UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

PROPOSED PLAN
for the

COSHOCTON LANDFILL SUPERFUND SITE
COSHOCTON, OHIO

FEBRUARY 8, 1988

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I. INTRODUCTION

The U.S. Environmental Protection Agency (U.S. EPA), with the cooperation of the Ohio Environmental Protection Agency (Ohio EPA), recently completed a Feasibility Study (FS) for the Coshocton Landfill Superfund site in Coshocton, Ohio. The FS evaluated several options, or remedial alternatives, for addressing contamination at the site. Based on this evaluation, U.S. EPA has identified a preferred remedial alternative.

This Proposed Plan summarizes the remedial alternatives evaluated in the FS, and presents U.S. EPA's preferred remedial alternative. This Proposed Plan also summarizes the results of the Remedial Investigation (RI) that characterized the nature and extent of contamination problems at the site. The RI and FS reports can be reviewed at the Coshocton Public Library. U.S. EPA encourages public comment on the remedial alternatives outlined in the FS report, and will consider those comments when selecting the final remedial action for this site. A glossary of terms used in this Proposed Plan appears in Appendix A.

II. OPPORTUNITIES FOR PUBLIC INVOLVEMENT

Public Comment Period on the Feasibility Study

U.S. EPA will hold a public comment period from February 8 to March 6, 1988 to receive comments on the Feasibility Study and U.S. EPA's preferred remedial alternative. During this time, interested individuals are encouraged to review the FS report and send written comments to U.S. EPA. A copy of this document, as well as other site-related information, is located at:

Coshocton Public Library	Hours:	
655 Main Street	M-W, F	9:30 A.M. to 9:00 P.M.
Coshocton, Ohio 43812	Th, Sat	9:30 A.M. to 5:30 P.M.
(614) 622-0956		

Interested individuals also are encouraged to review the Administrative Record for the site; it contains the information U.S. EPA will use to select a remedial action for the site. The Administrative Record also is located at the Coshocton Public Library.

For more information on the FS, please contact:

Jennifer Hall
Community Relations Coordinator
Office of Public Affairs
(312) 886-4359

Anthony Rutter
Remedial Project Manager
Superfund Enforcement Branch
(312) 886-8961

U.S. EPA - Region 5
230 South Dearborn St.
Chicago, Illinois 60604
Toll free number: 1-800-621-8431
(8:30 A.M. to 4:30 P.M. Central Time)

To be considered by U.S. EPA in final decision-making, comments must be sent to Jennifer Hall and postmarked no later than March 6, 1988.

Public Meeting on the Feasibility Study

U.S. EPA will hold a public meeting in the community to present the findings of the FS, describe U.S. EPA's preferred remedial alternative, respond to questions from the community, and receive public comments.

Date: _____
Time: _____
Location: _____

III. SITE BACKGROUND

The 80-acre Coshocton Landfill site is located about 3.5 miles southeast of the City of Coshocton on Ohio Route 83 (see Figure 1). Surface water from the site drains into an unnamed creek and to Robinson Run, both of which eventually flow to the Muskingum River west of the site. Land use in the area is primarily devoted to farming and coal mining. Active, abandoned, and reclaimed coal strip mines are scattered throughout the region, and the site itself is on abandoned strip-mined land.

In 1968, the City of Coshocton purchased the site and received a permit to conduct landfill operations on 40 acres of the property. Waste received at the landfill consisted of mixed municipal refuse and industrial waste including solid scrap, drummed liquid, and free liquid. The liquid waste accepted at the site included hazardous substances such as tetrachloroethylene, phenols, and xylenes.

In April 1978, the Coshocton City Council passed a resolution stating that no more liquid waste would be received at the landfill. Ohio EPA considered the landfill shut down after the City of Coshocton failed to apply for and obtain a license for calendar year 1979 to continue operation. In April 1979, the City of Coshocton announced that operation of the landfill would cease.

