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Superfund Record of Decision:

United Scrap Lead, OH

50272-101

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15. Supplementary Notes

16. Abstract (Limit: 200 words)

The United Scrap Lead (USL) site is located in a sparsely populated area approximately one mile south of the City of Troy, Concord Township, Miami County, Ohio. The 25-acre site is bounded by two residences, one combined commercial/residential unit, and one commercial establishment. The entire USL site lies within the 100-year floodplain of the Great Miami River. From 1946 to 1980, the site was used by a lead reclamation business, reclaiming lead from used automobile batteries and selling it to lead smelters. The majority of the site is currently owned by Bailen Brothers, Inc., the successor organization to United Scrap Lead, Inc. The lead reclamation operation involved the separation of the batteries from their casings and tops, collection of the lead plates for reprocessing, and the disposal of the tops and casings onsite. The acid was originally discharged directly to an acid seepage field, but beginning in late 1972, the acid was neutralized with ammonia prior to discharge. The site first came to the attention of authorities in June 1967 when USL requested a permit to continue to dispose of the battery casings in the back portion of the property. The request was granted, but in 1972 the Ohio Department of Health required USL to implement a wastewater treatment program to fully neutralize the acid. Subsequent testing of the wastewater indicated high levels of lead, cadmium, and other toxic materials. In November 1985,
(See Attached Sheet)

17. Document Analysis a. Descriptors

Record of Decision
United Scrap Lead, OH
First Remedial Action - Final
Contaminated Media: soil, sediments
Key Contaminants: arsenic, lead

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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16. ABSTRACT (continued)

the EPA Region V Emergency Response Section initiated an emergency removal action. This action removed the contaminated soil and waste materials from the immediate vicinity of the surrounding residences and placed them in a large pile onsite (approximately 55,000 yd^3). The areas of contamination at the site include the waste pile and underlying soil, contaminated site soil (approximately 45,000 yd^3), contaminated buildings, other miscellaneous wastes, approximately 100 empty drums, and several partial or intact empty chemical storage tanks. Approximately 400 yd^3 of sediment in a nearby tributary were found to contain high levels of lead and arsenic, attributed to surface runoff from the waste pile onsite. The primary contaminants of concern affecting the soil and sediments include lead.

The selected remedial action for this site includes: excavation and onsite treatment of soil and battery casings by washing, with lead recovery and offsite disposal or recycling of casing residues and replacement of cleaned residual soil onsite; excavation and dewatering of tributary sediments followed by onsite disposal with treated soil; construction of a soil cover over disposed material and revegetation; decontamination of buildings and debris followed by offsite disposal; installation of a new residential well; imposition of minimal deed restrictions; and groundwater and surface water monitoring. The estimated present worth cost for this remedial action is $26,924,000 with estimated annual O&M costs of $55,375.

RECORD OF DECISION

SITE NAME AND LOCATION

United Scrap Lead
Troy, Ohio

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the United Scrap Lead site, in Troy, Ohio, developed in accordance with CERCLA, as amended by SARA, and, to the extent practicable, the National Contingency Plan. The decision is based on the administrative record for the United Scrap Lead site. An index of the administrative record is attached (Attachment A).

The State of Ohio has concurred with the selected remedy.

DESCRIPTION OF SELECTED REMEDY

The selected remedy for the United Scrap Lead site involves the treatment of both battery casings and contaminated soils to remove and recycle lead. The major components of this overall site remedy include:

- Treat casings on-site (washing with lead recovery) with off-site disposal of residuals (non-RCRA landfill) if a recycler cannot be found

- On-site soils > 500 mg/kg lead (EP-toxic under waste pile) treated (washing with lead recovery) with residual soils (non-hazardous) placed back on-site

- Clean fill brought in to cover treated soils and revegetate

- Off-site soils* brought on-site and placed with treated soils (covered with clean fill)

- Sediments dewatered on-site then placed with treated soils (covered with clean fill)

- Buildings/facilities, and debris decontaminated and disposed off-site (non-RCRA landfill)

- New residential well provided for Ishmael residence/USL office building

- Minimal deed restrictions implemented

- Site drainage controlled

- Groundwater/surface water monitoring both during remedial action and for a minimum of two years after.

* Location and volume to be determined during remedial design.

Consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300, I have determined that, at the United Scrap Lead site, the selected remedial action is cost-effective, provides adequate protection of public health, welfare and the environment, and utilizes treatment to the maximum extent practicable.

This action will require operation and maintenance activities to ensure continued effectiveness of the remedial alternative.

I have determined that the action being taken is consistent with Section 121 of SARA. The State of Ohio has been consulted and concurs with the selected remedy.

DECLARATION

The selected remedy is protective of human health and the environment, attains Federal and State requirements that are applicable or relevant and appropriate for this remedial action, and is cost-effective. This remedy satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element and utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable.

Because this remedy will result in hazardous substances remaining on-site above health-based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Valdas V. Adamkus
Regional Administrator

September 30th, 1988
Date

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION
UNITED SCRAP LEAD SITE
TROY, OHIO

I. SITE NAME, LOCATION AND DESCRIPTION

The United Scrap Lead (USL) site, an old battery recycling facility, is located approximately one (1) mile south of the City of Troy, Concord Township, Miami County, Ohio (figure 1). In 1982, the population of Miami County was 90,332 (Ohio Census Data). The City of Troy, which is located in Concord and Staunton Townships, had a reported population of 19,332. The populations of Concord and Staunton Townships at this time were 23,541 and 2,046, respectfully. As seen by these figures, the majority of the population (76 percent) resides within the corporate limits of Troy.

The site itself is located in a lightly populated area. Residents live primarily to the west of the site along County Highway 25A South. Immediately bordering the USL site, there are two residences, one combined commercial/residential unit and one commercial establishment. At the time the RI was conducted, these facilities were occupied by ten (10) persons (one (1) child) on a permanent basis. With the commercial properties, there is an undefined transient population.

The USL site presently occupies approximately 25 acres of land, of which 23.8 acres are owned by a successor corporation of the United Scrap Lead Company and 1.2 acres are owned by Mr. John W. Holcomb.

The site presently consists of three general areas; an open flat area in the northern half of the site, a wooded area in the southeast quarter of the site, and the southwest quarter of the site where the offices, process buildings, and waste disposal areas are located. To the north and south of the site are farm fields. To the east, the site is bordered by the Baltimore and Ohio Railroad with wooded areas beyond. To the west, the site is bordered by several residences and County Highway 25A (Figure 2).

Approximately 80 percent of the land in Miami County is under cultivation with the principal crops being field corn, soybeans, wheat, hay and oats (USDA). Less than 5 percent of the county is forested. To the east of the site and west of Island No. 3, the land is wooded.

The major drainage route in the area of the site is the Great Miami River. The USL site is bordered on its southern boundary by the Tributary to Island No. 3 which discharges into the Great Miami River at river mile 58. This Tributary drains much of the City of Troy and surrounding area. The flow of the Great Miami River at Troy has been reported to average [illegible]01 million gallons per day [USGS Water Survey].

The river and surrounding river valley lies within the Miami Conservency District. The Tributary and river in this area are not widely used for recreational activities or as a drinking water source. There is fishing further downstream near Tipp City at the Taylorsville Reservoir where an 8 acre pool has been formed by the Taylorsville Dam.

One of the major responsibilities and original purpose of the District is flood control along the Miami River Basin. As part of these efforts the District has constructed multiple flood control facilities in its jurisdiction. The Taylorsville Dam near Tipp City is one of these facilities. The District, through this unit, has established a flood elevation level upstream of the dam of 818 feet N.V.G.D. At this elevation, the entire USL site is within the flood plain as established by the District.

The river valleys are the site of the sand and gravel quarries which have been and are currently in operation throughout the county. At the present time, although much of the surrounding land is owned by American Aggregate, Inc., a sand and gravel operating company, there are no active operations in the immediate area of the site.

The river valleys are also important as a major water supply source. The Great Miami River in Miami County overlies the buried valley of the Sidney Creek, a Tributary of the Teays River Valley, with ground-water well yield reported in the range of 200 to 1000 gpm. The residences and other facilities adjacent to the site are on private wells located on the edges of this buried valley source with well yields of 100-500 gpm possible. The areas beyond the river valleys typically obtain their water from glacial drift or limestone formations with yields of 5 to 25 gallons prevalent. The closest private well is within 10 feet of the areas of past disposal of the waste materials at the site (Ishmael) with an additional three wells within 300 ft. of the disposal areas.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

SITE HISTORY

The United Scrap Lead Company began in 1946 as a sole proprietorship owned by Edward Bailen. The company was engaged in the business of lead reclamation from old and used automobile batteries. These batteries were primarily purchased from scrap dealers in Ohio and brought to United Scrap Lead Company for processing. The reclaimed lead was sold and shipped to lead smelters.

United Scrap Lead Company, Inc., was incorporated on April 1, 1964. Edward and Charles Bailen each owned fifty (50) percent of the stock. Edward Bailen served as President and Treasurer, and Charles Bailen served a Vice-President and Secretary.

United Scrap Lead Company, Inc., discontinued buying and processing operations in October of 1980. The corporation was dissolved on March 31, 1982. The real estate comprising the United Scrap Lead Company, Inc., site in Troy, Ohio was deeded to Edward and Charles Bailen as joint tenants on March 31, 1982.

In May of 1983, Edward and Charles Bailen incorporated to form Bailen Brothers, Inc. Edward and Charles Bailen are the sole shareholders and officers of this corporation. The real estate comprising the United Scrap Lead Company, Inc., site in Troy, Ohio, was deed by both individuals to Bailen Brothers, Inc. in September of 1983. Bailen Brothers, Inc., was formed for the purpose of leasing the subject real estate to other parties for recycling and cleaning up waste material left on the land by the old United Scrap Lead Company, Inc., operations. Hereinafter, the property is referred to as property owned by "USL".

Although USL began business at this location in 1946, it claims not to have deposited any solid wastes on the site until 1966. Beginning in 1966 and continuing through 1980, USL separated the batteries from their casings, severed the tops, collected the lead plates for reprocessing, and then disposed of the tops and casings on-site. The acid was originally discharged directly to an acid seepage field. Beginning in late 1972, the acid was collected, neutralized with ammonia as necessary, and discharged through the acid seepage field.

Agency attention to the USL operations first occurred in June 1967 when USL requested a permit to continue to dispose of the battery casing on the back portion of their property from the Miami County Board of Zoning Appeals. This request was approved in August 1967.

Later, concerns regarding USL's operation were focused on the disposal of the acid waste. In 1972, the Ohio Department of Health required USL to implement a wastewater treatment program at USL to fully neutralize the acid. According to Ohio EPA, USL began using ammonia neutralization of the acid waste followed by discharge to a settling tank with the effluent discharging directly to the acid seepage field. Subsequent Ohio EPA monthly operating inspection reports of the site indicated the leaching pit influent lead concentrations were between 20 and 100 milligrams per liter. Significant concentrations of cadmium and other toxic materials were reported to also be present in the influent. In 1974, the Ohio EPA recommended implementing a more effective on-site treatment system or off-site treatment and/or disposal of the waste acid. Ohio EPA also began monitoring the ground-water quality near the site in 1976.

In the period from 1972 to 1977, ten USL workers were diagnosed by physicians as having lead poisoning. This prompted inspections by the U.S. Occupational Safety and Health Administration (OSHA) which, among other violations, found inadequate protection against contamination by lead residue. The OSHA investigation also noted high levels of lead contamination in the air close to the site and lead contaminated dust near the railroad depot in Troy, Ohio.

In 1979, Ohio EPA monitoring found that an on-site well at USL had begun to show signs of sulfate contamination and that cadmium and lead levels in observation wells installed by USL at the site far exceeded drinking water standards. Pursuant to Ohio's solid waste disposal regulations applicable to the disposal of materials on the premises where they are generated, Ohio EPA required USL to develop disposal plans for its waste. The disposal plan was never implemented because in 1980 USL stopped its operation indefinitely, as a result of the drop in demand for recycled lead.

By January 1982, the site was being used for a battery casing reclaiming operation run by Kenneth Boersma, although the property was still owned by USL. Boersma's operation consisted of scooping up the old battery casings from the site, crushing them, and selling the polypropylene and lead metal debris to different industries. Ohio EPA and the Miami County Health Department believed this offered a substantial solution to the site's problems, but Boersma and his employees abandoned the operation before completion when their blood was found to contain dangerously high levels of lead. After this, USL contracted with Galena Industries to retrieve the landfilled battery casings from the site and haul them away for processing. However, this operation was also halted in early 1983 when the Ohio EPA and the County Health Department determined that the rubber chips that remained after processing and were normally hauled back to the site were hazardous, and thus had to be disposed of at an approved RCRA site.

In September 1984, USL was placed on the National Priorities List (NPL) under CERCLA.

On September 20, 1984, the Technical Assistance Team (TAT) for U.S. EPA Region V made a site visit to perform an assessment for the need for immediate removal actions under authority of CERCLA and the NCP. This visit was subsequently followed by a sample gathering effort in December 1984.

In November 1985, the U.S. EPA Region V, Emergency Response Section (ERS) responding to the results of the earlier studies as conducted by TAT initiated an emergency removal action at the USL site. This action was implemented to remove the contaminated soils and waste materials from the immediate vicinity of the surrounding residences and roadway. These materials were removed and relocated on site forming a large pile further to the east. The sampling and analysis of the soils and waste materials removed and relocated as part of the efforts conducted at the USL site have shown high concentrations of lead.

The waste as disposed at the USL site consists of rubber (Bakelite) and plastic (polypropylene) battery casings, pieces of the lead components from the batteries (grids, posts, and portions of the plates) lead paste and contaminated soils. The rubber casings are indicative of the industrial and older automotive batteries received at the site for processing. The plastic casings are representative of later automotive batteries when plastic was substituted for rubber in the late 1960's. The vast majority of the battery casing residue as disposed at the site, ranges in size from 1/2 inch to 6 inches in diameter. Some pieces are flat but most are complex in shape with corners and interior ridge surfaces. There are a limited number of whole casings located primarily along the perimeter of the disposal areas at the surface and scattered throughout the southern half of the site.

In addition to the waste battery casings and components, there are also several abandoned buildings located on-site. The Process Buildings No. 1 and No. 2 were built on top of the battery disposal material. Through the dispersion of lead contaminants in the course of operations conducted in these structures, they have been contaminated. Other miscellaneous wastes as found at the site are: approximately one-hundred empty drums, several partial or intact empty chemical storage tanks, and general refuse from both site related activities and the general public, which has used the site as an open dump on occasion.

ENFORCEMENT ACTIVITIES

Prior to the initiation of the Remedial Investigation/Feasibility Study (RI/FS) notice letters were sent out by the U.S. Environmental Protection Agency (U.S. EPA) to the two known Potentially Responsible Parties (PRPs), USL and Mr. Holcomb. Information requests (Section 104(e) letters) were also sent out to USL. Because the PRPs were unwilling to conduct the work, negotiations were never initiated. Consequently the U.S. EPA conducted the RI/FS using the Hazardous Substance Response Trust Fund.

After protracted negotiations, U.S. EPA eventually was able to obtain the information it requested from USL. Based on the information provided in the responses to the Section 104(e) letters, a list of some 200 PRPs was developed. In August of 1988, after the conclusion of the RI/FS, Special Notice Letters were sent to the group of 200. The moratorium has commenced, and negotiations have begun. The PRPs have been informed that the Record of Decision (ROD) is expected to be signed in September of 1988.

III. COMMUNITY RELATIONS HISTORY

The Superfund activities at the United Scrap Lead site have been followed closely by the local community and press. To date, there have been public meetings, fact sheets and press releases regarding the activities at the site. There is an active mailing list of local citizens interested in the activities at the USL site.

Community relations for the remedial activities were initiated at the USL site in January of 1986 with the RI/FS kickoff meeting. This meeting was attended by members of the local community as well as the press. Three fact sheets have been mailed to the community providing updates after key milestones in the Superfund process.

A public repository has been set up in the Troy-Miami County Public Library. The administrative record for the site has been placed in the repository, thereby meeting the requirements under Section 113 of SARA.

When the RI/FS was completed, a proposed plan was prepared stating EPA's recommendation for remedial action at the site. A 21 day public comment period on EPA's proposed plan was held between August 8 and August 29, 1988, consistent with Section 117 of SARA.

