

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 5

IN THE MATTER OF:) Docket No. **V-W-50-C-50**
)
)
) ADMINISTRATIVE ORDER
) PURSUANT TO SECTION 106(a)
) OF THE COMPREHENSIVE
) ENVIRONMENTAL RESPONSE,
Respondents:) COMPENSATION, AND
) LIABILITY ACT OF 1980,
) AS AMENDED, 42 U.S.C.
) SECTION 9606(a)

I. JURISDICTION AND GENERAL PROVISIONS

This Order is issued pursuant to the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. § 9606(a), and delegated to the Administrator of the United States Environmental Protection Agency ("U.S. EPA") by Executive Order No. 12580, January 23, 1987, 52 Fed. Reg. 2923, and further delegated to the Regional Administrators by U.S. EPA Delegation Nos. 14-14-A and 14-14-B, and to the Director, Superfund Division, Region 5, by Regional Delegation Nos. 14-14-A and 14-14-B.

This Order pertains to property located approximately four miles southwest of Circleville, in Pickaway County, Ohio, just east of the interesection of Route 104 and Kinderbrook Road (the "B&E Landfill Site" or the "Site"). This Order requires the Respondents to conduct removal activities described herein to abate an imminent and substantial endangerment to the public health, welfare or the environment that may be presented by the actual or threatened release of hazardous substances at or from the Site.

U.S. EPA has notified the State of Ohio of this action pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

II. PARTIES BOUND

This Order applies to and is binding upon Respondents and Respondents' heirs, receivers, trustees, successors and assigns. Any change in ownership or corporate status of Respondents including, but not limited to, any transfer of assets or real or

personal property shall not alter such Respondents' responsibilities under this Order. Respondents are jointly and severally liable for carrying out all activities required by this Order. Compliance or noncompliance by one or more Respondents with any provision of this Order shall not excuse or justify noncompliance by any other Respondent.

Respondents shall ensure that their contractors, subcontractors, and representatives comply with this Order. Respondents shall be responsible for any noncompliance.

III. FINDINGS OF FACT

Based on available information, including the Administrative Record in this matter, U.S. EPA hereby finds that:

1. The B&F Landfill Site is an inactive municipal landfill located east of Route 104 and Kinderhook Road, near Circleville, in Wayne Township, Pickaway County, Ohio. The Site is approximately 35 acres. The Site is bordered on the north by an open field, partially on the east by the Scioto River, and on the south by a wooded area. A portion of the abandoned Erie Canal runs parallel to the river. An unnamed tributary of the Scioto River flows through the Site near its southern border. Barbed wire fencing and gates surround the main fill area and limit access (except on the southeast corner of the East side of the landfill). The waste at the landfill is covered with two feet of clay but a number of 55-gallon drums protrude through the surface along the south slope and in the canal. The site owner, Steven Barthelmas, filled in portions of the canal while he operated the landfill, thereby, dividing the canal into two segments (known as the northern and southern canal segments). Steven Barthelmas currently owns the real property in fee simple.

2. Steven Barthelmas maintains a residence on-Site. To the east of Mr. Barthelmas' residence, there is a trailer home. Mr. Barthelmas uses the Site for grazing cattle during certain times of the year.

3. Since the Site is located in a rural area, land use surrounding the Site is primarily agricultural. However, an estimated 475 persons reside within a one-mile radius of the Site. At least two residential wells are located within 500 feet of the Site and another six are situated within a one-mile radius. Approximately three miles northeast of the Site, the Earnhardt Hill Water District maintains three municipal water wells which serve approximately 2,000 residents.

4. The Scioto River is a navigable waterway which flows from north to south and is located approximately 300 feet from the eastern edge of the landfill. The Scioto river is used for recreational boating, fishing and swimming. About 15 miles south of the Site, four to eight miles of wetlands exist along the river. In addition, the Scioto River is used for agricultural purposes and comprises the habitat for four state and one federal endangered species. Finally, two tributaries flow into the Scioto River. One runs east to the Scioto River from a point approximately 50 feet south of the fill area, and another tributary stream runs northeast from a wetland approximately 250 feet from the northeast corner of the fill area at the Site.

5. Beginning in the 1950s and continuing until December of 1979, the Site was used as a landfill. From the early 1950's to 1968, the Site was used as an open dump. However, in 1968, Pickaway County issued a solid waste disposal license to the landfill. The license was a "permit to accept all waste." In December of 1979, the Ohio Environmental Protection Agency ("OEPA") ordered Mr. Barthelmas to cease operations and cover all refuse.

6. During the Site's operation as a permitted landfill, various entities, which include, General Electric Company ("G.E."), E.I. DuPont De Nemours Company ("DuPont"), and PPG Industries, Inc. ("PPG"), or its predecessor, disposed of or arranged for the disposal of approximately 208,000 cubic yards of industrial wastes, including hazardous substances, at the Site. These wastes included, but were not limited to: (1) rolls and trimmings of solid plastic film and mylar; (2) uncontainerized process sludge from mylar-producing operations, containing saran polymer, sodium laurel sulfate and other sulfur compounds, silica, sodium citrate, sulfuric acid, traces of iron, sodium, benzene, acetonitrile, dichloroethylene, and vinyl chloride; (3) mercury-containing fluorescent bulbs; and (4) paint and paint thinners.

7. Utilizing a trench and cover method, the waste was disposed of above ground, in and around the lower reaches of the unnamed tributary and on the slope between the abandoned canal segments and the landfill. The portions of the Site used as a landfill were not lined and did not have a cap sufficient to prevent or impede the penetration of precipitation and surface water. Further, no run-off or run-on containment structures existed to prevent the flow of contaminants into waterways adjacent to the Site.

8. In 1981, OEPA collected samples from leachate seeps along an unnamed tributary which runs south of the landfill. Analysis of these samples revealed lead, methylene chloride, toluene, methyl isobutyl ketone, ethylbenzene, arsenic, mercury, zinc, copper, and nickel.

9. On September 21, 1994, the Ohio Department of Health released a Health Consultation Report for the B&E Landfill. The health investigation was performed under a cooperative agreement between the Ohio Department of Health and the Agency for Toxic Substances and Disease Registry. The report recommended that the soil around the two homes on the Site be remediated as soon as possible in order to reduce possible exposure to lead, mercury, PCBs and polyaromatic hydrocarbons. The report was later modified to include only the trailer home.

10. U.S. EPA conducted two Expanded Site Inspections ("ESI") in 1991 and 1994. U.S. EPA took soil and sediment samples during these site inspections. The soil and sediment samples reveal numerous hazardous substances at concentrations significantly above background levels.

11. In 1991, U.S. EPA contracted Ecology and Environment, Inc., to conduct the ESI. Shallow soil samples taken for the 1991 ESI exhibited elevated concentrations of methylene chloride, xylenes, styrene, pyrene, chrysene, naphthalene, polychlorinated biphenyls, arsenic, barium, mercury, chromium, iron, lead, and cyanide compared to background levels. Hazardous substances detected in subsurface soil samples included ethylbenzene, styrene, xylenes, and arsenic. Groundwater samples collected from on-Site monitoring wells showed a release of barium to groundwater.

While U.S. EPA conducted its ESI, OEPA sampled surface water and sediment from the northern and southern canal segments. OEPA also collected a surface water sample from the unnamed tributary south of the main fill area. The results of these samples revealed PCB-contaminated sediment in the southern canal segment. The highest concentration of PCBs detected in the southern canal segment was 299 $\mu\text{g}/\text{kg}$.

12. In 1994, U.S. EPA contracted PRC Environmental Management, Inc. ("PRC") to perform a second ESI to confirm the findings made in previous investigations; to determine the current state of the Site; and to expand U.S. EPA's knowledge about possible hazardous substances at the Site and their effect upon the Site and adjacent areas. PRC collected 10 soil samples and 18 sediment samples of the B&E Site and the surrounding area

(See U.S. EPA Expanded Site Inspection, Site Specific Implementation Plan, May 3, 1993 for exact locations of the soil and sediment samples).

The sediment and soil samples taken by PRC revealed significant levels of contamination by inorganic and organic substances. Sediment samples indicated the presence of the following hazardous substances: (1) mercury at 1.2 mg/kg, 5.1 mg/kg and 4.1 mg/kg; (2) toluene in quantities significantly above background levels; (3) 4-methylphenol at levels as high as 4,800 $\mu\text{g}/\text{kg}$; (4) cyanide at 8.1 mg/kg, which exceeded background levels; (5) arsenic at 102 mg/kg, which exceeded background levels; and (6) multiple semivolatile tentatively identified compounds (TICs).

The analytical results of the soil samples revealed six organic compounds and eight inorganic compounds at concentrations exceeding background levels. The following are the hazardous substances found in the soil at the B & E Site: (1) acetone; (2) toluene; (3) bis(2-ethylhexyl)phthalate at 1,500 $\mu\text{g}/\text{kg}$; (4) multiple semivolatile TICs; (5) numerous pesticide compounds; (6) numerous PCBs at levels between 56 μg and 13,000 $\mu\text{g}/\text{kg}$; (7) arsenic (in concentrations above background levels); (8) barium at levels of 407 mg/kg and 425 mg/kg; (9) cadmium at levels between 5.1 mg/kg and 19.1 mg/kg; (10) copper at levels between 96.8 mg/kg and 4,160 mg/kg; (11) lead at levels between 68.9 mg/kg and 994 mg/kg; (12) magnesium at levels between 8,100 mg/kg and 29,100 mg/kg; (13) mercury as high as 117 mg/kg; (14) silver at 2.9 mg/kg; and (15) zinc as high as 6,940 mg/kg.

The 1994 ESI also sampled groundwater at the Site. Barium was detected at 2,390 $\mu\text{g}/\text{kg}$ (Maximum Contaminant Level ("MCL") is 2,000 $\mu\text{g}/\text{kg}$); antimony was detected at levels as high as 48.3 $\mu\text{g}/\text{L}$ (MCL is 6.0 $\mu\text{g}/\text{L}$); thallium was detected at 0.9 $\mu\text{g}/\text{L}$ (MCL is 2.0 $\mu\text{g}/\text{L}$ and maximum contaminant level goal is 0.5 $\mu\text{g}/\text{L}$); and cadmium was detected in water at 5.4 $\mu\text{g}/\text{L}$ (MCL is 5.0 $\mu\text{g}/\text{L}$).

13. The mercury levels in the sediment at several locations during the ESIs exceed levels set by EPA's Office of Emergency and Remedial Response in the January 1996 ECO Update. The highest concentrations of mercury were found in the Southern Canal Segment and the Scioto River at 5.1 and 4.1 $\mu\text{g}/\text{kg}$, respectively.

14. On March 29, 1995, U.S. EPA sent General Notice of Potential Liability letters to DuPont, GE and PPG.

15. On March 30, 1997, U.S. EPA published, in a major local newspaper of general circulation, a fact sheet notifying the public of the completion of an Engineering Evaluation/Cost Analysis ("EE/CA") for the Site, the availability of the administrative record file and U.S. EPA's response action recommendation for the Site. U.S. EPA provided an opportunity for public comment on the EE/CA and response action recommendation from April 3, 1997, through May 18, 1997. On April 17, 1997, U.S. EPA held a public availability session to discuss the EE/CA findings and the Agency's response action recommendation. All significant comments received by U.S. EPA during the public comment period were responded to and are included in the Responsiveness Summary attached to the Enforcement Action Memoranda.

16. On April 3, 1997, U.S. EPA released the EE/CA in its final form. Based upon the ESIs and the EE/CA, U.S. EPA determined that the presumptive remedy for CERCLA municipal landfills is the appropriate remedy for this Site.

17. On October 17, 1997, U.S. EPA sent additional General Notice of Potential Liability letters to 18 parties that allegedly contributed hazardous waste to the Site.

18. On February 18, 1998, U.S. EPA issued an Enforcement Action Memorandum ("EAM") for the Site. The EAM characterizes the Site as a non-time critical response action and provides the basis for this decision. In accordance with the EAM, the selected response action for the Site consists of:

- (a) Removal of drums from the canal and site slopes and characterization and disposal of the contents of the drums (if appropriate under state and federal law, drum wastes may be consolidated into main fill area);
- (b) Consolidation of other protruding solid wastes back into main fill area;
- (c) Soil removal from around the trailer home and consolidation into main fill area;
- (d) A landfill cover system consisting of a multi-layer landfill cap which complies with the functional requirements of Ohio EPA OAC 3745-27-11, Final Closure of Sanitary Landfill Facilities, which will extend over the entire B&E contiguous landfill waste and fill materials;

- (e) Landfill gas collection and passive venting to the atmosphere. The gas collection and venting system shall be capable of being modified to an active system, should gas monitoring indicate the need for such a system;
- (f) Institutional controls, including deed restrictions; and
- (g) A performance monitoring program.