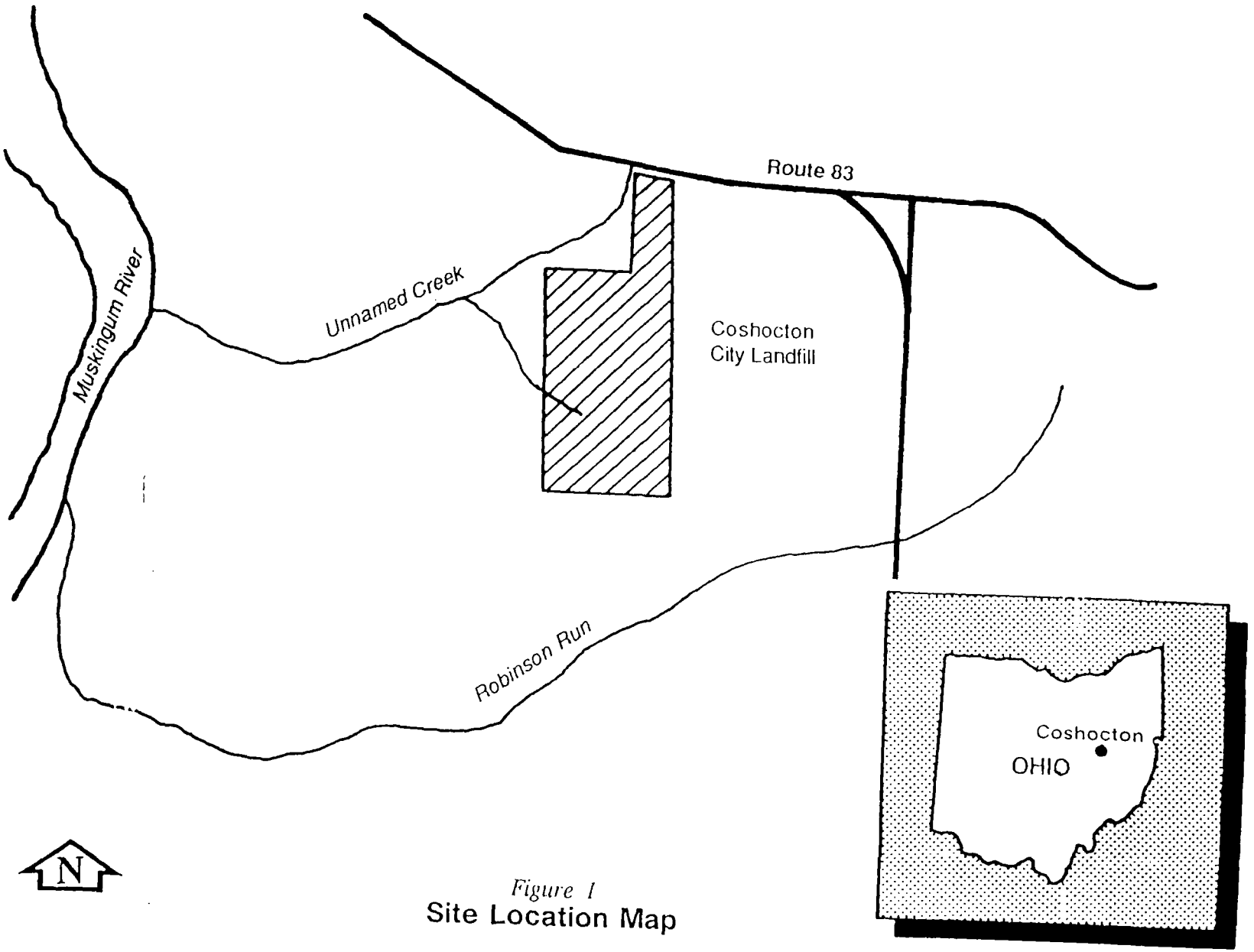

Figure 1
Site Location Map

As a result of an initial investigation of conditions at the site conducted in late 1980, both U.S. EPA and Ohio EPA determined that the landfill was a potential threat to public health. U.S. EPA placed the Coshocton Landfill on the National Priorities List (NPL) in December 1982. The NPL is a list of abandoned or uncontrolled hazardous waste sites that potentially threaten public health and the environment and are eligible for investigation and clean up under the federal Superfund program. Since 1982, U.S. EPA has conducted several investigations to determine the origin and distribution of contamination at the landfill. The findings of these studies are presented in the following paragraphs.

IV. FINDINGS OF U.S. EPA's STUDY

U.S. EPA's evaluation of remedial alternatives is based on information gathered during the Remedial Investigation (RI). The RI was conducted in two phases and coordinated with officials from Ohio EPA and the City of Coshocton.

During Phase I of the RI, conducted from December 1983 to May 1984, U.S. EPA sampled ground water, surface water, sediment, and leachate seepage. Several organic compounds including, volatile organic compounds, (VOCs) were found in samples taken from ground water and sediment. Samples taken from leachate seepage and surface water revealed low levels of pesticides, VOCs, and some metals. At the conclusion of Phase I, U.S. EPA determined that a second phase of the RI was necessary to better characterize contamination at the site and to develop more information on ground-water movement. (A more detailed description of Phase I results can be found in a U.S. EPA fact sheet distributed in July 1985; it is available at the Coshocton Public Library or by request from U.S. EPA. See page 2 for U.S. EPA staff names and telephone numbers.)

During Phase II of the RI, conducted from April 1986 to December 1986, U.S. EPA installed 13 more ground-water monitoring wells and took additional ground water, surface water, sediment, and leachate seepage samples. Low levels of inorganic metals were found in the ground water. U.S. EPA linked their presence to the landfill and past mining operations in the area. Low levels of chlorinated solvents also were identified in some wells adjacent to the landfill.