Before the comment period commenced EPA issued a news release and took out an advertisement in the local newspaper notifying the community of the availability of the proposed plan and RI/FS Reports. A public meeting was held on August 15, 1988 during which the U.S. EPA and Ohio EPA presented the alternatives to a group of about 30 local citizens and reporters. The attached responsiveness summary (Attachment B) addresses specific comments raised at the August 15 public meeting and during the comment period provided.

IV. SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION WITHIN SITE STRATEGY

The remedial action selected for the United Scrap Lead site will eliminate the threats associated with direct contact with contaminated media. The role of the remedial action selected is a complete site remedy. When the remedial action is completed, no further remedial action at the site other than monitoring is envisioned. Since hazardous substances above health based levels will remain at the site (covered with clean soil) a five-year review will be necessary.

V. SUMMARY OF SITE CHARACTERISTICS

With the final approval of the United Scrap Lead Work Plan in November of 1985, and after the emergency removal was completed, the remedial investigation was initiated. A total of 223 investigative samples were collected and analyzed to determine the nature and extent of the contamination at the USL site. The following discussion briefly summarizes the nature and extent of contamination according to respective media sampled during the RI.

1. Battery Casing Stockpile

There are approximately 55,000 cubic yards of waste battery casings and associated material present at the site. The waste battery casings are the primary source of contamination at the site. The total lead concentrations found in the waste material ranges from 42 - 377,000 mg/kg, with the higher levels of this range being near the surface. Arsenic concentrations range from 21 - 444 mg/kg. Waste sampling locations are shown in Figure 3. The overall summary of the waste chemical characteristics is shown in Table 1.

2. Soils

Contamination by lead and arsenic of the soils is confined to the top 6 inches except in the area under the waste pile. Under the waste pile, elevated levels of lead extend to at least 10ft. in depth. The concentrations of lead in the soil under the waste pile are shown in Table 2. These samples were collected from the same locations as the waste borings.

Surficial soil contamination by lead in excess of 500 mg/kg extends about 20-30 feet from the edge of the waste pile. Soil sampling locations are shown in Figure 4, and the results of the analysis for lead are shown in Figure 5.

The main source of soil contamination at the USL site is the battery casing waste pile on the surface of the site. Soil has been contaminated by airborne dispersion of particulates and infiltration of water through the casings and into the underlying soils. For the most part soil contamination is confined to the site proper. However, there are some off-site areas which have shown elevated levels of lead. Since off-site soil sampling was not very extensive, it is proposed that additional off-site soil sampling take place during the remedial design to better quantify lead levels in these areas. The complete soil analyses can be found in Appendix F of the RI Report.

3. Groundwater

During the RI, six monitoring well nests (each nest consists of a deep and shallow well) were installed at the USL site. These wells were sampled twice during different times of the year. In addition, seven residential wells were also sampled. The locations of the groundwater samples are shown in Figure 6. The results of the groundwater analysis indicated that the general direction of groundwater flow was to the southeast, and that the concentrations of lead in the aqueous phase (dissolved) of the groundwater did not exceed the current Primary Drinking Water Standard of 0.05 mg/l. This is true for both the monitoring well samples and the residential well samples. The complete analysis of inorganic constituents for both the monitoring wells and the residential wells can be found in Appendix G of the RI Report.

4. Surface Water and Sediment

Surface water and sediment samples were gathered from 4 locations during the RI. The locations are shown in Figure 7. Lead in the surface water is primarily that of a particulate or solid fraction. Highest concentrations are shown in the ponded area on site (79 mg/l). Levels of lead in the sediment in the nearby tributary are found to be as high as 225 mg/kg. Arsenic concentrations are found to be as high as 39 mg/kg.

As with the soil, the source of contamination of the sediment in the nearby tributary is the waste battery casing stockpile located on the surface of the site. These contaminants are being transported from the waste pile to the tributary via surface water runoff. The complete analysis of surface water and sediment can be found in Section 5 of the RI Report.

5. Air

As part of the emergency removal action which took place at the site, an air sampling program was conducted from November of 1985 to September of 1986. The results of the air monitoring efforts consistently showed concentrations of lead less than 0.005 ug/m^3. This is below the National Ambient Air Quality (NAAQ) standard for airborne lead of 1.5 ug/m^3.

VI. SUMMARY OF SITE RISKS

The impacts on public health and the environment that may result from the release of hazardous substances from the United Scrap Lead site were assessed in the Public Health Evaluation (PHE) of the RI report (Section 7). This baseline assessment evaluated the site in the absence of remediation, and provides part of the basis for determining that remediation is required.

The PHE is based upon the results of sampling and analysis conducted during the RI. Sampling has been undertaken in the following media: groundwater, surface water, sediment, air, and soil. For each medium, the data were reviewed first to determine if contamination exists in the medium; and if contamination does exist, to identify potential pathways through which humans or other organisms could potentially be exposed. Each potential exposure pathway was reviewed qualitatively with respect to the levels of contamination and possibility of exposures. For those pathways where the qualitative review suggested that there may be a potential risk, a quantitative risk assessment was performed.

Identification of Exposure Pathways and Contaminants of Concern

An exposure pathway consists of the following elements:

1. A source of contamination;
2. A mechanism of contaminant release to the environment;
3. An environmental transport medium;
4. A point of potential human or biota exposure to the contaminated medium; and
5. A route of exposure at the exposure point; for example, ingestion, inhalation or dermal contact.

Each pathway was reviewed quantitatively with respect to exposure medium.

The summary of this evaluation indicated the most important pathways of exposure to contaminants at the USL site are the inadvertent ingestion of contaminated soil and dust and the inhalation of airborne and soil particulates and dust. Lead was selected as the contaminant of primary concern for this site because it has been detected in soil at relatively high concentrations (compared to background) and because of its inherent toxicity.

Hazard Assessment

The major health effects associated with exposure to lead concern damage to the hematopoietic and neurological system. There is evidence that young children are more sensitive to the toxic effects of lead than are adults. Although an apparent threshold has been determined for the acute neurological effects seen in lead poisoning, no threshold has been determined for the acute neurological effects on heme synthesis or on learning ability in children. Lead can also cause rectal dysfunction, and is known to be teratogenic to animals. The toxicity of lead is discussed in more detail in Appendix K of the RI Report.

Risk Assessment

The Centers for Disease Control (CDC) currently defines lead toxicity in a child as a blood lead level greater than or equal to 25 ug/dl and an erythrocyte protoporphyrin level greater than 35 ug/dl.

The direct ingestion of contaminated soils is a potentially significant route of exposure, especially for young children who constitute the most sensitive population with regard to lead toxicity. Young children may ingest dirt by normal mouthing of soiled objects and of their hands or by pica, the direct consumption of dirt. Dermal contact also may be a potential route of exposure to contaminants present in soil. However, lead is poorly absorbed through the skin; therefore exposure under this scenario is considered minimal. Inhalation of contaminated dust could also occur, but since there are few studies available that relate concentrations of lead in dust to air and soil levels, a quantitative risk assessment could not be conducted.

Two approaches were taken for the determination of exposure guidelines with respect to lead in soils. One approach used makes use of the correlations between blood lead levels and lead concentrations in soils. The other involves comparing the amount of lead likely to be ingested by children exposed to contaminated soil to an acceptable daily intake for lead.

The results of the various approaches are shown in Table 3. They range from about 42 mg/kg to well over 1,000 mg/kg.

Conclusions

Soils and waste material at the United Scrap Lead site contain relatively high levels of lead. Lead is particularly toxic to children, affecting, among other things, the central nervous system and the hematopoietic system. Although a threshold has been established for the severe encephalopathy associated with high exposure to lead, no threshold has been established for the more subtle subclinical neurological effects or for effects on heme synthesis. Because of the uncertainties with regard to assessing site-specific exposure to lead and the significant differences in susceptibility to the adverse effects associated with exposure, a semi-quantitative approach to risk assessment was used.

Children playing regularly at the United Scrap Lead site or otherwise having regular contact with contaminated soils at the site may be exposed to lead in amounts that could potentially pose health risks. Excessive exposure is likely to occur via direct contact and while playing in areas contaminated by lead dust. These conclusions were reached by using two complementary approaches:

1. Comparison of soil lead levels reported for the United Scrap Lead site with a range of health-based guidelines for levels in soils that would be protective of human health, and

2. Estimation of potential exposure levels to lead among children via soil contact and subsequent comparison of these levels with health-based acceptable daily intakes.

It is believed that the approach to risk evaluation used provides a conservative, but realistic assessment of potential health risks associated with the United Scrap Lead site. Depending on site-specific conditions, guidelines from 200 to 1,000 mg/kg for lead in soils of residential areas appear to be suitable for protection against excessive exposure in children.

Target Clean Up levels

A target clean-up level of 500 mg/kg lead was chosen for the battery casings and surficial soils at the USL site consistent with the current guideline developed by the Centers for Disease Control (CDC). This level is consistent with the Health Assessment prepared for the USL site by the Agency for Toxic Substances and Disease Registry (ATSDR) and is within the 200-1,000 mg/kg range defined in the USL Public Health Evaluation. It is also consistent with the clean-up level chosen for the Emergency Removal which took place at USL during January of 1986.

Soils at depth (greater than one foot) under the waste pile will be subject to a different clean-up objective, since when these soils are covered up there is no threat to the public via direct contact. These soils will be cleaned to the EP-toxicity value for lead, 5 mg/l. The threat to public health from these soils at depth arises from the possibility that contaminants may leach to the groundwater, where they may be ingested by the local population. If no soils with leachable lead concentrations greater than 5 mg/l are left future leaching to the groundwater would not be possible.

Sediment in the nearby tributary to Island No. 3 will be cleaned up to background lead levels (58 mg/kg). Although the levels in this tributary are lower than 500 mg/kg, it is clear that micro and macroorganisms which live in this sediment are more susceptible to these contaminants.

VII. DESCRIPTION OF ALTERNATIVES

The major objective of the feasibility study (FS) was to evaluate remedial alternatives using a cost-effective approach consistent with the goals and objectives of CERCLA as amended by SARA.

Based on screening and analysis of remedial technologies, several assembled remedial alternatives including the no action alternative were developed. The following assembled remedial alternatives represent a range of remediation applicable to the USL site. They are:

1. Cap Casings and Contaminated Soils;
2. Treat Casings and Cap Contaminated Soils;
3. Treat Casings and Offsite Landfill Contaminated Soils;
4. Treat Casings and Contaminated Soils; and
5. No Action.

Alternative 1: Capping of Contaminated Materials with a RCRA Compliant Cap System

Alternative 1 provides for the excavation, consolidation and grading of all on-site materials contaminated with lead at concentrations greater than 500 mg/kg or failing the EP Toxicity Test. These materials will then be covered utilizing an engineered RCRA compliant cap system. This system will consist of three (3) layers; a low permeability layer, a drainage layer, and a vegetative layer. The low permeability layer will consist of a 2-foot thick clay layer with an in-place hydraulic conductivity of $1x10^{-7}$ cm/sec or less overlain with a flexible membrane liner (FML). The FML will be at least 20 mils in thickness. Above the FML a drainage layer, consisting of materials (sand) with a hydraulic conductivity of not less than $1x10^{-2}$ cm/sec, will be placed to a depth of 1 foot. A geotextile liner shall be placed over the drainage material to act as a filter. This will prevent the clogging of the drainage layer by fines from the overlying vegetative layer. The final layer of the RCRA designed cap will consist of at least 2 feet of top soil obtained to as great an extent as possible from uncontaminated on-site areas. This top soil cover will then be seeded with grasses appropriate for the area.

In addition to these on-site contaminated materials, some adjacent off-site areas will be excavated and handled in a manner consistent with the on-site soils. The exact location and volume of the off-site soils will be determined by additional sampling during the remedial design. Sediment from the Tributary to Island No. 3 with lead concentrations above background for sediment will also be excavated and handled in a manner consistent with the on-site soils.

An estimated 55,000 cubic yards of battery casings, 59,000 cubic yards of on-site soils containing greater than 500 mg/kg of lead, an estimated 1,600 cubic yards of soil excavated from off-site properties and 400 cubic yards of sediment will be consolidated and graded for placement of the RCRA cap. The design of this cap will result in some additional on-site areas contaminated with lead at concentrations less than 500 mg/kg being incorporated under the RCRA cap.

In the construction of the RCRA cap, 27,000 cubic yards of clay or other impermeable material will be brought from off-site. The soils forming the vegetative portion of the RCRA cap will be obtained from the northern portions of the USL site. This will require excavation of approximately 30,000 cubic yards of these soils.

Monitoring of the surface waters, air, and groundwater will be performed during the remedial action. With completion of the action, it is assumed that additional monitoring will be required throughout the lifetime of the remedial action to ensure that site conditions have stabilized. This monitoring will be limited to groundwater and surface water and will be performed on a quarterly basis for the first two years. Sampling will be conducted annually for the remaining assumed 30 year time period.

The buildings and other structures at the site as well as miscellaneous debris, drums, trash, concrete, wood, etc. will be demolished, decontaminated and disposed at a non-RCRA (sanitary) landfill. To the extent possible, metal will be sold to scrap metal processors.

A new well will be constructed to provide a water supply for the Ishmael residence/USL office building.

While implementing this alternative, site drainage facilities will be constructed to divert run-on and to collect runoff from the contaminated site areas. This involves installation of a new culvert, filter berms and, as necessary, treatment of the runoff waters.

Comprehensive deed restrictions for the property will be implemented since hazardous waste will be left on-site after remedial action is completed. The site will be fenced following remedial action.

Pursuant to Section 121(c) of SARA, a review of site conditions will be performed every five years. Based on this review, the monitoring program will be continued, if necessary, or eliminated. The time to implement this alternative will be 17 months.

Alternative 2: Treatment of Battery Casing Materials with Capping of Contaminated Soils

Alternative 2 provides for the excavation and on-site treatment of the battery casing materials with recovery of by-products and off-site recycling and/or disposal of residuals. The treatment system will consist of washing, and through the use of a leaching agent, separating and recovering the lead, plastic, and rubber constituents of these wastes. Where possible, a market for the recovered by-products will be identified. The residual battery casing material, after passing the EP Toxicity Test, will be considered non-hazardous and disposed at a non-RCRA landfill regulated by the Ohio EPA if a recycler cannot be found.

In this alternative the 55,000 cubic yards of battery casing material will be processed through the treatment system. However, since a market has not been identified for the rubber constituents it was assumed in the evaluation process that this material is a waste requiring disposal. From previous analyses, the rubber and sludge components in this waste constitutes approximately 85% of the total volume. On this basis, approximately 46,700 cubic yards of residues would require disposal in a non-hazardous waste landfill.

Following the excavation, treatment, and disposal of the battery casing materials, the contaminated soils beneath these wastes will be graded and covered with a RCRA compliant cap as previously discussed in Alternative 1. All on-site soils containing greater than 500 mg/kg lead or failing the EP Toxicity Test, off-site soils (an estimated 1,600 cubic yards), and dewatered contaminated sediments (400 cubic yards) will be incorporated under the cap (59,000 cubic yards of soils). The exact location and volume of the off-site soils will be determined by additional sampling during the remedial design.

Construction of this cap will require that about 11,000 cubic yards of clay be brought to the site from off-site locations. Soil from uncontaminated areas at USL will be used for the vegetative cover. This will require approximately 16,000 cubic yards of soil.

The buildings and other structures at the site as well as miscellaneous debris, drums, trash, concrete, wood, etc. will be demolished, decontaminated and disposed of at a non-RCRA (sanitary) landfill. To the extent possible metal will be sold to scrap metal processors.

A new well will be constructed as a water supply for the Ishmael residence/USL office.

When implementing this alternative, site drainage facilities will be constructed to divert run-on and to collect runoff from the contaminated site areas. This involves installation of a new [illegible], filter berms and, as necessary, treatment of the runoff waters.

Monitoring of the surface water, air, and groundwater will be performed during the remedial action. With the capping of the contaminated soils at the site, it is assumed that additional surface water and groundwater monitoring will be required throughout the lifetime of the remedial action or until conditions stabilize at the site. This is assumed to be a 30 year period.

Comprehensive deed restrictions for the property will be implemented since waste materials will be left on-site after remedial action is completed. The site will be fenced following remedial action.

Pursuant to Section 117(c) of SARA, a review of site conditions will be performed every five years. Based on this review, the monitoring program will be continued, if necessary, or be eliminated. The time to implement this alternative will be 32 months.

