Responsiveness Summary

Holcim Inc. Site

December 30, 2013 – February 28, 2014 Public Comment Period

Remedial Investigation and Feasibility Study

Prepared by
Washington State Department of Ecology
Eastern Regional Office
Toxics Cleanup Program
Spokane, WA
Cleanup Site ID No. 4580
Facility Site ID No. 5216416

March 18, 2014

The Washington Department of Ecology (Ecology) held a public comment period, originally from December 30, 2013 through January 29, 2014 for the draft Remedial Investigation/Feasibility Study (RI/FS) at the Holcim Inc. Site (Site). In response to requests from more than 10 members of the public, a public meeting was held on February 13, 2014. The comment period was also extended through February 28, 2014. The purpose of the meeting was to provide the public a presentation of the findings of the Potentially Liable Persons' Remedial Investigation and Feasibility Study documents. It also provided an opportunity for the public to ask questions about the investigation, study, and cleanup project.

The Site is owned by Holcim (US) Inc. and the City of Spokane Valley. The purpose of the Remedial Investigation was to conduct additional soil and groundwater investigations to determine the extent of contamination at the Site. Remedial action technologies were identified and evaluated in the Feasibility Study.

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

Ecology would like to thank all those who provided comments.

Six people or groups of people submitted comments to the draft RI/FS. Based on the comments received, no changes will be required to the draft RI/FS.

The Responsiveness Summary is organized as follows:

- Comment E-mail received from Mr. Gary W. Smith on January 5, 2014
    - Response to Mr. Smith's comments
- Comment E-mail received from Mr. Herb Pearse on February 10, 2014
    - Response to Mr. Pearse's comments
- Comment E-mail received from Ms. Susanne Croft on February 14, 2014
    - Response to Ms. Croft's comments
- Comment E-mail received from Mr. Richard Tappan on February 21, 2014
    - Response to Mr. Tappan's comments
- Comment E-mail with letter attached, received from Mr. Jeff Speir of the Northwest Environmental Defense Center (NEDC) on February 28, 2014
    - Response to NEDC's comments
- Comment E-mail with letter attached, received from Ms. Vicki L. Yount of Gonzaga University Law-Clinical Law Program on behalf of the Spokane Riverkeeper, The Lands Council, and Spokane Falls Trout Unlimited on February 28, 2014
    - Response to the Spokane Riverkeeper, The Lands Council, and Spokane Falls Trout Unlimited's comments

Schmidt, Jeremy (ECY)

From: Gary Smith [gws99206@yahoo.com]
Sent: Sunday, January 05, 2014 10:46 AM
To: Schmidt, Jeremy (ECY)
Subject: Holcim Site - CS 4580

Dear Mr. Schmidt -

I have received and reviewed my mailed copy of the Holcim Site cleanup information pamphlet.

I also did some quick research on Holcim Ltd., the parent company of Holcim (US) Inc..
It appears that the Holcim Group is the largest cement manufacturer in the world, with about 80,000 employees.
It generates annual revenues of more than 20 billion dollars, and over 2.5 billion dollars in operating cash flow.

SEE: http://www.holcim.com/investor-relations/company-profile/key-figures.html 1

2

Given those facts, I believe that Holcim should be responsible for all remediation costs for Cleanup Site 4580. I also think that they should fund either Alternate 1 or 2, allowing for maximum flexibility in the future redevelopment of that site.

I fully understand that you may not be legally able to achieve my preferred goals, even if you agree with them.

3

Gary W. Smith
12014 E. Maxwell Avenue
Spokane Valley, WA 99206-2509

gws99206@yahoo.com

Responses to Mr. Smith's comments:

Response to Comment 1:

According to the Model Toxics Control Act (MTCA), RCW 70.105D.010, all Potentially Liable Persons (PLPs) at a cleanup site are jointly and severally liable for all costs related to the cleanup of the site. Ecology does not have the authority to determine the cost allocation between PLPs. Additionally, while MTCA does grant Ecology the authority to determine whether or not PLPs can afford to fund the cleanup of a contaminated site (if necessary), MTCA does not allow Ecology to require more stringent and expensive site cleanups simply because some PLPs have more money than others.

Response to Comment 2:

Comment noted. Ecology will consider your comment when it develops the draft Cleanup Action Plan.

Response to Comment 3:

Comment noted.

Schmidt, Jeremy (ECY)

From: Herb Pearse [herb@eco-tec-inc.com]
Sent: Monday, February 10, 2014 12:09 PM
To: Schmidt, Jeremy (ECY)
Subject: Seeking comment on cleanup options for soil and groundwater contamination near Spokane River

Jeremy,

As you are probably aware, we manufacture the ADsorb-it Fabric for the removal of oils and particulates from water. That being said I worked with Metro Seattle years ago on a gravel project from storm drain cleanout under Lake Union. The gravel was contaminated with high lead concentrations. I suggested converting this gravel into concrete to render the lead non-leachable and they pursued this option. I believe the concrete was used for sea wall construction.

Since the issue you are dealing with at the Holcim Site consists of high pH and metals issues I propose the following remedial approach…

1. Blend the land filled kiln dust with lime to reduce the pH and leach ability of the metals. Utilize the blended kiln dust / lime as a sub surface fill for highway / parking area construction or as a blend with concrete to construct retaining / sea walls.
2. If hydrocarbon issues are prevalent in soil and ground water at the Holcim site, I suggest the ADsorb-it Fabric Technology be implemented to physically remove those contaminants from the environment.

Hope these suggestions were of some help.

Best Regards,

Herb Pearse

herb@eco-tec-inc.com
Phone: 888-668-8982
Fax: 253-884-6803
International: 001-253-884-6804

Eco-Tec, Inc.
www.eco-tec-inc.com
REMEDIATION SPECIALISTS
MANUFACTURERS OF Adsorb-it PRODUCTS

Providing Products and Services to the Environmental Industry Since 1986

Visible oils may trigger regulatory response and associated repercussions.

ADsorb-it Products minimize that problem while protecting the environment.

Responses to Mr. Pearse's comments:

Response to Comment 1:

From the Remedial Investigation, the contaminated soil and cement kiln dust at the Holcim Inc. site have a pH that ranges from near-neutral to approximately 13. Lime generally has a pH above 12. Ecology does not believe that mixing lime with the cement kiln dust at the site would result in a substance with a lower pH. Additionally, according to WAC 173-303, when the cement kiln dust is excavated from its current location, it becomes a state-only dangerous waste, which would preclude its use as an off-site construction material.

Response to Comment 2:

From the Remedial Investigation, there are no detections of any hydrocarbons in groundwater at the site and any hydrocarbons in soil are very shallow and localized. From your website, http://www.eco-tec-inc.com/products.html, it appears that ADsorb-it® Filtration Products are designed to "Remove Oil, Oil Sheen, Oil-Borne Contaminants and Suspended Solids from Water" and would therefore not be applicable at this site.

Schmidt, Jeremy (ECY)

From: Susanne Croft [susanne@sustaininw.org]
Sent: Friday, February 14, 2014 2:13 PM
To: Schmidt, Jeremy (ECY)
Cc: Wavada, James V. (ECY)
Subject: former cement plant in Valley

Greetings, Jeremy: I found your name in today's Spokesman article http://www.spokesman.com/stories/2014/feb/14/state-evaluating-cleanup-options-for-former/ about cleaning up the old cement plant. Sustainable Resources (the non-profit that I run) is currently the recipient of a PPG grant from Ecology to start a by-product synergy network for the Spokane region. 1

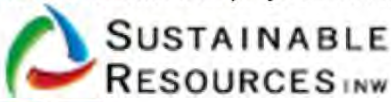
When I read about potentially capping all the minerals on the site, I couldn't help but wonder if it'd be worthwhile to run this reclamation opportunity past companies who are interested in by-product synergy. For example, the current owner might be able to sell the arsenic, lead, benzene, etc. to another company for enough to at least cover the clean-up costs. Has this option already been pretty thoroughly explored, or is it something we should put into the hopper of our grant project to see if anyone would be interested in these materials? We're closely networked with the by-product synergy networks in Seattle and Portland, as well, so we could run it past people in those market, also.

Let me know if you think my idea has an potential. Also, Jim Wavada at Ecology (copied here) is very familiar with our project and organization, if you want to talk with him more about this.

Thanks,

Susanne

Susanne Croft, Executive Director
Certified Sustainability Professional
Sustainable Resources INW
35 W. Main, Suite 240
Spokane, WA 99201
(509) 209-2861
susanne@sustaininw.org
www.sustaininw.org
An educational non-profit dedicated to making our community stronger for the long run.



Responses to Ms. Croft's comments:

Response to Comment 1:

There have been several attempts made by the Potentially Liable Persons (PLPs) and their consultants to find technologies and willing parties to recycle the cement kiln dust at the site. Unfortunately, these attempts have not been successful. Ecology will pass on your information to the PLPs and their consultants so they can determine if your assistance or a grant project may be beneficial in evaluating any previously unidentified recycling or reclamation technologies for the material at this site.

