

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

EPA Region 5 Records Ctr.

ACTION MEMORANDUM



228320

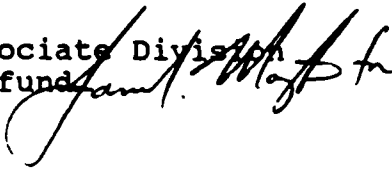
DATE:

JAN 20 1994

SUBJECT: ACTION MEMORANDUM Request for a Time-Critical
Removal Action at the Avanti Site
Indianapolis, Marion County, Indiana.

FROM: Paul R. Steadman 
On-Scene Coordinator

TO: William E. Muno, Director
Waste Management Division

THRU: Jodi L. Traub, Acting Associate Division Chief
Director, Office of Superfund 

SITE ID NO.: 7U

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval to expend a total of \$ 1,173,736 during the proposed removal action described herein for the Avanti Site ("Site") which includes industrial property located at 502-566 South Harris Street, Indianapolis, Indiana ("the Industrial Property"), surrounding residential properties, and areas where hazardous substances from the Industrial Property have come to be located, including areas where lead has come to be located as a result of air pollution or wind dispersal from the Industrial Property.

References to the "Site" or "facility" in the Site Assessment (SA) Report in support of this removal action are references to the Industrial Property. However, such references should not be construed to exclude residential properties from EPA's definition of the "Site" or "facility".

The removal action is necessary to abate an immediate threat to public health and the environment due to the presence of high concentrations (up to 23%) of lead in the soil and several drums containing potentially hazardous material. The proposed action includes securing the Site, specifically the Industrial Property where lead smelting, foundry operations and related activities took place, by repairing or replacing damaged fencing, sampling and disposing of all drums, and stabilizing and staging for future disposal, approximately 10,000 cubic yards of lead contaminated soil. An extent of contamination survey will be conducted on potentially impacted residential wells and an alternative water supply will be provided where removal action levels for lead have been met or exceeded. This is a time

critical removal action because of the high concentrations of lead on the Industrial Property. Area residences located approximately 50 feet from the Industrial Property are also contaminated with lead-laden dusts from the Industrial Property. Several of these residences are occupied by both children and adults who have elevated blood lead levels.

The Avanti Site CERCLIS ID number is IND985102425.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal site evaluation

The industrial portion of the Avanti Site includes a former foundry facility located in Indianapolis, Marion County, Indiana. The Industrial Property consists of two main buildings known as the East building and the West building which are separated by an alley. The West building, which is in the form of a "T", housed a company known as "Federal Bevel, Inc.," in the northeast section of that building. The Industrial Property is fully fenced except for a couple of locations, where the fence appears to have been breached. Access to the Industrial Property is controlled by two gates. The first gate is present on Harris Street, while the second gate, which is west of this gate, is at a dirt road leading to the West building.

A railroad spur connects the East building to the Conrail Railroad tracks. A second railroad spur is present in the alley between the two buildings. Soil in some areas of this alley appears to be stained. The area between the western and southern fences of the buildings is open land. Most of the southern open area is paved. On the west portion of the Industrial Property are several paper and plastic piles. These areas are overgrown with shrubs and other plant life. A battery casing pile is also located in the shrubs directly to the west of the West building.

The East building contains several pieces of machinery, drums, and pails, along with eight (8) 55-gallon capacity drums labelled "Standout Paints by Bradley", and seven (7) 5-gallon pails which are labeled "Residual insect spray", "Cleaners", and "Strippers".

There are several open drums in the East Building. One of the open drums gave a reading of 5% in the lower explosive limit (LEL) register of the oxygen/explosimeter equipment during the August 1993 SA. The East building's floor is concrete and appears to be about 5 feet above the railroad spur that is situated in the middle of the building. The floor appears to be covered with a gray, powdery material. The northeast portion of this building contains approximately thirteen (13) overpacked metal drums, some of them labelled with the words "Grit, perma steel".

Sixteen (16) soil samples and two sediment samples were collected during the SA. Six (6) of these samples were collected from the sidewalks of the Industrial Property and from the residences across from the Industrial Property. Residential property sample analyses showed as high as 59,000 ppm total lead and 1000 ppm TCLP lead. All nine (9) soil samples collected from the Industrial Property during the August 1993 SA had high concentrations of lead contamination, and showed as much as 230,000 ppm total lead and 1,500 ppm TCLP lead (See Tables 1, 2 & 3).

During the SA, several people, including children, were observed in Little Eagle Creek which is located along the west side of the Site. Little Eagle Creek is used for recreational purposes. Children were also observed playing along the sidewalk on the east side of the industrial facility.

2. Physical location

The official street address of the industrial portion of the Avanti Site is 502-566 South Harris Street, Indianapolis, Indiana 46222. The location of the Industrial Property on an Indianapolis 7.5' topographic quadrangle map is described by 40° 17' 30" latitude and 86° 13' 40" longitude. The Industrial Property occupies an approximate area of 7.3 acres. It is bounded on the north by West Victoria Street, on the east by Harris Street, on the south by the Conrail railroad tracks, and on the west by Eagle Creek (See Figure I). The Avanti Site includes residential areas surrounding the Industrial Property. Based on preliminary sampling and surveys for lead contamination, these residential portions include addresses within the 800 block South Sadie Street, 800 block of South Tip Street, homes within the 2800 block of West Ray Street where the National Safe Drinking Water Act's (NSDWA) Maximum Contaminant Levels (MCL) for lead in drinking water are exceeded; homes in the 400 to 500 block of South Harris Street where high levels of indoor lead containing dusts, surface soil contamination with high lead levels were detected, and where blood lead levels in the occupants of these residences exceeded 10 ug/dl (micrograms per deciliter of human blood).

3. Site characteristics

The industrial portion of the Avanti Site once included a lead smelting facility which ceased operating as a smelter in 1977. Several other businesses have operated on the Industrial Property since the cessation of smelting activities.

Preliminary information gathered during the SA indicates that Western Lead and Quemetco operated a lead smelter at the Industrial Property in the 1960's and early 1970's. Later Oxide

and Chemical Corporation operated these facilities from 1974 until 1977. During this time, it is claimed by area residents that there was visible air pollution as observed from smoke billowing from the smoke stacks of the building on the Industrial Property. This will be the first U.S. EPA Removal Action at the Avanti Site.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

Analytical results of the samples collected by U.S. EPA during the initial SA (8/4-8/5/93), from both Industrial Property soil and soil from immediately adjacent areas outside of the industrial property, indicated the presence of total lead as high as 23% (230,000 parts per million [ppm]) on the Industrial Property and as high as 59,000 ppm on the adjacent areas. Toxicity Characteristic Leachate Procedure (TCLP) analysis of lead indicated results as high as 1,500 ppm on the Industrial Property and 1000 ppm immediately off the Industrial Property.

Lead is a hazardous substance as defined under Section 101 (14) of CERCLA where Removal Action Limits (RALs) are established for lead contamination exceeding 30 ppb, based on National Primary Drinking Water Regulations (40 CFR, Part 141), and lead is a RCRA characteristic Hazardous Waste (D008) where, based on TCLP data, it exceeds 5 ppm.