Alternative 3: Treatment of Battery Casing Material With Off-site Disposal of Contaminated Soils

Alternative 3 provides for the excavation and on-site treatment of the battery casing material with recycling and/or off-site disposal of the residues. The residual battery casing material after passing the EP Toxicity test will be considered non-hazardous and disposed at a non-RCRA landfill regulated by the Ohio EPA if a recycler cannot be found. In this alternative, the estimated 55,000 cubic yards of battery casing material will be processed.

Those surficial soils containing lead concentrations greater than 500 mg/kg and soils at depth under the waste pile failing the EP-toxicity test for lead (45,000 cubic yards) will be excavated, dewatered, solidified into a cement matrix (to meet the Land Disposal Restriction requirements) and transported off-site for disposal at a RCRA compliant landfill. After solidification, the volume of these soils is expected to increase by 10% with 50,000 cubic yards ultimately being disposed of off-site. Soils at depth (greater than 1 foot) under the waste pile, which pass the EP toxicity test will not require solidification and off-site disposal. In addition, the RCRA landfill is assumed to be located within 120 miles of USL, and a non-RCRA (sanitary) landfill is 30 miles away.

Soils from the adjacent off-site areas (estimated at 1,500 cubic yards) and the sediment (400 cubic yards), as defined in Alternatives 1 and 2, would be dewatered and placed on-site in areas in which the soils for off-site disposal were taken.

After this is accomplished the onsite areas will be brought back to grade by using clean fill taken from uncontaminated back areas of the USL site. These areas would then be revegetated.

The buildings and other structures at the site, as well as miscellaneous debris, drums, trash, concrete, wood, etc., will be demolished, decontaminated and disposed at a non-RCRA (sanitary) landfill with recovery of scrap metal.

A new well will be constructed as a water supply for the Ishmael residence/USL office building.

When implementing this alternative, site drainage facilities will be constructed to divert run-on and to collect runoff from the contaminated site areas. This will involve installation of a new culvert, filter berms and, as necessary, treatment of the runoff waters.

Monitoring of the surface water, air, and groundwater will be performed during the remedial action. With the removal of the highly contaminated soils from the site, it is assumed that additional monitoring will be performed quarterly for two years. Pursuant to Section 121(c) of SARA, five years after this alternative is implemented, site conditions will be reviewed to determine whether or not the monitoring program should be continued.

Since no hazardous waste will be left onsite following the remedial action, only minimal deed restrictions will be required. These are necessary because contaminated soils remain at depth beneath the clean fill. Fencing will not be necessary. The time to implement this alternative will be 33 months.

Alternative 4: Treatment of Battery Casing Materials and Contaminated Soils On-site

Alternative 4 provides for the excavation and on-site treatment of 55,000 cubic yards of battery casings with recycling and/or off-site disposal of residues. The residual battery casing material will be considered non-hazardous after passing the EP Toxicity test, and disposed at a non-RCRA landfill regulated by the Ohio EPA if a recycler cannot be found.

Those soils containing lead concentrations greater than 500 mg/kg at the surface and failing the EP toxicity test for lead at depth (as described in Alternative 3) will be excavated and treated on-site in a manner similar to the battery casings. As in Alternative 3, this volume is estimated at 45,000 cubic yards. The same process for the casings with some modifications could be used to treat the soils. Bench scale laboratory tests conducted by the United States Bureau of Mines have indicated treatment of the soils and casings to achieve levels of lead below 500 mg/kg and below EP-toxicity levels can be achieved. Trace elements such as arsenic and cadmium will also be removed by the treatment system. The treated soils would be placed back on-site. Off-site soils from some adjacent areas (estimated at 1,600 cubic yards) and the sediment (400 cubic yards) would be dewatered and placed on-site after being mixed with the treated soil.

These soils would then be covered with clean fill to promote growth of vegetation.

The buildings and other structures at the site as well as miscellaneous debris, drums, trash, concrete, wood, etc., will be demolished, decontaminated and disposed at a non-RCRA (sanitary) landfill with recovery of the scrap metal.

A new well will be constructed as a water supply for the Ishmael residence/USL office building.

When implementing this alternative, site drainage facilities will be constructed to divert run-on and to collect runoff from the contaminated site areas. This will involve installation of a new culvert, filter berms and, as necessary, treatment of the runoff waters.

Monitoring of the surface waters, air, and groundwater will be performed during the remedial action. With the removal and treatment of the highly contaminated soils from the site, it is assumed that additional surface water and groundwater monitoring will be performed quarterly for two years. Pursuant to Section 121(c) of SARA, five years after this alternative is implemented, site conditions will be reviewed to determine whether or not the monitoring program should be continued. Since no hazardous waste will be left on-site following the remedial action, only minimal deed restrictions will be required. These are necessary because contaminated soils remain at depth beneath the treated soils and vegetative cover (clean fill). Fencing will not be necessary. The time to implement this alternative will be 48 months.

Alternative 5: No Action

This alternative involves no action being taken at the site and will leave the site as it exists today.

Since hazardous wastes are neither treated or removed, quarterly monitoring of surface water and groundwater will be performed for 30 years.

Comprehensive deed restrictions for the property will be implemented since hazardous wastes will be left onsite. The site will not be fenced.

Costs

The cost comparison of the five alternatives is summarized in Table 4.

VIII. THE SELECTED REMEDY

The selected remedy, Alternative 4 - Treatment of Battery Casings and Contaminated Soils has the following major components:

- Excavation and on-site treatment of approximately 55,000 cubic yards of battery casings with recycling of the recovered lead, treatment chemicals, and polypropylene battery casings. Rubber battery casings will be recycled if a buyer can be found; otherwise they will be disposed of off-site at a non-RCRA (sanitary) landfill.

- Excavation and on-site treatment of approximately 45,000 cubic yards of contaminated (total lead >500 mg/kg) surface soils, and contaminated (failing EP toxicity for lead) subsurface soils. Treated soils will be replaced on-site and covered with clean fill. As with the treatment of the battery casings, the recovered lead and treatment chemicals will be recycled.

- Quarterly monitoring of groundwater during implementation of the remedial action and for two years following its completion.

- Monitoring of surface waters as necessary during remediation to comply with discharge requirements.

- Off-site soils and sediment from the Tributary to Island No. 3 will be excavated and brought on-site and mixed with the treated soils.

- A new well will be constructed for the Ishmael residence/USL office.

- Site drainage facilities will be constructed.

- Minimal deed restrictions will be required on the property.

The 500 mg/kg total lead clean-up level has been established by the EPA for surficial soils at the United Scrap Lead site. This level has been established based on the results of the USL Public Health Evaluation, which noted the CDC recommendation that blood lead levels in children in a residential area are found to increase when they come in contact with soils with lead concentrations greater than 500-1000 mg/kg. This level will be achieved for the surficial soils. All soils at depth (greater than one foot under the waste pile) will be excavated and treated if further testing determines that they do not pass the EP toxicity test for lead. If additional future studies on lead-poisoning by CDC result in a revised recommendation that is significantly different than the 500-1000 mg/kg level, EPA will evaluate the need for changing the established clean-up level at the USL site.

In addition to the major components defined for the selected remedy at the USL site, there are several investigations which should be conducted during remedial design to better refine aspects of the remedial action. They include:

- Further laboratory and pilot-studies to be conducted by, or with oversight from, the United States Bureau of Mines to optimize the treatment process before full scale implementation.
- Additional soil sampling at depth including EP toxicity analysis for lead should be conducted under the waste pile to better quantify volumes of soil to be treated.
- Additional surficial soil sampling, especially offsite, to better quantify volumes of soil subject to remedial action.
- Additional sediment sampling in the nearly Tributary to Island No. 3, to better define volumes of sediment subject to remedial action.

IX. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

Overall Protection of Human Health and the Environment

Alternative 4 provides for overall protection of human health and the environment by removing the contaminants from the battery casings and soil through treatment. Since the contaminants will be removed and recycled, there will be no potential future threat. The direct contact threat identified in the Public Health Evaluation will be eliminated.

Alternatives 1, 2 and 3 would all eliminate the direct contact threat with contaminated media, but potential future risks could occur if capping or landfilling fails to be effective. Protection will not be achieved under alternative 5.

Compliance with ARARs

SARA requires that remedial actions meet legally applicable or relevant and appropriate requirements of other environmental laws. These laws include: the Toxic Substances Control Act, the Safe Drinking Water Act, the Clean Air Act, the Clean Water Act, the Solid Waste Disposal Act (RCRA), and any state environmental law which has more stringent requirements than the corresponding federal law.

Applicable requirements are cleanup standards, standards of control, and other substantive environmental protection requirements, criteria or limitations promulgated under Federal or State law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance at a site. A requirement is "applicable" if the remedial action or circumstances at the site satisfy all of the jurisdictional prerequisites of the requirement.

Relevant and appropriate requirements are cleanup standards, standards of control, and other environmental protection requirements, criteria or limitations promulgated under Federal or State law that, while not legally "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance at a site, address problems or situations sufficiently similar to those encountered at the site that their use is well suited to that site.

"A requirement that is judged to be relevant and appropriate must be complied with to the same degree as if it were applicable. However, there is more discretion in this determination: it is possible for only part of a requirement to be considered relevant and appropriate, the rest being dismissed if judged not to be relevant and appropriate in a given case" (Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements, 52 FR 32496, August 27, 1987).

Both alternatives 1 and 2 will meet RCRA capping and closure (40 CFR 264) requirements. Under these alternatives hazardous wastes (those characteristic wastes exceeding EP tox lead analysis of 5.0 mg/l) will be left on-site, these requirements are applicable and therefore are considered to be ARAR. The cap must meet Subtitle C requirements, that is, impermeable layer, etc. Since closure will not be clean closure, groundwater monitoring requirements (Subpart F) will apply.

Under alternatives 3 and 4 no hazardous waste will be left on-site after completion of the remedial action. Therefore RCRA capping and closure requirements are not applicable or considered relevant and appropriate.

The 500 mg/kg level (which is equivalent to a 500 ppm level) for lead in the soils is taken from the Agency for Toxic Substances and Disease Registry (ATSDR) recommended levels in the case of direct contact by humans with the contaminated soils. ATSDR gives a range of 500 to 1,000 ppm as a safe level. The 500 ppm level was chosen in order to assure protectiveness. It is also the level chosen at other CERCLA sites nearby USL (e.g., Troy Railroad Depot and Arcanum).

Soils contaminated with lead at or above the 500 ppm level represent a health threat. However, soils or casings with such lead levels may or may not be a "hazardous waste" under RCRA. A lead contaminated waste is hazardous under RCRA only if it exceeds the EP-Toxicity test level for lead of 5.0 mg/l. Leads wastes below the EP-Toxicity level are not "hazardous waste" under RCRA, and need not be treated as such (e.g., they can be disposed of in a non-hazardous waste landfill). Soils or casings that are not RCRA hazardous wastes may still pose a threat to humans if they exceed the 500 ppm level, however. For this reason, surface soils and casings at greater than 500 ppm (where direct contact can occur) will be removed and treated.

Soils at depth which fail EP-Toxicity criteria will also be removed and treated. This will ensure that leachable lead (i.e., that above EP Tox levels) will be removed, and therefore, will likely not contaminate the groundwater.

Treatment of these soils on-site must meet RCRA Treatment, Storage or Disposal requirements and Clean Air Act requirements. The Ohio Solid Waste Regulations are also ARAR for this Action. Waste solids out of the treatment systems will be disposed of in accordance with the Ohio Revised Code Sections regulating disposal of such material.

In addition, all alternatives will involve short-term discharge of water into the nearby tributary to Island No.3. They will therefore meet the technical requirements of the National Pollutant Discharge Elimination System permit over which the State of Ohio has jurisdiction. The State of Ohio Water Quality Standards (OAC 3745-1) or Best Available Technology requirements will be met for discharges to the tributary. Appendix C of this ROD includes the tables listing all ARAR's for the USL site.

Long-Term Effectiveness and Permanence

Alternative 4 provides for the most long-term effectiveness and the greatest degree of permanence through treatment of contaminated media. Since the contaminants are removed and recycled the possibility of future actions is eliminated. Alternative 4 utilizes treatment technologies which permanently remove the threats due to casings and soils.

Alternatives 1, 2 and 3 will provide effectiveness as long as cap and landfill are properly maintained. Since contaminants are contained rather than removed, the possibility for future remedial actions at the USL site or at the off-site landfill site will remain. Alternative 1, 2 and 3 do not use treatment technologies to remove contaminants from the soils. Alternative 5 (No Action) is neither effective nor permanent.

Reduction of Toxicity, Mobility or Volume

Only alternative 4 utilizes treatment technologies to significantly reduce the toxicity and volume of contaminants in both the battery casings and the soils. Concentrations of lead in both the battery casings and the soils will be reduced to below 500 mg/kg (health based level). Since the lead in the soils is significantly reduced, there will be less available to leach to the groundwater or be carried out by surface runoff. Alternatives 2 and 3 utilize treatment to reduce the toxicity and volume of the battery casings but not the soils. Alternatives 1 and 5 (No Action) do not utilize treatment technologies at all.

Short-Term Effectiveness

In all alternatives (except no action) there will be a slight increase in dust due to construction activities. Good construction practices should minimize this. Protection will be achieved in the shortest period of time (17 months) in alternative 1 and take the longest in alternative 4 (48 months).

Implementability

Alternatives 2, 3 and 4, because of the use of treatment technologies to remove contaminants from both the casings and soil will require pilot studies before full scale operation is started. Bench scale laboratory tests on the treatment of battery casings and soils have indicated that these processes are feasible. Off-site disposal of soils (Alternative 3) and capping of soils (Alternative 1 and 2) are simple processes not requiring any specialized operators.

Cost

Detailed cost estimates for alternatives 1 - 5 including capital, operation and maintenance, and present worth are in Tables 5-9.

State Acceptance

The Ohio EPA has indicated that it accepts the chosen remedial alternative. A letter from the Director of the Agency indicating this support is attached (Attachment D).

Community Acceptance

In general, based on the public comments the most significant concern by the community is the cost of the remedial action. They do not accept lead as a real threat. People living very close to the site have expressed an interest in having the EPA buy their property rather than clean up the site.

The specific comments and EPA's responses are outlined in the attached responsiveness summary.

X. STATUTORY DETERMINATIONS

A. Protection of Human Health and the Environment

The selected remedy provides the most protective solution overall because the battery casings and contaminated soils are being treated to remove and recycle lead. The direct contact threat currently associated which these contaminated media would be eliminated. Treatment would be undertaken onsite, eliminating potential transportation incidents which could result in waste spills, etc. Since the contaminants are actually removed from the battery casings and soils, rather than contained, the potential for future threats at the USL site or at an offsite disposal site is eliminated.

Any short-term risks associated with treatment of the waste materials (dust generation) could be minimized by the use of good construction practices, fabric coverings and wetting during excavation. Air monitoring will be conducted during remedial action.

B. Attainment of ARARs

The selected remedy will attain all applicable or relevant and appropriate requirements as described in Section IX of this Record of Decision. In addition to ARARs there were several local requirements which while not applicable, or relevant and appropriate, were considered by the U.S. EPA and Ohio EPA when evaluating the selected remedy. These requirements include:

- Miami County Health Department inspects and approves all wells in the County. The new well to be provided for the Ishmael residence/USL office will meet this requirement.

- Miami County zones land use. The deed restrictions placed on the USL property after the remedial action is completed will be coordinated with the Miami County zoning office.

- Miami County requires approval of all proposed changes to the levee system. All drainage control measures to be taken at USL will be coordinated with Miami County.

- Miami Conservency District controls and permits all construction, building and land use within the floodway. All construction activities at the USL site will be coordinated with the Miami Conservency District since the entire USL site lies within the 100-year floodplain of the Great Miami River. By implementing the selected remedy, retarding basin capacity of the Great Miami River will be restored since the battery casings will be removed from the site after treatment.

C. Cost-Effectiveness

The selected remedy provides overall cost-effectiveness because a high degree of permanence is achieved at a cost less than that of offsite landfilling. Less protective containment options were considered, and are of lower cost, but the costs associated with long-term maintenance and potentially for replacement upon failure, in addition to potentially putting public health and the environment in future risk rendered them unacceptable. Final implementation costs of the selected remedy may change during the remedial design but are expected to fall within the range of accuracy expected for the order-of-magnitude estimate developed in the FS report.

D. Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

The selected remedy provides the best balance with respect to the nine evaluation criteria described previously. Treatment technologies to recover/recycle lead are utilized to the maximum extent practicable by treating the battery casings and the soils which have lead concentrations greater than the specified action level (500 mg/kg) at the surface and those which do not pass the EP-toxicity test for lead at depth. This alternative is further balanced with respect to the nine criteria because a permanent solution which utilizes treatment technologies is being selected, but it is being applied only to those materials posing the greatest risk. The soils at depth will be covered by the treated soils and clean fill thus providing a barrier between them and the public. The selected remedy provides for adequate protection of public health and the environment, while recovering a natural resource, lead.

E. Preference for Treatment as a Principal Element

The principal threats at the site, direct contact with and/or ingestion of contaminated media will be permanently eliminated by the use of treatment by washing with fluosilicic acid. Treatment with resource recovery is the principal element of the selected remedy.

TABLE 2

UNITED SCRAP LEAD
SUMMARY OF TOTAL LEAD CONCENTRATIONS IN SOILS
COLLECTED DURING BORINGS

Borings Location	SL23	SL26	SL32
Depth[1]	Concentrations (mg/kg)		
Soil Interface	40	47,800	597
One Foot	201	18,600	12,000
Five Foot	56	553	918
Ten Foot	17	887	571

[1] Depths below interface of bottom of wastes and underlying soils.

TABLE [illegible]

UNITED SCRAP LEAD
SUMMARY OF WASTE CHEMICAL CHARACTERISTICS

Chemical Constituent	Range of Constituent (mg/kg)
Aluminum	916-8,720
Antimony	N.C.[1]
Arsenic	21-444
Barium	51-198
Beryllium	N.D.-3.4[2]
Cadmium	N.D.-6.7
Calcium	21,0000-75,900
Chromium	N.D.-39
Cobalt	N.D.-6.2
Copper	N.D.-122
Iron	3,770-20,600
Lead	42-377,000
Magnesium	4,360-52,900
Manganese	57-270
Mercury	N.D.-0.33
Nickel	N.D.-8.6
Potassium	N.D.-1,780
Selenium	N.D.
Silver	N.D.-8.4
Sodium	522-9,740
Thallium	N.D
Tin	N.D.-30
Vanadium	N.D.-63
Cyanide	N.D
Zinc	57-85
Sulfate	340-1,800

[1] N.C. = Indicates that a value was not calculated for this parameter since the matrix spike replicate was not within quality control limits. In this instance, the constituent is likely to be present but the concentration is unknown.

[2] N.D. = Not Detected

TABLE 3

ESTIMATED GUIDELINE LEVELS FOR LEAD IN SOIL

Source of Estimate	Level (mg/Kg)	Comments
United Kingdom Directorate of the Environment (Smith 1981)	550	For residential areas
Vernon Houk (as cited in Mielke et al. 1984)	300-400	
CDC (1985)	500-1,000	Levels at which blood lead levels will increase
Yankel et al. (1977)	1,000	
Estimate based on correlation between soil lead and blood lead levels in EPA (1984a)	800-10,000	Assumes slope of relationship between blood lead and soil lead levels ranges from 0.6 to 7.6 ug/dl per 1,000 mg/kg
Estimate based on Gallacher et al. (1984)	1,400	Slope of 4.5 ug/dl per 1,000 mg/kg
Estimate based on ADI approach	42-100	Reasonable worst-case estimate [1]; see pgs. 27 and 28 of 32
	210-500	Average-case estimate [1]; see pgs. 27 and 28 of 32

[1] The lower and upper values of the range presented are based on ADI's developed from recommendations of the USFDA (i.e., 50 ug/dl and the USEPA (i.e., 21 ug/day), respectively.

TABLE 4
SUMMARY OF ALTERNATIVES - COST COMPARISION

ALTERNATIVE	CAPITAL/CONSTRUCTION COST	ANNUAL OPERATING AND MAINTENANCE COST	PRESENT WORTH COST (10 %)
1 RCRA CAPPING Soils >500mg/kg Battery casings Offsite soils	$5,384,000	$68,000	$5,588,000
2 ON-SITE TREATMENT Battery Casings RCRA CAPPING Soils >500mg/kg Soils below casings 5 ft depth Offsite soils	$18,597,000	$63,000	$16,278,000
3 ON-SITE TREATMENT Battery Casings OFFSITE LANDFILL Soils >500mg/kg Soils below casings 5 ft depth SOIL CAPPING Offsite soils	$30,519,000	$51,000	$28,070,000
4 ON-SITE TREATMENT Battery Casings Soils >500mg/kg Soils below casings 5 ft depth SOIL CAPPING Offsite soils Treated soil residues	$31,090,000	$55,000	$26,924,000
5 NO ACTION	$0	$45,000	$470,000

ALTERNATIVE 4
EXCAVATION AND CONSOLIDATION OF BATTERY CASINGS AND SOILS WITH LEAD GREATER THAN 500 MG/KG, RCRA COMPLIANT CAP. SELECTED OFFSITE SOILS CONSOLIDATED ONSITE AND COVERED WITH CAP.

OPERABLE UNIT/ COST COMPONENT	CAPITAL/CONSTRUCTION COST	ANNUAL OPERATING AND MAINTENANCE COST	PRESENT WORTH COST (10 %)	PRESENT WORTH COST (5 %)	PRESENT WORTH COST (2 %)	
1.0 BATTERY CASINGS & SOILS						VOLUME OF MATERIAL CONSIDERED
Excavation, consolidation	$3,430,000	$9,500	$89,557	$146,034	$212,762	Battery Casings 55,000 cubic yards; Contaminated soils 59,000 cubic yards (>500 mg/kg); Contaminated Sediments 400 cubic yards; Offsite soils 1600 cubic yards
and RCRA cap.						
2.0 SOILS						
Excavation, consolidation, of offsite soils into RCRA cap and restoration of offsite excavated areas	$10,700					O&M includes inspection, mowing, and maintenance of caps over 30 years.
3.0 SURFACE WATERS & SEDIMENTS						
Sediment Dredging and on-site placement (RCRA Cap)	$24,000					O&M includes inspection, mowing and maintenance of drainage ditches, culverts
Drainage reconstruction	$15,000	$500	$4,714	$7,686	$11,198	and berms over 30 years subsequent to remedial action.
Monitoring						
First 2 years		$13,900	$24,130	$25,840	$26,994	Quarterly
Next 27 years		$3,500	$32,995	$53,802	$78,386	Annually
Treatment (if needed)	$345,000					
4.0 GROUNDWATER						
New well construction	$7,500					Residence/Office
Monitoring						Subsequent to remedial action.
First 2 years		$25,200	$43,747	$46,847	$48,938	Quarterly
Next 27 years		$6,300	$59,390	$96,844	$141,095	Annually
5.0 ONSITE FACILITIES AND DEBRIS						
Demolition, and offsite disposal	$38,000					
6.0 MOBILIZATION AND SUPPORT FACILITIES						
Site Offices, Fences, Decontamination Facilities, Roadways, Utilities Air monitoring	$350,000					
SUBTOTAL	$4,219,200	$58,900	$254,532	$377,053	$519,373	
LEGAL FEES, LICENCES, & PERMITS	$210,960					5 % OF CAPITAL/CONST.
INSURANCES, BONDS	$42,192					1 % OF CAPITAL/CONST.
ENGINEERING AND ADMINISTRATIVE	$210,960					5 % OF CAPITAL/CONST.
SUBTOTAL	$4,683,312	$58,900	$254,532	$377,053	$519,373	
CONTINGENCY - 15 % OF SUBTOTAL	$702,497	$8,835	$38,180	$56,558	$77,906	
SALVAGE VALUE	$150,000		($136,365)	($142,860)	($147,060)	50 % OF MAJOR CAPITAL EQUIPMENT (water treatment system)
TOTAL	$5,385,809	$67,735	$156,347	$290,750	$450,219	Salvage value not included as part of capital/construction cost;
SITE EVALUATION	$30,000		$46,320	$83,540	$129,100	recovered at conclusion of the remedial action.
						Site evaluation costs incurred every 5 years. Costs are not considered as O&M but are recurring and deferred costs.
TOTAL PRESENT WORTH			$5,588,476	$5,760,099	$5,965,128	

TABLE 5

ALTERNATIVE 2
EXCAVATION AND ONSITE TREATMENT OF BATTERY CASINGS AND RCRA CAPPING OF CONTAMINATED SOILS WITH LEAD CONCENTRATIONS GREATER THAN 500 MG/KG AND SELECTED OFFSITE SOILS

OPERABLE UNIT/ COST COMPONENT	CAPITAL/CONSTRUCTION COST	ANNUAL OPERATING AND MAINTENANCE COST	PRESENT WORTH COST (10 %)	PRESENT WORTH COST (5 %)	PRESENT WORTH COST (2 %)	VOLUME OF MATERIAL CONSIDERED
1.0 BATTERY CASINGS						Battery Casings 55,000 cubic yards
Excavation and onsite	$11,397,000	$0				Contaminated soils 59,000 cubic yards (>500 mg/kg)
treatment, offsite disposal						Contaminated Sediments 400 cubic yards
of residues.						Offsite soils 1600 cubic yards
2.0 CONTAMINATED SOILS						Treatment residues to offsite non-RCRA landfill
Excavation, consolidation, of onsite and offsite soils and covering with a RCRA Cap. Restoration of offsite excavated areas.	$1,901,000	$5,500	$51,849	$84,546	$123,178	O&M includes inspection, mowing, and maintenance of caps over 30 years.
3.0 SURFACE WATERS & SEDIMENTS			$0	$0		
Sediment Dredging and on-site placement (RCRA Cap)	$24,000		$0	$0		
Drainage reconstruction	$15,000	$500	$4,714	$7,686	$11,198	O&M includes inspection, mowing and maintenance of drainage ditches, culverts
Monitoring						and berms over 30 years subsequent to remedial action.
First 2 years		$13,900	$24,130	$25,840	$26,996	Quarterly
Next 27 years		$3,500	$32,995	$53,802	$78,386	Annually
Treatment (if needed)	$363,000	$0	$0	$0	$0	
4.0 GROUNDWATER			$0	$0		
New well construction	$2,500		$0	$0		
Monitoring						Residence/Office Subsequent to remedial action
First 2 years		$25,200	$43,747	$46,847	$48,938	Quarterly
Next 27 years		$6,300	$59,390	$96,844	$141,095	Annually
5.0 ONSITE FACILITIES AND DEBRIS			$0	$0		
Demolition, decontamination and offsite disposal	$38,000		$0	$0		
6.0 MOBILIZATION AND SUPPORT FACILITIES			$0	$0		
Site Offices, Fences,	$465,000		$0	$0		
Decontamination Facilities						
Roadways, Utilities			$0	$0		
Air monitoring			$0	$0		
SUBTOTAL	$14,185,500	$54,900	$216,824	$315,565	$429,789	
LEGAL FEES, LICENCES, & PERMITS	$709,275		$0	$0		5 % OF CAPITAL/CONST.
INSURANCES, BONDS	$141,855					1 % OF CAPITAL/CONST.
ENGINEERING AND ADMINISTRATIVE	$1,134,840					8 % OF CAPITAL/CONST.
SUBTOTAL	$16,171,470	$54,900	$216,824	$315,565	$429,789	
CONTINGENCY - 15 % OF SUBTOTAL	$2,425,721	$8,235	$32,524	$47,335	$64,468	Salvage value not included as part of capital construction costs
SALVAGE VALUE	$2,876,000		($2,614,572)	($2,739,102)	($2,819,630)	40 % OF MAJOR CAPITAL EQUIPMENT
TOTAL	$18,597,191	$63,135	($2,365,224)	($2,376,203)	($2,325,373)	
SITE EVALUATION	$30,000		$46,320	$83,540	$129,100	Site evaluation costs are incurred every 5 years; these costs are not considered as O&M, but are recurring, deferred costs.
TOTAL PRESENT WORTH			$16,278,286	$16,304,528	$16,400,918	

TABLE 6

ALTERNATIVE [illegible]
EXCAVATION AND ONSITE TREATMENT OF BATTERY CASINGS AND OFFSITE LANDFILL DISPOSAL OF CONTAMINATED SURFICIAL SOILS WITH LEAD CONCENTRATIONS GREATER THAN 500 MG/KG AND SOILS AT 5 FEET EXCEEDING EP TOXIC LEVELS WITH OFFSITE DISPOSAL OF ALL TREATMENT RESIDUALS AND SITE RESTORATION.

OPERABLE UNIT/ COST COMPONENT	CAPITAL/CONSTRUCTION COST	ANNUAL OPERATING AND MAINTENANCE COST	PRESENT WORTH COST (10 %)	PRESENT WORTH COST (5 %)	PRESENT WORTH COST (2 %)	VOLUME OF MATERIAL CONSIDERED
						Battery Casings 55,000 cubic yards
						Contaminated soils 45,000 cubic yards
1.0 BATTERY CASINGS						Contaminated Sediments 400 cubic yards
Excavation and onsite treatment, offsite disposal of residues	$11,397,000	$0				Offsite soils 1600 cubic yards
2.0 CONTAMINATED SOILS						
Excavation, solidification and offsite disposal (RCRA) of contaminated soils.	$9,332,000					
Dewatering wells and pump	$741,000	$4,700	$44,307	$72,240	$105,261	O&M includes inspection, mowing, and maintenance of cap for 30 years
Grading and onsite restoration. Offsite soils excavated and placed onsite.	$155,300					
Restoration of site.	$4700					
3.0 SURFACE WATERS & SEDIMENTS						
Sediment Dredging and on-site placement(RCRA Cap)	$4,500					
Drainage reconstruction	$15,000	$500	$4,718	$7,686	$11,190	O&M includes inspection, mowing, and maintenance of drainage ditches, culverts and berms over 30 years subsequent to remedial action.
Monitoring						
First 2 years		$13,900	$24,130	$25,840	$26,994	
Treatment (if needed)	$345,000		$0	$0	$0	
4.0 GROUNDWATER						
New well construction	$2,500					Ishmael Residence
Monitoring						
First 2 years		$25,200	$43,767	$46,847	$48,938	Subsequent to remedial action
5.0 ONSITE FACILITIES AND DEBRIS						
Demolition, decontamination and offsite disposal	$38,000					
6.0 MOBILIZATION AND SUPPORT FACILITIES						
Site Offices, Fences, Decontamination Facilities, Roadways, Utilities Air monitoring	$445,000					
SUBTOTAL	$22,490,000	$44,300	$116,898	$152,621	$192,391	
LEGAL FEES, LICENCES, & PERMITS	$1,124,500		$0	$0		5 % OF CAPITAL/CONST.
INSURANCES, BONDS	$224,900					1 % OF CAPITAL/CONST.
ENGINEERING AND ADMINISTRATIVE	$2,698,800					12 % OF CAPITAL/CONST.
SUBTOTAL	$26,538,200	$44,300	$116,898	$152,621	$192,391	
CONTINGENCY - 15 % OF SUBTOTAL	$3,980,730	$6,645	$17,535	$22,893	$28,859	
SALVAGE VALUE	$2,876,000		($2,614,572)	($2,739,102)	($2,819,630)	40 % OF MAJOR CAPITAL EQUIPMENT
TOTAL	$30,518,930	$50,945	($2,480,139)	($2,563,588)	($2,598,380)	Salvage value not included as part of capital construction cost; recovered at conclusion of the remedial action.
SITE EVALUATION	$50,000		$31,045	$39,175	$45,285	Evaluation occurs once, at the end of the fifth year; these costs are not considered as O&M, but are recurring, deferred costs.
TOTAL PRESENT WORTH			$28,069,836	$27,994,517	$27,965,835	

TABLE 7

ALTERNATIVE [illegible]
EXCAVATION AND ONSITE TREATMENT OF BATTERY CASINGS AND CONTAMINATED SURFICIAL SOILS WITH LEAD CONCENTRATIONS GREATER THAN
500 MG/KG AND EP TOXIC SOILS AT DEPTH WITH OFFSITE DISPOSAL OF CASINGS RESIDUE AND SITE RESTORATION.

