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

January 12, 2010

Mr. Stephen L. Anderson
Deputy City Manager
City of Bothell
18305 101st Avenue NE
Bothell, WA 98011

Re: Site Recommendations and Review of Report of Investigation, Feasibility Study, and Draft Cleanup Action Plan under WAC 173-340-350 and -355 for the following Hazardous Waste Site:

- Site Name: BOTHELL PAINT & DECORATING
- Site Address: 18004 and 18005 Bothell Way NE, Bothell 98011 and adjacent parcel to the east
- County Assessor's Parcel Numbers 945720-0081 and 945720-0072
- Facility/Site No.: 93536765
- Agreed Order No.: 6296

Dear Mr. Anderson:

Thank you for submitting your draft Report of Investigation/Feasibility Study (RI/FS) and Draft Cleanup Action Plan (DCAP) for the above mentioned site. Ecology appreciates your initiative under the Model Toxics Control Act.

The Washington State Department of Ecology's Toxics Cleanup Program has reviewed the following information regarding the BOTHELL PAINT & DECORATING site, 18004 and 18005 Bothell Way NE, Bothell 98011 and adjacent parcel to the east, Bothell, WA:

1. Bothell Paint and Decorating Remedial Investigation/Feasibility Study, Revision No. 1, prepared by Parametrix, dated December 2009.
2. Bothell Paint and Decorating Draft Cleanup Action Plan Revision No. 1, prepared by Parametrix, dated December 2009.

The report listed above will be kept in the Central Files of the Northwest Regional Office (NWRO) of Ecology for review by appointment only. Appointments can be made by calling Sally Perkins at the NWRO at (425) 649-7190.

The Department of Ecology has reviewed the documents and is providing the following technical, regulatory, and administrative comments:

Regulatory and Administrative Comments

1. Based on review of the Report of Investigation/Feasibility Study (RI/FS) report, Draft Cleanup Action Plan (DCAP), and supporting environmental reports, the remedial approach for metals and petroleum hydrocarbon soil contamination specified in the FS as Alternative 3 (excavation and off site disposal) should be implemented as an interim remedial action to take advantage of the construction schedule for demolition and redevelopment of the property. Ecology will work with you to amend Agreed Order DE 6296 for the interim action and remedial action grant reimbursement. Ecology will assist to carry out the public comment requirements required by the Model Toxics Control Act for the amendment combined with SEPA requirements for the interim action. This will be implemented before or during the Crossroads Development construction scheduled planned for the first quarter of 2010.
2. The interim soil remediation should take into account the full extent of metals above cleanup levels, and the remediation of Semi-Volatile Organic Compounds (SVOC) exceedances first identified in BP-26.
3. Insufficient information on extent and nature of metal contamination in soil, the need for continued monitoring of groundwater for historical and known contaminants, lack of information and evaluation on contaminant plume interactions (commingling and/or encroachment onto property) with known nearby contaminated properties (e.g., Bothell Chevron, Bothell Service Center), and lack of delineation of metals and petroleum hydrocarbons in soil remain as data gaps in the RI.
4. The material objective under these conditions would be to achieve the most permanent remedial action as possible for soil contamination during the cleanup window in the redevelopment schedule, while addressing groundwater impacts and residual contamination issues at an appropriate level and pace. Ecology will work with you to achieve this objective.
5. Based on review of the draft RI/FS, Ecology recommends implementing as an interim action the soil remediation under Alternative 3 (Excavation and Offsite disposal) for contaminated soil in the area, without leaving residual contamination. This was established in the FS as the most permanent and protective solution. Furthermore, such a more complete source removal has a high potential to mitigate the arsenic impacts documented in groundwater. This will allow for a more tenable cleanup solution for groundwater issues at the site.
6. Work plans for the interim action(s) will be integrated as deliverables or supporting documents in the agreed order amendment. The work plans should be submitted for Ecology approval as soon as possible in order to meet the requirements for public involvement and the time window for cleanup within the construction schedule for the City's Crossroads redevelopment project.