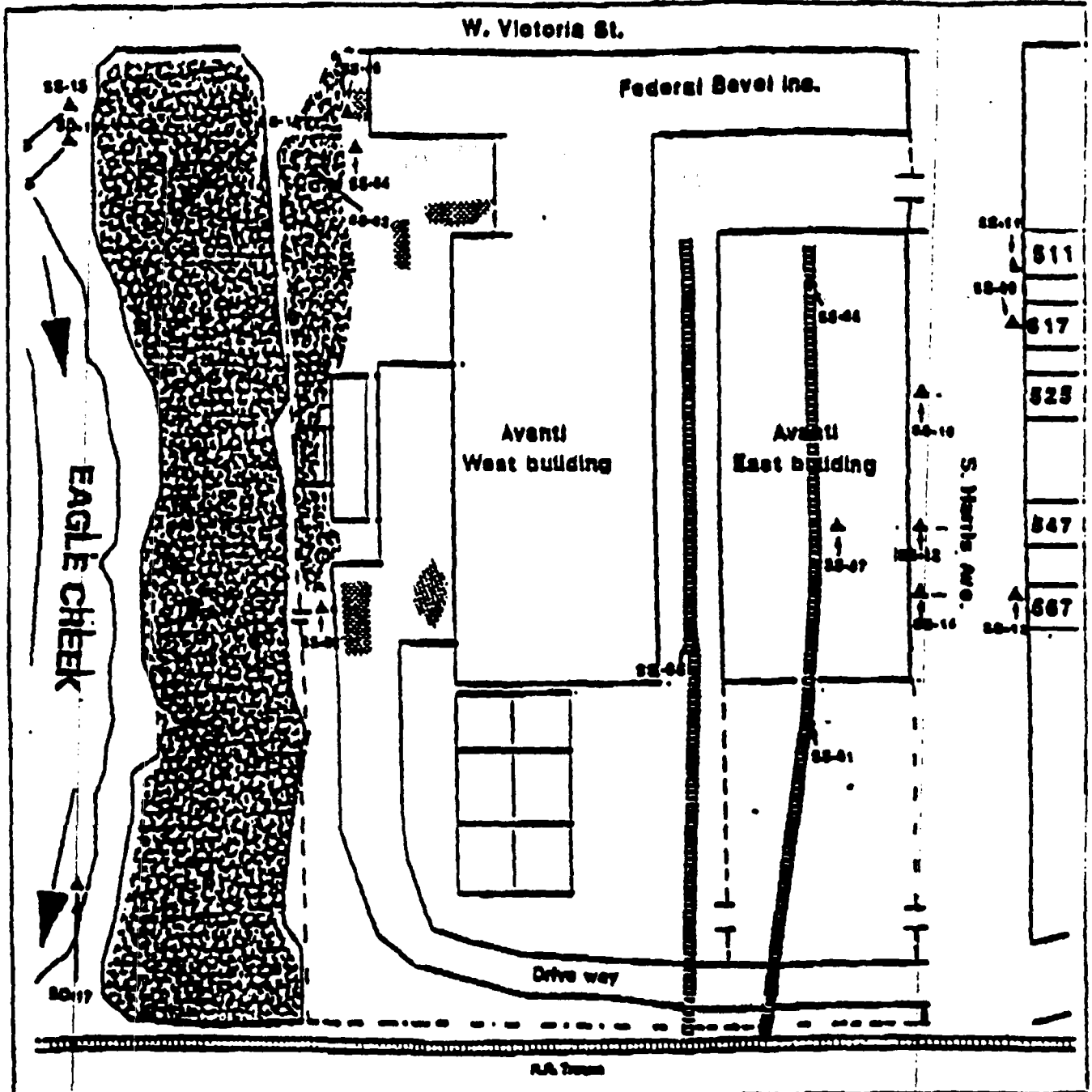
The sidewalks of Harris Street along the east side of the Industrial Property are documented to be contaminated with lead. The sidewalks pose a potential risk to children who may come in direct contact with or inhale lead contaminated dust. Another potential migration path is from surface water run-off that could carry lead contamination off the Industrial Property towards either the residential area or Eagle Creek.

5. NPL status


The Avanti Site has not been proposed for the National Priority List (NPL) and has not received a hazard ranking system (HRS) score.


6. Maps, pictures and other graphic representations

Figure 1 presents a general overview of industrial and residential properties included in the Site and its features as well as the soil sample locations. Tables 1, 2 and 3 are included in this document to provide a summary of surface soil sample results for total metals and TCLP analysis for surface soil lead sampling and other heavy metals obtained within and adjacent to the Industrial Property.




LEGEND

 Trees & bushes

 Paper & plastic piles

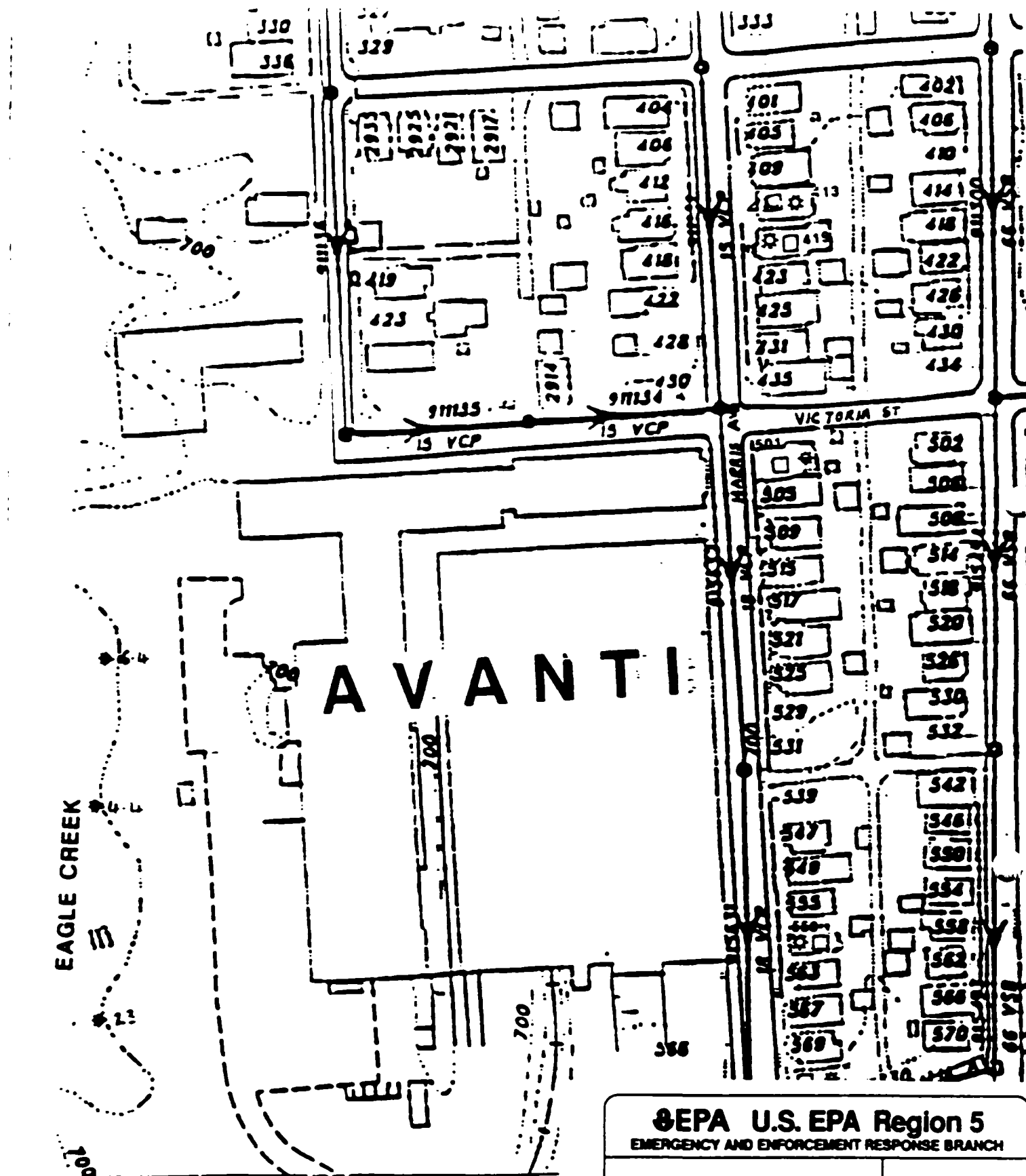
811 Residence number

SS-01 Sample location


North

EPA U.S. EPA Region 5
EMERGENCY AND ENFORCEMENT RESPONSE BRANCH

GENERAL SITE MAP	
TITLE	FIGURE #
AVANTI LEAD	1
SITE	SCALE
INDIANAPOLIS - INDIANA	NONE
CITY	STATE
IDEM	PAN
SOURCE	N/A
	DATE
	OCT. 1993
	REVISED