OPERABLE UNIT/ COST COMPONENT	CAPITAL/CONSTRUCTION COST	ANNUAL OPERATING AND MAINTENANCE COST	PRESENT WORTH COST (10 %)	PRESENT WORTH COST (5 %)	PRESENT WORTH COST (2 %)	VOLUME OF MATERIAL CONSIDERED
1.0 BATTERY CASINGS						Battery Casings 55,000 cubic yards
Excavation and onsite treatment, offsite disposal of residues	$11,397,000	$0				Contaminated soils 45,000 cubic yards Contaminated Sediments 400 cubic yards off_site soils 1600 cubic yards [illegible]
2.0 CONTAMINATED SOILS						Surficial soils greater than 500 mg/kg and soil [illegible] greater than RCRA EP toxicity of 5 mg/l (assume [illegible] depth [illegible])
Excavation and onsite treatment, onsite disposal	$5,788,200					
[illegible] wells and pump	$741,000					Uses same equipment as battery casing treatment [illegible]
Grading and onsite soil restoration. Offsite soil excavated and placed onsite	$155,300	$4,700	$44,307	$72,248	$105,261	O&M includes inspection, mowing, and maintenance of cap over 30 years.
Restoration of site.	$14,700					
3.0 SURFACE WATER AND SEDIMENT						
Sediment Dredging and onsite placement (RCRA Cap)	$4,500					
Drainage reconstruction	$15,000	$500	$4,714	$7,686	$11,198	O&M includes inspection, mowing, and maintenance of drainage [illegible] culverts [illegible] and berms over 30 years subsequent to remedial action.
Monitoring						
First 2 years		$13,900	$24,130	$25,840	$26,991	
Treatment (If needed)	$305,000		$0	$0	$0	
4.0 GROUNDWATER						
New well construction	$2,500					Residence/office
Monitoring						
First 2 years		$25,200	$43,747	$46,847	$48,930	Subsequent to remedial action.
5.0 ONSITE FACILITIES AND DEBRIS						
Demolition, decontamination and offsite disposal	$38,000					
6.0 MOBILIZATION AND SUPPORT FACILITIES						
Site Offices, Fences, Decontamination Facilities, Roadways, Utilities Air monitoring	$445,000					
SUBTOTAL	$18,986,200	$44,300	$116,898	$152,621	$192,391	
LEGAL FEES, LICENCES, & PERMITS	$949,310					5 % OF CAPITAL/CONST.
INSURANCES, BONDS	$189,862					1 % OF CAPITAL/CONST.
ENGINEERING AND ADMINISTRATIVE	$4,746,550					25 % OF CAPITAL/CONST.
SUBTOTAL	$24,871,922	$44,300	$116,898	$152,621	$192,391	
CONTINGENCY - 25 % OF SUBTOTAL	$6,217,981	$11,075	$29,225	$38,155	$48,098	Higher contingency based on further soil treatment [illegible] definition.
SALVAGE VALUE	$4,776,800	$0	($4,342,509)	($4,549,624)	($4,683,175)	40 % OF MAJOR CAPITAL EQUIPMENT
TOTAL	$31,089,903	$55,375	($4,196,467)	($4,358,647)	($4,442,686)	Salvage value not included as part of capital construction cost [illegible]
SITE EVALUATION	$50,000		$31,045	$39,175	$45,285	recovered at conclusion of remedial action.
						Evaluation occurs only once, at end of fifth year. [illegible] are not considered as O&M, but are recurring, deferred costs.
TOTAL PRESENT WORTH			$26,924,481	$26,770,430	$26,692,502	

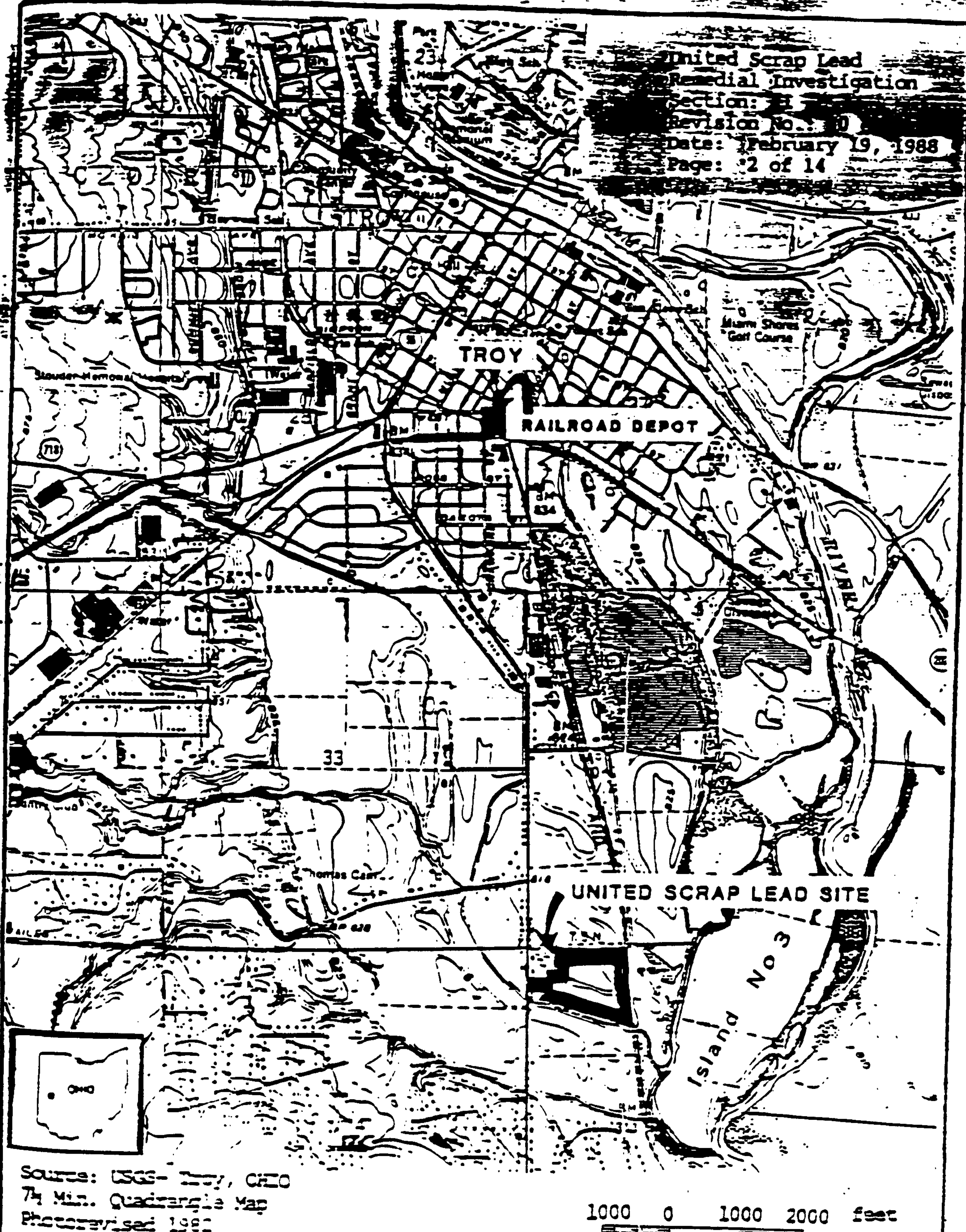
TABLE 8

ALTERNATIVE 5
NO ACTION

OPERABLE UNIT/ COST COMPONENT	CAPITAL/CONSTRUCTION COST	ANNUAL OPERATING AND MAINTENANCE COST	PRESENT WORTH COST (10 %)	PRESENT WORTH COST (5 %)	PRESENT WORTH COST (2 %)	VOLUME OF MATERIAL CONSIDERED
						None
1.0 EXISTING CASTINGS		$0				
2.0 CONTAMINATED SOILS			$0	$0	$0	
3.0 SURFACE WATERS & SEDIMENTS Monitoring for 30 years		$13,900	$131,035	$213,671	$311,304	Quarterly sampling.
4.0 GROUNDWATER Monitoring for 30 years		$25,200	$237,360	$387,374	$560,379	Quarterly sampling
5.0 ONSITE FACILITIES AND UTILITIES						
6.0 MOBILIZATION AND SUPPORT FACILITIES						
SUBTOTAL	$0	$39,100	$368,596	$601,045	$875,684	
LEGAL FEES,LICENCES,& PERMITS	$0					
INSURANCES, BONDS	$0					
ENGINEERING AND ADMINISTRATIVE			$0	$0	$0	
SUBTOTAL	$0	$39,100	$368,596	$601,045	$875,684	
CONTINGENCY - 15 % OF SUBTOTAL	$0	$5,865	$55,289	$90,157	$131,353	
TOTAL	$0	$44,965	$423,885	$691,202	$1,007,036	
SITE EVALUATION	$30,000		$46,320	$83,560	$129,100	Incurred every five years. Site evaluation is not considered as an O&M cost but are recurring and deferred costs.
TOTAL PRESENT WORTH			$470,205	$774,762	$1,136,136	

