

Summary of Proposed Cleanup Standards

Chemtrade Performance Chemicals US LLC Site

**Kalama, Washington
Facility No. 24634187
VCP Project No. SW0492**

**H&H Job No. CLR-045
February 20, 2019**



Steven C. Hart



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Via FedEx & Email

February 20, 2019

Washington State Department of Ecology
Toxics Cleanup Program
300 Desmond Drive
Lacey, WA 98503

Attention: Mr. Adam Harris, LHG

Re: Summary of Proposed Cleanup Standards
Chemtrade Performance Chemicals US LLC Site
Kalama, Washington
Facility No. 24634187
VCP Project No. SW0492
H&H Job No. CLR-045

Dear Adam:

1.0 Introduction

On behalf of Clariant Corporation (Clariant), Hart & Hickman, PC (H&H) is submitting this summary of proposed cleanup standards for the Chemtrade Performance Chemicals US LLC facility site (the Site) in Kalama, WA. A Site location map is included as Figure 1 and a Site map is included as Figure 2. Following submittal of our *Updated Conceptual Site Model* dated March 19, 2018 (CSM) and our *Summary of Proposed FS Cleanup Action Alternatives* dated April 24, 2018, the Washington State Department of Ecology (Ecology) issued an opinion letter dated July 5, 2018 (the Opinion) which includes anticipated next steps for the Site. One of the steps is to determine appropriate cleanup standards for the Site prior to completion of a feasibility study of proposed remedial alternatives.

Under the Model Toxics Control Act (MTCA), a cleanup level (CUL) is the concentration of a hazardous substance in soil, water, sediment, or air that is determined to be protective of human

health and the environment under specified exposure conditions. CULs, in combination with points of compliance (POCs), typically define the area or volume of environmental media at a site that is addressed by the cleanup action.

A Site description and discussion of Site land use classifications for exposure scenarios are presented in Section 2.0. Proposed POCs and CULs for the compounds of concern (COCs) associated with the Site (cadmium and zinc) are presented in Section 3.0.

2.0 Site Description and Land Use Classification

2.1 Site Description

Based upon Cowlitz County Assessor's Office information, the Site is an approximately 8-acre parcel (Cowlitz County PIN 6005401) which is zoned industrial. The Site is currently owned by Chemtrade Performance Chemicals, Inc. (Chemtrade). Chemtrade purchased the Site from Clariant in January 2003. The Site is bordered to the west by the Columbia River, and to the north, south, and east by parcels which are zoned commercial and owned by the Port of Kalama. The parcel (PIN 410560500) to the north of the Site is developed with Hendrickson Drive and includes a paved driveway and walking path for riverfront access. The parcel (PIN 600540200) to the south of the Site is developed with rail spur lines which run along the eastern portion of the parcel, but is otherwise largely undeveloped and primarily used to stockpile river dredge spoils. The parcel (PIN 6005308) to the east of the Site is developed with Hendrickson Drive, and the parcel (PIN 60061) to the east of Hendrickson Drive is owned by Burlington Northern, Inc. and is developed with railroad lines.

The Site was first developed in 1969 and was used for the manufacture of specialty chemicals (primarily sodium and zinc hydrosulfites) through 2016 when manufacturing operations ceased. Process equipment and tanks located at the Site were decommissioned and cleaned during 2016 and 2017. Future plans for the Site are not known to Clariant. The southern portion of the Site is

developed with a 17,000-square foot (sf) manufacturing building and infrastructure, a 1,000-sf building, an above ground storage tank, a pump house, a rail spur, a paved parking lot, and paved access roads. These portions of the Site are collectively referred to as the manufacturing plant area (MPA). To the north of the MPA, the Site is largely undeveloped where four settling basins were formerly located. This northern portion of the Site is collectively referred to as the former settling basin (FSB) area. In undeveloped areas of the Site, the ground is primarily sandy and covered with upland herbaceous vegetation and/or moss. The Site is almost entirely fenced except for perimeter areas along Hendrickson Drive and the Columbia River bank. Site features are depicted in Figure 2.

2.2 Land Use Classification for Exposure Scenarios

The MTCA Washington Administration Code (WAC) WAC 173-340-750 indicates that the area of a site where industrial property soil CULs are proposed must meet the definition of an industrial property under WAC 173-340-200. WAC 173-340-200 indicates that "industrial property" means properties that are or have been characterized by, or are to be committed to, traditional industrial uses such as processing or manufacturing of materials, marine terminal and transportation areas and facilities, fabrication, assembly, treatment, or distribution of manufactured products, or storage of bulk materials, that are either:

- zoned for industrial use by a city or county conducting land use planning under chapter 36.70A RCW (Growth Management Act); or
- for counties not planning under chapter 36.70A of the Revised Code of Washington (RCW), commonly known as the Growth Management Act (GMA), and the cities within them, zoned for industrial use and adjacent to properties currently used or designated for industrial purposes.

