U.S. ENVIRONMENTAL PROTECTION AGENCY

PROPOSED PLAN SUMMARY

LCP Chemicals Marsh

Brunswick, GA

Tell us what you think about the EPA's plan for cleaning up the LCP Chemicals Marsh, Brunswick, GA

November 2014

The U.S. Environmental Protection Agency (EPA) has released a Proposed Plan to clean up contamination in the marsh at the LCP Chemicals Superfund Site. Your comments on this Proposed Plan are important to us and may result in the EPA and Georgia Environmental Protection Division (GAEPD) revising its selection.

Visit www.epa.gov/Region04/LCP Chemical Reading Room to download the full Proposed Plan.

PUBLIC MEETING

As a part of the public involvement process, a public meeting is scheduled on December 4, 2014. The meeting will be held at the Brunswick-Glynn County Library, 208 Gloucester Street, Brunswick, GA 31520 at 6:00 pm. At this meeting, the EPA will present the information it has about the Site, describe its reasons for selecting the preferred alternative outlined in the Proposed Plan, and answer any questions. Oral and written comments will be accepted at the meeting.

EPA's Proposed Plan Summary

EPA's proposed cleanup plan addresses about 24 acres and includes the following elements:

- Seven acres of dredging of the LCP Ditch and Eastern Creek. An anticipated 22,000 cubic yards would be dredged and disposed in a licensed disposal facility;
- Capping of six acres of a creek and parts of Purvis Creek with 14,000 cubic yards of material;
- Thin cover placement on 11 acres of three separate areas with 13,000 cubic yards of sand
- Long-term monitoring data will determine whether additional cleanup actions will be necessary;
- Institutional controls will be used to enhance and measure protectiveness;
- The proposed "active" cleanup will take about two years to complete; and
- The estimated cost of the proposed cleanup is $28.6 million.

Do you eat seafood from Glynn County's Creeks and Rivers?

The seafood consumption advisories for Glynn County are designed to provide guidance for individuals who consume fish and shellfish from certain saltwater creeks and rivers. Saltwater species have and continue to be exposed to compounds such as mercury and polychlorinated biphenyls (PCB) introduced into the environment at multiple former industrial sites around Glynn County. There are ongoing efforts to reduce the exposure of marine life and humans to environmental contaminants through remediation and periodic updates to seafood consumption guidelines. Learn more at: http://marex.uga.edu/seafood_advisories/

Why does the LCP Chemicals marsh need to be cleaned up?

Since the early 1920s, the LCP Chemicals Site has been used by industry, initially for the refinement of petroleum products, followed by electric power generation, then paint formulation. From 1957 to 1994 the property was used as a chlor-alkali plant for the making of hydrogen gas, chlorine gas and sodium hydroxide using the nearly obsolete mercury cell process. The industrial uses of the Site resulted in contaminants[1] either being placed in the marsh or pumped though pipelines into the marsh.

Although the twice daily tides have dispersed the contaminants, due to the properties of the contaminants, the highest concentrations remain within the creeks and channels closest to where the contaminants were placed or pumped.

Wildlife, including finfish, shellfish, birds and mammals live in or migrate through the LCP Chemicals marsh. Because some of the Site's contaminants are persistent, they accumulate and magnify in the wildlife

What do we know about contamination in the LCP Chemicals marsh?

Since the mid-1990s, the companies responsible for the contamination, under oversight by the EPA and the Georgia Environmental Protection Division, have done extensive studies to understand the amount and location of the chemical contamination in the LCP Chemicals marsh, as well as the risks it poses.

These studies have shown that contaminants in the LCP Chemicals marsh can threaten the health of people and wildlife. Shellfish and other benthic invertebrates who live in the marsh sediment (mud) accumulate contaminants over time.

As fish and other wildlife eat the benthic invertebrates and shellfish, those contaminants build up in their bodies. Because of this contamination, the State of Georgia has issued seafood consumption advisories.

These studies have shown that:

- The most harmful contaminants in the LCP Chemicals marsh are mercury, PCBs, lead and polycyclic aromatic hydrocarbons (PAHs).
- The greatest risk to people comes from eating contaminated fish and shellfish that spend most of their lives in the LCP Chemicals marsh.
- Risks from touching or accidentally ingesting contaminated sediment from the marsh are very low.
- Birds, such as the green heron, are at moderate risk from eating contaminated seafood.
- Risks to fish, mammals and other wildlife are lower.
- Cleaning-up contamination to reduce risks to people, herons and bottom-living organisms will protect the other wildlife as well.

[1] For information on contaminants, see the box on page 7.