TABLE 9

2



Source: USGS- Troy, OHIO
7½ Min. Quadrangle Map
Photorevised 1982

FIGURE 1

GENERAL SITE LOCATION

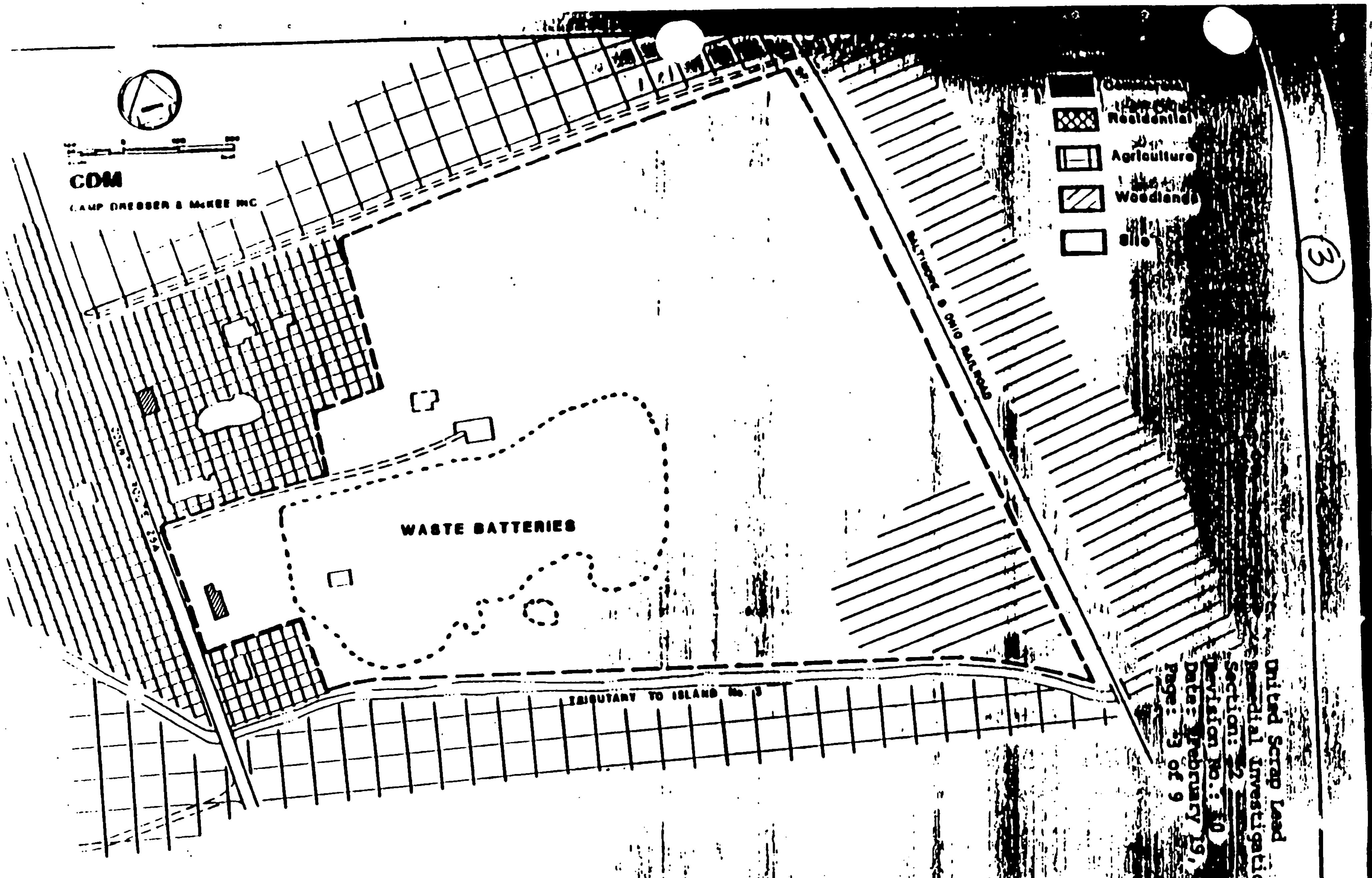


FIGURE 2 LAND USE

JUNE 1986

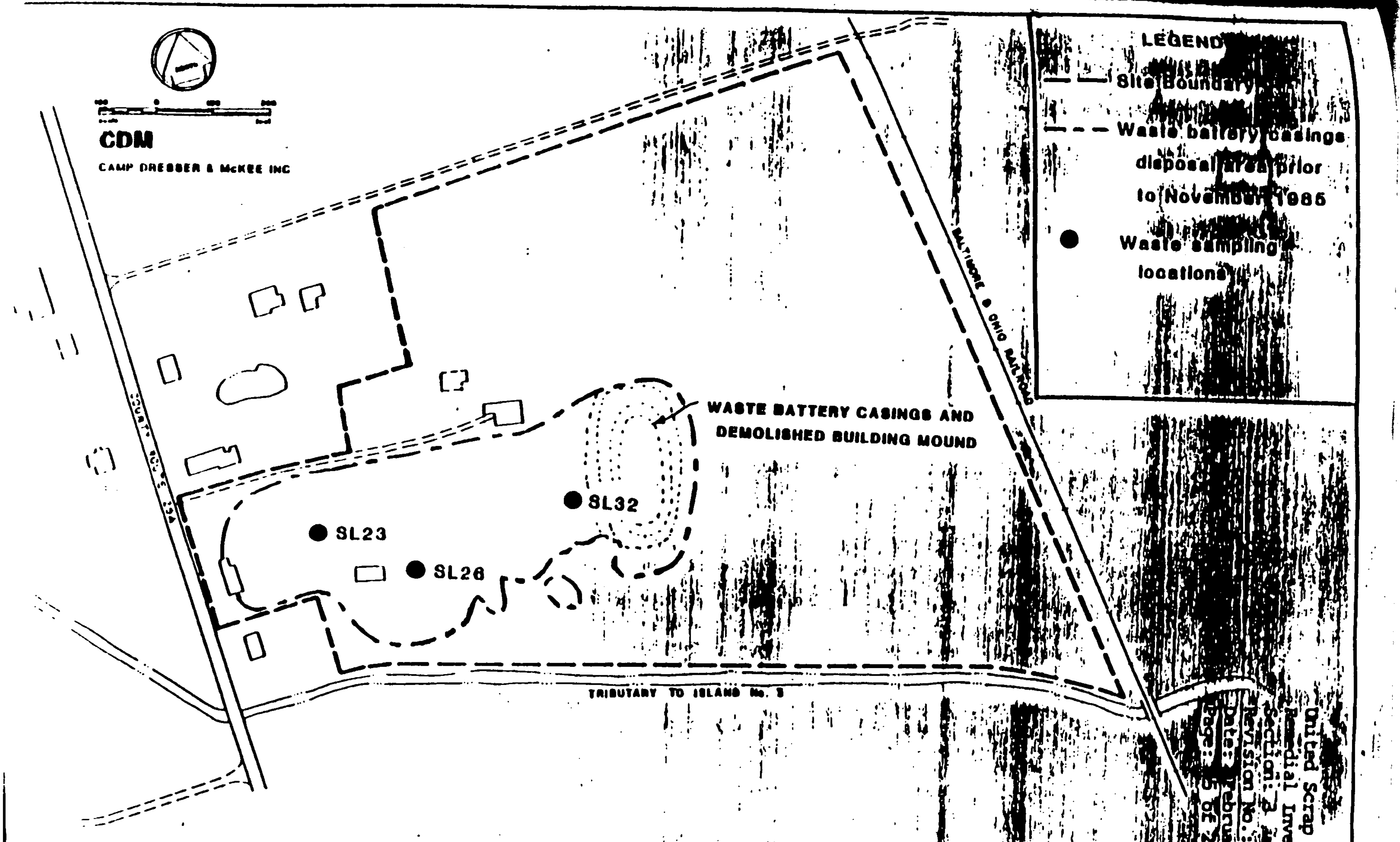


FIGURE 3 WASTE SAMPLING LOCATIONS

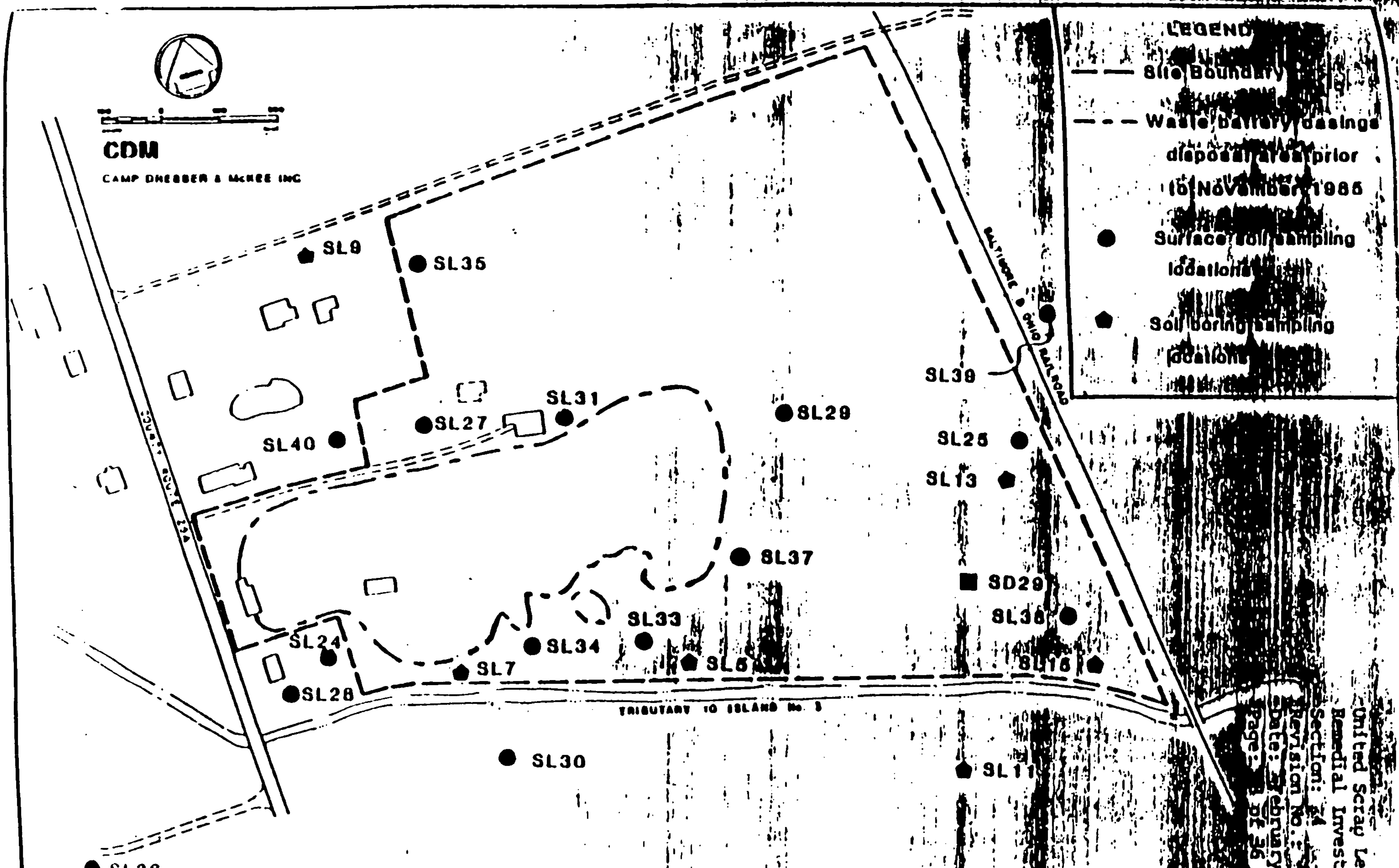


FIGURE 4 SOIL SAMPLING LOCATIONS

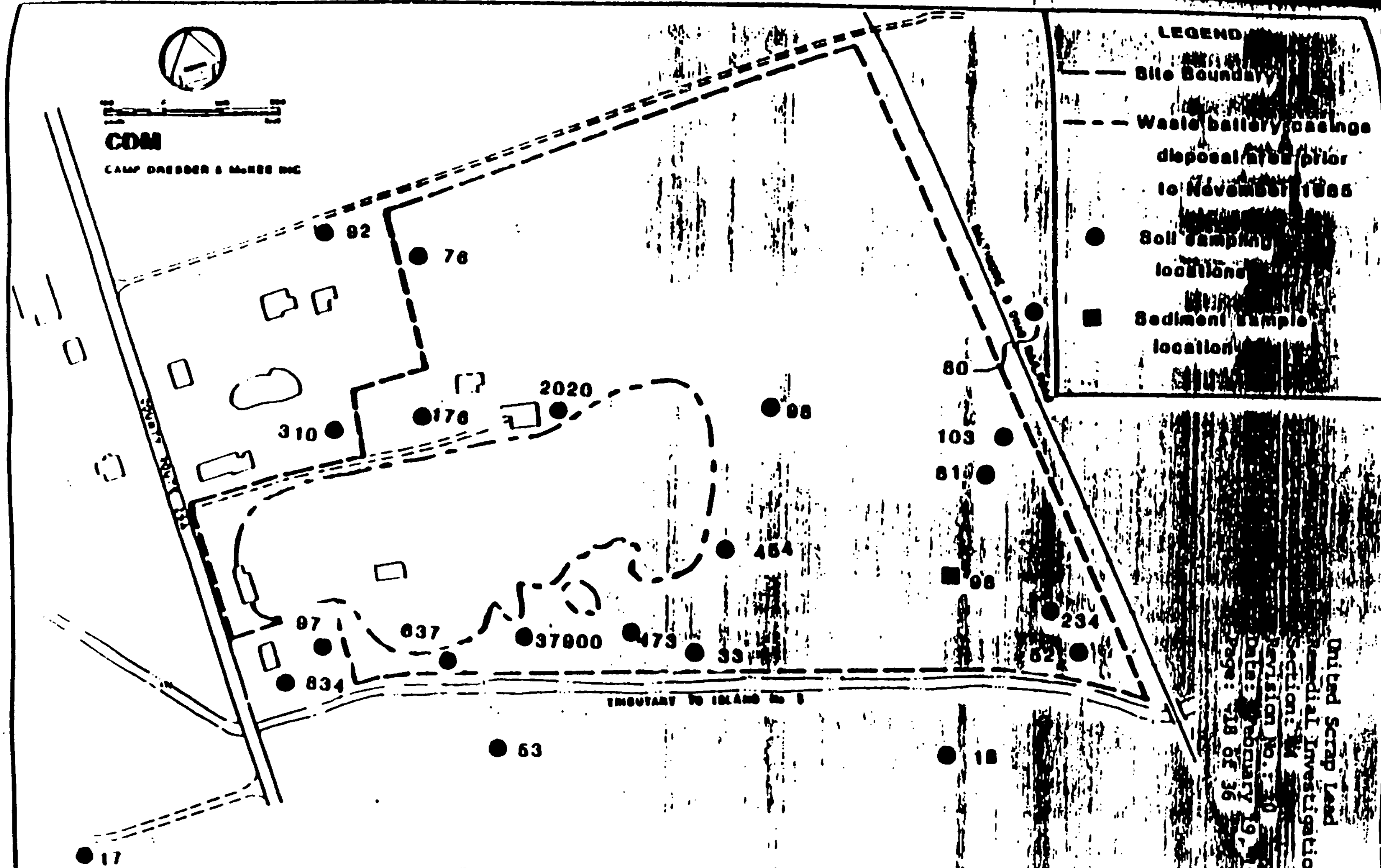


FIGURE 5 LEAD CONCENTRATIONS (MG/KG) IN NEAR SURFACE SOILS

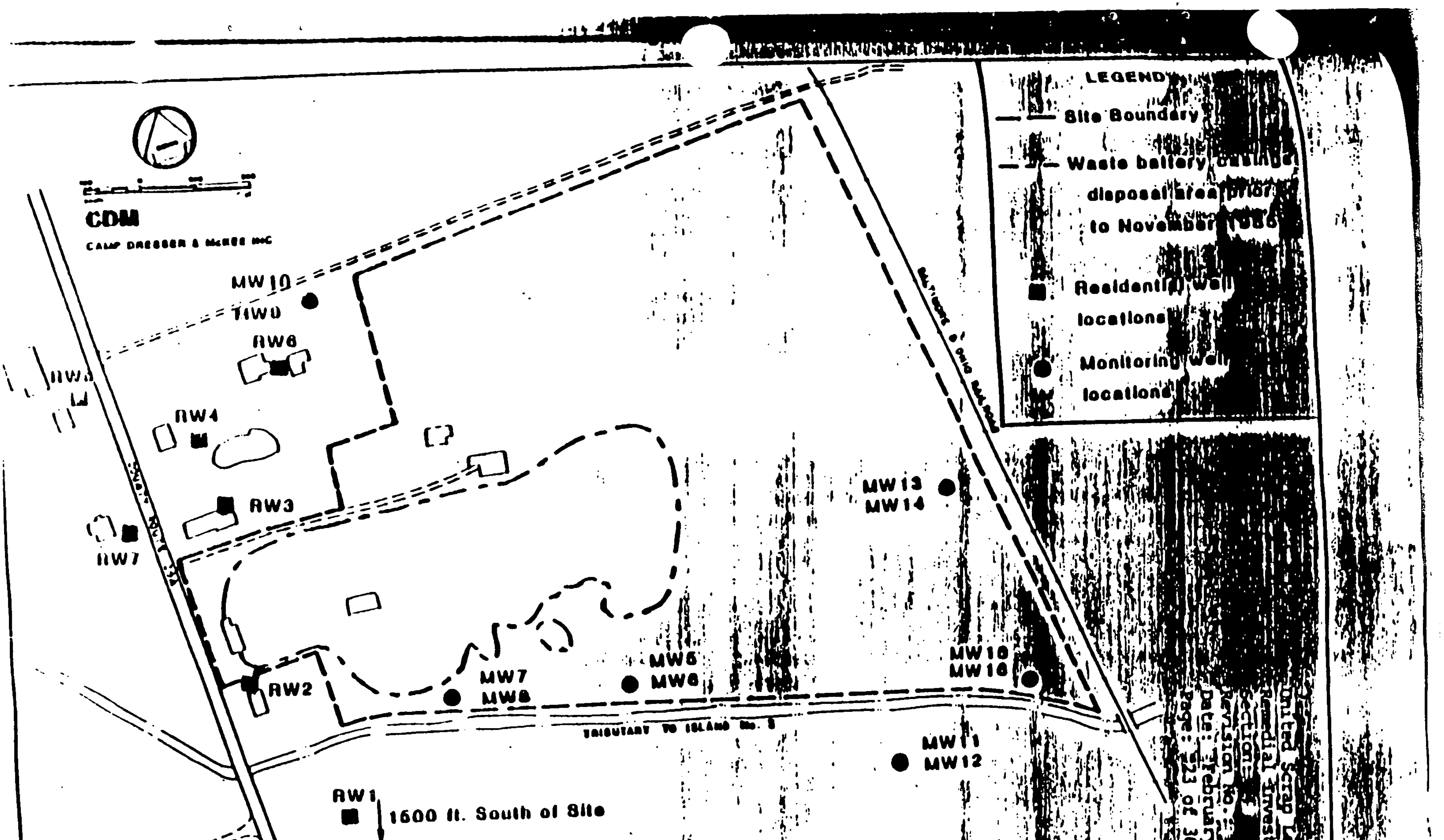


FIGURE 6

MONITORING & RESIDENTIAL WELL LOCATIONS

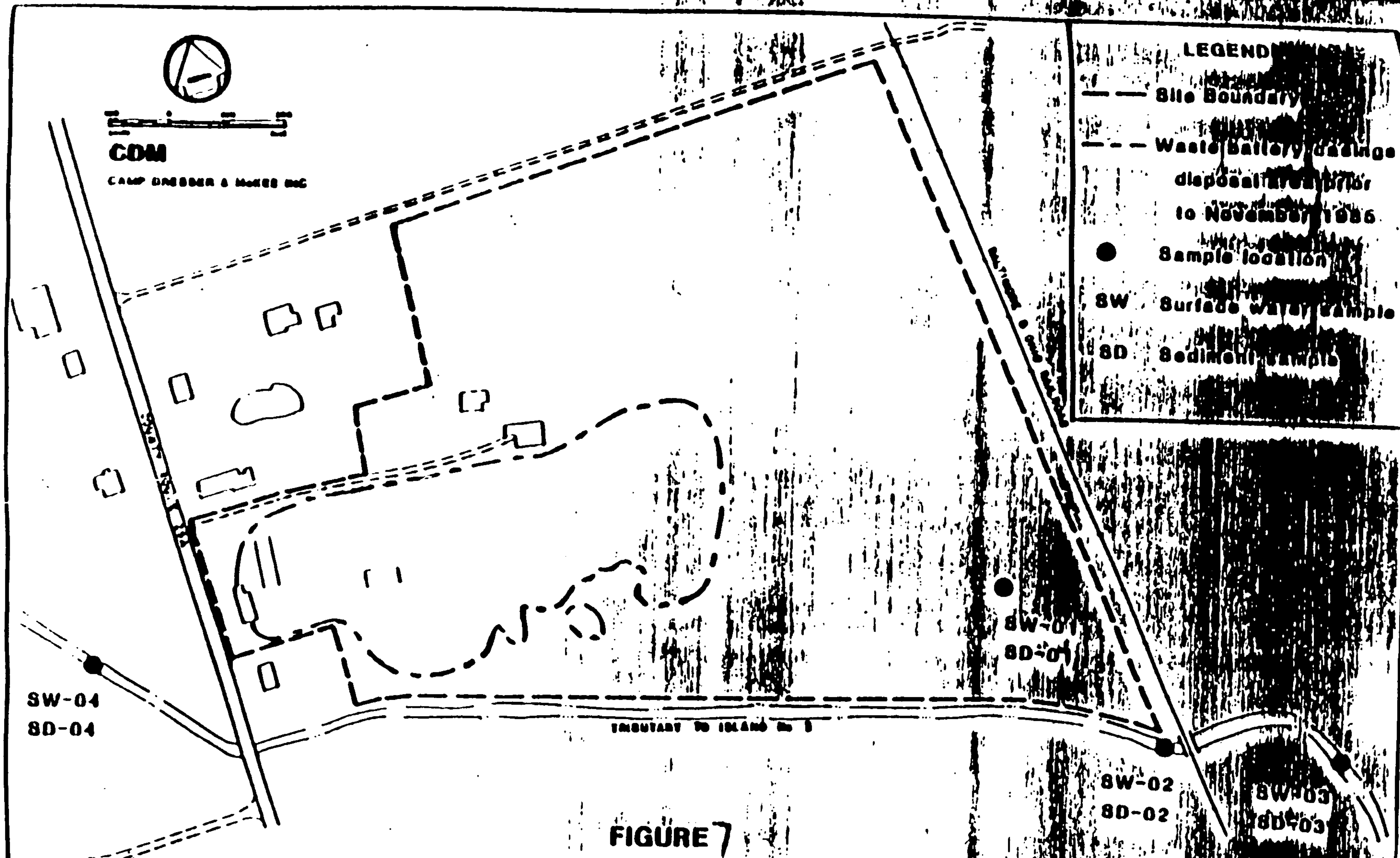


FIGURE 7

SURFACE WATER AND SEDIMENT SAMPLING LOCATIONS

United Scrap Lead
Remedial Investigation
Section: 5
Revision No.
Date: February 19, 1988
Page: 5 of 17

Administrative Record Index
not included.

SEP 30 '88 11:15 OHIO EPA CO P.2/2

Ohio EPA
State of Ohio Environmental Protection Agency
P.O. Box 1049, 1800 WaterMark Dr.
Columbus, Ohio 43266-0149

Richard F. Celeste
Governor

Valdus V. Adamkus
Regional Administrator
U.S. EPA, Region V
230 S. Dearborn Ave.
Chicago, Il 60604

September 30, 1980

Dear Mr. Adamkus;

This correspondence is to inform you that Ohio EPA has reviewed the Record of Decision proposed by U.S. EPA concerning the United Scrap Lead site near Troy, Ohio. After weighing the remedial alternatives proposed in the ROD, Ohio EPA concurs that the remedy selected, Alternative 4, meets the criteria for remedies required by SARA.

