



RESPONSIVENESS SUMMARY

USG Interiors Inc. Puyallup

*Agreed Order #11098
Remedial Investigation/Feasibility Study Report
Cleanup Action Plan
State Environmental Policy Act Checklist and Determination*

**Prepared by
Washington State Department of Ecology
Southwest Regional Office
Toxics Cleanup Program
Lacey, Washington**

March 2019

Contents

Site Information	3
Site Background.....	3
Next Steps	4
Comment # 1: Ernie Merritt.....	5
Comment # 2: Citizens for a Healthy Bay	6
Attachment A. Letter from Citizen for Healthy Bay.....	12
Citizens for a Healthy Bay comment letter	13

Site Information

Address: 1005 River Road East, Puyallup

Cleanup Site Manager: Mohsen Kourehdar

Public Involvement Coordinator: Sheila Coughlan

The Washington Department of Ecology (Ecology) is entering into a new legal agreement called an Agreed Order with USG Interiors, LLC (USG) to clean up contamination at its former USG site in Puyallup, Washington (site). Ecology held a public comment period from January 7 to February 5, 2019 on the following cleanup documents:

- Remedial Investigation and Feasibility Study that describes the contamination and compares cleanup options.
- Cleanup Action Plan (CAP) that outlines the cleanup option selected by Ecology.
- Agreed Order DE #11098 that requires USG to implement and maintain the recommended cleanup actions.
- State Environmental Policy Act review that describes the potential environmental impacts of the cleanup work.
- Public Participation Plan, which describes how Ecology will inform the community about site activities and opportunities to be involved in the cleanup process.

Public comments and Ecology's responses for the comment period are summarized below.

Site Background

Through the early 1970s, USG used slag from the former Tacoma Asarco copper smelter as a raw material to produce rock wool, a mineral fiber insulation. The manufacturing waste that consisted of "baghouse dust" and "shot" was used as fill on the site to raise the grade. In the 1980s, USG learned that the slag and waste contained high concentrations of arsenic – a toxic metal, and had contaminated soil, sediments in the Puyallup River, and groundwater.

In 1985, USG removed approximately 25,536 tons of contaminated soil from the site, however, not all the contamination was removed. Additional soil, groundwater, and sediment studies showed arsenic in soil, groundwater, and sediment that exceed the state cleanup standards. Ecology and USG are now proposing to implement the cleanup action plan to address the remaining contamination.

Next Steps

Ecology will finalize the Agreed Order and CAP. USG will do the cleanup work described in the plan. After cleanup, USG will apply land and groundwater use restrictions, called an environmental covenant to protect human health and the environment from hazardous substances left at the site. USG will also continue to monitor groundwater to ensure arsenic, antimony, cadmium, chromium, copper, lead, nickel and zinc levels are declining and that cleanup levels are reached.

Comment # 1: Ernie Merritt

From: Ernie Merritt, Puyallup

Sent: 2/5/2019

To: Ecology via SmartComment Software (the exact content of comment)

“1971 our family move to 823 River Rd as seen in the aerial photo dated 1971 the double wide mobile home at the back of the property along the river until 1977 when we moved during those years as young kids we explored our surroundings we new that side of the river from the 161 bridge to the scale house on River rd like the back of our hand the usg site was 75 - 100 yards from our front door we remember that slag we played in it like a sand box because it was different and that's what kids do check things out we didn't know what it was there was mounds of it and when the river flooded it would wash a lot of it away we would see it as far down as Howards Drive-in more would come in then it would flood that was normal thing for us we had to deal with the aftermath of the floods as well in one of reports there's a section titled Mode of Action Studies for Assessing Carcinogenic Risk Posed by inorganic Arsenic interesting piece we had a lot of bloody noses our cat had kitten born with no eyes Question has the surrounding properties been tested and what about property value having a toxic waste dump next door? Why does the city of Puyallup have a trail right thru that toxic waste dump allowing the public to be exposed to it last question you are responsible for your actions making USG liable for any and all effects that toxic waste dump site has on the public personal property and the environment their being accountable for the environment they have some more they need to be accountable for correct”

Ecology Response

The environmental study results show that arsenic contamination in the soil has not extended into the City of Puyallup 10-foot wide walking trail. The walking trail is paved (under an asphalt cap), which prevents direct contact of potentially contaminated soil by the public.

