Portland Harbor Superfund Site

Multnomah County, Oregon

EPA Region 10, June 2016

Proposed Cleanup Plan Community Fact Sheet

The United States Environmental Protection Agency's (EPA's) Proposed Cleanup Plan for the Portland Harbor Superfund Site presents EPA's preferred alternative or option to lower risks to people and the environment from contamination in the lower Willamette River and its river banks. It represents many years of work to investigate the Portland Harbor Superfund Site's contamination and develop potential cleanup alternatives.

EPA values public engagement and input and believes the best cleanup plans are developed and implemented with the support of a well-informed community. Therefore, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires that the public be given opportunity to read and comment on EPA's proposed cleanup plan and supporting materials.

To encourage broad community input, EPA extended the minimum comment period from 30 to 60 days. Comments will be accepted between June 9 and August 8, 2016. Information on how to provide comments is at the bottom of this fact sheet.

This fact sheet provides:

- 0ackground informa1on on the Portland Harbor Superfund Site
- A snapshot of EPA's preferred cleanup alterna1ve and EPA's goals and ra1onale for choosing the alterna1ve
- A schedule of o2cial EPA public mee1ngs
- Informa1on on how to submit formal comments to EPA on the Proposed Plan
- Informa1on on where to get copies of the Proposed Plan suppor1ng materials

At a glance - EPA's Proposed Cleanup Alternative

EPA is seeking public comment on the Proposed Cleanup Plan for the Portland Harbor Superfund Site in Portland, Oregon.

Alternative I, EPA's preferred alternative, reduces risks to human health and the environment to acceptable levels by dredging or capping approximately 290 acres of contaminated sediments and approximately 19,500 lineal feet of contaminated river bank, followed by 23 years of monitored natural recovery. The preferred alternative also includes disposal of dredged sediment in an on-site confined disposal facility and upland landfills. This Alternative will cost about $746 million and take 7 years of construction in the river.

Alternative I will address all waste that poses the greatest threat to people and the environment through construction and relies on monitored natural recovery to continue to reduce remaining contaminant concentrations to an acceptable level.

Comments on the preferred alternative and all other alternatives considered will be accepted from June 9, until August 8, 2016.

ED_000959_PST_00180492-00001 06/28/2017 SEMS_295042

The Portland Harbor Superfund Site covers an approximate 10-mile stretch of the lower Willamette River in Portland, Oregon (Figure 1). It is a major industrial port area and that was contaminated over the century by commercial and industrial activities in the area. EPA is working with local government, the Oregon Department of Environmental Quality, and Tribal Governments to address unacceptable levels of contamination in river bank soils and in sediment (soil on the river bottom).

What are the risks?

The Lower Willamette Group (a subset of parties potentially responsible for the contamination) conducted a remedial investigation (RI) of the nature and extent of site contamination under EPA oversight from 2001 to 2008. The RI report (finalized February 2016) included human health and ecological risk assessments. EPA determined the greatest health risk is from eating resident fish (like carp, bass, and catfish) from Portland Harbor and to infants that are breast-fed by mothers who eat resident fish from the river. In addition, direct contact exposure by fishers to contaminated in-water sediment may pose an unacceptable risk. The most widespread contaminants of human health significance are polychlorinated biphenyls (PCBs-now banned) and dioxins/furans. The most widespread contaminants of ecological significance are PCBs, polycyclic aromatic hydrocarbons (PAHs), dioxins and furans, and the pesticide DDT (now banned).

How did EPA select a preferred alternative for cleanup?

EPA screened and evaluated the nine alternatives (A through I, see Table 1) for cleanup of contamination as part of a feasibility study (FS). These included varying combinations of institutional controls, monitored natural recovery (MNR), enhanced natural recovery (ENR), containment (such as capping), sediment/soil treatment, sediment/soil removal (such as dredging), and disposal of dredged sediment/soil. The alternatives were evaluated using nine Superfund criteria shown in the blue box (page 3). Generally, alternatives with more capping and dredging rely less on MNR, and vice versa. Dredging volumes for alternatives range from 500,000 to 20 million cubic yards with costs of $450 million to about $9 billion.