Schmidt, Jeremy (ECY)

From: Tappan, Richard [rtappan@lawschool.gonzaga.edu]
Sent: Friday, February 21, 2014 1:53 PM
To: Schmidt, Jeremy (ECY)
Cc: Rick Eichstaedt; bart@cforjustice.org
Subject: Holcim

Jeremy, 1
Is there any plan for Holcim to apply for an NPDES permit during the construction activities at the facility? Additionally, if there is stormwater runoff, it appears that Holcim should be maintaining an NPDES permit for their closed facility due to the exposed pile of CKD. Has Ecology looked into stormwater runoff/collection at the site. See EPA Guidance for more information as to whether closed facilities need to maintain an NPDES permit (Q&A number 72): http://www.epa.gov/npdes/pubs/owm0114.pdf. 2

The RI prepared by GeoEngineers had exactly one sentence concerning site-specific stormwater on Page 32: "CKD deposits on the Holcim and City properties are exposed at the surface, which could result in transport via stormwater and windborne dust." Since it is acknowledged that a large pile of known pollutant is located on the former Holcim property, is exposed to stormwater, and is surrounded by the Spokane River on three sides, it would seem reasonable to conduct an investigation into whether point source discharge is occurring into surface waters or storm drains.

WAC 173-340-350 (Scoping and content of RI and Feasibility Studies) states that the content of the RI shall include a field investigation that addresses surface water, sediments, and air (among others) as well as be in compliance with other laws (350(9)(b). The RI does not contain any discussion of whether an NPDES permit is appropriate for the site, nor does the RI determine where stormwater that contacts the CKD piles accumulates and drains. While native soils may drain freely, as we have been informed, this was a former industrial facility that has had substantial compaction over the decades of use and infiltration on the property is unlikely to occur in the context of a heavy rainfall event. However, the RI does not address stormwater conveyance at all. 3

Any guidance you can give me concerning Ecology's position on this stormwater issue is greatly appreciated.

Respectfully,

Rick Tappan
University Legal Assistance

Responses to Mr. Tappan's comments:

Response to Comment 1:

The Toxics Cleanup Program had previously consulted with the appropriate Water Quality Program staff regarding the need for an NPDES permit at this site. It is not anticipated that an NPDES permit for the construction of the remedy would be necessary at this site because the construction would be implemented in such a way that no discharge of stormwater to surface water would occur during a storm event. The construction would be completed with the use of stormwater best management practices, including, but not limited to, conducting the construction during the driest portion of the year and not exposing more material than necessary at any one time. The remedy that Ecology determines for the cleanup of this site will include any and all necessary engineered stormwater management features to effectively and completely manage stormwater from the site to meet all applicable, relevant and appropriate requirements. These stormwater features will be designed and identified in the engineering design report that will be developed after the remedy has been determined. If at any time Ecology's Water Quality Program determines that an NPDES construction permit is required, which may depend on which remedy is implemented, the permit will be obtained.

Response to Comment 2:

You are correct in that *if* there were stormwater currently flowing from the site *and* into a surface water body, an NPDES permit would be required. However, in the dozens of site visits to the site made by Ecology personnel (during all seasons of the year), as well as the many years that GeoEngineers and Holcim have been investigating the site, no over-the-ground discharge of stormwater has been identified leaving the site. This is further identified in section 8 of the Remedial Investigation: "Surface water does not appear to be impacted by Site contaminants." Ecology finds this amount of evidence sufficient to determine that an NPDES permit is not currently required at the site.

Response to Comment 3:

As described in the previous responses, the Remedial Investigation and all previous visits to the site have determined that a pathway of stormwater runoff to a surface water body does not exist at this time. Therefore, an NPDES permit is automatically not required. Ecology understands that compaction of the soils at this site may have occurred during its operational history, however compacted soil does not automatically result in an absence of infiltration. In addition, we are not sure how it was ascertained that "infiltration on the property is unlikely to occur in the context of a heavy rainfall event" without, at a minimum, conducting an on-site inspection.

Schmidt, Jeremy (ECY)

From: Jeff Speir [nedc@lclark.edu]
Sent: Friday, February 28, 2014 2:21 PM
To: Schmidt, Jeremy (ECY)
Subject: NEDC Comments on Holcim Site
Attachments: 02-28-2014 NEDC Comments on Holcim Site.pdf

Dear Mr. Schmidt:

Please find attached the comments of the Northwest Environmental Defense Center on the Holcim Site Cleanup. Please let me know if you have any questions. Thank you.

Sincerely,

Jeff Speir

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Northwest Environmental Defense Center
10015 SW Terwilliger Blvd.
Portland, OR 97219
Phone: (503) 768-6726
Fax: (503) 768-6671
Support NEDC

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www.nedc.org

February 28, 2014

VIA EMAIL TO: jeremy.schmidt@ecy.wa.gov

Jeremy Schmidt, P.E.
WA Department of Ecology
Toxics Cleanup Program
4601 N. Monroe St.
Spokane, WA 99205

Re: Comments on Toxics Cleanup Program Holcim, Inc. Site Remedial Investigation and Feasibility Study Reports, Cleanup Site ID: 4580

Dear Mr. Schmidt:

The Northwest Environmental Defense Center ("NEDC") respectfully submits these comments to the Washington State Department of Ecology ("Ecology") regarding the Remedial Investigation Report ("RI") and Feasibility Study Report ("FS") (collectively "RI/FS") detailing contaminant information and cleanup options at a 24 acre site adjacent to the Spokane River owned by Holcim (US) Inc., the City of Spokane Valley, The Neighborhood, Inc. Coyote Rock Development, and Spokane County ("Holcim Site").

NEDC is an independent, nonprofit environmental organization, established in 1969 by a group of professors, law students, and attorney alumni at Lewis & Clark Law School. The organization's members include citizens, attorneys, law students, and scientists. NEDC's mission is to protect the environment and natural resources of the Pacific Northwest by providing legal support to individuals and grassroots organizations with environmental concerns, and by engaging in education, advocacy, and litigation independently and in conjunction with other environmental groups. NEDC's membership includes individuals who visit and recreate near the facility.

The Holcim Site was used for cement manufacturing from 1910 to 1967. From 1970 to 2006, the site was periodically used for storage until the facilities on the property underwent stages of demolishing. As a result of the cement manufacturing operations, the site contains cement kiln dust (CKD) deposits laden with hazardous materials. CKD consists of fine waste removed from cement kiln exhaust gas by an air pollution control device, such as a filter bag. The dust is high in pH and contains heavy metals including arsenic, cadmium, and lead. The Holcim Site's proximity to the Spokane River and Rathdrum Prairie-Spokane Valley Aquifer

poses a threat to the surrounding population and environment.

Cleanup actions for such sites are conducting in compliance with the State of Washington's Model Toxics Control Act (MTCA). WAC 173-340. Ecology began its investigation of the site in 2009. In recognition of the potential threats posed by the CKD so close to the Spokane River, Ecology ranked the site in the category of "greatest threat to human health and the environment." Upon identifying the potentially liable parties, Ecology entered into an Agreed Order and the RI/FS were prepared as a result. GeoEngineers completed the RI on April 29, 2013. Specifically, the RI included analysis of CKD on the Holcim property, CKD on the City of Spokane Valley property, CKD on the Neighborhood Inc., Coyote Rock Development, non-CKD contamination related to the operation of the kiln, the possibility of soil contamination, and the possibility of groundwater contamination. The investigation turned up CKD ranging from five feet thick below the surface up to twenty-five feet thick below the surface. In all, the estimated volume in weight of CKD on all properties is 133, 430 tons. FS at 16. Ecology's investigation further found contaminants in the soil including arsenic, cadmium, lead, volatile organic compounds (VOCs), gasoline, diesel, heavy oil, and polycyclic aromatic hydrocarbons (PAHs). Importantly, the pH from the soil samples was extremely high, measuring over 12.5. Finally, Ecology conducted a groundwater investigation at the Holcim Site. Ten monitoring wells found arsenic, cadmium, and lead in the groundwater. Of particular concern is the arsenic stemming from contact with CKD, which resulted in exceedances in two monitoring wells over the course of the last two years. The groundwater comes into contact with the Spokane River as water flows from the river to the groundwater. 1

The RI preceded the FS, released on November 1, 2013, and the proposed selection of a cleanup action as required by WAC 173-340-350(2). The FS identified five alternatives for Ecology to consider. WAC 173-340-350(8)(a). The alternatives deal with whether to excavate the CKD and contaminated soil, whether to import clean backfill, whether to treat the contamination on-site, whether to relocate the CKD and contaminated soil on site, and whether to put a cap on the contamination. The cleanup options range in cost from approximately $1.6 million to approximately $11.2 million. Holcim ultimately recommended Alternative 5. Alternative 5 sets out to gather all of the CKD and contaminated soil on the site and place it with the CKD on the Holcim Site. It then proposes to cover the CKD and contaminated soil with an engineered cap. Next, it proposes to import clean backfill on the City of Spokane Valley and Neighborhood, Inc. properties. The estimated cost of Alternative 5 is approximately $2 million. Finally, Alternative 5 would impose a restrictive covenant on the deed for the covered CKD portion of the site with long-term compliance monitoring. FS at 17.

2 In assessing the impact of the selected alternative, it is crucial that Ecology selects the course of action that is most protective of human health and the environment and that uses permanent solutions to the maximum extent practicable. Pursuant to the MTCA, the selected action must consider public concerns. WAC 173-340-360(2)(b)(iii). Particularly, Ecology has a duty to consider "[w]hether the community has concerns regarding the alternative and, if so, the extent to which the alternative addresses those concerns." WAC 173-340-360(3(f)(vii). For the preceding concerns and following reasons, NEDC requests that Ecology reconsider the RI/FS and the selection of Alternative 5 before it develops and drafts a Cleanup Action Plan.

