Responsiveness Summary

Black Sand Beach Project

January 4 - February 5, 2010 Public Comment Period

**Draft Work Plan, 60 Percent Engineering Design,
State Environmental Policy Act (SEPA) Checklist, and
Determination of Non-Significance (DNS)**

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

June 2010

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Site Location and Ecology Contacts

Address: Black Sand Beach is located about 3 miles south of the Canadian Border near the City of Northport, Stevens County, Washington.

Site Manager: Chuck Gruenenfelder 509/329-3439 chgr461@ecy.wa.gov

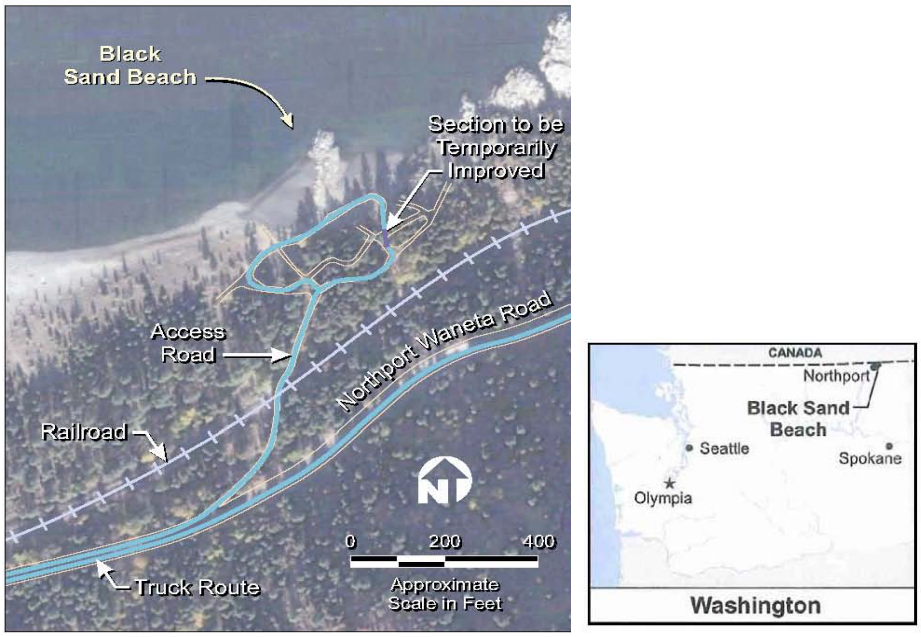
Public Involvement Coordinator: Carol Bergin 509/329-3546 cabe461@ecy.wa.gov

Background

Teck American Incorporated (Teck) entered into a voluntary agreement with the Washington State Department of Ecology (Ecology) to remove contaminated sediment from Black Sand Beach in the Fall of 2010 (see Site Map). Teck Cominco's metal smelting operations in Trail, British Columbia, Canada discharged sand-sized slag to the Columbia River from the 1930s until the practice was discontinued in 1995. The industrial slag moved downstream and some of it settled along portions of the river bank now known as Black Sand Beach.

A Draft Work Plan, 60 Percent Engineering Design, State Environmental Policy Act (SEPA) Checklist, and Determination of Non-Significance (DNS) were made available to the public for a 30-day comment period. This Responsiveness Summary addresses the comments submitted January 4 through February 5, 2010.

Site Map



Voluntary Agreement and Independent Interim Action – Introduction

This introduction provides certain regulatory and process-related information associated with the proposed Black Sand Beach interim action. The Washington State Department of Ecology (Ecology) understands some people may have limited knowledge and understanding of the Model Toxics Control Act (MTCA) regulatory process which will guide this work.

Ecology and Teck American Incorporated (Teck) developed a voluntary agreement (Agreement) which obligates Teck to conduct and pay for the removal of granular slag material from Black Sand Beach. This removal work is a focused interim action. Work will be conducted in accordance with, and under authority of MTCA Chapter 70.105D RCW, and the implementing regulations, Chapter 173-340 WAC. The Agreement provides administrative and regulatory guidance for the work and outlines details of the voluntary independent interim action. The work specified under the Agreement falls under the authority of the Model Toxics Control Act.

The interim action work is separate from any actions associated with the Remedial Investigation and Feasibility Study of the Upper Columbia River (UCR) conducted by Teck, under the oversight of the U.S. Environmental Protection Agency (EPA).

The Agreement provides administrative and regulatory guidance for the work and outlines details of the voluntary independent interim action. The work specified under the Agreement falls under the authority of the Model Toxics Control Act.

This voluntary interim action is labeled as an "independent" action because it is not being conducted under a formal Agreed Order or Consent Decree. The Agreement does provide for a certain level of oversight by Ecology during the planning and field construction phases of the project. Ecology also is providing informal, site-specific technical consultation during the field construction phase of work.

In developing the implementation requirements for this work, Ecology has developed monitoring approaches and reporting requirements for this project which are slightly different from typical actions taken a formal MTCA cleanup site. For example, Black Sand Beach removal work will not be guided by specific numeric cleanup goals. In contrast, under a formal MTCA cleanup, performance monitoring would be necessary to determine the effectiveness of the remedial actions against numeric cleanup levels established for the site. Performance monitoring, using some quantitative benchmark, is the norm for most formal MTCA cleanups.

The proposed interim action does not substitute for, or eliminate the possibility of, additional future cleanup actions. EPA may consider such actions in the future for the Black Sand Beach (or other areas within the UCR Site) as part of the ongoing RI/FS process.

Public Comments Submitted

Thank you for taking the time to provide comments on the proposed work at the Black Sand Beach. Each comment letter or email is numbered, and each comment within each letter is numbered down the left margin. Ecology's responses follow each letter with numbers corresponding to the individual comments.

Comment No. 1 Helen Bottcher, USEPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101-3140

February 5, 2010

Reply To: ECL-111

Chuck Gruenenfelder
Washington Department of Ecology
North 4601 Monroe Street
Spokane, Washington 99205

Subject: Black Sand Beach Removal Project 60% Design

Dear Mr. Gruenenfelder,

The United States Environmental Protection Agency (EPA) appreciates the opportunity to review the 60% Design for the Black Sand Beach Removal Project. The document is in good shape, and we have only minor comments. Our general comments are below. Our detailed comments are provided in the enclosed table.

1 EPA reviewers noted that the fill material, which will be used for backfill once the slag has been removed, will be coarser than the current substrate. Even coarser material will be used along the shoreline. We understand that coarser material is needed to prevent erosion of the newly placed fill. However, the change in substrate type will change the nature of the beach and may impact some recreational uses. EPA encourages Ecology to discuss these changes openly with the community as the design process moves forward.

2 EPA reviewers also noted that technical specifications for the expected construction activities (e.g., excavation, backfill, fill material, compaction requirements) are either missing or incomplete. These items are typically included in 60% design packages and should be developed and approved by Ecology prior to construction.

3 EPA did not review Appendix G because the responsibility for compliance with the National Historic Preservation Act (NHPA) lies with the federal agency responsible for the action being taken. EPA is not involved in the Black Sand Beach removal action, and therefore, is not in a position to determine whether the information in Appendix G is accurate. EPA recommends that the parties conducting and overseeing the work closely consult with the appropriate entities on matters regarding cultural resources, archaeological sites, and usual and accustomed areas in the Upper Columbia River.

We hope these comments are helpful. If you have any questions about them, please do not hesitate to contact me.

Sincerely,

Helen Bottcher

Enclosure (1) – U.S. EPA Comments – Black Sand Beach 60% Design

cc: Dan Audet, U.S. Department of Interior
Patti Bailey, Confederated Tribes of the Colville Reservation
Randy Connolly, Spokane Tribe of Indians
John Roland, Washington State Department of Ecology
Marko Adzic, Teck American Incorporated

U.S. EPA Comments - Black Sand Beach 60% Design. February 5, 2010				
Comment Number	**Section**	**Page**	**Sentence**	**Comment**
4	Table 1	1-8		Will waste manifests be required; if so who is responsible for the preparation and signing of waste manifests?
5	Figure 3A	2-2		Match lines between Figures 3A & 3B would be helpful.
6	Figure 5	2-6		Please more clearly designate the edge of water around all 4 excavation areas. It is hard to determine if the dashed line is edge of area, water surface elevation at 1297.1, or both.
7	Figure 6	2-7		No depths are provided for middle beach, but the text states that depth data were collected.
8	Figure 6	2-7		The contours on this figure are hard to see & follow; using a heavier line weight in the next submittal would improve this figure.
9	Figure 6	2-7		What is the datum for the contours? Are these depths below 1297 water elevation? Datums should be provided on the figure.
10	2.3.2	2-8	2	A figure showing this topographic information would be helpful in order to understand site features for all beach areas.

11	Figure 8	5-2		It would be beneficial to the reader to place the location of these samples on Figure 5 so that the relationship of sample locations to excavation areas is clear.
12	5.1.3	5-5	Paragraph 4 Sentence 1	It should be established where NTU Samples will be taken (i.e., within 10 feet of the shoreline directly adjacent to the excavation activities, some distance downstream, or anywhere along the length of 4 excavation areas)
13	Appendix D	1		Project survey control points should be established for construction & post construction monitoring.
14	Appendix D	2		A legend should be provided for the various line identifiers on this figure.
15	Appendix D	2		Contractor staging areas & limits of staging areas should be designated.
16	Appendix D	2		Provide a detail for road improvement.
17	Appendix D	3		Show location of mud removal pad & details.
18	Appendix D	4		This silt fence may not hold up or stay in place since it is placed in vicinity of the river channel. A stronger silt fence design should be considered
19	Appendix D	4		Details on the depth of the silt curtain and the method for anchoring it should be provided.
20	Appendix D	7		Please add cross section stations on excavation & grading plan view sheet to assist in locating excavation and fill positions.
21	Appendix D	7		What is minimum thickness of backfill material? A minimum thickness should be established in the technical specifications. The minimum allowable thickness of all fill material layers should be indicated.
22	Appendix D	7		Show bottom limits of excavation out to station 1+40 on section B; it stops at section 1+18 as currently shown.

23	Appendix D	7		Specifications for the fill material should be developed and provided in the next submittal.
24	Appendix D	8		Do all three different types of backfill get stock piled at river's edge? The locations of all stockpile area(s) should be specified.
25	Appendix E	16	6.2.1 Last Bullet	Will the contractor be allowed to start & stop as much as possible to complete construction, e.g. if the turbidity problem "accumulates" throughout the day, is the plan to stop, let the water clear & start over again?
26	Appendix E	16	6.2.2 3rd Paragraph	Will / how will turbidity be monitored after the curtain is installed – this should be described.

Ecology's Responses to Comment Letter No. 1

1 Ecology provided a Fact Sheet summarizing some of the key points about the Black Sand Project. One of the points mentioned was the current beach versus the proposed new beach. Illustrations were provided along with information indicating the replacement fill will consist of a mixture of coarse sand and fine gravel. This material will be slightly coarser than the existing sand-sized slag.

The current design proposes to remove the black slag to the maximum extent possible. The area will be replaced with a combination of clean sand, fine gravel, and coarser cobble-sized fill material.

We understand the public's desire to have the replacement beach retain the existing grades and slopes of the original beach. The replacement beach will be redesigned to preserve more accessible beach area during higher flow conditions. The 90 percent design, which is a revision of the 60 percent design reviewed by the public, will present a flatter but slightly more elevated mid-beach area. This change will increase the percentage of the accessible beach area over the expected range of seasonal river stage conditions. Additional fill material will be added, beyond what was originally presented in the 60 percent design, to accomplish this change.

The redesign changes are intended to maintain at least 80% of the original beach area above water during a typical mid-spring to summer river stage elevation of 1304 ft (NAVD 88), supporting a mix of recreational uses.

The long-term stability of this revised beach configuration will be subject to the same uncertainties as was noted for the previous design configuration. Teck will not be responsible for post-construction maintenance of the replacement beach,

Overall, the beach surface will be somewhat coarser in size than the current beach. The beach color and sediments will look similar to other beach areas along the Upper Columbia River that contain native-derived sediments.

Ecology presented information and answered questions about the project at a public meeting on January 14, 2010, at the Northport High School. The new beach and beach materials were included in this discussion. Ecology also provided a 30-day comment period for the public to review and comment on the Draft Work Plan, 60 Percent Engineering Design, State Environmental Policy Act (SEPA) Checklist and Determination of Non-Significance. The Work Plan and 60 Percent Engineering Design documents contain details about the proposed beach materials.

2 Teck will develop, and Ecology will review, additional design details and applicable technical specifications in the 90 percent design package. This includes those items which were incompletely developed for the 60 percent design package.

3 Ecology has been helping to coordinate cultural consultation activities and will continue to do so. Teck and Ecology are consulting with The Confederated Tribes of the Colville Reservation, including Tribal Historic Preservation Officer; The Spokane Tribe of Indians; the Department of

Archaeology and Historic Preservation; Governor's Office of Indian Affairs; Washington State Department of Natural Resources, and other groups as appropriate.

4 Teck and their contractors will be responsible for preparing and managing all necessary transportation documentation associated with the interim action.

5-26 Teck will address each of these items in the 90 Percent Design.

Comment No. 2 Chris Christian

February 4, 2010

RECEIVED
FEB 04 2010
DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

Mr. Chuck Gruenenfelder
WA Department of Ecology
4601 N Monroe
Spokane WA 99205-1295

Subject: Black Sand Beach

Dear Mr. Gruenenfelder:

1 I am concerned if the road is left in the improved state the beach will be used as a free overnight parking place for all the large motor homes and travel trailers vacationing to and from Canada.