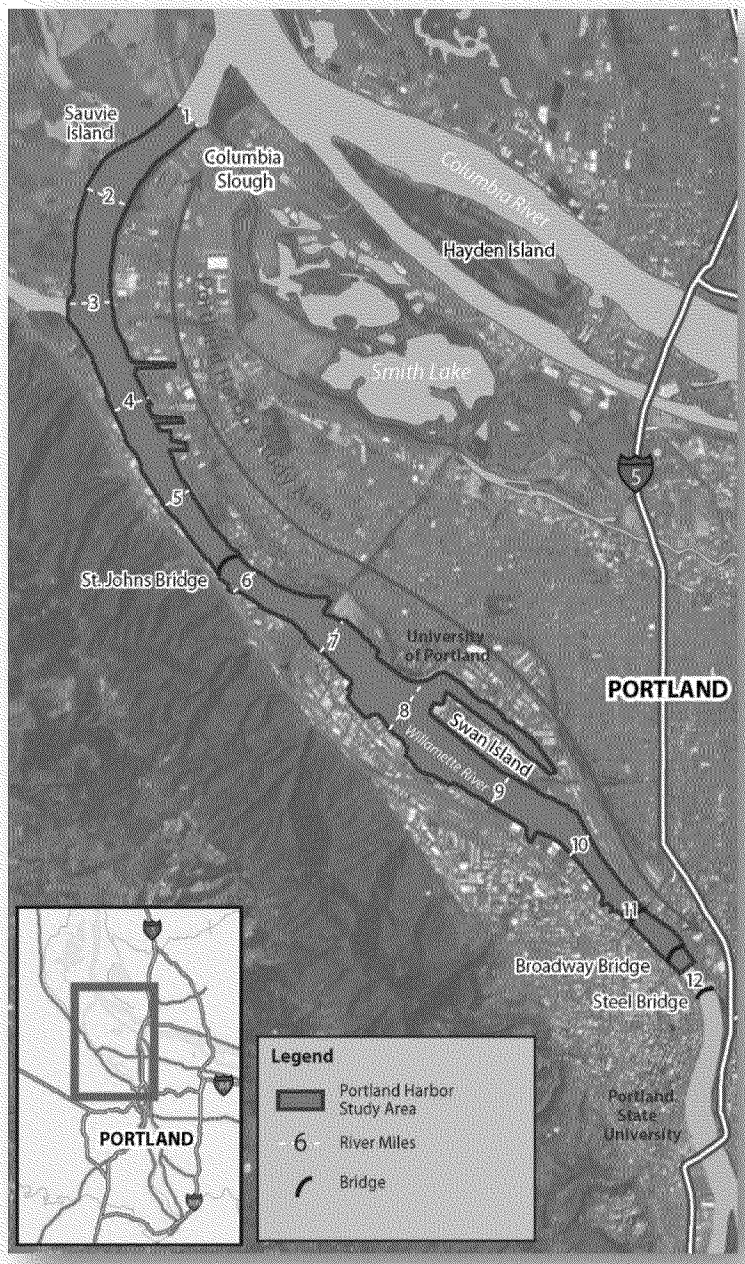


Figure 1. Map of Portland Harbor Superfund Site

What is the main difference in the cleanup alternatives?

The main difference between alternatives is the size of the area being capped/dredged and the area of natural recovery (Table 1). EPA's FS report was released in June 2016 and EPA used the results to help select the best way to clean up the Site (what EPA calls the *preferred alternative*). EPA considered: risk reduction; extent each alternative relies on natural recovery; construction duration and effects on communities and the environment; extent to which each alternative reduces toxicity, mobility through treatment, and addresses principal threat waste (PTW); location of caps in each alternative that would limit use of particular river areas; and reasonably anticipated future uses of the river. The preferred alternative is now available for public comment in the proposed plan.

EPA's Evaluation Criteria

Threshold Criteria

Requirements that each alternative *must* meet in order to be eligible for selection.

1. Overall protection of human health and the environment
2. Compliance with applicable or relevant and appropriate requirements in Federal, State and local environmental laws

Balancing Criteria

Used to weigh advantages and disadvantages.

3. Long-term effectiveness and permanence
4. Reduction of toxicity, mobility, or volume through treatment
5. Short-term effectiveness
6. Implementability
7. Cost

Modifying Criteria

Considered after public comment is received in final remedy selection.