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Discussion

I. Alternative 5 fails to adequately protection human health and the environment.

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By its own admission, Alternative 5 does not provide the most protection to human health and the environment. Alternatives 1 and 2 are more protective than Alternative 5. FS at 22. Though not dispositive in the alternatives selection process, the importance of meeting the primary threshold requirement for cleanup actions, when other alternatives are undeniably more protective, cannot be overstated. WAC 173-340-360(2)(a)(i). This acceptance of a third or fourth most protective alternative exacerbates community concerns stemming from the Holcim Site's close proximity to the Spokane River and connection to it through groundwater. The selected action alternative should appropriately weigh the importance of meeting the most basic goal in the selection of cleanup actions. Compared to Alternatives 1 and 2, Alternative 5 does not adequately protect human health and the environment.

II. The Alternatives are not equal in benefits, so the less costly alternative should not be selected.

5

Alternatives 1 and 2 would provide an unquestionably higher level of protection to human health and the environment. Alternative 1 proposes to excavate CKD and contaminated soil, transport the polluted materials to approved Subtitle D facilities, and backfill excavated areas with clean material. FS at 15. Alternative 2 proposes to excavate and stabilize high pH CKD on the site (to remove the dangerous waste designation), excavate the contaminated soil from the site, transfer both to an approved Subtitle D facility, and backfill excavated areas with clean material. *Id.* Costs aside, the FS reports that Alternatives 1 and 2 provide more environmental benefits than Alternatives 3, 4, and 5. FS at 22-23. The chart on page 22 of the FS, however somehow quantifies Alternative 1 and 2's environmental benefits lower than Alternatives 4 and 5. This numerical conclusion is difficult to understand considering that Alternatives 1 and 2 achieve the highest marks in all non-cost categories. Therefore, the FS inappropriately dismisses Alternatives 1 and 2 in its application of WAC 173-340-360(e)(ii)(C)'s comparison of costs and benefits.

The MTCA employs a "Disproportionate cost analysis" in analyzing the appropriate action to take in cleanup actions. WAC 173-340-360(3)(e). Where costs are disproportionate to benefits achieved by the selected alternative, such an alternative shall not be selected. WAC 173-340-360(3)(e)(i). The test states that "[c]osts are disproportionate to benefits if the incremental costs of the alternative over that of a lower cost alternative exceed the incremental degree of benefits achieved by the alternative over that of the lower cost alternative." *Id.* The FS summarily decides that Alternative 5 meets this test without mentioning the specific, incremental benefits that weigh in its favor. FS at Table 6. The simple yes/no dichotomy fails to account for incremental costs and incremental benefits between the alternatives. Alternative 5, at an estimated cost of $1,979,601 is not the least cost alternative. Alternative 3's estimated cost is $1,618,620. However, Alternative 5 is decidedly less costly than the most expensive alternative, Alternative 1. Nowhere in the FS's analysis is there discussion of incremental costs and benefits that weigh in Alternative 5's favor over, for instance, the minimal and environmentally undesirable Alternative 3 (leaving CKD and contaminated soil in place and placing a cap on all

6

locations). For its failure to account for incremental costs and incremental benefits specifically, the selection of Alternative 5 must be reconsidered.

III. Alternative 5 is not a "permanent cleanup action" and fails to use permanent solutions to the maximum extent practicable.

7 The FS purports to provide "an appropriate range of permanent cleanup actions for contaminated soil at the site." FS at 15. In fact, only Alternatives 1 and 2 are permanent cleanup actions. MTCA defines "Permanent cleanup action" as "a cleanup in which cleanup standards of WAC 173-340-700 through 173-340-760 can be met without further action being required at the site being cleaned up for any other site involved with the cleanup action, other than the approved disposal of any residue from the treatment of hazardous substances." WAC 173-340-200. Because Alternative 5 imposes no total removal or total treatment of contamination on the site, further actions will be necessary. Alternative 5 provides for "long term compliance monitoring" and a "restrictive covenant […] on the deed" for the Holcim property. As such, Alternative 5 is not a "permanent cleanup action."

8 Again, Alternatives 1 and 2 would provide more permanent solutions than Alternative 5. FS at 23. Alternatives 1 and 2 provide for removal of contamination from the site and clean filling of soil to replace it. Further, Alternative 2 proposes to treat the soil on-site, so it is the most permanent because it "includes toxicity reduction." FS at 23. In analyzing that Alternatives 1 and 2 would have more long-term effectiveness than the remaining three alternatives, the FS admits that there are more permanent solutions available and practicable. Accordingly, Ecology should reconsider the proposed selection of Alternative 5 in favor of a more permanent, long-term solution.

IV. Alternative 5 does not prevent or minimize future releases and migration CKD and contaminated soil in the environment.

9 Related to its impermanence, Alternative 5 will not "prevent or minimize present or future releases and migration of hazardous substances in the environment." WAC 173-340-360(2)(f). Simply relocating CKD and contaminated soil from one location at the site to another and covering said contaminated materials with a cap will not prevent the possibility of future releases of arsenic, cadmium, and lead. Alternative 5 will similarly not minimize present or future releases when there are more protective alternatives available. Alternative 5's proposed solution cannot represent minimization of the threat of future releases compared to Alternative 1 and 2's proposed solutions of removing contaminated soil and replacing it with clean soil. This could be particularly detrimental because the substances at issue are dust and soil, which are highly susceptible to displacement by air or water, respectively. Because the proposed selected alternative fails both prevent and minimize future releases into the environment, Alternative 5 should not be selected.

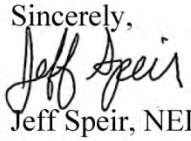
V. Alternative 5 cannot rely on institutional controls such as deed restrictions and monitoring when more permanent solutions are available.

10 Crucially, WAC 173-340-360(2)(e)(iii) states, "[i]n addition to meeting each of the minimum requirements specified in this section, cleanup actions shall not rely primarily on institutional controls and monitoring where it is technically possible to implement a more permanent cleanup action for all or a portion of the site." Alternatives 1 and 2, as described above, represent precisely the "more permanent cleanup action[s]" contemplated by the MTCA provision. Alternative 5 proposes to rely on a restrictive covenant on the deed for the Holcim property to limit what actions future landowners can take and what structures they may erect and long term compliance monitoring of the cap installed to cover the contaminated soil. FS at 17. Despite stating otherwise in the FS, these institutional controls are the primary means by which the Holcim Site will avoid future cleanup needs. FS at 13-14. Further, the requirement is a technical availability of more permanent cleanup actions (with no mention of cost). Alternatives 1 and 2 meet such a technical requirement for a permanent solution that does not primarily rely on institutional controls. As such, Ecology should reconsider the proposed selection of Alternative 5 over Alternatives 1 and 2.

Conclusion

11 For its failure to adequately protect human health and the environment, the availability of superior benefits in other alternatives, the failure to be a "permanent cleanup action," inability to prevent or minimize future releases, and primary reliance on institutional controls for compliance, Ecology should reconsider Alternative 5 as the proposed cleanup action for the Holcim Site. Thank you for your consideration of these comments.

Sincerely,



Jeff Speir, NEDC Law Clerk

Responses to NEDC's comments:

Response to Comment 1:

Please note that the Remedial Investigation and Feasibility Study were conducted by GeoEngineers on behalf of the Holcim Inc. Site Potentially Liable Persons (PLPs). Ecology provided regulatory oversight to the RI/FS process, but this work would not accurately be identified as "Ecology's investigation" or "Ecology's Feasibility Study."

Response to Comment 2:

Please note that the FS, which was developed by GeoEngineers on behalf of the PLPs, *proposed* an alternative, and that Ecology has not developed the Draft Cleanup Action Plan which *will select* a final cleanup remedy for the site. After Ecology develops the Draft Cleanup Action Plan, the plan will be subject to public review and comment.

The Model Toxics Control Act does not allow for the selection of "the course of action that is most protective of human health and the environment and that uses permanent solutions to the maximum extent practicable" if:

There is another alternative that meets the minimum requirements for cleanup actions outlined in WAC 173-340-360 and if;

The incremental costs of the alternative over that of a lower cost alternative exceed the incremental degree of benefits achieved by the alternative over that of the other lower cost alternative.

Please note, however, that while the PLPs conducted their own evaluation process, Ecology will conduct its own evaluation during the development of the Draft Cleanup Action Plan.

Response to Comment 3:

Comment noted.

Response to Comment 4:

The commenter indicates that "Compared to Alternatives 1 and 2, Alternative 5 does not adequately protect human health and the environment." The protectiveness of each alternative is required to be evaluated on its own merit (see WAC 173-340-360). There could be many remedies proposed for a given cleanup site that meet the minimum requirements for protectiveness as described in MTCA. The comment indicates that Alternative 5 is not adequately protective, however specific examples were not provided to demonstrate why Alternative 5 is not protective.

Response to Comment 5:

The chart on page 22 does indicate that alternatives 1 and 2 do not have as high of an environmental benefit as alternative 5. This is because "environmental benefit" considers high cost a detriment to the calculation. This figure is the PLP's graphic to show that, in their opinion, the incremental costs of alternative 1 over that of alternative 5 exceeds the incremental degree of benefits achieved by alternative 1 over that of alternative 5.

With regards to the language in WAC 173-340-360(3)(e)(ii)(C), assuming the comment is referring to "Where two or more alternatives are equal in benefits, the department shall select the less costly alternative provided the requirements of subsection (2) of this section are met", according to MTCA, having a low cost is a benefit which must be considered. Again, note that the FS presents the PLP's disproportionate cost analysis and Ecology will conduct its own evaluation during the development of the Draft Cleanup Action Plan.