2 I am concerned about the river beach being sloped down to the river. The large sand bank at the edge of the water holds back a large amount of water off the beach. If the bank is removed the water will be at least one halfway up the sloped beach during high water levels. This level is regulated constantly and high water comes within one foot of the top of the sand bank. With the constant rising and lowering of the water, the two-foot of sand will be washed away within a couple of years leaving a muddy and rocky mess.

3 This high water on the sloped beach will also ruin trout fishing. The trout run in the swift water in the center of the river. Having to fish another 40 to 50 feet up the beach behind the water, one will not be able to cast far enough out to reach the swift water.

4 I am also concerned that sloping the downriver beach is going to take away where most of the people entertain themselves. The flat part of the beach is used for all kinds of sports, such as volleyball, horseshoes, Frisbee and anything else that requires a flat surface. It is also where most people let their kids play. I am also concerned because a lot of the younger people use this flat side for tent camping. It will not only take away tent camping but some people will dig to level the area out for their tents. This will leave large holes of water which will expedite erosion of the sand.

5 I am concerned about the Upstream Beach area because of the large amount of excavation volume (402 cy) compared to the small amount of fill volume (217 cy). This part of the beach is under water a lot already. By it being lowered it will be under water a lot more. It might be under water all of the time.

Sincerely,

C. B. Christian

Chris Christian
West 119 Heroy
Spokane, WA 99205
509/327-3068

6 CRG (2/4/10): Chris stops by the office. He tells me that he believes the "hole" was caused by high flow river erosion and not really caused by the small scale placer prospecting. Expresses concern over lower beach grades and reduced quantity of fill. Says locals tend to clean up trash that others leave behind. He favors retention of a "primitive" road.

7 P.S. By lowering the upper beach level the spring runoff across both benches will be greater. All of the spring runoff comes in across upper beach then across lower beach.

Ecology's Response to Comment Letter No. 2

1 The beach access road, which will be temporarily improved during construction, will be returned to a primitive state after construction. This is consistent with requirements imposed by Washington State Department of Natural Resources.

2 through 7 The current design proposes to remove the black slag to the maximum extent possible, while not adversely impacting the adjacent river. The engineering solutions in the Work Plan take into account sediment deposition and erosion, including seasonal changes.

We understand the public's desire to have the replacement beach retain the existing grades and slopes of the original beach. The replacement beach will be redesigned to preserve more accessible beach area during higher flow conditions. The 90 percent design, which is a revision of the 60 percent design reviewed by the public, will present a flatter but slightly more elevated mid-beach area. This change will increase the percentage of accessible beach area over the expected range of seasonal river stage conditions. Additional fill material will be added, beyond what was originally presented in the 60 percent design, to accomplish this change.

The redesign changes are intended to maintain at least 80% of the original beach area above water during a typical mid-spring to summer river stage elevation of 1304 ft (NAVD 88), supporting a mix of recreational uses. Impacts of the redesign on trout fishing are unknown at this time.

The long-term stability of this revised beach configuration will be subject to the same uncertainties as was noted for the previous design configuration, and maintenance of the replacement beach will not be conducted.

Overall, the beach surface will be somewhat coarser in size than the current beach. The beach color and sediments will look similar to other beach areas along the Upper Columbia River that contain native-derived sediments. The final design will include an analysis of beach area elevations and water line position for several anticipated seasonal river stages.

Natural erosion of the Black Sand Beach is expected to occur is response to seasonal and annual water level changes and hydraulic conditions associated with different discharge volumes. In some areas of the beach, coarser grained fill material will be installed to help reduce the potential of subsequent erosion. The need for an erosion protection layer is based on Teck's evaluation of sediment material properties in conjunction with hydraulic analysis, and best professional judgment. This coarser grained material, termed *a rock erosion protection pad*, is shown on Drawings 6 and 7 in Appendix D (60 percent design). The revised 90 percent design will show the overall site grading plan, including any rock erosion protection pads.

Comment No. 3 Karin A. Divens, WA State Department of Fish & Wildlife

STATE OF WASHINGTON
DEPARTMENT OF FISH AND WILDLIFE
2315 N Discovery Place • Spokane Valley, Washington 99216-1566 • (509) 892-1001 FAX (509) 921-2440

Feb. 1, 2010

Washington Department of Ecology
Attn: Chuck Gruenenfelder
N. 4601 Monroe
Spokane, WA 99205-1295

SUBJECT: Black Sand Beach, Stevens County, Washington MTCA Cleanup; WDFW Substantive Requirements

Dear Mr. Gruenenfelder:

The Washington Department of Fish and Wildlife (WDFW) has reviewed the protocol to be used for the Black Sands Cleanup and would like to provide the following provisions as substantive requirements for the proposed work.

1. Work shall take place during the Lake Roosevelt draw down period during September and October 2010.

2. The Area Habitat Biologist listed below shall be notified at least five working days before the start of actual gravel removal.

3. Best Management Practices shall be used to prevent impacts to the nearshore areas from runoff and erosion associated with the construction activities, including stockpiling of excavated materials. BMPs shall be adjusted if turbidity is occurring.

4. Equipment used for this project shall be free of external petroleum-based products while working around the stream. Accumulation of soils or debris shall be removed from the drive mechanisms (wheels, tires, tracks, etc.) and undercarriage of equipment prior to its working below the ordinary high water line. Equipment shall be checked daily for leaks and any necessary repairs shall be completed prior to commencing work activities along the river.

5 4. Equipment used for this project may operate below the ordinary high water line, provided the drive mechanisms (wheels, tracks, tires, etc.) shall not enter or operate within the wetted width of the river.

5. If at any time, as a result of project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), operations shall cease and the Washington Department of Fish and Wildlife at (509) 892-1001 and the Washington Military Department Emergency Management Division at 1-800- 562-6108 shall be contacted immediately. Work shall not resume until further approval is given by the Washington Department of Fish and Wildlife.

6

7 6. Every effort shall be taken during all phases of this project to ensure that sediment-laden water is not allowed to enter the river.

7. Wastewater from project activities and water removed from within the work area shall be routed to an area landward of the ordinary high water line to allow removal of fine sediment and other contaminants prior to being discharged to the stream.

8

8. All waste material such as construction debris, silt, excess dirt or overburden resulting from this project shall be hauled off site as per the disposal plans.

9

9. If high flow conditions that may cause siltation are encountered during this project, work shall stop until the flow subsides.

10

10. Extreme care shall be taken to ensure that no petroleum products, hydraulic fluid, fresh cement, sediments, sediment-laden water, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into the stream.

11

12 11. Excavated materials shall be replaced with clean, native substrate materials of the appropriate size.

13 12. Please submit 90% design plans to WDFW for review.

14 13. All disturbed areas shall be restored to pre-project conditions at the completion of the project.

Thank you for the opportunity to provide this information. If you have any questions, please contact me at (509) 892-1001 ext.323.

Sincerely,

Karin A. Divens

Karin A. Divens
PHS/GMA Biologist

Ecology's Response to Comment Letter No. 3

1 - 14 The work to be performed will comply, to the extent possible, with the requirements identified by the Washington Department of Fish and Wildlife (WDFW). Where appropriate, the Work Plan, including the Stormwater Pollution Prevention Plan (SWPPP – Appendix E), will be revised accordingly. A copy of the 90 percent design plan will be submitted to WDFW for review.

Comment Nos. 4a and 4b – Jim Goodwin

Gruenenfelder, Charles (ECY)

From: Jim Goodwin [jimgoodwin4158@gmail.com]
Sent: Tuesday, January 05, 2010 9:56 PM
To: Gruenenfelder, Charles (ECY)
Subject: Black sand beach site

Dear Chuck:

I have had the opportunity to read publication number 10-09-021 concerning Black Sand Beach.

When we first moved here in 1989, we took my young son to this beach to play, until we noticed how the water turned rusty red when he dug in the sand at the waters edge and that he had tiny slivers in his hands from what I now know to be slag. After this experience we continued using the site for fishing and to water ski off of its sandy beach. As an avid recreational user of this stretch of the Columbia River, I can tell you that there are only three suitable public sandy beaches along the river between Northport and the Canadian border where you can land a boat without risk of scratching the hull on rocks. Black Sand Beach, although it is potentially toxic slag, is one of them.

1

In the proposed clean-up effort, this document states that "the new beach will contain a combination of sand, gravel and coarser cobble-sized material". The document goes on to say that "the uppermost layer of replacement fill will consist of a mixture of coarse sand and fine gravel". I can understand the desire to improve the stability of the site by increasing the size of the sedimentary materials. I can also see that this replacement material would be easier to come by and be cheaper to obtain, but I would like to see the site returned to its original state after the clean-up. If you will examine the natural sands that are mixed with the slag or deposited below it, you would find them to be a fine sand, suitable for children to dig in, to walk on in your bare feet and to land a boat on without risk of scratching the hull. I would like to see this site returned to its natural state with the same quality of sand that was originally at the site. I would also like to see the cobble left out so that no matter what the water level, this beach would still be accessible by boat. I believe that the natural eddy effect of the site will keep it from being eroded away. True, the SW beach is steep, but it has remained like that for the 20 years that I have been here, so I know the cobble isn't necessary to hold it. Besides, I believe the intent of the clean-up effort is to return the site to its natural state and not just to remove the slag and bring in some fill.

2

I would like this fill material and the reasoning for it to be reevaluated. In doing so, I hope you will see fit to return it to its natural state so that the people who use the river, can continue to use this site as they have done in the past.

3

I would like to thank you for considering my opinion and offer myself in anyway that I might be of assistance. You may contact me at this email address, by phone at 509 732 6175 or by mail at: Box 611 Northport, WA 99157.

Respectfully yours,

Jim Goodwin

1

Gruenenfelder, Charles (ECY)

From: Gruenenfelder, Charles (ECY)
Sent: Thursday, January 28, 2010 5:34 PM
To: Bergin, Carol (ECY)
Cc: Roland, John L. (ECY)
Subject: FW: blacksand beach - community input

FYI: Comments from Mr. Jim Goodwin regarding BSB.

From: Jim Goodwin [mailto:jimgoodwin4158@gmail.com]
Sent: Thursday, January 28, 2010 7:50 AM
To: Gruenenfelder, Charles (ECY)
Subject: blacksand beach

I hope Im not too late with my comment. My computer died and I am just getting email back.

Thank you for the meeting at Northport. I think things went rather well and it was nice meeting you in person.

You had requested that I email a letter concerning the fishing at the site. A community member indicated that one of the reasons fishermen like the site is because of the steep lower beach area. It allows them to cast out to the edge of the eddie. I too like the steep beach for step starting when I am water skiing.

Please consider these comments in your final decision. Thank you for your time and service.

Ecology's Response to Comment E-mails No. 4a & 4b

1 Your Comment is noted. Slag composition includes numerous metals, some of which are hazardous. Iron is a primary slag constituent, and may explain your observation of rusty red water

2 & 3 Slag-impacted sediments will be removed from the targeted area of excavation. Clean fill material from a local Stevens County area borrow pit will be used to replace the slag-impacted sediments. The topography of the replacement beach will be redesigned to balance aesthetics, stability (i.e., erosion resistance), and recreational use considerations.

The replacement material size specification has been selected to resist rapid erosion, while balancing the public's desire to see the area remain a generally sandy setting. The shape, density and physical characteristics of the slag particles are distinctly different from natural sediment of the same size range. These factors explain why Teck is planning to use a slightly coarser-grained replacement fill material on the surface of the beach. The surface layer sediments on the replacement beach will be slightly coarser than the existing beach sediments – mainly to limit erosion and improve long-term stability. The grain size and color of the replacement sediments will look similar to other beach areas along the Upper Columbia River that contain native-derived sediments.

We understand the public's desire to have the replacement beach retain, where possible, the existing grades and slopes of the original beach. However, the Black Sand Beach is a dynamic environment.

Its characteristics are known to change from year to year depending on river hydraulics. The replacement beach will be redesigned to preserve more accessible beach during higher flow conditions.

In response to the public's input, the 90 percent design, which is a revision of the 60 percent design reviewed by the public, will present a flatter but slightly more elevated mid-beach area. This change will provide a larger percentage of exposed beach areas over the expected range of seasonal river level conditions. To accomplish this design change, additional fill material will be added beyond what was originally present in the 60 percent design. The design changes are intended to maintain at least 80% of the original beach area above water during a typical mid-spring o summer river stage elevation of 1304 ft (NAVD 88). This change should help support a mix of recreational uses and should preserve the general aesthetic characteristics of the original Black Sand Beach. The long-term stability of this revised beach configuration will be subject to the same uncertainties as was noted for the previous design configuration. Teck will not be responsible for post-construction maintenance of the replacement beach.

Comment No. 5 – Robert Jackman

Feb. 2, 2010 ①
1 of 6

To: Wa. Dept. of Ecology
4601 N. Monroe St
Spokane, Wa. 99205-1295

Attention: Chuck Gruenenfelder

From: Robert Jackman
Box 588
Northport, Wa. 99157
Phone 509-732 4563

RECEIVED
FEB - 4 2010
DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE

Subject: Critique of B.S.B. Cleanup Draft Plan

The following are my Comments & Critique.

Overview:

I do not object to the eventual Cleanup of B.S.B. However, I think a cleanup at this time is premature.

