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January 30, 2020

Kerri Wittman
Pierce County Planning & Public Works
2702 S 42nd St, Ste 201
Tacoma, WA 98409

Re: Opinion on Proposed Cleanup of the following Site:

- **Site Name:** Prairie Pit Maintenance Facility
- **Site Address:** 16720 Waller Rd E, Tacoma, Pierce County, WA 98446
- **Facility/Site No.:** 40178
- **Cleanup Site ID No.**: 15007
- **VCP Project No.:** SW1684

Dear Kerri Wittman:

On December 2, 2019, the Washington State Department of Ecology (Ecology) received your request for an opinion on the proposed independent cleanup of the Prairie Pit Maintenance Facility (Site). On December 4, 2019, you uploaded electronic data to the database. Due to temporary Ecology staffing issues, the Site's electronic data have not yet been reviewed or accepted to the EIM database.

To provide a more timely response, Ecology is issuing this opinion prior to EIM data review. Please continue to work with Ecology's EIM data coordinator to have the Site data accepted to the database. Ecology will review and comment on the sufficiency of the Site's EIM data set in our next opinion for the Site.

This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA),[1] chapter 70.105D Revised Code of Washington (RCW).

[1] https://fortress.wa.gov/ecy/publications/SummaryPages/9406.html

Issue Presented and Opinion

Ecology appreciates the significant independent remedial actions you have conducted at the Site, and concur that pending the results of your performance groundwater monitoring, a no further action (NFA) determination is likely. However, Ecology needs additional information before we can concur with a final NFA determination. A summary of the needed information is discussed in detail in this opinion below.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, chapter 70.105D RCW, and its implementing regulations, Washington Administrative Code (WAC) chapter 173-340 (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Property and the Site

This opinion applies only to the Property and the Site described below. This opinion does not apply to any other sites that may affect the Property. Any such sites, if known, are identified separately below.

1. **Description of the Property.**

   The Property includes the following tax parcel in Pierce County, which was affected by the Site:

   - 0319262074.

   The Property is formerly a part of the Prairie Pit Maintenance Facility. The new parcel represents the northern 13.4 acres of the Prairie Pit. The new street address for the 13.4 acre parcel is 16720 Waller Road East, Tacoma, in unincorporated Pierce County. This is the first time the Property has been developed. An elementary school is proposed to be the future Property and Site use. The Site is contained within the boundaries of tax parcel 0319262074.

2. **Description of the Site.**

   A Site description as it is currently known to Ecology is included in **Enclosure A**. The Site is defined by the nature and extent of contamination associated with the following release:

   - Petroleum (gasoline and heavy oil) into the soil.
   - Metals into the soil.
   - Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) into the soil.

3. **Identification of Other Sites that may Affect the Property.**

   Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites. The Property and the Site do not lie within the known footprint of the Tacoma Smelter Plume.[2]

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Migizi Group, *Geotechnical Engineering Report*, May 2, 2019.
2. SCH Alliance, *Technical Memorandum, Waller Road Site Reconnaissance*, May 2, 2019.
3. Shannon and Wilson, *Soil Management Plan*, November 25, 2019.
4. Herrera Environmental Consultants, Inc. (Herrera), *Site Closure Report*, November 25, 2019 (Report).

These documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. Information on obtaining those records can be found on Ecology's public records requests web page.[3] Some site documents may be available on Ecology's Cleanup Site Search web page.[4] This opinion is void if any of the information contained in the documents is materially false or misleading.

Analysis of the Cleanup

1. Characterization of the Site.

Ecology has determined your characterization of the Property and Site is sufficient to establish cleanup standards and select a cleanup action. All determinations in this letter are Site-specific, and may not be applicable to other Sites based on differences in conditions between Sites.