Response to Comment 6:

The comment identifies Table 6 as a simple yes/no evaluation tool. That is not an accurate assumption. Table 6 identifies whether or not each alternative meets the minimum threshold criteria and would therefore be a viable candidate for evaluation and comparison. The commenter also indicates that the FS and presumably Table 6 does not identify incremental costs and incremental benefits between the alternatives. Again, this does not appear to be the case. The comparison of incremental costs and benefits is imbedded in part 3 of Table 6, titled "Disproportionate Cost Analysis Relative Benefits Ranking" and discussed in Section 7 of the FS text.

Response to Comment 7:

Long-term monitoring and restrictive covenants are not considered "further actions" and their application at a site does not result in the determination that a remedial action is not permanent as long as long-term monitoring and restrictive covenants are not the only actions required by the remedy. Where these tools are applied, they are considered part of the final remedial action and are integral to a significant portion of environmental cleanups throughout Washington State.

Response to Comment 8:

Ecology concurs with your statement that Alternatives 1 and 2 would provide for a more permanent solution than Alternative 5. Please note that according to Table 6, the PLPs also ranked Alternatives 1 and 2 as being more permanent solutions than the other alternatives.

Response to Comment 9:

The comment indicates that "Simply relocating CKD and contaminated soil from one location at the site to another and covering said contaminated materials with a cap will not prevent the possibility of future releases of arsenic, cadmium, and lead." The function of a properly designed and installed engineered

cover system is to prevent the release of and exposure to the material that it covers. This remedial technology is widely utilized across the country and has proven to be effective when properly designed and installed.

The commenter also indicates that "Alternative 5 will similarly not minimize present or future releases when there are more protective alternatives available" and "Alternative 5's proposed solution cannot represent minimization of the threat of future releases compared to Alternative 1 and 2's proposed solutions of removing contaminated soil and replacing it with clean soil." Ecology does not concur that the availability of other remedial alternatives effects or alters the ability of Alternative 5 to be a successful remedial alternative. The function of a properly designed and installed engineered cap is to prevent the release of and exposure to the material that it covers, which would include the material's exposure to air and water.

Response to Comment 10:

- None of the proposed cleanup actions "rely primarily on institutional controls and monitoring" as implied by the commenter.
- Ecology agrees that Alternatives 1 and 2 are more permanent solutions.
- Institutional controls are *not* the primary means by which the Holcim Site will avoid future cleanup needs if Alternative 5 were selected. The removal of CKD from the City's property (where CKD is in contact with groundwater), the removal of CKD and contaminated soil from the Neighborhood Inc. property, and the installation of an engineered cap on Holcim's property would be the primary means by which the Holcim Inc. Site will avoid future cleanup needs. Institutional controls would be implemented to prohibit activities that may interfere with the integrity of the aforementioned actions.
- MTCA does not allow Ecology to ignore cost and always select the most permanent cleanup alternative. That is why MTCA requires a disproportionate cost analysis.
- Again, Alternative 5 does not rely primarily on institutional controls.

Response to Comment 11:

See previous responses for Ecology's response to "For its failure to adequately protect human health and the environment, the availability of superior benefits in other alternatives, the failure to be a "permanent cleanup action," inability to prevent or minimize future releases, and primary reliance on institutional controls for compliance." However, Ecology does note and will consider the NEDC's objection to the application of Alternative 5 at the Holcim Inc. Site.

Schmidt, Jeremy (ECY)

From: Yount, Vicki [vyount@lawschool.gonzaga.edu]
Sent: Friday, February 28, 2014 2:55 PM
To: Schmidt, Jeremy (ECY); Schmidt, Jeremy (ECY)
Cc: Tappan, Richard; Crawford-Heim, William; Rick Eichstaedt
Subject: Comment on Holcim Site
Attachments: Schmidt Jeremy - Comment on Holcim Site - 022814 rke.pdf

Good Afternoon, Mr. Schmidt

See attached letter regarding the above. Please let me know if you have difficulty opening the attachment.

Thank you.

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February 28, 2014

VIA U.S. Mail and Email to:
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Jesc461@ecy.wa.gov

Jeremy Schmidt, P.E.
Cleanup Site Manager, Holcim Inc.
WA Department of Ecology
4601 N. Monroe
Spokane, Washington 99205

RE: Comment on Holcim Site

Dear Mr. Schmidt:

This letter is sent on behalf of the Spokane Riverkeeper, The Lands Council, and Spokane Falls Trout Unlimited on the Remedial Investigation and Feasibility Study ("RI/FS") Reports for the Holcim, Inc. Site ("Holcim").

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

The Lands Council is a not-for-profit conservation group dedicated to protecting the quality of life and the environment in the Inland Northwest. The Lands Council is concerned about the environment's effect on people's health and works to protect thousands of acres of public land in order to maintain a clean and healthy environment. These lands include forests, water, and wildlife, including but not limited to the Spokane River Watershed. The Lands Council collaborates with a broad range of interested parties including communities, businesses, recreational groups, government agencies, and elected officials to seek smart and mutually respectful solutions to environmental issues. When necessary, The Lands Council uses litigation to protect forests and waters on behalf of its members and the public. The Lands Council seeks to enforce environmental rules necessary to ensure a clean and healthy environment.

The Spokane Falls Chapter of Trout Unlimited is a non-profit with a mission to conserve, protect and restore North America's coldwater fisheries and their watersheds.

The Holcim site is comprised of approximately 24 acres of land owned mainly by Holcim, Inc., and in part by the City of Spokane Valley. The site is near a shoreline of statewide significance (the Spokane River) as defined and governed by the Shoreline Management Act (SMA) 90.58 RCW, and as defined

and regulated in the 2013 Spokane County Shoreline Master Program (SMP) through its authority under 173-26 WAC, 173-27 WAC, and as addressed in Section 10.2(3) and Section 2(2.12) of the SMP. Through the RI/FS, around 125,000 cubic yards of soil at Holcim was found to contain arsenic, cadmium, and lead at levels greater than the standards allowed through the Model Toxics Control Act ("MTCA"). Holcim also has shown to have high pH levels, which is characterized as dangerous waste pursuant to 173-303 WAC. Additionally, groundwater beneath the site was found through the RI/FS to contain arsenic at levels higher than allowed through MTCA. These contaminants are a result of the cement kiln dust ("CKD") that Holcim produced during its operations.

Ecology has called for a cleanup of the contaminants at Holcim. Through its feasibility study ("FS"), Ecology identified five remedial alternatives ranging from complete removal of the contaminated soil to a capping of the contaminated soil or a hybrid of the above options. 1

In its FS, Ecology endorsed alternative 5, which included the following:

- Remove CKD from the City property (Area B) and place on the Holcim property (Area A). The City property will be backfilled and covered with topsoil and hydro seeded. This would reduce the potential for metals, particularly arsenic, to leach into groundwater.
- Remove contaminated material from the smaller, scattered areas on the Holcim and Neighborhood, Inc. properties (Areas C and D) and place on the Holcim property (Area A). This will reduce the potential for dermal contact with metals on the Neighborhood Inc. property and metals and other contaminants on the Holcim property. The excavations on the Neighborhood Inc. property will be backfilled to grade and restored to current conditions.
- The combined contaminated material would be placed with the current Holcim CKD area (Area A), then capped with about one foot of gravel material and six inches of topsoil, which would be hydro seeded. The Holcim site would remain fenced and secured.
- This alternative would result in long-term groundwater monitoring and cap inspection because contamination remains on site. For cost comparative purposes, groundwater monitoring will be conducted quarterly for one year following completion of the remedial action, then annually for an additional 24 years (25 years total). Cap inspection would be conducted quarterly for 25 years. A restrictive covenant would be placed on the deed to the Holcim property.

As the RI/FS stands at this time, we also endorse option 5, but with modifications. These modifications are listed below (in bold, replacing the strikethrough text to be omitted):

- Remove CKD from the City property (Area B) and ~~place on the Holcim property (Area A).~~ **transport it to the approved Subtitle D Landfill Facility in Arlington, Oregon.** The City property will be backfilled and covered with topsoil and hydro seeded. This would reduce the potential for metals, particularly arsenic, to leach into groundwater. 2
- Remove contaminated material from the smaller, scattered areas on the Holcim and Neighborhood, Inc. properties (Areas C and D) and ~~place on the Holcim property (Area A).~~ **transport it to the approved Subtitle D Landfill Facility in Arlington, Oregon.** This will reduce the potential for dermal contact with metals on the Neighborhood Inc. property and metals and other contaminants on the Holcim property. The excavations on the Neighborhood Inc. property will be backfilled to grade and restored to current conditions. 3
- The ~~combined contaminated material would be placed with the current~~ Holcim CKD area (Area A)~~, then~~ **would be** capped with **an impermeable compact clay cap,** about one foot of gravel 4

material and ~~six inches~~ **six feet** of topsoil, which would be hydro seeded. **Native vegetation would be reintroduced and maintained upon the Holcim CKD area.** The Holcim site would remain fenced and secured.

- This alternative would result in long-term groundwater monitoring**, cap stormwater engineering controls,** and cap inspection because contamination remains on site. ~~For cost comparative purposes, groundwater monitoring will be conducted quarterly for one year following completion of the remedial action, then annually for an additional 24 years (25 years total). Cap inspection would be conducted quarterly for 25 years.~~ **Groundwater monitoring and cap inspection would be conducted quarterly and run with the land in perpetuity.** A restrictive covenant would be placed on the deed to the Holcim property.

