UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

EPA Region 5 Records Ctr.
229866

REPLY TO THE ATTENTION OF SR-6J

ACTION MEMORANDUM

DATE:

SUBJECT: **Request for a Ceiling Increase for the Non-Time-Critical Removal Action at the Vulcan Louisville Smelting Company (aka Vacant Lot) Site, North Chicago, Lake County, Illinois**

FROM: John J. O'Grady
Remedial Project Manager

TO: William E. Muno, Director
Superfund Division

THRU: Richard C. Karl, Chief R. Karl
Emergency Response Branch

I. PURPOSE

The purpose of this action memorandum is to request and document your approval of a ceiling increase for the non-time critical (NTC) removal action at the Vulcan Louisville Smelting Company (aka the Vacant Lot) Site in North Chicago, Lake County, Illinois; CERCLIS ID# ILD-097-271-563, Site Spill ID # A527 (the Site).

An additional $1,000,000 (for a total ceiling of $3,400,000) is being requested to complete the removal action. The increase will guarantee that sufficient funds, both intramural and extramural, are available to complete the project. The response action continues to meet the criteria for the emergency exemption. The original scope of work called for the excavation, transportation and disposal of approximately 15,400 cubic yards of lead-contaminated soils, 8,800 cubic yards of lead-contaminated soils requiring stabilization (D008 waste), 185 cubic yards of PCB-contaminated soils, 640 cubic yards of creek sediments, and 275 cubic yards of hazardous creek sediments.

Throughout the on-going NTC removal action, additional volumes of soil posing an imminent and substantial threat have been uncovered. There has been an increase in: (1) lead-contaminated soils requiring stabilization (D008 waste) from 10,250 cubic yards to 24,245 cubic yards; (2) PCB-contaminated soils from 185 cubic yards to approximately 1,000 cubic yards; and (3) non-

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hazardous Pettibone Creek sediments from 640 cubic yards to 1,000 cubic yards, and hazardous Pettibone Creek sediments from 275 cubic yards to 1,500 cubic yards.

II. SITE CONDITIONS AND BACKGROUND

Site conditions and background for this Site have been reported in the original Action Memorandum dated May 6, 1998 (see Attachment One), and the October 30, 1997, EE/CA Report.

REMOVAL ACTIONS TO DATE

To date the U.S. Army Corps of Engineers (USACE), Rapid Response Program, the U.S. EPA contractor for this NTC removal action, has: (1) erected fencing around the entire site; (2) mobilized to the Site; (3) cleared and grubbed the entire site; (4) completed excavation and transportation of all on-site contaminated soils west of Pettibone Creek; (5) conducted on-site stabilization of soils failing the toxicity characteristic leaching procedure (TCLP) test; (6) started transporting soils excavated on the east side of Pettibone Creek, including the creek sediments; and (7) backfilled some of the excavated areas. The following is a summation of work completed to date:

- Excavated approximately 7,414 cubic yards of non-hazardous lead soils.
- Excavated approximately 7,985 cubic yards of hazardous (TCLP) lead soils.
- Excavated approximately 85 cubic yards of perchloroethene (PERC)-contaminated soils.
- Excavated approximately 600 cubic yards of polychlorinated biphenyl (PCB)-contaminated soils.
- Stabilized approximately 9,516 tons of TCLP soils on-site.
- Transported approximately 14,960 tons of contaminated soils to off-site disposal facilities.
- Backfilled excavated areas with approximately 7,785 cubic yards of clean fill material.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

Threats to Public Health or Welfare or the Environment have been reported in the original Action Memorandum dated May 6, 1998 (see Attachment 1), and the October 30, 1997, EE/CA Report.

IV. ENDANGERMENT DETERMINATION

Given the Site conditions, the nature of the hazardous substances on Site, and the potential exposure pathways to nearby populations and the environment, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action

selected in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare and the environment. The implementation of the response action selected in this amendment to the Action Memorandum will mitigate the actual or threatened releases of hazardous substances from this Site with respect to sediment contamination only.

V. PROPOSED ACTIONS AND ESTIMATED COST

CONTRIBUTION TO REMEDIAL PERFORMANCE

This NTC removal action is the final removal action for the contaminated soils and sediments at the Site. The Site is not currently proposed for inclusion on the National Priorities List (NPL) and therefore, no remedial actions will be conducted. Should NPL listing be pursued in the future, this source removal activity would further remedial goals.