19. In the EAM, U.S. EPA found that the response actions selected therein will significantly reduce any long-term threats posed through ingestion, inhalation and direct contact with the hazardous substances which are attributable to the Site. Furthermore, performance monitoring of the various components of the response actions will allow U.S. EPA to evaluate the potential need for any additional remedial investigation or remedial action.

20. U.S. EPA has released guidance for municipal co-disposal landfills. This guidance sets forth containment as the "presumptive remedy" for municipal co-disposal landfills, and was based upon the Agency's accumulated experience in addressing these types of sites. The containment elements to be evaluated consist of a landfill cover system, and collection and/or treatment of landfill gas, measures to control landfill leachate and affected groundwater, as necessary, and institutional controls. The elements of this presumptive remedy were evaluated for the B&E Site and incorporated into the EAM issued on February 18, 1998.

IV. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set forth above, and the Administrative Record supporting these removal actions, U.S. EPA has determined that:

1. The B&E Landfill Site is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).
2. Mercury and the other contaminants listed at paragraphs 6, 8, 11 and 12 in Section III of this Order are "hazardous substances" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).
3. Each Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

4. Steven and Mary Barthelmas are the present "owners" and "operators" of the B&E Landfill Site, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20). All other Respondents are persons who at the time of disposal of any hazardous substances arranged for disposal or transport of hazardous substances at the B&E Landfill Site. Respondents are therefore liable persons under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

5. The conditions described in the Findings of Fact above constitute an actual or threatened "release" into the "environment" as defined by Sections 101(8) and (22) of CERCLA, 42 U.S.C. §§ 9601(8) and (22).

6. The conditions present at the Site constitute a threat to public health, welfare, or the environment based upon the factors set forth in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan, as amended ("NCP"), 40 C.F.R. Part 300. These factors include, but are not limited to, the following:

- (a) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

The two ESIs conducted by U.S. EPA indicate that the soil and sediment are contaminated with hazardous substances at concentrations significantly above background levels. Most critically, lead, mercury, PCBs and PAHs in the soils pose a threat to on-Site residents. Barium was detected in an on-Site monitoring well, among other wells, at a concentration as high as 2,390 $\mu\text{g}/\text{L}$, which exceeds the Maximum Contaminant Level under the Safe Drinking Water Act of 2,000 $\mu\text{g}/\text{L}$. If unaddressed, the barium in groundwater could migrate to the Scioto River. Mercury levels in the sediment at several locations exceed levels set by U.S.EPA's Office of Emergency and Remedial Response in the January 1996 ECO Update, with the highest concentrations of mercury found in the Southern Canal Segment and the Scioto River at 5.1 and 4.1 $\mu\text{g}/\text{kg}$, respectively.

Several of the hazardous substances detected in the B&E Landfill leachate and sediment samples may contaminate fish that reside in the waterways proximate to the landfill. Screening of contaminants to assess potential toxic effects on ecological receptors suggests that the mercury concentrations in sediments near B&E, and attributable to B&E leachate, present a threat to sensitive organisms living in the river

bottom near the landfall, including turtles currently harvested by nearby residents. Mercury is known or expected to bioaccumulate.

- (b) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

Hazardous constituents currently leaching into the waterways surrounding the Site may threaten the existence and health of the Scioto River fishery, the turtle habitat, the wetlands area and the state and federal endangered species living downstream.

- (c) Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;

A reconnaissance of the Site conducted pursuant to the U.S. EPA's ESIs revealed numerous 55-gallon drums in the canal, along the south slope of the landfill and protruding through the landfill surface. The contents of those drums is unknown at this time, but given the history of operations at the Site, it is possible that the drums contain hazardous materials.

- (d) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;

The 1991 ESI revealed numerous hazardous contaminants at or near the surface of the Site, including lead, mercury, PCBs and PAHs, which have the potential to migrate into the waterways surrounding the Site as runoff in the event of precipitation.

- (e) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

Rain and snow are common in this area. Perhaps even more importantly, flooding of the Scioto River is a common occurrence, and significantly contributes to the migration of hazardous constituents at and from the Site.

- (f) Threat of fire or explosion;

OEPA's 1983 Preliminary Assessment determined that some of the hazardous materials at the Site are ignitable and highly volatile.

7. The actual or threatened release of hazardous substances from the Site may present an imminent and substantial endangerment to the public health, welfare, or the environment within the meaning of Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

8. The removal actions required by this Order are necessary to protect the public health, welfare, or the environment, and are not inconsistent with the NCP and CERCLA.

V. ORDER

Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the Administrative Record for this Site, U.S. EPA hereby orders that Respondents perform the following actions:

1. Notice of Intent to Comply

Respondents shall notify U.S. EPA in writing within three business days after the effective date of this Order of Respondents' irrevocable intent to comply with this Order. Failure of each Respondent to provide such notification within this time period shall be a violation of this Order.

2. Designation of Contractor, Project Coordinator, and On-Scene Coordinator

Respondents shall perform the removal actions themselves or retain a contractor(s) to implement the removal actions. Respondents shall notify U.S. EPA of Respondents' qualifications or the name and qualifications of such contractor(s), whichever is applicable, within 30 business days after the effective date of this Order. Respondents shall also notify U.S. EPA of the name and qualifications of any other contractors or subcontractors retained to perform work under this Order at least 10 business days prior to commencement of such work. U.S. EPA retains the right to disapprove of the Respondents or any of the contractors and/or subcontractors retained by the Respondents. If U.S. EPA disapproves a selected contractor, Respondents shall retain a different contractor within 10 business days following U.S. EPA's disapproval and shall notify U.S. EPA of that contractor's name and qualifications within five business days of U.S. EPA's disapproval.

Within 14 business days after the effective date of this Order, the Respondents shall designate a Project Coordinator who shall be responsible for administration of all the Respondents' actions required by the Order and submit the designated coordinator's

name, address, telephone number, and qualifications to U.S. EPA. To the greatest extent possible, the Project Coordinator shall be present on-site or readily available during site work. U.S. EPA retains the right to disapprove of any Project Coordinator named by the Respondents. If U.S. EPA disapproves a selected Project Coordinator, Respondents shall retain a different Project Coordinator within five business days following U.S. EPA's disapproval and shall notify U.S. EPA of that person's name and qualifications within five business days of U.S. EPA's disapproval. Receipt by Respondents' Project Coordinator of any notice or communication from U.S. EPA relating to this Order shall constitute receipt by all Respondents.

The U.S. EPA has designated Thomas Williams of the Emergency Response Branch, Region 5, as its On-Scene Coordinator ("OSC"). Respondents shall direct all submissions required by this Order to the OSC at 77 W. Jackson, Mail Code SR-6J, Chicago, Illinois 60604, by certified or express mail. Respondents shall also send a copy of all submissions to Thor W. Ketzback, Assistant Regional Counsel, 77 West Jackson Boulevard, C-14J, Chicago, Illinois, 60604-3590. All Respondents are encouraged to make their submissions to U.S. EPA on recycled paper (which includes significant postconsumer waste paper content where possible) using two-sided copies.

3. Work to Be Performed

Respondents shall perform, at a minimum, the following response activities:

1. Respondents shall finance and perform, at a minimum, all elements of the Work, as set forth in Paragraph 2(a-e) of this Section, in accordance with the EAM for the Site, this Order, the attached Remedial Action Statement of Work ("RA SOW"), the Removal Design approved by U.S. EPA, and other plans, standards, specifications and schedules approved or modified by U.S. EPA pursuant to this Order.

2. The B&E EAM is attached as Appendix A. The EAM for the B&E Landfill is fully incorporated into and made an enforceable part of this Order. The RA SOW, attached as Appendix B, and the approved Removal Design, shall also be incorporated into and made fully enforceable parts of this Order. Respondents shall perform the following elements of the Work:

- (a) Construct a multi-layer landfill cap, including any necessary riverbank stabilization and construct landfill gas venting system for the Site

in accordance with the EAM, the RA SOW, and the approved Removal Design.

- (b) Construct a fence at the Site which encircles all areas included in the cover system, except that no fence is required along the riverbanks.
- (c) Following approval of the Construction Completion Report of the landfill cap, implement the approved Performance Monitoring Plan, which is incorporated into and made a fully enforceable part of this Order, and continue performance monitoring until the Site no longer poses an unacceptable risk or hazard as defined by the NCP.
- (d) Implement deed restrictions at the Site by seeking to have the owner record such deed restrictions.
- (e) Following approval of Construction Completion Report of the landfill cap, implement the approved Operation and Maintenance Plan, which, once approved, shall be incorporated into and made a fully enforceable part of this Order, and continue Operation and Maintenance for a period of 30 years.

3.1 Work Plan and Implementation

Within 10 business days after the effective date of this Order, the Respondents shall submit to U.S. EPA for approval a draft Work Plan for performing the removal activities set forth above. The draft Work Plan shall provide a description of, and an expeditious schedule for, the activities required by this Order.

U.S. EPA may approve, disapprove, require revisions to, or modify the draft Work Plan. If U.S. EPA requires revisions, Respondents shall submit a revised draft Work Plan within seven business days of notification. Respondents shall implement the Work Plan as finally approved in writing by U.S. EPA in accordance with the schedule approved by U.S. EPA. Once approved, or approved with modifications, the Work Plan, the schedule, and any subsequent modifications shall be fully enforceable under this Order. Respondents shall notify U.S. EPA at least 48 hours prior to performing any on-site work pursuant to the U.S. EPA approved Work Plan.

Respondents shall not commence or undertake any removal actions at the Site without prior U.S. EPA approval.

3.2 Health and Safety Plan

Within 30 business days after the effective date of this Order, the Respondents shall submit a plan for U.S. EPA review and comment that ensures the protection of the public health and safety during performance of on-site work under this Order. This plan shall comply with applicable Occupational Safety and Health Administration ("OSHA") regulations found at 29 C.F.R. Part 1910. If U.S. EPA determines it is appropriate, the plan shall also include contingency planning. Respondents shall incorporate all changes to the plan recommended by U.S. EPA, and implement the plan during the pendency of the removal action.

3.3 Quality Assurance and Sampling

All sampling and analyses performed pursuant to this Order shall conform to U.S. EPA direction, approval, and guidance regarding sampling, quality assurance/quality control ("QA/QC"), data validation, and chain of custody procedures. Respondents shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with U.S. EPA guidance. Upon request by U.S. EPA, Respondents shall have such a laboratory analyze samples submitted by U.S. EPA for quality assurance monitoring. Respondents shall provide to U.S. EPA the quality assurance/quality control procedures followed by all sampling teams and laboratories performing data collection and/or analysis. Respondents shall also ensure provision of analytical tracking information consistent with OSWER Directive No. 9240.0-2B, "Extending the Tracking of Analytical Services to PRP-Lead Superfund Sites."

Upon request by U.S. EPA, Respondents shall allow U.S. EPA or its authorized representatives to take split and/or duplicate samples of any samples collected by Respondents or their contractors or agents while performing work under this Order. Respondents shall notify U.S. EPA not less than three business days in advance of any sample collection activity. U.S. EPA shall have the right to take any additional samples that it deems necessary.

3.4 Reporting

Respondents shall submit a monthly written progress report to U.S. EPA concerning activities undertaken pursuant to this Order, beginning 30 calendar days after the effective date of the Order, until termination of this Order, unless otherwise directed by the OSC. These reports shall describe all significant developments during the preceding period, including the work performed and any problems encountered, analytical data received during the

reporting period, and developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

Any Respondent that owns any portion of the Site, and any successor in title shall, at least 30 days prior to the conveyance of any interest in real property at the Site, give written notice of this Order to the transferee and written notice of the proposed conveyance to U.S. EPA and the State. The notice to U.S. EPA and the State shall include the name and address of the transferee. The party conveying such an interest shall require that the transferee will provide access as described in Section V.4 (Access to Property and Information).

3.5 Final Report

Within 14 calendar days after completion of all items listed in the Scope of Work required under this Order, the Respondents, shall submit for U.S. EPA review a final report summarizing the actions taken to comply with this Order. The final report shall conform to the requirements set forth in Section 300.165 of the NCP. The final report shall also include a good faith estimate of total costs incurred in complying with the Order, a listing of quantities and types of materials removed, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destinations of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, invoices, bills, contracts, and permits).

The final report shall also include the following certification signed by a person who supervised or directed the preparation of that report:

Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

4. Access to Property and Information

Respondents shall provide or obtain access as necessary to the Site and all appropriate off-site areas, and shall provide access to all records and documentation related to the conditions at the Site and the activities conducted pursuant to this Order. Such

access shall be provided to U.S. EPA employees, contractors, agents, consultants, designees, representatives, and State of Ohio representatives. These individuals shall be permitted to move freely at the Site and appropriate off-site areas in order to conduct activities which U.S. EPA determines to be necessary. Respondents shall submit to U.S. EPA, upon request, the results of all sampling or tests and all other data generated by Respondents or their contractors, or on the Respondents' behalf during implementation of this Order.