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- **All remedial actions will be in compliance with the Spokane County Critical Areas Ordinance and the Spokane County Shoreline Master Program.**

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Our endorsement, however, comes with a significant caveat. As currently envisioned, none of the presented alternatives are adequate based on the areas exhibiting detections above clean-up criteria for metals in the western and southern areas of the facility. The proposed alternative (option 5) does not address these areas, nor has the RI adequately delineated the vertical or horizontal extent of the reported exceedances (as detailed in the comments below). It addition, the proposed alternatives with caps do not incorporate an impermeable layer that will sequester CKD from interaction with atmospheric rainwater, with the potential to mobilize inorganics and reduce surface or shallow groundwater quality. In the absence of further investigation by Ecology of Holcim, we are limited in providing our full endorsement to any of the options presented in the FS until Ecology acknowledges the RI for its insufficiency and expands the scope and thoroughness of both the RI and FS accordingly. The comments below provide the basis for our request to address and expand both the RI and FS.

Ecology's mission is to "protect, preserve and enhance Washington's environment, and promote the wise management of our air, land, and water for the benefit of current and future generations." Our goals are not dissimilar. With regard to Holcim, we believe it is essential that the contaminants are neutralized in such a manner that they will no longer pose a threat to the health and human safety of the citizens of Spokane County as well as the environment in the immediate and distant future. Where generally, removal of the soil containing the contaminants would be the most effective method of ensuring this goal, Holcim provides a unique opportunity to rehabilitate an area of Spokane Valley back to its natural habitat through other methods. If Ecology will consider a modification of its options as presented through its feasibility study, a positive sum situation may develop where the interests of Ecology, Holcim, Spokane Valley, and our interests can be effectuated in an efficient and cost-effective manner.

Our primary concerns about Holcim revolve around the following:

1. Ecology's absence in the RI to address stormwater;
2. Ecology's failure to collect soil samples directly downwind of the CDK piles;
3. Inadequate soil sampling by Ecology in areas of potential contamination;
4. Ecology's failure to consider the Spokane County Shoreline Master Program ("SCSMP") within its FS;
5. Ecology's option within the FS to remove the soil located on the Spokane Valley property and add it to the contaminated soil on Holcim's property;
6. The quality of the impermeable cap Ecology will use to cover the contaminated soil;

7. The need for stormwater engineering controls;
8. The amount of gravel material and topsoil used to cover the cap;
9. The method and duration of the long-term groundwater monitoring;
10. The type of restrictive covenant that would be put upon the Holcim land;
11. The vegetative rehabilitation to the land after the contaminants are neutralized; and
12. The consideration of alternatives not yet discussed in the FS.

1. Stormwater and Critical Areas 7

The RI prepared by GeoEngineers had exactly one sentence concerning site-specific stormwater: "CKD deposits on the Holcim and City properties are exposed at the surface, which could result in transport via stormwater and windborne dust."[1] Ecology has acknowledged that a large pile of known pollutant is located on the former Holcim property, is exposed to stormwater, and is surrounded by the Spokane River on three sides; it would seem reasonable for Ecology to conduct an investigation into whether point source discharge is occurring into surface waters or storm drains.

WAC 173-340-350 (Scoping and Content of Remedial Investigation and Feasibility Study) states that the content of the RI shall include a field investigation that addresses surface water, sediments, and air (among others) as well as be in compliance with other laws (350(9)(b). The RI does not contain any discussion of whether an NPDES permit is appropriate for the site, nor does the RI determine where stormwater that contacts the CKD piles accumulates and drains. While we have been informed that native soils may drain freely, this was a former industrial facility that has had substantial compaction over the decades of use and infiltration on the property is unlikely to occur in the context of a heavy rainfall event. However, the RI does not address stormwater conveyance at all. A survey of possible point source discharges should be undertaken including storm sewers and any pathway for rainwater contacting CKD on site such that a determination can be made whether an NPDES permit is appropriate based on the pollutant piles that are exposed to atmospheric precipitation and are surrounded on three sides by the Spokane River.

See EPA Guidance for more information as to whether closed facilities need to maintain an NPDES permit (Q&A number 72): http://www.epa.gov/npdes/pubs/owm0114.pdf.

An additional consideration arises from the Spokane County Critical Areas Ordinance ("CAO") which has the purpose "[t]o protect the public health, safety and welfare by preserving, protecting, restoring and managing through the regulation of development and other activities within wetland, fish and wildlife habitat conservation areas, geologically hazardous areas and critical aquifer recharge areas."[2] Within the CAO, critical aquifer recharge areas are defined as **"a**reas where there is an aquifer that is a source of drinking water that is vulnerable to contamination that would affect the potability of the water (WAC 365-190-030). The CAO identifies the development regulations for areas impacting critical aquifer recharge areas at § 11.20.075.

Mr. Schmidt from Ecology identified that the location of the Holcim Site was at a location where the Spokane River/Spokane Valley-Rathdrum Prairie Aquifer interchange was a "losing reach" of the

[1] Remedial Investigation, Holcim Site, prepared by GeoEngineers, at page 32. April 29, 2013.
[2] *See Spokane County, Washington Critical Areas Ordinance* § 11.20.010(C)(1) pp. 1-2 (March 22, 2011) for the general purpose and intent of the CAO.

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Aquifer at two points that coincide with the stormwater runoff paths of the Holcim Site. This means that stormwater runoff has the potential to enter into the Spokane River at a point where the Spokane River directly feeds the Aquifer. The RI/FS has identified that the Holcim Site has a site hazard assessment of 1 - the highest ranking given with regard to the potential danger to human and environmental impact.

We believe that it is imperative that the RI reflect the potential impact of stormwater as it relates to Holcim at large and its interaction with the Spokane River and Aquifer, and that Ecology should re-tailor its RI to address the impacts of stormwater upon the environment and public safety. We also believe that Ecology should expressly consider the CAO with regard to the uses and activities regulated under the CAO for critical aquifer recharge areas.

2. Downwind Soil Samples 8

Ecology did not collect soil samples downwind (northeast) of the CKD piles to address potential contamination resulting from the prevailing wind direction. Ecology's failure to do so was despite historical evidence that CKD was observed on the northwest side of the river (which is not the prevailing wind direction). If CKD was a nuisance to the landowner, who owned up to the river to the northwest of the Holcim property, it is logical that CKD would also be present in the prevailing wind direction to the northeast and soil samples should be collected to determine whether soil impacts exist that are likely to degrade surface water quality. The area in question northeast of the Holcim facility is a sharp bend in the Spokane River and is comprised of 100-year floodplain deposits. The depth to water in this vicinity is shallow and the probability of flooding is high and thus if CKD deposits or metals-impacted soils are present on the lands downwind of the facility, sample collection and delineation of those impacts would help towards protecting the water quality of the Spokane River. The predominant wind direction was identified in the November 18, 2011, RI Workplan prepared by GeoEngineers (Page 8) and confirmed during the February 13, 2014, RI public information meeting coordinated by Mr. Schmidt, spokesperson for the Department of Ecology.

Mr. Schmidt from Ecology commented that soil samples along the downwind floodplain northeast of the Holcim property were not collected due to contamination from the mine tailings in Idaho, whereby distinguishing between metals exceedances attributable to the Holcim CKD versus exceedances from Idaho mine tailings could be difficult. However, this discounts the idea of background sampling and site-specific sampling. If there are impacts to the floodplain deposits from Idaho, they will not vary considerably in the stretch of river that is downwind from the Holcim facility versus further upriver and sufficiently east of the facility to not be directly downwind from Holcim. Thus sediment and soil samples should be collected downwind from the facility since P. 32 of the RI commented that "CKD deposits on the Holcim and City properties are exposed at the surface, which could result in transport via stormwater and windborne dust." If windblown dust is a potential migration pathway now, then when the facility was operating from 1910 until 1967, the potential for transport downwind of CKD dust and accumulation on the topographically-lower riverbanks is likely and inorganic impacts to floodplain samples should be addressed since, if present, would contribute to lower surface water and groundwater quality.

The RI Workplan, submitted to Department of Ecology by GeoEngineers on November 18, 2011, states on Page 8 that Phase I of the RI investigation shall include an "[a]ssess[ment of] the potential for wind-borne CKD contamination on the north side of the Spokane River generally northeast (downwind) of the Site. Two shallow (3-foot deep) soil borings will be hand-augered. A representative sample will be

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collected from each boring and submitted for laboratory analysis of arsenic, cadmium, lead, and pH." This was not done as per the workplan. Instead, two shallow hand-auger samples were collected northwest and across the Spokane River, which is not downwind in the prevailing wind direction.

We believe that the RI should be amended to address the prevailing wind's migration pathway and potential contamination of the shoreline and land beyond the bank of the Spokane River northeast of Holcim.

3. Inadequate Soil Sampling 9

The RI Figures 7[3] and 8[4] draw closed isoconcentration lines around several soils sample locations. It is not possible to delineate an area of soil contamination by having one soil sample location with an exceedance for a constituent of concern and draw a closed line representing the total extent of the soil contamination. When concentrations are well below free-phase and not observable to the human eye, and when discerning the horizontal and vertical extent of a constituent detection with one soil sample location is not possible, a one sample interval from a soil boring location is insufficient since vertical delineation cannot be achieved if the one sample collected exhibits an exceedance of the clean-up criteria.