The contamination that has extended to the neighboring properties will be cleaned up.

Agreed Order No. DE 11098 requires USG to pay for all cleanup costs.

The property value increase or decrease is not part of the cleanup action plan for this project.

Comment # 2: Citizens for a Healthy Bay

From: Melissa Malott, Director, Citizens for a Healthy Bay

Sent: 2/5/19

To: Ecology via US Mail (Attachment A). Each comment or question is summarized below, followed by Ecology's response.

Comment A

Agreed Order and Remedial Investigation

The RI as documented is incomplete and fails to meet the minimum requirements of Agreed Order 5489 in which USG agreed to investigate the nature and extent of contamination on site. The likely contaminants at this site, base on other sites containing ASARCO slag, include arsenic, iron, calcium, and potentially significant concentrations of aluminum, antimony, barium, copper, lead, manganese, molybdenum, tin, titanium, and zinc, among other metals. While the RI documents show that USG did investigate the nature and extent of arsenic contamination, there is no evidence present to show that the nature and extent of other likely contaminants were investigated. There is also no evidence in the RI to show that the nature and extent of baghouse dust or "shot" contamination was investigated. Many of these contaminants are regulated by MTCA, and without an appropriate RI, there is no way to know if the site is in violation of MTCA standards, beyond arsenic contamination. *Consequently, CHB requests that the investigation into the nature and extent of contamination at the site include the aforementioned contaminants.*

In the response to our comments regarding the USG Highway 99 cleanup, Ecology concluded that additional analytes, including antimony, cadmium, chromium, copper, lead, nickel, and zinc would be included in sampling for hot-spot delineation, and that other metals would likely become bound and demobilized as a result of the remedy (which is very similar to the selected remedy for this site). *CHB requests that these contaminants, at a minimum, be included in all pre-, interim-, and post-cleanup sampling plans.*

CHB commends Ecology for taking the initiative to require USG to draft an Inadvertent and Unanticipated Discovery Plan, should cultural or archaeological resources be discovered during cleanup.

Ecology Response

In addition to arsenic, antimony, cadmium, chromium, copper, lead, nickel, and zinc will be monitored as a part confirmational and performance groundwater monitoring.

Comment B

Cleanup Action Plan

CHB does not support the selection of Alternative 2a for the cleanup of this site. Alternative 2a is the cheap, easy solution, but does not adequately address the dangerous contamination left in the ground, and its potential to end up in the Puyallup River. Alternative 2a leaves 30% of the contaminated sediment in the ground, untreated and not-stabilized. Soil stabilization as outlined in the CAP, can cause other metals to leach out of the soil. If Alternative 2a is chosen, CHB requests that a full metals suite be performed on groundwater and at the groundwater-surface water interface, yearly for 5 years, to account for this leaching of contaminants from non-treated material. Additionally, TCLP (Toxicity Characteristic Leaching Procedure) standards should not be used for this testing, as these standards use a landfill environment for their model, not on-site conditions that have been subject to in situ stabilization. CHB recommends the use of MWEP (Monofilled Waste Extraction Procedure) using site-specific conditions as the testing standard for leached contaminants on site, as outlined in Ecology's 2003 report to the legislature on appropriate testing standards for leached contaminants.

Ecology Response

Groundwater monitoring will be required during and after implementation of soil stabilization and application of in-situ chemical oxidation (ISCO). These treatment technologies are designed to reduce leachability and mobility of arsenic and other metals into the groundwater and to enhance the natural attenuation process. The groundwater monitoring plan will be designed to measure the effectiveness of soil stabilization and arsenic mobility in groundwater and will include testing of antimony, cadmium, chromium, copper, lead, nickel, and zinc.

TCLP (Toxicity Characteristic Leaching Procedure) was not used for bench testing the leachability of metals from the stabilized soil. The site specific stabilized soil and groundwater were used to test the leachability of metals from the stabilized soil. This is documented in the 2012 report, titled "Work Plan, Supplemental Bench-Scale Treatability Testing". The leach test was performed by the synthetic precipitation leaching procedure (SPLP), which is similar to the MWEP (one waste) for landfills with the absence of wood waste or municipal solid waste.