The Site property is zoned for industrial use and has historically been used for manufacturing of

materials and distribution of manufactured products. The Site is located in Cowlitz County which does not plan under the GMA. The *City of Kalama Comprehensive Plan 2005-2025* indicates that the City of Kalama plans under 35A.63 RCW, and the Site property is located within the City of Kalama's urban growth boundary. In addition, the Site is located within the "South Port" portion of the Port of Kalama industrial area. The Port of Kalama industrial area includes five miles of riverfront property adjacent to the 43 ft federally-maintained deep draft navigation channel of the Columbia River. As discussed in Section 2.1, the Site is bordered to the west by the Columbia River, and to the north, south, and the east by parcels which are zoned commercial and owned by the Port of Kalama, and the parcel to the east of Hendrickson Drive adjacent to the Site is owned by Burlington Northern, Inc. and is developed with a railroad.

Per the *Concise Explanatory Statement for the Amendments to the MTCA Cleanup Regulation* (Publication 01-09-043, February 12, 2001), when deciding if a property qualifies as industrial, Ecology refers to local zoning plans to see if the property is zoned for industrial land use. Because there are no state-mandated requirements for what land uses are allowed in industrial zones, Ecology also refers to the land uses allowed under the local zoning industrial land use classification. WAC 173-340-750(1) provides criteria for making the evaluation. In the Opinion, Ecology indicates that because parcels adjacent to the Site parcel are zoned commercial, and because the Site is adjacent to surface water, Ecology considered the current circumstances of the Site property based on the Concise Explanatory Statement and the criteria of WAC 173-340-750(1)(a)(i)(A-F) in its evaluation of the appropriate land use classification for the Site. The Opinion notes that adjacency to surface water has not precluded previous Ecology concurrences with industrial land use designation per WAC 173-340-200 at other MTCA facilities.

The Opinion indicates that, based upon the definition of industrial property in WAC 173-340-200, the additional criteria of WAC 173-340-750(1)(a)(i)(A-F), and additional considerations of the Concise Explanatory Statement, Ecology concurs that the Site parcel (PIN 6005401) is an industrial property for the purpose of MTCA cleanup. However, the Opinion notes that Ecology

does not concur that area of the Site parcel outside of the perimeter fence is industrial property, or should be considered industrial property for MTCA cleanup exposure scenarios.

3.0 Proposed POCs and CULs

A discussion of proposed POCs and CULs for the COCs associated with the Site (cadmium and zinc) are presented in the sections below.

3.1 Soil CULs and POCs

3.1.1 Soil – Direct Contact

Per WAC 173-340-740(6)(d) for unrestricted land use and WAC 173-340-745(7) for industrial properties, the (standard) POC shall be established in the soils throughout a site from the ground surface to 15 ft below ground surface (bgs) for soil CULs based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway. Therefore, a soil – direct contact POC of 15 ft bgs is currently applicable to the Site.

Per WAC 173-340-740(3)(b)(iii)(B)(1), the unrestricted land use soil – direct contact Method B soil CULs for substances with noncarcinogenic effects due to soil ingestion (such as cadmium and zinc) shall be determined using Equation 740-1. The Method B unrestricted land use soil – direct contact CULs calculated using this equation are 80 mg/kg for cadmium and 24,000 mg/kg for zinc. These values are the same as those presented in the August 2015 Cleanup Levels and Risk Calculation (CLARC) data tables. These unrestricted land use soil-direct contact CULs are applicable to areas of the Site located outside of the Site perimeter fence.

Per WAC 173-340-745(5)(b)(iii)(B)(1), the industrial land use soil – direct contact Method C soil CULs for substances with noncarcinogenic effects due to soil ingestion (such as cadmium and zinc) shall be determined using Equation 745-1. The Method C industrial soil – direct

contact soil CULs calculated using this equation are 3,500 mg/kg for cadmium and 1,050,000 mg/kg for zinc. These values are the same as those presented in the CLARC data tables. These industrial land use soil-direct contact CULs are applicable to areas of the Site located inside of the Site perimeter fence.

3.1.2 Soil – Protection of Terrestrial Environment

Per WAC 173-340-7490(4)(b), the (standard) POC shall be established in the soils throughout a site from the ground surface to 15 ft bgs for soil – protection of terrestrial environment CULs. Therefore, a soil – protection of terrestrial environment POC of 15 ft bgs is currently applicable to the Site.

WAC 173-340-7490 defines the goals and procedures Ecology will use for determining whether a release of hazardous substances to soil may pose a threat to the terrestrial environment, characterizing existing or potential threats to terrestrial plants or animals exposed to hazardous substances in soil, and establishing site-specific cleanup standards for the protection of terrestrial plants and animals. Per WAC 173-340-7490(2), in the event of a release of a hazardous substance to the soil at a site, one of the following actions shall be taken:

- (a) Document an exclusion from any further terrestrial ecological evaluation using the criteria in WAC 173-340-7491;
- (b) Conduct a simplified terrestrial ecological evaluation as set forth in WAC 173-340-7492;
or,
- (c) Conduct a site-specific terrestrial ecological evaluation as set forth in WAC 173-340-7493.