EAGLE CREEK

AVANTI

VICTORIA ST

HAGGIS A

15 VCP

15 VCP

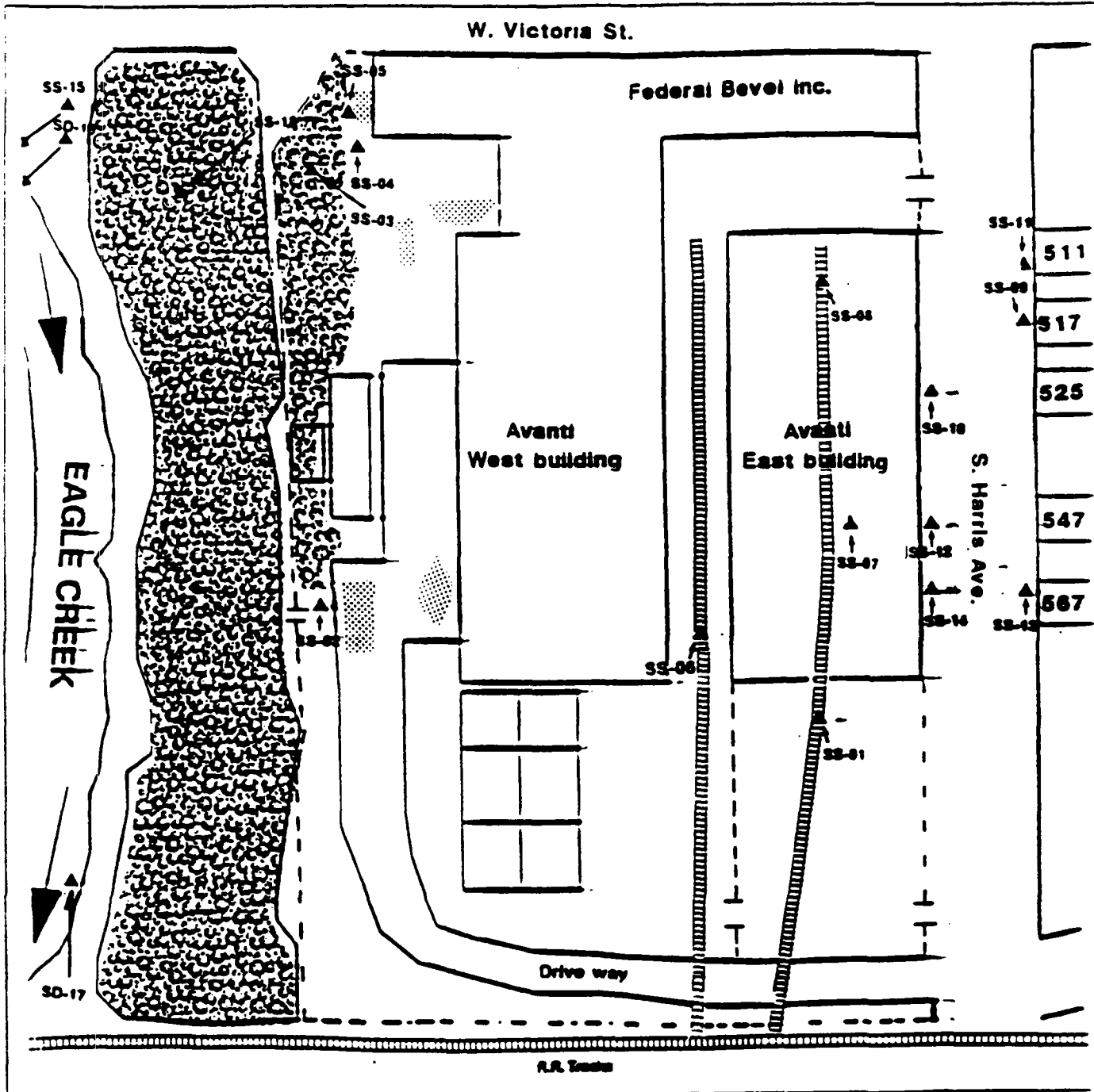
LEGEND

- ⊙ Surface soil sample
- ⊕ Surface & depth soil sample
- ⊗ Sediment sample
- Wipe sample



North

EPA U.S. EPA Region 5 EMERGENCY AND ENFORCEMENT RESPONSE BRANCH	
TITLE SAMPLE LOCATION MAP DECEMBER 1993	FIGURE # 2
SITE AVANTI LEAD	SCALE NO SCALE
CITY INDIANAPOLIS, INDIANA	PAN -----
SOURCE BASE MAP OF IDEM	DATE 1993 REVISED



LEGEND

Tree & bushes

Paper & plastic piles

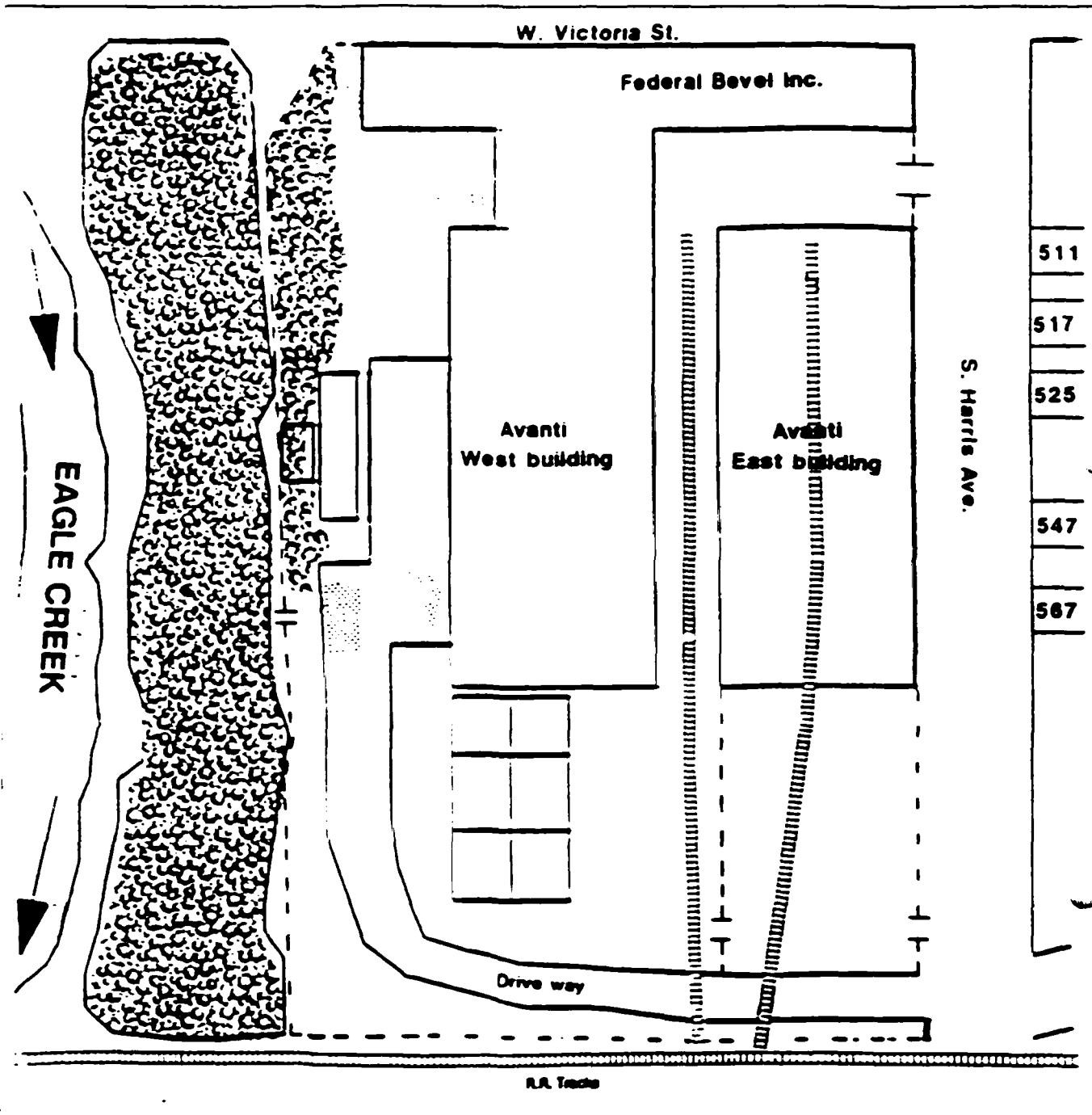
511 Residence number

SS-01 Sample location







North

EPA U.S. EPA Region 5 EMERGENCY AND ENFORCEMENT RESPONSE BRANCH	
TITLE	FIGURE #
AUGUST 1993	3
SITE	SCALE
AVANTI LEAD	NO SCALE
CITY STATE	PAN
INDIANAPOLIS, INDIANA	----
SOURCE	DATE
INDIANA DEPT ENV. MGMT.	1993
	REVISED



LEGEND

 Trees & bushes
 Paper & plastic piles
 511 Residence number
 North

 EPA U.S. EPA Region 5 EMERGENCY AND ENFORCEMENT RESPONSE BRANCH	
TITLE	FIGURE #
SITE FEATURES MAP	4
SITE	SCALE
AVANTI LEAD	NO SCALE
CITY STATE	PAN
INDIANAPOLIS, IN	-----
SOURCE	DATE
INDIANA DPT. ENV. MG'T.	1993
	REVISED

B. Other Actions to Date

1. Previous actions

The Site was previously investigated by the Indiana Department of Environmental Management (IDEM) and Marion County Health Department (MCHD). In April 1993, IDEM and MCHD conducted surface soil sampling for heavy metals at the Avanti Site. Concentrations as high as 180,000 parts per million (ppm) total lead were detected in one of the Industrial Property soil samples.