Technical Comments

Remedial Investigation/Feasibility Study Report

1. Appropriate cleanup levels for chromium in soil due to past sandblasting activities have not been defined. Ecology recommends that several soil analysis for chromium species (Chromium III and the more toxic Chromium VI species). This should guide the lateral and vertical extent to which chromium will be remediated in soil. Alternatively, soil excavation for chromium remediation can be guided by the most stringent cleanup level for chromium in the Method A Unrestricted Residential table.
2. Page 3-9, top bullet: The northeast and east boundaries of the proposed remediation for metals do not appear to be sufficient due to metals exceedances (such as chromium) in soil samples past the excavation boundaries. Furthest extent of impacts to Giannola property remains unknown and the proposed excavation extents do not address the complete footprint of soil contamination above cleanup levels.
3. Proposed institutional controls in all remedial alternatives in the FS are not sufficiently described in detail
4. Electrokinetic soil remediation technology proposed in Alternative 2 does not appear relevant to soil remediation for metals in the vadose zone or in impacted surface soils. It is not clear if this is proposed to remediate metals bound in sandblast grit or related particulates versus metals in an aqueous phase. The application of an electric current to induce mobilization of charged metal species through water would not seem applicable to the shallow soil and vadose zone soil impacted by metals as soil includes the gas phase (air) within pore spaces rather than a liquid medium. Furthermore, the lead, chromium and cadmium contaminants may be bound within the solids (not just adsorbed species) making electromobility of particulates containing these metals unlikely.
5. Semi Volatile Organic Compound (SVOC) exceedances (including carcinogenic Polycyclic Aromatic Hydrocarbons or cPAHs) in soil in the area of BP-26 show that the characterization and extent of these contaminants of concern is not complete. As stated in the RI/FS and DCAP, further investigation is needed and is not being addressed in the CAP. This is another data gap in the RI/FS and CAP.
6. A protocol for monitored natural attenuation of arsenic exceedances in groundwater have not been sufficiently developed or justified. Dilution and dispersion as a primary remedial approach is not appropriate unless a Disproportionate Cost Analysis is provided and appropriate demonstration is made that the plume will not be a risk to human health and the environment, including Sammamish River. Restoration times should be reasonable, and a contingency plan should be in place for corrective action if the contaminant levels in groundwater to not decrease or reach compliance.
7. Pump and treat operation for the arsenic plume may merit further consideration, however, the drawdown may pull in other upgradient groundwater contaminants like Halogenated Volatile Organic Compounds (HVOC) and Total Petroleum Hydrocarbons (TPH). This should be investigated further especially if the water is to be treated and/or discharged properly.

8. Groundwater quality should be assessed in the RI for Volatile Organic Compounds (VOCs) along with TPH (gasoline, diesel, and motor oil range) due to historical hits of TPH (such as motor oil in BC-10) and HVOCs. Information should be gathered to see if they will reappear. This will require at least four quarters of groundwater monitoring. Additional groundwater requirements to be conducted in the future would mean that the RI itself is not complete.
9. Page 2-2, last paragraph: not clear what two parcels are being referred to.
10. The complete (including nondetect) contaminant results in figures have not been depicted. Nondetects in TPH, etc. are useful in understanding the lateral extent of contamination as well as the suitability of the proposed excavation of contaminated soil.
11. Page 3-3, second to last paragraph: motor oil was reported at 1,800,000 mg/kg. Analytical reports say 180,000 mg/kg.
12. The area where BP-26 is located contains a benzene exceedance in soil (as well as SVOC). It is unknown if TPH is also a contaminant of concern and its extent or connection to other nearby TPH contaminated soil.
13. Evaluate HVOC impacts or interactions in groundwater at the site.
14. Page 3-8, 3.6 Assessment of Risk: provide detail on where the presently occupied building is located and the nature of contamination beneath the building. Provide detail on what is mentioned in the report as a vapor intrusion risk including COCs, source media and transport and exposure mechanism. Include vapor intrusion in the RI/FS and DCAP.
15. Page 3-8, last paragraph: What is the cleanup plan for the TPH contamination in the former compressor blow down area? Will it be addressed by metals remediation?
16. The potential exists that site boundaries and number of PLPs may increase if the arsenic or other contamination plumes have mixed with upgradient groundwater plumes. This should be clearly inventoried, assessed and presented to Ecology.
17. Page 4-5, 4.6.5 Groundwater Remediation Technology – Monitored Natural Attenuation: Section is vague and does not cite a protocol or methodology for metals remediation in groundwater. As presented in the remedial alternative, the proposal does not remediate groundwater so much as adopt an observational approach.
18. Page 4-5, 4.6.6 Groundwater Remediation Technology – Complexation. Use of Metals Remediation Compound (MRC) as stated in the report, is unproven and will need a pilot test or study to assess its effectiveness. Secondary effects from precipitation are not assessed. Same comments for 4.6.7 Groundwater Remediation Technology – Adsorption/Absorption.
19. Page 4-7, 4.7.1 Alternative 1 – No Action. A no action alternative is not an appropriate alternative to mention or consider because the site is undergoing cleanup under MTCA.
20. Page 4-9, first paragraph: confirmation sampling is mentioned to take place at excavation sidewalls and bottom for alternative 2. Although this is useful in confirming that the full extent of contamination has been addressed, confirmation samples will be needed within the treated area itself to confirm that the treatment worked.

