



Responsiveness Summary
Draft Final Remedial Investigation/Feasibility Study
Aluminum Recycling Trentwood Site
CSID 1081, FSID 628

Public Comment Period June 25 through July 25, 2012

Prepared by
Washington State Department of Ecology
Eastern Regional Office
Toxics Cleanup Program
Spokane, WA

September 2012

**Aluminum Recycling Trentwood Site
Draft Final Remedial Investigation/Feasibility Study
Responsiveness Summary**

The Washington Department of Ecology conducted a public comment period from June 25 through July 25, 2012 for the Draft Final Remedial Investigation/Feasibility Study (RI/FS) at the Aluminum Recycling Trentwood Site. The draft final RI/FS presented results of investigations conducted to determine the extent of contamination, and proposed remedial actions at the Site.

The purpose of this Responsiveness Summary is to document Ecology's responses to comments sent to Ecology during the public comment period.

Ecology would like to thank all who provided comments. Ecology has responded to the comments, and no changes to the draft final Remedial Investigation/Feasibility Study are necessary based on the comments received.

Index of Comments Received

1. E-mail from Tammie Williams sent on July 12, 2012.
2. Comment from Bruce Howard sent on July 24, 2012.
3. Comment from Bart Mihailovich sent via email on July 25, 2012.

Treccani, Sandra (ECY)

From: Williams, Tammie [WilliamT@wsdot.wa.gov]
Sent: Thursday, July 12, 2012 8:49 AM
To: Treccani, Sandra (ECY)
Cc: Smith, Dean; Frucci, Mike; Golden, Tim; Ziemann, Melinda
Subject: Aluminum Recycling Trentwood Site, Facility Site ID 628, Cleanup Site ID 1081

Importance: High

Hi Sandra,

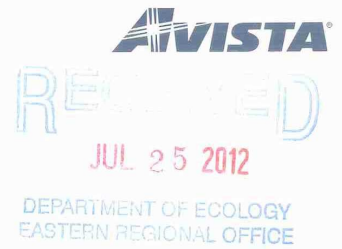
We have reviewed the options for cleanup at the above noted Aluminum Recycling Trentwood Site. This site abuts a parcel of land owned by the Washington State Department of Transportation (WSDOT). Activities on the site have contaminated WSDOT property. We are requiring the contamination from the activities at the Aluminum Recycling Trentwood be fully removed from our parcel as outlined below.

- 1) WSDOT is under a Legislative Mandate to dispose of certain properties. The described parcel, adjacent to the Aluminum Recycling Trentwood site, is one of these. WSDOT has had difficulty in disposing of this particular site due to the obvious contamination issue. To sell the parcel for full market value (as required by law) would require confirmation that the parcel is "clean." In order to meet the described mandate WSDOT is requiring:
 - A) All contamination will be removed from the WSDOT parcel with confirmation sampling proving such claims.
 - B) Industrial cleanup levels will not be acceptable for this parcel.
 - C) No Environmental Covenants will be placed on this parcel.
 - D) No institutional controls will be allowed to be placed on this parcel. Should it be determined that institutional controls or covenants are necessary, additional soil cleanup will take place to the point of no longer being required.

Thank you for the opportunity to comment. If you have questions, or need clarification on any of our requirements, please let us know. You can reach me via mail, e-mail or phone listed below, or you can discuss this with Dean Smith, WSDOT Hazmat Specialist at (509) 324-6136, or at smithdm@wsdot.wa.gov.

*Tammie Williams
Environmental Manager, Eastern Region
Washington State Department of Transportation
2714 N Mayfair Street
Spokane, WA 99207-2090*

PENTZER CORPORATION
1411 East Mission PO Box 3727
Spokane, Washington 99220-3727
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Toll Free 800-727-9170



July 24, 2012

Ms. Sandra I. Treccani
Toxics Cleanup Program
Eastern Regional Office
Department of Ecology
4601 N. Monroe Street
Spokane, Washington 99205-1295

Re: Comments on Draft Remedial Investigation/Feasibility Study for Aluminum Recycling Trentwood Site

Dear Ms. Treccani:

On behalf of Pentzer Venture Holdings II, Inc. ("Pentzer"), thank you for the opportunity to provide comments on the draft Remedial Investigation/Feasibility Study ("RI/FS") for the Aluminum Recycling Trentwood Site. Pentzer's comments on the draft appear below.