8. Community acceptance
9. State acceptance

EPA's Preferred Alternative for Cleanup

EPA has selected Alternative I as the preferred alternative. It is protective while balancing permanence, treatment, implementability, costs, and short-term impacts.

What cleanup methods will be used for sediment?

EPA proposes to use dredging to varying depths, capping, enhanced natural recovery, and monitored natural recovery. Treatment amendments are added to some caps and residual management layers to treat contamination left in the river. About 1,885,000 cubic yards will be excavated and 10 percent are expected to need treatment off-site. The footprint of the sediment management areas for Alternative I is shown in Figure 2.

What about river banks?

The alternative includes cleanup of almost 10,000 feet of river bank by covering it with an armored or engineered cap that has beach mix or vegetation on top. Of 115,000 cubic yards to be excavated, less than 10 percent are assumed to need treatment off-site.

What disposal methods will be used?

EPA proposes to manage contaminated sediment and soil with disposed material management (DMM) scenario 1. This includes a combination of on-site (confined disposal facility) and off-site disposal (uplands landfill) (Table 1).

Will I be able to use the river and fish?

EPA will use fish advisories to inform the public about how much fish can safely eaten until cleanup goals are met. Fish consumption advisories and an enhanced community outreach program will be used to educate the community. During and after implementation of the remedy, other activities in the river may be limited. Use limitations will also be used to protect caps that cover the waste left in the river.

What are the expected results?

Alternative I will address all waste that poses the greatest threat to people and the environment through capping and dredging and relies on monitored natural recovery to reduce remaining contaminant concentrations to an acceptable level. This should improve river health and allow most people to eat more fish from the river. Fish advisories may be relaxed for all except the most sensitive populations (women of child bearing age and nursing infants). Improvement in habitat will support migratory species and negative downstream impacts to the Columbia River will be reduced. Estimated cost, volume, area, and time to construct are provided in Table 1.

ED_000959_PST_00180492-00003 06/28/2017 SEMS_295042

Table 1. Cleanup Alternative Comparison Table

Note: Alternative A is not listed below because it is the "No further action" alternative.

Alt	Dredge Volume* (CY)	Dredge Area (acres)	Dredge / Cap Area (acres)	Sed. Treatment		Cap (acres)	ENR (acres)	MNR (acres)	Dis-posal	Cost		Years to Build
				In-place (acres)	Off-site (CY)					DMM1 ($M)	DMM2 ($M)	
B	659,000	67	6	7	156,000 to 208,000	23	100	1,966	DMM2	451	NA	4
C	790,000	80	6	5		30	97	1,948		497	NA	5
D	1,266,00	121	11	3		45	87	1,900		654	NA	6
E	2,204,000	188	15	0		66	60	1,838	DMM1 *or* DMM2	804	870	7
F	5,100,000	355	32			118	28	1,634		1,317	1,371	13
G	8,294,000	525	47			187	20	1,391		1,731	1,777	19
H	33,487,000	1,526	106			535	0	0		9,446	9,525	62
I	1,885,000	150	17			64	59.8	1,876		746	811	7

CY= cubic yards
Alternative A is no further action
*top of a range

ENR= enhanced natural recovery
MNR = monitored natural recovery

DMM = disposal material management scenario
DMM1 = on- site *and* off-site disposal
DMM2 = off-site disposal *only*
$M= million dollars