There are Two nearby Beaches of near Simular Toxicity also historically Patronized by Local Residents from which there is Substantial Linkage to health Problems, mainly I.B.D. To Date there has been No health Problem Linkage To B.S.B. The Two Beaches are: Lotts Trailer Park Beach on the West Side of the Columbia Just South of Scriver Creek, & The 'Swimming hole' on the West Side of the Columbia Just North of Sheep Creek. Neither of these Beaches has Been Specifically Tested for health Problems. (cont'd)

1

RJJ.

Not to the extent of the BSB.

These Two beaches should First Recieve in-depth Testing. Then all Three Beaches should Be Prioritized on the Basis of Potential Hazard To Human Health, Then a Beach or Beaches should be cleaned up.

That is not to say that BSB. does not Pose a Potential Hazard. I have Personally observed A family Fishing at BSB while Their child Played Nearby - Throwing Slag up in the Air with its' Face Gleefully Raised, only To have the Slag fall on its' Face. Dermal Contact Plus Potential inhalation & ingestion.

2 I find it Strange That The Potential Hazard To The Health of Beach users is not mentioned once in The Draft Study or in the DOE-BSB Fact Sheet of Jan 10.

However The Fact Sheet States Slag is harmful To The health of The River & Aquatic Life. The Aquatic Life at BSB is only There for Approx 1 mo during Flood Stage, whereas Aquatic Life in The adjacent Columbia is exposed To This harmful Slag in The Bed Sediments for 12 mos. yearly. They should be cleaned up FIRST as more Hazardous.

I will make No Comments on The Site cleanup Work Plan other Than The Use of Truck's To haul Slag & Back Fill as Presently Planned. This is a Threat To Public Safety as follows:

(cont'd)

REJ

Waneta Road Just So of the Work Site Narrows Down So That it is NOT Safe for opposing Traffic, when Trucks & School Buses Pass at this Bottleneck.

3

The So Bound Lane drops off precipitously for several feet at the outer edge of the Pavement, There is No Shoulder. There is No Protective Guard-Rail.

The No Bound Lane goes sharply uphill at the outer edge of the Pavement. There is No Shoulder. The Pored Lanes are Not Wide.

Years ago the Co. Sheriff Prohibited wood chip Trucks from using Waneta Rd, They Still Don't.

I have been told that Truck Traffic is Limited when School Buses are in operation.

However there is a viable alternate transportation option. That is the BNSF Railroad. It runs between the River & Waneta Road with a Siding Relatively Nearby at Becker Flats. The R.R's Primary & Probably its only Customer is Teck in this Northern Region. Teck could influence BNSF Scheduling and use the Siding when necessary. Covered Low Ore Cars could be Loaded by Large Skip Loaders if Suitable Ramps were built near the Work Site.

4

(cont'd)

R.L.J.

CRITIQUE OF BSB DRAFT PLAN   4 of 6   (4)

SAMPLING OF SITES AT BSB.

1. The DRAFT neglects To describe The WINTER
5 WEATHER CONDITIONS AT BSB when the SAMPLING WAS DONE. WAS THERE SNOW, GROUND FROZEN? SIEVING AFFECTED?

2. How were the Sample Site LOCATIONS Selected. They APPEAR To be of IRREGULAR SPACING, without set PATTERNS (No vs. So. Beaches). By The Different COLORS IN The AERIAL PHOTO, fig. 8, The No Beach Seems To be of distinct different Soils. This added to what I feel is Too few Sample Sites makes The COMPOSIT SAMPLES used by Both LABS. NOT REPRESENTATIVE of The BSB Beaches. High Toxic locations could be missed.

3. Single Site Samples. Since The draft did NOT specify, I Assume The Site Numbers on Both Beaches Related To The Sample numbers used
6 by The NAUTILUS LAB. If So why were No 2B & No 3A Selected for ANALYSIS over No 1? Was The So 2A Sample Taken from So 2 Site? Then where was So 2C Sample Taken from? Site 2 Also? It doesn't APPEAR LOGICAL, if So The SAMPLING is NOT objective.

Even if my assumption is wrong That still leaves The QUESTION AS To why Two Single Site Samples were chosen from 2 Sites & not The 3rd site, This CAN'T Be objective. To be objective All Three of the Sites on Both Beaches Should have been Sampled SINGULARILY & ANALYZED SEPARATELY.

(CONT'D)   R.J.

Critique of BSB Draft Plan (5)

5 of 6

Nautilus Laboratory

There is something wrong with the laboratory

7 Results from Nautilus. I am not saying Nautilus is totally at fault, fault may lay earlier in the process, study design, sampling locations, sampling & sieving or a combination of all.

I say this because three earlier slag-aquatic life lab studies of the Columbia River Teck slag came up with serious mortality results.

1. Nener 1992 Canadian Dept. of Fisheries - High mortality of fish & aquatic organisms. Rainbow trout died after 7 hrs because slag abraided gills,
2. Godin & Hagin 1992 Envi. Canada - Results similar to Nener.
3. Bortleson 1993 USGS - Hi mortality to several aquatic organisms near the Intl. Border.

See enclosed:

a. Glen Patrick, WA State DOH 1993 Review
b. Bortleson USGS Sediment Assessment 1993
c. Cox USGS 2002, BSB Slag like fresh smelter slag (Pg 48)

Regarding Nautilus Tests:

1. Chain of Custody Report - Is 8 oz of slag sufficient quantity to test 30 trout? Abraid gills?
2. Draft doesn't describe handling of fish
3. " " " of sediment
4. " " " post mortem of fish

(cont'd) [illegible]

NAUTILUS Continued 5 of 6 (E)

5. I have it on reliable information that Reference NJ-R-95-80 & 80-12 were written for A Specific Purpose other than Slug-Fish Tests. So the Procedures used by NAUTILUS could Have Been wrong. A Biological Testing Method not designed for the Subject Matter.
6. Could There have Been Too much Density of Fish for the Size of the TANKS,?
7. Could the WATER be over Saturated with Oxygen,?
8. Could the WATER have been Too Hard,?

9. Why were NOT AQUATIC ORGANISMS Tested as in the NEVER, GOLIN, & BARTLESON Studies, I find it INTERESTING That only RAINBOW TROUT Were Tested (C-NEVER STUDY). The Sampling & the LAB Tests Should be Reviewed by A Qualified AUTHORITY - Preferably U.S.G.S.

MANCHESTER LABORATORY -

1. Why no chain of Custody REPORT - Did They Receive The Samples in 1 GAL Zip lock BAGS & What Quantities of Slug Did They Receive.
2. AT What Stage & where did The Zip locks change to Glass JARS.

8

Robert P. Robinson
Feb 2, 2010

TO: CHUCK GRUENENFELDER PAGE 4A. 2-5-10

SUBJECT: CORRECTION OF ERROR & SUBMISSION OF OMMISSION IN MY COMMENTS & CRITIQUE OF THE BSB DRAFT CLEANUP.

9 I. THE ERROR: PAGE #1 PARA #3 - I MISTAKENLY WROTE THE LOST BEACH WAS ON THE WEST SIDE OF THE CHANNEL. SHOULD READ EAST.

10 II. IN MY RUSH TO MEET THE FEB 5 DEADLINE, WHEN ASSEMBLING MY NOTES I INADVERTENTLY LEFT OUT MY COMMENTS ON SIEVE SIZES. THE FOLLOWING COMMENT SHOULD BE ADDENDED TO THE BOTTOM OF PAGE #4 AS COMMENT #4 UNDER SAMPLING.

"THERE IS NO MENTION OF SIEVE SIZES USED IN BSB SAMPLING. SIEVE SIZE IS CRITICAL IF THE TRUE TOXICITY IS TO BE DETERMINED. IN GENERAL THE SMALLER THE TOXIC PARTICLE THE HIGHER THE TOXIC POTENTIAL. (UNIV. OF SASKATCHEWAN 2008, ARTICLE ENCLOSED IN MY CRITIQUE OF FEB 2).

WHAT SIEVE SIZE WAS USED, IF ANY, AT BSB?

YOUR DRAFT STATES THE SIZE OF BSB SLAG WAS APROX 1 mm. AERIAL PHOTO FIG #8 SHOWS COLOR VARIATION IN BOTH BEACHES INDICATING DIFFERENT TYPES OF SEDIMENTS & PROBABLY DIFFERENT SIZES OF PARTICLES.

THIS STUDY SHOULD NOT BE TRYING TO DETERMINE THE TOXICITY OF SLAG SOLELY, BUT THE TOXICITY OF THE BSB SEDIMENTS INCLUDING SMALLER PARTICLES & EXCLUDING THE LARGE.

TODAY SIEVING STANDARDS ARE SET IN MICRONS, NOT IN MILLIMETERS.

IF NO SIEVING OR BULK SIEVING WERE DONE THIS COULD BE ONE OF THE FACTORS RESULTING IN THE MANCHESTER LAB & THE NAUTILUS LAB CONCLUDING THAT THE SEDIMENTS OF BSB ARE NOT HAZARDOUS OR DANGEROUS WASTE.

ROBERT F. SACKMAN
509 7524563

Ecology's Response to Comment Letter No. 5

1 Your comment is noted. EPA is assessing human health risk posed by exposure to beach sediments as part of the ongoing Remedial Investigation/Feasibility Study of the Upper Columbia River. Materials from Black Sand Beach and other slag-bearing materials are a part of the EPA human health risk investigation. Other upriver beach areas may receive additional consideration as part of this process. Ecology's former director, Jay Manning, identified the Black Sand Beach as a priority area that warrants removal of slag and replacement with clean fill materials.

This decision was based on several factors including the presence of a large deposit of slag within a discrete area; the concentration of hazardous substances in the slag; known recreational usage; concerns over impacts to the aquatic environment from ongoing erosion of slag back into the river; as well as ease of access and public property ownership. Slag that erodes from the beach and is transported back into the river environment becomes much more difficult to remove.

2 The State of Washington believes it is in the public's best interest to remove the slag from the Black Sand Beach now. Removing the contaminated sediments provides a cleaner beach for recreation and is a decisive step which helps reduce further erosion and transport of slag back into the river. Human exposure to slag at the Black Sand Beach is most likely to occur through contact with the skin and/or through accidental ingestion. The EPA is evaluating the potential risk to human health that may come from touching or ingesting slag and other contamination of the beaches in the Upper Columbia River. EPA is working with the WA Department of Health on this assessment.

3 Hauling activities will be conducted in accordance with a Truck Haul Plan, prepared by Teck and reviewed and approved by Stevens County. Ecology also will have an opportunity to review the plan. Specific safety concerns and road restrictions will be addressed in the plan, where applicable. The Truck Haul Plan will be prepared by mid- to late- summer 2010 in advance of construction work. Copies of the final Truck Haul Plan will be available on-line and in the repositories for the site.

4 Teck conducted a feasibility analysis which evaluated logistical and transport-related considerations associated with truck hauling versus rail transport of the excavated slag to the Trail, B.C. recycling facility. A copy of this analysis will be included in the final version of the Work Plan. Truck hauling remains the preferred method of transport that will be used.

5 Ecology collected beach sediment samples for the Black Sand Beach during February 2008 using hand-auger sampling methods. Samples were obtained from depths as great as 6 feet below the ground's surface. At some sampling locations, the depth of the slag layer appeared to be less than 4 feet thick. Samples submitted for lab analysis were highly slag enriched, and contaminant concentrations were consistent with other historical sampling results. Results of this sampling were provided to URS and incorporated into the Work Plan (Table 2 and Appendix C).

The purpose of the 2008 Ecology sampling was not to conduct a comprehensive characterization of the Black Sand Beach sediment. The 2008 samples were intended to provide (along with other historical sampling data) a general representation of Black Sand Beach sediment chemistry and composition to support decisions on how best to conduct the removal action. Note that additional beach sediment samples were collected from several locations, including Black Sand Beach in the fall of 2009 by EPA. This sampling was part of the EPA's ongoing Remedial Investigation/Feasibility Study (RI/FS) work.

6 The February 2008 samples that Ecology submitted for dangerous waste characterization testing included both discrete samples (collected from a single test hole at a specified depth), along with depth-specific composite samples. The depth-specific composites included samples from two different depth intervals ("A"-series representing 0-2 feet; "B"-Series representing 2-4 feet). These samples provide a reasonable representation of slag-impacted sediment from the Black Sand Beach for bulk waste characterization purposes.

The testing method (96-hour static acute fish toxicity test using rainbow trout) used by Nautilus Environmental LLC is consistent with the State of Washington's approved Dangerous Waste sampling and testing methods (WAC 173-303-110). Specific details of this testing method are provided in *Biological Testing Methods for the Designation of Dangerous Waste*, Ecology Publication 80-12. These results for Black Sand Beach slag are specifically designed and intended to inform decisions about transportation and disposal.

Results were not intended to support other conclusions regarding possible human or ecological toxicity associated with organism-specific routes or mechanisms of exposure. Specific studies related to human health and ecological toxicity are being performed under the direction of EPA as part of the Remedial Investigation.

7 The characterization results for Black Sand Beach slag were specifically intended to inform decisions about transportation and disposal. These results are not intended to support other conclusions regarding possible human or ecological toxicity associated with organism-specific routes of exposure to slag-related hazardous substances.

The other historical studies referenced by the commenter specifically assess the potential toxicity of Trail smelter slag and smelter discharges on specific aquatic organisms, under specific types of controlled exposure. That was not the intent of Ecology's February 2008 waste characterization testing work. Aquatic toxicity testing and studies are being performed under the direction of EPA as part of the Remedial Investigation.