Based upon our review of the criteria in WAC 173-340-7491, the Site does not currently qualify for an exclusion from terrestrial ecological evaluation. When a site does not qualify for an exclusion, WAC 173-340-7491(2) indicates that a site-specific terrestrial ecological evaluation

should be performed if any of the criteria of WAC 173-340-7491(2)(a) summarized below apply:

- (i) The site is located on or adjacent to an area where management or land use plans will maintain or restore native or semi-native vegetation.
- (ii) The site is used by threatened or endangered species, wildlife species classified by the Washington Department of Fish and Wildlife as a "priority species" or "species of concern" under Title 77 RCW; or a plant species classified by the Washington Department of Natural Resources Natural Heritage Program as "endangered," "threatened," or "sensitive" under Title 79 RCW.
- (iii) The site is located on a property that contains at least 10 acres of native vegetation within 500 ft of the site, not including vegetation beyond the property boundaries.
- (iv) Ecology determines that the site may present a risk to significant wildlife populations.

To evaluate if criteria (i) and (ii) listed above apply to the Site, H&H contracted Ecological Land Services, Inc. of Longview, WA (ELS) to perform a wildlife and plant species use evaluation. Based upon the results of ELS's assessment, these criteria do not apply to the Site. The methods and results of ELS's assessment are documented in the Wildlife and Plant Species Use Evaluation report included as Attachment A. Criteria (iii) is technically not applicable to the Site because the Site property is less than 10 acres in area. Therefore, based upon the information presented above, a site-specific terrestrial ecological evaluation is not warranted and a simplified terrestrial ecological evaluation is appropriate for the Site.

WAC 173-340-7492 sets forth the procedures for conducting a simplified terrestrial ecological evaluation. The simplified terrestrial ecological evaluation process is intended to identify those sites which do not have a substantial potential for posing a threat of significant adverse effects to terrestrial ecological receptors, and thus may be removed from further ecological consideration during the remedial investigation and cleanup process. The process is structured with an intent to protect terrestrial wildlife at industrial or commercial sites, and terrestrial plants, soil biota and terrestrial wildlife at other sites, as provided under WAC 173-340-7490(3)(b).

The simplified terrestrial ecological evaluation process focuses on exposure, pathways, and contaminants as key screening steps in evaluating ecological risk. These screening steps need not be followed in order, and the results of analysis of any one of these screening steps may be used to determine that no further evaluation is necessary to conclude that a site does not pose a substantial threat of significant adverse effects to terrestrial ecological receptors. If none of the simplified terrestrial ecological evaluation screening step conditions are met, chemical concentrations listed in Table 749-2 (presented for cadmium and zinc below) may be used in evaluating ecological risk, and these values are hereafter referred to as Ecological CULs.

| | <u>Unrestricted Land Use</u> | <u>Industrial/Commercial</u> |
|---------|------------------------------|------------------------------|
| Cadmium | 25 mg/kg | 36 mg/kg |
| Zinc | 270 mg/kg | 570 mg/kg |

Based on the information presented above, and with Ecology concurrence, it appears that use of a simplified terrestrial ecological evaluation process is appropriate for the Site. Therefore, the unrestricted land use Ecological CULs presented above (25 mg/kg for cadmium and 270 mg/kg for zinc) are applicable to areas of the Site located outside of the Site perimeter fence, and the industrial/commercial land use Ecological CULs presented above (36 mg/kg for cadmium and 570 mg/kg for zinc) are applicable to areas of the Site located inside of the Site perimeter fence.

3.1.3 Soil – Protection of Groundwater

Since 2010, depth-to-groundwater measured in flush construction Site wells has ranged from approximately 16 to 24 ft bgs, and the average depth-to-groundwater during these monitoring events is approximately 20 ft bgs. As previously discussed, groundwater elevation data indicate that groundwater elevations at the Site fluctuate in correspondence with seasonal changes in average Columbia River levels. As such, the unsaturated soil – protection of groundwater POC is throughout the Site from the ground surface to a proposed depth of 20 ft bgs, and the saturated soil – protection of groundwater POC is throughout the Site at depths greater than 20 ft bgs.

Per WAC 173-340-740(3)(b)(iii)(A), the unrestricted land use Method B groundwater protection soil CULs are conservative concentrations that are unlikely to cause impact to groundwater at levels which exceed groundwater CULs established under WAC 173-340-720 as determined using the methods described in WAC 173-340-747. Saturated and unsaturated soil – protection of groundwater CULs for cadmium and zinc were calculated using the three-phase partitioning model described by Equation 747-1 per WAC 173-340-747(4)(b) through (e).

The calculated unrestricted land use Method B unsaturated soil – protection of groundwater CULs for cadmium and zinc are 0.69 mg/kg and 5,970 mg/kg, respectively. The calculated unrestricted land use Method B saturated soil – protection of groundwater CULs for cadmium and zinc are 0.035 mg/kg and 299 mg/kg, respectively. These values are the same as those presented in the CLARC data tables.

3.2 Groundwater CULs and POCs

Per WAC 173-340-720, groundwater CULs shall be based on estimates of the highest beneficial use and the reasonable maximum exposure expected to occur under both current and potential future site use conditions. Ecology has determined that at most sites, use of groundwater as a source of drinking water is the beneficial use warranting the highest quality of groundwater and that exposure to hazardous substances through ingestion of drinking water and other domestic uses represents the reasonable maximum exposure. Groundwater at the Site is classified as potable to protect drinking water beneficial uses.