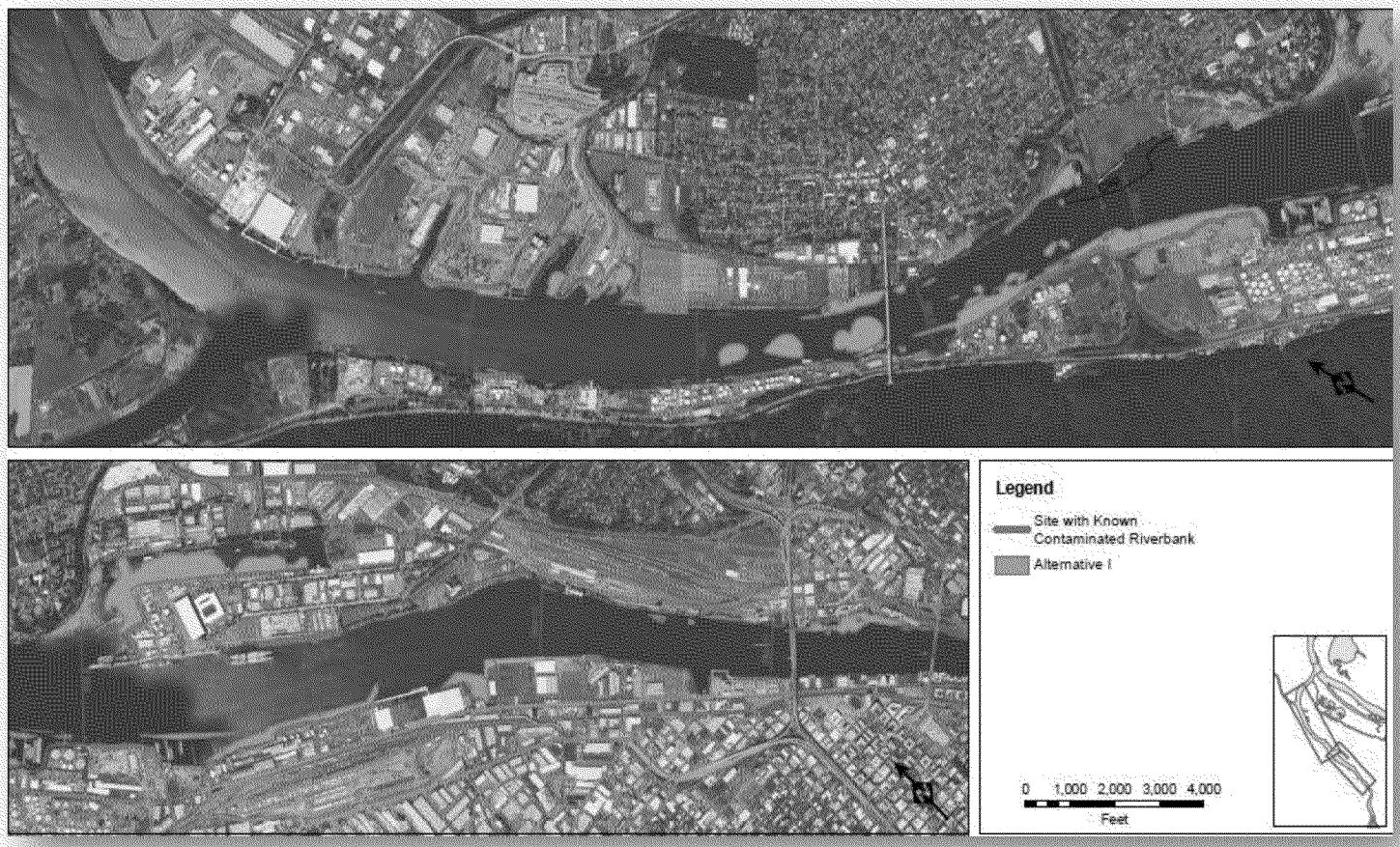


Figure 2. Footprint of the sediment management areas in Alternative I.

What did EPA Consider when Evaluating the Alternatives?

EPA considered the following in the development of Alternative I.

- Human health risk reduction (which can result in increasing the amount of fish that can be safely consumed)
- Ecological risk reduction (not relying on institutional controls)
- Extent to which each alternative reduces toxicity, mobility, and volume through treatment and addresses principal threat waste (PTW)
- Extent each alternative relies on natural recovery
- Construction duration and effects on the communities and the environment
- Location of caps in each alternative that would limit use of certain river areas
- Accommodation of reasonably anticipated future uses of the river
- Ability to relax fish advisories for all people except the most sensitive populations
- Improvement of habitat to support migratory species and reduce negative downstream impacts to the Columbia River

Alternative I does not meet all of these goals at construction completion, but it still achieves a more consistent amount of risk reduction throughout the river compared to the other alternatives. Further adjustments could be made to Alternative I to meet these targets, which would be finalized in the Record of Decision (ROD).

How Did EPA Select Alternative I?

