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August 18, 2000

Mr. Larry Tucker
Engineering Field Activity, NW
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Poulsbo, Washington 98370-7570

Re: Response to Comments on
Draft Site Hazard Assessment
Gorst Landfill
Gorst, Washington
J-7057-12

Dear Mr. Tucker:

This letter presents our formal response to comments for the Draft Site Hazard Assessment (SHA) at the Gorst Landfill (Bremerton Auto Wrecking Yard Landfill) near Gorst, Washington. This work was performed by Hart Crowser for Engineering Field Activity, Northwest (EFA,NW) under Contract No. N44255-98-D-4408, Delivery Order No. 12.

As specified in the Scope of Work for this project, all comments on the draft SHA were compiled by EFA, NW and forwarded to Hart Crowser. This document responds to comments received from Mr. Peter C. Brooks of the Washington State Department of Ecology (Ecology), Mr. Scott Pozarycki, Biologist for the Suquamish Tribe, and Ms. Jan Brower of the Bremerton Kitsap County Health Department. No additional comments were received. Copies of the comment correspondence are attached to this letter for reference. The comments are paraphrased, and responses to comments are provided in the same sequence as they appear in the correspondence, referencing the comment number assigned by each agency, where available. Responses to the specific comments are presented below.

RESPONSE TO ECOLOGY COMMENTS

Ecology provided general comments and specific comments. General comments were numbered G-1 through G-4 in the letter from Mr. Brooks. Specific comments were numbered S-1 through S-3. Responses below are labeled with the same designations to facilitate cross-referencing.

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General Comments

G-1. The comment calls into question the use of Washington State Model Toxics Control Act (MTCA) industrial criteria instead of residential criteria for surface soils on the landfill property and adjacent properties. Mr. Brooks does not agree with the use of industrial criteria for the following reasons. First, the property does not meet one of the criteria for application of industrial criteria, which is that the property is not zoned industrial by the local government with jurisdiction for such designation. Second, surface soil samples were collected from the landfill mass and from adjacent upgradient and downgradient properties. Mr. Brooks notes that most of the surrounding properties are residential, and therefore residential criteria should be applied.

Response

To address the first point, as indicated on Page 8 of the draft SHA, the subject property is currently zoned as "Urban Reserve" by Kitsap County. This designation was assigned to the landfill property and all surrounding properties in the 1960s. The original intent of the "Urban Reserve" designation, according to the Kitsap County Assessor's Office, was to characterize undeveloped land outside of the urban growth areas in Kitsap County. In other words, Urban Reserve was a default designation to cover rural properties not yet assessed for specific zoning. Kitsap County has never individually reviewed the subject property and other surrounding properties with Urban Reserve designation for zoning purposes. In fact, many of the properties in the immediate vicinity have supported industrial operations for several decades, but still retain Urban Reserve zoning. The MTCA section titled "Soil Cleanup Standards for Industrial Properties" provides the following language: "Local governments use a variety of zoning categories for industrial land uses so a property does not necessarily have to be in a zone called "industrial" to meet the definition of an industrial property" (WAC 173-340-745).

To address the second point, Mr. Brooks states that many of the surface soil samples were collected from adjacent properties and that surrounding properties are residential. The following bullets provide information on current and past land use practices and current zoning for these properties.

- The land parcels located immediately adjacent to the east side of the landfill support Airport Auto Wrecking, Too. An auto wrecking yard under a number of different names has been in operation on that site for more than 30 years. According to the Kitsap County Assessor's Office, the zoning for the auto

wrecking yard properties, which clearly support industrial operations, is Urban Reserve. The nearest residence to the east beyond the landfill is more than 1,000 feet away.

- To the north lies a Washington State Department of Transportation easement for Washington State Route 3, with undeveloped and unoccupied City of Bremerton land located further to the north. The Bremerton Water District (BWD) uses the City land for surface application of biosolids. The presence of SR 3 and the biosolids land application project make the prospect of current or future residential use north of the landfill very unlikely. The City of Bremerton land is zoned under City authority. The SR 3 easement is zoned by the State of Washington as Department of Transportation easement to support limited commercial traffic (Class 3).

- A commercial Christmas tree farm occupies the property immediately to the west. According to the Kitsap County Assessor's Office, the zoning for the parcel adjacent to the west side of the landfill is Industrial. The nearest residential development west of the landfill is more than 1,000 feet away.

