Response to Comments on
Draft Supplemental Cleanup Action Plan and
Draft Consent Decree Amendment

East Landfill Area of Concern
Alcoa/Evergreen Vancouver Site
5701 NW Lower River Road
Vancouver, Washington 99683

Prepared by

Washington State Department of Ecology

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WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

INTRODUCTION

This document addresses questions and comments received by the Department of Ecology, Industrial Section during the public comment period on a Supplemental Cleanup Action Plan (SCAP) and Consent Decree (CD) Amendment for site cleanup at the former Alcoa/Evergreen smelter in Vancouver, Washington. The proposed SCAP and CD amendment constitute the final remedy for releases of trichloroethylene (TCE) and other contaminants above applicable cleanup levels in ground water from the East Landfill. Other East Landfill exposure pathways were addressed by previous remedial actions completed in 2003 and 2004. The ground water beneath the East Landfill is the remaining area of concern at the Site.

The SCAP and CD amendment outline the steps and procedures for conducting an environmental cleanup of trichloroethylene (TCE) and other contaminants from the East Landfill consistent with the State's Model Toxics Cleanup Act. Specifically, the document establishes ground water and surface water cleanup levels for TCE and vinyl chloride, establishes a surface water point of compliance, and directs Alcoa to submit a sampling plan for surface water and water found in the biologically active zone at ground water/surface water interface in the Columbia River. The SCAP identifies the final cleanup action for the East Landfill which as monitored natural attenuation.

Ecology published notice of an opportunity to comment on the Supplemental Cleanup Action Plan (SCAP) and Consent Decree (CD) amendment in the Vancouver Colville Statesman-Examiner on October 5, 2010. In the notice, Ecology invited public review of the proposed SCAP and CD amendment and provided a 30-day public comment period. The deadline for submittal of written comments was November 5, 2010.

At the request of the Yakama Nation, the public comment period was extended 31 days ending on December 6, 2010. On October 28, 2010, Ecology held a public meeting and hearing at Clark College in Vancouver, WA to present the final cleanup issues for ground water at the Site. No comments were received by Ecology at the public hearing.

Written comments were received from:

Jeffrey Parker
Clark County Sheriff's Office
Confederated Tribes and Bands of the Yakama Nation
Columbia Riverkeeper and the Rosemere Neighborhood Association
Anchor QEA

Ecology included all of the comments received in this document. Comments were compiled and summarized where appropriate to save time and space. The original comment letters comprise

part of the legal record for the SCAP and CD amendment. The record is available for public review at Ecology's Industrial Section office in Lacey, WA. Anyone interested in reading the full text of the comment letters or in obtaining a copy of a particular comment should call or e-mail Paul Skyllingstad in Lacey at (360) 407-6949 or psky461@ecy.wa.gov.

After considering the written comments, Ecology determined that changes to the SCAP were appropriate. The surface water cleanup level for vinyl chloride was changed from a PQL of 0.2 ug/L to the surface water quality criteria for the protection of human health with respect to direct ingestion of water and aquatic organisms, 0.025 ug/L. Sections of the SCAP comparing monitoring data to this cleanup level were also changed.

Ecology will send a copy of this response to comments to each individual who provided written comments.

More information regarding the cleanup of this site is available at Ecology's Industrial Section in Lacey, WA and on the following internet site (http://www.ecy.wa.gov/programs/swfa/industrial/alum_alcoavan.htm).

The public will be notified by mail of any other changes to the amended Consent Decree and the Supplemental Cleanup Action Plan.

COMMENT AND RESPONSE

Comments appear in regular text, followed by Ecology's response in italicized text. Ecology's response includes the reasons for making, or not making, changes to the SCAP or CD amendment.

Comments from Jeffrey Parker (1-5)

1. The PQL for vinyl chloride used in Anchor's February 2010 transition zone water (TZW) monitoring study is 0.020 ug/L (Method 8260-SIM). The statement in the Draft Supplemental Cleanup Action Plan (SCAP) that the detected level of vinyl chloride at 0.046 ug/L is below the PQL for gas chromatography is incorrect.

   Ecology agrees that a PQL of 0.020 ug/L using Method 8260-SIM is widely achievable for vinyl chloride. The sections of the SCAP referring to the PQL for vinyl chloride have been revised to include a lower cleanup level. Please see the response to Comment #2.

2. The human health surface water criteria for vinyl chloride at 0.025 ug/L is the most stringent of the Method A WAC 173-720-1 table values and ARARs. It is protective of

human health with respect to direct ingestion of both water and aquatic organisms. There is no reason that this Clean Water Act (CWA) cleanup level should not be the selected criteria.