8 The samples were submitted to Ecology's Manchester Laboratory using standard Chain of Custody documentation. Copies of the Chain of Custody are available upon request from the Department of Ecology (contact Chuck Gruenenfelder @ 509-329-3439). Field samples were originally collected in 1 gallon zip lock bags and temporarily stored in a refrigerator at 4 degrees C. Samples were sieved to 2 mm. Most, if not all, of the materials (with the exception of small amounts of organic debris and a few larger pebbles) passed through the sieve. A portion of the sieved sample was then placed in an 8 ounce glass jar and submitted to the lab for analysis.

9 Your comment is noted.

10 As noted in Comment Response No. 8 above, the samples were sieved and the size fraction which passed through a 2mm sieve was retained for laboratory analysis. Response No. 8 above provides more detail.

Comment No. 6 – Larry Kritzer

COMMENT FORM
BLACK SAND BEACH PROJECT

If you wish to submit a written comment on the draft Work Plan, 60 Percent Engineering Design, State Environmental Policy Act (SEPA) Checklist, Determination of Non-Significance (DNS), and associated documents, you may use this form and turn it in to Ecology at the end of the meeting or send it in the mail. **Please include your name, address, and phone number so your comments may be answered.** Comments will be accepted until 5 p.m. February 5, 2010. You may also e-mail them to chgr461@ecy.wa.gov or send them to:

Mr. Chuck Gruenenfelder
WA Department of Ecology
4601 North Monroe
Spokane, WA 99205-1295

(see reverse of this form for tips on effective public commenting)

YOUR NAME:	ADDRESS:	PHONE:
Larry Kritzer	3891 G Cedar Creek Rd Cosmopolis, WA 98614	

COMMENTS

1 Please leave road in same condition it is in now.

2 No one that I have talked to knows about your meeting all Chiefs I've Indians.

3 May the good Lord guide you not to screw up our beach.

4 The downriver side of the beach structure should be left the way it is. Otherwise you will ruin it for a large number of people that come here. The downriver beach needs to remain flat with the big wall toward the river. Flat area is needed by the many people to put their tents. Flat sand is also needed to make a place for people to play volleyball horseshoes + other games.

5 The point of the downriver beach should be the stone the big wall should remain otherwise it will ruin trout fishing plus the small amount of sand you are planning to use will wash away within a couple of years.

Ecology's Response to Comment Letter No. 6.

1 The WA State Dept of Natural Resources (DNR) is the land trust manager for the Black Sand Beach property and is responsible for decisions regarding maintenance and/or improvements to the

access road. The DNR directed Ecology to maintain, to the fullest extent possible, the current primitive conditions of the access road following Teck's completion of the interim action work. Any temporary improvements will be removed, and the original road bed and road grade will be reestablished as close as possible to the original conditions.

2 Fact Sheet with a summary of the Black Sand Beach project and public meeting was sent to all residents who receive mail delivery in Northport and Marcus. Fact Sheets were also sent to repositories (local libraries) in Northport, Kettle Falls, Colville, and Spokane. Additionally, a packet with Fact Sheets was sent to Richard Jeffery at Waneta Quick Stop for distribution to people.

Ecology published notices on the January 14, 2010 Black Sand Beach public meeting in the following publications:

- Ecology's Toxics Cleanup Website, December 28, 2009, and will continue providing information about the site until the project is complete.
- Ecology's Public Involvement Calendar, December 28, 2009 through February 5, 2010.
- Ecology's Site Register, December 31, 2009, and January 14, 2010.
- Statesman Examiner, January 6, 2010, (Display Ad).
- The Sun, January 13, 2010, (Display Ad).
- The Huckleberry Press, January 7, 2010, (Display Ad).

Additionally, the Statesman-Examiner ran an article January 13, 2010, about the project and public meeting. Radio stations in both Canada and the U.S. covered the project and the beginning of the public comment period for reviewing and commenting on documents that guide the construction.

3 Your comment is noted.

4 & 5 The replacement beach will be redesigned to preserve more accessible beach area during higher flow conditions. The 90 percent design, which is a revision of the 60 percent design reviewed by the public, will present a flatter but slightly more elevated mid-beach area. This change will increase the percentage of accessible beach area over the expected range of seasonal river stage conditions. Additional fill material will be added, beyond what was originally presented in the 60 percent design, to accomplish this design change. The surface layer sediments on the replacement beach will be slightly coarser than the existing beach sediments – mainly to limit erosion and improve long-term stability. The final fill material and beach grade will consider aesthetics, recreational use compatibility, and long-term beach stability. As part of the 90 percent design, Teck will include an analysis of beach area elevations and waterline positions at various river stages and seasons (seasonal low to seasonal high).

Comment No. 7 – Gary Passmore - CTCR Environmental Trust Dept.

The Confederated Tribes of the Colville Reservation
Environmental Trust Dept. P.O. Box 150, Nespelem, WA 99155
(509) 634-2421 FAX: (509) 634-2422

February 3, 2010

Chuck Gruenenfelder
WA Department of Ecology
4601 N. Monroe St.
Spokane, WA 99205-1295

RE: CTCR Comments on Draft Work Plan for Black Sand Beach Excavation Project, Stevens County Washington (60% Design Phase)

Mr. Gruenenfelder:

We have reviewed the Draft Work Plan for Black Sand Beach (BSB) Excavation Project (60% Design Phase) and submit the following comments for consideration.

1

Quantifying a cleanup action by measuring concentrations of contaminants of concern at the limits of excavation is a fundamental principle of environmental cleanup whether that process be expressed in State, Tribal, or Federal law. Measuring performance is also a fundamental tenet of good science. We agree that visual observation of slag may be a valid and convenient qualitative surrogate for the presence of contamination in slag-dominated depositional environments, but chemicals of concern define the basis of cleanup decisions under MTCA, not relative abundance of slag. Visual observations as proposed in the BSB Draft Work Plan do not rise to the level of Performance Monitoring required under MTCA, nor will visual observations eliminate the need for quantitative testing during the BSB cleanup to document the concentrations of key contaminants of ecological concern in slag (Table 2) that remain at BSB when excavation in an area is complete.

2

Because this proposed interim cleanup action is unique in many ways from typical soil or sediment cleanups, lessons learned during the course of the BSB Excavation Project have the potential to inform future cleanup efforts by evaluating the efficacy of the cleanup method and developing tools that may be of practical value in subsequent cleanup efforts of slag-dominated depositional environments on the Upper Columbia river, regardless of under whose authority those cleanups occur. We recommend that the Responsible Party be required to systematically assess the inherent relationship between visual estimates of BSB slag content and commensurate concentrations of the contaminants of concern in slag at the limits of excavation. This correlation may be most cost effectively determined through field XRF augmented with laboratory analysis.

Section 3.1 Proposed Cleanup Goals

"Ecology has not established formal cleanup standards for granulated slag material at BSB. The goal is to remove as much granulated slag material as practical based on visual evidence. Visual evidence is sufficient for screening the material, as the granulated slag is readily identifiable by physical appearance (e.g., color). Analytical samples are not necessary to guide the extent of the excavation. The engineer, in consultation with Ecology, will jointly determine the actual limits of excavation in the field."

3

Comment: Ecology has not established applicable cleanup standards for freshwater sediments or granulated slag material. However, Ecology has established other relevant criteria under MTCA for many of the contaminants of concern in slag as indicated in the BSB Draft Work Plan at Table 2 of Section 3.2. Furthermore, in the context of MTCA, chemical criteria or biological effects criteria determine the extent of cleanup, not whether the particulates are derived from smelting or any particular industrial process. We agree that analytical samples may not be necessary to guide the limits of excavation, but analytical samples are indeed necessary to document the presence and concentration of criteria contaminants left at the project area following the interim action.

Section 3.2 Granulated Slag Removal Performance Standard.

> "Granulated slag will be removed from the BSB property throughout the targeted excavation area. Excavation of granulated slag material will be directed using visual observations by the Construction Manager. Likely there will be areas where the boundary between the granulated slag and natural soil are transitional. In these instances, the Construction Manager will determine the limits of excavation in consultation with Ecology."

4

Comment: The Work Plan acknowledges that this interim action might leave granulated slag in place where slag is at depth below groundwater levels and when slag is present at the excavation boundary as a minor component of the matrix. These are specifically the locations where quantitative testing (Performance Monitoring) is scientifically imperative to document the presence and concentrations of the contaminants of ecological concern inherent to Teck Cominco's slag that remain in the BSB environment.

WAC 173-340-410 requires a compliance monitoring plan be prepared and implemented for all cleanup actions including interim actions unless otherwise directed by the Department. Specifically, Performance Monitoring and Confirmational Monitoring are two types of Compliance Monitoring as described in MTCA and reiterated below:

> **WAC 173-340-410(1)(b) Performance Monitoring.** Confirm that the interim action or cleanup action has attained cleanup standards and if appropriate, remediation levels or other performance standards such as construction quality control measurements or monitoring necessary to demonstrate compliance with a permit or, where a permit exemption applies, the substantive requirement of other laws;
> **WAC 173-340-410(1)(c) Confirmational Monitoring.** Confirm the long-term effectiveness of the interim action or cleanup action once cleanup standards and if appropriate, remediation levels or other performance standards have been attained.

5

Comment: Performance Monitoring is intended to be conducted more-or-less concurrently with the interim action to assess/document contaminant concentrations at the horizontal and vertical limits of the cleanup effort. In contrast, Confirmational Monitoring is performed post-cleanup to assess long-term effectiveness of the interim action. Although the Phase 2 Scope of Work and the BSB Work Plan refer to a "Performance Monitoring Plan" in Sections 5.1.8 and 7.1, the plan isn't even required to be submitted until 45 days after Phase 2 (cleanup) is complete and does not meet the fundamental regulatory purpose or intent of performance monitoring. Other than using the visual presence of slag as an indicator to guide the excavation effort, no performance monitoring during the course of the interim action is anticipated in the BSB Work Plan. When technically feasible and cost effective methods are readily available, a monitoring plan based

solely on qualitative assessment of the long term effectiveness of the interim action falls short of relevant and appropriate MTCA requirements and is contrary to its intent.

Recommendation: At a minimum, we recommend that the Responsible Party develop a Compliance Monitoring Plan as part of Phase 1 of work, as opposed to a qualitative post-cleanup plan as proposed in the Draft Work Plan. The Compliance Monitoring Plan should include both Performance Monitoring directly associated with the interim action, and Confirmational Monitoring to assess the long term efficacy of the interim action. Both qualitative and quantitative metrics of contamination are appropriate and necessary. The Responsible Party should be required to perform field XRF analysis and duplicate samples submitted for laboratory analysis (on the order of ~20% of total samples) at the horizontal and vertical limits of excavation as determined by visual observations of slag. The Compliance Monitoring Plan should also describe a pilot project to develop a systematic correlation between visual estimates of the ratio of visible slag:total particulate and the concentrations of contaminants of concern at the excavation boundary as determined by field XRF and laboratory quality control duplicates. Visual estimates of slag percent should be made relative to a common and calibrated visual standard such as graphical depictions of grain density relative to a contrasting background.

Our recommendation that the Responsible Party develop a responsible Compliance Monitoring Plan that includes quantitative monitoring of both performance and compliance status entails fairly minor revisions to the overall scope of work anticipated at BSB. However, design and implementation of this common sense and cost effective pilot project to correlate slag abundance with commensurate concentrations of contaminants of concern will be a legacy of lasting significance to slag-dominated depositional environment cleanups on the Upper Columbia River.

Thank you for soliciting the Tribes' comments on the Draft BSB Work Plan. Please note that these comments are based on information available to us at the time of the project review. We reserve the right to revise our comments as information becomes available. Also, please note that these comments are limited only to concerns of the Environmental Trust Department. Other CTCR programs may have substantive comments as well.

If you have questions or concerns, please contact me at 509 634 2426. For technical questions, please contact Don Hurst at 509 634 2421 or Patti Bailey at 509 634 2415.

Sincerely,

Gary Passmore, Director
Environmental Trust Department

Cc: John Roland , ECY
Patti Bailey, CTCR
Don Hurst, CTCR

Ecology's Response to Comment Letter No. 7

1 & 2 Several Black Sand Beach sediment samples have been collected and analyzed over the years. These data provide a reasonable and representative basis for concluding that slag is the primary source for the elevated concentrations of hazardous substance, primarily trace metals, found at this location. The color and appearance of the Black Sand Beach sediments are easily distinguished from the native sediments at this location. Sediments at this beach are black and glassy in appearance and have a relatively uniform grain size. The native sediments consist predominately of rounded pebble to cobble-sized material, along with quartz-dominated sands. The anticipated limits of excavation for the removal action will be strongly guided by the current footprint of the bulk slag deposits and the visual presence and apparent abundance of slag particles in the underlying beach sediments.

We recognize the importance of this interim action in the broader context of possible cleanup actions that EPA may have to consider as an outcome of the UCR RI/FS process. Under a formal MTCA

cleanup, performance monitoring would be necessary to determine the effectiveness of the remedial actions against the appropriate cleanup levels established for the site. Performance monitoring, using some quantitative benchmark, is the norm for most formal MTCA cleanups. For Black Sand Beach cleanup, however, Teck will be conducting an interim action removal, not a final cleanup. No specific cleanup goals will be used, other than visual-based verification that the excavation of slag-impacted sediment occurred to the fullest extent practicable. Practicality factors will be considered when determining the vertical limits of excavation in the three beach sub-areas.

Additional sediment sampling of the upper reaches of the UCR, unrelated to this interim action, may occur in conjunction with EPA's ongoing RI/FS process. This separate sampling work would be conducted to more fully characterize the nature and extent of dispersed sediment contamination at and near the Black Sand Beach.