Where work under this Order is to be performed in areas owned by or in possession of someone other than Respondents, Respondents shall obtain all necessary access agreements within 14 calendar days after the effective date of this Order, or as otherwise specified in writing by the OSC. Respondents shall immediately notify U.S. EPA if, after using their best efforts, they are unable to obtain such agreements. Respondents shall describe in writing their efforts to obtain access. U.S. EPA may then assist Respondents in gaining access, to the extent necessary to effectuate the response activities described herein, using such means as U.S. EPA deems appropriate.

5. Record Retention, Documentation, Availability of Information

Respondents shall preserve all documents and information, in their possession or the possession of their contractors, subcontractors or representatives, relating to work performed under this Order, or relating to the hazardous substances found or released from the Site, for six years following completion of the removal actions required by this Order. At the end of this six year period and at least 60 days before any document or information is destroyed, Respondents shall notify U.S. EPA that such documents and information are available to U.S. EPA for inspection, and upon request, shall provide the originals or copies of such documents and information to U.S. EPA. In addition, Respondents shall provide documents and information retained under this Section at any time before expiration of the six year period at the written request of U.S. EPA. Any information that Respondents are required to provide or maintain pursuant to this Order is not subject to the Paperwork Reduction Act of 1995, 44 U.S.C. §3501 et seq.

6. Off-Site Shipments

All hazardous substances, pollutants or contaminants removed off-site pursuant to this Order for treatment, storage or disposal shall be treated, stored, or disposed of at a facility in

compliance, as determined by U.S. EPA, with the U.S. EPA Off-Site Rule, 40 C.F.R. § 300.440, 58 Fed. Reg. 49215 (Sept. 22, 1993).

7. Compliance With Other Laws

All actions required pursuant to this Order shall be performed in accordance with all applicable local, state, and federal laws and regulations except as provided in CERCLA Section 121(e) and 40 C.F.R. Section §300.415(j). In accordance with 40 C.F.R. Section §300.415(j), all on-site actions required pursuant to this Order shall, to the extent practicable, as determined by U.S. EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws.

8. Emergency Response and Notification of Releases

If any incident, or change in Site conditions, during the activities conducted pursuant to this Order causes or threatens to cause an additional release of hazardous substances from the Site or an endangerment to the public health, welfare, or the environment, the Respondents shall immediately take all appropriate action to prevent, abate or minimize such release, or endangerment caused or threatened by the release. Respondents shall also immediately notify the OSC or, in the event of his unavailability, shall notify the Regional Duty Officer, Emergency Response Branch, Region 5 at (312) 353-2318, of the incident or Site conditions.

Respondents shall submit a written report to U.S. EPA within seven business days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. Respondents shall also comply with any other notification requirements, including those in CERCLA Section 103, 42 U.S.C. § 9603, and Section 304 of the Emergency Planning and Community Right-To-Know Act, 42 U.S.C. § 11004.

VI. AUTHORITY OF THE U.S. EPA ON-SCENE COORDINATOR

The OSC shall be responsible for overseeing the implementation of this Order. The OSC shall have the authority vested in an OSC by the NCP, including the authority to halt, conduct, or direct any work required by this Order, or to direct any other response action undertaken by U.S. EPA or Respondents at the Site.

Absence of the OSC from the Site shall not be cause for stoppage of work unless specifically directed by the OSC.

U.S. EPA and Respondents shall have the right to change their designated OSC or Project Coordinator. U.S. EPA shall notify the Respondents, and Respondents shall notify U.S. EPA, as early as possible before such a change is made, but in no case less than 24 hours before such a change. Notification may initially be made orally, but shall be followed promptly by written notice.

VII. PENALTIES FOR NONCOMPLIANCE

Violation of any provision of this Order may subject Respondents to civil penalties of up to \$27,500 per violation per day, as provided in Section 106(b)(1) of CERCLA, 42 U.S.C. § 9606(b)(1), and 40 C.F.R. Part 19. Respondents may also be subject to punitive damages in an amount up to three times the amount of any cost incurred by the United States as a result of such violation, as provided in Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Should Respondents violate this Order or any portion hereof, U.S. EPA may carry out the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604, and/or may seek judicial enforcement of this Order pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606.

VIII. REIMBURSEMENT OF COSTS

Respondents shall reimburse U.S. EPA, upon written demand, for all response costs incurred by the United States in overseeing Respondents' implementation of the requirements of this Order. U.S. EPA may submit to Respondents on a periodic basis a bill for all response costs incurred by the United States with respect to this Order. U.S. EPA's Itemized Cost Summary, or such other summary as certified by U.S. EPA, shall serve as the basis for payment.

Respondents shall, within 30 days of receipt of the bill, remit a cashier's or certified check for the amount of those costs made payable to the "Hazardous Substance Superfund," to the following address:

U.S. Environmental Protection Agency

Program Accounting & Analysis Section
P.O. Box 70753
Chicago, Illinois 60673

Respondents shall simultaneously transmit a copy of the check to the Director, Superfund Division, U.S. EPA Region 5, 77 West Jackson Blvd., Chicago, Illinois, 60604-3590. Payments shall be designated as "Response Costs - B&E Landfill Site" and shall reference the payers' name and address, the U.S. EPA site identification number(04825), and the docket number of this Order.

Interest at a rate established by the Department of the Treasury pursuant to 31 U.S.C. § 3717 and 4 C.F.R. § 102.13 shall begin to accrue on the unpaid balance from the day after the expiration of the 30 day period notwithstanding any dispute or an objection to any portion of the costs.

IX. RESERVATION OF RIGHTS

Nothing herein shall limit the power and authority of U.S. EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing herein shall prevent U.S. EPA from seeking legal or equitable relief to enforce the terms of this Order. U.S. EPA also reserves the right to take any other legal or equitable action as it deems appropriate and necessary, or to require the Respondents in the future to perform additional activities pursuant to CERCLA or any other applicable law.

X. OTHER CLAIMS

By issuance of this Order, the United States and U.S. EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondents. The United States or U.S. EPA shall not be a party or be held out as a party to any contract entered into by the Respondents or their directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out act on ivities pursuant to this Order.

This Order does not constitute a pre-authorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2).

Nothing in this Order constitutes a satisfaction of or release from any claim or cause of action against the Respondents or any person not a party to this Order, for any liability such person may have under CERCLA, other statutes, or the common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106(a) or 107(a) of CERCLA, 42 U.S.C. §§ 9606(a), 9607(a).

XI. MODIFICATIONS

Modifications to any plan or schedule may be made in writing by the OSC or at the OSC's oral direction. If the OSC makes an oral modification, it will be memorialized in writing within seven business days; however, the effective date of the modification shall be the date of the OSC's oral direction. The rest of the Order, or any other portion of the Order, may only be modified in writing by signature of the Director, Superfund Division, Region 5.

If Respondents seek permission to deviate from any approved plan or schedule, Respondents' Project Coordinator shall submit a written request to U.S. EPA for approval outlining the proposed modification and its basis.

No informal advice, guidance, suggestion, or comment by U.S. EPA regarding reports, plans, specifications, schedules, or any other writing submitted by the Respondents shall relieve Respondents of their obligations to obtain such formal approval as may be required by this Order, and to comply with all requirements of this Order unless it is formally modified.

XII. NOTICE OF COMPLETION

After submission of the Final Report, Respondents may request that U.S. EPA provide a Notice of Completion of the work required by this Order. If U.S. EPA determines, after U.S. EPA's review of the Final Report, that all work has been fully performed in accordance with this Order, except for certain continuing obligations required by this Order (*e.g.*, record retention), U.S. EPA will provide written notice to the Respondents. If U.S. EPA determines that any removal activities have not been completed in accordance with this Order, U.S. EPA will notify the Respondents, provide a list of the deficiencies, and require that Respondents modify the Work Plan to correct such deficiencies. The Respondents shall implement the modified and approved Work Plan and shall submit a modified Final Report in accordance with the

U.S. EPA notice. Failure to implement the approved modified Work Plan shall be a violation of this Order.

XIII. ACCESS TO ADMINISTRATIVE RECORD

The Administrative Record supporting these removal actions is available for review during normal business hours in the U.S. EPA Record Center, Region 5, 77 W. Jackson Blvd., Seventh Floor, Chicago, Illinois. Respondent(s) may contact Thor W. Ketzback, Assistant Regional Counsel, at (312) 353-6720 to arrange to review the Administrative Record. An index of the Administrative Record is attached to this Order.

XIV. OPPORTUNITY TO CONFER

Within three business days after issuance of this Order, Respondents may request a conference with U.S. EPA. Any such conference shall be held within five business days from the date of the request, unless extended by agreement of the parties. At any conference held pursuant to the request, Respondents may appear in person or be represented by an attorney or other representative.

If a conference is held, Respondents may present any information, arguments or comments regarding this Order. Regardless of whether a conference is held, Respondents may submit any information, arguments or comments (including justifications for any assertions that the Order should be withdrawn against a Respondent), in writing to U.S. EPA within two business days following the conference, or within seven business days of issuance of the Order if no conference is requested. This conference is not an evidentiary hearing, does not constitute a proceeding to challenge this Order, and does not give Respondents a right to seek review of this Order. Requests for a conference shall be directed to Thor W. Ketzback, Assistant Regional Counsel, at (312) 353-6720. Written submittals shall be directed as specified in Section V.2 of this Order.

XV. SEVERABILITY

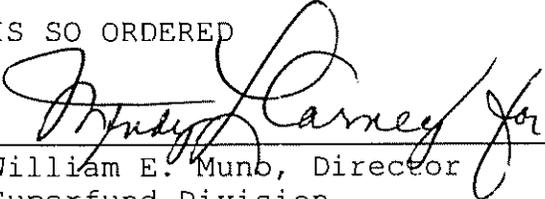
If a court issues an order that invalidates any provision of this Order or finds that Respondents have sufficient cause not to comply with one or more provisions of this Order, Respondents shall remain bound to comply with all provisions of this Order not invalidated by the court's order.

XVI. EFFECTIVE DATE

This Order shall be effective 10 business days following issuance unless a conference is requested as provided herein. If a conference is requested, this Order shall be effective 5 business days after the day of the conference.

IT IS SO ORDERED

BY: _____


William E. Muno, Director
Superfund Division
United States
Environmental Protection Agency
Region 5

DATE: _____

9/15/98

APPENDIX A

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V**

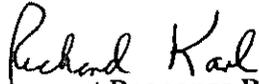
MEMORANDUM

DATE: 10/11/85

SUBJECT: **ENFORCEMENT ACTION MEMORANDUM - Request for a Non-Time Critical Removal Action at the B&E Landfill Site, City of Circleville, Pickaway County, Ohio**

FROM: Tom Williams
Remedial Project Manager

TO: David Ullrich, Acting Regional Administrator

THRU: Richard Karl, Chief 
Emergency and Enforcement Response Branch

I. PURPOSE

The purpose of this action memorandum is to request and document approval of a non-time critical removal action for the B & E Landfill Site ("B & E" or the "Site"), located near Circleville, Ohio. The Site is a 35-acre inactive municipal landfill located along the Scioto River. The United States Environmental Protection Agency ("U.S. EPA"), in consultation with the Ohio Environmental Protection Agency ("OEPA") (collectively referred to as the "Agencies"), has determined that the appropriate response action at the Site is the construction of a new geosynthetic landfill cap over the existing non-protective cap, as well as groundwater, leachate and sediment monitoring at determined intervals after construction of the cap. This action is necessary to abate the continuing imminent and substantial threat to public health and the environment from exposure to hazardous substances, including heavy metals (primarily mercury), volatile and semivolatile organic chemicals (VOCs and SVOCs) and polychlorinated biphenyls (PCBs). The Agencies have determined that this response action should be conducted as a removal due to the actual or potential exposure of nearby human populations or the food chain to hazardous substances from the Site. Since at least a six-month planning period is available before on-Site activities must begin, however, the proposed action would be a non-time critical removal.

The construction of the geosynthetic cap is expected to eliminate or significantly reduce the volume of contaminated leachate entering the Scioto River from the Site. Five years after construction of the landfill, U.S. EPA, in consultation with OEPA, will determine whether a

significant reduction in the volume of leachate generated has occurred, and whether contaminant levels in leachate continue to pose a threat to human health or the environment. If no significant reduction in the volume of and contaminant concentrations in leachate has occurred, then U.S. EPA, in consultation with OEPA, will evaluate whether additional response actions are necessary. Such evaluation will include, but may not be limited to, collection of data, a human health risk assessment, and cost projections. The evaluation may also include an ecological risk assessment if U.S. EPA, in consultation with OEPA, determines that the leachate poses a threat to the environment in and around the Site, including the plant and wildlife of the Scioto River.