In scoping the RI, the WAC calls for areal and vertical delineation which is likely to affect the cleanup alternative selected:

> **WAC 173-340-350(7)(c)(iii)(B)** *Investigations to adequately characterize the areal and vertical distribution and concentrations of hazardous substances in the soil due to the release. Properties of surface and subsurface soils that are likely to influence the type and rate of hazardous substance migration, or which are likely to affect the ability to implement alternative cleanup actions shall be characterized.*
>
> **and WAC 173-340-350(7)(c)(iii)(G)** *A description of and sufficient sampling to define the location, quantity, areal and vertical extent, concentration within and sources of releases. Where relevant, information on the physical and chemical characteristics, and the biological effects of hazardous substances shall be provided.*
>
> The following are specific examples of insufficient sampling within the RI:

3A RI Figure 8 depicts closed isoconcentration contours for metals exceedances around DP-57 (1-2' bgs arsenic 21.5 mg/kg) and DP-60 (8-9' bgs Arsenic 40.7 mg/kg). There are two other borings in the linear vicinity: DP-58 and DP-59. However, DP-58 was samples at 4-4.5' bgs and DP-59 was sampled 8-9' bgs. There is no indication that closed isoconcentration contours are appropriate for DP-57 or DP-60 based on the lack of horizontal and vertical delineation that is called for in WAC 173-340-350(7)(c)(iii)(B) and (G).

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[3] *See* Remedial Investigation, Holcim Site, prepared by GeoEngineers, Figure 7, Approximate Limits of CKD at page 61. April 29, 2013.
[4] *See* Remedial Investigation, Holcim Site, prepared by GeoEngineers, Figure 8, Approximate Limits of Metals Contamination Greater than MTCA Method A Cleanup Levels at page 62. April 29, 2013.

There are no soil boring adjacent to DP-57 through DP-60 and each of these soil borings is adjacent to the Holcim property boundary. Similarly, DP-21 and DP-22 were collected during the 2007 investigation and the only samples that were collected were: 5' bgs and 12-13' bgs in DP-21; and 5' bgs and 15' bgs in DP-22. These sample depths do not correspond to the exceedance in DP-60, thus making vertical and horizontal delineation of the arsenic impacts in DP-57 and Dp-60 unlikely as currently shown on Figure 8. We do not see how Ecology can delineate the impacts of metals contamination when two of the four borings exhibit arsenic exceedances in completely different sample collection intervals and the only adjacent direct push borings (DP-58 and DP-59) were not sampled in the same vertical intervals, nor do they surround DP-57 and DP-60 thus making a determination of isoconcentration impossible without further areal and vertical delineation. Additional samples in the vicinity of DP-57 and DP-60 should be advanced to horizontally and vertically delineate the observed arsenic exceedance and identify the extent of the arsenic-contaminated soil in the area.

3B Similar to comment 3A, DP-82 exhibited an exceedance of cadmium (2.19 mg/kg) that was vertically delineated by upper and lower sampled depths; however, no horizontal delineation occurred in the vicinity. While direct push borings were advanced surrounding DP-82, no samples for laboratory analysis were collected from DP-74, DP-94, DP-95, DP-92, DP-101, DP-107, DP-107b, or DP-108. Additionally, DP-93 was sampled at 13 – 13.7' bgs for cadmium but not for arsenic or lead (which are two constituents of concern at the site). Thus the closed isoconcentration line depicted on Figure 8 is not supported by evidence suggesting a limitation of cadmium to the vicinity of DP-82 and as per WAC 173-340-350(7)(c)(iii)(B) and (G), to make the determination of horizontal and vertical extent of the contaminants, additional data points are necessary. Additional samples should be collected in the vicinity of DP-82 to determine the horizontal extent of the cadmium exceedances in CKD and native soils.

3C Both MW-7 and MW-8 have closed isoconcentration contours around the sample locations and both samples exhibit exceedances of arsenic (MW-7 12.5-13.25' bgs Arsenic 20.5 mg/kg; MW-8 12.5-14' bgs Arsenic 20.1 mg/kg). However, there are no sample collection points between MW-8 and the Spokane river so as to conclude that the arsenic concentration observed in the sample collected from 12.5-14' bgs is limited to the direct vicinity of MW-8 either horizontally or vertically. Similarly, only one sample was collected between MW-7 and the Spokane river (MW-6 10-11' bgs Arsenic 13.3 mg/kg), however that sample was collected stratigraphically higher than the MW-7 sample (12.5-13.25' bgs) on terrain that is depicted as being relatively level (Figure 12 has MW-7 and MW-6 on the 1935' contour with a 2-foot contour interval).

WAC 173-340-350(7)(c)(iii)(G) specifies that the RI will horizontally and vertically delineate the contaminants on the subject property, and the lack of borings down topographic gradient between the CKD pile and the Spokane River (since we are talking about unsaturated soils, not saturated soils where the arsenic may be attributable to groundwater flow) are not adequate to close the isocontours around either of these well locations for the purpose of determining extent of contamination horizontally and vertically. Ecology should advance additional borings for horizontal and vertical delineation of the observed metals exceedances such that an appropriate remedy for removal/sequestration can be fashioned.

3D Similar to comments 3A, 3B, and 3C, the closed isocontour surrounding the metal exceedances detected in soil samples Dp-25, DP-66, and DP-67 is not supported by the evidence provided. Specifically, DP-24, DP-25, G-2, G-3, and G-4 were each sampled for arsenic but not for cadmium or lead (which are constituents of concern at the facility). Each of the above-referenced

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sample locations exhibited exceedances of arsenic, yet the isocontour only surrounds DP-25, DP-66, and DP-67. The analytical results from the RI Table 4 and Appendix A Table A-1 are as follows: DP-25 (5' bgs As 172 mg/kg); DP-24 (5' bgs As 160 mg/kg), G-2 (2' bgs As 219 mg/kg); G-3 (2' bgs As 101 mg/kg); G-4 (2' bgs As 28.9 mg/kg); DP-66 (0.5-1.5' bgs As 61.3 mg/kg); and DP-67 (1-2' bgs As 41.4 mg/kg).

As Figure 8 indicates, the isoconcentration line is incorrectly drawn and does not account for the exceedances in DP-24, G-3, or G-2. Additionally, vertical and horizontal delineation of arsenic impacts in the vicinity are not supported by adequate sample collection since the soil samples were collected adjacent to the southern property boundary of the Holcim facility and surrounding samples below clean-up criteria have not been collected to allow an isoconcentration line to be drawn as currently depicted on Figure 8. Additional samples should be collected both horizontally and vertically surrounding the borings exhibiting exceedances of arsenic. Further, samples should be analyzed for cadmium and lead since those are constituents of concern at the facility and were not evaluated with previous sampling events.

4. Spokane County Shoreline Master Program Considerations

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The Spokane County Shoreline Master Program ("SCSMP"), as promulgated under 90.58 RCW, the Shoreline Management Act of 1971 (SMA), WAC 173-26, and WAC 173-27, governs the area up to 200 feet from the shorelines of Spokane County. Holcim, including the contaminated City of Spokane Valley land, is, in part, within this 200-foot area. Per the SMA, the Spokane River is a shoreline of statewide significance and has special and unique goals associated with its protection.[5]

Ecology has failed to consider the SCSMP with regard to the Holcim Site. The SCSMP adds an extra layer of protection with regard to land use, shoreline impact, and rehabilitative actions that deserve consideration when assessing the FS options.[6] Resultantly, the FS is an incomplete assessment of options as they pertain to the regulations governing Holcim. We request that Ecology expressly considers the SCSMP and appropriately modifies its actions to reflect that consideration.

5. Removal of the Soil on the Spokane Valley Property

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There is approximately 12,300 cubic yards of contaminated soil upon Spokane Valley property. Given its proximity to the Spokane River and its contamination level, Ecology has indicated that it is imperative that the contaminated soil be removed. We request that Ecology does not add this soil to the contaminated soil at the Holcim, Inc. site, but instead ships it to the approved dangerous waste landfill in Arlington, Oregon. By doing so, the Holcim, Inc. site will not be disturbed, the land will not be elevated beyond the cap and fill that is being considered as one of the remedial options, and the concentration of contaminants at the Holcim site will not compounded.

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[5] *See Spokane County Shoreline Master Program* § 2.12, pp. 9-10 (Effective: Jan. 22, 2013) for a list of these goals.

[6] *See Spokane County Shoreline Master Program* § 2, p. 3-10 (Effective: Jan. 22, 2013) for Goals and Policies for Shorelines in Spokane County; § 3 at pp. 11-16 for Shoreline Environment Designations and Management Policies; § 4 at pp. 17-22 for Shoreline Protection and Restoration; § 5 at pp. 23-54 for Use Regulation; and § 7 for Variances and Conditional Uses.

6. Impermeable Cap 12

Due to the unconsolidated and reactive nature of CKD at Holcim, an impermeable cap is appropriate to reduce the atmospheric water contact that will, over time, leach inorganic constituents out of the CKD and into shallow groundwater and the adjacent Spokane River. A compacted clay liner would be an appropriate sub-layer within the contemplated cap that would not appreciably increase the cap construction costs but provide meaningful separation between the CKD and acidic atmospheric waters and reduce the off-pile transport of inorganic constituents into down gradient shallow groundwater and the Spokane River.

