EPA
United States
Environmental Protection
Agency

EPA Proposes Fill and Cover to Clean Up Lagoon

Ralston Street Lagoon
Gary, Indiana October 2008

U.S. Environmental Protection Agency is proposing a plan to clean up and contain hazardous materials at the Ralston Street Lagoon by encasing the site with a special underground wall, draining lagoon water, mixing in dry fill material with the sludge, solidifying it, and then capping the facility. The proposed cleanup plan also calls for buying 6 acres of adjacent residential parcels to be used as a staging area, raising the current berm to protect from 100-year floods, fencing the site and monitoring underground water supplies (called ground water) to ensure the cleanup plan is working.

This set of cleanup steps is among eight options or alternatives considered by EPA. This preferred option is estimated to cost more than $66 million. The public can participate in the decision-making process through a comment period and public meeting *(see left-hand box)*. Based on public comments, EPA could modify the preferred option or select another alternative.

The lagoon was used for municipal sewage sludge disposal beginning in 1962. It is now filled with about 553,000 cubic yards of sludge. Studies document the sludge is contaminated with hazardous polychlorinated biphenyls (PCBs). The federal Toxic Substances Control Act regulates the handling of all materials containing PCBs in concentrations higher than 50 mg/kg.

History of Ralston Street Lagoon

The lagoon covers 19 acres and is owned and operated by the Gary Sanitary District, a unit of the City of Gary. The lagoon is located in a fenced area along the Grand Calumet River in Gary, just north of the Indiana Toll Road and south of the Gary/Chicago International Airport. Residential and commercial parcels lie to the east of the lagoon, and additional residential and commercial sections sit south of the toll road. The figure on Page 2 shows an aerial view of the Ralston Street Lagoon and vicinity.

Studies and investigations of the lagoon dating back more than 20 years have documented problems with the facility. In 1997, a consultant's study described the nature and extent of PCBs in the sludge and surface water of the lagoon. More than 96 percent of the sludge was found to be contaminated with PCBs (in the form of a chemical known as Aroclor 1248) in excess of the 50 mg/kg level. A little more than 10 percent of the sludge exceeded 500 mg/kg. The average PCB concentration in the sludge was more than 180 mg/kg, with a range of 19 to 1,300 mg/kg. The measurement of 1 mg/kg is a tiny amount, equal to one second in 12 days, but even small amounts of hazardous materials can cause health problems. Fortunately, PCB levels in the surface water were found to be minimal.

A legal document called a consent decree requires the City of Gary and Gary Sanitary District to clean up and contain the lagoon contamination.

We want your opinions

The public is encouraged to comment on this proposed cleanup plan for the Ralston Street Lagoon. EPA will be accepting comments on the proposal from **November 3 to December 5**. A comment sheet is enclosed for your convenience. You can also fax your comments to Michael Mikulka at 312-353-4342 or E-mail mikulka.michael@epa.gov.

EPA also encourages the public to attend and participate in a public meeting, **6:30 p.m. to 8:00 p.m. on November 18, at the Gary Sanitary District offices at 3600 West 3rd Avenue in Gary.** EPA representatives will present the cleanup proposals, answer questions and take written and oral comments at the meeting. The Agency could alter its proposed plan or choose a different alternative based on public comments so your input is important.

Contact EPA

For questions: technical questions
Michael Mikulka, Project Manager
EPA Region 5 Chicago Office
312- 886-6760; **Rafael P. Gonzalez**
Public Affairs, 312-886-0269
gonzalez.rafaelp@epa.gov

Region 5 toll-free:
800-621-8431, 8:30 a.m. – 4:30 p.m., weekdays

Repository Location, official site records can be examined at the Gary Public Library, 220 West 5th Ave. Gary, Indiana, or in the 7th floor records center at EPA's office at 77 West Jackson Boulevard, Chicago, IL.

Several investigations since 2003 have looked at the soil, underground water and geology of the area. Technicians and scientists have also examined various cleanup techniques to give environmental regulators such as EPA and state partner Indiana Department of Environmental Management some options to consider.

Ground-water monitoring wells were installed in and around the lagoon and Grand Calumet River to judge the extent of pollution, if any, escaping from the facility.

After several years of studies and discussions between the responsible parties and EPA over cleanup options, the Agency approved a document called a "technical and cost assessment" last February. The consent decree requires that any cleanup alternative be evaluated against seven criteria: 1) effectiveness; 2) overall protection of public health and the environment; 3) long-term effectiveness and permanence; 4) technical feasibility; 5) administrative feasibility; 6) availability of services and materials; and 7) costs.

