STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

August 11, 2009

Mr. Jim Gilmur
c/o Duwamish Metal Fabricators
16 South Michigan Street
Seattle, WA 98108

Re: Opinion on *May 11, 2009, Remedial Investigation Report, Gilmur/Hale Family Trust, 6365 First Avenue South, Seattle, Washington,* for the following Site:

- **Site Name:** Duwamish Marine Center
- **Site Address:** 6365 First Avenue South
- **Facility/Site No.:** 21945598
- **VCP Project No.:** NW 1646

Dear Mr. Gilmur:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Duwamish Marine Center facility (Site), also referred to as the Gilmur/Hale Trust property (the property). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding a review of submitted documents/reports pursuant to requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following release(s) at the Site:

- Arsenic, cadmium, copper, lead, mercury, nickel, polychlorinated biphenyls (PCBs), diesel- and oil-range petroleum hydrocarbons, and carcinogenic polycyclic aromatic hydrocarbons (cPAHs) into the Soil

- Arsenic, cadmium, copper, lead, mercury, nickel, zinc, PCBs, diesel- and oil-range petroleum hydrocarbons, and cPAHs into the Ground Water

- These same compounds and metals may have been released to Surface Water and Sediment

The Site is defined by the extent of contamination caused by the releases listed above. The Remedial Investigation (RI) report referenced below suggests the extent of contamination (i.e., the Site) be defined as areas within the Gilmur/Hale Trust property impacted by releases from on-property activities and by the placement of contaminated fill derived from off-property

locations. While these areas are certainly part of the Site, there may be other off-property areas also included within the Site. Specifically, these include areas of potential sediment contamination in the Duwamish Waterway and impacted areas within adjoining upland property.

Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.

Ecology's Toxics Cleanup Program has reviewed the following information regarding your proposed remedial action(s):

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

1. 2009, May 11, *Remedial Investigation Report, Gilmur/Hale Family Trust, 6365 First Avenue South, Seattle, Washington,* report prepared by Pacific Crest Environmental, LLC.

This document is kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. You can make an appointment by calling the NWRO resource contact, Sally Perkins, at 425 649-9190.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following release(s) at the Site, Ecology has determined:**

1. The Remedial Investigation is not sufficient to allow cleanup levels to be established and a cleanup action to be selected, because the RI report does not present the necessary characterization information in a manner which allows these issues to be settled:

   - A characterization of "natural" conditions at the Site and in the surrounding area has not been presented. Specifically, sections on geology, surface water, ground water, and natural resources are missing or inadequately developed. These sections, based on a synthesis of RI data and previously collected data, are needed to provide the foundation for understanding site contamination.

- The lateral and vertical extent of contamination in soil and ground water is not presented in sufficient detail to understand distributions across the property. Although Figures 4, 5, and 6 provide a clear visual interpretation of the lateral extent of soil contaminant groupings, these figures lack data supporting the boundary lines.

A revised RI report will therefore need to be submitted. To assist in that revision, an outline of the elements to be included is attached in Enclosure A. Note that the suggested outline is organized around the premise that the body of an RI should focus on interpretation and synthesis, with supporting details and methodology included in the appendices. For example, only a synopsis of the current RI and former pre-RI investigations scopes of work are needed in the body of the report, with most of the information being conveyed on tables and figures. There is no need to weave together an extended discussion of scope and methodology together with findings in the same section of the report. The findings should go in a later section, and investigation details are best placed in an appendix. The main purpose of a scope of work section is to acquaint the reader with the data points (RI and pre-RI) that are available to understand site conditions (i.e., exploration locations, chemical analyses, monitoring).

2. The Remedial Investigation report does not address potential sediment contamination, based on a discussion with Ecology that this issue be set aside until it can be addressed within the context of the Lower Duwamish Waterway Superfund cleanup. Nevertheless, river sediment should be considered part of the "Site" and some discussion of former and current mechanisms for sediment contamination discussed in the revised RI. The revised RI should also explicitly state that sediment evaluation is needed for full characterization of the Site, and, though not included in the RI, will be addressed at a later date.

3. The discussion of cleanup levels in the RI is fairly thorough, but needs to be reorganized along the lines of media/exposure scenario or media/pathway. In addition, the RI needs to incorporate exposure pathways outlined in the November 5, 2007 draft Remedial Investigation report for the Lower Duwamish Waterway (LDW) (a revised draft document is currently being reviewed by the agencies involved, and it is expected that the document will be finalized in the near future). Specifically, each of the exposure pathways listed below needs to be evaluated as to whether an associated cleanup level is appropriate for this Site, and the most stringent of the applicable levels selected as the soil or ground water cleanup level for the Site.