Potable groundwater CULs established for human health protection applicable to the Site are 5 micrograms per liter ($\mu\text{g/l}$) for cadmium and 4,800 $\mu\text{g/l}$ for zinc. These CULs are based on the Method A cadmium concentration presented in WAC 173-340-790, Table 720-1 and the Method B zinc concentration determined using Equation 720-1. These values are the same as those presented in the CLARC data tables.

Per WAC 173-340-720, potable groundwater CULs established for protection of surface water beneficial uses are also applicable to the Site unless it can be demonstrated that the hazardous substances are not likely to reach surface water. WAC 173-340-720 also indicates that groundwater CULs established for protection of surface water (GW-SW CULs) are concentrations established in accordance with the methods specified in WAC 173-340-730 (“Surface water cleanup standards”). As such, the GW-SW CULs are equivalent to surface water CULs (discussed in Section 3.3 below). The groundwater CULs established for protection of surface water in accordance with the methods specified in WAC 173-340-730 which are applicable to the Site are 0.7 µg/l for cadmium and 66 µg/l for zinc. These are the chronic freshwater aquatic life protection values calculated per Table 240 of WAC 173-201A-240 using a Columbia River average hardness value of 58 milligrams per liter (mg/l).

Per WAC 173-340-720(8), the POC for groundwater is the point or points where the groundwater CULs established for a site must be attained for the site to be in compliance with the cleanup standards, and groundwater CULs shall be attained in all groundwaters from the POC to the outer boundary of the COC plume. The standard POC for groundwater CULs is throughout the Site from the uppermost level of the saturated zone extending vertically to the lowermost depth which could potentially be affected by the Site.

3.3 Surface Water CULs and POCs

As discussed in Section 3.2 above, the GW-SW CULs are equivalent to surface water CULs (hereafter referred to as SW CULs). The SW CULs established in accordance with the methods specified in WAC 173-340-730 which are applicable to the Site are 0.7 µg/l for cadmium and 66 µg/l for zinc. The POC for SW CULs is the point or points at which hazardous substances are released to surface waters of the state unless Ecology has authorized a mixing zone in accordance with WAC 173-201A.

3.4 Sediment CULs and POCs

Per WAC 173-204-500(5)(a)(i), a sediment CUL is the concentration or level of biological effects for a compound in sediment that is determined by the department to be protective of human health and the environment. The sediment CUL is established in accordance with the requirements in WAC 173-204-560(2). WAC 173-204-560(2)(a)(i) indicates that the sediment CUL shall initially be established as the sediment cleanup objective (SCO). Per WAC 173-204-560(3), the SCO for a compound shall be established as the highest of the following levels:

- (a) The lowest of the following risk-based levels:
 - (i) The concentration of the compound based on protection of human health as specified in WAC 173-204-561(2);
 - (ii) The concentration or level of biological effects of the compound based on benthic toxicity as specified in WAC 173-204-562 or 173-204-563, as applicable;
 - (iii) The concentration or level of biological effects of the compound estimated to result in no adverse effects to higher trophic level species as specified in WAC 173-204-564; and,
 - (iv) Requirements in other applicable laws.
- (b) Natural background; and
- (c) Practical quantitation limit.

The levels presented above are discussed for the Site in our August 17, 2018 *Evaluation of Sediment and Indoor Air Pathways* submitted to Ecology. As presented in the evaluation, Ecology's Publication No. 12-09-057, *Sediment Cleanup User's Manual II* (SCUM II), indicates that, in terms of exposure to compounds in sediment, risks to humans occur primarily through consumption of fish/shellfish, and therefore, compound concentrations in fish/shellfish tissue can play a critical role in assessing risks and establishing risk-based sediment concentrations. SCUM II presents two options for determining risk-based sediment concentrations for bioaccumulative COCs. One of the options (Option 1) is an approach using sediment data only.

The other option (Option 2) is an approach using fish/shellfish tissue data to calculate site-specific biota-sediment accumulation factors (BSAFs) which are then used to back-calculate sediment concentrations from protective tissue concentrations. However, as SCUM II notes, collecting fish/shellfish tissue data can be a substantial effort that may not be necessary for smaller or less complex sites, and when only sediment data are available for a site, it is generally not possible to calculate site-specific risk-based sediment concentrations. Both approaches meet Ecology's Sediment Management Standards (SMS) program requirements.

Option 1 includes the following two parts:

- Part 1 – using sediment background concentrations (natural and regional) as SCOs and cleanup screening levels protective of human health (and, higher trophic levels) based on the fish/shellfish consumption exposure pathway. This is appropriate because risk-based sediment concentrations back-calculated from BSAFs are frequently below background, resulting in the final SCO defaulting to background (because cleanup below background is not feasible).
- Part 2 – calculating risk-based SCOs based on secondary exposure pathways (direct contact with and incidental ingestion of sediment). Secondary exposure pathways typically result in higher risk-based concentrations than fish/shellfish consumption exposure pathway concentrations. Therefore, where both the secondary and fish/shellfish consumption exposure pathways are applicable, calculation of SCOs for the secondary exposure pathways is not necessary.