Remaining Requirements

For Ecology to support a No Further Action for this Site, we need:

1. At least one additional groundwater monitoring event, sampling for the same contaminants analyzed in November 2019. Currently, this groundwater monitoring event is proposed to be completed by the end of February 2020. The need for additional sampling and anlysis will be dependent on the analytical results.

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[2] Per review of internal Ecology database maps on December 30, 2019.
[3] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests
[4] https://fortress.wa.gov/ecy/gsp/SiteSearchPage.aspx?=csid15007

2. All remaining Site data uploaded and accepted into EIM, as well as reviewed and approved by the site manager.

3. All current and future invoices for Ecology review will need to be paid.

Soil Management Plan

Shannon and Wilson provided their *Soil Management Plan*,[5] dated November 25, 2019, to the Bethel School District. The plan provides for how additional contaminated soils, if encountered during school construction, will be handled. Ecology has the following comments:

1. Any new contamination identified should be considered as separate from the cleanup already conducted. Reporting of any new contamination found should be done in accordance with WAC 173-340-300. Reporting can be completed online.[6,7]

2. If contamination is found, follow the sampling requirements under WAC 173-340-900, Table 830-1.

3. Though Ecology concurs that the any new contamination has to be evaluated on a case-by-case basis, we recommend removal and off-Site disposal of contaminated soil at a permitted facility. During the summer 2019 interim action, permitted facilities in Arlington, Oregon and Puyallup, Washington were used to dispose of contaminated soils.

    a. Any contaminated soils proposed to be re-used as fill elsewhere at the Property must also meet the solid waste handling standards under WAC 173-350.

    b. If contaminated soils are proposed to be used as fill elsewhere at the Property, they must also meet the re-use criteria described under section 12.0 in Ecology Publication No. 10-09-057, *Guidance for Remediation of Petroleum Contaminated Sites*, revised June 2016.

4. Maintaining the existing monitoring well network through at least the February 2020 groundwater sampling event is recommended in case unexpected contaminated soils are encountered.

    a. Any new areas of contaminated soils identified may require additional evaluation of groundwater or other media.

    b. If construction necessitates the decommissioning of a monitoring well, Ecology understands a well must be decommissioned to allow construction to proceed. Any Site monitoring well to be decommissioned must be done in accordance with WAC 173-160.

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[5] Available electronic versions of Site documents can be found here: https://apps.ecology.wa.gov/gsp/CleanupSiteDocuments.aspx?csid=15007
[6] Southwest Regional Office reporting webpage is: https://ecology.wa.gov/About-us/Get-involved/Report-an-environmental-issue/SWRO-issue-reporting-form
[7] Main environmental issue reporting webpage is: https://ecology.wa.gov/About-us/Get-involved/Report-an-environmental-issue

Soil Pathways: Direct Contact and Leaching to Groundwater

During the remedial investigation, analysis of Site soils identified contaminants in excess of MTCA cleanup (as screening) levels. Contaminants of concern (COCs) included heavy oil, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), cadmium, and lead. Chromium, nickel, and zinc were also detected at concentrations in soil less than the MTCA cleanup (as screening) levels.

Intially, nine test pits were placed throughout the Property to determine if contamination was present. Based on the sampling from these test pits, areas of soil investigated in detail included the northwestern corner of the Property, a soil berm along the northern Property line, a soil berm along the western Property boundary, and an area of discarded car parts. Excavation of contaminated soils started in July 2019.

After initial excavation extent soil sampling results were reviewed, additional excavation occurred in August 2019. The results of the toxicity characteristic leaching procedure (TCLP) for some lead contaminated soils resulted in those soils being identified as dangerous waste. Hazardous soils were segregated from non-hazardous soils awaiting removal from the Site. Herrera indicated that all contaminated soils were placed on plastic sheeting and covered with plastic to prevent rain from infiltrating the soil piles.