As stated in the ROD, we also concur that if new scientific studies reveal that concentrations of lead in surficial soils should be less than 500 mg/kg to be protective, this ROD will be re-evaluated to consider the new evidence and assure that the selected remedy remains protective of human health.

Sincerely,

Richard L. Shank, Ph. D.
Director, Ohio Environmental Protection Agency

cc: David Strayer, CCA, CO
Mike Starkey, CCA, SWDO

Attachment C

COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

UNITED SCRAP LEAD SITE

Regulation, Policy or Law	Applicability	Response	Alternatives(1) 1	2	3	4	5
CHEMICAL-SPECIFIC ARARs							
National Ambient Air Quality Standards.	90-day average. Airborne Lead Standard.	1.5 ug/m³	X	X	X	X	X(2)
State of Ohio Water Quality Standards.	Warm water aquatic life habitat. 30-day average-lead.	30 ppb	X	X	X	X	X(2)
Resource Conservation & Recovery Act (RCRA) 40 CFR 261.24	Characteristics of hazardous waste-lead EP Toxicity	5 mg/l	X	X	X	X	X(2)
ACTION-SPECIFIC ARARs							
RCRA Requirements							
40 CFR 264.310	RCRA Landfill Cover Systems.	This alternative meets RCRA Subtitle C capping requirements.	X	X	[illegible]	[illegible]	[illegible]
40 CFR 264.114	Decontamination of Equipment	Equipment decontamination procedures will be followed during construction.	X	X	[illegible]	[illegible]	[illegible]
Clean Water Act (CWA)	Regulates Discharge of Water into Rivers.	State of Ohio has jurisdiction over issuance of NPDES permits (see state ARARs).	X	X	[illegible]	[illegible]	[illegible]
Resource Conservation & Recovery Act (RCRA)	Closure of Hazardous Waste Facilities.	This alternative meets RCRA capping requirements.	X	X	[illegible]	[illegible]	[illegible]
		This alternative meets RCRA closure requirements.	X	X	[illegible]	[illegible]	[illegible]

Attachment C (Cont.)

COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

UNITED SCRAP LEAD SITE

Regulation, Policy or Law	Applicability	Response	Alternatives 1	2	3	4	5
40 CFR 268.	Treatment using BDAT required for land disposal in a RCRA compliant facility of hazardous wastes.	This alternative meets the RCRA land ban requirements.	-	-	X	[illegible]	[illegible]
40 CFR 264.310(b)(5)	Monitoring Surface Runoff (Final Cover)	Surface water management system will comply with RCRA requirements.	X	X	X	[illegible]	-
40 CFR 122.44 125.100 125.104	Direct Discharge of Treated Waters	Discharge of groundwater will comply with NPDES permit.	X	X	X	[illegible]	[illegible]
SOLID WASTE							
Ohio Revised Code (ORC)							
Chapter 3734							
Section 3734.02(H)	Requires prior authorization by the director of Ohio EPA before any physical disturbances of areas where a hazardous waste facility has operated.	All alternatives except No Action must comply with this ARAR.	X	X	[illegible]	[illegible]	[illegible]

Attachment C

(Cont.)

COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

UNITED SCRAP LEAD SITE

Regulation, Policy or Law	Applicability	Response	Alternatives 1	2	3	4	5
Ohio Administrative Code (OAC)							
Section 3745.50	Provides definition of terms, general standards permit information and overview information applicable to the Ohio hazardous waste rules.	All alternatives except No Action must comply with this ARAR.	X	X	[illegible]	[illegible]	[illegible]
Section 3745.51	Identifies those wastes which are subject to regulation as hazardous wastes.	Applicable to the site since hazardous wastes are present. All alternative except No Action must be reviewed with regard to this ARAR.	X	X	[illegible]	[illegible]	[illegible]
Section 3745.52	Establishes standards for generators of hazardous wastes.	Applicable to the site since many of the cleanup operations will require the same obligations imposed on hazardous waste generators.	X	[illegible]	[illegible]	[illegible]	[illegible]
Section 3745.53	Establishes standards which apply to transportation of hazardous waste in Ohio.	Applicable to alternatives that involve off-site transportation of hazardous waste.	-	-	[illegible]	[illegible]	[illegible]
Section 3745.54	Establishes minimum standards which define the acceptable arrangement of hazardous wastes. Applies to owners and operators of facilities which treat, store, or dispose of hazardous waste.	Applicable to all alternatives except No Action since all alternatives involve treatment, storage and/or disposal technology components.	X	X	[illegible]	[illegible]	[illegible]

Attachment C

(Cont.)

COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

UNITED SCRAP LEAD SITE

Regulation, Policy or Law	Applicability	Response	Alternatives 1	2	3	[illegible]
Section 3745.55	Establishes responsibilities of an owner or operator of a hazardous waste facility to establish a corrective action program.	Indirectly applicable to the site since the goal of the RI/FS process is in itself a corrective action program.	X	X	X	[illegible]
Section 3745.57	Establishes environmental performance standards for hazardous waste facilites.	Applicable to all alternatives except No Action.	X	X	X	[illegible]
Section 3745.60	Addresses closure and post-closure of hazardous waste disposal facilities.	Applicable to Alternatives 1 and 2 since the site contains hazardous wastes and the goal of the RI/FS is proper cleanup and closure.	X	X	[illegible]	[illegible]
Section 3745.68	Applies to owners and operators of facilities that dispose of hazardous waste in landfills.	Applicable to alternatives that involve disposal at an off-site RCRA landfill,	[illegible]	[illegible]	[illegible]	[illegible]
Section 3745.69	Addresses general operating requirements for hazardous waste treatment facilities.	Applicable to all alternatives involving treatment of wastes.	-	X	X	[illegible]

Attachment C

(Cont.)

COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

UNITED SCRAP LEAD SITE

Regulation, Policy or Law	Applicability	Response	Alternatives 1	2	[illegible]
Air					
Ohio Revised Code (ORC)					
Chapter 3704	Establishes authority to regulate and control air pollution.	Applicable to all alternatives except No Action.	X	X	[illegible]
Section 3745-15-07	Establishes air pollution nuisance prohibition.	Applicable to all alternatives except No Action.	X	X	[illegible]
Section 3745-17-05	Addresses restriction of fugitive dust.	Applicable to all alternatives except No Action.	X	X	[illegible]
Ohio Administrative Code (OAC)					
Section 3745-21-05	Establishes methods for ambient air quality measurement.	Applicable to all alternatives except No Action.	X	X	[illegible]
Water Pollution Control					
Ohio Revised Code (ORC)					
Chapter 6111	Establishes authority to set water quality standards and regulate water pollution sources.	Applicable to all alternatives except No Action since all alternatives contain a surface water treatment component that results in effluent discharge to the tributary to Island No. 3.	X	X	[illegible]
Ohio Administrative Code (OAC)					
Section 3745-1-01	Establishes the purpose and applicability of Ohio water quality standards.	Applicable to all alternatives except No Action since all alternatives contain a surface water treatment component that results in effluent discharge to the tributary to Island No. 3.	X	X	[illegible]

Attachment C (Cont.)

COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

UNITED SCRAP LEAD SITE

[illegible]ation, Policy or Law	Applicability	Response	Alternatives 1	2	3	[illegible]
[illegible]tion 3745-1-01	Establishes methods of analysis, sample collection and preservation of water samples.	Applicable to all alternatives except No Action since all alternatives contain a surface water treatment component that results in effluent discharge to the tributary to Island No. 3.	X	X	X	
[illegible] 3745-1-05	Establishes an antidegradation policy for surface water.	Applicable to all alternatives except No Action since all alternatives contain a surface water treatment component that results in effluent discharge to the tributary to Island No. 3.	X	X	X	X
[illegible]ment of Health						
[illegible] 3701-28	Establishes criteria for private water supplies.	Applicable to all alternatives except No Action since a new private well will be installed.	X	X		
[illegible] ARAR'S						
[illegible] 116	Deed Restriction	State of Ohio has jurisdiction.	X	X		
[illegible] 264.14 [illegible] 117(b)	Access Restriction	Meets RCRA requirements if implemented.	X	X		
[illegible] Codes (ORC)						
[illegible] 3734.05(C)(6)	Establishes the criteria used by the Hazardous Waste Facility Board to determine the adequacy of an application for a hazardous waste facility installation operating permit.	All alternatives except No Action must comply with this ARAR.	X	X	X	

Attachment C

(Cont.)

COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

UNITED SCRAP LEAD SITE

Regulation, Policy or Law	Applicability	Response	Alternatives 1	2	3	[illegible]	[illegible]
Ohio Administrative Code (OAC)							
Section 3745-1-01	Establishes water quality criteria applicable to all surface water.	Applicable to all alternatives except No Action since all alternatives contain a surface water treatment component that results in effluent discharge to the tributary to Island No. 3.	X	X	X	X	-

X In compliance with ARAR.
- Not applicable.
[illegible] Not in compliance.

[illegible] Potential exists for non-compliance.

ATTACHMENT B

RESPONSIVENESS SUMMARY
UNITED SCRAP LEAD SITE
TROY, OHIO

Public comments on the Feasibility Study (FS) Report and the proposed plan for the United Scrap Lead site were received by the U.S. EPA at a public meeting on August 15, 1988 and through written documents received by the U.S. EPA at the Region V Chicago office between August 8, 1988 and August 29, 1988. This Responsiveness Summary addresses these comments.

Public comments on the United Scrap Lead Site FS and proposed plan fall into the following major categories:

A. Comments on the Remedial Investigation/Feasibility Study (RI/FS) Reports,

B. Public health risks, both present and future,

C. Remedial action costs,

D. Proposed alternative remedial action,

E. Legal issues regarding specific provisions of CERCLA/SARA.

Comments and the U.S. EPA responses as provided in the following are organized according to these categories.

COMMENTS ON THE RI/FS REPORTS

Comment. The FS issued by EPA for the site is inconsistent with CERCLA, the NCP, EPA's own internal guidance documents, and contains numerous fundamental flaws in its methodology. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. The FS was conducted consistent with CERCLA and SARA, and to the extent practicable, consistent with the NCP. The same cost-effective screening analysis required in the NCP was conducted utilizing several Agency guidances which incorporate language in SARA into the evaluation. Since SARA supersedes the NCP, utilizing these guidances was a more current way to conduct the FS. These guidances include: EPA Directive Number 9355.0-19 "Interim Guidance on Superfund Selection of Remedy", dated December 24, 1986; EPA Directive Number 9234.0-05, "Interim Guidance on Compliance With Applicable or Relevant and Appropriate Requirements", dated July 9, 1987; and EPA Directive Number 9355.0-21, "Additional Interim Guidance for FY'87 Records of Decision", dated July 24, 1987.

Comment. The RI failed to evaluate the likelihood of future releases and associated public health risk of subsurface contaminated soils remaining onsite. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. The Public Health Evaluation as presented in the RI is considered as the baseline conditions as they presently exist. The evaluation would therefore reflect the risks associated with future conditions under the No-Action scenario. The risks posed by the contaminated soils at the site as evaluated in the RI are not considered to be diminished under future conditions without remediation efforts at the site. The alternatives as proposed in the FS would mitigate these risks as identified with proper implementation of the alternatives.

Comment. Seven remedial technologies that were evaluated in Section 2 of the FS received rejection from further consideration without documentation, in violation of the NCP. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. All of the initial remedial technologies were screened during the early stages of the feasibility study process for site specific applicability. The justification for their rejection or acceptance for further consideration are listed in Tables 2-2 and 2-3 of the USL FS report.

Comment. EPA failed to properly evaluate fixation as a remedial alternative in the FS. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. In the evaluation of fixation, the EPA does not contend that gypsum is the only fixation agent which could be utilized at the USL site. However, in the evaluation, gypsum was utilized as representative of the process and is one of the least expensive fixation agents. The same limitations of utilizing gypsum would be consistent with the other fixative agents. Alternative [illegible] involved the solidification of the contaminated soils into a cement matrix before off-site disposal. By doing this, the volume of the contaminated media actually increase by 10 percent. This is inconsistent with contaminated media volume reduction preferred in Section 121 of SARA.

Comment. There are no data to support the implied contention that lead in the site soils will migrate. The data in the RI demonstrate that future migration of lead under a property constructed and maintained cap, which prevents leachate formation, would be a remote possibility. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. Risks associated with the possibility of cap failure, even if the cap is properly maintained is greater than that of treatment to remove contaminants from the site. Removal of the contaminants from the soils and battery casings provides for a more permanent remedy given its long-term effectiveness.

Comment. The FS inserts additional criteria that are not required by the NCP at this stage, such as short-and long-term protectiveness; significantly and permanently reducing the toxicity, mobility or volume of hazardous constituents; availability of technologies; technical and institutional ability to monitor, maintain, and replace technologies over time; and the administrative feasibility of implementing the alternative. (Comments by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. All of the above listed criteria are included in EPA Directive Number 9355.0-21, "Additional Interim Guidance for FY87 RODs" dated July 24, 1987. The criteria were established to reflect the changes as defined in SARA. Since SARA and its provisions supersede those of the NCP, (where inconsistent) it was appropriate to use the above-mentioned criteria when evaluating alternatives.

Comment. Under the cost prong of the NCP analysis, "an alternative that far exceeds the cost of other alternatives evaluated and that does not provide substantially greater public health or environmental protection or technical reliability shall usually be excluded from further consideration." 40 C.F.R. Part 300.68(g)(1). This critical step, omitted from the initial screening, would have eliminated the fluosilicic technology. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. It is EPA's contention that fluosilicic acid treatment does indeed provide substantially greater public health and environmental protection than containment alternatives such as capping. When the contaminants are removed and recycled from the soil or battery casings there is no possible future risk scenario under which exposure could take place. Therefore, fluosilicic treatment was not excluded from further consideration.

Comment. Offsite treatment of battery casings at a battery recycling facility was rejected because EPA questioned the reliability of the facilities and alleged that they may stop treatment mid-project. FS at 3-17. There is no justification of these unreasonable assumptions. How EPA came to these conclusions is difficult to understand when the Agency made no attempted to contact such facilities. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. During the FS, the U.S. EPA contractor was in contact with a number of off-site reclamation facilities. The conclusion to screen offsite treatment of battery casings at private facilities was based on the following. The cost associated with offsite treatment exceeded that of onsite treatment, due to the high cost of transporting hazardous waste across the country. There are also inherent dangers associated with transporting hazardous wastes including accidents and other ways in which the material could inadvertently be spilled. In all cases, the facilities which the EPA contractor contacted, failed to specify whether they had a valid RCRA permit, and what lead levels would be achieved after treatment.

Comment. Other than alternative 1 (RCRA Cap), the FS utterly fails to identify "feasible" remedial technologies as required by EPA's own guidance. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

EPA Response. Consistent with CERCLA as amended by SARA and to the extent practicable the NCP, EPA has identified a wide range of potential technologies for evaluation in the FS. In the early screening stages of the FS potential technologies were evaluated and then screened if they were not technically feasible considering site specific application. During this phase over 50 remedial technologies were evaluated based on the specific operable units identified at USL.

Comment. The FS arbitrarily assumes that any battery casings and soils with lead concentrations of up to 500 mg/kg would pass the EP-toxicity test after treatment. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. The BCM, through treatability testing in the laboratory have demonstrated that after treatment both the battery casings and the soils could achieve levels of less than 500 mg/kg total lead and pass the EP-toxicity test for lead (5.0 mg/l). Treatment would be considered successful only after these two objectives would be met. Post-treatment verification will be necessary to prove that these objectives have been met. Prior to implementation of the treatment process, additional testing including operation of a pilot plant will be conducted. The ability of the system to achieve treatment objectives will be verified.

Comment. A detailed analysis of the remaining five alternatives failed to include the proper criteria required by the NCP. FS at 4-11. Rather than evaluate such factors as established technology, cost, engineering implementability, reliability, constructability, protectiveness, minimization of threats to the environment, and analyzing any adverse environmental impacts, methods of mitigating these impacts, and costs of mitigation, EPA instead arbitrarily chose to limit its consideration to only seven criteria: short-term effectiveness; long-term effectiveness; permanence; reduction of toxicity, mobility, or volume; implementability; cost; compliance with ARARs; and overall protectiveness of human health and the environment. This action violates the NCP. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

<u>U.S. EPA Response.</u> The criteria used in the detailed analysis of the FS, are criteria specified in EPA Directive Number 9355.0-21 titled, "<u>Additional Interim Guidance for FY87 RODs</u>". This agency directive incorporates language in SARA into the development of evaluation criteria. Since language in SARA supersedes that of the NCP the use of the above mentioned criteria was appropriate. The above listed criteria are not inconsistent with the NCP. They supplement the NCP and take into account the revisions of SARA. EPA need only follow the NCP "to the extent practicable." CERCLA, Part 121(a).