On May 18, 1993, MCHD conducted blood-lead screening for area homeowners and their children, and for employees of businesses leasing parcels of this property. Preliminary results showed that 39% of children ages 8 years and younger, and 24% of adults aged 9 years and older had elevated blood-lead levels of concern.

On May 18, 1993, IDEM collected surface soil samples for heavy metals on the residential properties within a two block radius of the Industrial Property. Preliminary results showed total lead levels as high as 1,000 ppm.

On May 21 and May 25, 1993, IDEM staff gave verbal notice to the industrial property owners to secure the Industrial Property and implement dust suppression measures within the Industrial Property.

2. Current actions

Verbal request for U.S. EPA's assistance in removing this public health and environmental threat was made by IDEM officials through the Emergency and Enforcement Response Branch (EERB) Chief in July 1993. U.S. EPA responded by conducting an SA of the Avanti Site on August 4 and August 5, 1993, and a supplemental Site Assessment on December 1 and 2, 1993. The purpose of the supplemental SA was to conduct residential property soil and private drinking water supply sampling in an effort to determine extent of contamination off the Industrial Property. IDEM and MCHD representatives were also present during the performance of these SA. A Spectrace 9000 X-ray fluorescence (XRF) device was utilized for purposes of screening the Site soil for heavy metal contamination, and for lead specifically.

C. State and Local Authorities' Roles

1. State and local actions to date

IDEM requested U.S. EPA's assistance in eliminating the threats associated with Avanti Site lead contamination in July 1993. See Section IIB for details of IDEM's involvement with Site activities.

2. Potential for continued State/local response

IDEM's Craig Schroer indicated continuing technical assistance; however, no monetary assistance is expected from IDEM at this time. Also, IDEM's Kevin Herron has indicated that the State will assist in the removal of several reported underground storage tanks (UST) under the State's UST program.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Conditions observed at the Avanti Site that may be considered in determining the appropriateness of a removal action as specified in Section 300.415 paragraph (b)(2) of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP) include:

(i) Actual or potential exposure to nearby human population, animals, or the food chain from hazardous substances or pollutants or contaminants:

A TCLP lead concentration of 1,000 ppm was detected in soil sample Number SS-10 collected along the sidewalk bordering the Industrial Property. Any lead contamination displaying a TCLP lead concentration greater than 5 ppm is considered to be hazardous. Residents are living directly east of the Industrial Property across Harris Street and thus are considered to be primary receptors and directly impacted by the conditions at the Industrial Property. Also, during the conduct of the initial SA, children were observed playing basketball approximately 100 feet south of this sampling location.

A TCLP lead concentration of 850 ppm was detected in the sample Number SS-18 collected on the outside of the western fence. This area, which is along Eagle Creek, is commonly used for recreational purposes. A TCLP lead concentration of 1,500 ppm was detected in the floor sweeping of the East building. During the SA, people were observed working in the front portion of the building.

Acts such as vandalism and forcible entry through the fence pose a potential threat to human population, especially children, by contact with the potentially hazardous lead contaminated soil found at the Industrial Property.

(ii) Actual or potential contamination of sensitive ecosystems:

To date, an ecological survey of potentially impacted flora and fauna has not been conducted by U.S. EPA or IDEM to determine whether Eagle Creek, which is a tributary to the White River, a major waterway which traverses the center of the city of

Indianapolis from north to south, in fact, has a sensitive ecosystem. Further research in this realm by IDEM is forthcoming. Given the migration of lead contaminants through groundwater routes to distances of at least 3/4 miles south from the Industrial Property, and the potential adverse health effects lead has on biological systems, the need for an in depth investigation of this potential threat is emphasized.

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

There are presently unconfirmed reports of possibly scores of buried drums and at least two underground storage tanks of unknown capacities, undetermined condition and unknown contents located within the industrial portion of the Site. Several open drums with lower explosive limit (LEL) detection readings were observed and documented during the SA, as well as at least 15 additional 55-gallon capacity drums of unknown but potentially hazardous contents which are located in the East building.

(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate:

All samples collected during the Avanti Site supplemental SA were from a depth of 0-6 inches. As previously mentioned, soils, from both industrial and residential property are documented to be contaminated with high concentrations of lead. Lead contaminated soil along the sidewalk of the Industrial Property can potentially be carried off the Industrial Property as a result of children playing in this area who come in contact with and inadvertently carry contamination away with them. This migration path poses a very high potential for the contaminated soil being taken into the nearby residences. Contaminated soil along the outside of the western fence is approximately 200 feet from Eagle Creek. A potential migration path here may be due to people who frequent Eagle Creek. Wind blown dust is another route by which lead contamination may migrate.

(v) Weather conditions that may cause hazardous substances, or pollutants or contaminants to migrate or to be released:

As previously mentioned, the soil along the outside of the western fence is contaminated with lead. The Site topography slopes towards the Little Eagle Creek. A strong migration potential exists for precipitation run-off water from this contaminated area to carry the contaminants into Eagle Creek, thereby posing a threat of release to the environment or area residences. Wind dispersion of soil and dust at the facility may also pose a threat to area residents and the environment.

(vi) Threat of fire or explosion:

Drums of unknown content and others displaying a reading of 5% in the LEL register on instrumentation used during the conduct of the SAs is indicative of a serious potential fire or explosion threat. Explosive gases from these containers could propagate a flame from these substances at ambient air temperatures of 77° F or less. In addition, based on the apparent poor housekeeping of the Industrial Property and reports of USTs and other buried drums within the industrial portion of the Site, the threat of a fire or explosion is severe. A fire would carry the lead and various other contaminants as particulates to adjacent residential locations adding to the threats to the health and welfare of this community.

(vii) Other factors and situations that may pose threats to the environment:

These include the already high documented number of persons poisoned by lead as defined by the exceedence of 10 ug/dl (micrograms of lead per deciliter of blood) blood lead levels, the documented threat of lead contamination to drinking water supplies, and the recommendations for abatement of the lead threat and removal of the lead exposure hazard made by the Marion County Health Department (MCHD), the Indiana Department of Public Health (IDPH), the Indiana Department of Environmental Management (IDEM) as well as the Centers for Disease Control's Agency for Toxic Substance Disease Registry (ATSDR).

IV. ENDANGERMENT DETERMINATION

Given the conditions found and documented at the Avanti Site, the nature of the hazardous substances on the industrial portion of this Site, and the potential exposure pathways to populations described in Sections II and III above, actual or threatened releases of the pollutants and contaminants from this Site, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare and the environment.

The International Agency on Research for Cancer (IARC) has classified lead as a suspected carcinogen. Children are highly susceptible to lead poisoning through direct contact and ingestion. Experimental evidence now suggests that blood levels of lead below 10 micro grams/deciliter ($\mu\text{g}/\text{dl}$) can have the effect of diminishing the IQ scores of children. Severe lead intoxication can cause sterility, abortion and neonatal mortality and morbidity.

As documented in the Site specific ATSDR and ISDH health consultation and recommendations (Attachment IV), lead can produce a range of adverse human health effects, particularly in children and the developing fetus. The effects include nervous and reproductive system disorders, delays in neurological and physical development, cognitive and behavioral changes, and hypertension. Their specific recommendations have been reviewed and incorporated into the proposed removal actions.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The response actions described in this memorandum directly address actual or threatened releases of hazardous substances, pollutants or contaminants at the facility which may pose an imminent and substantial endangerment to public health and safety, and to the environment. These response actions do not impose a burden on affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

The following actions are proposed to alleviate the potential and actual threats to human health and the environment posed by the presence of potentially hazardous materials in drums, of USTs containing product of unknown characteristics and quantity, and of lead contaminated soil.