Section 2.4.2, pages 5-6: The draft RI/FS states that the "stockpile material on [the UPRR and Pentzer] properties was placed there intentionally by former property users during their occupancy." This statement is misleading because it suggests that former users of Pentzer's property placed stockpile material at the Site. Pentzer never placed stockpile material on its or UPRR's property, and it never authorized anyone else to do so. It is Pentzer's understanding that UPRR's former tenant(s) placed the stockpile material on these properties. We suggest that the sentence be reworded as follows: "The stockpile material on both properties was placed there intentionally by former property users of the UPRR property during their occupancy." [change underlined]

Section 3.1.4.5, page 12: The draft RI/FS states that the "areas around the Site considered containing native vegetation show impacts from heavy use of the area by recreational users (city and WSDOT properties) and trespassers (UPRR and Pentzer properties)." Since there is no generally agreed-upon measure of property use, we do not know whether the use of Pentzer's property can be characterized as heavy or not. However, we agree that Pentzer's property has been trespassed upon. The areas around the Site that have been disturbed by the material stockpile or that will be disturbed during the cleanup should be revegetated with native plants at the completion of the remedial action.

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EASTERN REGIONAL OFFICE

Ms. Sandra I. Treccani
July 24, 2012
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Section 4.6.1, page 29: The draft RI/FS states that under "Remedial Alternative 2, the stockpile material would be transported to an adjacent contiguous UPRR property located to the north of the Site for placement and capping." However, there is no clear indication that soil contaminated with hazardous substances originating from the stockpile also would be excavated and transported to the adjacent contiguous UPRR property. According to Section 3.3.3 of the draft RI/FS, several contaminants of concern associated with the stockpile material were found in soils at the Site, both under the stockpile and outside its boundaries. Some of these contaminants apparently exceed the proposed cleanup levels for soil. We believe that under this alternative, any soils containing hazardous substances that originate from the stockpile material, and that exceed the MTCA cleanup levels selected for the Site, should be removed along with the stockpile material. At a minimum, such soils should be removed from Pentzer's property. While the cost estimates in Appendix F of the draft RI/FS are based on the assumption that the stockpile will be over-excavated by one foot, that amount of over-excavation does not appear to be sufficient to remove all contaminated soils. Table 2 of the draft RI/FS shows that soils much deeper than 1 foot below ground surface are contaminated.

Section 4.8, page 32: The draft RI/FS states that "If industrial cleanup standards are implemented on the Site, environmental covenants and relevant institutional controls will be established. The ability to implement industrial land use cleanup levels on properties not owned by UPRR will be dependent on the landowner's willingness to restrict future land uses and record the requisite environmental covenants." As Ecology considers which alternative to select for the Site, it should be aware that Pentzer is not willing to restrict the future use of its property or to record an environmental covenant.

Again, Pentzer appreciates the opportunity to comment on the draft RI/FS. If I can answer any questions, please do not hesitate to contact me at (509) 495-2941.

Sincerely,



Bruce Howard
Director, Environmental Affairs
Avista Corp., on behalf of Pentzer Venture Holdings II, Inc.

SPOKANE RIVERKEEPER®

A program of the Center for Justice.

July 25, 2012

Sandra Treccani
Washington Department of Ecology
4601 N. Monroe
Spokane, Washington 99205-1295

SENT VIA EMAIL (Sandra.treccani@ecy.wa.gov)

RE: Comments on Aluminum Recycling Trentwood facility cleanup

Dear Ms. Treccani

These comments are submitted on behalf of Spokane Riverkeeper ("Riverkeeper"). Our comments are designed to address the proposed remedial measures for the Trentwood Aluminum Waste Site located at 2317 N. Sullivan Road. Specifically, these comments address some concerns for the health and safety of the Spokane River, the Spokane Rathdrum Aquifer, the surrounding environment and the lives of the people in the area. Spokane Riverkeeper respectfully requests that these issues be addressed prior to any further action related to the cleanup of this waste site.