U.S. EPA collected 12 surface water samples from streams near the site. Inorganic metals, including iron, manganese, calcium, magnesium, and aluminum were found in the samples. U.S. EPA concluded that metals in the surface water were related to past mining activities because these elements are often released when land is strip mined. U.S. EPA's sampling detected a pesticide called heptachlor in one surface water sample. However, it occurred at concentrations that were below federal health and safety standards.

U.S. EPA took eight sediment samples on and around the site. The samples indicated the presence of polynuclear aromatic hydrocarbons (PAHs) and inorganic metals in the sediment.

U.S. EPA conducted an Endangerment Assessment as part of the RI to assess the potential effects that site-related contamination may have on human health. At the completion of the assessment, U.S. EPA concluded that the Coshocton Landfill may pose a potentially significant risk to human health. U.S. EPA based this conclusion on three factors: (1) ground water may become contaminated by waste in the landfill; (2) drums in the landfill may rust and corrode, potentially leaking waste to soil and ground water; and (3) leachate from the landfill may become contaminated and affect surface water quality.

V. TOWARD A SOLUTION

Based on the findings of the RI, U.S. EPA developed several alternatives in the Feasibility Study (FS) for minimizing future off-site contaminant migration. U.S. EPA evaluated the remedial alternatives based on compliance with identified state and federal regulations; effectiveness in protecting public health and the environment; reliability; cost; technical feasibility; short and long-term effectiveness; and reduction of contaminant toxicity, mobility, and volume. The remedial alternatives considered by U.S. EPA are briefly described below. U.S. EPA's preferred remedial alternative is outlined on page 6.

Remedial Alternative 1 - No Action

By law, U.S. EPA is required to consider the "no action" alternative when evaluating remedial alternatives. It is included in the FS to serve as a basis against which the other remedial alternatives can be compared. This alternative states that no further action be taken at the site.