OEPA currently intends to monitor and evaluate the sediment contamination in the Scioto River attributable to B & E. Within five years after construction of the landfill cap proposed in this Action Memorandum, the Agencies will evaluate whether construction of the cap has adequately addressed the threat posed by B & E to human health, the sediments, plant and wildlife of the Scioto River and whether additional sediment-remediation measures should be undertaken.

II. SITE CONDITIONS AND BACKGROUND

U.S. EPA's response at B & E will be a non-time critical action (CERCLIS ID# OHD980794648).

A. SITE DESCRIPTION

1. Removal Site Evaluation

In 1994, B & E was evaluated as a Region V Superfund Accelerated Cleanup Model (SACM) site. U.S. EPA conducted a qualitative risk assessment, health consultation and ecological assessment. The Site received a Hazard Ranking Score of 49.04, based on an observed release of mercury to the Scioto River, with the human food chain subject to Level II contamination. The Site Assessment Team ("SAT") determined that B & E was an "NPL caliber" site. The SAT further determined that the Site poses a chronic risk to aquatic life, based on high levels of metals in the Scioto River and canal sediments.

2. Physical Location

The B & E Site is an inactive municipal landfill located about four miles southwest of Circleville, in Pickaway County, Ohio, just east of the intersection of Route 104 and Kinderhook Road. Figure 1 indicates the location of the Site in relation to surrounding topographic features. The Site is approximately 35 acres in size, and is bordered on the north by an open field, partially on the east by the Scioto River, and on the south by a wooded area. A portion of the abandoned Erie Canal runs parallel to the river (see Figure 2). An unnamed tributary of the Scioto River flows through the Site near its southern border. The Site owner, Steven Barthelmas, filled in portions of the canal while he operated the landfill, thereby dividing the canal into two segments (referred to as the northern and southern canal segments). Portions of these segments are situated

within the Site boundary. Sometime after 1979, the Site was covered with two feet of clay pursuant to a Consent Order entered into between OEPA and Steven Barthelmas. Nevertheless, a number of 55-gallon drums have been detected in the canal, along the south slope, and protruding through the landfill surface. Currently, barbed wire fencing and gates surround the main fill area and limit access (except on the southeast corner of the East side of the landfill).

Mr. Barthelmas maintains a residence on-Site. A trailer home also exists on-Site to the east of Mr. Barthelmas' residence. It is believed that Mr. Barthelmas owns this trailer home. Mr. Barthelmas grazes cattle on-Site. However, the Site is not utilized for grazing when conditions are too wet. The surface of the landfill is very uneven and low lying areas collect water during heavy rains. A small gully northeast of the main fill area also collects water during heavy rains. Two small ponds are located northwest and southwest of the main fill area, which the cattle currently use as watering holes. The area surrounding the Site is rural.

The Scioto River, which flows from north to south, ranges from as close as immediately adjacent to the landfill to as far as 300 feet east of the Site. The Scioto River is a known fishery in the area. Four to eight miles of wetland frontage exist within the 15 miles of River south of the Site. Surface water intakes for agricultural use and habitats for four state endangered species and one federal endangered species have also been identified in and along the Scioto River.

All drinking water in the area is supplied by groundwater. The local aquifer consists of interbedded and interlensed sand and gravel outwash, interspersed with discontinuous clay till layers. The thickness of the aquifer ranges from 70 to 190 feet. Logs of wells in the Site's vicinity indicate that wells are screened at depths ranging from 50 to 75 feet below ground surface.

Approximately eight private residential wells are situated within a one-mile radius of the Site. None of these wells appears to be threatened by contamination from the Site. The Earnhardt Hill Water District, which serves approximately 2,000 residents, maintains three municipal water wells approximately three miles northeast of the Site. Since groundwater flow is apparently north to south, the Agencies do not believe the municipal water wells are threatened by contamination from the Site.

3. Site History

The B & E Site was originally owned by William Barthelmas and operated by his son and current owner, Steve Barthelmas. It was used for waste disposal from the early 1950s until 1979. At the beginning of its operation, the Site was used as an open dump. In 1968, the Site began operating as a landfill after Pickaway County issued a solid waste disposal license to the landfill. The Site owner has described the permit as "a permit to accept all waste." This waste was apparently deposited above ground, in and around the lower reaches of the unnamed tributary and on the slope between the abandoned canal segments and the landfill. Mr. Barthelmas also disposed of waste at the Site by using the trench and cover method. The Site has no functioning

runoff or runoff containment structures (e.g., dikes or berms) to prevent the flow of contaminants into the adjacent surface water bodies.

The Site accepted locally-generated industrial waste in addition to municipal solid waste. The total quantity of waste is unknown, but the total volume of the filled area is approximately 208,000 cubic yards. Industrial waste streams deposited at the Site between 1960 and 1979 included, but were not limited to: (1) rolls and trimmings of solid plastic film and mylar; (2) uncontainerized process sludge from mylar-producing operations, containing saran polymer, sodium laurel sulfate and other sulfur compounds, silica, sodium citrate, sulfuric acid, traces of iron, sodium, benzene, acetonitrile, dichloroethylene, and vinyl chloride; (3) mercury-containing fluorescent bulbs; and (4) paint and paint thinners.

4. Release or Threatened Release into the Environment of Hazardous Substances or Contaminants

In 1994, PRC Environmental Management, Inc. (PRC) was contracted by U.S. EPA to conduct an expanded site inspection (ESI) to confirm the findings made in previous investigations; to determine the current state of the Site; and to expand U.S. EPA's knowledge about possible hazardous substances at the Site and their effect upon the Site and adjacent areas. PRC collected 10 soil samples and 18 sediment samples of the B & E Site and the surrounding area (See U.S. EPA Expanded Site Inspection, Site Specific Implementation Plan, May 3, 1993 for exact locations of the soil and sediment samples).

The sediment and soil samples taken by PRC revealed significant levels of contamination by inorganic and organic substances. Sediment samples indicated the presence of the following hazardous substances: (1) mercury at 1.2 mg/kg, 5.1 mg/kg and 4.1 mg/kg; (2) toluene in quantities significantly above background levels; (3) 4-methylphenol at levels as high as 4,800 µg/kg; (4) cyanide at 8.1 mg/kg, which exceed background levels; (5) arsenic at 102 mg/kg, which exceeded background levels; and (6) multiple semivolatile tentatively identified compounds (TICs).

The analytical results of the soil samples revealed six organic compounds and eight inorganic compounds at concentrations exceeding background levels. The following are the hazardous substances found in the soil at the B & E Site: (1) acetone; (2) toluene; (3) bis(2-ethylhexyl)phthalate at 1,500 µg/kg; (4) multiple semivolatile TICs; (5) numerous pesticide compounds; (6) numerous PCBs at levels between 56 µg and 13,000 µg/kg; (7) arsenic (in concentrations above background levels); (8) barium at levels of 407 mg/kg and 425 mg/kg; (9) cadmium at levels between 5.1 mg/kg and 19.1 mg/kg; (10) copper at levels between 96.8 mg/kg and 4,160 mg/kg; (11) lead at levels between 68.9 mg/kg and 994 mg/kg; (12) magnesium at levels between 8,100 mg/kg and 29,100 mg/kg; (13) mercury as high as 117 mg/kg; (14) silver at 2.9 mg/kg; and (15) zinc as high as 6,940 mg/kg.

The 1994 ESI also sampled groundwater at the Site. Barium was detected at 2,390 $\mu\text{g}/\text{kg}$ (Maximum Contaminant Level ("MCL") is 2,000 $\mu\text{g}/\text{kg}$); antimony was detected at levels as high as 48.3 $\mu\text{g}/\text{L}$ (MCL is 6.0 $\mu\text{g}/\text{L}$); thallium was detected at 0.9 $\mu\text{g}/\text{L}$ (MCL is 2.0 $\mu\text{g}/\text{L}$ and maximum contaminant level goal is 0.5 $\mu\text{g}/\text{L}$); and cadmium was detected in water at 5.4 $\mu\text{g}/\text{L}$ (MCL is 5.0 $\mu\text{g}/\text{L}$).

Samples taken for the 1991 ESI revealed several hazardous substances at the Site. Shallow soil samples exhibited elevated concentrations of methylene chloride, xylenes, styrene, pyrene, chrysene, naphthalene, polychlorinated biphenyls, arsenic, barium, mercury, chromium, iron, lead, and cyanide compared to background levels. Hazardous substances detected in subsurface soil samples included ethylbenzene, styrene, xylenes, and arsenic. Groundwater samples collected from on-Site monitoring wells showed a release of barium to groundwater.

While U.S. EPA conducted its ESI, OEPA sampled surface water and sediment from the northern and southern canal segments. OEPA also collected a surface water sample from the unnamed tributary south of the main fill area. The results of these samples revealed PCB-contaminated sediment in the southern canal segment. The highest concentration of PCBs detected in the southern canal segment was 299 $\mu\text{g}/\text{kg}$.

The Site reconnaissance conducted pursuant to U.S. EPA's ESI revealed certain items that pose the threat of release. South of the main fill area, at least 15 to 20 rusted drums, possibly containing hazardous substances, were discovered. Further, waste material was scattered over a hillside in the southeastern portion of the Site all the way to the southern canal segment. Finally, leachate seeps flowed downhill in the northeast section of the Site into the northern canal segment.

5. NPL Status

As noted above, the Site is not currently on the National Priorities List (NPL). However, U.S. EPA considers the Site to be "NPL caliber" since the data collected during the 1991 and 1994 ESIs indicated that the Site would score high enough on the Hazard Ranking System to qualify for listing on the NPL. The preliminary Hazard Ranking System site score of 49.04 was based on an observed release of mercury in soil. Furthermore, since the Scioto River is a known fishery and turtles are harvested in the southern canal segment of the Site, the human food chain is subject to contamination.

B. Other Actions to Date

1. Previous Actions

As discussed earlier, U.S. EPA conducted two ESIs at B & E. The ESIs revealed the existence of numerous hazardous constituents exceeding background levels in the soil and sediment at the Site. Further, barium was found at a concentration exceeding the MCL in groundwater.

Previous actions taken by state and local governments are discussed below in Section C.1.

2. Current Actions

On April 3, 1997, U.S. EPA released a document which U.S. EPA has determined to be equivalent to an Engineering Evaluation Cost Analysis (EE/CA) for the Site. Based on the ESIs and the EE/CA, U.S. EPA has determined that the presumptive remedy for CERCLA municipal landfills is the appropriate remedy for this Site. The potentially responsible parties (PRPs) for the Site have been notified of the conclusions reached in U.S. EPA's EE/CA. The PRPs have voluntarily evaluated cap alternatives and, after working closely with OEPA and U.S. EPA, have designed a landfill cap. U.S. EPA has not yet approved the cap design.

C. Role of State and Local Authorities

1. State and Local Action to Date

In 1976, after discovering elevated levels of arsenic in drinking water wells around the Site, OEPA and the Site owner (William Barthelmas) entered into a Consent Order. The Order outlined proper operating procedures for the landfill. In December 1979, OEPA ordered the Site owner to cease operations and cover all refuse. As a result, the landfill was partially covered with 2 feet of clay upon closing. The landfill does not have a liner.

In 1981, OEPA collected samples from leachate seeps along an unnamed tributary which runs south of the landfill. Analysis of these samples revealed lead, methylene chloride, toluene, methyl isobutyl ketone, ethylbenzene, arsenic, mercury, zinc, copper, and nickel.

On September 21, 1994, a Health Consultation Report for the B & E Landfill was released by the Ohio Department of Health. The health investigation had been performed under a cooperative agreement between the Ohio Department of Health and the Agency for Toxic Substances and Disease Registry. The report recommended that the soil around the two homes on the Site should be remediated as soon as possible in order to reduce possible exposure to lead, mercury, PCBs and polyaromatic hydrocarbons (PAHs).

OEPA's Division of Surface Water recently took samples of sediment and surface water near the B & E Landfill as part of a Biological and Water Quality Assessment of the Scioto River. OEPA expects the results of these tests in late 1998.

2. Potential for Continued State/Local Response

U.S. EPA expects OEPA will continue to assist in implementing the response actions proposed herein as well as any further action deemed necessary to control the release and potential release of hazardous constituents at the Site.

III. THREATS TO PUBLIC HEALTH or WELFARE and the ENVIRONMENT

In accordance with Section 300.415 of the National Contingency Plan, U.S. EPA must evaluate certain factors to determine if a removal action is the appropriate response to a situation involving hazardous substances. After analyzing the specific factors set forth below, U.S. EPA has concluded that a non-time critical removal action should be conducted to control the release of hazardous substances from the Site. U.S. EPA's actions are necessary to protect human populations, fish and wildlife, and the environment.