7. Cap Stormwater Engineering Controls 13

Precipitation events in Eastern Washington are difficult to predict but not difficult to prepare for if engineered properly. As currently envisioned, the cap would not include any proactive stormwater management features. Since the final CKD mound is anticipated to have an elevation gain of over forty feet from the surrounding floodplain, it is likely that stormwater, if not channeled and engineered during design, and without proper maintenance over the life of the cap, will reduce the effectiveness of the cap and could result in cap failure. Engineering controls in the form of detention ponds, swales, and other diversion and water management control would increase the health of the cap as well as extend the life of the cap. While maintenance will be required to keep unwanted vegetation from taking hold on the cap during post-closure, including additional resources to ensure that stormwater is properly managed will increase the effectiveness of the cap design and decrease the likelihood of rills, channelization, and CKD exposure and loss to surface water bodies as a result of heavy stormwater events.

8. Gravel and Topsoil Quantity 14

One of our greatest concerns is that, in the event that the Holcim Site is capped, the cap used will somehow be compromised. This can come from various means; in the interest of providing the greatest opportunity possible for the cap to remain impermeable as well as for native vegetation to take hold (as explained in point 6, below) without concern of compromise of the cap by the root systems, a topsoil layer of greater than the proposed six inches should be used.[7] The Center for Public Environmental Oversight (CPEO) gave an overview of topsoil needs that comply with the Resource Conservation and Recovery Act (RCRA) and was effective with landfill capping, radioactive capping, and other contaminated sites. CPEO indicated that, "[i]n order to promote the cap's longevity, infiltration barriers should be covered by a soil layer sufficiently thick to extend below the frost line, to accommodate the rooting depths of native plants, and to extend below the probable depth of animal burrows."[8] Because all of the aforementioned factors are in play at Holcim, we request a basic topsoil layer of at least two (2) feet be placed upon the capped area in addition to the one (1) foot gravel buffer identified. This provides a minimum topsoil coverage that meets Spokane County's frost depth level[9] which will assist in protection of the impermeable cap and also helps with the reduction of lateral runoff due to shallow soil. If Ecology reintroduces native vegetation as part of the remedial efforts, additional topsoil of up to three to four feet above the basic topsoil layer mentioned above will be required to allow for appropriate

[7] *See Holcim, Inc. Site Toxics Cleanup Program Fact Sheet*, Publication Number 13-09-31 at 3-4, which states that the alternatives presented will have "6 inches of hydroseed topsoil."
[8] *See* http://www.cpeo.org/techtree/ttdescript/lancap.htm.
[9] *See* http://www.spokanecounty.org/bp/content.aspx?c=2320.

anchoring of the vegetation as well as to reduce the risk of compromise to a placed cap by invading root systems.

9. Method and Duration of Long-term Groundwater Monitoring 15

Additional and detailed comments on the efficacy of the groundwater and surface water monitoring programs will be provided upon submission of the post-closure monitoring plan; however, currently, it is important to treat this facility as a closed landfill and require groundwater monitoring that will be protective of human health and the environment for an appropriate monitoring period. If sampling programs are considered that would terminate groundwater sample collection after (for example) four sampling events with sample results below detection limits of the sampled constituents, such results should not be a trigger for cessation of the sample collection program. CKD is not inert and may take years of contact with atmospheric waters or shallow ground or surface water before constituent leaching occurs and detections in monitoring points are recorded. Sample collection for inorganic analyses is inexpensive and not overly time consuming. Since the cap will require maintenance (at least) annually, the cost for continued sample collection would be minimal, but would provide a measure of reassurance to the public that the CKD is not leaching into the water while also compiling background data to detect statistical variations in the levels of detected constituents in both up gradient and down gradient monitoring points.

10. Restrictive Covenant at Holcim 16

Within the FS, there was no indication as to what the actual restrictive covenant would be, other than "restrictive." Given the location of the land, the nature of the contaminants, and the goal to not disrupt the remedial efforts conducted, we request that Ecology provide a more detailed explanation of the restrictive covenant for the public to view and that the covenant expressly prohibits construction upon the land.

11. Vegetative Rehabilitation of the Land 17

Holcim provides an opportunity for Ecology to rehabilitate some of the land that has been ecologically compromised due to past industry practices. Given its location and proximity to the Centennial Trail, the Spokane River, and other forms of public exposure, we request that Ecology reintroduce native vegetation upon the land for both aesthetical purposes as well as for "net gain" of ecological function.[10] In doing so, Ecology is showing its commitment to enhancing Washington's environment instead of simply settling with the minimum standards to get by. The FRTR Remediation Technologies Screening Matrix and Reference Guide identified that "[v]egetative cover reduces soil moisture via plant uptake and evapotranspiration. Plant cover also limits soil erosion. Vegetative cover is more stable because it emphasizes use of natural materials and configurations, which implies longevity."[11] As touched upon in section 4, above, including vegetative rehabilitation at Holcim would also conform with the SMP's goals regarding shorelines of statewide significance:

[10] A comprehensive list of vegetation native to Spokane County can be found at http://www.wnps.org/plant_lists/counties/spokane/spokane_county.html.
[11] *See* http://www.frtr.gov/matrix2/section4/4-28.html.

Spokane County Shoreline Master Program (2013)
2.12 Shorelines of Statewide Significance – Goals 17

The Shoreline Management Act (SMA) designates certain shoreline areas as shorelines of statewide significance. The shorelines so designated are "natural rivers or segments thereof" that have a mean annual flow of two hundred (200) cubic feet per second (cfs) or more and the shorelands associated with those waters, and lakes of 1,000 acres or greater in surface area. Rivers and lakes in Spokane County which are shorelines of statewide significance are identified in Section 10 of the Spokane County SMP and include the Spokane River, Little Spokane River, Latah (Hangman) Creek, and Newman Lake.

The Legislature declared in the Shoreline Management Act at RCW 90.58.020 that the interests of all of the people of the State shall be considered in the management of these shorelines. Accordingly, this Master Program gives preference to uses and development consistent with the preferred uses listed in order of preference below, with associated goals:

Recognize and protect the statewide interest over local interest;

Goal 1: Protect the statewide public interest in shorelines of the state, particularly shorelines of statewide significance.

Preserve the natural character of the shoreline;

Goal 2: Preserve shoreline scenic vistas and aesthetics, by prohibiting developments which unnecessarily detract from the natural character of shorelines of the state.

Goal 3: Protect scenic vistas and aesthetics as viewed from the surface of the water toward the shoreline, and as viewed from the banks of lakes, rivers and streams to adjacent and opposite shorelines of the state.

Result in long-term over short-term benefit;

Goal 4: Prevent development which would irreparably damage the public trust and statewide public interest, or the natural character, resources and ecology of shorelines for short term gain.

Protect the resources and ecology of the shoreline;

Goal 5: Protect and restore the natural physical features, water quality, native riparian, wetland and upland plant communities, and associated aquatic life, and vertebrate and invertebrate wildlife of shorelines of the state.

Goal 6: Ensure implementation of this Shoreline Master Program results in no net loss of shoreline ecological functions over time.

Increase public access to publicly owned areas of the shoreline;

Goal 7: Improve and increase public access, including visual access, to shoreline areas while respecting private property rights.

Increase recreational opportunities for the public on the shorelines;

Goal 8: Encourage the development of recreational opportunities for water oriented recreation.

Authorized uses and developments in shorelines of statewide significance and their associated shorelands and wetlands, shall conform to these goals and policies. In any case, where there is an apparent conflict between the policies and use regulations of the SCSMP and the policies for shorelines of statewide significance, the goals and policies of shorelines of statewide significance shall apply.

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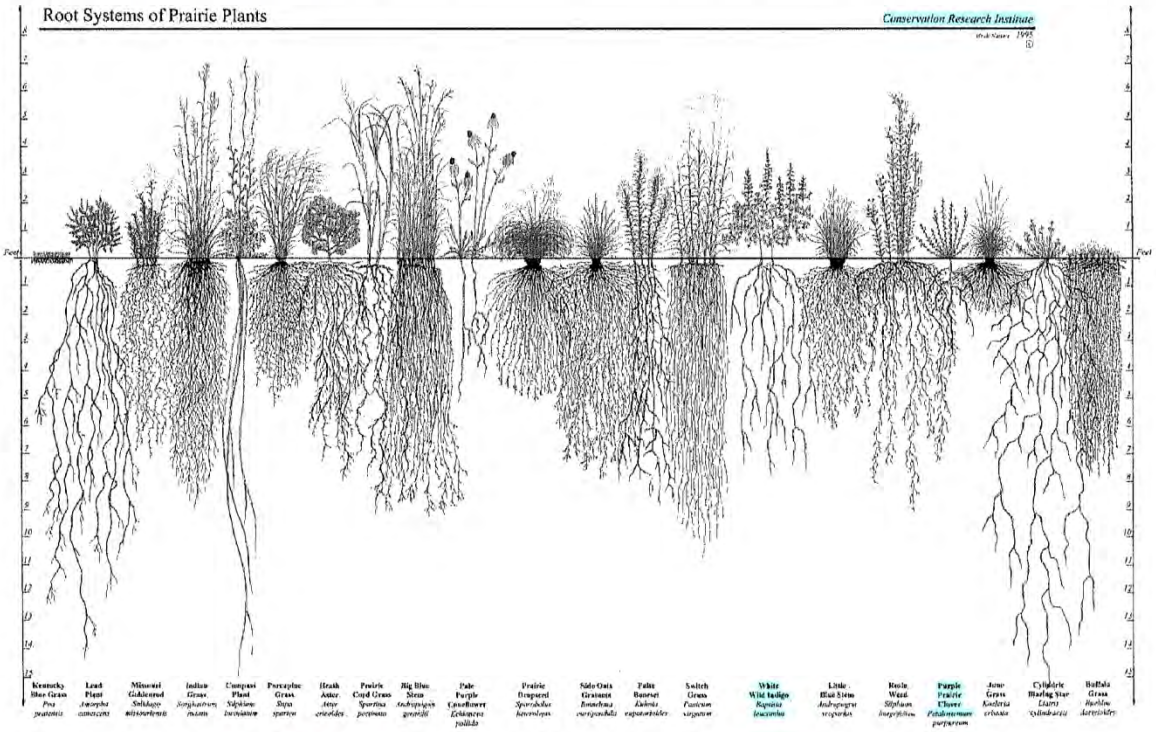
To reintroduce vegetation in an effective manner Ecology would need to include a deeper amount of topsoil that there is no concern of the root systems affecting the impermeable cap, as indicated in section 8, above. See Diagram 1 for an approximate idea of topsoil needed for various vegetative covering and root depths. We request trees *not* be planted upon the land, as the deep root systems could cause concern with regard to the cap.