Estimated Total Cost:	$ 0
Estimated Time to Complete:	Not Applicable

Remedial Alternative 2 - Site Restrictions

Remedial Alternative 2 involves installing a fence around the landfill to reduce the likelihood of human and wildlife contact with contaminants in the landfill. Also, future owners of the site would be prevented from excavating soil, drilling ground-water wells, or disturbing the site in any way that may potentially release contaminants. U.S. EPA would periodically monitor ground water, surface water, sediment, and leachate seepage to note any changes in contaminant concentrations that may indicate the need for additional remedial action.

Estimated Total Cost: (in present value)	$ 1,080,000
Estimated Time to Complete:	3 months

Remedial Alternative 3 - Clean Soil Cover

In addition to the remedial actions described in Remedial Alternative 2, this alternative involves placing clean soil over the site's surface and grading the soil to prevent human and wildlife contact with contaminated material and to reduce rainfall seepage into the landfill. Leachate from the landfill would be less likely to move off the site if the amount of water coming into contact with waste is reduced. Additionally, vegetation would be planted on the site surface to increase evaporation of surface water and to minimize erosion.

Estimated Total Cost: (in present value)	$ 7,850,000
Estimated Time to Complete:	12 months

Remedial Alternative 4 - Soil/Clay Cap

Remedial Alternative 4 involves covering the site with a combination soil and clay cap. The soil-clay cap would minimize the amount of rainfall seeping into the landfill, reducing the volume of water coming into contact with waste. A soil-clay cap would provide greater protection against rainfall infiltration than the clean soil cover proposed in Remedial Alternative 3.

A gas venting system would be installed as part of this remedial alternative to prevent gas build up in the landfill under the cap. Before any accumulated gas is released to the air, it would be tested for contaminants and treated if needed.

A leachate collection system would also be installed to reduce the amount of contaminated liquid migrating from the site. Liquid collected in the system and stored in a tank immediately south of Route 83 would be transported to a wastewater treatment plant for treatment.

The remedial activities described for Remedial Alternative 2 would be included in this alternative.

Estimated Total Cost: (in present value)	$ 17,500,000
Estimated Time to Complete:	24 months

Remedial Alternative 5 - Soil/Clay/Synthetic Membrane Cap

Remedial Alternative 5 involves installing a combination soil, clay, and synthetic membrane cap on the site. The synthetic membrane would give even greater protection against rainfall seepage than the soil cover and soil/clay cap proposed in Remedial Alternatives 3 and 4. The addition of a synthetic membrane to the cap is the only aspect of this alternative that differs from Remedial Alternative 4.

Estimated Total Cost: (in present value)	$ 19,600,000
Estimated Time to Complete:	24 months

VI. U.S. EPA's PREFERRED REMEDIAL ALTERNATIVE

U.S. EPA prefers Remedial Alternative 4 based on its compliance with identified state and federal environmental regulations; effectiveness in protecting public health and the environment from future contamination; cost; reliability; short and long-term effectiveness; technical feasibility; and reduction of contaminant toxicity, mobility, and volume. Because the Coshocton Landfill was not properly closed in 1979, U.S. EPA chose Remedial Alternative 4 to satisfy state landfill closure regulations. In summary, the preferred remedial alternative includes the following activities:

- Installing a leachate collection system at the perimeter of the landfill to collect leachate and shallow ground water that may flow away from the site;
- Covering the landfill portion of the site with a combination soil and clay cap to minimize human and wildlife contact with waste in the landfill and to reduce the volume of water percolating into the landfill;
- Installing a gas venting system in the landfill to prevent gas buildup underneath the cap;
- Regrading and revegetating the site's surface to promote surface water runoff and prevent erosion;
- Constructing a fence around the landfill portion of the site to limit access to the landfill; and
- Monitoring ground water, surface water, sediment, and leachate seepage for 30 years after installing the cap to note any changes in contaminant concentrations that may indicate the need for further remedial action.