Field observations of areas upstream and downstream of the Black Sand Beach indicate that slag material is broadly dispersed within the coarse, cobbly nearshore sediments immediately adjacent to the proposed limits of excavation. Black slag is present within small, localized accumulations, and within the interstitial spaces between the larger native cobbles and boulders within these upriver reaches. Submerged nearshore sediments lying just outside the anticipated Black Sand Beach excavation area also appear to contain a large percentage of slag based on recent visual reconnaissance. Cobbly areas immediately adjacent to the downstream beach (see for example the cover photo of the December 18, 2009 Draft Work Plan) also are known to contain abundant quantities of slag. These will not be addressed by this current interim action.

Ecology will work with Teck to ensure that residual contaminant levels within the defined limits of the excavation area are documented before clean fill material is put into place. Ecology staff will routinely monitor the removal activities and will document the characteristics of the slag deposits as the excavation work progresses. Samples of residual beach sediment (at the vertical limits of excavation) will be collected from up to 10 locations by Ecology within the designated excavation area. Any sampling will be conducted in the company of a cultural resource observer.

These "limit of excavation" samples will be archived by Ecology for future reference and possible analysis. Ecology may decide to analyze some or all of these "limit of excavation" samples to document residual metals concentration. Ecology will notify Teck of any proposed analysis (e.g., X-Ray Fluorescence (XRF) and/or laboratory analysis). Laboratory analysis of selected samples may occur to assess the apparent correlation between XRF and laboratory analytical results. A detailed photo documentation of the final excavated areas also will be conducted by Teck. These field observations will be included in the final construction completion report. If available at the time of the report, qualitative or quantitative analytical results generated by Ecology may be included in the final construction completion report. If not presented in Teck's final construction completion report, any analytical results for "limit of excavation" samples will be presented in a separate document prepared by Ecology.

3 & 4 The Black Sand Beach slag removal is being conducted as an interim action consistent with MTCA. WAC 173-340-430(1) notes that an interim action "only partially addresses the cleanup of a site". The provisions of 173-340-430(1)(a) and (b) apply to this proposed action. Removing the slag will effectively "reduce the threat to human health or the environment by eliminating or

substantially reducing [emphasis added] one or more pathways for exposure to a hazardous substance…" at this location.

Further, by taking action now, rather than waiting for the final outcome of EPA's RI/FS process, Ecology concludes less slag will be eroded and transported back into the river where its adverse effect on the environment would be substantially worse. The provisions of 173-340-430(2)(b) specify that "[i]nterim actions may provide a partial cleanup…but not achieve cleanup standards…" With respect to compliance monitoring requirements, WAC 173-340-410(2) indicates the agency has discretion (i.e., may be required") in determining what type of monitoring may be required at sites undergoing an interim action.

As noted in the text, the ecological-based criteria for unrestricted land use (WAC 173-340-900, Table 749-2) which were presented in Table 2 were included for general advisory/reference purposes only. For this interim action, Ecology has chosen to move aggressively ahead with a visual-based removal, without identification of specific numerical cleanup criteria. Sediment cleanup levels for all portions of the Upper Columbia River Site, including the Black Sand Beach area, will be evaluated as part of the broader, ongoing EPA RI/FS process. As noted in comment response no. 1, Ecology will develop monitoring options, beyond just visual examination, for documenting residual contaminant levels within the defined limits of the excavation area

4 Please see comment response nos. 1 and 3.

5 Section 5.1.8 of the Work Plan addresses Post-Closeout Beach Monitoring. Teck will submit a Performance Monitoring Plan within 45 days of Phase 2 completion. The plan will describe both qualitative (visual observations; photographs) and quantitative measurements [GPS-based survey information; laboratory analytical results (if requested by Ecology)]. The regulatory purpose and intent of this post-construction Performance Monitoring at the Black Sand Beach is to provide, for a 5-year period, a consistent set of assessment metrics. These assessment metrics will help determine both the general engineering performance of the replacement beach and the potential for recontamination. These metrics include:

- Evaluating the overall beach grade stability, impacts from erosion (if any), and general site aesthetics
- Evaluating the areal extent, and possibly quantifying the chemical composition, of slag-enriched sediment accumulations (caused by recontamination) within the removal action area.

Consistent with WAC 173-340-515(3)(a), the party conducting an independent remedial action "may be required to take additional remedial actions if the department determines such actions are necessary." Similarly, the EPA may, depending on the scope and schedule of any future RI-related beach or sediment sampling, require collection of additional sediment quality data from areas within or adjacent to the Black Sand Beach.

Comment No. 8 – Camille Pleasants - CTCR History/Archaeology Program

The Confederated Tribes of the Colville Reservation
History/Archaeology Program
P.O. Box 150, Nespelem, WA 99155
(509) 634-2693
FAX: (509) 634-2694

January 14, 2010

Ms. Mary Ausburn
Washington Department of Ecology
4601 N. Monroe
Spokane, WA 99205-1295

RE: SEPA review for Black Sand Beach Excavation Project

Dear Ms. Ausburn:

We have received the SEPA Checklist and the Determination of Non- Significance for the above referenced undertaking. Please be advised that the proposed undertaking lies within the traditional territory of the Lakes Tribe, one of the twelve tribes that make up the Colville Confederated Tribes (CCT), which is governed by the Colville Business Council (CBC). The CBC has delegated to the Tribal Historic Preservation Officer (THPO) the responsibility of representing the CCT with regard to cultural resources management issues throughout the traditional territories of all of the constituent tribes under Resolution 1996-29. We have the following comments and concerns:

1

2

- Section B-13 – Historic and Cultural Preservation - of the SEPA Checklist only references archaeological resources. There is no discussion of sites of traditional religious or cultural significance.

3

- The cultural resources study has not been completed. It is not clear at this time how this undertaking may adversely impact cultural resources. As a result, we find that it is premature to issue a DNS. WAC 197-11-080 states that if information on adverse impacts is not known, and the costs of obtaining it are not exorbitant, agencies shall obtain and include the information in their environmental documents. If the agency proceeds, it shall indicate in environmental documents its worst case analysis and the likelihood of occurrence.

4

- It would also not be appropriate to issue a Mitigated DNS at this time, as the Section B-13(c) of the checklist does not specify how significance will be determined, or how any adverse effects will be mitigated, as required under WAC 197-11-350

5

Thank you for consulting with the THPO. Please note that these comments are based on information available to us at the time of the project review. We reserve the right to revise our comments as information becomes available. Also, please note that these comments are limited only to cultural resources concerns. Other tribal programs may have comments as well.

If you have any questions or concerns, please contact me at (509) 634-2654. For technical questions, please contact Guy Moura at (509)634-2696 or Cheryl Pouley at (509) 634-2690.

Sincerely,

Camille Pleasants
Tribal Historic Preservation Officer

Gary F. Mauser, Acting 1-14-10

cc: Chuck Gruenenfelder, DOE
John Roland, DOE
Rob Whitlam, DAHP
Maurice Major, DNR
Pattie Bailey, CCT ET
Chron
File (CKP, GM)

Ecology's Response to Comment Letter No. 8

1 Your comment is noted.

2 Teck and Ecology are consulting with The Confederated Tribes of the Colville Reservation (CTCR), including Tribal Historic Preservation Officer; The Spokane Tribe of Indians; the Department of Archaeology and Historic Preservation; the Governor's Office of Indian Affairs; Washington State Department of Natural Resources, and other groups and tribes as appropriate. The CTCR and Teck have jointly prepared a technical assistance scope of work which included the joint performance of a cultural resources inventory assessment. The cultural resources inventory assessment was completed by Teck's consulting staff in cooperation with CTCR History and Archaeology staff. A draft Cultural Resources Inventory Report and Revised Cultural Resources Plan has subsequently been prepared and is currently being reviewed by CTCR. The final Cultural Resources Inventory Report and Revised Cultural Resources Plan will be submitted to Ecology after further review and input by CTCR.

3 The SEPA rules require lead agencies to prepare a threshold determination at the earliest possible point in the planning and decision-making process, when the principal features of a proposal and its environmental impacts can be reasonably identified. In this case, Ecology acknowledged the need for additional information to more fully evaluate potential impacts related to cultural resources. Ecology required Teck to submit a revised Cultural Resources Plan. Based on the comments received during the public comment period and review of the revised Cultural Resources Plan, Ecology will reconsider the DNS and may retain or modify it. If it is determined that significant adverse impacts are likely, the DNS may be withdrawn and a new Threshold Determination issued.

4 In order to issue a mitigated determination of non-significance (MDNS), the current DNS would have to be withdrawn. Please refer to the response to question #3 regarding procedural requirements related to reconsideration of the DNS.

5 Your comment is noted.

Comment No. 9 – Eldon Roush - CTCR History/Archaeology Program

Gruenenfelder, Charles (ECY)

Subject: FW: Black Sand Beach

From: eldon roush [mailto:eroush1@yahoo.com]
Sent: Monday, February 01, 2010 10:49 AM
To: Gruenenfelder, Charles (ECY)
Subject: RE: Black Sand Beach

1

Thank you for your reply on our irrigation from Columbia River water PH and dissolved metals/solids concerns pertaining to the Black Sand Beach cleanup. Since the cleanup is scheduled to begin in early September, then we will still be irrigating our lands at that time. Do you have provisions for immediate notification to the water users of Columbia River waters in case of an escape from confinement barriers so we may take preventative measures? Will there be monitoring stations below the cleanup area? Will you be performing cleanup if the elevation of waters from Franklin D. Roosevelt Lake are so low as to create higher concentrations of elevated PH and dissolved solids/metals downstream that would affect using the water for irrigation or stock water? Are there provisions to cease cleanup to avoid this issue?
Thanks
Eldon Roush
Evans, WA

From: eldon roush [mailto:eroush1@yahoo.com]
Sent: Saturday, January 30, 2010 9:56 AM
To: Gruenenfelder, Charles (ECY)
Subject: Black Sand Beach

Greetings:

2

It is stated that cleanup of the slag will begin this fall. We irrigate with water from Lake Roosevelt/Columbia River and wonder if the cleanup will begin after irrigation season is over (October 1st on average) due to concern of elevated PH and dissolved solids/metals that may be added to the water from the cleanup operations?
Thanks
Eldon Roush
Evans, WA

1

Ecology's Response to Comment E-mail No. 9

1 & 2 The slag removal and beach replacement activities are currently scheduled for early September through mid-October of 2010. When the slag removal work is conducted, several safeguards (often referred to as "best management practices") will be used to reduce the potential for adverse impacts to the river. The project Work Plan includes a document called a Stormwater Pollution Prevention Plan (SWPPP). This plan describes many of the safeguards that will be used to minimize the potential for changes in pH or an increase in dissolved solids and metals. Water quality in the river next to the construction area will be monitored frequently during the work period. Figure 4

in the SWPPP shows the location of 6 proposed monitoring stations that will be established near the Black Sand Beach. One of these monitoring stations will be located approximately 100 feet downstream from the excavation area.

Ecology and Teck believe the slag removal work at Black Sand Beach will not create significant water quality changes in the Columbia River for the following reasons:

1. Best management practices and safeguards will be used throughout the process.
2. The project is limited in size.
3. Potential water quality changes in turbidity and/or pH would be localized, and of a short-term duration.
4. High river flow velocities and large discharge rates will cause any minor, localized, short-term water quality changes near the project area to rapidly dissipate.
5. Frequent surface water monitoring will occur during all phases of construction to detect and correct any possible water quality changes, including pH, conductivity and turbidity.

Changes in river turbidity (cloudiness) next to, and immediately downstream from, the beach area will be a primary indicator of how well these construction safeguards are working. If monitoring close to the beach indicates that best management practices are not providing adequate protection, work will be stopped until additional corrective actions resolve the situation.

Frequent monitoring and prompt use of corrective actions (if needed) will minimize the potential for construction-related impacts to the Upper Columbia River. Minor changes in river pH and/or turbidity may occur at the periphery of the Black Sand Beach project area. These minor, localized conditions would not adversely impact downstream irrigators, or ranchers and farmers who use river water for stock watering purposes. In conclusion, the Black Sand Beach project will not create broad-scale water quality impacts to the Columbia River that require the need for a notification alert.

2 The slag removal and beach replacement activities are currently scheduled for early September through mid-October 2010. Please also see comment response no. 1 above.

Comment No. 10 – Joe Wichmann on behalf of Community Members

NORTHPORT COMMUNITY COMMENTS – SUBMITTED BY JOE WICHMANN

Community's Questions and Comments on the Black Sand Beach Project
Submitted During the Public Review Period, January 4 to February 5, 2010

The following questions and comments were made by community members at the January 14, 2010 Black Sand Beach Project meeting in Northport. No definitive answers to these questions and comments were provided at the meeting. These questions and comments are being officially submitted to the Washington State Department of Ecology during the public review period, January 4, 2010 to February 5, 2010.

1 1) Can rail cars be used to transport the slag to Trail? This would eliminate half of the truck traffic on the narrow Waneta road. It would also appear to simplify boarder crossing issues.

2 2) Currently there is no cobble at the water line of black sand beach making it easy for boaters to land, fish, swim and picnic. The project plan shows cobble at the shore line of the completed project which will make boat landing difficult if not impossible. This would eliminate a major use of the beach. Could the plan be modified to retain the easy landing for boaters?

3 3) It was mentioned at the meeting that the start of the access road to black sand beach was on private property. A very careful title search needs to be performed to establish legal ownership of all land that may be effected by the proposed project.

