United States Environmental Protection Agency

EPA Proposes to Cover Contaminated Area

North Alcoa Site Operable Unit 1

East St. Louis, Illinois — April 2012

Your opinion wanted

EPA invites your comments on the proposed cleanup plan for the Alcoa OU1 site. Your input is important because EPA may modify or select another cleanup option based on public comments. There are several ways your voice can be heard during the public comment period that runs from April 12 – May 14, 2012.

- Fill out and return the enclosed comment form by the deadline.
- E-mail comments to EPA Remedial Project Manager Dion Novak at novak.dion@epa.gov or fax to 312-692-2472.
- Via the Internet at http://www.epa.gov/region5/cleanup/northalcoa/pubcomment.html
- Attend the public meeting on Tuesday, April 17, 2012, 7 – 9 p.m. at the East St. Louis City Hall, 301 River Park Drive, and submit a written or oral statement.

For more information

Contact these team members:

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The site's Web page and information repositories are listed on P. 2

The U.S. Environmental Protection Agency working with Illinois EPA is proposing to cover a polluted area with two feet of soil as a way to prevent exposure to lead and other metals, including radium. The cleanup area would be regraded to create a slope and will be covered with the soil layer to prevent pollutants from direct contact with humans. Stormwater within the area will be managed in basins designed to contain a 100-year stormwater event. Existing ponds on the site would be used as part of the stormwater design under this proposal.

The section to be cleaned up is known as the North Alcoa Operable Unit 1 or OU1. EPA often divides complex cleanup sites into smaller units called OUs. This fact sheet is a summary of a much more detailed official document called a proposed plan that outlines several proposed cleanup options and EPA's preferred cleanup plan for this section of the Alcoa site.

EPA will not select a final cleanup plan until after it reviews comments received from the public at a hearing and public comment period *(see left-hand box for ways you can participate in the decision-making process)*. The Agency is issuing the proposed cleanup plan as part of its public participation responsibilities under federal law.[1] EPA may modify the proposed cleanup plan or select another option based on new information or public comments so your opinion is important.

About the site

The North Alcoa site consists of 400 acres located in a mixed use area of East St. Louis. The property is bounded on the north by Lake Drive, on the east by the Alton and Southern railroad, on the south by Missouri Avenue and on the west by 29th Street. The Mississippi River is three miles to the west of the site. Frank Holten State Park containing several large lakes is east of the site. Fortunately, neither the Mississippi River nor the state park is connected to the site by any surface or underground waterways that could move pollutants.

The city and Alcoa are legally responsible for cleaning up the pollution under EPA oversight.

Manufacturing was occurring on or around the site more than 100 years ago. Operations at the North Alcoa site occurred mostly on the south side of Missouri Avenue where alumina and aluminum fluoride were produced from bauxite ore. The bauxite refining process used hot sodium hydroxide in a pressurized digester to separate material from the insoluble bauxite residue known as "red mud." During World War II, red mud was mixed in rotary

[1] *Section 300.430(f) (2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), requires public notice about this proposed cleanup plan through a meeting, comment period and newspaper announcement. This fact sheet summarizes information contained in the feasibility study and other documents that can be reviewed at the East St. Louis City Clerk's Office, the public library and EPA Region 5 offices in Chicago.*

kilns with limestone and soda ash. The residue from this process is "brown mud." Both forms of bauxite residue were disposed of north of Missouri Avenue in the area now known as the North Alcoa site.

At the beginning of the 20th century bauxite residue was used to fill in the former Pittsburg Lake. Later it was stored in residue disposal areas or RDAs. The RDAs were contained within gypsum berms. Gypsum was a byproduct of Alcoa's manufacturing operations. Bauxite residue and gypsum are the primary waste products remaining at the site.

There are three large RDAs on the site, each about 40 acres in size. The dike in RDA 1 Old Pond was breached sometime in the past and drained to the south. Low-lying areas outside of the RDAs consist of wet spots, while higher ground contains fill material on the surface.

The bauxite residue is soft and not suitable as a foundation for building construction or redevelopment without extensive engineering.

Existing sewers in the neighborhood are not capable of accepting any surface water discharges from the property. As a result, all stormwater needs to be managed on-site as part of the cleanup actions. The existing residue ponds would be reconfigured and used as part of the cleanup for stormwater management if EPA's preferred option is approved.

Find more information

You can read official documents about the Alcoa site, including the detailed proposed plan, at the government repositories located at these locations:

U.S. EPA Region 5
Superfund Records Center
77 W. Jackson Blvd.
Chicago, Illinois 60604
Open 8:15 a.m. to 4:45 p.m., weekdays

City Clerk's Office
City of East St. Louis
301 River Park Drive

East St. Louis Public Library
5300 State St.