Comment C

Ecology's rationale that the arsenic contamination below the water table under the Puyallup River does not pose a risk rests on the assumption that, "current geochemical conditions can be maintained." It is widely accepted that riverbed geomorphology is highly dynamic, and that the site is located in an area highly susceptible to seismic activity. *CHB requests Ecology provide evidence to support their assumption that current geochemical conditions can be maintained, and under what timeframe.*

Ecology Response

The cleanup action plan (CAP) for this project is not designed to control Geomorphology of the Puyallup River. It is designed to enhance the existing geochemistry of groundwater to immobilize and in turn reduce the risk of soluble arsenic discharge into the Puyallup River. The enhancement of the geochemistry of groundwater will be achieved by:

1. Ferrous Iron injection into the groundwater in trench and injection points on the upland portion of the site.
2. The in-situ groundwater treatment (ISCO) would enhance oxidation of Ferrous Iron to Ferric Iron and rapidly oxidize arsenite to arsenate, which is less mobile.
3. Ferric Iron will co-precipitate with arsenate and consequently will be removed from a soluble form.
4. The storm water trench down gradient of the plume will provide a redox gradient and would provide more oxygenated water and enhance Ferrous Iron conversion to Ferric Iron, in turn enhance co-precipitation of arsenate with Ferric iron.

The groundwater concentration of arsenic will be monitored during and after treatment to ensure the remedy is working. This cleanup will be managed under an adaptive management approach to react to effectiveness of the groundwater treatment and adjust to enhance arsenic immobilization in groundwater.

Comment D

The selected remedy should be based on the ultimate destination of the contaminated groundwater. According to the CAP, “the Puyallup River is a gaining stream, meaning groundwater from the site discharges to the river.”³ Because contaminated groundwater will make its way to the river channel, *CHB requests that the selected remedy be protective of aquatic life and meet fish consumption standards, drinking water standards, and/or Puyallup Tribal water quality standards, whichever is the most protective.*

Ecology Response

The arsenic groundwater cleanup level is 5 µg/l. This is consistent with the State’s cleanup regulation Model Toxics Control Act (MTCA). The fresh water aquatic life, human health via fish consumption, and drinking water standards were evaluated as applicable or relevant and appropriate requirements (ARARs).

MTCA Arsenic Method A Groundwater Cleanup Level	5.0 µg/l
Acute Water Quality Criteria Aquatic life for fresh water 173-201A WAC	360 µg/l
Chronic Water Quality Criteria Aquatic life for fresh water 173-201A WAC	190 µg/l
Human Health Criteria via Fish Consumption 173-201A WAC	0.0180 µg/l NTR, human health
Human Health Criteria via Fish Consumption Puyallup Tribe Water Quality Standards	0.0180 µg/l NTR, human health

The Puyallup Tribe Water Quality Criteria is in the following link.

<https://www.epa.gov/sites/production/files/2014-12/documents/puyallup-tribe-wqs.pdf>

MCL drinking water standard	10 µg/l
-----------------------------	---------

The site’s groundwater cleanup level is based on MTCA Method A groundwater cleanup of 5 µg/l. WAC 173-340-740 (4) (C) allows to set cleanup level below practical quantitation limit (PQL) or natural background whichever is greater. In this case, the human health value of .0180 µg/l for arsenic is below the PQL and less than natural background of 5 µg/l, therefore, 5 µg/l is the cleanup level for groundwater discharging into the surface water.

Comment E

CHB supports the selection of Alternative 3 for the cleanup of this site, because it is the most protective, over both the short- and long-term. Ecology’s conclusion that this alternative is not favorable for short-term protection comes from the assumption that the extensive excavation and related shoring controls required are inherently risky. Shoring is an effective and safe engineering control, when correctly designed with safeguards and a backup plan, should there be a failure.

Ecology Response

As documented in the cleanup action plan, implementing Alternatives 3 would create short term risks. Alternative 3 proposes removal of 82,000 cubic yards of soil by excavating below the groundwater table. Implementing this alternative would provide risk to surrounding commercial businesses, and City of Puyallup walking trail. Also there are space limitations to store 82,000 cubic yards of contaminated soil for characterization and disposal. Implementing Alternative 3 would cause unanticipated construction difficulty. In addition to logistic difficulty, the 2013 site's Feasibility Study documented the Disproportionate Cost Analysis of various alternatives. The results of the analysis were that the preferred Alternative 2A provided the most environmental benefit versus cost in comparison with Alternative 3.