21. Under 4.7.3 Alternative 3 – Excavation, Off-Site Disposal, and Adsorption: Ecology recommends excavation and proper offsite disposal of TPH and metals contaminated soil, and infilling with clean material as an interim action to be implemented before property redevelopment. Although it is assumed that remediation of TPH oil range soil can be in compliance with Method A soil values, an alternative cleanup level using Extractable Petroleum Hydrocarbons/Volatile Aromatic Petroleum Fraction (EPH/VPH) analysis to determine using the three phase model the appropriate cleanup levels for oil range hydrocarbons in soil that are protective of groundwater. Furthermore, the full lateral and vertical extent of contaminated soil will remain uncertain until the appropriate cleanup level is adopted. This applies to all contaminants of concern in soil (TPH and metals).
22. In Figure 4-2, extent of excavated area at the south area of parcel appears to be designed for excavation of metals contaminated soil as well as TPH exceedances. It is not clear from the boundary at VB-6 if petroleum hydrocarbon impacts associated with a former LUST removal will be adequately addressed. Past reports seem to indicate that removal of petroleum contaminated soil (PCS) was incomplete at the time of LUST removal due to access issues (retaining wall). See also comment 2 with regard to extent of proposed excavation.
23. Page 4-10: Paragraph 5: groundwater pump and treat may mobilize and capture upgradient groundwater contamination (such as TPH and HVOCs plumes). This possibility should also be assessed in the FS.
24. Page 4-10, 4.7.4 Alternative 4 – Excavation, Off-Site Disposal, Low Permeability Cap, and Groundwater Extraction: The title should include "Institutional Controls" as it is a component of the remedial alternative.
25. Page 4-11, first bullet: Ecology notes that the realignment of SR 522 is cited as the low permeability cap on contaminated soil. As such, it is not really a remedial design as an incidental function. Appropriate design specification should be presented to demonstrate applicability to cleanup.
26. Page 4-11, third paragraph: Ten years was the assumed remediation time frame. The RI should be able to provide enough information to arrive at a better quantified estimate.
27. Page 4-11, 4.7.4 Alternative 5 – Excavation, Off-Site Disposal, Low Permeability Cap, Monitored Natural Attenuation: The title should include "Institutional Controls" as it is a component of the remedial alternative. "Monitored Natural Attenuation" is a misleading title as it does not involve recommended EPA protocol for MNA, including requisite geochemical conditions and attenuation processes.
28. Page 4-12: The Disproportionate Cost Analysis (DCA) in later sections is not sufficient for Alternative 5 to rely primarily on dilution and dispersion as the remedial solution to groundwater contamination in the site.
29. Page 4-13, 4.8.2 Compliance with Cleanup Standards: All the alternatives in the FS which establish institutional controls and conditional points of compliance implicitly imply that cleanup standards will not reach compliance. Section should be rewritten or inserted elsewhere to achieve clarity.
30. Page 4-14, 4.8.4 Provide for Compliance Monitoring: This section implies that a Compliance Monitoring Plan should be included in the DCAP.