On the Web:
http://www.epa.gov/region5/cleanup/northalcoa/

Cleanup history

A type of legal agreement called an administrative order on consent was signed between EPA and the responsible parties in 2002. The city and Alcoa agreed to pay for what is called a remedial investigation/feasibility study. A remedial investigation is a study of the nature and extent of contamination at a cleanup site, while the feasibility study proposes and evaluates cleanup options.

EPA conducted an urgent cleanup project in 2006 to remove 16 piles of a hazardous waste called "spent pot liner" or SPL. The piles were located over nearly 2 acres, and 1,500 tons of the material was removed for off-site disposal. A special cover and 6 inches of soil were placed over the area after the removal was completed.

Site characteristics

The North Alcoa OU1 site contains four main disposal areas, each with a number of sub-areas:

- IB-1 Residue Disposal Areas.
  - IB-1a RDA 1 (The Old Pond).
  - IB-1b RDA 2 (The Brown Mud Pond).
  - IB-1c RDA 3 (The Red Mud Pond).
- IB-2 Gypsum Dike Areas.
- IB-3 Other Areas of Alcoa Activities.
  - IB-3a Brick Works/Childs Property.
  - IB-3b Redevelopment Area.
  - IB-3c Spent Pot Liner Stockpiling Area.
- IB-4 Areas of No Known Alcoa Activities.
  - IB-4a North Wet Area.
  - IB-4b Triangle Wet Area.
  - IB-4c Ball Fields.
  - IB-4d Berm Wet Area.
  - IB-4e Active Commercial Area.

Sampling was done on surface and subsurface soil, surface water and sediment (mud). More than a dozen metals were found in various concentrations. Radium and other radionuclides at levels exceeding health standards were also found in the bauxite residue and gypsum waste.

Risks to people and the environment

Experts conducted what is called a baseline human health risk assessment on the site that evaluated risks and hazards to people from exposure to contaminants in OU1. The risk assessment was performed using current and future exposure scenarios:

- Current or future resident.
- Current or future site trespasser.
- Current or future construction worker.
- Current or future industrial worker.
- Future sports player.

- Future youth sports player.

Looking at the four main disposal areas IB-1 through 4, the human health risk assessment found health risks exceeding EPA standards for hypothetical on-site residents in IB-1, 2 and 4. The assessment also identified risks exceeding EPA's target range for on-site commercial workers in IB-1.

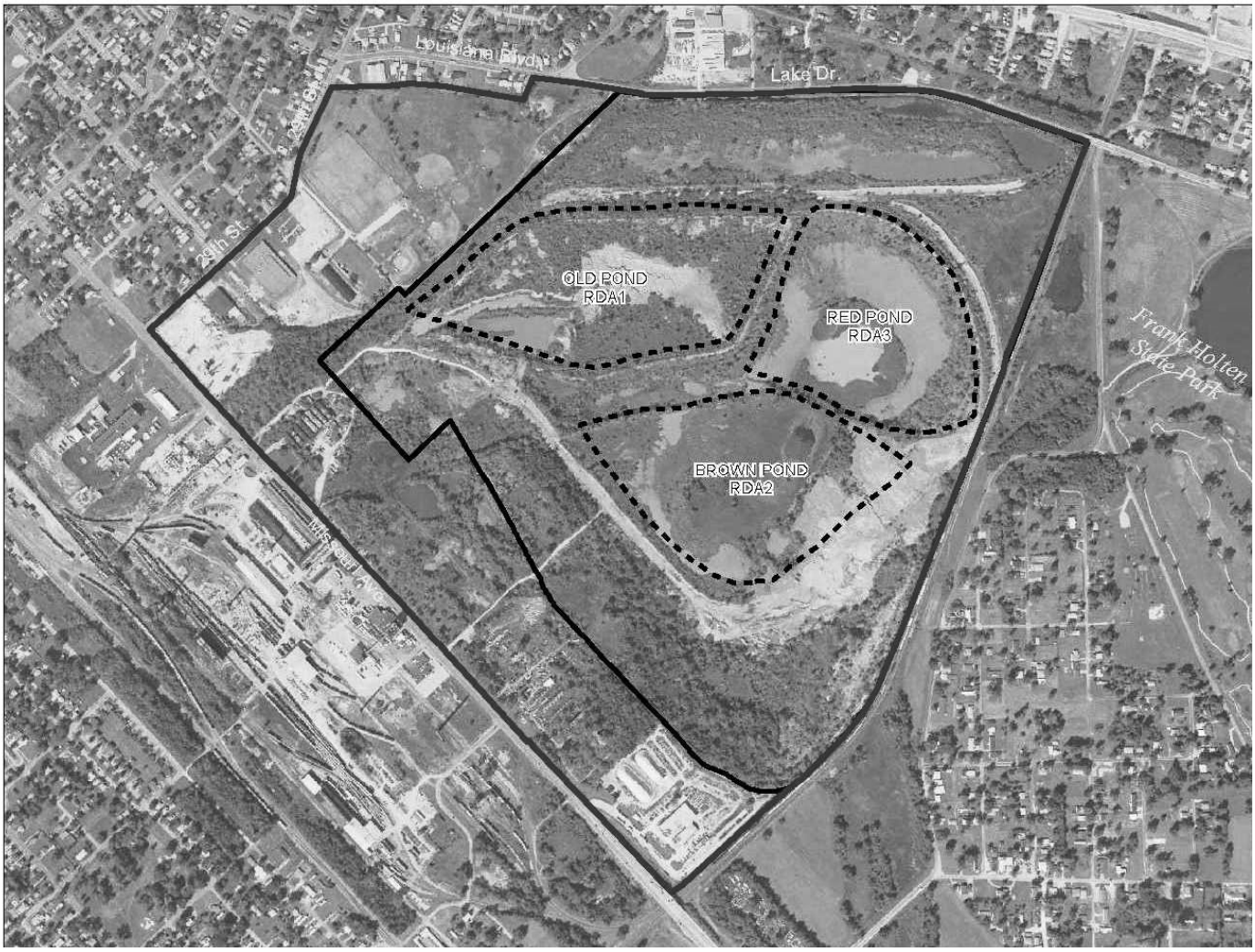
An ecological risk assessment was also conducted but concluded that wildlife in the area faces no unacceptable health risks.