Based upon the information presented above, it appears that the final SCOs (which are the sediment CULs) for the Site should default to background. Ecology has determined that a collective data set (referred to as Bold Plus) is appropriate to establish natural background for marine sediment, but Ecology has not established natural background for freshwater sediment (SCUM II). As such, Clariant requests comment from Ecology on establishing background

levels.

Per WAC 173-204-560(6), the sediment POC shall be established at a location that is protective of both aquatic life and human health. To protect aquatic life, the point of compliance shall be established within the biologically active zone. Per Ecology's *Implementation Memorandum No. 16*, the biologically active zone is typically the uppermost 0.3 to 1 ft thickness of sediment. If that location is not sufficient to protect human health, then the point of compliance shall be established at a different location that is also protective of human health. The proposed sediment POC for the Site is Columbia River sediment adjacent to the Site to a depth of 1 ft below the top of sediment.

3.5 Protection of Air Quality CULs and POCs

WAC 173-340-750 (cleanup standards to protect air quality) applies whenever it is necessary to establish air cleanup standards to determine if air emissions at a site pose a threat to human health or the environment, but does not apply to concentrations of hazardous substances originating from an industrial/commercial process or off-site source. Per WAC 173-340-750(3)(b)(ii), Method B protection of air quality CULs protective of human health and the environment shall be determined using Equation 750-1 for substances with potential noncarcinogenic effects due to inhalation (such as zinc) and using Equation 750-2 for substances with potential carcinogenic effects due to inhalation (such as cadmium). The Method B protection of air quality CUL calculated for cadmium using Equation 750-2 is $0.0014 \mu\text{g}/\text{m}^3$. This value is the same as presented in the CLARC data tables.

According to EPA's Integrated Risk Information System (IRIS) Chemical Assessment Summary for zinc, available data are not suitable for the derivation of a reference concentration for chronic inhalation exposure (RfC) for zinc. As such, a protection of air quality CUL for zinc was not calculated for zinc using Equation 750-1. There is not a protection of air quality CUL for zinc presented in the CLARC data tables.

Per WAC 173-340-750(6), the protection of air quality POC is ambient air throughout the Site.

Per WAC 173-340-750(1)(a), air cleanup standards shall be established at the following sites:

- (i) where a non-potable groundwater CUL is being established for volatile organic compounds using a site-specific risk assessment under WAC 173-340-720(6).
- (ii) where a soil CUL that addresses vapors or dust is being established under WAC 173-340-740 or 173-340-745.
- (iii) where it is necessary to establish air emission limits for a remedial action.
- (iv) at other sites as determined by the department.

A protection of air quality CUL of $0.0014 \mu\text{g}/\text{m}^3$ for cadmium appears appropriate for the Site unless it is determined that the criteria listed above are not applicable to the Site.

3.6 Summary of Site CULs and POCs

CULs and POCs which currently appear appropriate for the Site are summarized in the attached Table 1. Please note that one or more conditional POCs may be identified and evaluated as part of the feasibility study completed for the Site. If approved by Ecology, conditional POCs will be established in the cleanup action plan for the Site.

Mr. Adam Harris
February 20, 2019
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Clariant requests that Ecology provide concurrence or comment on the cleanup standards presented in this submittal for the Site, including comment on establishment of quantitative natural background levels for sediment CULs. If you have any questions or need additional information, please feel free to contact us at (704) 586-0007.

Sincerely,

Hart & Hickman, PC



Scott Drury
Project Manager



Steven C. Hart, LG
Principal

Attachments

cc: Gil Insley – Clariant (via email)

Table 1
Summary of Site Cleanup Standards
Chemtrade Performance Chemicals US LLC Site
Kalama, WA
H&H Project No. CLR-045

| Media - Pathway | Cadmium CUL | Zinc CUL | POC |
|--|--------------------------|--------------------|---|
| Soil - Direct Contact (Unrestricted Land Use Portion of Site*) | 80 mg/kg | 24,000 mg/kg | Soil throughout the Site from the ground surface to 15 ft bgs |
| Soil - Direct Contact (Industrial Portion of Site**) | 3,500 mg/kg | 1,050,000 mg/kg | Soil throughout the Site from the ground surface to 15 ft bgs |
| Soil - Protection of Terrestrial Environment (Unrestricted Land Use Portion of Site*) | 25 mg/kg | 270 mg/kg | Soil throughout the Site from the ground surface to 15 ft bgs |
| Soil - Protection of Terrestrial Environment (Industrial Portion of Site**) | 36 mg/kg | 570 mg/kg | Soil throughout the Site from the ground surface to 15 ft bgs |
| Unsaturated Soil - Protection of Groundwater | 0.69 mg/kg | 5,970 mg/kg | Soil throughout the Site from the ground surface to a depth of 20 ft bgs |
| Saturated Soil - Protection of Groundwater | 0.035 mg/kg | 299 mg/kg | Soil throughout the Site at depths greater than 20 ft bgs |
| Groundwater - Human Health Protection | 5 µg/l | 4,800 µg/l | Groundwater 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. |
| Groundwater - Surface Water Protection | 0.7 µg/l | 66 µg/l | Groundwater 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. |
| Surface Water | 0.7 µg/l | 66 µg/l | The point or points at which dissolved COCs associated with the Site discharge to the Columbia River |
| Sediment | Natural Background | Natural Background | Columbia River sediment adjacent to the Site to a depth of 1 ft below the top of sediment |
| Ambient Air | 0.0014 µg/m ³ | N/A | Ambient air throughout the Site |