Riverkeeper is a program of the Center for Justice ("CFJ"). CFJ is a not-for-profit legal organization which provides legal services to individuals and public interest organizations in the Inland Northwest. Riverkeeper conducts surveillance of the Spokane River and its tributaries and reaches out to river users who share its commitment to a river that is swimmable, fishable, and properly regulated. To further these goals, Riverkeeper actively seeks federal and state agency implementation of the Clean Water Act and, when necessary, directly initiates enforcement actions on behalf of itself and the public.

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River Runoff

In regards to the cleanup of the Trentwood site, the Site Hazard Assessment ("SHA") and the Remedial Investigation Feasibility Report ("RI/FS") produce inconsistent results in relation to the risk of contamination of the Spokane River.

The waste is situated to potentially impact a sensitive environment, the Spokane River. However, based on the conclusion of the RI/FS, soil groundwater, sediment, and surface water media outside of the visible extent of the stockpile material are not considered affected media (i.e., all potentially impacted media is contained within the properties discussed above) RI/FS at 14. However, in the SHA, Site investigations determined a high probability of surface runoff of the waste material into the adjacent Spokane River. SHA at 3.

Transportation of this material has already happened. The stockpile is located on land that is at a higher elevation than the property to the south, which has resulted in stockpile material being transported from the main stockpile to the south by storm water runoff and vehicle traffic. RI/FS at 6. "Several COCs associated with the stockpiled material such as aluminum, chromium, and copper were observed in underlying soil at concentrations exceeding the potential cleanup levels..." RI/FS at 21. Some soil samples collected from outside of the stockpile area had visible evidence of grey stockpile residue present. RI/FS at 21. Even on site, the material visually appears to be approaching the river and draining down downslope towards it. RI/FS at Appendix D (picture showing where other pictures were taken).

However the RI/FS was quick to conclude that the River was not affected. "Based on the results of this sample, surface water and sediment in the Spokane River are not interpreted to be impacted due to runoff from the stockpiled material." RI/FS at 21.

This part of the RI/FS investigation regarding potential pollution of the river is insufficient for making a conclusory assessment of the hazardous risk. Our compassion for the Spokane River, knowledge of the site and overview of the original assessment lead us to request that a further, more detailed, investigation is done, and remedial measures be taken to ensure the safety of the Spokane River.

The Aquifer

The site is also located over the Spokane Valley Rathdrum Prairie (SVRP) aquifer. The Spokane Valley-Rathdrum Prairie aquifer serves nearly 600,000 people in the Coeur'd Alene and Spokane areas in Washington State. It is a federally-designated "sole-source aquifer," meaning the region has no other sources of water and the aquifer needs special protection. Given the sole source aquifer designation,

few alternatives are available for increasing water supply to the region. (Washington Department of Ecology).

Again, the RI/FS denies that the waste has any effect on the surrounding environment. The RI/FS demonstrates "... groundwater at the Site is not impacted by the overlying soil/stockpile materials and groundwater protection is not considered in the development of the soil cleanup levels. RI/FS at 15. However, even the RI/FS states, "The Spokane aquifer is highly permeable..." RI/FS at 7.

In fact, very little is discussed in the RI/FS about the permeability and soil types located on site, and below the piles of material. How permeable is the soil below the aquifer? Are there monitoring well results for the past several years? Table 5 shows recent groundwater results. Is there any significant statistical difference between up-gradient and the mid- and/or down-gradient monitoring wells? It should be noted that the screens for current monitoring wells are about 40 ft below ground surface. If contaminants (potassium, sodium, and chloride, etc. leached from the dross) are present in the groundwater, they may not reach those depths.

