary tables that show useable data that meet the specific data quality objectives (DQO) for use in evaluating the nature and extent of contamination at the site.
6. Not all historical site data meet current requirements for delineating the nature and extent of contamination at the site. In addition, sampling methods include inherent uncertainties. These uncertainties have likely resulted in data gaps. While these limitations are noted in the RI Report, a discussion of how these limitations were specifically addressed should be included in the report.
7. Original laboratory data reports are usually included in remedial investigation reports. This RI Report does not contain the laboratory reports for the data on which this RI Report is based. The original laboratory data report should be added to the RI Report in an appendix.

8. Data validation reports should also be included as an appendix in the RI Report.

Conceptual Site Model

9. The Conceptual Site Model (CSM) should include a potential exposure pathway of soil to wildlife based on current and future land use at the site, since wildlife may be directly exposed to contaminated soil on the site.
10. An evaluation of endangered plant and animal species at or near to the site should be included in the RI Report.
11. Transport and exposure mechanisms do not account for COCs in soil contacting wildlife.
12. Stormwater should be considered as a pathway, and both permitted and unpermitted discharges should be evaluated.
13. Groundwater flow in the shallow aquifer appears to move generally toward the east. Based on the information presented in the RI Report, the shallow aquifer and deeper local aquifers interact along the east side of the property. Groundwater flow in the deeper aquifer appears to move generally south to south east, although much attention has been focused on the east side of the site, and many plume maps show contaminant plumes unbounded on the southeast side. Why are there no groundwater monitoring wells south of MC-20D in the Lower Groundwater Zone?
14. Groundwater wells within a 1-mile radius are not shown. Including these wells in the evaluation of groundwater flow would probably allow for a better understanding of groundwater flow direction in the Lower Groundwater Zone, and this would lead to a better understanding of potential contaminant transport.
15. Figures illustrating the CSM and the lateral and vertical extent of contamination should be included to support the CSM.
16. Figures illustrating the most recent groundwater and soil COC conditions show only "highly impacted" conditions. These figures should illustrate other areas of impact so that it is clear which areas are impacted by site COCs and which are not.
17. Areas containing highly contaminated soil and groundwater are shown only in plan view. Cross-sectional and profile views that illustrate the extent of soil and groundwater contamination at depth should be included in the RI Report.

CONCLUSIONS AND RECOMMENDATIONS

Many of the comments provided in the previous sections relate to regulatory changes that have occurred since the RI report was completed, including updates to the State Water Quality Standards and updates to the State Sediment Management Standards. We believe that the comments can be addressed through revisions to the accompanying Feasibility Study (FS) Report or in the Cleanup Action Plan (CAP) for this site that will be prepared when a final site remedy is selected.

Our review comments on the FS Report and more detailed comments on the ecological evaluation included in the RI have been provided to Ecology in separate technical memoranda.