References to the surface water cleanup level for vinyl chloride were changed throughout the SCAP to the CWA cleanup level of 0.025 ug/L. The SCAP requires Method 8260-SIM to measure contaminants below this level.

3. Surface water data from the Anchor 2010 TZW report indicate a number of vinyl chloride detections in both the TZW and surface water samples above the most stringent cleanup level of 0.025 ug/L. It is inaccurate and misleading to assert in the SCAP that surface water data appear to be below the most restrictive recommended criteria. That would be true if the criteria were a PQL limitation of 0.2 ug/L. As stated previously, the PQL should be 0.020 ug/L. The statements in the SCAP may not be presenting a genuine picture of the East Landfill discharge to the Columbia River.

   The sections of the SCAP comparing the results of the 2010 TZW study to a PQL for vinyl chloride of 0.02 ug/L were revised. The results of the 2010 study are now compared to a surface water cleanup level of 0.025 ug/L. Please see the responses to Comments #1 and 2.

4. In Table 3-1 of the SCAP, the PQL of 0.2 ug/L is for Method 8260. Method 8260-SIM, a common EPA lab method, has a lower PQL of 0.020 ug/L which would allow the PLP to achieve results below the most stringent surface water CUL of 0.025 ug/L. The PQL of 0.020 ug/L was used in Anchor's 2010 study and should be used in Table 3-1 and throughout the SCAP.

   Please see the responses to Comments #1 and #2.

5. The point of compliance (POC) for surface water at the site, 6 inches above the riverbed, will not meet the requirement under WAC 173-303-730(6) for the point at which substances are released from ground water to surface water. At 6 inches above the riverbed, the sample will be well-mixed river water.

   A comparison of the TZW and surface water data (Anchor 2010) indicates a very obvious increase in vinyl chloride with depth to 6 inches below the mud line (14 cm). Samples should collect ground water at the point of discharge to surface water, not at a location 6 inches above the point of discharge. To be conservative and comply with the regulation, the POC should be moved to the point of discharge not above it.

Ecology agrees that the surface water point of compliance should be closer to the point of discharge. Accordingly, the surface water point of compliance in Table 3-3 and the SCAP narrative was changed to "as close as technically possible to the ground water/surface water interface without disturbing the sediment". Ecology will require Alcoa to install peeper samplers at this point to determine compliance with surface water cleanup levels. Peeper samplers are commonly used to measure dissolved contaminants in water and sediment pore water.

Comment from Clark County Sheriff's Office (6)

6. The Clark County Sheriff's Office operates a facility adjacent to the former Alcoa landfill site that is leaching TCE into the area ground water. We are concerned that the leaching of TCE poses risk to the drinking water at this facility. Can the TCE be absorbed though pipes and contaminate the water supply?

   TCE is a solvent that can penetrate plastic piping at high enough concentrations. The Clark County jail is built on property which was cleaned up in the early 1990s. The residual levels of TCE left onsite are well below residential cleanup levels for both ground water and soils.

   The jail is located upgradient of the Alcoa East Landfill. TCE-contaminated ground water is flowing south from the landfill toward the Columbia River rather than north under the jail. There are two upgradient ground water wells in this area, near the jail, that are monitored for TCE. TCE has been detected in these wells but at levels well below those that would affect plastic piping or concentrate in buildings.

Comments from the Yakama Nation (7-10)

7. Since the Yakama Nation has a significant role to play in the Alcoa/Evergreen remedial action, the Amended Consent Decree should include language regarding the Potentially Liable Person(s) [PLP(s)] responsibility for Yakama Nation's response costs at this site. The Amended Consent Decree should direct the PLP(s) to establish a Funding and Participation Agreement with the Yakama Nation to cover reasonable response costs. This is important to ensure that the final remedial action for this site properly addresses surface and ground water contamination from the facility so that the Columbia River is protected from further releases.

   Including the establishment of a Funding and Participation Agreement with the Yakama Nation in the CD amendment would be a new requirement that would significantly delay settlement, jeopardize the implementation of the remaining remedial actions, and could

undo months of negotiations with the PLP. Ecology believes that the proposed and completed remedies at the Site properly address surface and ground water contamination and that additional actions are not justified at this time.

8. The Yakama Nation would like to understand Ecology's position on assessment and recovery of natural resource damages caused by releases from the aluminum smelter facility. The Yakama Nation would like to coordinate with the State of Washington to ensure that restoration of injured resources is accomplished in a cost efficient manner as part of an integrated and holistic cleanup of the Lower Columbia.

