

Glynn County Superfund Sites Environmental Cleanup Newsletter

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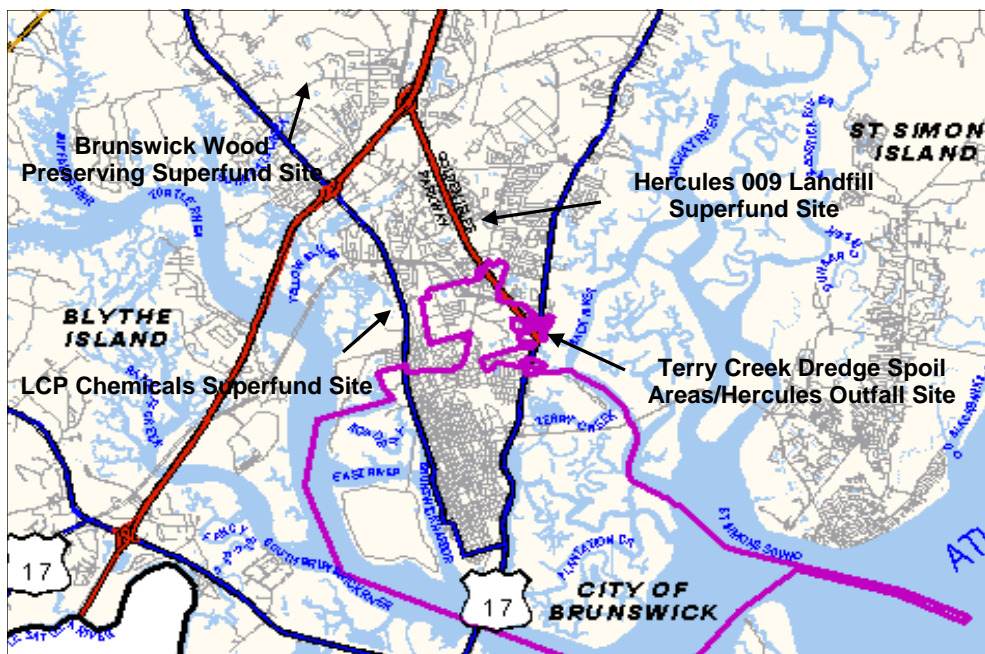
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How Many Superfund Sites in Glynn County?

Four Superfund sites in Glynn County -- the Brunswick Wood Preserving Superfund Site, the LCP Chemicals Superfund Site, the Terry Creek Dredge Spoil Areas/Hercules Outfall Site, and the Hercules 009 Landfill Superfund Site -- are regulated by the Environmental Protection Agency as Superfund sites.

What Are the Cleanup Goals?

Under Superfund law, environmental cleanups must meet several criteria before the site is considered safe. These criteria include practices that: are protective of human health and the environment; meet all environmental and regulatory laws; are technically feasible and implementable; can provide a reduction in toxicity, mobility and volume; will provide short- and long-term benefits; are cost-effective; are accepted by the state in which the Superfund site is located; and, have community acceptance.

What Do the Cleanup Goals Mean?

In practice, the criteria do not carry equal weight and there is considerable overlap in their use. **State and Community acceptance** are "balancing criteria" the EPA can ignore, for example.

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“Protective of human health and the environment” is a very broad criterion. In some cases protection of human health can be met with just a warning sign. Human health has priority and long-term impacts on the local environment are often not used by the EPA—unless a specific law, such as the Endangered Species Act, would mean there are two criteria in play. A “short-term” effect generally means that the remedy does not increase damage to the environment while the remedy is being implemented. For example, burning waste might destroy it but the toxic smoke produced would be an unallowable short-term effect.

“Meets all laws” has to do with parallel and sometimes overlapping Federal and State laws regarding land use. States can set more stringent environmental laws impacting the site and the State acceptance criteria may not be met under that condition. On-site disposal also has to meet other laws related to the Resource Conservation and Recovery Act.

The **“feasibility”** rule means that the EPA cannot choose a remedy that requires extensive research and development in order to use. The “implementable” rule means that EPA must prove the effectiveness of the proposed engineering. Taken together, the final decision for the site must be practical, safe, and available now.

Overall, the **“cost-effectiveness”** and **“reduction in toxicity, mobility, and volume”** are the criteria that actually drive remedy selection at Superfund sites. Merely fencing the area and posting signs does not reduce toxicity, mobility, and volume, even though fencing and signage can be protective. Any technology chosen for the cleanup has to reduce toxicity, mobility and volume in the near-term, without breaking other laws. In practice, the three goals are treated as “either/or” in view of costs, and the selection of a cleanup remedy usually comes down to the cheapest method to reduce either toxicity or mobility or volume, with a particular emphasis on volume.