- Residential developments are present to the south, in the upgradient direction relative to the landfill. The nearest residence is estimated to be located more than 1,500 feet to the south. According to the Kitsap County Assessor's Office, the zoning for parcels directly south of the landfill is Rural Residential, which specifies one dwelling unit per 5 acres of land.

With regard to potential future use, the characteristics and topography of the landfill and surrounding properties where samples were collected would not support residential development. Kitsap County Assessor records indicate environmental restrictions for these properties, including steep slopes and green belt. In addition, the presence of the landfill itself in the creek ravine would preclude residential zoning of the property by Kitsap County.

In the absence of definitive zoning for the property, and based on current and likely future use of the property, industrial use represents the Reasonable Maximum Exposure (RME) for the property and adjacent properties. MTCA industrial criteria were used only for assessment of analytical results from surface soils for the SHA. The rationale for this was that surface soils are likely to remain on site. For potentially mobile environmental media, including groundwater, surface water, and sediment, the most stringent criteria were used.

G-2. Ecology noted that for a number of analyses, the laboratory methods used were not sensitive enough to detect constituent concentrations at or below MTCA residential and other evaluation criteria. The Sampling and Analysis Plan (SAP) prepared for this project documented the fact that several of the proposed chemical analyses have laboratory detection limits higher than the regulatory criteria proposed for comparison. Ecology recommends a Remedial Investigation (RI) be conducted for the site instead of resampling and reanalyzing to achieve lower detection limits. The RI is proposed to guide remedial design decisions. The presumptive remedy would include design of a landfill cap and a groundwater monitoring program.

Response

The intent of the sampling conducted for this project was to provide data to Ecology for a SHA so that the site could be ranked under the Washington Ranking Method. This was not a site investigation to determine cleanup criteria or actions. The end use of the data is different.

The MTCA regulations and guidance provided by Ecology for conducting a SHA provide the following schedule of actions for evaluating a site: site discovery and reporting, initial investigation, site hazard assessment, hazardous site listing, remedial investigation and feasibility study, and selection of cleanup actions (Chapter 173-340 WAC, Part III – Site Reports and Cleanup Decisions and Site Hazard Assessment Guidance and Procedures for Washington Ranking Method.) Based on this schedule, if the SHA for the Gorst Landfill does not indicate the need for additional actions on the site, there may be no need to establish cleanup goals or cleanup actions.

Again, the intent of this project was not to establish cleanup criteria for the landfill and surrounding properties. The intent was to provide data so that the site could be ranked by Ecology. Future remedial considerations will be influenced by the result of the ranking.

In response to the recommendation for an RI, the Navy is proposing to conduct a focused RI and to institute a presumptive remedy at Gorst Creek Landfill. . As indicated by Ecology, the presumptive remedy would likely include design of a landfill cap and implementation of appropriate post-construction monitoring to ensure protection of human health and the environment.

With regard to attainment of adequate laboratory detection limits, as noted by Ecology, for several analytes, the laboratory methods used were not sensitive enough to detect constituent concentrations at or below MTCA residential criteria. For several of these analytes, especially for groundwater and surface water, the cleanup levels are below the practical quantitation limits (PQLs) established by Ecology and presented in a 1993 Implementation Memo with the subject "PQLs as Cleanup Standards." The MTCA regulation states, "Where cleanup levels are below PQLs, compliance with cleanup standards will be based upon the PQL" (WAC 173-340-700(6)(e).

G-3. Mr. Brooks acknowledged that groundwater contamination was not indicated based on analytical results for samples collected from the BWD well. He noted that the absence of contaminants in the BWD well does not rule out the potential for contaminated groundwater immediately beneath the landfill.

Response

Based on the limited review of area hydrogeology performed for this project, it appears that Gorst Creek is a gaining stream on and below the landfill property. This means that groundwater will most likely discharge into the creek rather than the creek recharging the groundwater. Consequently, the receptor of primary concern with regard to potential groundwater impacts is the creek itself. The absence of contamination in the creek surface water (which should be receiving potential contaminants both from erosion/runoff from the landfill mass plus groundwater discharge) should indicate that the local groundwater has not been adversely impacted.