   Ecology does not have the resources to support a legal action to recover natural resource damages caused by releases from the facility. The Yakama Nation may be able to pursue recovery of such damages under the federal CERCLA statute.

9. While the SCAP recognizes that ground water cleanup levels must be protective of surface water uses (since ground water discharges to the Columbia River), it does not appear that surface water criteria are applied to ground water, as required by MTCA [WAC 173-340-720(4)(b)(ii)]. Ground water cleanup levels must be at least as stringent as applicable surface water criteria and should be applied at the ground water point of compliance in the shoreline monitoring wells. If an off-property conditional point of compliance in surface water is being approved, that should be clearly stated and all applicable criteria in WAC 173-340-720(8)(d)(i) should be met, including the requirement to provide notice of such an approval to the natural resource trustees.

   The ground water point of compliance is the ground water throughout the site. The ground water cleanup levels for TCE and vinyl chloride are the Method A standards. These standards are the Maximum Contaminant Levels (MCLs) under the Safe Drinking Water Act (40 C.F.R. 141.6). These standards are also protective of aquatic organisms that live in pore water within the transition zone.

   WAC 173-340-720(3)(b)(iv) refers to WAC 173-340-730 to establish cleanup standards for protecting surface water beneficial uses. The SCAP also establishes a surface water standard and Ecology has revised the SCAP to specify the Clean Water Act surface water criteria of 0.025 ug/L as the surface water cleanup standard at the ground water/surface water interface in the Columbia River. Please see the response to Comment #2

   The Yakama Nation as well as other natural resource trustees along the Columbia River were contacted during each step of the cleanup process at the site through public notices. The public notice documents explained the proposed remedy including use of an off-site point of compliance. Notices were published and mailed out in recent years for the

following Ecology actions: East Landfill Interim Action Agreed Order dated 9/12/2003; RI/FS, Cleanup Action Plan, and Consent Decree for upland work and the river cleanup dated 9/11/2008; and the current Supplemental Cleanup Action Plan and Consent Decree Amendment dated 10/5/2010.

10. The selected surface water cleanup levels are based on a practical quantification limit, as opposed to the applicable risk-based value. While this is permitted by MTCA regulations, specialized analytical techniques that can achieve lower quantification limits should be considered.

    Please see the responses to Comments #1 and 2.

Comments from the Columbia Riverkeeper and the Rosemere Neighborhood Association (11-18)

11. The SCAP and CD amendment acknowledge that the East Landfill's soil and ground water are contaminated with PAHs. In particular, the SCAP states that the East Landfill exceeds MTCA Method A industrial soil and ground water cleanup levels within the footprint of the landfill. However, the SCAP exclusively addresses TCE and vinyl chloride and fails to explain why PAHs in the East Landfill's soil and ground water are not addressed in the Plan.

    Why does the SCAP fail to address PAHs? Does Ecology intend to address PAHs in a second amendment to the CD? If so, what authority does Ecology rely on to delay this decision and how does it protect human health and the environment?

    Soils at the East Landfill were addressed in the 2003 Interim Action Agreed Order (No. DE 03 TCPIS-5737) and the Consent Decree filed on January 30, 2009. The Agreed Order directed Alcoa to consolidate and contain contaminated soils from three on-site landfills, construct a double-lined clay cover to prevent stormwater infiltration into the East Landfill, and to reinforce the shoreline adjacent to the landfill to protect the Columbia River. PAHs in soils and ground water were sampled and analyzed in four site investigations from 1991-1994. The investigations consisted of test borings, installation of ground water monitoring wells, and the excavation of test pits in each of the landfills.

    The landfill cover and containment remedy eliminated the PAH direct contact pathway for soils. Benzo(a) pyrene (B(a)P) is an indicator for PAHs in groundwater. In 2003, B(a)P was measured in the ground water at levels ranging from non-detect to 0.18 ug/L in well MW-46 and from non-detect to 0.027 ug/L in MW-94-I. The groundwater cleanup standard for B(a)P is 0.1 ug/L.

Total carcinogenic PAHs in the groundwater at the East Landfill were evaluated using toxicity equivalency factors. PAH concentrations for the seven carcinogenic PAHs that are measured in groundwater are multiplied by a toxicity equivalency factor to adjust for risk and added together to determine compliance with MTCA. In 2003, prior to the construction of the landfill cap, the total carcinogenic PAHs in groundwater adjusted for risk were 0.27 ug/L in MW-46 and 0.0118 ug/L in MW-94-I. The groundwater cleanup standard for total carcinogenic PAHs is also 0.1 ug/L.