The preferred alternative is Alternative I with DMM Scenario 1 using an existing off-site transload facility. The following are some of the highlights that led to EPA's selection of Alternative I:

- Meets the EPA regulations for threshold criteria for overall protection of human health and the environment and compliance with regulations.
- Uses dredging, capping, and ENR for areas of the river with the highest contaminant concentrations. For most of the river where concentrations of contaminants are lower, it relies on MNR to meet goals in a reasonable timeframe.
- Addresses the most significantly contaminated sediment to achieve substantial and more consistent risk reduction in all areas of the river, using a balance of active and passive technologies.
- Uses technologies that have been shown to work at other Superfund sites. The volumes needed for capping and backfilling are manageable and disposal volumes are reasonable.
- Reduces mobility of contamination in the river by covering all dredge residuals and by capping and treating areas with carbon.
- Reduces overall toxicity, mobility and volume by treatment and off-site disposal of approximately 192,000 CY of removed materials, some of which is characterized as hazardous.
- Eliminates further movement of contaminants by disposing of remaining lower level contaminated material. The landfills included in DMM Scenario 1 are existing facilities that have the ability to handle the Site materials.

- Reduces the amount of and exposure to sediment contamination and reduces impacts to the lower Willamette and Columbia Rivers and their resident fish, thereby reducing risk to human and ecological receptors.
- Improvement in overall river habitat that is anticipated to have positive impacts on fish and wildlife that have a role in tribal lifestyles.
- Accommodates reasonably-anticipated future waterway use in the river, including the federally - authorized navigation channel.
- Achieves all of the above without the challenges of handling a significant volume of removed material over many years of construction or conducting maintenance and monitoring of many capped acres while facilitating MNR.
- Takes approximately 7 years and costs approximately $746 million to implement achieving significant risk reduction at construction completion.

Alternatives E and I have the same level of risk reduction at construction completion, while the other alternatives achieve different levels of risk reduction. Alternatives B and D may not meet the threshold criteria. Alternatives F and G achieve greater risk reduction at construction completion than Alternatives E and I; however, they involve a significantly greater amount of construction area, time, impact to the environment and the community, and cost. Alternatives E and I are similar in cost-effectiveness, but Alternative I is slightly more cost-effective. At a present value of approximately $746 million, Alternative I DMM Scenario 1 is a more cost-effective alternative because it is approximately $60M less than Alternative E while achieving the same risk reduction, and also comparing equally for all other criteria. This is because Alternative I targets dredging more effectively in the navigation channel and still achieves a significant risk reduction.

A CERCLA-based fish advisory and education outreach on fish contamination will prioritize actions from the remedy to ensure protection of human health. EPA will revise the CERCLA-based fish consumption advisory periodically to increase the number of fish meals per year as contaminants in fish tissue are reduced. A consumption advisory would not be required under CERCLA once remedial goals are met.

Based on the information currently available and discussed above, the preferred alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. EPA expects the preferred alternative to satisfy the following statutory requirements of CERCLA Section 121(b):

1. Be protective of human health and the environment
2. Comply with applicable or relevant and appropriate regulations or justify a waiver
3. Be cost-effective
4. Use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable
5. Satisfy the preference for treatment as a principal element, or explain why the preference for treatment will not be met

After receiving and reviewing comments durin g the public comment period, EPA will develop a responsiveness summary and finalize the remedy in the ROD. EPA's Administrator will then approve and sign the ROD.

We Need to Hear from You…

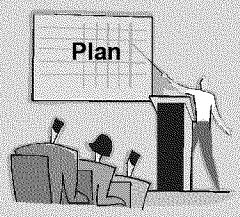
In developing the preferred alternative, EPA has considered input received from the community over a number of years. The frequently expressed concerns dealt with onsite disposal (confined disposal facility) versus offsite disposal (upland landfills) of dredged materials, earthquakes and other natural disasters, monitoring environmental conditions during construction, monitoring of contractors during the construction, and monitoring the effectiveness of the remedy.

EPA is now requesting your comments on these and other concerns related to the Portland Harbor Superfund Site. Your comments will help EPA determine the final cleanup decision.

Do You Need More Details?