- a) Prepare a work plan, which is to include a site safety and health plan addressing continuous monitoring of airborne contaminants and dust control measures.
- b) Secure the industrial portion of the Site by establishing 24-hour security during removal activity and repairing or replacing damaged fencing.
- c) Sample, remove and dispose of drums from the East Building and contents of the drums at an approved, permitted TSD facility.
- d) Decontaminate metal and other debris, and dispose or recycle as appropriate.
- e) Consolidate, remove and/or decontaminate all solid wastes within the industrial portion of the Site that have been contaminated by the lead-laden soils.
- f) Conduct an extent of contamination (EOC) survey which includes a determination whether lead batteries have been illegally disposed within the industrial portion of the

Site. The EOC will also address the residential portion of the Site to determine well systems where lead contamination exceeds the RALs.

- g) Excavate and stabilize through fixation approximately 10,000 yd³ of lead contaminated soil including: lead contaminated soils within the Industrial Property which exceed 1,000 ppm total lead; soils along the adjacent sidewalks; and soils from the yards of the nearby residences where lead levels exceed 500 ppm total lead.

In reliance on an ATSDR public health consultation regarding the lead contamination at the Avanti Site, an action level of 500 ppm for residences and 1000 ppm for industrial property exposures are anticipated to be clean-up levels for total lead to be achieved as the action level in this removal action.

The Uptake Biokinetic Model (UBK) will be used to further develop Site-specific clean-up levels. The UBK model may be used as a basis upon which to adjust clean-up levels, subject to EPA guidance.

- h) Dispose stabilized soils off-site in compliance with RCRA.
- i) Backfill the residential properties' excavated areas with clean top soil, revegetate, and restore.
- j) Provide municipal water hookups to residential units where lead contamination in private water supply systems have been shown to be above U.S. EPA's lead removal action levels (RALs) for residential water supplies (30 parts per billion) and also provide hookups for those residences where the area hydrogeology would indicate that their water supply system would likely be impacted above RALs in the near future.
- k) Sample nearby residents' homes and advise occupants on lead abatement procedures as necessary.
- l) Conduct field investigative procedures for determination of buried drums and USTs and other containers on the Industrial Property. Where such containers are found, sample their contents and the surrounding soils, and, where appropriate, excavate the soils and containers, and dispose.

Any wastes transported off-site will be properly treated and disposed by the disposal facility in accordance with U.S. EPA's off-site policy. Excavation and stabilization of lead contaminated residential soil will mitigate the public health threat posed by direct human contact and by inhalation of airborne lead particulates in the soil.

2. Contribution to remedial performance

The proposed removal action seeks to eliminate this site as a source of any long-term remedial action.

3. Description of alternative technologies

Fixation on the Industrial Property of the lead contaminants and the temporary storage of such material on the Industrial Property is the favored and the proposed option for stabilization of the environmental hazards associated with the Avanti Site, in lieu of immediate off-site disposal.

4. Engineering evaluation and cost analysis (EE/CA)

This removal action is classified as time-critical. Therefore, an Engineering Evaluation/Cost Analysis (EE/CA) is not applicable.

5. Applicable or relevant and appropriate requirements (ARARs)

A letter has been sent to IDEM requesting that it identify State applicable or relevant and appropriate requirements (ARARs). Any State ARARs identified in a timely manner for this removal action will be complied with to the extent practicable.

Compliance, to the extent practicable, with all ARARs of Federal and State environmental statutes and law will be assured during this removal action.

Residential hookups to the local municipal water supply will be provided to residences that exceed 15 ppb lead (0.0015 mg/l), in compliance with U.S. EPA's Final Guidance on Numeric Action Levels for Contaminated Drinking Water Supplies, OSWER Directive 9360.1-02. Groundwater clean-up and groundwater aquifer ARARs are beyond the scope of this removal action and may be addressed at a later date.

Soils which are stabilized are expected to meet the Federal RCRA 5 ppm TCLP lead levels. This would result in the waste being classified as non-characteristic and allow for on-site storage prior to ultimate off-site disposal. Any stabilized soils that exceed the RCRA TCLP lead level will be transported off-site to a RCRA compliant facility, or stored in a manner that complies with RCRA.

6. Project schedule

It is estimated that the removal phase of on-site stabilization will be completed in thirty (30) 12-hour work days. This estimate does not include disposal schedules. The entire removal action is expected to be completed within a year. Detailed schedules will be developed prior to initiation of the removal action.

7. Post-removal site control

The On-Scene Coordinator has begun planning for provision of post-removal site control, consistent with the requirements of Section 300.415(k) of the NCP. Post-removal site controls or actions such as installing monitoring wells along Eagle Creek and regularly monitoring them may be deemed necessary at this location after the removal of the lead contaminated soil.

B. Estimated Costs

The detailed Emergency Response Cleanup Services (ERCS) contractor costs are presented in Attachment II, with the estimated project costs presented below:

REMOVAL PROJECT CEILING ESTIMATE

EXTRAMURAL COSTS

Cleanup contractor Costs	\$ 780,147.00
Contingency (20%)	156,030.00
Subtotal:	<u>\$ 936,177.00</u>
Total TAT, including multiplier costs	\$ 53,054.00
Extramural subtotal:	\$ 989,231.00
Extramural contingency (15%)	<u>\$ 148,385.00*</u>
TOTAL EXTRAMURAL COSTS:	\$ 1,137,616.00

INTRAMURAL COSTS

U.S. EPA Direct Costs	\$ 13,860.00
[\$30 X (420 Regional Hrs. + 42 HQ hrs)]	
U.S. EPA Indirect Costs [\$53 x 420 Reg hrs]	22,260.00
TOTAL, INTRAMURAL COSTS:	<u>36,120.00</u>
TOTAL REMOVAL PROJECT CEILING	\$ 1,173,736.00

* This extramural contingency may be allocated as needed between the cleanup contractor (ERCS) and the TAT.

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

Due to the presence of the lead contaminated soil on both residential and industrial property at the Avanti Site, any delayed action will pose the continuing threat of exposure to the nearby residents and a release to the environment.

VII. OUTSTANDING POLICY ISSUES

Outstanding policy issues of concern involve whether residential property owners will give this agency voluntary access to their homes for purposes of determining extent and magnitude of lead contamination and removing the contamination.

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for the Avanti Site is contained in an Enforcement Confidential addendum (Attachment I).

IX. RECOMMENDATION

This decision document represents the selected removal action for the Avanti Site located in Indianapolis, Indiana, developed in accordance with CERCLA as amended by the Superfund Amendments and Reauthorization Act (SARA), and is not inconsistent with the NCP. The response actions described in this memorandum directly address actual or threatened releases of hazardous substances, pollutants or contaminants at the Site which may pose an imminent and substantial endangerment to public health and to the environment. This decision is based on the administrative record for the site (See Attachment III). Conditions at the Avanti Site meet the NCP, 40 CFR, Section 300.415 (b) (2) criteria for a removal and I recommend your approval of the proposed removal action. The total estimated project ceiling, when approved, will be \$ 1,173,736. Of this amount, an estimated \$ 1,084,562 may be used for cleanup contractor costs. Please indicate your decision by signing below.

APPROVE: Wm. E. Myers DATE: 1/20/94
Director, Waste Management Division

DISAPPROVE: _____ DATE: _____
Director, Waste Management Division

- Attachments: I. Enforcement Confidential Addendum
II. Detailed Contractor Cost Estimate
III. Administrative Record
IV. ATSDR and ISDH Health Consultation

cc: T. Johnson, OS-210
Sheila Huff, U.S. Department of the Interior, Chicago
Indiana State Superfund Coordinator

ATTACHMENT I
ENFORCEMENT ADDENDUM
AVANTI SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

DECEMBER 1993

ENFORCEMENT SENSITIVE
- CONFIDENTIAL -

ATTACHMENT II

CLEAN-UP CONTRACTOR COSTS

CONTRACTOR PERSONNEL	\$ 142,528.00
CONTRACTOR EQUIPMENT	\$ 75,805.00
UNIT RATE MATERIAL	\$ 11,270.00
SUBCONTRACTORS	\$ 472,032.00
WASTE DISPOSAL AND TRANSPORTATION	\$ 78,512.00
CLEAN-UP CONTRACTOR TOTAL	\$ 780,147.00