Further, the report suggests an elevated level of chlorides in the groundwater at the site, above the concentrations of what is normal for the Spokane aquifer, and yet denies that the materials located on site have anything to do with it, suggesting that they are insoluble:

According to Molenaar, naturally occurring chloride concentrations in the Spokane Aquifer show "consistency of concentrations of 2 mg/l or less throughout most of the aquifer" (Molenaar, 1988). Chloride concentrations observed in groundwater at the Site do not exceed 2.62 mg/l (see Table 5). TCLP leachate tests conducted on the stockpiled material indicate that metals present in the material are minimally soluble (see Table 9. As indicated in Section 3.3.1, the stockpile material does not exhibit many of the characteristics normally associated with white or black dross, including the leaching of nitrate and salt compounds. The low concentrations of these compounds, in site groundwater samples demonstrates that the stockpile material contains generally insoluble forms of these compounds. RI/FS at 22.

Given the size of the stockpile of the material, the varying make-up of it, and the lack of tests done on the material, is it possible that the elevated level of chloride in the water could be due to leachates from the stockpile? What kinds of risks are associated with this elevated level of chloride in the water?

Based on the boring logs and the report, the local aquifer is recharged by surface infiltration and the Spokane River. Do any of the remedial measures have a clay/composite liner system or even clay attenuation layer to prevent leachate from seeping into the aquifer or the river?

Further, given the importance of being designated as a "sole-source aquifer," the population that it serves, and the lack of alternatives for drinking water in the area, how certain is this RI/FS, to show that the soil is not permeable? Is the groundwater and aquifer truly safe from contamination? With the varying composition of this material, how certain is it that it will not leach out and get into the aquifer? If there is no concern for pyrolysis or increased temperature of this material, and because of the risk of future leaching of the material into the aquifer, wouldn't it make sense to include with the remedy, to have a liner in the bottom, to ensure that the aquifer is not contaminated in the future?

Questionable Composition

The stockpile of waste at the Trentwood site varies in composition. The stockpile contains a mixture of several different materials based on historical information, tests and visual differences in color and chemical composition. As stated in the RI/FS, the existing stockpile is a mixture of aluminum sulfate, unreacted solids (metal oxides), and possibly aluminum dross. RI/FS at 18. However as the RI/FS states, "the tan material may have dross components..." RI/FS at 18. "The composition of the stockpile may vary with depth." RI/FS at 19.

Further, no testing was done in the areas where the black dross was formerly located. All that was mentioned in the RI/FS seems to have been based off of old letters and sketches, but no testing:

"Ecology correspondence from 1986 indicates that the black dross associated with ARC operations was removed from the Site by UPRR and placed in the Dishman-Mica Sanitary Landfill in Mica, Washington. A sketch of the Site included in this correspondence indicates that the dross pile was located on the eastern portion of the property (east of the "plant"), which contains no dross or other material at this time (currently a crushed gravel parking lot). A letter from Ecology to UPRR (September 15, 1986) and Ecology Memo (September 23, 1986) indicate that all black dross material was removed from the Site by September 3, 1986." RI/FS at 3.

Therefore, black dross could still be on site, and leaching into the aquifer and river.

Also, in some areas of the stockpiled material, testing was not even done, because it was "not practical." For example, "Due to the steep terrain adjacent to the Site towards the Spokane River, it was not practical to advance soil borings west of borings SB-3 and MW-3." RI/FS at 21. A sample of the tan material was collected from the surface of the stockpile due to the inability to access the steeper parts of the stockpile with the drilling rig. [an internal sample was not done.] RI/FS at 18.

However, the RI/FS is quick to conclude that the material on site is not aluminum dross and that no aluminum dross is currently located on site. "The low aluminum results in the tan material suggest that this material is not aluminum

dross but could potentially be the un-reacted solids from aluminum sulfate production." RI/FS at 19.

Other dangerous bi-products such as ammonia could potentially be coming off of the waste. Laboratory results for the stockpile material (Table 3) suggest that only the tan stockpile material would potentially produce ammonia due to the nitrate content. RI/FS at 13.

The RI/FS also states that the grey material has 5% aluminum content.

"This grey material is characterized by an aluminum content of approximately 5%, and sulfate content of 1-3%, is uniformly fine grained and is similar in character to aluminum sulfate. The second material is tan in color, comprises the bulk of the stockpile (the east side), and is characterized by low aluminum content, higher chloride and copper content (relative to the grey material), and higher nitrate content." (RI/FS at 23).