Objectives of the cleanup

Contaminants will either be removed or covered so that benthic invertebrates, fish, shellfish and people and wildlife which eat them are protected. Using the results of these studies, the EPA developed Remedial Action Objectives for the LCP Chemicals marsh cleanup. The objectives of the cleanup are to reduce risks to health-protective levels for:

- people who eat finfish, shellfish or the game bird, the clapper rail;
- shellfish, fish, birds and mammals; and,
- bottom-dwelling organisms.

The proposed cleanup plan includes Preliminary Remediation Goals, or contaminant concentrations that must be met in sediment in order to meet the Remedial Action Objectives. Preliminary Remediation Goals will become cleanup levels in EPA's Record of Decision.

Cleanup technologies

A limited number of cleanup technologies are available for cleaning-up the contaminated sediment in the LCP Chemicals marsh. Some technologies involve construction activities, such as dredging, capping and enhanced natural recovery. They are considered "active" technologies. Other methods rely on the natural flow of cleaner sediments into the marsh.

The decision to use active technologies is based on several factors including:

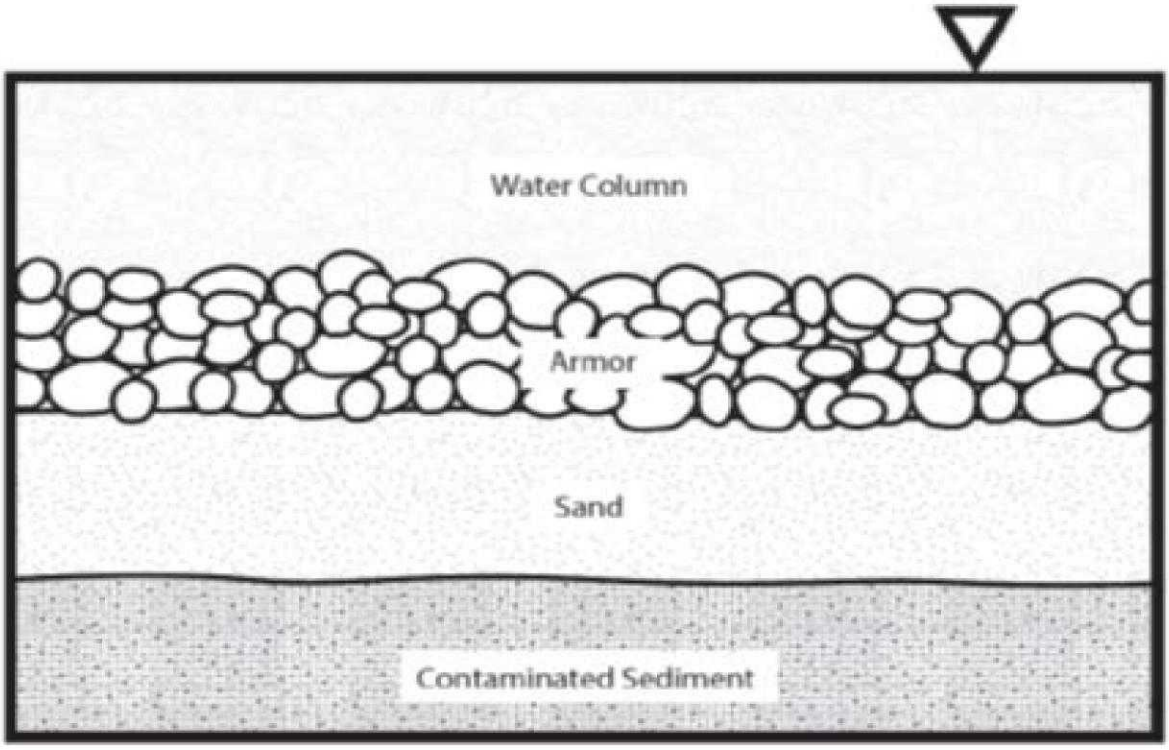
- How contaminated the sediment is; and
- The location of the contaminated sediment.

Dredging – removal of contaminated sediment from the LCP Chemicals marsh. Options to deal with the dredged sediment after removal include:

- Disposal: onsite (for example, in a contained disposal facility) or off-site (for example, in a permitted landfill);
- Treatment of sediment and/or water draining from the dredged sediment to reduce toxicity; and
- Treatment of dewatering liquids before discharge to the marsh.

Machanical Dredging – Removal of sediment in the wet without draining a contaminated sediment site. Dredging can be conducted by both mechanical (e.g., clamshell bucket) or hydraulic (e.g., cutterhead suction dredge) means.

Capping – Cover the contaminated sediment with layers of sand, silt, gravel and rock designed to contain and isolate the contamination. This is also called "containment."