ATTACHMENT III
ADMINISTRATIVE RECORD INDEX

ATTACHMENT III

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

ADMINISTRATIVE RECORD
FOR
AVANTI
INDIANAPOLIS, INDIANA

January 6, 1994

<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
11/15/93	Steele, G., ISDH	Fabinski, L., U.S. EPA	Public Health Consultation	8
00/00/00	Ecology & Environment	U.S. EPA	Site Assessment (Pending)	
00/00/00	Steadman, P., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum (Pending)	

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

GUIDANCE ADDENDUM TO THE
ADMINISTRATIVE RECORD
FOR
AVANTI
INDIANAPOLIS, INDIANA

January 6, 1994

<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
08/00/77	Damstra, T.		Journal Article: "Toxicological Properties of Lead" (Environmental Health Perspectives)	11
03/00/80	Needleman, H.		Journal Article: "Lead Exposure and Human Health: Recent Data on an Ancient Problem" (Technology Review)	4
00/00/81	Needleman, H., Landrigan, P.		Journal Article: "The Health Effects of Low Level Exposure to Lead" (Annual Review of Public Health)	20
06/08/84	Needleman, H., et al.		Journal Article: "The Relationship Between Prenatal Exposure to Lead and Congenital Anomalies" (JAMA)	4
00/00/87	Hoffer, B., et al.		Journal Article: "Toxic Effects of Lead in the Developing Nervous System: In Oculo Experimental Models" (Environmental Health Perspectives)	7
00/00/87	Needleman, H.		Journal Article: "Introduction: Biomarkers in Neurodevelopmental Toxicology" (Environmental Health Perspectives)	4

04/23/87	Bellinger, D., et al.		Journal Article: "Longitudinal Analyses of Prenatal and Post- natal Lead Exposure..." (New England Journal of Medicine)	7
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05/07/90	Lowrance, S., U.S. EPA	Ullrich, D., U.S. EPA	Interpretation of OSWER Directive #9355.4-02	2
07/06/90	Wassersug, S., U.S. EPA	Clay, D., U.S. EPA	Memo re: Need for a Public Policy on Lead (Pb)	5
02/21/91	Reilly, W., U.S. EPA	U.S. Senate	Testimony of Wm. Reilly, U.S. EPA Before the Subcommittee on Toxic Substances, Environmental Oversight, Research and Development (U.S. Senate) re: Lead Exposure	25
02/26/91	Carra, J., U.S. EPA	U.S. EPA	U.S. EPA Strategy for Reducing Lead Exposures	44
08/29/91	Clay, D., U.S. EPA	U.S. EPA	Update to OSWER Directive #9355.4-02, "Interim Guidance on Establishing Soil Lead Cleanup Levels..."	4
10/00/91	USDHHS; Centers for Disease Control		"Preventing Lead Poisoning in Young Children" (Statement by the CDC)	111
04/00/93	ATSDR	U.S. EPA	"Toxicological Profile for Lead," Update	326

07/00/93	U.S. EPA	U.S. EPA	"Urban Soil Lead 255 Abatement Demonstration Project, Volume I: Integrated Report" "Review Draft"
07/00/93	U.S. EPA	U.S. EPA	"Urban Soil Lead 671 Abatement Demonstration Project, Volume II: Boston Report"
07/00/93	U.S. EPA	U.S. EPA	"Urban Soil Lead 497 Abatement Demonstration Project, Volume III: Baltimore Report"
07/00/93	U.S. EPA	U.S. EPA	"Urban Soil Lead 342 Abatement Demonstration Project, Volume IV: Cincinnati Report"

ATTACHMENT IV
ATSDR HEALTH CONSULTATION

Date: November 15, 1993

From: Dr. Gregory Steele
Environmental Epidemiologist
Indiana Department of Health

To: Louise Fabinald
ATSDR Regional Representative
EPA Region 5

Subject: Avanti Site

BACKGROUND

In October 1993, an on-scene coordinator for the U. S. Environmental Protection Agency (EPA) requested a public health consultation for the Avanti site. EPA asked for comments on the degree of human health threat that this site poses. The Region V Office of the Agency for Toxic Substances and Disease Registry (ATSDR) forwarded the request to the Indiana State Department of Health (ISDH). Along with the request, EPA submitted the Site Assessment Report for the Avanti site prepared by Ecology and Environment Inc., for EPA (Reference 1).

The Avanti site is located in Indianapolis, Marion County, Indiana. The site, approximately 7 acres in size, is an abandoned foundry. The site is located at 502-560 South Harris Street, and is bounded by Harris Avenue to the east, Victoria Street to the north, Eagle Creek to the west, and the Conrail railroad tracks to the south. The site is located in a residential area. High blood lead levels have been documented in individuals living near the site (References 3 and 4).

The site consists of two main buildings, an east building and a west building separated by an alley (see site map). Access to the site is controlled by two gates. A railroad spur connects to the southern railroad tracks and the east building. A second railroad spur lies in the alley between the two buildings. The area between the western and the southern fences of the buildings is open land. The most southern area is paved. The site is fully fenced except in a couple of locations where it appears to have been broken into. There are no warning signs posted on the fence. Drinking water for the area is provided by the Indianapolis Water Company. There are private groundwater wells however, located approximately ¼ mile to the south of the site (References 1, 2, and 5).

Weston Lead Corporation operated at the site in the 1960s. Later the Oxide and Chemical Corporation operated from 1974 to 1977. Former tenants operated a foundry, lead smelter, a battery recycling facility, a general recycling facility, an automotive part warehouse, and a heavy equipment warehouse. Recent occupants include Bioguide (a recycler of municipal solid waste), Allwaste, Freedom Pallet, and Allied Equipment (References 2 and 3).

In late 1992 the Marion County Health Department (MCHD) was investigating groundwater samples in private wells located in proximity to a superfund hazardous waste site south of the Avanti site. The results of these groundwater samples revealed the presence of lead in five wells, ranging from 90 to 150 parts per billion (ppb) (Reference 5). (The lead in these wells is not believed to be related to the superfund site. Lead has never been a contaminant of concern at this superfund site.) A decision was made to expand the sampling into the area north of the superfund site, approximately $\frac{1}{4}$ mile south of the Avanti site.

During an investigation of the area surrounding the Avanti site in February of 1993, discarded battery casings were noticed on the Avanti property along Eagle Creek (References 1, 2, and 3). In April of 1993, a surface soil sample was taken at the Avanti site by the Indiana Department of Environmental Management (IDEM) to be tested for heavy metals. This sample detected lead at 180,000 parts per million (ppm) in addition to concentrations of arsenic, mercury, and cadmium. At the same time, another division of the MCHD was following several children from one family with elevated leads (ranging from 16 to 48 $\mu\text{g}/\text{dl}$) who lived on Harris Street across from the site. Although there was lead based paint present in the home, it was in good condition and no specific route of exposure for these children could be ascertained. A soil lead level was taken from the front yard of this residence. The sample result revealed the presence of high concentrations of lead at 1,000 ppm (Reference 3).

Due to the concern of current workers at the site potentially being exposed, in May of 1993, air samples were taken from inside the building at 502 South Harris. All samples were below the EPA National Ambient Air Quality Standard lead action level of 1.5 $\mu\text{g}/\text{cubic meter}$. In mid May, blood lead screening was performed by the MCHD. One hundred and ten residents were screened. Twenty-five adults and children had elevated blood lead levels. Staff from the MCHD also performed blood lead tests (27 venous blood and one capillary samples) on individuals who were working on-site at that time, a total of 28 employees. Two employees were above the OSHA lead action level of 40 $\mu\text{g}/\text{dl}$. The capillary sampling was performed on an employee on whom blood could not be drawn. His test result detected lead at 144 $\mu\text{g}/\text{dl}$. This worker was advised to see his physician for a venous blood sample (Reference 4).

Additional lead screening tests were performed at a neighborhood church. Two hundred and twenty-three people were screened (55 children and 168 adults). Twenty-eight of the children had fingerstick blood lead levels greater than 10 $\mu\text{g}/\text{dl}$. None of the adults had blood lead levels greater than 10 $\mu\text{g}/\text{dl}$ during this screening.

Blood lead screening activities have identified a total of 45 community residents, both adults and children, with venous blood leads greater than 10 $\mu\text{g}/\text{dl}$ (ranging from 11 to 60 $\mu\text{g}/\text{dl}$, mean 18.6 $\mu\text{g}/\text{dl}$).