Comment F

Public Participation

CHB requests more timely release of cleanup documents for public review and comment. The RI was published in 2011; the FS, 2013, and; the CAP, 2014, yet the public was only given notice of these documents' existence and their ability to comment on them in early 2019. The 35-day comment period was not adequate for reviewing the extensive technical information in these documents, totaling close to 800 pages.

Ecology Response

Ecology contacted Melissa Malott, Executive Director for Citizen for a Healthy Bay (CHB), by phone and email, to ask if CHB needed additional time to review these documents. Erin Dilworth from CHB emailed Ecology on February 25 that they do not need additional time for review. In the future, if needed, Ecology will provide the public more time to review documents.

Attachment A. Letter from Citizen for Healthy Bay

**Citizens for a
Healthy Bay
comment
letter**

**535 Dock Street
Suite 213
Tacoma, WA 98402
Phone (253) 383-2429
Fax (253) 383-2446
chb@healthybay.org
www.healthybay.org**

***Executive Director*
Melissa Malott**

***Board of Directors*
Brice Boland
Sherrie Duncan
Desiree Wilkins Finch
Bryan Flint
Barry Goldstein
Jerry Hallman
Kelly McCord
Sheri Tonn**

February 5, 2019

Mohsen Kourehdar
Washington State Dept. of Ecology
PO Box 47775
Olympia, WA 98504-7600
Mohsen.Kourehdar@ecy.wa.gov

Re: Comments on USG Interiors Puyallup Site Agreed Order (AO), Remedial Investigation (RI), Feasibility Study (FS), Cleanup Action Plan (CAP), SEPA Checklist, and SEPA Determination of Non-Significance (DNS)

Dear Mr. Kourehdar,

Thank you for providing the opportunity to review and comment on the USG Interiors Puyallup Site AO, RI, FS, CAP, SEPA Checklist, and SEPA DNS.

Citizens for a Healthy Bay (CHB) is a 28-year-old organization whose mission is to represent and engage people in the cleanup, restoration, and protection of Commencement Bay, its surrounding waters and natural habitat. We are a 501(c)3 nonprofit providing practical, solutions-based environmental leadership in the Puget Sound area. We work side-by-side with residents, businesses, and government to prevent and mitigate pollution and to make our community healthier and more vibrant. We have paid close attention to USG (formerly US Gypsum) since our founding and have provided technical comments on their Highway 99 and Taylor Way cleanup sites.

Staff and expert members of CHB's Policy and Technical Advisory Committee have reviewed the AO, RI, FS, CAP, SEPA Checklist, and SEPA DNS and related regulations. Our comments are outlined below.

Background

The proposed cleanup would address contamination left at the USG Puyallup site from a cleanup carried out in 1984 and 1985. USG used this site to manufacture rock wool, an insulating material, using raw waste materials from the Tacoma ASARCO copper smelter. ASARCO slag waste, baghouse dust, and “shot” was used as fill material on-site for grading. A 2006 site assessment concluded that soil and groundwater at the site had arsenic concentrations higher than the Model Toxics Control Act (MTCA) threshold, leading to the preparation and submittal of the RI, FS, and CAP. CHB has concerns about the proposed cleanup remedy, similar to those expressed for the USG Highway 99 cleanup.

Agreed Order and Remedial Investigation

The RI as documented is incomplete and fails to meet the minimum requirements of Agreed Order 5489 in which USG agreed to investigate the nature and extent of contamination on site. The likely contaminants at this site, based on other sites containing ASARCO slag, include arsenic, iron, calcium, and potentially significant concentrations of aluminum, antimony, barium, copper, lead, manganese, molybdenum, tin, titanium, and zinc, among other metals. While the RI documents show that USG did investigate the nature and extent of arsenic contamination, there is no evidence present to show that the nature and extent of other likely contaminants were investigated. There is also no evidence in the RI to show that the nature and extent of baghouse dust or “shot” contamination was investigated. Many of these contaminants are regulated by MTCA, and without an appropriate RI, there is no way to know if the site is in violation of MTCA standards, beyond arsenic contamination. *Consequently, CHB requests that the investigation into the nature and extent of contamination at the site include the aforementioned contaminants.*