With about 5% aluminum metal, there may be potential for aluminum reactions. Have samples been taken of the grey material (dross)? Does the material react if dosed with water, acid, and/or base? For the tan material, chloride, copper, and nitrate are soluble. Are there elevated levels of these, as indicators of reactions, surrounding the material, below material, in the groundwater or in the river?

Further, this site is extremely large with staggering amounts present on the property. As stated in the RI/FS, the stockpile is approximately 600 feet long on the north side, 425 feet long on the south side, and 220 feet wide (approximately 4 acres). The depth of the stockpile varies from 5 to 30 feet deep. The stockpile side slopes were estimated to be approximately 1:1 and the total volume of the stockpile estimated to be approximately 57,000 cubic yards. RI/FS at 6.

Due to the vast size of the waste deposits, the potentially dangerous characteristics of the waste, the inconsistent nature of the waste, and relatively minimal testing, how can one be sure that this waste site is completely clear of any hazardous or harmful material? Wouldn't a bottom liner included with the remedy mitigate the potential for any contamination? What would UPRR do to mitigate the risk of contamination of the river and aquifer?

Does the waste exhibit dangerous waste characteristics in 173-303-090 (ignitability, corrosivity, reactivity, or toxicity)?

Ecology performed an inspection in 1987 and determined that there were no hazardous waste materials on the site. Although aluminum waste is not listed as

a hazardous waste under EPA regulations, it has many potentially dangerous properties that can affect the surrounding human and ecological environments.

On top of environmental concerns (discussed above), this site is located near centers of commerce and residential areas. The nearest residential neighborhood is approximately 1.2 miles south of the Site across Interstate 90. The Spokane Valley Mall is approximately 0.3 miles southwest of the Site across the Spokane River. RI/FS at 2.

Further, as stated in NPRR's study, The Spokane Regional Health District conducted a Site Hazard Assessment (SHA) site inspection in September 2007 to estimate the relative potential risk posed by the Site to human health and the environment (Spokane Regional Health District, 2008). The Site was assessed in accordance with Section 320 of the MTCA 173-340 WAC and the Washington Ranking Method Scoring Manual, which assigns rankings of one through five with a ranking of one as the highest risk. The Site was assigned an overall rank of "2", based on exposure pathways and potential receptors.

The RI/FS stated that the stockpile material does not exhibit waste characteristics such as ignitability, corrosivity or reactivity. RI/FS at 14. However, aluminum waste can remain dormant for years but chemical reactions can develop when the buried aluminum waste comes into contact with alkaline water that enters from a variety of different sources. The resulting aluminum related chemical reactions are highly exothermic (heat producing) which can slow or stop desirable anaerobic microbial activity and ignite or pyrolyze surrounding Aluminum related reactions can also release large amounts of potentially toxic and/or flammable gases and noxious odors. (Calder and Stark 2010).

Underground reactions can consume surrounding [waste sites] that can result in significant settlement of the surface that can damage interim or final cover systems and gas extraction wells and allow additional oxygen and water to enter the waste mass. The additional oxygen can lead to adverse reactions including combustion. The elevated temperatures can also compromise the structural integrity of the landfill liner system and other engineered components. (Calder and Stark 2010).

Aluminum waste reactions, depending on the site require separate analysis because the origin and composition of the aluminum in these wastes are different so the reaction components are different. (Calder and Stark 2010). Site and material specific data needs to be analyzed and determined to avoid aluminum-based reactions.

No federal regulations exist in regard to aluminum, the State of Ohio issued waste advisories (Ohio EPA 2006, 2007) that warn of the problem and provide suggestions for aluminum disposal including the use of a monofill for aluminum production.

http://www.epa.state.oh.us/portals/34/document/newsPDFs/aluminum_advisory.pdf

http://www.epa.state.oh.us/portals/34/document/newsPDFs/aluminum_advisory_2.pdf

Recent case history in Ohio and Indiana show that waste containing aluminum production waste or dross, can lead to unanticipated temperature excursions and gas emissions. (Calder and Stark 2010).