- (1) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

The two ESIs conducted by U.S. EPA indicate that the soil and sediment are contaminated with hazardous substances at concentrations significantly above background levels. Most critically, lead, mercury, PCBs and PAHs in the soils pose a threat to on-Site residents. Barium was detected in an on-Site monitoring well, among other wells, at a concentration as high as 2,390 $\mu\text{g/L}$, which exceeds the Maximum Contaminant Level under the Safe Drinking Water Act of 2,000 $\mu\text{g/L}$. If unaddressed, the barium in groundwater could migrate to the Scioto River. Mercury levels in the sediment at several locations exceed levels set by EPA's Office of Emergency and Remedial Response in the January 1996 ECO Update, with the highest concentrations of mercury found in the Southern Canal Segment and the Scioto River at 5.1 and 4.1 $\mu\text{g/kg}$, respectively.

Several of the hazardous substances detected in the B & E Landfill leachate and sediment samples may contaminate fish that reside in the waterways proximate to the landfill. Screening of contaminants to assess potential toxic effects on ecological receptors suggests that the mercury concentrations in sediments near B & E, and attributable to B & E leachate, present a threat to sensitive organisms living in the river bottom near the landfill, including turtles currently harvested by nearby residents. Mercury is known or expected to bioaccumulate.

- (2) Actual or potential contamination of drinking water supplies or sensitive ecosystems.

Hazardous constituents currently leaching into the waterways surrounding the Site may threaten the existence and health of the Scioto River fishery, the turtle habitat, the wetlands area and the state and federal endangered species living downstream.

- (3) Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;

A reconnaissance of the Site conducted pursuant to the U.S. EPA ESIs revealed numerous 55-gallon drums in the canal, along the south slope of the landfill and protruding through the

landfill surface. The contents of these drums is unknown at this time, but given the history of operations at the Site, it is possible that the drums contain hazardous materials.

- (4) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;

The 1991 ESI revealed numerous hazardous contaminants at or near the surface of the Site, including lead, mercury, PCBs and PAHs, which have the potential to migrate into the waterways surrounding the Site as runoff in the event of precipitation.

- (5) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

Rain and snow are common in this area. Perhaps even more importantly, flooding of the Scioto River is a common occurrence, and significantly contributes to the migration of hazardous constituents at and from the Site.

- (6) Threat of fire or explosion;

OEPA's 1983 Preliminary Assessment determined that some of the hazardous materials at the Site are ignifible and highly volatile.

IV. ENDANGERMENT DETERMINATION

Given the Site conditions, the nature of the hazardous substances on-Site, the continued release of these substances into the Scioto River, and the potential human and ecological exposure pathways identified in the Streamlined Risk Evaluation (SRE) contained in the EE/CA, actual or threatened releases of hazardous substances from this Site may present an imminent and substantial endangerment to public health or welfare and the environment if not addressed by implementing the response action selected in this Action Memorandum.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Action

1. Proposed Action Description

The proposed action for B&E is the implementation of specified components of the presumptive remedy for municipal landfills. U.S. EPA has developed presumptive remedies for certain categories of sites as part of its SACM process. Presumptive remedies are designed to utilize the Superfund program's past experience to streamline site investigations and speed up selection of cleanup actions. Presumptive remedies are preferred technologies for common categories of sites (such as municipal landfills) based on historical patterns of remedy selection

and U.S. EPA's scientific and engineering evaluation of performance data from technologies commonly selected for these categories of sites.

In accordance with U.S. EPA's policies and procedures for presumptive remedies, Region V determined that the B & E Site was appropriate for application of the presumptive remedy for CERCLA municipal landfills. The presumptive remedy, as outlined in the U.S. EPA guidance document entitled "Presumptive Remedy for CERCLA Municipal Landfill Sites, OSWER Directive No. 9355.0-49FS, September 1993," relates primarily to containment of the landfill mass and collection and/or treatment of landfill gas. In addition, measures to control landfill leachate, affected groundwater at the landfill perimeter, and/or upgradient groundwater causing saturation of the landfill mass may be implemented as part of the presumptive remedy. As a result of the decision to implement the presumptive remedy for municipal landfills, U.S. EPA was able to streamline the alternatives analysis in the EE/CA to consider only the no action alternative and the technical components of the presumptive remedy.

Site risks documented in the B & E SRE, and the potential for reduction of those risks over time, were evaluated in the B & E EE/CA in relation to the various components of the presumptive remedy. Based upon this evaluation, the proposed action at B & E includes the following components:

- (1) Removal of drums from the canal and site slopes and characterization and disposal of the contents of the drums (if appropriate under state and federal law, drum wastes may be consolidated into main fill area);
- (2) Consolidation of other protruding solid wastes back into main fill area;
- (3) Soil removal from around the trailer home and consolidation into main fill area;
- (4) A landfill cover system consisting of a multi-layer landfill cap which complies with the functional requirements of Ohio EPA OAC 3745-27-11, Final Closure of Sanitary Landfill Facilities, which will extend over the entire B & E contiguous landfill waste and fill materials;
- (5) Landfill gas collection and passive venting to the atmosphere. The gas collection and venting system shall be capable of being modified to an active system, should gas monitoring indicate the need for such a system;
- (6) Institutional controls, including deed restrictions;
- (7) A monitoring program that includes the following components:
 - (a) Inspections of the condition of the landfill to be conducted monthly during the first year after construction of the landfill, quarterly during years two

-through five after construction of the landfill, and three times per year during years six through thirty after construction of the landfill;

- (b) Landfill gas monitoring for methane, using the photo ionization detection method each month during the first year after construction of the landfill, each quarter during years two through five after construction of the landfill; and semiannually during years six through thirty after construction of the landfill;
- (c) Groundwater monitoring of all six monitoring wells on an annual basis for at least years one through five after construction of the landfill. During years one through four after construction of the landfill, groundwater monitoring will analyze for metals and general water quality parameters (i.e. ammonia, chloride, sodium chemical oxygen demand, temperature, pH, specific conductance, and total dissolved solids). In the fifth year after construction, groundwater monitoring will analyze for the full scan of groundwater components (i.e. volatile organic compounds, semi-volatile organic compounds, PCBs, pesticides, metals, and cyanide), in addition to the general water quality parameters;

Groundwater analysis may be terminated if the sampling results of the groundwater monitoring conducted in year five after construction of the landfill indicate that no MCL is exceeded in any groundwater monitoring well located outside the perimeter of the landfill. If the sampling results of the groundwater monitoring conducted in year five after construction of the landfill indicate an exceedence of any MCL, then groundwater monitoring and analysis will continue every five years thereafter until thirty years after construction of the landfill. Each five-year analysis will analyze for the full scan of groundwater components in addition to the general water quality parameters;

Groundwater monitoring will include a measurement of water levels in the landfill, to be collected semiannually during years one through five after construction of the landfill, then annually from years six through thirty after construction of the landfill;

- (d) Annual monitoring of four leachate seeps to be selected by U.S. EPA, in consultation with OEPA. During the first year after construction of the landfill, leachate monitoring will analyze for the full scan of groundwater components (i.e. volatile organic compounds, semi-volatile organic compounds, PCBs, pesticides and metals), in addition to the general water quality parameters. During years two through four after construction of the landfill, leachate monitoring will analyze for metals and general water

quality parameters In the fifth year after construction, and every five years thereafter, leachate monitoring will analyze for the full scan of groundwater components (i.e. volatile organic compounds, semi-volatile organic compounds, PCBs, pesticides, metals, and cyanide), in addition to the general water quality parameters;

Leachate volume shall be estimated during each inspection provided for in subparagraph (a), above;

- (e) sediment sampling and analysis during the fifth year after construction of the landfill, that analyzes for the full scan of parameters specified in subparagraph (d) above; and
- (8) Consideration of future action if the presumptive remedy does not adequately control leachate, landfill gas or sediment contamination.

Implementation of these components of the presumptive remedy is expected to result in the elimination of the surface soil exposure pathway and the significant reduction of landfill leachate volume. As a result, the amount of contaminants entering the Scioto River is expected to decrease over time to levels which no longer pose a significant threat to human health or the environment. At this time, U.S. EPA does not believe that the leachate collection and treatment components of the presumptive remedy for landfills are necessary at the B & E Landfill.

The response actions described in this action memorandum directly address actual or threatened releases of hazardous substances, pollutants or contaminants at B & E which pose an imminent and substantial endangerment to human health and the environment. These response actions do not impose a burden on affected property. In accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 117, U.S. EPA issued the EE/CA for public comment on April 3, 1997 and established a public comment period from April 3, 1997 to May 3, 1997 to allow interested parties to comment on the EE/CA. At the public's request, the comment period was extended until May 18, 1997. The Responsiveness Summary (Attachment III) documents the EPA's response to comments received during the comment period and at the April 17, 1997 public availability session. These comments were evaluated prior to, and were considered in the determination of, the non-time critical removal action for the Site.

2. Contribution to Remedial Performance

The proposed non-time critical removal action is expected to significantly reduce the long-term threats associated with the B & E Site, including the threats of ingestion of, inhalation of, and direct contact with the hazardous substances at the Site. Furthermore, performance monitoring of the various components of the remedy will allow EPA, in consultation with OEPA, to evaluate the potential need for any further remedial investigation or remedial action.

This action is not intended to directly address groundwater contamination. Although the B & E Site is located in a rural area where residents rely on wells for drinking water, U.S. EPA believes that no wells are currently threatened by groundwater contamination at the Site.

3. Description of Alternative Technologies

The EE/CA evaluated the presumptive remedy for municipal landfills as the appropriate response action for the Site. For additional details regarding the presumptive remedy, see Section V.A.I. of this Action Memorandum.

4. Engineering Evaluation/Cost Analysis (EE/CA)

As noted in Section II.B.2, an EE/CA was released by U.S. EPA on April 3, 1997. U.S. EPA notified certain PRPs for this Site that U.S. EPA considers the presumptive remedy for CERCLA municipal landfills to be the appropriate remedy for this Site.

When evaluating the most appropriate response for a site, an EE/CA must consider the criteria of effectiveness, implementability and cost. Based upon these criteria, previous sampling results and the SRE, the EE/CA for the B & E Site recommended implementation of specific components of the presumptive remedy for municipal landfills. The proposed response action will be effective because it will significantly reduce the amount of infiltration into the landfill with a commensurate reduction in the amount of leachate generated. The reduction in leachate volume is expected to result in a significant reduction in the current risk to human health, sensitive fish and wildlife, and significant ecological areas near the Site. Because the response action requires the use of well-established landfill cap and gas venting technology, it can be implemented in approximately six months. Finally, the cost of implementing the response action is reasonable when compared to the associated reduction in risk. A more detailed description and discussion of the presumptive remedy and why it was chosen is contained in the EE/CA.

5. Applicable or Relevant and Appropriate Requirements (ARARs)

Pursuant to Section 300.415 (i) of the NCP, the proposed action will comply with Federal and State ARARs to the extent practicable considering the exigencies of the situation. Major ARARs for this response action include Ohio Administrative Code (OAC) 3745-27-11, Final Closure of Sanitary Landfill Facilities and Ohio Revised Code (ORC) 6111.04, Prohibition of Acts of Pollution. A complete list of potential ARARs for the Site is provided in Table 5-1 of the EE/CA.

6. Project Schedule

Design and contractor procurement for the non-time critical removal action are expected to take approximately 12 months. The primary components of the non-time critical removal action are expected to be installed during approximately one six-month construction season.

7. Post-Removal Site Control

Consistent with Section 300.415 (k) of the NCP, it is anticipated that the PRPs for the Site will perform all required post-removal site control activities required by the removal action, with EPA and OEPA oversight.

B. Estimated Costs

Design	\$ 365,000
Construction	
- Cap	\$2,800,000
- Site Work	\$2,400,000
- CM/CQA/Eng.	\$ 425,000
O&M (30 yr PW)	\$ <u>248,000</u>
	\$6,238,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD THE ACTION BE DELAYED OR NOT TAKEN

If the proposed action is not taken or delayed, human and ecological receptors will continue to be exposed to landfill contaminants, including mercury, lead, PAHs and PCBs. Contaminants will continue to enter the Scioto River at levels which pose an unacceptable risk to human health, fish and wildlife species. Furthermore, the water quality of the Scioto River will continue to be degraded.

VII. OUTSTANDING POLICY ISSUES

This response action implicates no outstanding policy issues.