In May 1993, IDEM, MCHD, and ISDH staff met to discuss the preliminary results from the surface soil samples and blood lead screening and to coordinate future efforts. The Indiana State Occupational Safety and Health Administration was notified and briefed on the site soil contamination and the current blood lead levels for site employees. In May, IDEM staff verbally notified the Avant site property owners to secure the site and implement dust suppression measures at the site.

NAMES?

In June, the Indianapolis Air Pollution Control Section took an ambient air sample for possible lead contamination. Sample analysis detected particulate lead at 0.967 $\mu\text{g}/\text{cubic meter}$. Five soil samples were taken from the yards of three other homes along Harris Street by MCHD. The results of these samples documented soil lead concentrations ranging from 1,470 to 6,640 ppm. Six dust samples taken from inside of the three homes documented lead contamination ranging from 5.2 to 171 ppm. A dust sample from a sidewalk across from the Avant site and another sample taken from the hood of a car revealed lead contamination of 683 ppm and 13 ppm respectively (Reference 6).

In July of 1993, Ecology and Environment (E&E) Technical Assistance Team (TAT) was tasked by the Emergency and Enforcement Response Branch of EPA to perform a site assessment of the Avant site (Reference 1).

In August of 1993, TAT and the EPA On-scene Coordinator (OSC) were briefed by IDEM regarding previous sampling efforts and other site related activities. TAT calibrated HNu equipment for organic vapor detection, oxygen/explosimeter for monitoring of oxygen and explosive atmosphere, and a Spectrace 9000 x-ray fluorescence for locating hot spots of heavy metal contamination.

The site had been recently used as a staging area for the recycling of solid waste. Two huge piles of paper bales were stacked on site. A pile of plastic materials was also observed near the northwestern entrance of the west building. The area west of the paper stack and the pile of plastic was full of shrubs and other plant life. A battery casing pile was also observed in the shrubs directly west of the west building.

The Spectrace 9000 XRF instrument was used at several locations. One of these locations situated approximately 200 feet south of the east building, detected a total lead concentration of 1,725 ppm. At the same location where IDEM had previously detected 18 percent soil lead, the XRF detected 18,667 ppm. Readings were taken along the sidewalks on both sides of Harris Street, in proximity to the site. The readings taken next to the site detected lead as high as 44,679 ppm.

Building inspections were then performed by TAT, the OSC, and IDRM. The west building was observed to be empty. Areas of soil between the east and west buildings along the railroad spur appeared to be stained. Inside the east building, several pieces of machinery, drums, and piles of waste material were observed. The front portion of the building is occupied by a tenant. The building floor is concrete and is approximately 5 feet above the railroad spur that runs through the middle of the building. The floor appeared to be gray with some kind of powdery material. The XRF reading of this material documented lead at 37,796 ppm. Eight 55-gallon drums were observed inside this building. The drums were labelled "Standout paints by Bradley". One of the open drums registered up to 5 percent of the lower exposure limit (LEL) on the oxygen/explosimeter equipment. One transformer was observed with a "Westinghouse" label on it. The label indicated that the transformer contained polychlorinated biphenyl (PCB) oil, and its capacity was 251 gallons. Seven 5-gallon pails with labels "Residual insect spray", "Cleaners", "Strippers" were also observed. The northeast corner of this building contained 13 over-packed metal drums, some of them labelled with "Grit, perma steel".

In August, soil samples for lead and other heavy metals were taken from 16 locations and sediment samples were taken from 2 locations along Eagle Creek (see Tables 1-3)(Reference 1). Soil sample locations were selected based on the XRF readings. Soil samples were taken from a depth of 0-4 inches. Surface soil sample numbers 9-14 were taken off-site along Harris Street. Soil and sediment samples were analyzed for total lead and the toxicity characteristic leachate procedure (TCLP). The TCLP gives an indication as to the mobility or leachability of the contaminant in the environment.

A variety of other inorganic chemicals were sampled for and identified in the soil. All sample results for arsenic, cadmium, chromium and mercury were below health based evaluation criteria.

The MCHD is continuing to evaluate blood lead levels in area residents, and is performing routine retesting of all children under the age of six. Both the MCHD and the ISDH are performing an exposure assessment study of area residents. The MCHD is currently investigating anecdotal reports of one child who recently moved from Harris Street, who is now hospitalized and undergoing chelation therapy for lead poisoning. Residents have been sent a letter informing them of the results of the EPA site assessment. The letter also provides them with measures they can perform themselves to prevent or minimize their exposure to lead. The ISDH, MCHD, and IDEM have held several meetings with the local citizens. The next meeting with the residents has been scheduled for mid-November.

DISCUSSION

The EPA has found high levels of lead in the on-site surface soils and in off-site surface soils located in proximity to the site. Sampling has shown there is a high potential for the lead to leach from the soil. IDEM and MCHD have documented off-site soils to be contaminated with high levels of lead. At least two on-site workers have been found to have elevated blood lead

levels. These workers and other workers may have carried home lead wastes on their clothing or shoes. If work clothes were washed or stored with other family clothing, the wastes may have been transferred to other members of the family.

Both children and adults in this neighborhood have been exposed to lead. Exposure to lead at the levels documented in surface soil and dust samples could result in body burdens and subsequently in severe adverse health effects. Based on current results from other investigators, ATSDR now considers blood lead levels above 10 $\mu\text{g}/\text{dl}$ in young children to be a cause for public health concern. Exposure to high levels of lead is particularly dangerous for unborn children because of their great sensitivity during development. Exposure of unborn children to lead may cause premature births, smaller babies, and decreased mental ability. Exposure to lead is also dangerous for young children, because they swallow more lead through normal mouthing activity, take more of the lead that they swallow into their bodies, and are more sensitive to its effects. Lead exposure can decrease the intelligence quotient (IQ) scores and reduce the growth of young children (Reference 7).

In adults, lead exposure may decrease reaction time and possibly memory. Lead exposure may also cause weakness in the fingers, wrists, or ankles. Exposure to lead has also been shown to increase blood pressure in middle-aged men. It is not known whether lead has an effect on blood pressure in women. Lead exposure may also cause anemia. At high levels of exposure, lead can severely damage the brain and kidneys in adults or children. In addition, high levels of exposure to lead may cause abortion and damage the male reproductive system. The effects of lead are the same regardless of whether it enters the body through breathing or swallowing (Reference 7).

CONCLUSIONS

Based on the information reviewed, ATSDR and ISDH conclude the following:

- The lead contaminated surface soils and dusts are a urgent public health hazard at this site. The site was formerly accessible and may currently be accessible to residents, especially children who live nearby. Exposure to the levels of lead found in the soils could result in adverse health effects.
- Individuals who reside in the neighborhood surrounding the Avanti site may have been exposed off-site, to high levels of lead.
- Individuals who formerly and/or currently work at this site, and their families may have past and/or present exposures to high levels of lead.

- The residences that border the Avanti site are on municipal water. There are residences in proximity to the site who utilize groundwater for all their potable water needs. The TCLP sample results documented the potential of the lead contamination at this site to migrate off-site. Groundwater samples taken to the south of the site have been contaminated with lead. Site contaminants may be currently affecting the groundwater.
- There are no data to assess the impact of site related chemicals on Eagle Creek. Lead contaminated soils may be migrating off-site via surface water runoff from this site.
- Drummed or palled chemicals may be a hazard to site trespassers or to individuals currently working on-site.
- Current workers, future site workers, or trespassers could be exposed to PCBs from the transformer stored on-site if it were to leak, or if acts of vandalism were to occur.

RECOMMENDATIONS

Based on the information reviewed, ATSDR and ISDH recommend the following:

- Immediate measures should be taken to ensure that access to the site is restricted.
- Warning signs should be placed around the perimeter of the site.
- Immediate measures should be undertaken to prevent contact with the off-site lead contaminated soils.
- Residential surface soil samples should be taken immediately to identify the extent and magnitude of off-site migration of lead contaminated soils and dusts.
- Until the site is remediated, site managers should immediately evaluate the extent of lead contaminated dusts in residences in proximity to the site.
- Until the site is remediated, site managers should immediately monitor the groundwater on or near the property.
- Until the site is remediated, site managers should sample the quality of the water and sediment in Eagle Creek.
- People who have regularly worked or played on the Avanti property should have their blood levels checked and should follow their physician's advice if the levels are high.
- All community members potentially exposed should have their blood levels checked and should follow their physician's advice if the levels are high.