Risks to people and the environment

Existing health risks from PCB exposures were examined by Gary Sanitary District in the technical and cost assessment approved by EPA. The district used recently collected ground water, soil, sludge and surface water data, supplemented by older figures. The site is fenced and access by the public is restricted so immediate exposure to the pollutants is not the problem. The PCBs in the sludge could pose a health threat if they "leached" out of the lagoon into ground water or surface water such as the Grand Calumet River. The current berm could also fail or overflow in flooding, causing health risks. The lagoon contains an estimated 42 million gallons of water lying over the sludge at a depth of about 7 feet.

Fortunately, no PCBs were detected in any of the monitoring wells, so the compound does not appear to be moving out of the lagoon and contaminating ground water. Testing also revealed no PCBs in the lagoon's surface water.

Assessment of both cancer and non-cancer hazards associated with various exposure possibilities showed the following:

- Exposure to the maximum level of PCBs is unlikely (highest concentration found at 20 feet below the surface).
- Non-cancer risks from exposure to both the maximum and average concentrations of PCBs were also small.
- Cancer risks through breathing air particles tainted with PCBs was measurable but not at high levels.
- Trespassers who gain access to the site and accidentally swallow or have skin contact with the sludge could face slightly elevated cancer risks.
- On-site or construction workers would have slightly less cancer risk than trespassers because presumably workers would use personal protective equipment such as gloves and coveralls.

Ralston Street Lagoon and Vicinity

To summarize, the health risk study found cancer risks for trespassers, sanitary district workers and contractors are all above the acceptable risk range if they are regularly exposed over long periods to the maximum PCB concentrations found at the site. These situations are unlikely to happen, experts concluded. Still, officials decided the lagoon needs to be cleaned up and contained because the PCBs were improperly disposed and do represent a health threat.

Cleanup goals

The Gary Sanitary District's technical and cost assessment report suggested several cleanup goals for the lagoon. The goals include preventing swallowing, breathing or direct skin contact with sludge or surface soil that contain PCBs, permanently and significantly reducing the movement of the PCB-tainted sludge, and preventing lagoon surface water from releasing PCBs into the Grand Calumet River.

EPA agreed with these goals but is adding one more objective -- preventing lagoon water containing other contaminants from discharging to the Grand Calumet River through the ground water.

Cleanup options considered by EPA

The consent decree specified that at a minimum, disposal/clean-up alternatives to be considered should include: (a) disposal at an off-site location; (b) disposal on-site (on property at or near the wastewater treatment plant); (c) any one or more of a combination of the following -- (i) in-place solidification/stabilization; (ii) in-place bioremediation; (iii) in-place vegetation/soil cover; and (d) any other option of choice to Gary and the sanitary district.

The above options were incorporated into the technical and cost assessment report and screened in Section 6 of the report if you wish to read it. This screening process resulted in a detailed analysis of eight alternatives against the seven criteria specified in the consent decree and described earlier in this fact sheet. The sanitary district assigned points for each of the criteria, with technical feasibility weighted most heavily (90 points). The weightings are based on the district's interpretation of the relative importance of the factors required to be considered. The highest possible score for any option is 200 points. The final alternatives developed in the report for EPA consideration are as follows:

Read the documents

The public is encouraged to review the official documents associated with the site. These are records EPA considered in support of the proposed plan.

They are contained in public repositories at the Gary Public Library, 220 West 5th Avenue, Gary, and also at EPA's offices at 77 W. Jackson Blvd., 7th floor Records Center, in Chicago, IL.

Alternative 1: No action: No action options are always included for comparison purposes. This alternative requires only semi-annual ground-water sampling. Total cost -- $287,000; Points – 96/200.

Alternative 2: On-site containment. This alternative includes land acquisition of adjacent residential parcels, site preparation, installing lagoon water surface controls, raising the perimeter berm with fill, stabilizing the north portion of the perimeter berm with permanent sheeting, a special "slurry" wall composed of a soil-bentonite mixture, and site grading and fencing. In addition, annual ground-water monitoring and berm maintenance are required. Total cost -- $18 million; Points – 120/200.

Alternative 3: Off-site disposal. This option includes land acquisition of adjacent residential parcels, site preparation, installing lagoon water surface controls, raising the perimeter berm with fill, stabilizing the north portion of the perimeter berm with temporary sheeting, dredging the sludge and water and pumping the water to an adjacent dewatering system, treating the water at the wastewater treatment plant, stabilizing/solidifying the dewatered sludge, off-site removal to a chemical waste landfill, site grading and fencing and annual ground-water monitoring. Total cost -- $108 million; Points -- 97/200.