VIII. ENFORCEMENT

The three primary PRPs for the B & E Site were identified early in the process. These PRPs indicated a willingness to perform the removal if other PRPs joined in funding the response action. U.S. EPA undertook additional PRP search activities and, as a result, additional general notice letters have been sent to parties who, U.S. EPA believes, contributed to the hazardous substances at the Site. U.S. EPA believes that some of these parties may qualify for a de minimis settlement. Information concerning the confidential enforcement strategy for this Site is contained in the Enforcement Confidential Addendum (Attachment II).

IX. RECOMMENDATION

This decision document represents the selected non-time critical removal action for the B&E Landfill Site, located near the City of Circleville, Pickaway County, Ohio. This decision

document was developed in accordance with CERCLA as amended by SARA; the selected response action is not inconsistent with the NCP. This decision is based on the Administrative Record for the Site. Attachment IV identifies the items that comprise the Administrative Record, upon which the selection of the non-time critical removal action is based.

Conditions at the B&E Landfill Site meet the NCP Section 300.415(b)(2) criteria for a non-time critical removal. I recommend your approval of the proposed removal action.

APPROVE: Michelle O Jander Date 2-18-98
David Ullrich
Acting Regional Administrator

DISAPPROVE: _____ Date _____
David Ullrich
Acting Regional Administrator

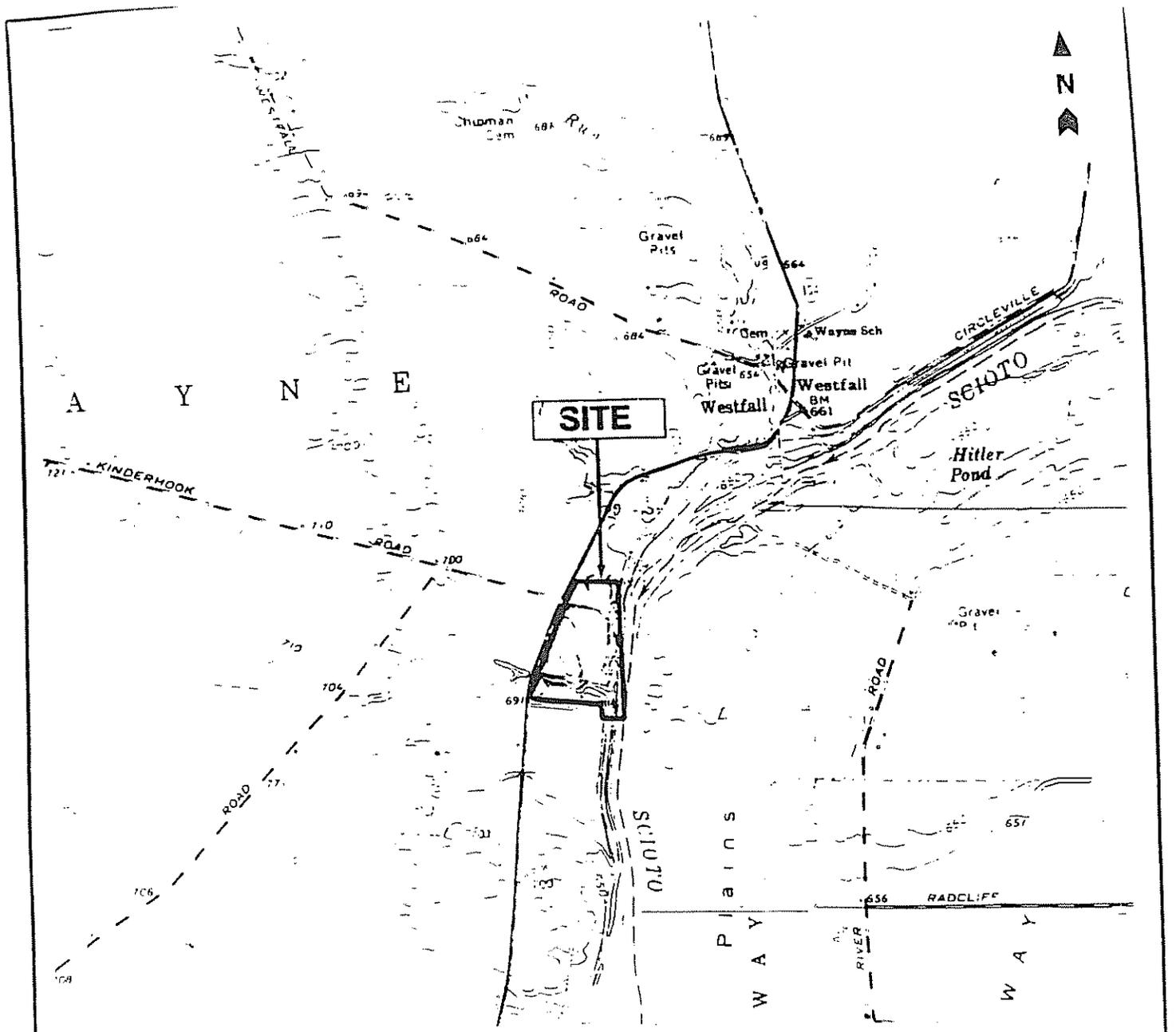
Attachments:

- I. Site Location Figures
- II. Enforcement Confidential Addendum
- III. Responsiveness Summary
- IV. Administrative Record Index

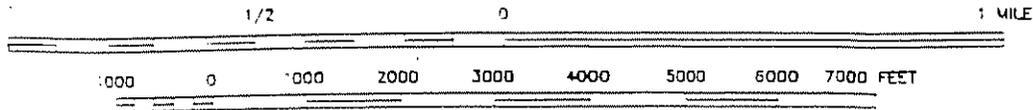
cc: Kevin Mould, U.S. EPA, OERR
D. Henne, U.S. DOI
Dan Tjoelker, Ohio EPA

bcc: R. Karl, SE-5J
W. Messenger, SE-5J
F. Rollins, SE-5J
D. Ballotti, S-6J
L. Fabinski, ATSDR, ATSD-4J
L. Rosales, P-19J
E. Furey, C-14
EERB Read File (M. Johnson)
EERB Delivery Order File

Attachment I



SCALE 1:24000



SCALE: 1" = 2,000'

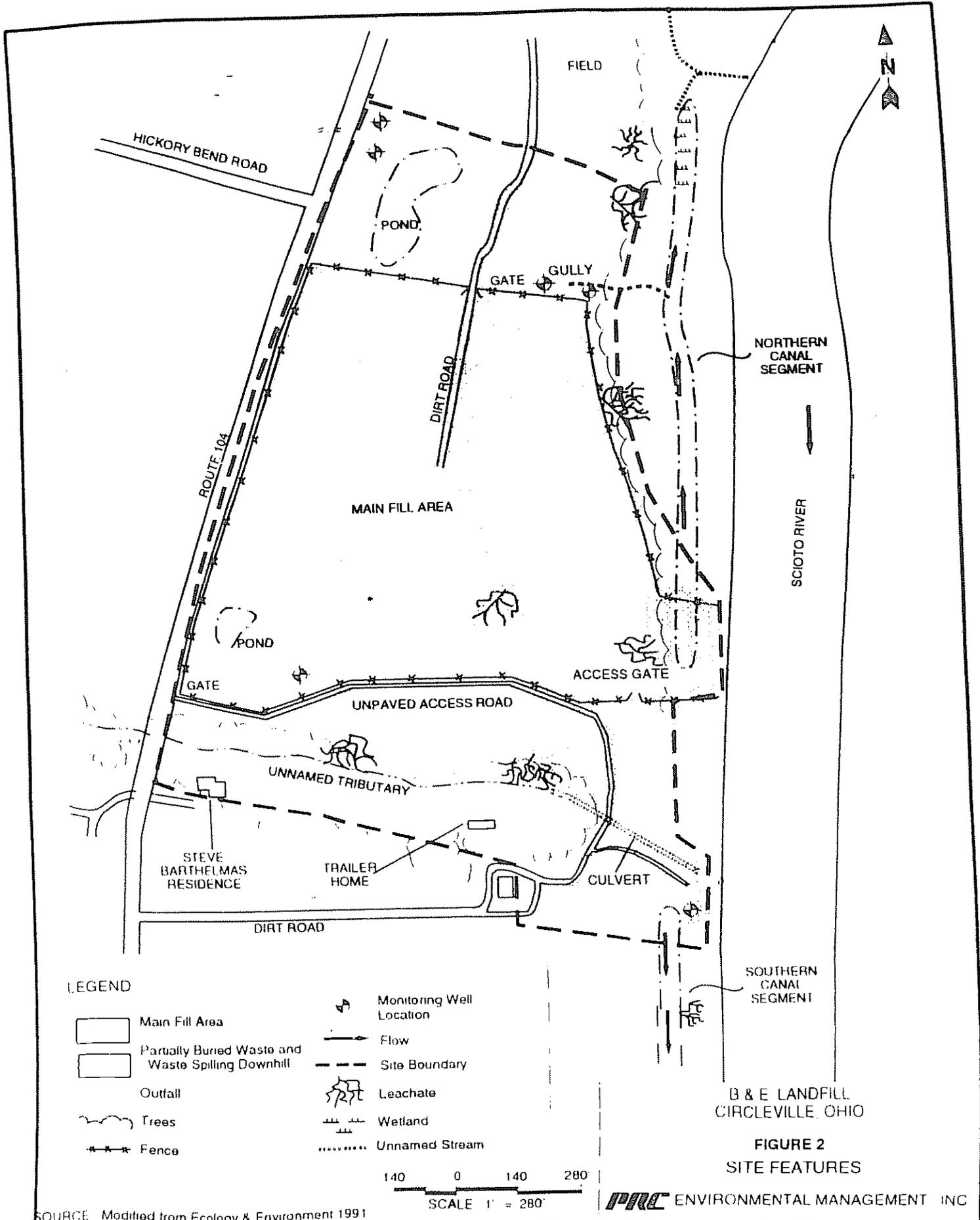
OHIO
 QUADRANGLE LOCATION

B & E LANDFILL
 CIRCLEVILLE, OHIO

FIGURE 1
 SITE LOCATION

PRC ENVIRONMENTAL MANAGEMENT INC

SOURCE: Modified from USGS 1961



SOURCE: Modified from Ecology & Environment 1991

Attachment II

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Attachment III

ATTACHMENT III

RESPONSIVENESS SUMMARY

RESPONSE TO COMMENTS ON U.S. EPA'S PROPOSED RESPONSE ACTION FOR THE B&E LANDFILL, CIRCLEVILLE, OHIO

The public comment period for U.S. EPA's proposed response action at the B&E Landfill Site opened on April 3, 1997. A public availability session was held on April 17, 1997 to discuss the results of the Engineering Evaluation/Cost Analysis (EE/CA) and U.S. EPA's proposed response action. During the public availability session, a request was made to extend the public comment period, which was scheduled to end on May 3, 1997. U.S. EPA granted the request and extended the public comment period to May 18, 1997.

U.S. EPA received a total of 5 sets of written comments during the public comment period. This responsiveness summary addresses those comments. Each response is divided into two portions--a summary of the comment and a response to the comment.

1. COMMENTS BY MR. STEVEN BARTHELMAS, LANDFILL OWNER and DENISE BARTHELMAS:

Mr. Barthelmas noted that, although the site has been used to pasture cattle for at least 30 years, he has observed no ill effects to the cattle or nearby wildlife. Additionally, Mr. Barthelmas stated that, to his knowledge, no pollutants have been found in the pond water or wells in the area. Thus, if only a few isolated areas pose a problem, the state and federal governments should only remediate those areas. Further, if mercury in the soil is not of the type that poses a risk, or if the mercury is not a mobile contaminant, Mr. Barthelmas offered to cover it.

Mr. Barthelmas believes that the remedy selection is being driven by emotion and perhaps a profit to be made in connection with the remedy.

Finally, Mr. Barthelmas stated his intention to stay on the property. He expressed some concern about the age of the data supporting this remedy. He suggested that new sampling be conducted to determine the nature and extent of the contamination at the Site.

Ms. Barthelmas believes there is no environmental problem at the landfill. She described the landfill as an area rich in plants and wildlife. She stated her belief that, because no contaminants have been found in the wildlife and the site is self-contained, no remedial action should be taken at the site. She also stated her belief that the sampling data for this site is old and, by now, probably inaccurate.

Finally, Ms. Barthelmas noted that the primary area of concern to the government agencies appeared to be a few areas over by the Scioto River. She recommended creating a clay retaining wall to prevent groundwater contamination from migrating to the river, which would cost significantly less than the proposed landfill cover.

U.S. EPA RESPONSE: U.S. EPA has selected the remedy only after careful and reasoned consideration. Community acceptance is one factor, among many others, which U.S. EPA considers when deciding what actions to take at a site. U.S. EPA does not believe that this remedy is being driven by either emotion or a desire for profits, but rather by concern for human health and the environment.