As indicated above, groundwater monitoring wells may be installed as part of the presumptive remedy for this project. However, if water level monitoring demonstrates groundwater discharge to the creek, which is the typical situation for Western Washington, monitoring of the creek water would provide the most direct assessment of potential risks to human health and the environment. A combination of wells and staff gages in the creek bed may be sufficient to make this demonstration.

G-4. Mr. Brooks notes that elevated pH and a detection of mercury were found in a surface water sample collected upgradient of the landfill property. The Navy concurs with Ecology that these issues are not the Navy's responsibility. The Navy will be interested in the results of Ecology's investigation of upgradient sources of elevated pH and mercury.

Specific Comments

S-1. Mr. Brooks indicates that three surface soil samples were found to contain PCBs above MTCA Method B residential criteria.

Response
Based on the rationale provided in response to Comment G-1 above, we believe that application of industrial criteria is appropriate for this site since industrial use represents the RME scenario. If industrial criteria are allowed, PCB concentrations detected in surface soil samples are two orders of magnitude below the criteria. In addition, total PCB concentrations in surface soil are also below the MTCA Method A residential criterion for total PCBs in soil (1.0 mg/kg).

S-2. Mr. Brooks raises the issue of detection of total mercury in SW-01 located upgradient of the landfill. He also notes that the laboratory detection limit for total and dissolved mercury of 0.2 ppb is higher than the 0.012 ppb criterion for total recoverable mercury under the Surface Water Quality Standards of the State of Washington (WAC 173-201A). He states that because of this, it is not possible to determine the impact that mercury from the landfill might have on surface water.

Response
First, the State Water Quality Standards only provide criteria for total recoverable mercury at 0.012 ppb. Total mercury was detected at the laboratory detection limit of 0.2 ppb in the upgradient sample (SW-01). With available data, it is not possible to determine how much of the total mercury detected in SW-01 is present as dissolved mercury, and how much is attributable to turbidity in the sample. It is noteworthy, however, that dissolved mercury was not detected at laboratory detection limits in the upgradient or downgradient samples. Note that Ecology (1993) specifies the PQL for mercury in water as 0.2 ppb and the method detection limit (MDL) as 0.2 ppb. The analytical method used for this project complies with the requirements of WAC 173-340-830 (Analytical Procedures). In cases where the cleanup criterion is below the PQL, the PQL represents the cleanup standard under MTCA (WAC 173-340-707).

Regardless, based on the detection of total mercury in the upgradient sample and no detection in the downgradient sample, mercury is present in higher concentrations in surface water upgradient of the landfill than downgradient of the landfill. The landfill, therefore, does not appear to be contributing mercury to the creek water.

S-3. Mr. Brooks indicated concern over the elevated surface water pH measured upgradient and downgradient of the landfill at the time of sampling. The pH actually decreased as it traveled through the landfill mass. Mr. Brooks suggests that this may be attributed to acid leachate from the landfill.

Response

To verify that the elevated pH measurements obtained at the time of sampling were not the result of instrument error, Hart Crowser revisited the Gorst Creek ravine on June 9, 2000 to obtain additional pH readings. The readings were collected in the vicinity of the previous sample locations for SW-01 and SW-02. During this measurement event, two pH meters were used to confirm the results. In addition, the pH meters were calibrated in a buffered solution before and immediately following the measurements.

Once on site, the Hart Crowser field representative noted that Gorst Creek was dry at the former site of sample SW-01, upgradient of the landfill. There was no flow going into the atrium drain that diverts water from Gorst Creek under the landfill. The field representative walked approximately 100 feet upstream of the atrium drain in the creek bed until he encountered a flow estimated at 10 gallons per minute (gpm) in the creek bed. He collected two pH measurements at this location.

Stream conditions downgradient of the landfill showed an estimated flow of approximately 4 gpm coming out of the corrugated pipe at the base of the landfill. The field representative collected two pH measurements at this location.

The pH measurements obtained during this event are summarized below.

Measurement Date	Upgradient Surface Water	Downgradient Surface Water
01/10/00 (Measured at time of sampling)	9.9	9.0
06/09/00	8.4	7.0

The June data suggest that the initial (January) readings were erroneously high (alkaline); however, potential affects of different flow conditions (seasonality) is not known. The June readings are more in the "typical" range for regional streams. The readings confirm a decrease in pH from upgradient to downgradient. The downgradient reading is near neutral within the acceptable range for class AA

(extraordinary) waters (6.5 to 8.5) under WAC 173-201A. The upgradient reading is at the upper end of this range. Therefore, the data indicate no adverse impacts to downstream water quality.