Alternative 4: On-site disposal (confined disposal facility at or near the wastewater treatment plant). This alternative includes land acquisition of adjacent residential and commercial parcels, site preparation, stabilizing the north portion of the perimeter berm with temporary sheeting, dredging the sludge and pumping to an adjacent dewatering system, treating the separated water at the wastewater treatment plant, stabilizing/solidifying the dewatered sludge, construction of a 6-acre confined disposal facility on-site, placing the dewatered sludge

into the confined disposal facility and capping it, and site grading and fencing. Deed restrictions and signage would also be included along with annual ground-water monitoring and cap maintenance. Cost -- $67 million; Points – 114/200.

Alternative 5: In-place solidification/stabilization with in-place vegetation/soil cover. This alternative includes land acquisition of adjacent residential parcels, site preparation, installing lagoon water surface controls, raising the perimeter berm with fill for 100-year flood protection, stabilizing the north portion of the perimeter berm with permanent sheeting, installing a soil-bentonite slurry wall, dewatering the interior of the lagoon, bulking up the sludge with fill material, solidifying/stabilizing the bulked sludge in-place to reduce the mobility of PCBs, covering the lagoon with an impermeable cap, site grading and fencing, deed restrictions, signage, and ground-water monitoring and berm maintenance. Cost - $79.3 million; Points – 134/200.

Alternative 6: On-site dry cell containment. This alternative includes land acquisition of adjacent residential parcels, site preparation, raising the perimeter berm with fill for 100-year flood protection, installing a cement-bentonite barrier wall, dredging the sludge and pumping the mixture to an adjacent dewatering area. The sludge would be dewatered in geotubes followed by treating the water and the dewatered sludge at the wastewater treatment plant. The option also includes solidifying the dewatered sludge, preparing the lagoon bottom, including installing cross-berms, installing underdrains and dewatering to maintain a dry working area, consolidation of treated sludge into a dry cell, capping the dry cell with an impermeable cap, and site grading and fencing, deed restrictions, signage, annual ground-water monitoring, berm maintenance and ground-water treatment. Cost -- $66.2 million; Points – 117/200.

Alternative 7: Compression cap. This alternative includes land acquisition of adjacent residential parcels, site preparation, raising the perimeter berm with fill for 100-year flood protection, installing a cement-bentonite barrier wall, dewatering the surface water and treating the water at the wastewater treatment plant, construction of a compression cap, treatment of water separated from the sludge, loading the cap with imported fill for a period of up to four years, construction of an impermeable cap, and site grading and fencing, deed restriction, signage, management of the imported fill for four years, annual ground-water monitoring and cap maintenance. Cost -- $43.7 million; Points – 112/200.

Alternative 8: Filling the lagoon *(this is EPA's preferred alternative).* This option includes land acquisition of adjacent residential parcels, site preparation, raising the perimeter berm with fill for 100-year flood protection, stabilizing the north portion of the perimeter berm with permanent sheeting, installing a soil-bentonite slurry wall, pumping out lagoon water and treating it at the wastewater treatment plant, importing dry fill material and bulking up the material with the sludge in the lagoon, installing cross-berms, mixing the bulking material with the sludge, capping the bulked material with an nonpenetrating cap, and site grading and fencing. Deed restrictions and signage would also be included. Annual ground-water monitoring and berm maintenance would be added. Cost -- $66.5 million; Points – 152/200.

Alternative 9: Deferring Final Decision Until Further Design and Pilot Studies are Completed. Recently, GSD submitted additional information which recommended that EPA defer a final decision on selection of an alternative until pilot testing could be completed for both Alternatives 7, compression cap and 8, filling the lagoon. This recognized that there were certain common elements to both Alternatives 7 and 8 and those could proceed concurrently with the pilot testing for the sludge remedy. After pilot testing, the results would be evaluated and the stabilization method for the sludge selected. Cost -- $43.7 to $66.5 million; No points assigned.

Discussion of alternatives

The various options were evaluated against the seven criteria listed on Page 2, and EPA selected its preferred alternative for presentation to the public, after consultation with IDEM.

Alternative 1 (no action) was not selected as it does not meet the cleanup goals or the terms of the consent decree because it does not protect human health and the environment.

Alternative 2 (on-site containment) also fails to meet cleanup goals or terms of the legal agreement.