U.S. EPA does not believe that the data used to select the remedy for the B&E landfill is out of date. In the best of all possible worlds, U.S. EPA would have very current and extensive data for each site it addresses, and such data would be easy and inexpensive to obtain. Because of the number of sites that need to be addressed, however, and because data collection and analysis is often very costly, U.S. EPA created a process entitled the Superfund Accelerated Cleanup Model or "SACM." SACM allows U.S. EPA to save both time and taxpayer (or potentially responsible party) money by taking advantage of the Agency's experience at other, very similar, sites. Over the years, U.S. EPA (and Ohio EPA) have studied extensively many sites like the B&E Landfill. Because of this experience, U.S. EPA believed the B&E Landfill could be efficiently addressed through SACM, and that an in-depth quantitative risk assessment or the testing of site animals was not necessary. Instead, a qualitative risk assessment was performed, followed by Expanded Site Inspections or "ESIs."

The ESIs performed by U.S. EPA confirmed that the site presents risks to human health and the environment. The last round of sampling was conducted in 1994, and verified the results of the earlier (1991) sampling. The 1994 sampling confirmed that soil, groundwater and sediment all are contaminated -- in some instances at levels which exceed established federal and/or state standards. As noted in the Action Memorandum, the highest concentration of barium detected in an on-site monitoring well was 2,390 $\mu\text{g}/\text{L}$ -- a level which exceeds U.S. EPA's Maximum Contaminant Level (MCL) under the Safe Drinking Water Act for barium (2,000 $\mu\text{g}/\text{L}$). The MCLs are often triggers for remedial action. Mercury levels in the sediment at several locations exceed levels set by EPA's Office of Emergency and Remedial Response in the January 1996, ECO Update. The highest concentrations of mercury in sediment were in the Southern Canal Segment and the Scioto River at 5.1 and 4.1 mg/kg respectively. According to U.S. EPA guidance, mercury levels in sediments over 0.15 mg/kg pose a threat to human health or the environment.

Although no actual wildlife sampling was conducted during the investigation of this site, U.S. EPA and OEPA believe that, because fishing and turtle harvesting occur near the landfill, and small animals and cattle live and eat in the area, some action must be taken to try to reduce the levels of contaminants in the Scioto River. The selected remedy is, the agencies believe, a way to improve the River sediment without undertaking the costly action of dredging. (The Ohio EPA is currently completing a Biological and Water Quality Assessment of the Scioto River.

EPA is currently completing a Biological and Water Quality Assessment of the Scioto River. During this Assessment, Ohio EPA will sample sediments and surface water near the landfill. Ohio EPA's investigations will provide additional and current information about the health of the River and its wildlife.)

The agencies considered, but then rejected, the possibility of conducting only "hot spot" removal, the action suggested by Mr. Barthelmas to remedy those small areas of the landfill that cause the most concern. If the sediment was not contaminated, or if the groundwater or leachate did not contain hazardous substances, U.S. EPA may have considered "hot spot" removal more seriously. Leachate is generated when rain or other precipitation flows through the waste at the site. Leachate from the B&E Landfill usually finds its way into the River. Similarly, precipitation, erosion or simply high winds can cause contaminated soils to blow into the River, contributing to its contamination. U.S. EPA did not include a leachate collection system as part of the selected remedy for this site, but believes that leachate control is an important component of this remedy. After consulting with Ohio EPA, U.S. EPA determined that a properly installed geosynthetic cap should be able to prevent the flow of precipitation into the landfill wastes, and thereby significantly reduce the volume of leachate flowing from the landfill into the River. The cap should also prevent the migration of contaminated soils. (For more information about this type of remedy at sites like the B&E Landfill, please see U.S. EPA's 1993 guidance on the presumptive remedies for municipal landfill sites.)

3. COMMENTS BY DICK AND LOCHE KLINE

The Klines expressed their concern that, if the "borrow" material for the landfill is taken from the field immediately north of their home (as proposed), they will end up living next to an open and unsightly pit. This will adversely affect their property value. They also suggested that, because two natural waterways in the field "outlet" onto their property, washing and flooding might result upon the removal of a significant amount of soil. They do not believe that the field contains enough borrow material to complete the remedial action. They recommended that, instead of destroying the natural waterways, the remedy should include the creation of a 15 acre lake, which could have environmentally beneficial effects.

U.S. EPA RESPONSE: U.S. EPA and Ohio EPA want to assure the Klines that the excavation of the borrow material from the area north of their home will not result in a permanent and unsightly pit. Rather, the proposed borrow area will be reclaimed and turned into a grassy field. The potentially responsible parties (who, U.S. EPA believes, will conduct the removal action at the Site) have expressed their intentions to properly reclaim and maintain the borrow area until adequate vegetation can be established in accordance with applicable regulations.

"Borrow material" is a necessary component of most landfill remedies, including the one to be implemented at the B&E Landfill. Borrow material provides fill material and topsoil, and allows a site to be properly graded in accordance with well-established engineering principles. U.S. EPA and Ohio EPA have determined that the area just north of the Kline property is the best

source for borrow material for the B&E Landfill. First, the borrow area is owned by the site's owner and operator, Mr. Barthelmas. By providing the borrow material, he is able to contribute to implementation of the response action. Furthermore, portions of this land do not have a productive use. Studies conducted by the potentially responsible parties indicate that the soils in the proposed borrow area meet the fill specifications for construction of the landfill cap. Sampling results also indicate that, on average, the first two feet of material within the proposed borrow area would meet the landfill cap system construction specification for top soil. Finally, use of the area will avoid complex and expensive procedures for obtaining and transporting the necessary soil.

Grading plans have been developed both for the landfill and for the borrow area. The grading plan for the borrow area was developed to avoid steep slopes and deep cuts, while minimizing the surface area necessary to obtain the required soil volume for landfill cap construction. The plan ensures an aesthetically pleasing final grade that minimizes potential erosion and maintenance and maximizes land for agricultural use. The plan also incorporates a 50 foot buffer zone from all adjoining property boundaries, in accordance with Ohio Department of Natural Resources Guidance. Finally, the borrow area will be developed without changing or interfering with the current alignment of the two existing streams.

Implementation of the grading plan for the borrow area will not result in any change to the flood plain. Further, the canal embankment will not be lowered. No impact to existing flood patterns is expected since the proposed borrow area will be developed without interfering with the two existing streams and the lowest proposed elevation within the reclaimed borrow area will still be above the 100 year flood plain of the Scioto River.

Creating a 12-15 foot acre lake, as suggested by the Klines, would indeed probably produce sufficient soil for implementation of the remedy. However, if located on the Barthelmas' property, the lake would consume a significant portion of the farmable land. The acquisition cost would be prohibitive if the lake were to be placed on adjacent or nearby property.

4. COMMENTS BY CLINT AND CAROL ROBERTSON

The Robertsons do not live near the B&E Landfill, but would like the water wells in the area tested regularly. They recommend capping the Site if that is the best alternative, but would like to see some action taken.

U.S. EPA RESPONSE: Based on the sampling conducted to date at the Site, U.S. EPA and Ohio EPA do not believe that the B&E Landfill poses any threat to private or municipal wells in the vicinity of the landfill. Unless there is some reason to believe that the drinking water wells are threatened by contamination, the federal and state agencies do not believe that further sampling can be justified. U.S. EPA thanks the commentators for their support of a response action at the Site.

5. COMMENTS BY CUMMINGS RITER CONSULTANTS, INC.

A. Landfill Users (Page 2): It is inappropriate for the EE/CA to identify some Potentially Responsible Parties (PRPs) without identifying all PRPs and their contributions to the site.

U.S. EPA RESPONSE: The EE/CA identified the PRPs who had already received General Notice letters and were known to have disposed of hazardous waste at the site. Since the EE/CA, additional PRPs have been identified.

B. Sediment Sample Locations (Page 4): Some sediment sample locations depicted in the U.S. EPA Expanded Site Inspection Report, January 4, 1994, and referenced in the EE/CA are actually soil samples collected in wet areas on the landfill surface (i.e., samples SD-1 and SD-2 within the low lying area at the site entrance). Other sample locations (e.g., SD-5 through SD-9, SD-10 through SD-14) are depicted outside of waterbodies (i.e., the canal segments and Scioto River) which would imply that these samples were not sediment but rather soil samples. Evaluating them as sediment samples is inappropriate because soil standards are significantly different than sediment standards. For example, the Streamlined Risk Evaluation developed for the Site indicates that mercury levels at some locations exceed the sediment standard of 0.15 mg/kg established by the U.S. EPA's Office of Emergency and Remedial Response in the January 1996 ECO update. However, at least one of the locations referenced, SD-2 is a soil sample. The December 1996 Generic-Contact Soil Standards established by Ohio Rule 3745-300-8(c) indicates a soil concentration of 16.00 mg/kg for mercury as acceptable for residential land use. The soil standard is higher than any of the mercury levels reported at "sediment" sample locations.

U.S. EPA RESPONSE: U.S. EPA believes that all sampling locations were properly determined and that the sampling results verify significant mercury contamination of sediments. As noted in the U.S. EPA Expanded Site Inspection, Site Specific Implementation Plan, May 3, 1993, sediment samples were obtained for the purpose of documenting actual contamination of a fishery and a wetland attributable to the landfill. Sediment samples SD-1, SD-2, SD-3, and SD-4 were collected from the two on-site ponds (wetlands) to characterize any contamination from site runoff. Sediment samples SD-5, SD-6, and SD-7 were collected along the southern canal segment to document actual contamination of a fishery.

Sediment samples SD-8, SD-9, and SD-10 were collected along the northern canal segment to document actual contamination of a fishery.

The remaining sediment samples were taken from the Scioto River and the intermittent creek to the Scioto River to document any release of hazardous substances to the Scioto River. Mercury was detected in the Scioto River as high as 4.1 mg/kg.

C. Air Migration Pathway (Page 10): Potential human exposure to landfill gas via air migration is not a plausible pathway. The assumptions in the EE/CA that were made to estimate that potentially 2,176 people residing within 4 miles of the landfill may be exposed to landfill gas is not realistic. Gas monitoring during test pit excavations did not detect significant landfill gas and landfill gas was not detectable during ambient air monitoring. The conclusions regarding landfill gas on page 13 of the EE/CA are more realistic and potential exposure to landfill gas emissions is not a risk at the site.

U.S. EPA RESPONSE: After further study, U.S. EPA concurs with the above comment.

D. Soil Remediation (Page 11): The EE/CA states that soil around "two houses" should be remediated. Based on soil sampling by the PRP Group, the limit of soil remediation has been delineated and approved by the U.S. EPA and the OEPA. The appropriate reference in EE/CA should be to soil remediation only "around the trailer home behind the Barthelmas residence."

U.S. EPA RESPONSE: The referenced statement derives from the Ohio Department of Health's, Health Consultation Report and is stated on page 11 of the EE/CA. On page 12 of the EE/CA under the section for removal action scope, goals, and objectives it states that the soil at the site to be remediated is near the trailer area. No mention is made of remediation around the two houses.

E. Construction Schedule (Page 12): The construction schedule given in the EE/CA does not account for the conditions at the B&E Landfill and does not allow adequate time to address those conditions. The Group, in consultation with experienced contractors in landfill cap construction, have estimated a construction schedule of approximately 13 months. A typical construction schedule for a landfill cap of this size is provided as Attachment A.

U.S. EPA RESPONSE: U.S. EPA understands the concerns of the Group. However, U.S. EPA believes that construction can be completed within a one year time period. In addition, all actions taken under U.S. EPA's removal authority must be completed within one year.

F. Post Construction O&M (Page 13): The EE/CA should not discuss post-construction O&M or performance monitoring because an appropriate evaluation of O&M issues has not been conducted. The Group looks forward to discussing B&E site O&M with the U.S. EPA and OEPA in the near future.

U.S. EPA RESPONSE: Although removal actions do not always provide for operation and maintenance (O&M), U.S. EPA believes the discussion in the EE/CA was appropriate given the circumstances of this proposed action. A modified risk assessment was performed for this removal action; a leachate collection system will not be implemented at the Site; and the presumptive remedy for municipal landfills has been used. Long-term O&M and performance

monitoring will ensure that the response action is performing as expected, and is alleviating the risk to human health and the environment without the need for further work.

G. Capping System (Page 14): A combination of two types of caps is proposed and is necessary for the B&E Landfill as depicted in Attachment B. One will be used over most of the landfill and the other will be used over the steep landfill slope that extends into the canal area. Attachment C depicts the B&E Landfill and the location of each type of cap that will be constructed at the site. The EE/CA only referenced a cap system similar to the cap system to be used on the steep slope on the eastern side of the landfill.

U.S. EPA RESPONSE: U.S. EPA concurs with the above comment.