Cross-section of armored cap (Note: triangle shows surface of water)

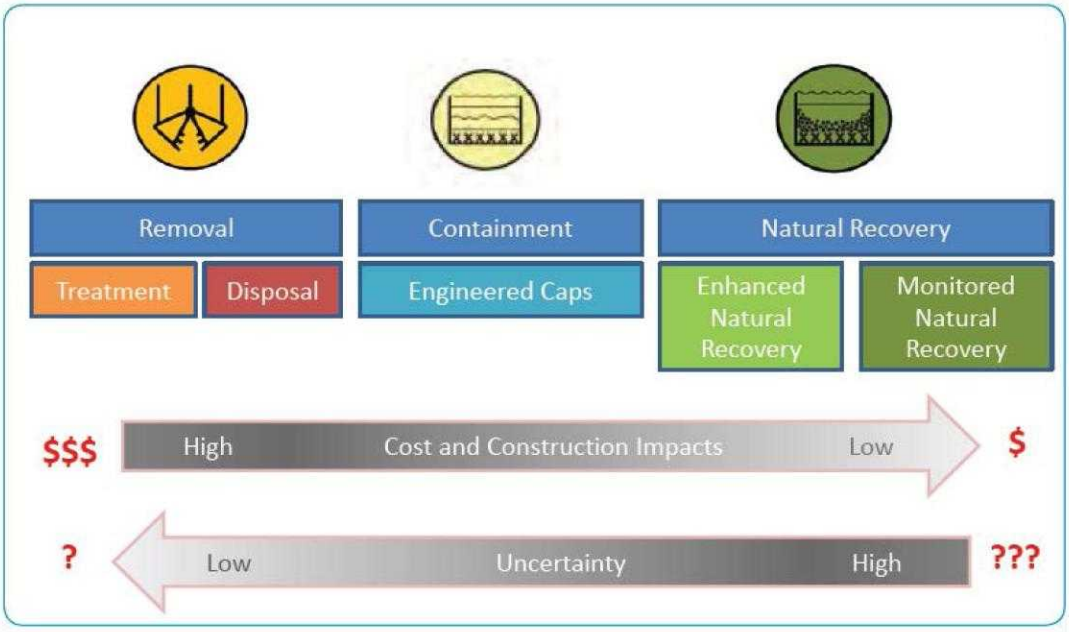
Enhanced natural recovery – Use of a thin layer of sand to cover the less contaminated areas and speed-up the natural recovery process. Amendments like activated carbon or other material may be added to the cap material to make the remaining contamination less harmful to bottom-dwelling organisms.

Hydraulic dredge spraying thin layer of dredged material

Monitoring and Institutional Controls – Monitoring to track contaminant levels in the sediment, water, finfish and shellfish before, during and after the cleanup. More cleanup may be required if monitoring shows contaminant levels are not decreasing as expected.

Continuing to use fish advisories to inform recreational and high quantity fishers about limiting the quantity of fish caught in Glynn County's saltwater creeks and rivers and consumed.

The selection of technologies is related to site-specific conditions, costs and uncertainties. The following figure provides a general comparison of technologies as they relate to costs and site uncertainties.



What alternatives did EPA consider?

EPA considered several cleanup alternatives and is recommending the cleanup plan that the agency believes provides the best balance of effectiveness, certainty, time, impacts on the marsh and cost, while considering community needs. The table on this page summarizes the alternatives evaluated. Each alternative uses a mix of technologies to achieve cleanup goals.

Cleanup Alternatives Considered

Remedial Alternative	Remedy Description	Sediment Dredging (acres)	Dredging Volume (cubic yards)	Capping Area (acres)	Thin Cover Area (acres)	Total Remedy (acres)	Marsh Disturbance Beyond Remedy (acres)	Years to Construct	Cost ($ millions)
1	No Action	0	0	0	0	0	0	<1	None
2	Sediment Removal in SMA-1	48	153,000	0	0	48	59	3-4	$64.8
3	Sediment Removal, Capping, and Thin Cover in SMA-1	9	27,000	16	23	48	56	3-4	$38.7
4	Sediment Removal in SMA-2	18	57,000	0	0	18	29	2	$34.1
5	Sediment Removal, Capping, and Thin Cover in SMA-2	7	22,000	3	8	18	26	2	$26.0
6	**Sediment Removal, Capping, and Thin Cover in SMA-3**	**7**	**22,000**	**6**	**11**	**24**	**31**	**2**	**$28.6**

EPA's and GAEPD's preferred alternative is Alternative 6.

The following are key factors to consider when comparing alternatives:

- Alternatives 2 through 6 differ in the amount of dredging, capping and thin-layer cover. All alternatives rely on institutional controls, such as seafood consumption advisories to provide additional protection to people's health.
- Alternatives with more sediment removal provide more certainty in the long-term by removing the contamination from the marsh, but almost double the short-term impacts (marsh disturbance, dust generation, emissions, traffic, etc.).
- Although care will be taken to minimize disturbances during dredging, it takes longer and costs more than other technologies.
- Alternatives with more capping and thin layer cover have less short-term impacts and cost, but increase the need for long-term management and monitoring.
- It is the EPA's plan to oversee the selected cleanup, **Alternative 6**, and then carefully monitor the biota, sediment and surface water to see what cleanup levels are actually achieved. More work may be required if monitoring shows contaminant levels are not being reduced to meet the cleanup levels selected.