In the response to our comments regarding the USG Highway 99 cleanup, Ecology concluded that additional analytes, including antimony, cadmium, chromium, copper, lead, nickel, and zinc would be included in sampling for hot-spot delineation, and that other metals would likely become bound and demobilized as a result of the remedy (which is very similar to the selected remedy for this site).¹ *CHB requests that these contaminants, at a minimum, be included in all pre-, interim-, and post-cleanup sampling plans.*

CHB commends Ecology for taking the initiative to require USG to draft an Inadvertent and Unanticipated Discovery Plan, should cultural or archaeological resources be discovered during cleanup.

Cleanup Action Plan

CHB does not support the selection of Alternative 2a for the cleanup of this site. Alternative 2a is the cheap, easy solution, but does not adequately address the dangerous contamination left in the ground, and its potential to end up in the Puyallup River. Alternative 2a leaves 30% of the contaminated sediment in the ground, untreated and not-stabilized. Soil stabilization as outlined in the CAP, can cause other metals to leach out of the soil¹. If Alternative 2a is chosen, CHB requests that a full metals suite be performed on groundwater and at the groundwater-surface water interface, yearly for 5 years, to account for this leaching of contaminants from non-treated material. Additionally, TCLP (Toxicity Characteristic Leaching Procedure) standards should not be used for this testing, as these standards use a landfill environment for their model, not on-site conditions that have been subject to in situ stabilization. CHB recommends the use of MWEF (Monofilled Waste Extraction Procedure) using site-specific conditions as the testing standard for leached contaminants on site, as outlined in Ecology’s 2003 report to the legislature on appropriate testing standards for leached contaminants.²

Ecology's rationale that the arsenic contamination below the water table under the Puyallup River does not pose a risk rests on the assumption that, "current geochemical conditions can be maintained."² It is widely accepted that riverbed geomorphology is highly dynamic, and that the site is located in an area highly susceptible to seismic activity. *CHB requests Ecology provide evidence to support their assumption that current geochemical conditions can be maintained, and under what timeframe.*

The selected remedy should be based on the ultimate destination of the contaminated groundwater. According to the CAP, "the Puyallup River is a gaining stream, meaning groundwater from the site discharges to the river."³ Because contaminated groundwater will make its way to the river channel, *CHB requests that the selected remedy be protective of aquatic life and meet fish consumption standards, drinking water standards, and/or Puyallup Tribal water quality standards, whichever is the most protective.*

CHB supports the selection of Alternative 3 for the cleanup of this site, because it is the most protective, over both the short- and long-term. Ecology's conclusion that this alternative is not favorable for short-term protection comes from the assumption that the extensive excavation and related shoring controls required are inherently risky. Shoring is an effective and safe engineering control, when correctly designed with safeguards and a backup plan, should there be a failure.

Public Participation

CHB requests more timely release of cleanup documents for public review and comment. The RI was published in 2011; the FS, 2013, and; the CAP, 2014, yet the public was only given notice of these documents' existence and their ability to comment on them in early 2019. The 35-day comment period was not adequate for reviewing the extensive technical information in these documents, totaling close to 800 pages.

Please contact me if there are questions regarding my comments. Thank you for the opportunity to provide feedback on the USG Puyallup Site AO, RI, FS, CAP, SEPA Checklist, and SEPA DNS.

Sincerely,



Melissa Malott
Executive Director, Citizens for a Healthy Bay
mmalott@healthybay.org, (253) 383-2429

1. Washington Department of Ecology. (2016). *Responsiveness Summary, USG HWY 99*. Author.

2. Washington Department of Ecology. (2003). *An Assessment of Laboratory Leaching Tests for Predicting the Impacts of Fill Material on Ground Water and Surface Water Quality. A Report to the Legislature*. Publication No. 03-09-107. Author.

Washington Department of Ecology. (2014) *Draft Cleanup Action Plan, USG Interiors Puyallup Sit*