Notes

CUL - cleanup level; POC - point of compliance

**Unrestricted land use portion of the Site is that portion of the Site property located outside of the Site's perimeter fence

**Industrial portion of the Site is that portion of the Site property located inside of the Site's perimeter fence

mg/kg = milligrams per kilogram; µg/l = micrograms per liter; µg/m³ = micrograms per cubic meter

bgs = below ground surface; N/A = not applicable

Attachment A

Wildlife and Plant Species Use Evaluation



November 2018

Scott Drury
Hart & Hickman, PC
2923 S. Tryon Street, Suite 100
Charlotte, North Carolina 28203

Re: Wildlife and Plant Species Use Evaluation
Chemtrade Performance Chemicals US LLC Site
404 N. Hendrickson Drive
Kalama, Washington

Dear Scott,

Ecological Land Services, Inc. (ELS) was contracted by Hart & Hickman to assess the above referenced site for use by wildlife species classified by the Washington Department of Fish and Wildlife (WDFW) as a priority species or species of concern; or a plant species classified by the Washington Department of Natural Resources (WDNR) natural heritage program as endangered, threatened, or sensitive (hereafter referred to as state listed animal or plant species).

ELS consulted the following environmental resources:

- (WDFW) Priority Habitat and Species (PHS) website
- Washington Department of Natural Resources (WDNR) website
- Cowlitz County GIS environmental maps

No state listed animal or plant species are mapped within the subject site property by WDFW or WDNR. A WDFW oak woodland/forested-scrub shrub wetland is mapped offsite to the east (Figure 2). The site was also assessed for the presence of larks, a species listed by WDFW and U.S. Fish and Wildlife Service (USFWS), due to the prevalence of lark species and potential lark habitat along the Columbia River.

Surveys

ELS conducted 3 site visits to survey for streaked horned larks and to document the habitat of the subject property. The lark surveys followed the *Washington Department of Fish and Wildlife's Streaked Horned Lark Occupancy and Abundance Survey Protocol and Strategies* (WDFW 2015) and results are discussed below. No larks were observed during the surveys.

According to the USFWS, the preferred habitat of streaked horned larks includes wide open spaces with areas that have a minimum of 16 percent bare ground, have sparse, low stature vegetation composed primarily of grasses and forbs less than 13 inches in height, and have no trees and few or no shrubs. Data indicates that streaked horned larks are generally found in open landscapes of 300 acres or more. Some sites with the appropriate characteristics may be smaller in size if they are adjacent to fields or open water to provide the required open landscape.

Habitat

Study Area

The subject site was previously used as a chemical processing plant and is currently not in use. The site has a large building, smaller associated buildings, and an asphalt parking and driveway located in the southern half of the site. An 8-foot fence encompasses the site. The majority of the site consists of 100 percent cover of upland herbaceous vegetation and/or moss. Overall, the site has greater than 90 percent cover of vegetation, approximately 50 percent of which consists of moss, which is not preferred vegetation for larks. A small portion of the site in front of the building is the only patch of bare ground (Figure 2). There are no land use or management plans to maintain or restore native or semi-native vegetation at the site, and the site is not a green-belt protected wetland, forestland, locally designated environmentally sensitive area, open space area managed for wildlife, park, or outdoor recreation area.

Adjacent Parcels

The property located south of the subject site is owned by the Port of Kalama and has no land use or management plans to maintain, or restore native or semi-native vegetation and is not a green-belt, protected wetland, forestland, locally designated environmentally sensitive area, open space area managed for wildlife, park, or outdoor recreation area (per discussion with Port of Kalama, 11-7-18). The property is maintained under a Department of Natural Resources Surface Mining permit, as it is currently used as an upland dredge material placement for sand sales and/or beneficial reuse site and managed by the Port to keep vegetation off so material can be used as structural fill for projects.

The property located north of the subject site is owned by the Port of Kalama and has no land use or management plans to maintain or restore native or semi-native vegetation and is not a green-belt, protected wetland, forestland, locally designated environmentally sensitive area, open space area managed for wildlife, park, or outdoor recreation area (per discussion with Port of Kalama, 11-7-18). The property is nourished with dredge material from Port dredging operations and to maintain the beach for recreational purposes. The property consists of a riprap enforced bank, an asphalt walking trail, and viewing platform and is managed and maintained by the Port.

Directly east of the subject site is North Hendrickson Drive; east of that is a set of Burlington Northern railroad tracks. The parcel east of the railroad tracks did not have an owner listed on the Cowlitz County Assessor website; this parcel is mapped by WDFW PHS as an oak woodland/forested scrub shrub wetland and is located between Interstate-5 and Burlington railroad.