Summary of cleanup alternatives

Environmental experts determined two main goals for the proposed cleanup of OU1 should be to prevent exposure to waste materials that pose unacceptable risks to people who may be working in an industrial setting on the property and to prevent exposure to lead in the soil. All soil in the highly industrialized United States contains pollution at various levels, and it is impossible to achieve zero health risks. The goal in this case is to clean up OU1 so average lead levels in the soil do not exceed 800 parts lead per million parts soil. A part per million is a tiny amount, equal to 1 second in 12 days, but even small amounts of pollution can cause health problems.

EPA came up with three options called remedial action alternatives or RAAs to clean up waste on OU1. They were compared with nine evaluation criteria set by federal law *(see P. 4 for the criteria).*

RAA 0 – No Action: EPA always includes a "no action" alternative as a basis for comparison to other options. This option would not protect human health from current or future exposure to pollution. **Cost – $0**



Aerial view shows the North Alcoa site in East St. Louis. The inner boundary line indicates Operable Unit 1, the target of this proposed cleanup plan. The three residue disposal ponds are marked with the dotted lines. The grey areas around the ponds are the gypsum berms.

RAA-1 – Restricted Access: This alternative consists of physical and institutional controls through easements and restrictive covenants to prohibit access to the bauxite residue disposal areas and the gypsum locations. A fence restricting access to these areas would be constructed. Institutional controls would be created by implementing environmental easements and restrictive covenants. This alternative would not comply with Illinois solid waste regulations. **Cost – $650,000**

RAA-2 – Containment with Placement of a Compliant Cover and On-Site Stormwater Management *(this is EPA's preferred alternative)*: This options consists of placing two feet of cover material over the OU1 area to block exposure to pollutants. This cover material would not be placed on the pond areas. The cover would be in full compliance with Illinois rules and regulations on solid waste containment. The OU1 area would also be regraded to create a slope that would direct stormwater drainage to basins designed to contain a 100-year stormwater event. The existing ponds would be incorporated into the design for these stormwater basins. Prior to laying the soil cover, security fencing would be installed and access roads and staging areas built. **Cost – $24.9 million**

Evaluation of alternatives

EPA uses nine criteria as required by the Superfund law to evaluate and compare cleanup alternatives *(see comparison chart on P. 7)*. This section of the proposed plan fact sheet profiles the relative performance of each alternative against the nine criteria, noting how they compare to the other alternatives under consideration. The *Detailed Analysis of Alternatives* section can be found in the feasibility study available in the document repositories.

The most critical evaluation criterion assesses whether each cleanup alternative protects human health and the environment. This assessment focuses on how an alternative achieves protection over time and indicates how each source of contamination would be minimized, reduced or controlled through treatment, engineering or institutional controls. The evaluation of overall protection associated with each alternative is based largely on the exposure pathways and scenarios set forth in the baseline human health risk assessment.