Of the 1,001.77 tons of soil excavated, a total of 242.49 tons of soil were disposed of as dangerous waste (hazardous soils) at Chemical Waste Management in Arlington, Oregon. A total of 759.28 tons of soil, which did not designate as dangerous waste (non-hazardous soils), were disposed of at LRI landfill. Both are permitted facilities. Based on the final excavation bottom and sidewall sampling, contaminated soils were removed and concentrations remaining were less than the applicable MTCA cleanup levels. Soil removal was consistent with the requirements under WAC 173-340-360(2)(d).

Sufficient soil samples were speciated for trivalent (total) and hexavalent chromium. No hexavalent chromium was detected at the Site, and the trivalent (total) chromium cleanup level for soil is appropriate for screening analytical data.

Pieces of metal and other debris identified at the surface within the contaminated soil excavation areas were also removed and disposed of at a permitted facility.

Based on the data submitted, it appears that all identified contaminated soils have been removed and disposed of off-Site at permitted facilities. At the excavation extents, concentrations of Site hazardous substances in remaining soil are less than the applicable MTCA cleanup levels.

Along the western portion of the Property, test pits TP-A through TP-E were advanced to evaluate another soil berm. Analytical results indicated that the soil berm was not comprised of contaminated soil and the minor bits of refuse found did not suggest garbage disposal had occurred.

Vapor Pathway

Based on the data and evaluation submitted to Ecology, it is more likely than not[8] that the vapor pathway is incomplete. Ecology bases this determination on the following analysis.

Concentrations of Site hazardous substances in soil have been removed and disposed of off-Site at an approved facility. This source removal has reduced concentrations to less than the applicable MTCA cleanup levels in soil.

For those concentrations less than the MTCA Method A cleanup levels, these are protective of the vapor pathway.[9]

The small amounts of plastic, concrete, and glass discarded in the western berm do not suggest that a significant amount of garbage was buried at the Site. Additionally, the Site and Property boundaries do not overlap with the former Spanaway Dump facility (FSID: 46941).[10] Thus, methane is not a concern at the Site.

If the current nearby buildings are re-configured or a new structure is proposed near or over any new petroleum contaminated soils, the vapor pathway should be re-evaluated. Removal and off-Site disposal at a permitted facility of any contaminated soils would be recommended in this case.

Groundwater Pathway

In August 2019, three groundwater monitoring wells were installed – MW-1, MW-2, and MW-3. Groundwater was sampled from these wells in August and November 2019.

No contaminants have been detected in groundwater sampled from monitoring wells MW-2 and MW-3, and only trivalent chromium and lead were detected in groundwater sampled from MW-1. The concentrations of chromium and lead in groundwater were less than each respective cleanup level.

Herrera reported potential unintended surging of the water column in monitoring well MW-1 during the August 2019 sampling event. Herrera contends that this unintended action may have increased turbidity and caused some metals attached to suspended soil particles to be inadvertently captured within the groundwater sample. We will need to see the results of the February 2020 groundwater sampling event to be certain as to the nature of the detections, but we acknowledge that Herrera's explanation is a potential option.

Site groundwater flow direction is to the north, approximating the regional flow direction for groundwater to the north-northwest.

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[8] Professional judgment under WAC 173-340-360(2).
[9] See section 5.2 in Ecology Publication No. 17-09-043, Implementation Memorandum No. 18: Petroleum Vapor Intrusion (VI): Update Screening Levels, Cleanup Levels, and Assessing PVI Threats to Future Buildings, revised January 2018.
[10] Tacoma-Pierce County Health Department's 2010 Closed Landfill Report.

Additional groundwater monitoring is proposed to meet the requirements of section 10.3, Ecology Publication No. 10-09-057, *Guidance for Remediation of Petroleum Contaminated Sites*, revised June 2016. Based on the groundwater data collected thus far, nearby domestic supply groundwater monitoring wells would not be expected to be impacted.

Additional groundwater monitoring at all three monitoring wells is proposed to continue. Please report to Ecology the results of any additional groundwater monitoring events, and upload all new Site data to EIM. All Site data will need to be accepted and reviewed by the Site Manager prior to issuing any NFA letter.