Conclusions

Lark surveys were conducted to determine if lark habitat was on the site and if larks were using the site. No larks were observed during three surveys. Given the site has less than 10 percent bare ground it does not contain the suitable habitat for larks, it is our opinion that larks are not likely to use the site for any stage of life. Agency database research did not locate any other state listed animal or plant species within or adjacent to the site and no listed species or habitat was observed during the site visits. The closest mapped habitat is a WDFW PHS oak woodland/forested scrub shrub wetland located on a parcel east of the study area; however, it is highly unlikely that any terrestrial species that may inhabit this site would use the subject site for foraging, safety, nesting, or any other life history use for these three reasons:

- 1) The mapped PHS is separated from the subject site by N. Hendrickson Road and railroad tracks;
- 2) the subject site has an existing 8-foot cyclone fence around the entirety of it; and
- 3) no wetland, forest, or scrub shrub habitat is located within the subject site.

Neither the subject site nor the adjacent parcels have land uses or management plans to maintain, or restore native or semi-native vegetation and neither the study area nor the adjacent parcels are green-belts, protected wetland, forestland, locally designated environmentally sensitive areas, open spaces area managed for wildlife, park, or outdoor recreation areas.

If you have any questions or need additional information please call me at (360) 560-3008 or email me at michele@eco-land.com.

Sincerely,

A handwritten signature in black ink that reads "Michele McGraw". The signature is written in a cursive, flowing style.

Michele McGraw
Senior Wildlife Biologist

Attachments:
Figures

References:

Washington Department of Fish and Wildlife (WDFW). *Priority Habitats and Species Program*. <http://apps.wdfw.wa.gov/phsontheweb/>. Access September 2018.

Washington Department of Fish and Wildlife (WDFW). April 2015. *Streaked Horned Lark Occupancy and Abundance Survey Protocol and Strategies*.

Washington State Department of Natural Resources (DNR). 2018. *Section, Township, Range list*. <https://fortress.wa.gov/dnr/protectiongis/fpamt/>. Accessed September 2018.

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WASHINGTON



SITE

Latitude: 45.9947°
Longitude: -122.8420°

LOCATION MAP

R 1 W

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| T | | | | | N |
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| 31 | | | | | 36 |

NOTE:
USGS topographic quadrangle map reproduced using
MAPTECH Inc., Terrain Navigator Pro software.