ESTIMATED COSTS

Original Cost Estimate

The original cost-estimates were based upon the Engineering Evaluation/Cost Analysis (EE/CA), which used a sampling grid that was 80' x 80', based upon a model that incorporated the Site area (6.4 acres), principal contaminants, and a desired 90-95 percent confidence level. In general, analytical samples were taken to two (2) feet in most areas of the Site. To approximate removal quantities for the cost-estimate, contaminated soils were then estimated to be two (2) feet deep across the entire 6.4 acres of the site, except in areas where contamination was still encountered at the two (2) foot depth, in which cases a three to four foot depth of contamination was used to estimate removal quantities. Also, the 'hot spot' (the area of the Site that 'burned' in 1988) was investigated to the 8'-9' level, and the removal quantities were estimated for the entire depth of the hot spot.

The Vacant Lot Action Memorandum was signed on May 6, 1998. The original cost-estimate for the removal action (excluding the removal of the contaminated Pettibone Creek sediments) was $2.7-million. An Action Memorandum Amendment was signed on September 15, 1998, adding the removal of the Pettibone Creek sediments. The total costs to remove the contaminated Pettibone Creek sediments (excavation, transportation & disposal, grading, backfill and site administration) were estimated at $150,000. At the time of the Action Memorandum Amendment, the costs for the NTC removal action, i.e., the removal of: (1) all lead-contaminated soils; (2) contaminated Pettibone Creek sediments; and (3) PCB-contaminated soils, were estimated at $2,382,988, based upon reduced quantities of contaminated soils encountered at the Site up to that point in time. The NTC removal action was considered fully funded at the $2.4-million level.

However, it must also be noted that in the original Action Memorandum, the USACE's supervision and administration, contingency, and any engineering and design cost were not included in the original $2.7-million cost-estimate.

Revised Quantities Estimate

The sources of a lot of the additional contamination at the Site are hot spots that appear to follow the contours of the clay layer at the Site and vary in depth between two (2) and seven (7) to eight (8) feet. Most of the contamination encountered below four (4) feet is a slag-like material, contaminated with lead. In addition, a drum of acid, the remains of a foundation of a building, not previously indicated by the aerial photographic analysis, and more extensive PCB-contamination on-site, west of the former transformer area on the Fansteel property, have been found on-site. These unexpected increases in removal quantities is due to the following differences in amounts of contaminated soils at the Site.

Material Classification	EE/CA Report	Current Working
• Special Waste Soil	15,400 yds^3	9,470 yds^3
• D008 Hazardous Waste Soil	10,250 yds^3	24,245 yds^3
• PCB Soils	185 yds^3	1,000 yds^3
• Non-hazardous Creek Sediments	640 yds^3	1,000 yds^3
• Hazardous Creek Sediments	275 yds^3	1,500 yds^3

Revised Costs

Therefore, based upon the additional quantities of materials that must be removed from the Site, including increased excavation, transportation and disposal costs, etc., an additional $1,000,000 is needed in order to complete the removal action at the Vacant Lot Site. Therefore, it appears that the overall project costs may increase to as high as $3.4-million. This is a 'worse case' scenario, and the hope is that the costs will come in less than that amount.

Mobilization/Demobilization Costs

In the event that funding is not approved or not available, additional Site costs will be incurred for demobilization and subsequent mobilization, which have been estimated as follows: (1) One-time demobilization costs of approximately $9,000; (2) rental equipment costs of approximately $1,500; and (3) Weekly site security costs of approximately $7,000.

Changes to the Scope of Work

EMCO Chemical Distributors (EMCO), which borders the west end of the Site, has expressed interest in purchasing the Vacant Lot property. EMCO proposes to: (1) donate 2-3 acres of the northern half of the Site to the City of North Chicago; (2) construct a storm water detention pond for the City on the donated land in order to alleviate flooding problems experienced by the environmental justice community to the north of the Site; (3) install storm sewer pipes where

Pettibone Creek now exists on the Site, burying those pipes, re-grading the property so that it is level throughout, and paving the majority of the Site for use as truck maintenance, storage and parking; and (4) construct a building subject to U.S. EPA review and approval of all construction plans and properly dispose of any residual contamination excavated during construction of the building and/or retention pond.

EMCO's proposal, if approved, would add a significant new wetlands resource. The U.S. EPA has consulted with the U.S. Army Corps of Engineers, Chicago District, and although a permit would need to be applied for, public noticed, and approved by the USACE Chicago District, they have not expressed any concerns with EMCO's approach that preclude pursuing this approach.