Surface Water and Sediment Pathways

No surface water or sediment has been observed at the Site. Groundwater flow direction at the Site has generally been towards MW-1 (to the north).There have been no exceedances of groundwater cleanup levels at the Site, and thus no pathway for groundwater to surface water contamination. Based on available information, Ecology concurs that these pathways are currently incomplete.

Ecological Pathway

All remaining concentrations of Site hazardous substances after soil removal were less than the ecological indicator values in WAC 173-340-900, Table 749-2. Less than 10 acres of native vegetation is present within the parcel boundaries and within 500 feet of the Site. The Site does not designate within a critical area. No priority habitats, per the Washington Department of Fish and Wildlife's Priority Habitat Species mapper, are present. There are no wetlands at the Property and Site.[11] Based on this analysis, Ecology concurs with Herrera's conclusion that no further TEE is necessary at the Site.

Electronic Information Management System (EIM) Data

Ecology acceptance of the Site data uploaded to EIM is pending. Once these data are accepted, the site manager must also review and approve the data.

[11] SCH Alliance's *Technical Memorandum, Waller Road Site Reconnaissance*, May 2, 2019. Information regarding native and non-native plant species at the Property are also documented.

2. Establishment of Cleanup Standards.

Based on the results of the interim action taken to remove contaminated soils, it appears that contaminated soil has been successfully remediated at the Site. Excavation extent samples showed that remaining contaminant concentrations were less than MTCA Method A and B screening levels. Ecology concurs with the following proposed cleanup levels for Site hazardous substances/contaminants of concern:

Hazardous Substance	MTCA Cleanup Level[12]	Soil Cleanup Level (mg/kg)[13]	Groundwater Cleanup Level (µg/L)[14]	Protective of Ecological Receptors (mg/kg)[15]
TPH as gasoline	A/A	30	800	200
TPH as diesel	A/A	2,000	500	460
TPH as heavy oil	A/A	2,000	500	460
Cadmium	A/A	2	5	25
Chromium	A/A	2,000	50	42
Lead	A/A	250	15	220
Nickel	B/B	1,600[16]	100[17]	100
Zinc	B/B	6,000[18]	10,000[19]	270
cPAHs (Benzo[a]pyrene)	A/A	0.1	0.1	30

Use of MTCA Method B cleanup levels for certain Site hazardous substances in certain media is acceptable under WAC 173-340-700(8)(b)(i), when a petroleum cleanup is eligible for MTCA Method A cleanup levels, like at this Site.

Ecology concurs with the following proposed standard points of compliance at the Site:

Soil – Direct Contact: Per WAC 173-340-740(6)(d), for soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance is: ". . . *throughout the site from ground surface to fifteen feet below the ground surface*."

Soil Leaching: Per WAC 173-340-740(6)(b), where soil cleanup levels are based on the protection of groundwater: ". . . *the point of compliance shall be established in the soils throughout the Site*."

[12] More stringent of protective of human health or ecological receptors applies.
[13] mg/kg = milligrams per kilogram.
[14] µg/L = micrograms per Liter.
[15] Table 749-2, values protective of ecological receptors.
[16] Protective of the direct contact pathway because never detected in groundwater.
[17] Washington State maximum contaminant goal.
[18] Detected in groundwater, so the value here is protective of groundwater vadose @ 13 degrees C.
[19] Both Washington State and Federal maximum contaminant goal (MCL) value.

Groundwater: For groundwater, the standard point of compliance as established under WAC 173-340-720(8)(b) is: "…*throughout the site from the uppermost level of the saturated zone extending vertically to the lowest most depth which could potentially be affected by the Site*."