H. Reduction in Mobility (Page 17): The Group believes that the mobility of landfill leachate will be significantly reduced after capping, whereas the EE/CA states that "the mobility of contaminants of concern is not reduced." Even though it is not practical to treat landfill waste directly, leachate mobility will be substantially reduced through the construction of the landfill cap. Many depressions exist on the landfill surface which capture precipitation. In the landfill's current state this precipitation infiltrates into the landfill and generates leachate. The impermeable cap is designed to promote runoff, thereby preventing precipitation from infiltrating into the landfill. With the reduction in infiltration, significantly less leachate should be generated.

U.S. EPA RESPONSE: U.S. EPA agrees that, over time, reduction of infiltration into the landfill should reduce, if not eliminate, the discharge of leachate from the landfill. As noted in the EE/CA, the reduction in infiltration will occur due to engineering controls. A significant reduction in leachate volume will not, however, occur immediately, but may take several years to achieve.

Attachment IV

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMEDIAL ACTION

ADMINISTRATIVE RECORD
FOR
B&E LANDFILL SITE
CIRCLEVILLE, PICKAWAY COUNTY, OHIO

ORIGINAL
APRIL 1, 1997

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	05/05/83	Ecology and Environment, Inc.	U.S. EPA	Preliminary Assessment for the B&E Landfill Site	19
2	01/23/90	Ecology and Environment, Inc.	U.S. EPA	Groundwater Pathway Assessment for Listing Site Inspection Work Plan for the B&E Landfill Site	32
3	10/07/91	PRC Environmental Management, Inc.	U.S. EPA	Quality Assurance Project Plan for Region 5 Superfund Site Assessments in Ohio	487
4	10/31/91	Ecology and Environment, Inc.	U.S. EPA	Expanded Site Inspection/Groundwater Pathway Assessment for the B&E Landfill Site	84
5	05/03/93	PRC Environmental Management, Inc.	U.S. EPA	Expanded Site Inspection: Site Specific Implementation Plan for the B&E Landfill Site	31
6	09/00/93	U.S. EPA/OSWER	U.S. EPA	Quick Reference Fact Sheet: "Presumptive Remedy for CERCLA Municipal Landfill Sites" (OSWER Directive 9355.0-49FS; EPA 540-F-93-035; PB 93-963339)	14
7	01/00/94	PRC Environmental Management, Inc.	U.S. EPA	Expanded Site Inspection Report for the B&E Landfill Site (FINAL)	113
8	08/04/94	Tjoelker, D., Ohio EPA	Griffin, J., U.S. EPA	Letter Forwarding Attached 1981 Leachate Sampling Data for the B & E Landfill Site	7
9	09/01/94	Ohio Department of Health/ATSDR	U.S. EPA	Health Consultation for the B & E Landfill Site	12
10	01/00/96	U.S. EPA/OSWER	U.S. EPA	U.S. EPA Intermittent Bulletin: "ECO Update" Publication 9345 0-12FSI; EPA 540/F-95/038; PB 95-963324)	14

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
11	01/23/96	Marker, C., Cummings Riter Consultants, Inc.	Christman, T., Ohio EPA	Letter Forwarding Various Attached Technical Papers re the Use of Geosynthetic Clay Liners in Landfill Cover Applications	15
12	01/23/96	Marker, C., Cummings Riter Consultants, Inc.	Christman, T., Ohio EPA	Letter Forwarding Attached HELP Analysis --Capping Options for the B&E Landfill Site	5
13	03/00/97	Williams, T., U.S. EPA	U.S. EPA	Community Involvement Plan for the B & E Landfill Site	7
14	04/00/97	U.S. EPA		Engineering Evaluation/ Cost Estimate for the , B&E Landfill Site	47

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APPENDIX B

APPENDIX B
SCOPE OF WORK
FOR THE
REMOVAL ACTION, PERFORMANCE MONITORING, AND OPERATION AND
MAINTENANCE
B&E LANDFILL
CIRCLEVILLE, PICKAWAY COUNTY, OHIO

I. PURPOSE

The purpose of this Scope of Work (SOW) is to implement the requirements of the B&E Landfill (B&E) Enforcement Action Memo (EAM), which the United States Environmental Protection Agency (USEPA) issued on February 18, 1998, to select a non-time critical removal action for the B&E Site. USEPA Superfund Remedial Design and Remedial Action Guidance, the EAM, the approved B&E Landfill Engineering Evaluation/Cost Analysis (EE/CA) document, the Final Removal Design, the Presumptive Remedy for Municipal Landfills, any additional guidance provided by USEPA and this SOW shall be followed in implementing the response actions at the Site. Each of the following work items applies to the Removal Action at site.

All documents submitted pursuant to this SOW shall be submitted for USEPA review and approval, in consultation with the Ohio Environmental Protection Agency (OEPA).

II. DESCRIPTION OF THE WORK

A. ACCESS, PERMITS, AND INSTITUTIONAL CONTROLS

1. Access

Respondents shall attempt to secure access to the Site where Work is to be performed.

2. Permits

Respondents shall secure all required federal, state, and local permits or permit equivalents to construct and operate the Removal Action. USEPA will, to the extent USEPA deems feasible, assist Respondents in securing permits in a timely manner or, where USEPA deems appropriate, will issue waivers, exemptions, or variances from permit requirements using authorities granted pursuant to 42 USC 9621(e).

Owner respondent shall incorporate institutional controls in the form of deed restrictions into the Work.

B. CONSTRUCTION

The Respondents shall construct the removal action at the Site in accordance with the Final Removal Action Work Plan, as approved by USEPA on August 10, 1998, attached as Attachment 1 to this SOW and fully incorporated herein and made a part of this SOW.

The Final Removal Action Work Plan consists of:

- Final Design Drawings
- Final Technical Specifications
- Final Engineer's Cost Estimate
- Final Construction Schedule
- Final Performance Monitoring Plan
- Final Operation and Maintenance Plan
- Final Construction Quality Assurance Plan
- Final Quality Assurance Project Plan
- [Final Health and Safety Plan]¹

C. PERFORMANCE MONITORING PLAN

Respondents shall implement the Performance Monitoring Plan (PMP) in accordance with the final PMP upon completion of the of the final construction inspection.

¹ May be submitted by Remedial Action Contractor

D. OPERATION AND MAINTENANCE (O&M)

The Respondents shall provide O&M for the work at the B&E Site in accordance with the Final Operation and Maintenance Plan. O&M shall begin upon approval of the Construction Completion Report and continue in accordance with the approved O&M Plan. The O&M Plan shall include the following provisions:

1. Multi-Layer Landfill Cap

O&M of the cap shall include mowing of the surface vegetation to preserve site aesthetics and avoid thatch buildup. Respondents shall conduct inspections of the cover for signs of erosion or settlement, and to ensure integrity and proper performance of site drainage features. Respondents shall repair or replace any and all components of the multi-layer cover system determined to need repair or replacement as a result of these inspections.

2. Landfill Gas Venting System

Respondents shall inspect the landfill gas venting system in accordance with the EAM to verify that the system is operating properly and to identify any vents requiring replacement. Respondents shall replace any vents needing replacement which are identified as a result of these inspections.

3. Fencing

Respondents shall inspect the fencing at least semi-annually to verify its integrity and identify any areas needing repair or replacement. Respondents shall repair or replace any sections of the fence identified in these inspections.

4. Leachate Monitoring

Respondents shall perform leachate level measurements and sampling of leachate for chemical analysis as part of O&M activities in accordance with the EAM.

III. SCOPE OF WORK

The Work shall consist of the following five tasks:

Task I: Access, Permits, and Institutional Controls

Task II: Removal Action Construction

- A. Construction Quality Assurance Plan
 - B. Community Relations Support
- Task III: Performance Monitoring
- A. Implementation
 - B. Completion of Performance Monitoring Plan
- Task IV: Operation and Maintenance (O&M)
- A. Implementation
 - B. Duration
- Task V: Meetings, Reports, and Submissions
- A. Progress Meetings
 - B. Progress Reports
 - C. Draft Submittals
 - D. Final Submittals
 - E. Schedule of Deliverables

TASK I - ACCESS, PERMITS AND INSTITUTIONAL CONTROLS

The Respondents shall provide for access, permits, and institutional controls as described in further detail in Sections II.A.1. through II.A.3. of this SOW.

TASK II - REMOVAL ACTION CONSTRUCTION

Respondents shall construct the Removal Action in accordance with the approved Final Removal Design including the Final Construction Quality Assurance Plan.

A community relations program will be implemented by USEPA. As requested by USEPA, the Respondents shall participate in the preparation of information disseminated to the public and, where Respondents deem it appropriate, in public meetings that may be held or sponsored by USEPA or the OEPA to explain activities at or concerning the Site.

TASK III - PERFORMANCE MONITORING

A. IMPLEMENTATION

Respondents shall implement the Final Performance Monitoring Plan upon completion of the final construction inspection. Implementation shall continue concurrently with O&M activities until such time as the Performance Monitoring Period is complete.

Respondents shall submit to USEPA and OEPA quarterly all validated data collected for the implementation of the Performance Monitoring Plan.

B. COMPLETION OF PERFORMANCE MONITORING PERIOD

Criteria for completion of the Performance Monitoring Period shall be as set forth in the PMP. Respondents shall submit a Performance Monitoring Report as set forth in the PMP after five years of performance monitoring.

TASK IV - O&M

A. IMPLEMENTATION

Following construction of the Removal Actions and approval of the Final Construction Completion Report, the Respondents shall implement the Final O&M Plan at the B&E Site.

B. DURATION

Respondents shall provide O&M for the work at the B&E Site for the period described in the O&M Plan.

TASK V - MEETINGS, REPORTS AND SUBMISSIONS

The Respondents shall prepare plans and reports as set forth below to document the construction, operation, maintenance, and monitoring of the Removal Actions. The documentation shall include, but not be limited to, the following:

A. PROGRESS MEETINGS

The Respondents shall, at a minimum, meet with USEPA in accordance with the schedule contained in this SOW.

B. PROGRESS REPORTS

The Respondents shall, at a minimum, provide USEPA and OEPA with signed monthly progress reports during the construction phase and semi-annual progress reports for operation, maintenance, and performance monitoring activities containing:

1. A description and estimate of the percentage of the Removal Action (RA) completed;
2. Summaries of all findings;
3. Summaries of all changes made in the RA during the reporting period;

4. Summaries of all contacts with representatives of the local community, public interest groups or State government during the reporting period;
5. Summaries of all problems or potential problems encountered during the reporting period;
6. Actions being taken to rectify problems;
7. Changes in strategic personnel during the reporting period, including qualifications;
8. Projected work for the next reporting period; and
9. Identification of the location of copies of daily reports, inspection reports, laboratory and monitoring data, etc.

All progress reports shall be submitted within 14 days following the end of the reporting period.

C. DRAFT SUBMITTALS

- 1 Respondents shall submit a draft Construction Completion Report to the USEPA for review and approval. The Report shall document that the construction is consistent with the Removal Design specifications. The Report shall include, but not be limited to, the following elements:
 - a. Synopsis of the Removal Actions and Certification of the design and construction; and
 - b. Explanation of any modifications to the plans and why these were necessary for the project. Any modifications shall be approved by USEPA in consultation with OEPA.
2. Upon completion of the Performance Monitoring Period, Respondents shall submit, for USEPA review and approval, a draft Removal Action

- Completion Report. The Report shall document that all requirements set forth in the PMP have been met.

D. FINAL SUBMITTALS

After USEPA, in consultation with OEPA, reviews and comments on all draft submittals, including the Draft Construction Completion Report and the Draft Removal Action Completion Report, the Respondents shall address all USEPA comments and submit the final documents for USEPA approval.

E. SCHEDULE OF DELIVERABLES AND CONSTRUCTION OF MULTI-LAYER CAP

The Respondents shall comply with the information reporting requirements presented below.

Deliverable/Activity	Due Date
Designate a Project Coordinator and Alternate Project Coordinator	Within 14 days of the effective date
Procurement of Contractor	Within 30 days of the effective date
Contractor Health and Safety Plan	Prior to site construction (contractor submittal)
Preconstruction Meeting	TBD
Construction Start	Within 150 days of the effective date
Construction Progress Reports	Monthly during construction beginning 30 days after the effective date
Prefinal Inspection and Meeting	30 days prior to anticipated completion of construction
Prefinal Inspection Report	14 days following prefinal inspection
Final Inspection and Meeting	Within 14 days of completion of construction
Final Inspection Report	Within 14 days of resolution of outstanding punch list items identified in prefinal inspection report
Draft Construction Completion Report	60 days following approval of Final Inspection Report
Final Construction Completion Report	30 days following receipt of USEPA comments on the Completion Report
Construction Completion	As determined by Removal Action Work Plan Schedule
Performance Monitoring Progress Reports	TBD
Removal Action Completion Report	5 years after approval of the Construction