Carcinogenic PAHs in ground water have decreased to below cleanup levels since the landfill cover was constructed in 2003. The most recent round of ground water monitoring (November 2010) detected benzo(a) anthracene in only one downgradient monitoring well. Benzo(a)anthracene was measured at 0.058 ug/L and when adjusted for risk the equivalent measurement is 0.0058 ug/L. The groundwater cleanup level for benzo(a) anthracene is 0.1 ug/L. No other PAHs were detected in any of the down gradient monitoring wells.

12. Currently, Washington and Oregon's human health criteria water quality standards for toxics do not protect many populations of fish consumers, particularly Native Americans. In response to many years of work by Columbia River tribes and others, Oregon is currently revising its state water quality standards to significantly reduce the amount of toxic pollution that can be legally discharged into rivers, streams and lakes within the state. Washington is poised to undertake a similar revision.

    These revisions may increase the fish consumption rate from 6.5 grams of fish per day to 175 grams per day. Washington's toxics standards are based on a fish consumption of 6.5 grams per day. As the fish consumption rate rises, the water quality standards will decrease. If Washington's human health criteria are revised, would Ecology reopen the SCAP and amended CD to change the cleanup standards accordingly?

    There are two ways that Ecology could change a cleanup standard for this site. Ecology is required to conduct periodic reviews every 5 years to evaluate the effectiveness of the monitored natural attenuation remedy and to ensure that human health and the environment continue to be protected. There is also a reopener in the Decree that allows Ecology to change or update cleanup standards if it can be proven that the levels in the Decree are no longer sufficiently protective of human health and the environment [WAC 173-340-702(12)(c)]. The burden is on Ecology to present evidence on a case-by-case basis to the Court that proves that new cleanup levels are necessary.

13. In the draft SCAP, Ecology selected a point of compliance (POC) at 6 inches above the Columbia River riverbed, adjacent to the East Landfill. The most stringent cleanup standards for the East Landfill are associated with surface water quality not ground water. However, due to dilution, Ecology's POC decision fails to protect aquatic life associated with the transition zone water. How does the SCAP protect aquatic life and associated human health impacts in the TZW?

    Please see the response to Comment #5.

    The TZW sampling performed by Alcoa in December 2008 - January 2009 indicates that some vinyl chloride is reaching the river at levels that may be above the revised cleanup standard of 0.025 ug/L. Alcoa will be required to conduct additional TZW sampling to quantify this discharge to the river. The levels of vinyl chloride measured in the river in the TZW study do not impact aquatic life. These levels are more than 10,000 times less than the amount that would impact aquatic organisms.

    The vinyl chloride measured in the river appears to slightly exceed the surface water cleanup level for protection of human health. However, it is highly unlikely that the current discharge poses a risk to human health as the chance of a person being exposed to this contaminant is remote. Vinyl chloride and TCE are volatile compounds that do not accumulate in water, sediment, or aquatic organisms. The costs of more aggressive remedial measures are disproportionate to the reduction of risk to people from this ongoing discharge.

14. The SCAP states that Alcoa must monitor ground water and surface water quality but fails to address sediment monitoring. What is Ecology's rationale for not addressing sediment monitoring from pollution associated with the East Landfill? How does Ecology's decision to omit sediment monitoring protect human health and the environment and comply with MTCA?

    Sediment monitoring in the river at the site was conducted in December 2008 and January 2009. The results of this monitoring are reported in the "Transition Zone Water Investigation Summary Report, East Landfill Area of Concern", Anchor QEA, February 2010. During this monitoring, three samples were collected from the upper 4-6 inches of sediment were collected at transect locations where the highest rates of discharge into the Columbia River were observed. TCE and vinyl chloride were analyzed in these samples along with other volatile chemicals. No volatile compounds including TCE or vinyl chloride were detected in any of the samples.

TCE and vinyl chloride are highly volatile compounds that are not bioaccumulative and do not concentrate in benthic organisms and are not typically considered to be contaminants of concern in sediments. Because of this, there are no numerical sediment quality benchmarks established for these constituents.

The recommended freshwater criteria for the protection of aquatic organisms in sediment are 200 ug/L and 930 ug/L for TCE and vinyl chloride, respectively. The monitoring results for sediment within the biologically active zone (0-5 inches below the mudline) do not exceed these sediment benchmark criteria.