It appears that cleanup levels for soil are met at standard points of compliance. Ongoing quarterly groundwater monitoring is continuing to confirm that groundwater meets cleanup levels at standard points of compliance. Thus far, two consecutive quarterly groundwater results for Site hazardous substances have been in compliance with the cleanup levels.

Ecological: Concentrations of Site hazardous substances were less than the ecological indicator values in Table 749-2, at a standard point of compliance.[20]

No points of compliance were established for the air/vapor, surface water, and sediment pathways because these pathways were incomplete.

3. Selection of Cleanup Action.

Interim Action Results

To remove contaminated soils, Herrera oversaw excavation of approximately 1,001.77 tons of soil as an interim action. Removal of contaminated soil is consistent with the requirements for current and future schools sites under WAC 173-340-360(2)(d).

Herrera reported that the contaminated soils were stockpiled on plastic sheeting and covered with plastic sheeting while awaiting profiling. After stockpile sampling and profiling was complete, soils were segregated based on those which could be disposed of at a non-hazardous waste landfill, and which soils had to be disposed of as dangerous waste. The dangerous waste designation was based on the TCLP results for lead (exceeding 5.0 milligrams per Liter), indicating the toxicity characteristic.[21]

A total of 242.49 tons of soil were disposed of as dangerous waste at Chemical Waste Management in Arlington, Oregon. A total of 759.28 tons of soil, which did not designate as dangerous waste (non-hazardous soils), were disposed of at LRI landfill. Both are permitted facilities.

[20] WAC 173-340-7490(4)(b).
[21] Table 1 in WAC 173-303-090.

Limitations of the Opinion

1. Opinion Does Not Settle Liability with the State.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion Does Not Constitute a Determination of Substantial Equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you proposed will be substantially equivalent. Courts make that determination.
See RCW 70.105D.080 and WAC 173-340-545.

3. Opinion is Limited to Proposed Cleanup.

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Site upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the Voluntary Cleanup Program (VCP).

4. State is Immune From Liability.

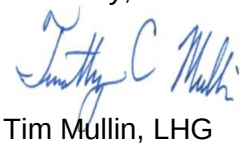
The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Contact Information

Thank you for choosing to clean up the Site under the VCP. As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our Voluntary Cleanup Program web site.[22] If you have any questions about this opinion, please contact me by phone at (360) 407-6265 or tmul461@ecy.wa.gov.

Sincerely,



Tim Mullin, LHG
VCP Site Manager
Toxics Cleanup Program
Southwest Regional Office

TCM: tam

Enclosure: A – Site Description

cc: George Iftner, Herrera Environmental, Inc.
Jeff Mann, Bethel School District No. 403
Jeff Rudolph, Pierce County Public Works & Utilities
Meg Strong, Shannon and Wilson
Dan Watts, Tacoma Pierce County Health Department
Nicholas Acklam, Ecology (by email)
Derek Rockett, Ecology (by email)
Ecology Site File

[22] https://www.ecy.wa.gov/vcp

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Enclosure A

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Site Description

The Prairie Pit Maintenance Facility is located at 16720 Waller Road East, Tacoma, Pierce County, Washington (Property). The Property is 13.4 acres in size and was newly created out of the footprint of the Prairie Pit facility. The Prairie Pit continues to operate as an active gravel pit, maintenance facility, and storage area. The Site has been contaminated by petroleum and metals in the northwestern corner and north-central portion of the Property.

To the north and west are residential properties, to the east is Waller Road with residential beyond, and the active Prairie Pit facility is adjacent to the south. The Site elevation is approximately 374 feet above mean sea level and the topography of the Site is relatively flat. The Pierce County Assessor-Treasurer's Office (PCATO) notes the Property has been assigned a tax parcel number of 0319262074, and is zoned as residential.

Site lithology is recessional glacial outwash – comprised of gravels, sands, and silts.

The Site and Property are currently undeveloped. The proposed elementary school is the first development of the Property, and is anticipated to remain the future Site and Property use for the foreseeable future.