Alternative 3 (off-site disposal) does meet goals and legal terms but was not selected because among other problems it would require transporting 8,000 truckloads of hazardous materials more than 235 miles, and its $103 million price tag is not cost-effective.

Alternative 4 (on-site disposal) meets the goals but requires building a new waste disposal facility, which could complicate operations at the nearby Gary/Chicago International Airport. Additional land acquisition would also be required, and the lagoon containing residuals would still remain.

Text continued on Page 7

Use This Space to Write Your Comments

EPA is interested in your comments on the proposed cleanup plan for the Gary, IN, Ralston Street Lagoon site. You may use the space below to write your comments. You may submit this at the November 18, 2008, public meeting, or detach, fold, stamp and mail to EPA. Comments must be postmarked by December 5, 2008. If you have any questions, please contact EPA Environmental Specialist Rafael P. Gonzalez directly at 312-886-0629, or toll free at 800-621-8431, weekdays 10 a.m. – 5:30 p.m. Comments may also be faxed to Rafael Gonzalez at 312-353-1155 or sent by the Internet at gonzalez.rafaelp@epa.gov.

Name _____

Affiliation _____

Address _____

City _____ State _____ ZIP _____

Ralston Street Lagoon Comment Sheet

fold

---

fold

Place
First
Class
Postage
Here

Rafael P. Gonzalez
EPA Environmental Specialist
Land and Chemicals Division, L-8J
EPA Region 5
77 W. Jackson Blvd.
Chicago, Il 60604-3590

Comparison of Cleanup Alternatives

Evaluation Criteria	1	2	3	4	5	6	7	8*
Effectiveness	□	□	■	■	■	■	■	■
Overall protection of public health & the environment	□	□	■	■	■	■	■	■
Long-term effectiveness and permanence	□	□	■	■	■	■	■	■
Technical Feasibility	□	■	■	■	■	■	◪	■
Administrative Feasibility	□	■	□	◪	■	■	■	■
Availability of Services & Materials	□	■	■	■	■	■	■	■
Costs, millions	$0.3	$18	$108	$67	$79.3	$66.2	$43.7	$66.5

■ – Meet Criteria ◪ - Partially Meets Criteria □ – Does Not Meet Criteria

*** EPA's Preferred Alternative**

Alternative 5 (in-place solidification/stabilization with vegetation cover) meets the goals but was not selected due to cost and other considerations.
Alternative 6 (on-site dry cell containment) meets the goals but was not selected because among other reasons all dredged and dewatered material would have to be stored next to the lagoon for up to two years while the dry cell is prepared, and this option may contain unforeseen costs.
Alternative 7 (compression cap) meets the goals but was not recommended because while it reduces the risk, it is less effective than other alternatives considered because this is a new technology untested on a similar site, and takes several years longer to construct than other alternatives.
Alternative 9 (defer decision until after pilot testing) was not selected for the same reasons Alternative 7 was not selected.
Alternative 8 (filling the lagoon) is EPA's selected alternative for the following reasons: The sludge does not need to be transported, dredged or dewatered in order for this alternative to be implemented; the alternative is effective, protects human health and the environment; it reduces risk by limiting movement of the contaminants; it is reliable over the long term and is technically and administratively feasible; it is a proven technology which can be implemented at a cost-effective price.

Even though EPA is selecting Alternative 8, EPA is leaving GSD the option to conduct the design and pilot studies with regard to Alternative 9 as well. If the studies show that Alternative 7 is technically feasible and cost-effective, GSD can request at that time that EPA modify the selected plan, after further public notice.

Next steps

EPA will review comments received during the public comment period before making a decision on the cleanup plan. Based on new information in the public comments, EPA may change its proposed option and select another alternative presented in this plan.

EPA will respond to comments in a document called a "responsiveness summary" and announce its decision to the public in the local newspaper with copies placed in the administrative record.

After the decision, the Gary Sanitary District will submit a design work plan to EPA that identifies the detailed studies that will be needed to implement the selected plan. After approval by EPA, the detailed design and construction needed to implement the plan will occur over a period of years. The consent decree requires the selected plan be implemented within five years after EPA's decision.

EPA Picks Recommended Cleanup Option for Ralston Street Lagoon

Gary, Indiana

Fill and Cover Alternative Preferred

(details inside)

RALTSON STREET LAGOON: EPA Proposes Cleanup Plan

EPA
United States
Environmental Protection
Agency
Region 5
Office of Public Affairs (P-19J)
77 W. Jackson Blvd.
Chicago, IL 60604-3590