15. The SCAP allows Alcoa to submit a Compliance Monitoring Plan for additional TZW investigation at a later date. Given Ecology's chosen approach (i.e., monitored natural attenuation), the design and effectiveness of the Compliance Monitoring Plan is an integral component of the selected alternative. Ecology should have required the Compliance Monitoring Plan to be submitted and then made available for public review with SCAP and CD amendment. The public is being asked to comment on a "cleanup" approach without a major piece of the puzzle.

    What was Ecology's rationale for delaying agency and public review of the Compliance Monitoring Plan? Does Ecology plan to offer a public comment period on the plan?

    Ecology often includes submittal of monitoring plans as a required element of a Consent Decree. Agency approval of these plans prior to plan implementation is important. However, in this case, the sampling results will be used only to determine if the actual discharge already meets the surface water cleanup levels for vinyl chloride and TCE and whether additional monitoring in the river is required. The results will not impact the selection of monitored natural attenuation as the preferred remedy. Ecology will make both the approved sampling plan and the results of the sampling available to the public.

16. Ecology identifies institutional controls as one component of the SCAP. According to the SCAP, institutional controls are a requirement of the final cleanup action to ensure the long-term integrity of the landfill cap. Ecology should set forth specific institutional controls instead of describing a future process whereby Ecology approval for site uses will be required.

    What criteria will Ecology employ to ensure the integrity of the landfill cap is not compromised? Is this established in the SCAP or CD amendment? If not, please explain why.

The CD filed on January 30, 2009 addressing the East Landfill includes a restrictive covenant to prevent the landowner from conducting activities that will result in a release or exposure to the environment of the contaminated soil or ground water from the site. The required restrictive covenant was filed with Clark County, Washington on March 31, 2009. Ecology must be notified in advance of any activity that meets these criteria.

Will Ecology engage in a notice and comment process if the Port of Vancouver seeks to modify the East Landfill cap? Does the restrictive covenant prevent activities that could compromise the integrity of the East Landfill cap?

Ecology does not plan to public notice actions that occur at the East Landfill unless they specifically change the preferred remedy at the site. The Consent Decree allows the property owner to develop the land as long as the development activities do not affect the site remedy. Any changes to the design of the landfill cap must be reviewed and approved by Ecology prior to making the change.

17. The SCAP states that the current and future Site use plans include industrial storage and light, medium, and heavy industrial operation. As Ecology is aware, lower Columbia River ports are currently the target of coal speculators who are interested in using port property for coal storage and export terminals. Columbia Riverkeeper is aware that Terminal 5 at the Port of Vancouver is one of several sites on the Columbia River where coal export is being considered.

    In the context of institutional controls, does Ecology have the authority to ensure that the East Landfill's cap is not compromised by coal storage or other similar bulk commodities? Please explain.

    Any development proposal that could compromise the integrity of the East Landfill cap must be reviewed and approved by Ecology. Please see the response to Comment #16.

Comment from Anchor QEA (19)

18. Our chemists, who have practical analytical laboratory experience, have reviewed the pertinent federal regulations that the Model Toxics Control Act incorporates by reference and standard laboratory procedures used by local analytical laboratories. Selected ion monitoring (SIM) can be used to quantify analytes below the normal quantification limit of a full scan analysis. However, this method may provide a lesser degree of accuracy in the compound identification because less mass spectral information is available.

The laboratory-specific method reporting limit (MRL) and practical quantification limit (PQL) achieved for vinyl chloride in the February 2010 Transition Zone Water study was 0.02 ug/L and the method detection limit (MDL) was 0.013 ug/L. The MRL/PQL is below the CWA recommended ambient water quality criteria for vinyl chloride of 0.025 ug/L but the accuracy of this reporting limit is questionable given that it does not meet the widely accepted Department of Defense (DOD) Quality Systems Manual. The DOD manual states that the MRL should be at least three times the MDL.

Taking this guidance into account, the MRL/PQL should be at least 0.04 ug/L which is equivalent to the lower limit of quantification published in the latest EPA 8260 method. A PQL of 0.04 ug/L for vinyl chloride is consistent with the conditions of MTCA in Chapter 173-340-707 and 173-340-730.

Ecology and EPA also use a rule of thumb in water quality compliance to derive a Quantification Limit (QL) from a Method Detection Limit (MDL) by multiplying the MDL by 3-4. However, if a laboratory is able to achieve a lower QL or PQL that becomes the established limit. A PQL of 0.02 ug/L is widely achievable using Method 8260-SIM. Please see the responses to Comments #1 and 2.