RESPONSE TO SUQUAMISH TRIBE COMMENTS

Suquamish Tribe comments are numbered 1 through 7 in their correspondence. Responses below are labeled with the same designations to facilitate cross-referencing.

1. Mr. Pozarycki indicated that landfill stabilization is necessary to prevent debris, contaminants, and sediment from entering Gorst Creek and destroying downstream gravel beds used as spawning habitat by salmon and other fish species.

   Response
   Language to reflect the potential for debris and sediment to degrade spawning gravels will be included in the section on the Screening Level Assessment of Risk to Fish in the final report.

2. Mr. Pozarycki raises the issue of the elevated pH measured both upgradient and downgradient of the landfill at the time of the sampling event.

   Response
   Please see the response to Ecology comment S-3.

3. Mr. Pozarycki indicates that a landslide may release sediment and chemicals to Gorst Creek with detrimental impacts to wild fish and spawning habitat.

   Response
   As in Suquamish Comment 1, language to reflect the potential for a landslide and resulting sediment release to degrade spawning gravels will be included in the section on the Screening Level Assessment of Risk to Fish in the final report. The presence of significant contaminant load in the landfill was not indicated in the research conducted for this project. Any assessment of potential impacts to spawning gravels from contaminant release during a landslide would be purely speculation.

4. The fourth Suquamish comment is related to surface water analytes for which the laboratory detection limit is higher than the state Water Quality Standards, as discussed on Page 17, first paragraph.

Response
The sentence states that because the compounds that had detection limits above screening criteria were also not detected in freshwater sediment these are not "compounds of concern." Mr. Pozarycki is right to draw attention to this wording that minimizes the concern over impacts to surface water from potential contaminants for which the surface water criteria were not reached. The paragraph will be rewritten in the final version to indicate that because these analytes were also not detected in freshwater sediment, the potential for them to represent a contaminant of concern is decreased.

5. Mr. Pozarycki asks if the Gorst estuary might be a depositional area for contaminants that have leached out of the landfill over time.

Response
Based on historical information collected about the landfill, and on the results of this investigation, it appears unlikely that the landfill has been a source of major contamination to surrounding or downstream environmental media. For the four types of media sampled during the SHA, only a few contaminants were detected; and where detected, contaminants were present in very low concentrations. Based on this finding, impacts to the Gorst estuary 3 miles downstream or other environments downstream of the landfill are likely minimal. Speculation on the types, quantities, or depositional area of contaminants that may have leached out of the landfill over time is outside of the scope of this SHA.

6. Mr. Pozarycki states that incorporation of a swale or small wetland in the surface water diversion project may help moderate the surface water flow.

Response
Comment acknowledged. Options for the landfill cap and surface water diversion design will be considered during later stages of the project.

7. Mr. Pozarycki requests a verification of the units used to report organic carbon concentrations and would like to see TOC reported as a percentage.

Response
A Hart Crowser chemist verified that TOC concentrations were reported in the correct units as provided by the analytical laboratory. Hart Crowser will add a row to Table 5 to include TOC concentrations by percent, as well as in mg/kg.

RESPONSE TO BREMERTON KITSAP COUNTY HEALTH DEPARTMENT COMMENTS

The Bremerton Kitsap County Health Department had only one comment regarding the use cleanup criteria. The County believes that residential criteria should be used instead of industrial criteria based on the proximity of residential properties to the landfill.

Response
Please see the response to Ecology comment G-1.

We trust these responses adequately address the comments received. Please call if you have any questions or further comments.

Sincerely,

HART CROWSER, INC.

E. Black

ELISABETH BLACK
Project Manager

MATTHEW F. SCHULTZ, P.E.
Contract Manager

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Attachments:

Comments from Peter C. Brooks, PE, Washington State Department of Ecology, May 24, 2000.

Comments from Scott Pozarycki, Biologist for the Suquamish Tribe, May 10, 2000.

Comments from Jan Brower, Bremerton Kitsap County Health Department, June 28, 2000.