Diagram 1: Example of Root Systems for Various Prairie Plants (Conservation Research Institute, 1995).



12. Other Alternatives and Options

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Another consideration, given the location and its proximity to both the Spokane River and to the Coyote Rock development, is to look at how Holcim, once rehabilitated, may serve the public in a positive manner. This may include the sale of the property to the City of Spokane Valley, and the use of the property by the City to create a playground or other attraction that enhances the value of the land beyond being behind a chain link fence. Such rehabilitation may require full excavation of the site versus a cap. We request that Ecology, Holcim, Inc., and the City of Spokane Valley communicate and consider other alternative options as means to reclaim a former industrial area back in a manner that is more in line with contemporary environmental values and land use.

Conclusion

We respectfully request that the above considerations are included in the Department of Ecology's decisions regarding the Holcim site. More specifically, we request that:

- Ecology expands the Holcim Remedial Investigation to include stormwater runoff concerns;
- Ecology expressly considers and incorporates the Spokane County Critical Areas Ordinance as it relates to the Critical Aquifer Recharge Areas in both the Remedial Investigation and the Feasibility Study;
- Ecology expands the Holcim Remedial Investigation to include prevailing wind contamination concerns;
- Ecology expand its Holcim core sampling beyond a single clean core method;
- Ecology expressly considers and incorporates the Spokane County Shoreline Master Program into the Feasibility Study as it relates to the remedial efforts for Holcim;
- Ecology engage in complete removal of the City of Spokane Valley's contaminated land as identified in the Remedial Investigation from the entire Holcim Site;
- In the event that capping is the option chosen, the use of an impermeable cap that will be the equivalent to full excavated removal of the contaminants at Holcim;
- In the event that capping is the option chosen, the use of cap engineering controls to address stormwater;
- In the event that capping is the option chosen, a significantly increased amount of topsoil to cover the cap so as to reduce the risk of compromising the integrity of the cap when native vegetation or other remedial efforts are reintroduced to the site;
- Ecology requires frequent groundwater sampling, and groundwater monitoring requirements that runs with the land in perpetuity;
- Ecology provides an expansion of the definition of "restrictive covenant," expressly communicated to the public in full detail, so that the public can understand what exactly a restrictive covenant is beyond "standard boilerplate language";
- Ecology empowers the rehabilitation of Holcim by including native vegetation as well as appropriate soil and maintenance for such vegetation to flourish; and
- Alternatives to the Feasibility Study options are considered by Ecology, Holcim, Inc., and the City of Spokane Valley for Holcim, including the sale and reclamation of Holcim in a manner that is conducive to public enjoyment.

Thank you,

UNIVERSITY LEGAL ASSISTANCE

Richard Tappan
Law Clerk

William Crawford-Heim
Law Clerk

Richard Eichstaedt
Attorney

RP/WC/re/vly

Responses to University Legal Assistance's comments:

Response to Comment 1, and throughout the entire document:

The comment indicates that *Ecology* proposed five cleanup alternatives in *its* FS, with the implication that this is a document that was developed by Ecology. Please note that the FS (and RI) document was prepared by GeoEngineers for Holcim (US) Inc. The commenter also indicates that Ecology has already *endorsed* Alternative 5 as the remedy for the site. Ecology has not yet endorsed any remedy for this site. Ecology will evaluate the alternatives within the FS after the public comment period is over and this responsiveness summary is developed. Ecology will then identify the cleanup remedy for the site in the draft Cleanup Action Plan, which may be one or a combination of multiple alternatives from the FS. The draft Cleanup Action Plan will then be available for public review and comment.

Response to Comment 2:

Comment noted. Ecology will consider your comment when it develops the draft Cleanup Action Plan.

Response to Comment 3:

Comment noted. Ecology will consider your comment when it develops the draft Cleanup Action Plan.

Response to Comment 4:

Please note that clay is not impermeable, rather it has a very low permeability. However, Ecology will consider your comment when it develops the draft Cleanup Action Plan.

Response to Comment 5:

Comment noted. Ecology will consider your comment when it develops the draft Cleanup Action Plan.

Response to Comment 6:

Comment noted. Ecology will consider your comment when it develops the draft Cleanup Action Plan. Also, Ecology will determine all applicable, relevant and appropriate requirements (ARARs) when developing the draft Cleanup Action Plan and require the ARARs be met for the chosen remedy for the site.

Response to Comment 7:

If there were stormwater currently flowing from the site *and* into a surface water body, an NPDES permit would be required. However, in the dozens of site visits to the site made by Ecology personnel (during all seasons of the year), as well as the many years that GeoEngineers and Holcim have been investigating the site, no over-the-ground discharge of stormwater has been identified leaving the site. This is further identified in section 8 of the Remedial Investigation: "Surface water does not appear to be impacted by Site contaminants." Ecology, including appropriate Water Quality Program staff, finds

this amount of evidence sufficient to determine that an NPDES permit is not currently required at the site. The Remedial Investigation and all previous visits to the site have determined that a pathway of stormwater runoff to a surface water body does not exist at this time. Therefore, an NPDES permit is not required. Ecology understands that compaction of the soils at this site may have occurred during its operational history, however compacted soil does not automatically result in an absence of infiltration. In addition, we are not sure how it was ascertained that "infiltration on the property is unlikely to occur in the context of a heavy rainfall event" without, at a minimum, conducting an on-site inspection. Additionally, the Spokane County Critical Areas Ordinance (CAO) is applicable to unincorporated areas of Spokane County. The Holcim Inc. Site is located in the City of Spokane Valley, therefore the CAO does not apply to the site.

Response to Comment 8:

Ecology required the PLPs to sample for site-related contamination where *an impact was known to occur* in an area that *is downwind* (north) of the site. Additionally, this location has remained natural and undeveloped for the time since an impact was noted approximately 60 years ago. No elevated levels of site-related contaminants were found in an area of known historical impact and little to no physical alteration since the time of impact. Also note that at least 20 soil sample locations were sampled from the north and east sides of the Holcim Site (on property owned by Holcim and the City of Spokane Valley) which did not contain site related contaminants above draft cleanup levels. Therefore, Ecology determined that it was unnecessary to further investigate the potential for contamination north of the river.

Response to Comment 9:

Ecology agrees that some of the contours depicted in document figures may not represent the exact aerial extent of contamination at the site. However, Ecology believes that a sufficient amount of sampling was completed by the PLPs to be able to evaluate different remedial alternatives and estimate cost. The *actual* limits of excavation **will be determined** by confirmation samples that will be sent to a laboratory to determine if all of the contaminated soil above cleanup levels has been removed. If confirmation samples indicate that contamination remains in a location, excavation will continue until concentrations in soil are below cleanup levels.

Response to Comment 10:

Ecology will determine all applicable, relevant and appropriate requirements (ARARs) when developing the draft Cleanup Action Plan and require the ARARs be met for the chosen remedy for the site.

Response to Comment 11:

Comment noted. Ecology will consider your comment when it develops the draft Cleanup Action Plan.

Response to Comment 12:

Comment noted. Ecology will consider your comment when it develops the draft Cleanup Action Plan.

Response to Comment 13:

A final remedy for the site has not yet been determined. Ecology is assuming that your statement "As currently envisioned, the cap would not include any proactive stormwater management features" is referring to what is being proposed by the PLPs, since the final remedial action will be designate in the Cleanup Action Plan. The remedy that Ecology determines for the cleanup of this site will include any and all necessary engineered stormwater management features to effectively and completely manage stormwater from the site to meet all applicable, relevant and appropriate requirements. These stormwater features will be designed and identified in the engineering design report that will be developed after the remedy has been determined.

Response to Comment 14:

Comment noted. Ecology will consider your comment when it develops the draft Cleanup Action Plan.

Response to Comment 15:

Comment noted. Ecology will consider your comment when it develops the draft Cleanup Action Plan.

Response to Comment 16:

The Uniform Environmental Covenant Act (Chapter 64.70 RCW) would guide the development of the restrictive covenant at the site. The actual covenant for the site, should one be necessary, will be available for public review and comment at the same time as the draft CAP.

Response to Comment 17:

Comment noted. Ecology will consider your comment when it develops the draft Cleanup Action Plan.

Response to Comment 18:

While Ecology understands your desire for this property to serve the public in a positive manner, we have no regulatory authority to require Holcim (US) Inc. or others to sell their property to a local government or to allow public access to their private property.