HEALTH ACTIVITIES RECOMMENDATION PANEL (HARP) RECOMMENDATIONS

In accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, the data and information developed in the Avanti site health consultation have been evaluated by the Health Activities Recommendations Panel for appropriate health follow-up actions. There is evidence that site workers and nearby residents have been and probably are still being exposed to lead-contaminated soil, dust, and possibly other media at levels of health concern. The HARP determined residents living nearby need to be informed of the present level of contamination, possible adverse health effects associated with exposure to lead, and ways they can reduce their exposures. ISDH and local health officials have and will continue to provide this community education. Blood lead testing should continue to be conducted on workers and potentially exposed residents, particularly children and pregnant women. Individuals with elevated blood leads should follow the advice of their physicians. There are allegations that adverse health effects are occurring that may be related to lead exposure. ATSDR and ISDH will continue to evaluate blood lead results and other environmental information and will take additional follow-up actions when appropriate.

DOCUMENTS REVIEWED

1. Ecology and Environment, Inc. TAT, Site Assessment Report for Avanti, Indianapolis, Marion County, Indiana, October 1993.
2. IDEM Fact Sheet, Avanti Development Corporation, July 1993.
3. Marion County Health Department, Fact Sheet, Avanti Site, July 20, 1993
4. Personal Communication with Stephanie Nelson, Director of the Lead Program, Marion County Health Department.
5. IDEM Memorandum, Laboratory Results for Sadie, Tip, and Ray Streets, December 23, 1991; November 18, 1992; January 9, 1992; November 1993.
6. Marion County Health Department, Department of Housing and Neighborhood Health, Dust and surface soil sample results, July 18, 1993.
7. ATSDR, Toxicological Profile For Lead, April 1993.

CERTIFICATION

The Avanti health consultation was prepared by the Indiana State Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was begun.


Technical Project Officer, SPS, RPB, DHAC

The Division of Health Assessment and Consultation, ATSDR, has reviewed this health consultation, and concurs with its findings.


Chief, RPB, DHAC, ATSDR

Table 1.
Surface Soil Sample Results For Total Metals
Avanti Site, August 1993

Sample #	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury
SS-01	22	76	8.1	22	9,500	3.7
SS-02	470	350	110	36	160,000	60
SS-03	18	130	4.9	13	11,000	1.3
SS-04	7.6	ND	1.8	4.2	2,700	0.5
SS-05	25	56	4.2	10	6,400	1.2
SS-06	160	64	16	57	35,000	0.8
SS-07	9.7	130	8.3	56	230,000	0.8
SS-08	7.4	26	2.3	7.9	21,000	0.6
SS-09	6.6	48	1.1	6.9	790	0.5
SS-10	30	54	5.1	18	59,000	4.3
SS-11	9.9	55	3.6	10	4,400	0.5
SS-12	4.9	ND	0.9	4.6	3,200	0.2
SS-13	11	140	5.3	13	3,000	0.8
SS-14	7.6	52	3.2	10	2,600	1.1
SS-15	ND	ND	ND	2.9	31	ND
SS-18	91	100	5.9	11	150,000	0.6

ND = Not Detected

All sample results in mg/kg or ppm

Data from Reference 1

Table 2.
Toxicity Characteristic Leachate Procedure (TCLP)
Testing for Surface Soil Cadmium and Lead Samples
Avanti Site, August 1993

Sample #	Cadmium	Lead
01	0.11	43
02	1.1	950
03	ND	64
04	ND	18
05	ND	52
06	0.3	130
07	0.14	1,500
08	ND	500
09	ND	3.0
10	ND	1,000
11	ND	7.2
12	ND	21
13	ND	1.9
14	ND	6.1
15	ND	0.7
18	ND	850

ND = Not Detected
All sample results in mg/kg or ppm
Data from Reference 1

Table 3.
Sediment Sample Results For Total Metals
Avanti Site, August 1993

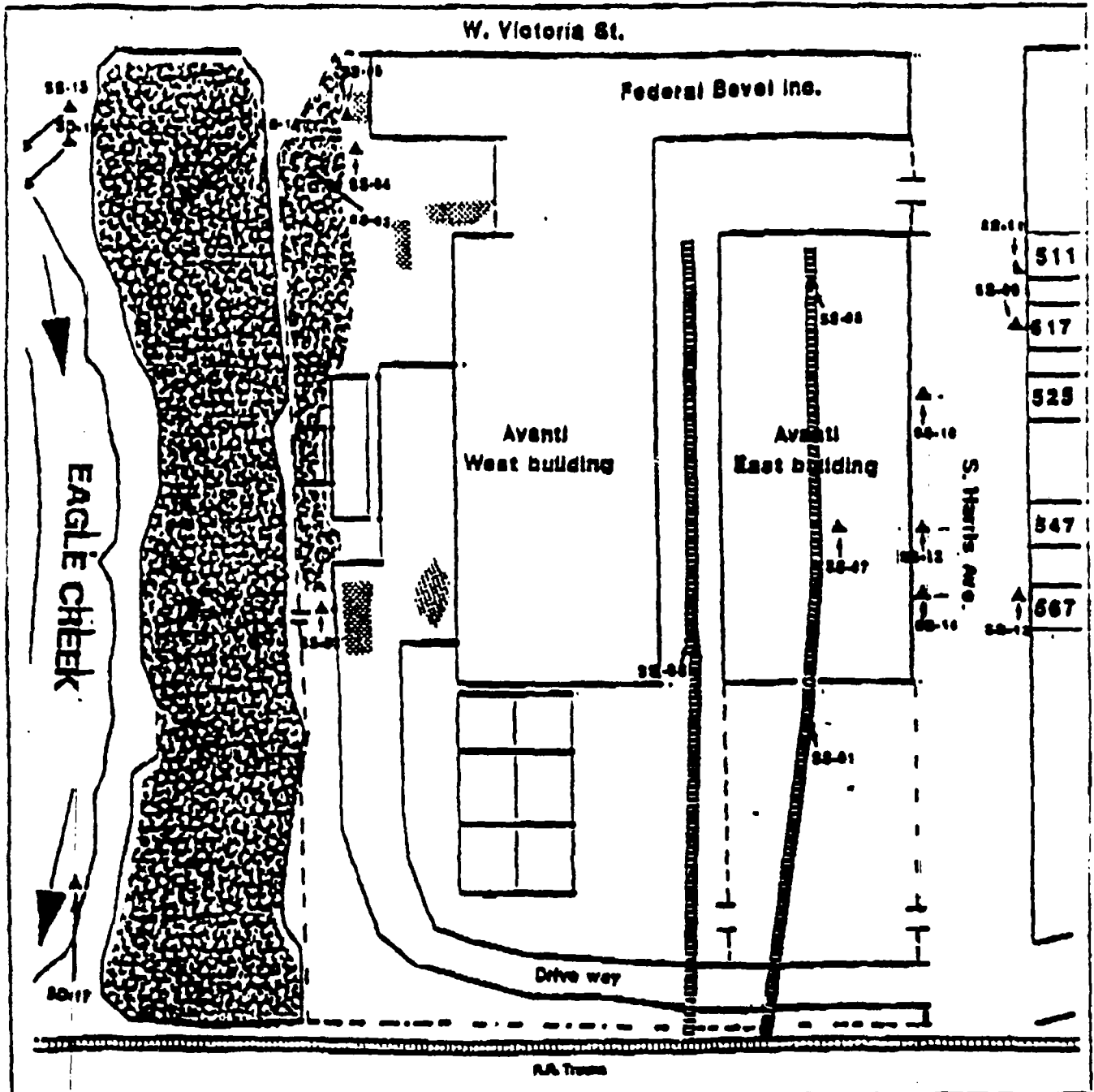
Sample #	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury
SS-16	NA	NA	NA	NA	9.4	ND
SS-17	NA	NA	NA	NA	9.6	ND

ND = Not Detected

NA = Not Analyzed

All sample results in mg/kg or ppm

Data from Reference 1



LEGEND

Trees & bushes

Paper & plastic piles

511 Residence number

SS-01 Sample location

North

EPA U.S. EPA Region 5 EMERGENCY AND ENFORCEMENT RESPONSE BRANCH		
GENERAL SITE MAP		
TITLE	AVANTI LEAD	FIGURE # 1
SITE	INDIANAPOLIS - INDIANA	SCALE NONE
CITY	IDEM	PAN N/A
SOURCE		DATE OCT. 1993
		REVISED