Due to several elevated temperature incidents, Ohio EPA recommended that aluminum production waste be stored in a monofill with a daily cover to reduce the amount of water that contacts the waste. (Calder and Stark 2010).

The chemical composition of the daily cover must also be examined because the buried material and ever-present water could become reactive if the daily cover contains substances that raise the pH greater than or equal to 8.5. (Calder and Stark 2010).

In examining the RI/FS, for concern of dangerous reactions of aluminum, hydrogen gas can be generated if aluminum metal reacts, and ammonia odors may emanate from the waste if aluminum nitride is present. During drilling into the waste, were elevated temperatures measured or observed? Were any odors (ammonia or hydrogen sulfide) observed at the surface of the waste or during drilling?

In regards to remedial measures, when this waste is disposed, what precautions will be taken to prevent liquid such as precipitation and groundwater from infiltrating into the waste? Will the safe disposal/containment of this waste include disposal in a monofill? Will the disposal site of the have a clay/composite liner system or even clay attenuation layer to prevent leachate from seeping into the aquifer and river?

Conclusion

We thank UPRR for the time and money it has spent thus far on getting us to this point, and we understand that these options come at higher costs to the company, in order to do a cleanup that will last and function at the highest level. Riverkeeper feels that there is no dollar amount that accurately portrays how valuable the Spokane River, the Aquifer, and the health of this community is. We have reason to believe that this location is and should be the number one priority for pollutant cleanup along the Spokane River. Given this level of importance, we can't stress enough how the highest level of technology and science be employed for cleanup and removal of aluminum waste in this area.

Given all of the energy and focus placed on the River cleanup efforts, now is the time to do it right. Thank you for the opportunity to comment and for the information and education you have made available to the public.

Sincerely,
Bart Mihailovich
SpokaneRiverkeeper

A handwritten signature in black ink that reads "Bart Mihailovich". The signature is written in a cursive style with a large initial "B" and "M".

ECOLOGY'S RESPONSE TO COMMENTS

1. Response to comments submitted by Tammie Williams, Washington State Department of Transportation

Comment: The email states that DOT has been mandated by the legislature to dispose of specific properties, and that their property adjoining the Site is one of those properties. Therefore, in order to comply with this mandate, DOT feels that any encumbrances will cause them to be unable to sell the property. They requested that the selected cleanup action provide the following for their property:

- a. No longer have any contaminated material present, verified by sampling;
- b. Not be subject to industrial cleanup levels;
- c. Not have any environmental covenants applied; and
- d. Not have any institutional controls applied.

Response: The Department of Ecology (Ecology) defines the Site as all areas where contamination is present, so the Site would include the DOT property. The RI/FS outlines three potential cleanup options for the Site. All three cleanup options involve the removal of all contamination that is not on property owned by Union Pacific Railroad to unrestricted cleanup levels. This would mean that all four conditions listed above would be met. Therefore, regardless of the selected cleanup action, the DOT's property will be clean and unencumbered for sale.

2. Response to comments submitted by Bruce Howard, Pentzer Venture Holdings (Avista Corp)

Comment 1: This comment addresses a statement in the RI/FS regarding who may have placed the stockpile material in its current location, and suggests a change be made indicating that a UPRR property user did it.

Response 1: Ecology knows of no evidence indicating exactly who placed the materials on either property. As currently written, the statement is correct. By making the suggested change, it would imply that Ecology could verify who did it. Since we cannot, the change will not be made.

Comment 2: This comment addresses the report's characterization of trespass and recreational use as "heavy" and states that this is a subjective measurement with potential error.

Response 2: Ecology agrees that the term is subjective, but supports its usage. Ecology and consultant representatives have viewed these uses firsthand, and have viewed secondhand evidence in the form of personal belongings, tire tracks, footprints, and worn paths.

Comment 3: This comment expresses concern that soil contaminated with stockpile material will not be addressed under the remedies.