What criteria did EPA use to evaluate alternatives?

The alternatives were evaluated in the Feasibility Study. All alternatives had to meet Threshold Criteria in order to be considered for the Proposed Plan. They were:

1. Protect human health and the environment and;
2. Comply with federal and State of Georgia environmental laws and regulations.

Then EPA evaluated and compared alternatives using the following criteria:

3. Long-term effectiveness and permanence;
4. Reduced toxicity mobility, and volume through treatment;
5. Short-term effectiveness;
6. Ability to be implemented; and
7. Cost.

After the public comment period, EPA will also consider the following criteria in making its final selection:

8. State acceptance; and
9. Public acceptance

What Happens Next?

- EPA will make a final decision after considering public comments and consulting with the State of Georgia and affected community.
- EPA will publish the Record of Decision and responses to comments received during the public comment period, approximately two months after the Proposed Plan is issued.
- The agency will negotiate a cleanup agreement with parties responsible for the pollution, who will then design and implement the cleanup, with EPA oversight.

What are the most harmful contaminants found in the LCP Chemicals marsh?

There are many chemical contaminants in the LCP Chemicals marsh sediment, finfish and shellfish. Most of the human health risk comes from four chemicals discussed below. While each of these chemicals can be found in different parts of the marsh, the largest amounts are near the former LCP Chemicals Uplands.

Mercury is a naturally occurring element. It exists in several forms: metallic mercury, inorganic mercury compounds, and organic mercury compounds. Exposures to mercury can affect the human nervous system and harm the brain, heart, kidneys, lungs, and immune system. The most common way people are exposed to mercury is by eating fish or shellfish that are contaminated with mercury.

Polychlorinated biphenyls (PCBs) are man-made chemicals that were banned in 1977. They stay in the environment for a long time and can build up in finfish, shellfish and mammals. PCBs, such as Aroclor 1268, the one found in the marsh, are known to impact the immune system and may cause cancer in people who have been exposed over a long time.

Lead is a naturally occurring element found in small amounts in the earth's crust. Lead can be toxic to humans and animals, causing negative health effects. It is not of concern to human health, wildlife or fish in the LCP Chemicals marsh; however, it is a chemical that can negatively affect benthic organisms.

PAHs in the LCP Chemicals marsh are not of concern to human health, wildlife or fish but may pose risks to the benthic community. PAHs are a group of compounds comprised of several hundred organic substances with two or more benzene rings. They are released to the environment mainly as a result of incomplete burning of organic matter and are major constituents of petroleum and its derivatives. While some PAHs are known to be carcinogenic, others display little or no carcinogenic, mutagenic, or teratogenic activity.

Information Repositories

Information concerning the LCP Chemicals marsh may be found at the following locations:

LCP Chemicals Marsh Information Repository
Brunswick-Glynn County Co. Library
208 Gloucester Street Center
Brunswick, GA 31520
Phone: (912) 267-1212
Hours: 9:30am – 5:00pm (M, W, F, Sat)
Hours: 9:30am – 8:00pm (T, Th)

USEPA Region 4 Records Center
61 Forsyth Street, SW
Atlanta, GA 30303
404-562-8946

Mailing List Additions

Anyone wishing to be placed on the mailing list for this site should send his/her request to Angela Miller, EPA Involvement Coordinator, at 1-877-718-3752 (toll free).

Submit comments by February 2, 2015

- **Email: jackson.galo@epa.gov**
- **Mail letters to :** Galo Jackson
  Environmental Protection Agency
  61 Forsyth Street, Atlanta, GA 30303

Visit www.epa.gov/Region04/LCP Chemical Reading Room to download the full Proposed Plan and for information about the public comment period, and the public meeting scheduled.

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for the LCP Chemicals marsh important to EPA. Comments provided by the public are valuable in helping EPA select a final cleanup remedy for Operable Unit 1 of the Site.

You may use the space below to write your comments, then fold and mail. Comments must be postmarked for receipt by EPA no later than February 2, 2015. If you have questions about the comment period, please contact Mr. Galo Jackson, 404-562-8827. Those with electronic communications may submit their comments to EPA at the following email address: jackson.galo@epa.gov on or before February 2, 2015. **Note: In order to permit the community ample time to review and comment on this Proposed Plan, a 30 day extension to the initial 30 day comment period has been allowed for, concluding the comment period on February 2, 2015.**

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Name_____

Address_____

City_____

State_____ **Zip**_____

INSIDE: EPA Proposes Action on LCP Chemicals Marsh

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