4 4) It was mentioned at the meeting that some community members had legal easement for use of the access road to black sand beach. Will these people continue to have their legal easement use during construction? Additional title searches appear to be needed.

5 5) How will the public be notified of the beach closure? Many people did not receive the US Mail delivery of the meeting notification. How will this be improved?

6 6) Part of the Waneta road is called the narrows, for a good reason. It is very difficult for trucks to pass in this area. The excavation project will use this portion of the road. What precautions will be used to avoid problems among construction vehicles and between construction and local vehicles? (See question 1 above).

7 7) It was stated that trucks are not allowed to use the road during school bus use periods of the day. Has this been verified and the hours established with school and county officials?

8 8) Can the public have input on the top fill material before it is used? Choice of material will greatly impact the use of the beach.

9 9) The proposed final grade shows a much flatter beach than is currently the case. More of the beach will be underwater for more of the major use periods. How much of the final grade beach will be above water during current above water periods?

10 10) The proposed work time period can be high fire season. What fire plan contingencies will be in place? Will plans be coordinated with local fire departments? What are the plans for notifying the public in the event of a fire?

11 11) Will potable water be purchased from Northport, the town itself or merchants?

Joseph Wichmann, Ph.D. 1/27/10 Page 1 of 2 pavidia@theofficenet.com

12

12) If trucks are bottlenecked at the boarder crossing how will the project timeline be effected? (see question 1 above)

13

13) Can a public meeting be arranged to talk to local residents about job opportunities?

Ecology's Response to Comment Letter No. 10

1 Teck has conducted a feasibility analysis which evaluates logistical and transport-related issues associated with truck hauling versus rail transport of the excavated slag to the Trail, B.C. recycling facility. A copy of this analysis will be included in the revised version of the Work Plan. Truck hauling will be used as the preferred method of transport.

Hauling activities will be conducted in accordance with a Truck Haul Plan, prepared by Teck and reviewed and approved by Stevens County. Ecology also will have an opportunity to review the plan. Specific safety concerns, border crossing considerations, and road restrictions issues will be addressed in the plan, where applicable. The Truck Haul Plan will be prepared by mid- to late-summer 2010 in advance of the construction work. Copies of the final Truck Haul Plan will be available on-line and in the public repositories for the site.

2 The Black Sand Beach is a dynamic environment. Water levels in the river fluctuate on a daily basis in response to river management activities, especially during the summer and fall. River levels also fluctuate in response to seasonal changes in precipitation, snowmelt and climatic conditions. The horizontal (lateral) limits of excavation and beach replacement work will be governed by the river stage at the time of construction. Cobbles or other coarse grained native sediments which may lie below the water line at the time of construction could become exposed during a low river stage condition. Similarly, erosion and/or hydraulic transport and re-deposition could expose or distribute coarser grained sediments (e.g., gravel to cobble-sized material) along the replacement beach shoreline.

Efforts will be made to limit placement of coarser-sized fill material along the shoreline area. However, placement of some coarser-sized fill material may be necessary further inland in order to effectively stabilize and grade the beach fill materials. Coarser-sized fill materials will be covered by at least a two foot layer of sand-sized fill at the time of construction completion. Subsequent erosion by natural hydraulic processes may expose these coarser sediments sometime in the future.

3 Your comment is noted. Teck conducted additional title review of the Black Sang Beach area properties. Results will be reflected in the 90 percent design, which is a revision to the 60 percent design reviewed by the public.

4 Your comment is noted. Please see comment response no. 3.

5 Ecology asked Direct Mail Services to re-develop a mail list that includes residents in the geographic area north of Northport who have mail delivery. Carol Bergin, Ecology's public outreach coordinator, spoke with the local postmaster and Direct Mail to identify why some residents may not have received previous notice. This information was used to develop the next round of outreach.

Distribution of the future notice will be in the form of a postcard mailed to the people on the updated mail list. The mailing list, as before, also includes local, state and federal elected officials along with other stakeholders, Tribes, businesses, and agencies. Notices will be published in the Statesman Examiner, the Sun, and Huckleberry Press. The Trail-Rossland News in Trail, B.C. will be included in the next outreach.

Additionally, Ecology will prepare a Press Release for distribution to media. A notice will be published in Ecology's Site Register and on Ecology's website for the Black Sand Beach project. Copies of the notice will be posted in the repositories in Northport, Kettle Falls, Colville, and Spokane. A notice also will be mailed to Mr. Richard Jeffrey to post in the Waneta Quick Stop. Extra postcards will be included in the package to Mr. Jeffrey for distribution to customers.

6 Hauling activities will be conducted in accordance with a Truck Haul Plan, prepared by Teck and reviewed and approved by Stevens County. Ecology also will have an opportunity to review the plan. Specific safety concerns, border crossing considerations, and road restriction issues will be addressed in the plan, where applicable. The Truck Haul Plan will be prepared by mid- to late-summer 2010 in advance of the construction work. Copies of the final Truck Haul Plan will be available in the repositories for the site.

7 Information regarding possible truck haul restrictions during anticipated school bus transport hours will be verified and coordinated with county officials. Details, as appropriate, will be presented in the Truck Haul Plan.

8 The public will not be able to have further input on the final top fill material. Public comments regarding characteristics of this material have been received. Final selection of this material will consider stability, recreational use activities and aesthetic considerations. Efforts are being made to balance these factors as part of the final beach design and fill material selection.

9 We understand the public's desire to have the replacement beach retain, where possible, the existing grades and slopes of the original beach. The replacement beach will be redesigned to preserve

more accessible beach area during higher flow conditions. The 90 percent design, which is a revision of the 60 percent design reviewed by the public, will present a flatter but slightly more elevated mid-beach area. This change will increase the percentage of accessible beach area over the expected range of seasonal river stage conditions. Additional fill material will be added, beyond what was originally presented in the 60 percent design, to accomplish this design change. The redesign changes are intended to maintain at least 80% of the original beach area above water during a typical mid-spring to summer river stage elevation of 1304 ft (NAVD 88), supporting a mix of recreational uses. The long-term stability of this revised beach configuration will be subject to the same uncertainties as was noted for the previous design configuration. Teck will not be responsible for post-construction maintenance of the replacement beach.

10 The final plan will include additional discussion of fire contingency planning and coordination with local fire departments. Teck will notify the local fire department immediately in the event of a fire. Fire suppression equipment, as appropriate, will be present at the site. Specific plans for public notification in the event of a fire have not been developed yet, but will be coordinated with the local fire department prior to the start of construction.

11 Teck anticipates obtaining potable water for use by on-site personnel from either local Northport area vendors and/or (if available) from the local lodging facilities where project contractors and other personnel will be housed.

12 It is not possible to speculate meaningfully at this stage on whether the truck hauling operations, or other anticipated activities at the Waneta border crossing station, will create significant delays in the flow of traffic at the border. Teck has conducted an analysis of anticipated truck flow, based on the anticipated number of trucks to be used for hauling, and round trip transport times to and from Trail, BC. Teck's analysis indicates that the truck flow associated with the Black Sand Beach project is not expected to create a traffic bottleneck situation which would impact the current project timeline. The Truck Haul Plan will include a discussion of border crossing protocols and considerations. Teck will coordinate with port of entry and customs authorities to discuss anticipated truck traffic and border crossing implications in advance of construction start-up.

13 Yes. During the public meeting in Northport on January 14, 2010, Teck representatives committed to meet with the local Chamber of Commerce to discuss the anticipated need for local business and labor support for this proposed project. Teck conducted this meeting with the Chamber of Commerce in early May 2010.

Comment No. 11 – Joe Wichmann as CCC Technical Advisory Lead

1/26/10 Comments From Joe Wichmann

Questions and Comments on the Black Sand Beach Project
Submitted During the Public Review Period, January 4 to February 5, 2010

General Comments:

1

1) How will comments be addressed? Will any be incorporated in the plan? How will the public know if their input has had any effect?

2

2) What DOE oversight activities are planned for the excavation? Will someone from DOE be there during the entire excavation project? If not, who is performing excavation activity oversight?

3

3) I have a number of concerns with all eight engineering drawings. These drawings will be the primary instrument used by the contractors to perform the project. The drawings should be as complete and accurate as possible. As currently drawn, excavation will be performed into the river, below the water line. Specific concerns about each drawing are addressed after this general comments section.

4

4) The plan mentions photo documentation after the project is completed. Similar photo documentation should be performed prior to any activity. This should include all expected perspectives anticipated to be taken after completion.

5

5) The fill should lend itself to activities now done on the beach including sun bathing and picnicking. These activities typically do not take place on "fine gravel" (3/16" or greater). Will the public have input on acceptable fill material as far as size, material and safety are concerned? The fill material is specified to be analyzed only for metals on drawing 6. The fill material should also be analyzed for BCP's, dioxins, flame retardants, herbicides and pesticides.

6

6) Can the road support such intensive traffic by loaded dump trucks, particularly the exit from Waneta road and the turn around? The road condition should be evaluated and documented prior to the start of the project and at completion. Any harm to the road should be repaired after project completion prior to winter.

7

7) I am concerned about excavation below water level as shown in the current engineering drawings. The BERA addresses sediment pore water as a potential concern for toxic levels of metals and metalloid cations. The turbidity curtain will not have much of an effect stopping the flow of these dissolved ions into the river when the slag is excavated below water level.

8

A) This project is of very small scale compared to the entire river system. Perhaps it should be viewed as an experimental test case. To that end, sampling of sediment and pore water should be performed prior to disturbing depths that haven't been sampled. A potential sampling plan would be 5-6 samples total across all beach areas for slag and pore water testing for each two feet of excavation depth. It would be a shame to miss this opportunity to gain information on distribution of toxics with depth and presumably time on the slag deposits.

9

B) Every effort should be expended to avoid any water contamination during the excavation. The turbidity curtain should be installed along with the silt fence before any excavation work is performed. While the scope of this project is very small, as much information

should be gleaned from this process as possible to avoid potential major contamination from future remediation projects.

10 9) How much EPA input has been solicited and incorporated in the project plan development? How much EPA collaboration is anticipated in the future?

General Comments on Engineering Drawings:

11 Engineering Plan Drawing 1 "Existing Conditions Site Plan And Haul Route" no plan or reference is given for the "minor road improvement" areas anywhere in the engineering drawings. This needs to be specified and provided. A detailed key should be provided for all drawings

12 Engineering Plan Drawing 2 "Existing Conditions". Drawing is missing a detailed key. Minor road improvement is noted on the drawing, but not detailed or referenced.

13 Engineering Plan Drawing 3 "Temporary Erosion and Sedimentation Control Plan". The turbidity curtain should be mandatory, not optional. A detailed key should be provided.

14 Engineering Plan Drawing 4 "Erosion Control Details" does not show plastic or geotextile under the stabilized construction entrance. No specifications are given for the geotextile material for the silt fence. The turbidity curtain detail gives no specifications for the skirt material or vertical dimension (or any dimensions).

15 Engineering Plan Drawing 5 "Excavation Plan" has no key other than distance. It shows excavation below the water line (1297') for over 160' on the downstream beach and for the entire water line of the upstream and middle beach areas. This causes major concern about sediment and pore water dispersal into the river during the excavation process.

16, 17, 18 Engineering Plan Drawing 6 "Site Grading Plan" has no key. It shows final grading to and below the existing water line. The fill material is specified to be analyzed only for metals. The fill material should also be analyzed for BCP's, dioxins, flame retardants, herbicides and pesticides. The downstream rock erosion protection pad eliminates a significant portion of the downstream beach area and should be reduced in size or eliminated.

19 Engineering Plan Drawing 7 "Cross Sections" shows the final grade level being below the water line at the beginning of the upstream beach rock erosion protection pad in panel A. This is inconsistent with drawing 6 and the general text plans. Panels B and C show both excavation and fill below water level. Panels B and C also show the silt fence being both excavated through and filled over. This is inconsistent with the text and concerning (see drawing 5 concerns, above and drawing 8 concerns, below). These issues should also be addressed in the text.

20 Engineering Plan Drawing 8 "Typical Proposed Excavation Sequence" shows three panels with no excavation at or through the water line. The fourth panel shows new fill below the water line. What is actually to be performed? The fourth panel also shows excavation through and below the silt fence and fill being placed on and below the silt fence. If excavation and filling is

performed as shown in the fourth panel, I don't see how significant sediment disturbance into the river can be avoided. Appropriate drawing changes and text discussion and clarification should be made.

Specific Comments on "Draft Work Plan for Black Sand Beach Excavation Project Stevens County, Washington":

21 Page 1-3: "The purpose of the project is to remove granulated slag that has accumulated over time within the upland portion of BSB, where granulated slag is readily visually identifiable and accessible using conventional excavation equipment. The intent is to remove as much granulated slag in the upland BSB beach areas as possible, while not adversely impacting the adjacent river. No open-water dredging or sediment removal in the river will be conducted."

The engineering drawings show excavation below water level. The engineering drawings and text should be brought into agreement.

22 Page 1-6: "Teck will provide a Construction Manager who will be identified prior to the 90-percent submittals. The Construction Manager will be responsible for implementing the project in accordance with the plans and permits, and for meeting the project' schedule and other contract requirements. The Construction Manager also will be responsible for ensuring that the Contractor implements the safety requirements set forth in the Health and Safety Plan; directing the performance of a final "" survey by a qualified licensed land surveyor; and performing site environmental monitoring and analytical testing of the imported backfill materials. The Construction Manager will serve as the primary on-site contact during implementation of the work."