The U.S. EPA has initiated the cleanup and expects to complete the restoration of the property by the end of December 1998. In the absence of an agreement in principle to do a prospective purchasers agreement or PPA of this sort, the U.S. EPA would fill in the excavation at the north end of the Site, and would carefully grade and place rip-rap to control erosion of the banks of Pettibone Creek. If, however, the property will be used as EMCO suggests the: (1) U.S. EPA would not need to place rip-rap or be as concerned about permanent erosion controls; and (2) U.S. EPA would not need to place clean fill in the excavation at the north end of the Site -- that excavation would provide the starting point for EMCO's construction of the detention pond. This approach, if feasible, would save money for the U.S. EPA and for EMCO.

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

Delay or non-action may result in continued or increased likelihood of release of contaminants into the environment.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues related to this Site and the proposed work.

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this Site is contained in the Enforcement Confidential Addendum to the original Action Memorandum, signed May 6, 1998 (See Attachment 1).

IX. RECOMMENDATION

Based on the evaluation of existing field sampling data, the U.S. EPA has determined that this proposed change in the ceiling funding level for the removal action is in accordance with the criteria set forth in the National Oil and Hazardous Substances Contingency Plan (NCP), is necessary to reduce the threats posed to public health and/or the environment. The proposed response action was selected after performing an EE/CA as required for all non-time-critical removal actions, pursuant to Section 300.415 (b)(4) of the NCP. This non-time critical removal action still meets the criteria for the emergency exemption and the purpose of this memo is to complete actions approved in the Action Memoranda of May 6, 1998, and September 15, 1998. You may indicate your decision by signing below:

APPROVE: _____ DATE: 12/14/98
Director, Superfund Division

DISAPPROVE: _____ DATE: _____
Director, Superfund Division

Attachments

Attachment 1 - Action Memorandum Amendment, September 15, 1998
Attachment 2 - Administrative Record Update

cc: E. Bakowski, IEPA, **w/o Enf. Addendum**
M. Gade, IEPA, **w/o Enf. Addendum**
M. Chezik, U.S. Department of Interior, **w/o Enf. Addendum**
T. Crause, IEPA, **w/o Enf. Addendum**
K. Mould, U.S. EPA HQ, 5202G

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REDACTED

NOT RELEVANT TO THE SELECTION OF THE REMOVAL ACTION

ATTACHMENT ONE

SEPTEMBER 15, 1998, ACTION MEMORANDUM AMENDMENT

Vulcan Louisville Smelting Company Site
(aka "Vacant Lot")
North Chicago, Lake County, Illinois
CERCLIS ID# ILD 097 271 563; Site Spill ID# A527

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF SR-6J

ACTION MEMORANDUM

DATE: SEP 15 1998

SUBJECT: **Request for an Amendment to the Scope of the Response for the Non-Time-Critical Removal Action at the Vulcan Louisville Smelting Company (aka Vacant Lot) Site, North Chicago, Lake County, Illinois**

FROM: John J. O'Grady
Remedial Project Manager

TO: William E. Muno, Director
Superfund Division

THRU: Richard C. Karl, Chief R. Karl
Emergency Response Branch

I. PURPOSE

The purpose of this action memorandum is to request a change in the scope of the response activities for the non-time critical (NTC) removal action for the Vulcan Louisville Smelting Company, aka Vacant Lot, Site (the Site) in North Chicago, Lake County, Illinois; CERCLIS ID# ILD-097-271-563, Site Spill ID # A527.

The United States Environmental Protection Agency (U.S. EPA), Region 5 conducted an Engineering Evaluation and Cost Analysis (EE/CA) at the Site to evaluate cleanup alternatives necessary to address the contamination identified during the Site investigation. The EE/CA was completed October 30, 1997, and an Action Memorandum signed on May 6, 1998.

The proposed change in the scope of work for the NTC removal action would include the removal of the contaminated Pettibone Creek sediments in the on-going NTC removal action at the Site. The proposed amendment to the scope of work is the result of new information received from the City of North Chicago (the City), and the Lake County Stormwater Management Commission (LCSWMC). This new information, not previously available to the U.S. EPA, analyzes the upgradient tributary areas for potential sources of contaminants to the Site. Based upon the research conducted by the City and the LCSWMC, there are no identifiable sources of upgradient contaminants to the Pettibone Creek on the Site.

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Therefore, it is now prudent for the U.S. EPA to amend the scope of the project previously approved on May 6, 1998, to include the removal of the contaminated Pettibone Creek sediments in the on-going NTC removal action at the Site. The proposed NTC removal action of the Pettibone Creek sediments will cost an additional $150,000. The proposed additional NTC removal action is technically straight-forward, and will require less than 6 months to complete, and is in progress. Specifics regarding the new project scope are provided in Section V.