Alternatives RAA-0 and RAA-1 do not protect human health and the environment because they do not deal with the risks posed by exposure to site contamination as presented in the risk assessment. RAA-1 restricts access to the bauxite and gypsum areas with fencing – that would have to be carefully maintained – but does not provide a cover to prevent contact with these materials if someone goes past the fence. Alternative RAA-2 does protect human health and the environment as it covers the waste materials and eliminates the risk of exposure. Alternatives RAA-0 and RAA-1 do not comply with the appropriate state and federal requirements for a solid waste cover. RAA-2 generally complies with these regulations except for the on-site ponds.

text continued on P. 7…

Explanation of evaluation criteria

EPA compares each cleanup option or alternative with these nine criteria established by federal law:

1. Overall protection of human health and the environment examines whether an option protects both human health and the environment. This standard can be met by reducing or removing pollution or by reducing exposure to it.

2. Compliance with applicable or relevant and appropriate requirements (ARARs) ensures options comply with federal, state and local laws.

3. Long-term effectiveness and permanence evaluates how well an option will work over the long-term, including how safely remaining contamination can be managed.

4. Reduction of toxicity, mobility or volume through treatment determines how well the option reduces the toxicity, movement and amount of pollution.

5. Short-term effectiveness compares how quickly an option can help the situation and how much risk exists while the option is under construction.

6. Implementability evaluates how feasible the option is and whether materials and services are available in the area.

7. Cost includes not only buildings, equipment, materials and labor but also the cost of maintaining the option for the life of the cleanup.

8. State acceptance determines whether the state environmental agency (in this case Illinois EPA) accepts the option. EPA evaluates this criterion after receiving public comments.

9. Community acceptance considers the opinions of nearby residents and other stakeholders about the proposed cleanup plan. EPA evaluates this standard after a public hearing and comment period.

Use This Space to Write Your Comments

EPA is interested in your comments on the proposed cleanup plan for the North Alcoa OU1 site. You may use the space below to write your comments. You may submit this at the April 17 public meeting, or detach, fold, stamp and mail to EPA Remedial Project Manager **Dion Novak**. Comments must be postmarked by midnight May 14. If you have any questions, please contact Dion directly at 312-886-4737 or toll free at 800-621-8431, weekdays 9:30 a.m. – 5:30 p.m. Comments may also be faxed to Dion at 312-692-2472 or sent by the Internet at http://www.epa.gov/region5/cleanup/northalcoa/pubcomment.html

Name _____

Affiliation _____

Address _____

City _____ State _____ ZIP _____

North Alcoa OU1 Site Comment Sheet

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Place
First
Class
Postage
Here

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EPA Remedial Project Manager
Superfund Division (SI-7J)
EPA Region 5
77 W. Jackson Blvd.
Chicago, Il 60604-3590

Comparison of Cleanup Alternatives

Evaluation Criteria	RAA 0 – No Action	RAA-1	RAA-2**
Overall Protection of Human Health and the Environment	○	○	●
Compliance with ARARs	○	○	●
Long-Term Effectiveness and Permanence	○	○	●
Reduction of Toxicity, Mobility, or Volume through Treatment	○	●	●
Short-Term Effectiveness	○	●	●
Implementability	●	●	●
Cost	$0	$650,000	$24.9 Million
State Acceptance	Illinois EPA	supports EPA's	preferred option
Community Acceptance	Will be evaluated	after public hearing	and comment period

********EPA's preferred cleanup option*

○ – Does not meet criteria ◘ – Partially meets criteria ● – Fully meets criteria

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The ponds do contain an organic layer with vegetation and standing water that has developed over the years, and this layer does protect against exposure.

RAA-0 and RAA-1 are not effective in the long term or permanent. A test strip program was conducted that demonstrated the soil cover proposed in alternative RAA-2 does provide long-term protection and stability.

The "reduction of toxicity, mobility or volume" criterion is a special case. The containment methods identified in RAA-1 and RAA-2 are not treatment technologies and therefore do not reduce toxicity, mobility or volume to the maximum extent possible. However, the earlier field work to remove the hazardous material known as spent pot liner did eliminate the most hazardous waste so this criterion is satisfied for both RAA-1 and RAA-2.

After considering the other criteria, EPA experts concluded Alternative RAA-2 is the best cleanup option.

Next steps

EPA in consultation with Illinois EPA will evaluate public reaction to the preferred cleanup plan during a comment period before deciding on a final choice. Based on new information or public comments, EPA may modify its proposed option or select another of the cleanup alternatives outlined in this fact sheet. EPA encourages you to review and comment on the cleanup alternatives. Much more detail on the proposed cleanup plan is available in the official documents on file at the East St. Louis clerk's office and public library.

EPA will respond to the comments in a document called a responsiveness summary, which will be part of the final decision document called the record of decision or ROD. The ROD describes the final cleanup plan selected for the site. EPA will announce the selected cleanup plan in a local newspaper and will place a copy on file in the information repository.

EPA Proposes Soil Cover Over Contaminated Area

North Alcoa Site
Operable Unit 1

East St. Louis, Illinois

NORTH ALCOA SITE OU1: EPA Proposes Cleanup Plan

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