It is a concern that Teck appoints the person responsible for what appears to be project oversight. What is DOE's oversight capacity?

23 Page 2-9 - 2-10: Existing slag is estimated as 1 mm diameter. This is a reasonable estimate. A replacement with a similar erosion profile is 1.2 mm quartz sand. This is acceptable. The use of 3.6 mm "course sand" is more than 1/8" in diameter and is almost 3/16" in diameter. This is rather large for a beach. How much greater than 3.6 mm is the upper fill diameter proposed to be? The proposed fill material should be presented to the public for acceptance prior to using it for final grade material.

24 Page 2-10: "Therefore, if a coarse sand/fine gravel backfill is placed on top of the beach for aesthetic purposes, it is recommended that a courser fill (gravel or cobbles) be placed below the sand layer to maintain the desired grades of BSB, should the sand material eventually erode during high flow conditions of the river."

25 How deep is this course sand/fine gravel fill layer proposed to be? A minimum of one foot would be required to allow activities on the replaced beach to be similar to those on the current beach.

26

Page 2-10: "Furthermore, URS recommends that additional cobbles (consistent with other cobble materials in the immediate vicinity of BSB) be placed adjacent to the downstream portion of the rock outcropping to further reduce erosion forces at the downstream section of BSB."

What is the cobble placement plan? It is not well defined in the engineering drawings.

27

Page 2-11: "Review of 2009 river stage data from the USGS auxiliary gage near BSB indicates that routine river management and flow control produces an approximate 3-4 foot diurnal change in river stage. Low water typically occurs at a stage of about 1,295 feet above msl."

Does the proposed turbidity containment curtain work with this daily variation?

28

Page 2-13: "Granulated slag materials may be excavated below the water line in certain locations using an excavator without dewatering. In such cases, the granulated slag will be temporarily stockpiled within the footprint of the excavation such that free water will drain back to the excavation. Due to its granulated nature, the slag is expected to readily drain in a short period (minutes to hours) following excavation."

I have pore water concerns as mentioned above and concerns about river turbidity.

29

page 3-1 : "The Engineer, in consultation with Ecology, will jointly determine the actual limits of excavation in the field." and lower on page "Likely there will be areas where the boundary between the granulated slag and natural soil are transitional. In these instances, the Construction Manager will determine the limits of excavation in consultation with Ecology."

Will Ecology have a person at the site during the excavation and fill period? If not, I have significant concerns about project oversight.

30

Page 3-4: "***3.3.2.3 Washington Hydraulics Project Approval (Chapter 75.20 RCW, Chapter 220-110 WAC)***
This regulation requires WDFW approval for projects that will use, divert, obstruct, or change the natural flow or bed of waters of the state. WDFW typically issues in-stream work windows under the authority of this program. Technical provisions written for freshwater hydraulic projects covered in WAC 220-110-040 through -224 potentially apply to this project and will be further assessed during the permitting phase of the project (see Section 6.0). In consideration of these requirements, no in stream construction will be performed for this project, although construction will occur in the upland area adjacent to the river."

It appears from figures 5 and 6 and engineering plan drawing 5 (007c Appendix D Drawing Number 5) that excavation below water level is planned. This would require such approval. Otherwise, how do you propose to keep the river out of the excavation?

31

Page 4-1: "The elevation of the replaced beach will be lower than the current beach to minimize potential erosion. Note that there is potential that replaced fill could be eroded in the future, especially if the fill is a sand material."

How much will this lower elevation effect useable times of the year for beach users?

32

Page 5-1: "Depth-specific samples were collected and isolated from several individual auger holes at approximate depths of 0–2 feet, 2–4 feet, and 4–6 feet. In most cases, auger refusal was encountered at depths of 4 feet or less. Beach samples were placed in gallon-sized zip lock bags, labeled with a unique identifier, and stored in a cooler for transport back to the Ecology office. A subset of the beach samples were used to generate two composite samples designated as "North Composite" and "South Composite." The "North Composite" sample was prepared using approximately equal volumes of beach materials from three subsamples collected in the eastern half of BSB representing the 0–2 foot depth interval. The "South Composite" sample was prepared using approximately equal volumes of beach materials from the three subsamples collected in the western half of BSB, also representing the 0--2 foot depth interval." And "

What actual depth samples were collected? Why was no deeper sample analyzed? From the very poor resolution Figure 8, it appears that at most half of the samples were taken in actual slag: North 3, South 1 and South 2. This is a great way to lower the reported metal levels in composite samples and decrease the toxic effects of the slag in the bioassay mentioned on page 5-2.

33

Page 5-5: "The second tier erosion and sediment control measure will include carefully sequencing excavation and backfill placement operations, particularly during excavation and backfill of the parts of BSB adjacent to the Columbia River. This sequencing will include beginning granulated slag excavation along a strip parallel to the shoreline, carefully placing clean backfill within this shoreline excavation, then using this strip as a base for stockpiling clean backfill material for use during the remainder of the construction work. The shoreline stockpile strip of clean backfill will serve as a curtain to prevent stormwater from upland areas from entering the river. Backfill material will be placed in stockpiles, taking into consideration the lateral distribution of the materials, and appropriate setbacks will prevent backfill material from entering the river."

How wide of a strip? How will the original excavation be performed? Will it be below water level as indicated in Figures 5 and 6 and engineering plan drawing number 5 (007c Appendix D Drawing Number 5)? If so, how do you propose to control sediment incursion into the river?

34

If the answer to the above question is the turbidity curtain, Engineering plan drawing 4 (007d Appendix D Drawing Number 4) needs to be expanded to address the dimensions of the fabric curtain. Also, supporting text discussion should address the ability of the turbidity curtain to withstand excavation stresses and the daily river level fluctuations and still be functional.

35

Page 5-5 : "Stormwater monitoring will depend on the applicability of a pending erositivity waiver request. As indicated in the SWPPP (Appendix E), turbidity measurements, which are required by Ecology, will be taken at least hourly during excavation work within ten feet of the shoreline using a calibrated turbidity meter. The turbidity measurements will be compared to baseline turbidity measurements and corrective actions as outlined in Appendix E."

The work plan should specify that these measurements will be taken adjacent to and slightly downstream from active work to measure the areas most prone to turbidity increases.

36

Page 5-5: "In the event that initial corrective actions are unable to reduce turbidity measurements to acceptable values (i.e., within five NTUs of baseline values), a turbidity curtain will be placed three to ten feet into the river. Additional information pertaining to frequency and monitoring locations is presented in the SWPPP (Appendix E).

See first page 5-5 comment. The curtain should be in place prior to any initial excavation. If the curtain does not fully contain potential runoff as shown in drawing 4, measurements should also be taken at both the upstream and downstream gaps.

37

Page 5-6: "In some cases, granulated slag material may be excavated below the low water line, particularly at the downstream beach where the granulated slag is deepest and most prevalent. Groundwater will accumulate (pond) at the bottom of the excavation if below the water line. Granulated slag material will be excavated below ponded water within the excavation boundary (inland of the shore) to the extent practical without dewatering."

Won't this be river water so close to the shore line? Doesn't this require Washington Hydraulics Project Approval?

38

Page 5-8: "If significantly thicker sequences of slag/gravel/cobbles are identified in this area, mechanical screening will separate the granulated slag from coarser materials, with the coarse material being retained on site for reuse as fill."

This process will almost surely generate significant quantities of dust. The control of this dust must be specified and in place before any screening occurs.

39

Page 5-9: "The upper portion of the backfill will consist of a loose coarse sand/fine gravel to provide for future recreational use of the beach. The characteristics of this coarse sand/fine gravel will be generally designed to withstand the erosional forces expected during high water periods."

What depth range is this layer to be applied. The depth should support future activities consistent with current activities. A depth of 1-2 feet seems reasonable. Anything less then 1 foot is not acceptable.

40

Page 5-9: "Additionally, Teck will provide Ecology with other relevant specifications of the fill materials, including representative asbestos, if necessary, and metals analysis results of the selected coarse sand/fine gravel material (see Appendix C list of metals). Asbestos is considered a potential contaminant in clean backfill because some of the metamorphic rock types in northeast Washington are known to contain asbestiform mineralization and will be analyzed for if the backfill source includes metamorphic rock material."

Just assay all potential fill sources for asbestos, all metals, PCB's, dioxins, pesticides, herbicides, etc.. You want to avoid any chance of replacing the slag with another toxic material.

41 Page 5-11: "• Preparing and submitting final photo documentation log"

All anticipated final photo scenes should have "before" shots taken from the same vantage point for direct comparison. Error on the side of too many before shots.

42 Page 5-11: "Information on source of any fill material, including location, description of material, and certification or analytical results of chemical composition of metals and invasive plant species"

More analytical work needs to be performed and documented on the fill, see above second page 5-9 comment.

43 Page 6-2: "Following public review, the Work Plan, engineering plans, and supporting documents will be finalized."

Add: "Final documents will be made available to the public as soon as they are completed". This will allow the public to assess the usefulness of the "public review and participation" process.

Specific Comments on Appendix E "Draft Stormwater Pollution Prevention Plan":

44 Page 4: "Additionally, if visual monitoring of the river in the vicinity of the excavation indicates sustained levels of high turbidity, a turbidity curtain will be placed several feet into the river for added protection. The BMPs described in this SWPP will help keep soils from being transported into the Columbia River by the construction activities."

The turbidity curtain should be placed in the river prior to excavation. Placing it after "sustained levels of turbidity" are seen is too late.

45 Page 12: "Wet season starts: 10 / 01 / 2010"

The wet season can start anytime. Excavation plans and BMPs should assume it is raining or be able to adapt immediately.

46 Page 14: "All BMPs will be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Site inspections will be conducted by a person who is knowledgeable in the principles and practices of erosion and sediment control. BMP C160 requires that the inspector be a CESCL and have the skills to assess the potential for water quality impacts as a result of the type of construction activities occurring on site, and the knowledge of the appropriate and effective erosion and sediment control measures needed to control the quality of stormwater discharges."

Inspected as needed is meaningless. A schedule is needed to assure the public that adequate oversight is performed.

47 Page 14: "Site stormwater inspections will be conducted at least daily during construction and within 24 hours following any discharge from the site during construction work."

By whom?

48 Pages 15-16, section 6.2.1: The proposed timeline for response effectively eliminates the possibility of a meaningful response. The main construction is estimated to take three to six weeks. Ten days response time would miss almost 50% of a three week construction period.

49 Appendix A page 7-77 (8 of appendix): BMP C140 see: "See also " Techniques for Dust Prevention and Suppression," Ecology Publication Number 96-433, revised April 2002."

This publication was not included in the associated documentation materials. The appropriateness of these techniques cannot be easily evaluated.

When found, Ecology Publication Number 96-433 states" Chapter 90.48 RCW, Water Pollution Control Section .080 prohibits the discharge of any material into surface or ground waters that could cause pollution as defined in WAC 173-200-020(22). If your site is near surface or ground water, use dust control measures that have zero or minimal aquatic impact. If you decide to use a chemical dust suppressant, select a product with no aquatic toxicity.
Note that Ecology's General Permit for Sand and Gravel Operations prohibits the use of lignin sulfonate products for dust suppression in *excavated* areas due to the risk of ground water pollution."

50 References to dust suppression procedures in Appendix E should specify that lignin based additives should not be used. It would be simpler to state that "Water used for dust suppression may not contain any additives."

51 Appendix A page 7-77 (8 of appendix): BMP C140 "PAM (BMP C126) added to water at a rate of 0.5 lbs. per 1,000 gallons of water per acre and applied from a water truck is more effective than water."

What is PAM? BMP C126 was not included in the materials. When one finds BMP C126, it clearly states "PAM shall not be directly applied to water or allowed to enter a water body." The text of Appendix E should clearly state that PAM should not be used.

52 Page 7-78 (9 of Appendix a): "Apply chemical dust suppressants using the admix method, blending the product with the top few inches of surface material. Suppressants may also be applied as surface treatments."

What chemicals? Should they be applied to a beach?

Ecology's Response to Comment Letter No. 11

1 Comments from the public are addressed in this Responsiveness Summary. Each comment submitted was reviewed and evaluated. The design documents and associated plans are being revised or modified as Ecology and Teck agree are appropriate and necessary. Some of the changes are based on public input while others are based on Ecology's requirements. Some questions may not be fully answered until the final documents are complete. The public will know if their comments had any effect by reading the Responsiveness Summary and the final design documents. The Responsiveness Summary is being sent to the following:

- All individuals who submitted comments
- Individuals who requested or may request a copy.
- Repositories in Northport, Kettle Falls, Colville and at Ecology's office in Spokane
- Posted on Ecology's website for the Black Sand Beach Project

The revised Work Plan and design documents will be on Ecology's website for the project as well as in the repositories listed above.

2 Ecology will oversee the work at Black Sand Beach. Ecology will be there to review the work at key check points and determine whether removal action objectives have been met before the work may proceed. Additionally, a Cultural Resource Specialist or Archaeologist will be present at the site whenever excavation is taking place to make sure any potential cultural finds are treated properly.

3 Your comment is noted. The comments about the design drawings identified in your comment letter have been addressed in several individual responses presented below. Excavation activities will not occur in the river. Clean replacement fill material will be draped along the water's edge.

4 Detailed photo documentation of the Black Sand Beach site will be conducted by Teck as part of the pre-construction preparatory work. This documentation includes the beach area, equipment staging area, truck turn-around area, and other areas within the Area of Potential Effect.