<u>Comment.</u> Two additional criteria that were to be applied at this stage of the analysis were state acceptance and community acceptance. FS at 443, the FS states, however, that it will not evaluate these two criteria until after the FS is issued and consequently, cannot complete the FS. The FS should be released for public comment again after these necessary considerations are completed. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

<u>U.S. EPA Response.</u> Nowhere in the FS does it mention that because these two criteria were not addressed before the FS was put out for public comment, the FS could not be completed. These two criteria are normally addressed in the Record of Decision. The State of Ohio has supported the recommended alternative; however, formal acceptance by the State comes only after they have reviewed the Draft Record of Decision. The EPA or its contractors cannot evaluate community acceptance until a recommendation as to the cleanup at the site is made. Therefore, community acceptance is based on public comments to the proposed plan, which was released with the FS.

<u>Comment.</u> Inconsistent with the NCP, the FS failed to include its detailed analysis in alternative for treatment or disposal offsite and an alternative that does not attain applicable or relevant and appropriate requirements. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

<u>U.S. EPA Response.</u> Consistent with the statutory determination in Section 121 of SARA, which supersedes the NCP, alternatives selected for remedial action should attain all applicable or relevant and appropriate Federal and State requirements (ARARs). If the alternatives do not attain ARARs a waiver must be obtained and justification provided. Since alternatives

could be developed in a manner which would render them ARAR compliant, there was no need to consider non-ARAR compliant versions. Alternative 3 does involve offsite disposal.

Comment. Detailed cost analyses were not done in accordance with the Cost Guidance, the NCP, and CERCLA. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

USEPA Response. Detailed cost analyses were performed in accordance with the Cost Guidance, NCP, CERCLA, and SARA. The references as utilized in the cost analyses were provided in the FS. A summary of these costs by operable unit were provided in the FS in Tables 4-11 to 4-15.

Comment. It is apparent that EPA arbitrarily selected the 5-foot cleanup level so that the cost estimates of fluosilicic treatment would not appear orders of magnitude greater than those is Alternative 1. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. The five-foot cleanup level for treatment was indeed an assumption used in the FS report. The basis for the assumption is that the concentration of lead in soils at a depth of five feet was below CDC guidance levels. If this assumption is incorrect, and all the soil to the ten-foot depth requires treatment, the cost of Alternative 4 would only increase by 30 percent. This is within the +50% - 30% cost estimate accuracy range provided in the FS guidance.

Comment. The variability in costs should have been accurately presented in the FS rather than assuming that the costs would be fixed, as Table 4-9 implies. (Comment by L. Ringenbach, Counsel for the USL PRP group.)

U.S. EPA Response. Variability in the cost estimates are +50% - 30%. Costs are listed as fixed figures; however, the variability is defined by the accuracy of the estimates.

Comment. Alternative 1, a RCRA cap over the site, would fulfill each of the objectives of the FS as described at 2-3 and 2-4 (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. The RCRA cap over the site does meet the objectives of the Remedial Action Objectives at USL. However, Alternative 4 provides a better balance of the nine criteria. More importantly, Alternative 4 will continue to meet FS objectives over time, which may not be the case for Alternative 1. Alternative 4 as well as the other alternatives, except No Action and the RCRA cap of Alternative 1 would also significantly reduce the amount of contaminated constituents remaining at the site.

Comment. It is erroneous to assume that the cap would need complete replacement if an inspection indicates a failure. Surface repairs are a part of normal cap maintenance. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. Surface repairs are a normal part of maintenance of a cap and are included as a part of the yearly expenses for the 30-year time period. However, at this time, the performance of the RCRA cap over time has not been fully established since these types of facilities as constructed have been in operation for less than a decade. For the purpose of this FS, it was assumed that complete replacement of the cap would not be required for 30 years. In other instances, failure of the cap has occurred prior to complete construction of the cap.

Comment. The FS is missing the chapter on selection of remedy. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. The proposed plan for the USL site, which is a part of the Administrative Record, provides the rationale for selection of remedy. It has been included at the public repository since the beginning of the comment period consistent with Section 117 of SARA.

Comment. It is clear that the Schmalz Dump presents a virtually identical environmental scenario to that of United Scrap Lead. The Dump FS did not even consider among its six remedial action alternatives the BCM's fluosilicic treatment process. (Comment by L. Ringerbach, Counsel for the USL PRP Group.)

U.S. EPA Response. U.S. EPA contends that the Schmalz Dump site is not as similar to the USL site as the commentor claims. First of all the Schmalz Dump has different types of wastes disposed of at the site. There are large appliances and automobiles: and in general, very heterogeneous wastes. The waste at USL, on the other hand, is very homogeneous in its composition; battery casings and contaminated soils. Both of these wastes (casings/soil) are treatable unlike the heterogeneous wastes at Schmalz. In addition, the contaminant levels at the Dump site with respect to lead are orders of magnitude lower than that of USL. In almost all instances, soil sampling results at the Dump indicated levels of lead in the soil below the 500 mg/kg level. Lastly, the BCM's fluosilicic process and treatability studies were completed after the Dump FS was completed. In other words, the technology was developed after the Schmalz Dump site FS was completed.

Comment. Before committing to an experimental technology more work and more careful cost estimating should be done. Buying up the surrounding land and moving everyone out might be the best and most cost-effective solution (Comment by Leon Brown.)

U.S. EPA Response. The U.S. EPA proposes to implement a pilot plant during remedial design phase before full scale operation is considered. If results of the pilot study indicate that the process would be ineffective or cost-prohibitive, the ROD would need to be revisited and revised to select a different remedy. The data and the testing to date lead EPA to believe that the process will work, and that it is the cost-effective solution for USL. The Superfund does not authorize EPA to buy out citizens. In addition, merely purchasing adjoining property would leave the hazardous waste site open, where exposure could take place on a regular basis. Buying out residences is only considered if the threat to human health is of emergency magnitude or the property is needed to implement the remedy.

COMMENTS ON PUBLIC HEALTH/RISKS

Comment. A seemingly arbitrary cleanup level of 500 mg/kg has been selected without discussion of any reasons for its selection ... (Comment by Judith Overturf, Counsel for Dobrow Industries.)

U.S. EPA Response. The cleanup level of 500 mg/kg was chosen for surficial soils based on the recommendation by CDC that blood lead levels in children in residential areas have been observed to increase when the soil lead concentrations are between 500 - 1,000 mg/kg. EPA has chosen the conservative end of this range. The 500 mg/kg level is also consistent with the results of the USL Public Health Evaluation.

Comment. ... lead present in the soil is very immobile and, therefore breaking the pathway of exposure by capping will be effective in protecting public health and the environment. (Comment by Laura Ringenbach, Counsel for the PRP Group.)

U.S. EPA Response. Capping is effective in eliminating the direct contact threat associated with the soils. However, caps are susceptible to freeze - thaw damage, and also to subsidence, which could render the cap ineffective for preventing both infiltration, and direct contact with contaminants. Capping also fails to meet the statutory preference for treatment in Section 121 of SARA.

COMMENTS ON REMEDIAL ACTION COST

Comment. A potential market which would combine the rubber with low BTU coal mined in the western states may well prove more profitable than the market for recycled lead. (Comment by Judith Overturf, Counsel for Dobrow Industries.)

U.S. EPA Response. Potential markets for the clean battery casings will be evaluated more fully during the remedial design phase. Non-RCRA landfill disposal was considered only because power plants contacted during the FS phase were non-committal when asked if they would accept the casings. These markets may be more receptive to receiving the casings once the time frame for receipt is determined. Before accepting them, they would require samples for their own analysis. Samples of the clean casings cannot be provided until after pilot studies are completed.

Comment. The cost to do the job is too high particularly when it's not really needed for health reasons. (Comment made by Albert E. Wiehe.)

U.S. EPA Response. The cost of permanent remedies as mandated by SARA are often more costly than containment options. The alternative selected is cost-effective; however, because the degree of long-term effectiveness of the selected alternative is greater than that of the containment options. Treatment to remove contaminants ensures that additional funds will not be spent at USL later.

Comment. EPA's cost figures for these alternatives seriously underestimate the true costs associated with implementing a complex and unproven technology. (Comment by Laura Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. EPA's cost-estimates for the selected alternative as well as the others are expected to be within the order-of-magnitude (+50% - 30%) required for feasibility study purposes. Cost estimates will be refined during remedial design.

Comment. Alternative 4 is not a cost-effective solution. There is no contamination of groundwater or surface water, and the lead in the soil is not migrating. (Comment by Laura Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. Alternative 4 is cost effective in the long-term. None of the containment options specified could ensure long-term effectiveness to the degree treatment does. There is evidence that lead is migrating from the site as observed in the sediment in the nearby tributary.

Comment. The costs associated with the fluosilicic process are conceded by the BCM to be unknown. (comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. The costs as developed by the BCM are based upon their knowledge of the system components and are an estimate of the costs of combining these system components. The BCM does feel that these cost estimates are within the +30% to -30% range. As such, this range of variability does present a degree of uncertainty with respect to cost.

With the additional testing and pilot work as planned in the design phase the costs will be further refined. If the costs differ significantly from the estimate, the ROD may be revisited.

COMMENTS ON THE PROPOSED REMEDIAL ACTION

Comment. It is more likely that inadvertent mishandling of the cleanup operation proposed by selected Alternative 4 using the chelating agent EDTA will solibilize the lead and enhance the lead leaching to the groundwater (Comment by J. Overturf, Counsel for Dobrow Industries)

U.S. EPA Response. The proposed process established by the BOM will not utilize EDTA. Fluosilicic acid will be utilized. During the course of implementing Alternative 4, all necessary safety features such as concrete pads surrounded by berms will be constructed, which will greatly reduce the possibility of damage due to uncontrolled spills. In addition, monitoring (air, groundwater, surface water) will take place during remedial action to ensure contaminants are not migrating from the site due to inadvertent releases.

Comment. It is apparent that Alternative 4 is experimental at best (Comment by J. Overturf and others.)

U.S. EPA Response. The technology for extraction of lead from the battery casings and the soil is similar to technologies currently used in the mining industry. To date, data from laboratory treatability tests indicate the process is feasible. Section 121 of SARA suggests that experimental technologies can be selected if they significantly reduce toxicity, mobility or volume. Further tests in the laboratory, and a pilot study will be conducted as part of the design phase to define and optimize full scale operating parameters.

Comment. It is my recommendation that the ROD to be initiated choose Alternative 5 - No action and secure the site under the Law of Eminent Domain. (Comment by Donald Kreis, both written and at the public meeting.)

U.S. EPA Response. Based on the results of the Public Health Evaluation, U.S. EPA has concluded that an existing and potential future threat currently exists at the USL site due to direct contract with contaminated media. Securing the site does not ensure that trespassing site intruders will not be exposed. A remedial action must take place which permanently eliminates these risks. The CERCLA equivalent of the law of eminent domain is found in Section 104(i), but is not applicable here.

Comment. The fluosilicic treatment process has not been demonstrated at the laboratory stage, pilot stage, or full scale, or at any other Superfund site. Consequently, the technology's ability to meet the EPA cleanup standards is unknown. (Comment by Laura Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. The treatment of both the battery casings and the soils using the fluosilicic acid treatment process has been demonstrated by the bcm to be successful in the laboratory. EPA'S cleanup standards of <500 mg/kg total lead in surficial soils and EP-Toxicity analysis of less than 5 mg/l has been achieved by the BOM for both the battery casings and soils. EPA acknowledges the fact that pilot and full scale operation has yet to be achieved, but Section 121 of SARA clearly demonstrates the congressional intent of recommending alternative technologies which involve treatment even if they have not been demonstrated at other Superfund sites. Further studies including a pilot study are proposed for Remedial Design.

Comment. The process developed requires highly trained personnel. At present, only the BCM has the trained personnel to implement the remedy. No other companies that do actual cleanups are familiar or experienced with the technology. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. EPA acknowledges the fact that highly trained personnel would be needed to design the system for battery casing and soil treatment. The U.S. BOM is prepared to stay on board as the U.S. EPA's principal expert to provide the necessary expertise even in the event of a PRP takeover. If the PRP's take over the project, guidance and oversight of future studies by the PRP's consultant will be provided by the BOM in the same manner that U.S. EPA utilizes its onboard contractors to provide similar PRP oversight functions.

Comment. The lead residue removed from the waste material is assumed to be of sufficient quality to be reclaimed. However, the FS has not established or even explored a potential market for this material. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. The recovery of lead for resale was never considered to be the main the reason for implementing Alternative 4. EPA selected Alternative 4 because it is the cost-effective alternative which best protects public health and the environment in the long-term. Recovery or credit for reclaimed lead is a secondary benefit of Alternative 4.

Comment. The BCM acknowledges that the design of two separate treatment processes may be necessary, yet the FS states in its cost analysis that there will be a single process. (Comment by L. Ringenbach, Counsel for the USL PRP Group.)

U.S. EPA Response. The process for treatment the soils is expected to be very similar to that of treating the casings. Some modifications to existing equipment would be necessary, but since the battery casings are disposed on top of the majority of the soils they would have to be treated first.

Comment. The fluosilicic process has never been tested to confirm that it will meet EPA cleanup levels to remove lead from battery casings and soils to less than 5 mg/kg of lead under the RCRA EP-toxicity test FS at 2-10. (Comment by L. Ringenbach, Counsel for the USL PRP group.)

U.S. EPA Response. EPA through an interagency agreement contracted with the BCM to do bench scale laboratory tests to evaluate the feasibility of treatment. The bench scale tests have indicated that an ammonia leach followed by a fluosilicic acid leach removes significant quantities of lead from the casing material and soils. The residual battery casings and soils had a RCRA-EP toxicity lead concentrations of less than 5 mg/l and a total lead concentration of less than 500 mg/kg. Therefore, battery casing washing using the fluosilicic process has most definitely been demonstrated to be feasible in the laboratory.

COMMENTS ON LEGAL ISSUES REGARDING
SPECIFIC PROVISIONS OF CERCLA/SARA

Comment. These legal concerns are summarized in the following comment. Before the PRPs may be deprived of their property interests, they must be afforded an opportunity to be heard at a meaningful time and in a meaningful manner. In general, due process rights of the PRPs have been violated by EPA. Comments included the lack of administrative record availability in the repository, a comment period which was less than the required 21 days, the fact that additional PRPs have been identified but not given a chance to comment on the RI/FS and have not been sent notice letters. (Summation of comments by L. Ringenbach, Counsel for the USL PRP group.)

U.S. EPA Response. EPA does not feel that the due process rights of the PRP group were violated. The complete Administrative Record has been available for review in the Troy-Miami County Public Library since August 8, 1988, the day the public comment period started. This was confirmed by a return receipt on certified mail. Everything in the index was included and was available at the repository. The PRPs were given 21 days to comment on the RI/FS and proposed plan consistent with the NCP. Courtesy copies of the FS and proposed plans were sent to the PRPs a day later, but the RI/FS and proposed plan were available in the public repository on August 8. Any additional PRPs who have been identified after the public comment period could not have been given the opportunity to comment on the RI/FS and proposed plan during the comment period. CERCLA does not require EPA to delay the ROD until all possible PRPs have been identified. Notice letters have been sent to the additional 75, but until the existing PRP group sends EPA its records as to additional PRP listings, 104(e) and notice letters cannot be sent out. The commentor's citations to the case law is misleading in that there are many cases that have found that the NCP provides PRPs with adequate due process. EPA followed the public participation provisions of CERCLA/SARA and the NCP. It is not appropriate to elaborate further on due process claims.

Comment. Mr. Duane A. Schroeder has submitted a public comment regarding his company's ability to undertake the Remedial Action at the site.

U.S. EPA Response. Consideration of vendor's proposals will come during the competitive bidding process of the RA. When the design of the remedy is completed, assuming the RD/RA is conducted as a fund lead project, competitive bids will be taken from qualified vendors. At that time consideration will be given to Mr. Schroeder's firm's capabilities. EPA does not have a mechanism in place for non-competitive sole source contacts for the performance of RAs.