31. Page 4-17,5th paragraph: Both Alternative 5 and 4 will require institutional controls. It is unclear if Alternative 4 will also require in perpetuity institutional controls.
32. Page 4-19, first paragraph: Alternative 5 MNA is not based on federal or state protocols or policy on natural attenuation of metals; its technical implementation as described is suspect and not in accordance with minimum thresholds for cleanup.
33. Page 4-20, under 4.9.3.1 Institutional Controls and Financial Assurances: the institutional controls will also require maintenance of integrity of the cap and preventing activities that would disturb or breach the cap (pierce with a spike, excavate, etc.).
34. Page 4-21 4.9.3.3 Dilution and Dispersion: Incremental degree of benefit is not adequately described or quantitatively or qualitatively justified.
35. Page 4-21, 4.10 Preferred Alternative: providing data gaps are addressed and the RI can be considered complete, implementation of Alternative 3 for soil contamination is preferred and can be implemented as an interim action for metals and focused TPH impacts at the site. Alternative 5 should not be the preferred alternative based on the proposed groundwater remediation component. A variation or limited implementation may be considered if source control is carried out fully and in compliance with MTCA cleanup levels (source of groundwater contamination at site such as metals contaminated soil).
36. Original work plan called for an additional monitoring well BPMW-4; it appears that this was not installed.
37. Table 4-3 Remedial Alternatives Estimated Costs: Include Groundwater Treatment in Alternative 3 title. Consider another alternative involving excavation, disposal of contaminated soil to fullest extent, and groundwater pump and treat and limited monitoring to see if source removal was effective.
38. Table 4-4. Remedial Alternative Permanent Solutions Criteria Summary: ratings for public concern are subjective. For example, due to remaining residual contamination alternative such as 5 may be rated high for public concern.
39. Due to the Crossroads redevelopment schedule, if additional field investigations are necessary to address data gaps in the RI/FS, Ecology believes that the best time would be before the redevelopment and highway alignments/construction. This characterization work and possibly additional cleanup actions are best included in the work plans for the interim action(s).

Draft Cleanup Action Plan

1. Due to data gaps in the RI and design limitations in meeting the threshold requirements for cleanup, Ecology at this time does not agree with implementing Alternative 5 (Excavation, Road as Cap, Institutional Controls, and Monitored Natural Attenuation of Metals) as the preferred remedial alternative.
2. If source control (removal of contaminated soil for TPH and Metals Arsenic, Barium, Lead, Silver, Chromium, Cadmium and Mercury) is achieved rather than allowing residual contamination in the ground (even if Cap is maintained), then an alternative groundwater remediation that could involve monitored attenuation is possible. However, a protocol for MNA for metals has not been established.

3. Costs for MNA are incomplete because it does not appear to include the monitoring network, monitoring requirement (parameters, lines of physical and geochemical evidence)
4. Lacks demonstration of restoration times in groundwater.
5. Lacks demonstration that risk from exposures (direct contact, discharge to surface water and shoreline) are minimal.
6. Lacks financial reassurances for the institutional controls and monitoring approach.
7. Lacks cleanup plan for other potential COCs such as SVOCs.
8. Lacks plans for exceedances in metals or TPH if confirmation samples following the remedial action are still in exceedance with the cleanup levels.

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 remedial action under an Agreed Order. If you have any questions you may reach me at 425-648-7094.

Sincerely,

Jerome B. Cruz
Hydrogeologist 4
NWRO - Toxic Cleanup Program

jc/kp

cc: Steven Morikawa, City of Bothell Capital Program Manager
Nduta Mbuthia, City of Bothell, Project Engineer