Human Health Cleanup Levels

Soil: On-Site workers – Direct contact and ingestion

Ground Water: Potable use

Surface Water: Recreational use – Direct contact and ingestion
Associated cleanup levels:
- Soil protective of leaching to surface water
- Ground water protective of surface water

Surface Water: Fish consumption
Associated cleanup levels:
- Soil protective of leaching to surface water
- Soil protective of leaching to ground water
- Ground water protective of surface water

River Sediment: Workers – Direct contact and ingestion

River Sediment: Fish consumption
Associated Site cleanup levels:
- Soil protective of sediment
- Ground water protective of sediment

Ecological Health Cleanup Levels

The draft LDW Remedial Investigation report also includes an ecological risk assessment which identifies 10 receptors of concern (ROCs) in and along the Duwamish Waterway. Each of the ROCs is a species selected to represent a larger group of animals, and cleanup standards were identified for each. Soil and ground water cleanup levels protective of ROCs exposed to river sediment must be included in the revised evaluation of cleanup levels for the Site.

Note that a detailed review of the RI report was not completed, pending submittal of a revised version incorporating the elements discussed above.

This opinion does not represent a determination by Ecology that a proposed remedial action will be sufficient to characterize and address the specified contamination at the Site. To obtain this opinion, you must submit appropriate documentation to Ecology and request such an opinion under the VCP. **This letter also does not provide an opinion regarding the sufficiency of any other remedial action proposed for or conducted at the Site.**

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or conducted at the Site meet those requirements.

If you have any questions regarding this opinion, please contact me at 425 649-7107.

Sincerely,

Mark Adams
NWRO Toxics Cleanup Program

ma/kp

Enclosures: A

cc: William Carroll, Pacific Crest Environmental, LLC

Remedial Investigation Outline
July 2009

The following annotated outline is a suggested schematic for elements to be included in a Remedial Investigation report. It is not intended to replace MTCA's specific requirements as presented in 173-340-350(7) WAC.

The main purpose of the outline is to facilitate the preparation of a document that is clear, comprehensive, and to the point. A secondary, but important, purpose is to make document preparation and review more efficient.

INTRODUCTION
(*concise, bulleted if possible*)

- Site name,VCP number, Name, address, and phone number of project consultant, Current owner/operator
- Purpose of document *(very brief restatement of what an RI is for, reference the WAC)*

SITE IDENTIFICATION AND LOCATION
(*focus on defining the site in the context of its' location*)

- Site discovery and regulatory status (*describe how the site was identified and where it is in the MTCA process)*
- Site and property location/definition (*define actual MTCA site location relative to property or study area*)
- Neighborhood setting

Figure – Vicinity Map (*preferably with topography*)
Figure – Property/Site Map (*preferably with topography*)

Appendix – Legal description of property, present owner and operator, chronological listing of past owners and operators

ENVIRONMENTAL INVESTIGATION/INTERIM ACTION SUMMARY
(*Concise summary presentation of the investigations that have been done at the site, along with prior remedial actions. Focused mostly on figures and tables. Details of and methods used in former investigations and remediation in appendices*)

- Constituents of Concern (*brief discussion about which specific compounds were chosen for analysis and why)*
- Soil
- Surface water
- Ground water
- Sediment
- Air/soil vapor

- Natural resources/wildlife
- Cultural history/archeology
- Interim actions (*brief intro to prior remediation activities*)

Figure – Soil investigation data points (*show potential source areas*)
Figure – Surface water/groundwater investigation data points (*show potential source areas*)
Figure – Air investigation data points (*show potential source areas*)
Figure – Prior remediation activities

Table – Exploration Summary
Table – Analytical Schedule per media (*include analytical methods and reporting limits,as possible)*

Appendix – Previous Investigations (*detailed discussion goes here)*
Appendix - Exploration and sampling methodology (*may combine with Previous Investigations)*
Appendix – Boring/ Well logs
Appendix - Prior Interim Actions

PROPERTY DEVELOPMENT AND HISTORY

(*this section focuses on the built environment, both current and historical, and presents the sources of contamination and release mechanisms*)

- Past site uses and facilities
- Current site use and facilities
- Proposed or potential future site uses
- Zoning (*if appropriate)*
- Transportation/roads
- Utilities, water supply
- Potential sources of site contamination
- Potential sources of contamination from neighboring properties (*discuss nearby sources if known)*