For More Details on This Topic	Please Look Here	
	A More-Detailed Summary	**All the Details**
	Proposed Plan for Cleanup June 2016	***Final Remedial Investigation Report*** February 2016
Background and Regulatory Actions	Pages 4 through 12	Executive Summary and Sections 1, 2, and 3
Identification of Sources and Extent of Contamination	Pages 12 through 14	Executive Summary and Sections 4 and 5
Risk to People	Pages 16 through 19	Section 8 and Appendix F, *Baseline Human Health Risk Assessment*
Risk to the Environment	Pages 19 through 21	Section 9 and Appendix G, *Baseline Ecological Risk Assessment*
Cleanup Needs (Goals and Objectives)	Pages 21 through 24	***Feasibility Study Report*** EPA, June 2016
		Executive Summary and Sections 1 and 2
EPA's Cleanup Alternatives	Pages 25 through 48	Executive Summary and Sections 3 and 4
Evaluation of Alternatives	Pages 49-62	
Preferred Alternative and Rational	Pages 62-68	
Public Comment	Page 1 (How to comment)	***Record of Decision* (not issued yet) and *Responsiveness Summary***
Acronyms and Terms	*Glossary, Acronyms and Contaminant Summary*, June 2016	

Attend an Official EPA Public Meeting



Your voice is important! The public is encouraged to comment on the Proposed Plan and attend one of the EPA official public meetings. **Comments** on the Proposed Plan will be **accepted from June 9 until August 8, 2016.** The 60-day public comment period for the Portland Harbor Superfund Site Proposed Plan includes a 30-day extension required by law, based on requests already received by EPA for additional time.

Share Your Comments with EPA. Attend one of the official EPA public meetings to provide oral and written comments, and to hear an EPA presentation on the Proposed Plan. Meetings will be held on the following dates in Portland, Oregon:

- June 24, 2016, 11:30am-8pm, City of Portland Building, 1120 SW 5th Ave.
- June 29, 2016, 11:30am-8pm, EXPO Center, 2060 N Marine Dr.
- July 11, 2016, 11:30am-8pm, University Place Conference Center, 310 SW Lincoln St.
- July 20, 2016, 11:30am-8pm, Ambridge Center, 1333 NE Martin Luther King Jr. Blvd.

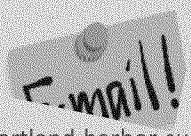
EPA will offer two presentations on the Proposed Plan during each public meeting at the following times:

- **12noon to 12:30pm**
- **6pm to 6:30pm.**

Russian, Spanish, Vietnamese, and Chinese interpreters will be available during the June 24th meeting. Please notify Laura Knudsen knudsen.laura@epa.gov or 503-326-3280, no later than *two weeks prior* to the other public meetings to request language interpretation assistance.

All locations are easily accessible via MAX trains and bus lines.

How to Submit Formal Comments



Throughout the 60-day comment period, written comments may be submitted via:

- Email: harborcomments@epa.gov
- Online comment box: https://www.epa.gov/or/forms/comment-epas-proposed-cleanup-plan-portland-harbor-superfund-site
- Postal mail: ATTN: Harbor Comments, U.S. EPA, 805 SW Broadway, Suite 500, Portland, OR 97205

Comments must be postmarked by midnight, August 8, 2016. Comments submitted during this period will be part of the EPA's official administrative record for the Proposed Plan.

View Proposed Plan and Supporting Materials

EPA encourages the public to review the Proposed Plan, supporting documents and administrative record via:

- EPA's website http://go.usa.gov/3Wf2B
- Multnomah County Central Library, 801 SW 10th Ave., Portland
- St. Johns Library, 7510 N Charleston Ave., Portland
- Kenton Library, 8226 N Denver Ave., Portland

EPA Contacts

Kristine Koch, Project Manager, 206-553-6705, koch.kristine@epa.gov

Elizabeth Allen, Project Toxicologist, 206-553-1807, allen.elizabeth@epa.gov

Anne Christopher, Project Manager, 503-326-6554, christopher.anne@epa.gov

Sean Sheldrake, Project Manager, 206-553-1220, sheldrake.sean@epa.gov

Alanna Conley, Community Involvement Coordinator, 503-326-6831, conley.alanna@epa.gov

Laura Knudsen, Community Involvement Coordinator, 503-326-3280, knudsen.laura@epa.gov