Brunswick Wood Preserving Site

The Brunswick Wood Preserving Superfund Site is a good example of a cleanup that tries to balance all of the Superfund criteria. After the plant closed and the

site became a Federal Superfund Site much of the toxic waste was removed to a disposal facility in another state. The site still contained heavy metals, dioxins, aromatic hydrocarbons and other pollutants. Toxic plumes extended off-site in the groundwater and into the creek bordering the site. The EPA, with the State of Georgia, designed a remedy that would turn the site into a permanent waste dump for



Ponds were drained (above), filled with clean soil, and the contaminated soils and sediments mixed with concrete and additives. The mix was used as a sub-cap over the site (below).



hundreds, perhaps thousands, of years. The community preferred a remedy that removed the remaining toxic wastes and returned the site to usefulness. The final design uses clay slurry walls to contain and eliminate horizontal plumes of waste, with treatment of already contaminated water outside of the impoundments. Some contaminated creek bed sediments were removed and put back into the site. The sediments and aboveground toxic wastes were combined with clean soils to reduce the toxicity below human health threats, and the resulting

material added to the impoundments. There remains a possibility of vertical migration of toxins in the impoundments in the years to come. The toxic layers are sinking and the natural rock floor may not be a permanent barrier. The community wanted more studies on the base materials. However, geophysical techniques are expensive and difficult to use on old industrial sites, and boring more wells into the containment layer might actually carry waste down into the clean layers below the site. Long-term monitoring is needed to ensure the site does not leak, and most of the site remains unusable. There is, though, substantial reduction of mobility and volume of wastes. There are long-term benefits to the creek and nearby residents. Other technologies were considered to be too expensive or too early phase to be used, so impounding on-site had the greatest feasibility.

LCP Chemicals Superfund Site

The LCP Chemicals site was the subject of a massive emergency removal action which aided in reducing the toxicity and volume of waste flowing from the land area into the marshes surrounding the site. A second removal action of the contaminated marsh soils further aided in reducing the mobility of wastes in the marsh. At this site a battery of cleanup techniques were used, including removal and off-site disposal, stabilization, and treatment of wastes. Site soils still include Poly Chlorinated Biphenyls (PCB) and mercury from a bleach manufacturing operation, and aromatic hydrocarbons (PAH) from past refinery operations. At this time there is no comprehensive plan to return the land to usefulness or to repair the damaged marshlands. A plan that does a few piecemeal projects in the uplands is all that is



PCB contaminated anodes used as building material were removed from the LCP Chemicals Site.

proposed at this time. Beneath the site there is a large pool of caustic brine (a mixture of alkaline salts and toxins) that is a threat to local groundwater. So far the treatment studies offered are scientifically weak and seem designed to minimize costs and draw out the cleanup process as long as possible. It is unclear if any progress is being made to meet the Superfund criteria at the LCP site.

Terry Creek Dredge Spoil Areas/Hercules Outfall Site

At the Terry Creek Dredge Spoil Areas/Hercules Outfall Site, there has been some effort to reduce the volume of wastes flowing into the marsh, and some cleanup efforts aimed at reducing the volume of contaminated sediments within the creek system. The



Work remains to be completed on the Hercules outfall (center left) and the dredge spoil area (center right).

actual amount and toxicity of the toxaphene pesticide chemicals in the creek is the subject of considerable debate that will impact the rate of cleanup for years to come. The Terry Creek site receives runoff from a drainage ditch on the Hercules plant where waste from manufacture of toxaphene pesticide was dumped into the creek. A dredging program distributed the waste soils over a very broad area. A second dredging program aided in removal of some of the more contaminated areas. Waste has historically flowed from contaminated soils at the plant into the creek, even though manufacturing of the pesticide ended decades ago. Toxaphene is a mixture of several hundred possible hydrocarbon compounds containing chlorine. Studies have proven the mixture of chemicals sold by the company causes cancer in some



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test animals and the mixture is presumed to be a potential cancer-causer in humans based on current toxicology principles. The toxaphene chemical mixture is a toxic biocide with life-impairing effects on many species. The company argues, but has not proven, that the mixture of chemicals in the marsh is degraded and poses little threat to humans at this time. There are no laboratory studies anywhere in the world to back this claim. Although there is one editorial paper that argues for the limited toxicity there are no laboratories that have proven or disproven the effect. Further, there is a problem with the analysis of toxaphene, owing to its chemical complexity. Most scientists do agree that the currently approved EPA method that measures all chemical species is a poor way of determining environmental impact. That said, the method used for toxaphene in Glynn County, and nowhere else, has been found to underestimate the actual amount of toxaphene in the environment. EPA's own scientists at headquarters are pushing for a new methodology based on sophisticated instruments; however, EPA's local region that includes Georgia has been unwilling to employ the new methods. Without accurate and accepted data no remedy planning can occur. Further, the community group prefers that the "protective of

the environment" criteria be the driving force in cleaning up this site due to the impact on important local fisheries. Both commercial and subsistence fishing is dependent on this contaminated marsh. The local EPA region argues for using only the "protective of human health" aspect, and has cited studies on toxaphene accumulation in Eskimos in the Arctic Circle regions as the centerpiece of their argument. It is unlikely this site will see an active cleanup in the near future.

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