5 The public will not be able to have further input on the final top fill material. Public comments regarding the characteristics of this material have been received. Attachment 1 shows the anticipated grain size characteristics of the topmost sand fill layer. Final selection of this material will consider stability, recreational use activities and aesthetic considerations. Efforts are being made to balance these factors as part of the final beach redesign and fill material selection. As described in Section 5.1.5 of the Work Plan, fill material will be analyzed for metals which are main contaminants of concern associated with the Black Sand Beach. Asbestos mineral content also will be analyzed if the backfill source contains metamorphic rock material.

6 The loaded weights of the dump trucks will not exceed the allowable limits for the Northport-Waneta Road. Truck hauling will be conducted in accordance with an approved Truck Haul Plan to be prepared by Teck and reviewed by Stevens County. Teck and Stevens County will assess potential

impacts to the Northport-Waneta Road and proposed truck turnaround area caused by hauling activities associated with the project as required.

7 Removal of slag will reduce the quantity of hazardous substances that will have otherwise been transported to the river by erosion and/or other physical/chemical processes. Removal activities may result in small, localized short-term increase in the quantity of dissolved phase or suspended solids-based metals along the project area periphery. Monitoring of turbidity levels and pHnear the shoreline will provide a reasonable basis for assessing and managing any slag-related constituent releases to the river during construction.

8 EPA currently is working with Teck to evaluate sediment and porewater sampling activities in the UCR as part of the ongoing Remedial Investigation/Feasibility Study (RI/FS). Quality Assurance Project Plans (QAPPs) will be prepared which describe the proposed data collection activities and sampling locations for several different types of environmental media (for example, sediment, soil, surface water). QAPPs also will be prepared to direct the sampling and analysis of various aquatic organisms such as Lake Roosevelt fish or mussels which may be exposed to various types of contaminants.

9 Best Management Practices (BMPs) as described in the draft Stormwater Pollution Prevention Plan (SWPPP) will be followed to minimize the potential for construction-related impacts to the river. Routine monitoring and engineering controls will help ensure the water quality standards are maintained during construction. Work will be conducted at the beach when the river is at a low level. This will provide easier access to contaminated sediments and allow for engineering solutions (including one or more silt barriers) to minimize slag from moving into the river system.

10 EPA, along with other local, state and federal agencies and stakeholders, has been provided an opportunity to comment on the proposed project. This is a requirement of the State Environmental Policy Act (SEPA). Ecology and the EPA will continue to collaborate about the Black Sand Beach during the ongoing RI/FS process. In this process, Ecology serves as a Participating Party, along with members of the Confederated Colville Tribes, Spokane Tribe and Department of Interior. In this capacity, Ecology provides input to EPA on RI/FS investigation work, including document review, and participation in technical and regulatory discussions. Any further cleanup decisions EPA makes related to Black Sand Beach are a long way off.

11 An additional note will be added to Drawing 1 referencing where “minor temporary road improvements” are discussed in the associated documents.

12 An additional note will be added to Drawing 1 referencing where “minor temporary road improvements” are discussed in the associated documents.

13 The installation of a turbidity curtain in the river is not anticipated based on a re-evaluation of other turbidity control options by Teck since submittal of the 60 percent design. One or more silt barriers will be installed between the edge of water and excavation area before conducting any excavation or fill placement activity. The silt barrier(s) will be maintained throughout the period of

construction. Design and specification details for a silt barrier will be provided in the 90 percent design. The Stormwater Pollution Prevention Plan (SWPPP – Appendix E) will provide additional design and deployment details for the silt barriers. The 90 percent engineering plans will provide a key which identifies the features on the plan.

14 Best Management Practice (BMP) C105 in the Stormwater Pollution Prevention Plan (SWPPP) specifies the conditional use of a geotextile under the stabilized construction entrance. Teck's construction contractor will assess the need for plastic or geotextile based on its review of site conditions at the time of temporary road improvement implementation. Geotextile standards for a silt barrier, along with additional silt barrier design and installation details, will be provided in the 90 percent design. Specific revisions to the Work Plan (Section 5.1.3), Engineering Drawing 4 (Appendix D) and the SWPPP will be included.

15 Drawing No. 5 (Appendix D) will be modified to include a key which identifies the various symbols used to depict cross sections, limits of construction/area of potential effect, trees and temporary road improvements. Drawing 5 shows the anticipated beach area elevations at the time slag excavation work is completed. During construction, some excavation work in the downstream beach area is expected to include removal of slag materials which lie below the level of the adjacent river. Section 5.1.3 (Erosion and Sediment Control and Stormwater Pollution Prevention Measures) describes the placement of a "shoreline stockpile strip," and its intended function. Drawing No. 8 (Appendix D) shows the placement of a temporary clean fill stockpile along the river's edge. The shoreline stockpile strip will act as a perimeter barrier during excavation. This temporary soil stockpile, along with the silt barrier(s) will help minimize potential turbidity impacts to the river. Drawing 5 will be modified to include a note which describes the intended placement of the clean fill stockpile.

16 Drawing 6 will be modified to include a key which identifies the various symbols used. Fill placement will end at the water line which exists at the time of construction. Given the potential for daily river level fluctuations of up to 3 or 4 feet, the actual extent of the "limits of grading" may be slightly different from what is depicted on Drawing 6. A note will be added to this drawing which specifies that the outer (river edge) limits of the replacement beach will be contingent on river level conditions which exist at the time of construction.

17 As described in Section 5.1.5 of the Work Plan, and Drawing 6 (Appendix D), the coarse sand/fine gravel fill material will be analyzed for metals which are the main contaminants of concern associated with the Black Sand Beach. Asbestos mineral content also will analyzed if the backfill source contains metamorphic rock material.

18 In some areas of the beach, coarser grained fill material will be installed to help reduce the potential for subsequent erosion. The need for an erosion protection layer is based on the evaluation of sediment material properties in conjunction with hydraulic analysis, and best professional judgment. This coarser grained material, termed a *rock erosion protection pad*, is shown on Drawings 6 and 7 in Appendix D (60 percent design). The 90 percent design, which is a revision of the 60 percent design reviewed by the public, will show the overall site grading plan, including any modifications of the rock erosion protection pads as depicted in the 60 percent design.

19 The position of the rock erosion protection pad at the beginning of the upstream beach, as shown on Panel A of Drawing 7, is incorrect and inconsistent with Drawing 6. This error will be corrected in the 90 percent design drawings. The vertical excavation limits as shown in Panels B and C do not extend below the anticipated water level (elevation 1297 feet) at the time of construction. Section 5.1.4 of the Work Plan describes the anticipated excavation of saturated granular slag material when excavation activities in the pit area go below the elevation of the river. The water level in the excavation pit will change in response to daily river level changes. The position of the silt fencing as shown on Panels B and C of Drawing 7 area is incorrect. Teck intends to replace the silt fencing shown on the 60 percent design drawings with one or more impermeable silt barriers. The silt barriers will be installed between the edge of water and excavation area before conducting any excavation or fill placement activity. The 90 percent design drawings will depict the anticipated position of the silt barriers.

20 The position of the limits of excavation as shown in the fourth panel of Drawing 8 is incorrect and will be adjusted to depict a similar limit of excavation to what is shown in the three other corresponding panels. The position of the silt fence as shown on the fourth panel also is incorrect. As noted above, the silt fence will be replaced with an impermeable silt barrier that will be installed between the edge of water and excavation area before conducting any excavation or fill placement activity. The 90 percent design drawings, which are a revision of the 60 percent design drawings reviewed by the public, will depict the anticipated position of the silt barriers.

21 Excavation activities will not occur within the river.

22 Ecology personnel will be present to observe the work at Black Sand Beach. Ecology will be there to review the work at key check points and determine whether removal action objectives have been met before allowing the work to proceed. Additionally, a Cultural Resource Specialist or Archaeologist will be present at the site whenever excavation is taking place to make sure any cultural finds are treated properly.

23 Selection of an appropriately sized final top fill material must consider stability, recreational use activities, and aesthetics. The grain size diameter of the top fill layer (identified as “beach sand” on Drawings 7 and 8) will not exceed 4.75 millimeters (coarse sand/fine gravel). No more than about 30% of the top fill layer will be greater than 3.0 millimeters. A diagram showing a comparison of these grain sizes is included as Attachment 1. The sizing characteristics of this top layer will be chosen to balance these above-listed considerations while meeting the overall replacement beach

design objectives. The public will not have an opportunity for further input on the final top fill material. Public comments regarding the characteristics of this material have been received.

24 Your comment is noted. Natural erosion of the Black Sand Beach likely will occur in response to seasonal and annual water levels changes and hydraulic conditions associated with different discharge volumes. The current design attempts to balance stability, recreational use, and aesthetic objectives.

25 Except along the fringing margins of the excavation area, where it will be graded to match existing beach and property grades, the final top fill layer will have a minimum thickness of 2 feet.

26 In some areas of the beach, coarser fill material will be installed to help reduce the potential for subsequent erosion. One of these areas is located adjacent to the rock outcropping, at the eastern edge of the downstream beach. The need for an erosion protection layer is based on the evaluation of sediment material properties in conjunction with hydraulic analysis, and best professional judgment. This coarser grained material, termed a *rock erosion protection pad*, is shown on Drawings 6 and 7 in Appendix D (60 percent design). The 90 percent design will show the overall site grading plan, including modifications of the rock erosion pads as depicted in the 60 percent design. Section 5.1.5 of the draft Work Plan also discusses placement of this coarse grained gravel and cobble layer. Additional details regarding placement of the coarse-grained cobble rock material will be provided in the revised Work Plan.

27 Yes. One or more silt barriers will be installed between the edge of water and excavation area before conducting any excavation or fill placement activity. The silt barrier(s) will be maintained throughout the period of construction. Additional barriers will be installed, as needed, to provide turbidity control over the range of river fluctuations. The Stormwater Pollution Prevention Plan (SWPPP – Appendix E) will provide additional design and deployment details for the silt barriers which specifically address these anticipated stage changes.

28 Removal activities may result in a small, localized short-term increase in dissolved phase or suspended solids-based metals close to the project area. Monitoring of turbidity and pHnear the shoreline will provide a reasonable basis for assessing and managing water quality during construction.

29 See response comment no. 22.

30 Excavation activities will not occur within the river. Excavation activities will include removal of slag materials which lie below the level of the adjacent river. Section 5.1.3 (Erosion and Sediment Control and Stormwater Pollution Prevention Measures) describes the placement of a “shoreline stockpile strip”, and its intended function. Drawing No. 8 (Appendix D) shows the placement of a temporary clean fill stockpile along river’s edge. The shoreline stockpile strip will act as a perimeter barrier during excavation. This temporary soil stockpile, along with the silt barrier(s) will help minimize potential turbidity impacts to the river. These measures, while preventative, will not eliminate hydraulic interaction between the river and water in the excavation pit.

31 The replacement beach will be redesigned to preserve more accessible beach area during higher flow conditions. The 90 percent design, which is a revision of the 60 percent design reviewed by the public, will present a flatter but slightly more elevated mid-beach area. This change will increase the percentage of accessible beach area over the expected range of seasonal river stage conditions. Additional fill material will be added, beyond what was originally presented in the 60 percent design, to accomplish this design change. The redesign changes are intended to maintain at least 80% of the original beach area above water during a typical mid-spring to summer river stage elevation of 1304 (NAVD 88). This will support a mix of recreational uses. The long-term stability of this revised beach configuration will be subject to the same uncertainties as was noted for the previous design configuration. Teck will not be responsible for post-construction maintenance of the replacement beach.

32 Ecology collected beach sediment samples from the Black Sand Beach during February 2008 using hand- auger sampling methods. Samples were obtained from depths as great as 6 feet below the ground's surface. At some sampling locations, the depth of the slag layer appeared to be less than 4 feet thick. Samples submitted for lab analysis were highly slag enriched, and contaminant concentrations were consistent with other historical sampling results. Results of this sampling were provided to URS and incorporated into the Work Plan (Table 2 and Appendix C).

The purpose of the 2008 Ecology sampling was not to conduct a comprehensive characterization of the Black Sand sediment. The 2008 samples, along with other historical Black Sand Beach area sampling data, provide a general representation of sediment grain size and chemistry at the Black Sand Beach. This information was used to support decisions on how best to conduct the interim action. Note that additional beach sediment samples were collected from several locations, including Black Sand Beach in the fall of 2009 by EPA. This sampling was part of the EPA's ongoing RI/FS work.

33 The temporary soil stockpile berm depicted on Drawing 8 (Appendix D) is meant to be schematic and not-to-scale. This drawing will be revised in the 90% Work Plan. The temporary berm will be approximately 4 feet high and 10 feet wide. This temporary stockpile will be spread along the river's edge, at or above the river level at the time of fill placement. Work will be conducted at the beach when the river is at a seasonal low level. This will provide easier access to contaminated sediments and allow for engineering solutions that minimize the potential for slag (and related constituents) from moving into the river. Best management practices, including installation of silt barrier(s), will be used to further limit possible slag movement into the river during construction.

Your concerns regarding the excavation method and sediment control measures to be used when initiating slag removal adjacent to the river during the early stages of construction – when the perimeter stockpile berm will not yet be in place – are acknowledged. Additional construction approaches will need to be developed by Teck to address this apparent inconsistency between the design drawings and the current construction sequencing and implementation plan. This is necessary so that direct river encroachment into the excavation is prevented. These changes will be reflected in the revised Work Plan, along with any corresponding modifications to the proposed excavation plan (Drawing 5).