Figure – Historical site features (*may be combined with Figure 2*)
Figure – Potential contaminant sources
Figure – Utilities (*may be combined with Figure 2*)

Table – Potential Contaminants

NATURAL CONDITIONS

- Physiographic setting/topography

- Geology
  (*focus on interpretation*)

  - Regional Setting (*brief*)
  - Property Geologic Conditions (*synthesis, not regurgitation of boring logs, provide cross sections*)
  - Physical Properties (*unlikely to need this section, but in some cases may be useful to present data on soil adsorptive capacity, organic content, strength, etc.)*

  Figure – Plan view of geologic unit distribution (*if helpful*)
  Figure - Cross section A-A' (*show borings, wells, screened intervals, water levels*)
  Figure – Cross section B-B' (*if necessary*)

- Surface Water
  (*brief description of the surface water system*)

  - Property drainage
  - Area surface water/floodplain issues
  - Regulatory classifications, if any (*e.g surface water classification)*

  Figure – Surface water Conditions (*only if information not already in a prior figure*)

- Ground Water
  (*focus on interpretation, show on cross sections*)

  - Occurrence (*aquifers, water levels, confinement, geometry, continuity, physical properties*)
  - Movement (*directions, gradient if important, seasonal fluctuations, tidal influence*)
  - Discharge
  - Recharge (*if significant for site*)
  - Regulatory classifications, if any (*e.g. sole source aquifer*)

  Figure – Cross section with ground water information (*if not already included above*)
  Figure – Water table/potentiometric surface maps (*for various seasons or tidal conditions, show surface water*)

  Appendix – Ground water elevation data (*a table)*

- Natural Resources and Ecological Receptors
  (*preparatory to a TEE*)

  - Greenbelts and other natural habitat
  - Wildlife
  - Other Information required to conduct evaluations under -7491, -7492, or if necessary -7493

  Figure – showing natural areas, as appropriate

CONTAMINANT OCCURRENCE AND MOVEMENT

(*very little text, mostly figures and tables, main point is to provide easy-to-understand figures showing the depth and breadth of contamination*)

- Waste Material (*sludges, fluids, stockpiles)*
- Soil
- Surface Water
- Ground Water
- Sediment
- Air/Soil Vapor

  Figures – Cross sections showing soil contamination with depth
  Figures – Plan views showing soil contamination across site (*relative to releases if known*)
  Figures – Cross section showing ground water contamination with depth (*if appropriate*)
  Figures – Plan views showing ground water contamination in each aquifer (*relative to soil contamination and P-head map*)
  Figures – XY plots of specific contaminants with time (*as appropriate*)
  Figures – Others as appropriate to show the distribution of surface water, ground water, or air data

  Tables – All of the analytical data against final cleanup levels (*exceedances highlighted, no need to develop screening levels*)
  Tables – Summary of exceedances (*if helpful*)

  Appendix – QA report
  Appendix – Analytical lab reports

CONCEPTUAL MODEL

(*putting the whole story together, graphic illustrations are best*)

- Contaminant release/fate and transport/potential or actual receptors
- Data gaps (*is anything missing)*

CLEANUP STANDARDS

(*developing appropriate cleanup standards based on receptors and pathways*)

- Soil
  - Reasonable maximum exposure
  - Cleanup levels protective of contact, ground water, inhalation, terrestrial species, surface water, sediment
  - Points of compliance
  - Regulatory classifications *[classification of soil as dangerous or solid waste]*
- Ground Water
  - Highest beneficial use/reasonable maximum exposure
  - Cleanup levels protective of potable use, inhalation, surface water, sediment
  - Points of compliance
- Other Media as appropriate
  - Cleanup levels protective of ....
  - Points of compliance

Table – Cleanup Levels (*all potentially applicable values with final selected cleanup level noted*)

AREAS REQUIRING CLEANUP

(*the final story detailing where the contamination exceeds an applicable cleanup standard, brief text, mostly tables, figures*)

- Constitutuents of Concern (*a brief summary of compounds that exceed cleanup levels or "indicator hazardous substances" under MTCA. For most service station sites, the COCs should be the same)*
- Soil – vertical and lateral
- Ground water – vertical and later
- Sediment –
- Surface Water
- Soil Vapor/air

Figures – Plan view and vertical sections of areas requiring cleanup

REFERENCES