Estimated Total Cost: (in present value)	Estimated Time to Complete:
$ 17,500,000	24 Months

Figure 2 illustrates the major components of U.S. EPA's preferred alternative.

PLATE 3 IN
PREPARATION

APPENDIX A

GLOSSARY

Ground Water	Water that fills spaces between soil, rock, sand, and gravel particles beneath the Earth's surface. Rain that does not immediately flow to streams and rivers slowly percolates through the soil to the point of saturation to form ground-water reservoirs. Typically, ground water flows very slowly compared to surface water, and travels along gradients that lead to surface water.
Heptachlor	A chlorinated organic compound used as a pesticide. Heptachlor is toxic to wildlife and fish and can cause liver and kidney damage in humans.
Inorganic Compounds	Chemical compounds that do not contain carbon. Water, table salt, and ammonia are examples of inorganic compounds.
Leachate	A liquid discharge that has percolated through contaminated material (e.g., soil and landfill waste) and has collected contaminants from that material.
Metals	A group of inorganic chemical elements that include, for example, lead, manganese, magnesium, and aluminum.
Methylene Chloride	A chlorinated organic compound used in paint removers, solvents, and plastics. Exposure to methylene chloride over long periods of time may cause cancer.
Monitoring Wells	Special wells drilled into the Earth's surface specifically to study ground water.
National Priorities List (NPL)	U.S. EPA's list of top priority hazardous waste sites eligible for investigation and clean up under the federal Superfund program.
Organic Compounds	Chemical compounds that contain carbon and have the characteristics of or are derived from living organisms. Petroleum, solvents, and pesticides are examples of materials containing organic compounds.
Tetrachloro-ethylene	A chlorinated organic compound used as a dry-cleaning solvent and as a drying agent for metals. Tetrachloro-ethylene itself and the compounds that form when it biologically degrades may cause cancer.

Phenols	A group of organic compounds widely used as solvents and in rubber products. In very low concentrations, phenols can cause taste and odor problems in water. In high concentrations, phenols can be toxic to aquatic life.
Polynuclear Aromatic Hydrocarbons (PAHs)	A group of organic compounds produced as waste products in the incomplete combustion of fossil fuels, cigarettes, and wood. Some PAHs are known to cause cancer.
Present Value	An economic term used to describe today's cost for a Superfund cleanup that reflects the discounted value of future costs. For this site, U.S. EPA used a discount rate of 10 percent when estimating the present value of future costs for each of the remedial alternatives.
Remedial Action	A series of cleanup steps taken to control human health or environmental hazards posed by a hazardous waste site.
Remedial Investigation/ Feasibility Study (RI/FS)	A two part study that must be completed before a Superfund cleanup can begin. The first part, the Remedial Investigation (RI), examines the nature and extent of contamination. The RI is sometimes a phased process, as has occurred at the Coshocton Landfill site. The Feasibility Study (FS) evaluates several possible alternatives for addressing contamination problems, including U.S. EPA's preferred choice for addressing site contamination.
Sediment	Decomposing mud, sand, and soil that settle to the bottom of streams, lakes, rivers, or ponds.
Superfund	A term commonly used to describe the federal program established by the Comprehensive Environmental Response, Compensation, and Liability Act, as amended. It is the responsibility of U.S. EPA to investigate and clean up actual or potential hazardous waste problems.
Surface Water	Standing or flowing water bodies located on the Earth's surface such as streams, lakes, rivers, or ponds.
Toluene	An organic compound used in solvents, medicine, dyes, aviation gasoline, and explosives. Toluene is flammable and explosive and can be toxic when ingested, inhaled, or absorbed through the skin.
Volatile Organic Carbons (VOCs)	Organic compounds that readily change from liquids to gases at room temperature.

Xylenes	Organic compounds commonly used in aviation gasoline, solvents, enamels, and rubber cement. Exposure to xylenes can cause central nervous system damage and can harm mucous membranes.