Response 3: Ecology can assure that all proposed remedies involve addressing any soils or soil/stockpile mixes that exceed cleanup levels for site contaminants. Costs provided in the document are only estimates; they are not provided as thresholds for the completion of work. If the selected remedy involves the removal of all soils above cleanup levels, then that objective will be achieved regardless of the final cost.

Comment 4: This comment states that Pentzer has no intention to agree to a plan that allows the use of industrial cleanup levels, thereby allowing higher levels of contaminants to remain on the properties and would require institutional controls.

Response 4: The RI/FS as written does not commit to use of industrial cleanup levels, but only states that if they are used, that institutional controls and agreement from other property owners would be required. The objection is noted.

3. Response to Comment from Bart Mihailovich, Spokane Riverkeeper (Center for Justice)

Ecology met with representatives of the Center for Justice to discuss the comments in detail and to provide additional data and information. The responses below represent summaries of the discussions that took place on each issue.

Comment – River Runoff: The comment presented questions about the apparent inconsistency between the Site Hazard Assessment and the nature of the RI/FS sampling work, and the reason certain media were sampled while others (surface water & sediment) weren't.

Response: Ecology explained that because sampling wasn't performed during the Site Hazard Assessment, certain assumptions were made there that ended up not being supported by actual sampling data. Ecology also explained that a stepwise approach is often used in determining the area affected by contamination, especially when considering impacts to surface water and sediment (because they potentially have many sources of contamination). Sampling was first done in soil and groundwater. Since limits to both horizontal (erosion) and vertical (leaching) soil contamination were found and these limits were not close to the river, sediment was not sampled. Since groundwater did not show any contamination, then surface water was not sampled.

Comment – The Aquifer: Concerns were presented about the groundwater investigation, given the permeable nature of the aquifer. Levels of chloride found in groundwater were questioned, along with the potential movement of contaminants from the pile towards groundwater, and the potential need for a liner in the remedial options.

Response: Ecology had already explained the stepwise sampling approach, and since limits to vertical soil impacts were defined, it meant that contaminants would not have been able to reach groundwater. Additionally, leaching tests were performed on material in the stockpile; results showed that the material did not leach contaminants at levels of concern. The slightly elevated chloride concentrations were explained as within normal ranges for unimpacted

aquifers. Data from a different aluminum dross site in Spokane with documented groundwater impacts were shown, and levels were significantly higher than those at this site. Ecology explained that bottom liners were included as a possibility in the remedial options, and that additional evaluation would be performed in an Environmental Impact Statement before making that determination.

Comment – Questionable Composition: The composition of the stockpile was discussed, including the potential for any dross stockpile components to generate ammonia gas and heat. Questions were raised as to the thoroughness of stockpile sampling and testing, the nature of any pile by-products, and the reliability of the testing results.

Response: Ecology explained that areas of known black dross stockpiling were already cleaned prior to the current work, and that additional testing was not needed in those areas. Given the difficulty in accessing areas of the pile, the best effort was made to characterize areas in the pile and those impacted by erosion. Observational evidence (in the form of a lack of ammonia odors and no presence of heat or fires) indicated that dross was likely not a major component of the stockpile. However, sampling was still performed in case levels might not have been high enough to produce these effects. Samples indicated a composition that was atypical for dross, and likely represented other materials. Additionally, the pile has been exposed to the environment for almost 25 years; if any reactions were possible, we would expect they would have already occurred. Therefore, Ecology has high confidence in the results and feels comfortable moving forward with an approach that will reduce exposure of materials to both people and the elements (rain, wind, etc). Additional mitigation will be provided by potentially moving and covering the stockpile, limiting the potential for erosion and removing pathways to the river.

Comment – Dangerous Waste Characteristics: This section reiterates concerns listed in the Site Hazard Assessment, along with similar concerns about waste reactions.

Response: Ecology has already addressed many of those concerns in the previous response. Data from the other aluminum dross site (which had both ammonia generation and fires) was used again to show the difference in stockpile composition at both sites. Given the comparison data and the previous discussions, the commenters felt that the issues raised in this section had sufficiently been explained.

After the discussion, the commenters confirmed that no changes were being suggested for this document.