PROJECT VICINITY MAP

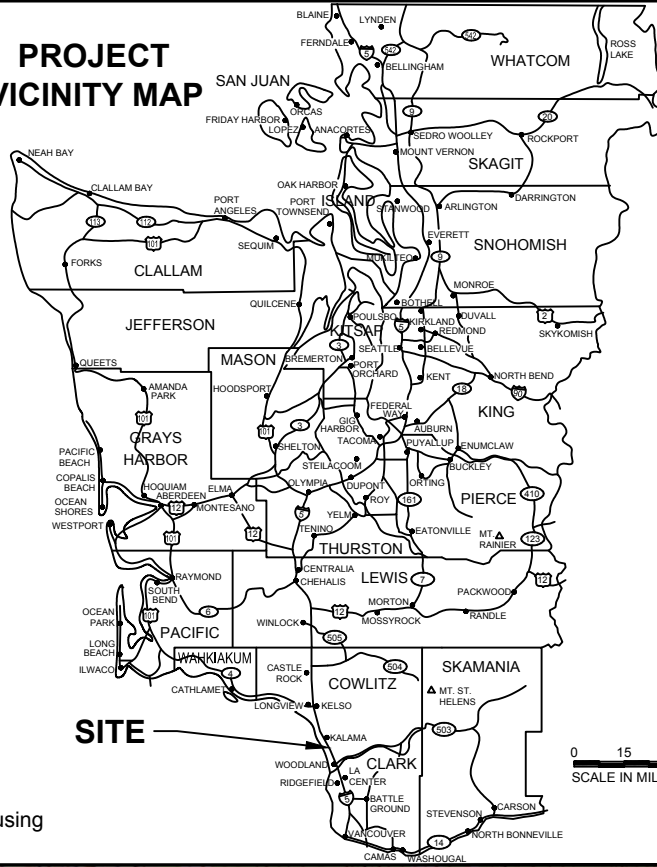
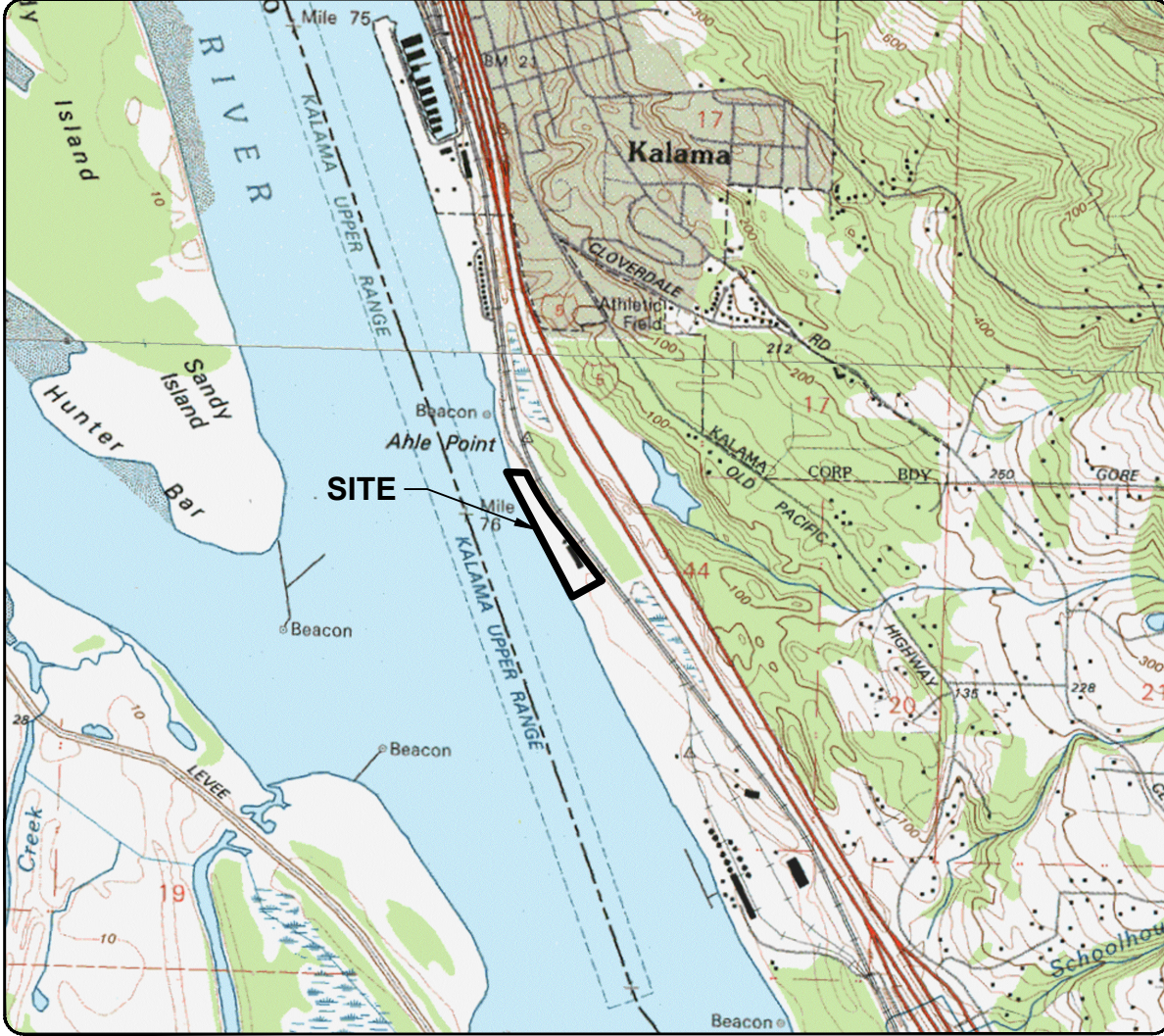
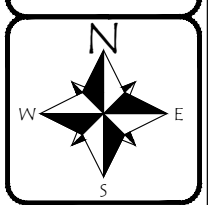
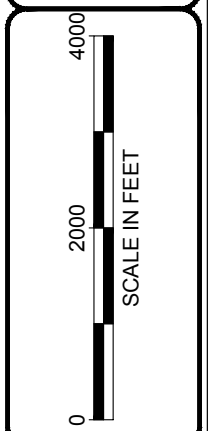


Figure 1
VICINITY MAP
Chemtrade Performance
Chemicals US LLC Site
Cowlitz County, Washington
Section 20, Township 6N, Range 1W, W.M.

DATE: 11/7/18
DWN: CDP
REQ. BY: MLM
PRJ. MGR: MLM
CHK: MLM
PROJECT NO:
2807.01



1157 3rd Ave., Suite 220A
Longview, WA 98632
Phone: (360) 578-1371
Fax: (360) 414-9305
www.eco-land.com





LEGEND:

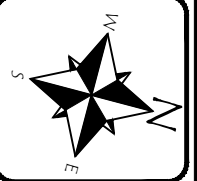
- Site Parcel Boundary
- - - Fence

Figure 2
SITE MAP

Chemtrade Performance
 Chemicals US LLC Site
 Cowlitz County, Washington
 Section 20, Township 6N, Range 1W, W.M.

DATE: 11/7/18
 DWN: CDP
 REQ. BY: MLM
 PRJ. MGR: MLM
 CHK: MLM
 PROJECT NO:
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NOTE(S):

1. Aerial from Google Earth™.



Oak Woodland/
Forested-Scrub Shrub
Wetland

NOTE: Map provided online by Washington State
Department of Fish & Wildlife at web address:
<http://apps.wdfw.wa.gov/phsontheweb/>



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Figure 3
WDFW PRIORITY HABITAT & SPECIES
Chemtrade Performance
Chemicals US LLC Site
Cowlitz County, Washington
Section 20, Township 6N, Range 1W, W.M.