II. SITE CONDITIONS AND BACKGROUND

Site conditions and background for this Site have been reported in the original Action Memorandum dated May 6, 1998 (see Attachment 1), and the October 30, 1997, EE/CA Report.

REMOVAL ACTIONS TO DATE

To date the U.S. Army Corps of Engineers (USACE), Rapid Response Program, the U.S. EPA contractor for this NTC removal action, has erected fencing around the entire site, completed its mobilization to the Site, cleared and grubbed the entire site, completed excavation of on-site contaminated soils west of Pettibone Creek, including hauling some of the contaminated soils off-site to an approved landfill, and backfilled the excavated areas. Excavation has begun on the contaminated soils east of Pettibone Creek.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

Threats to Public Health or Welfare or the Environment have been reported in the original Action Memorandum dated May 6, 1998 (see Attachment 1), and the October 30, 1997, EE/CA Report.

IV. ENDANGERMENT DETERMINATION

Given the Site conditions, the nature of the hazardous substances on Site, and the potential exposure pathways to nearby populations and the environment, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare and the environment. The implementation of the response action selected in this amendment to the Action Memorandum will mitigate the actual or threatened releases of hazardous substances from this Site with respect to sediment contamination only.

V. PROPOSED ACTIONS AND ESTIMATED COST

A. PETTIBONE CREEK

Pettibone Creek is an intermittent stream that flows north to south, across the Site. On-site, the Creek begins in the northwestern corner, ranges in width from 1 to 10 feet, and is approximately 1,000 feet long. A City of North Chicago stormwater pipeline, which receives drainage water from a portion of the City north of the Site, terminates at the northern end of the Site under the elevated Elgin, Joliet, and Eastern Railway Company (EJ&E) Railroad tracks (which form the northern boundary of the Site). There is a drainage ditch that runs east to west along the northern side of the EJ&E Railroad tracks, which receives stormwater run-off from the railroad tracks, that also discharges into the Creek at the northern end of the Site. The combined waters from the stormwater pipeline and the drainage ditch flow into the Creek channel on-site for approximately 10 feet before the water re-enters another stormwater pipeline. This pipeline runs underground along Commonwealth Avenue and empties into the Creek, south of the Site. This stormwater diversion was created by the City to prevent water entering the Site from the north, from running across the entire Site during normal flow conditions. However, when stormwater volume entering the Site from the north is heavy, water bypasses the stormwater diversion and flows across the entire length of the Creek on-site. It is not known how frequently the entire length of the Creek flows with stormwater at the Site, but flow is believed to be substantial at times, due to observations of large amounts of debris piled up in areas along the Creek.

An active discharge pipe originates from the EMCO Chemical Distributors facility to the west and empties into the Creek near the center of the length of the Creek on the site. During normal flow periods in the Creek, there is no water within the Creek to the north of this discharge. There are also two inactive industrial discharge pipes in the north area of the Site. An active discharge from the Fansteel facility to the east, enters the Creek at the southern end of the Site, immediately upstream of the location where the Creek flows into a culvert and under 22nd Street.

To the south of the Site, the Creek flows south and southeast through an underground drainage pipeline. Pettibone Creek resurfaces from the underground drainage pipeline at the Great Lakes Naval Training Center, and then flows into Lake Michigan, approximately 1.5 miles from the Vacant Lot site. The Creek is reported to contain water year-round in the vicinity of the Great Lakes Naval Training Center. According to the Illinois Environmental Protection Agency, there are fish and frogs present in the Creek in the vicinity of the Great Lakes Naval Training Center. Fish from Lake Michigan are believed to swim into the Creek in the vicinity of the Great Lakes Naval Training Center to spawn.

B. SEDIMENT CONTAMINATION

As reported in the October 30, 1997, EE/CA:

- Lead is present at or above the "Severe Effect Level" concentration (250 mg/kg) in the Pettibone Creek sediments, and is detected at a maximum concentration of 1,550 mg/kg.

This concentration of lead classifies the sediments to be "highly contaminated and will likely have a significant effect on benthic biological resources". Analytical results indicate lead concentration below 250 mg/kg at the 3- to 4-foot depth.

- Copper is the other metal present at or above the "Severe Effect Level" concentration (110 mg/kg) in the Pettibone Creek sediments, and is detected at a maximum concentration of 3,100 mg/kg. This concentration of copper classifies the sediments to be "highly contaminated and will likely have a significant effect on benthic biological resources."

- Benzo(a)pyrene, indeno(1,2,3-cd)pyrene, anthracene, fluoranthene, pyrene, heptachlor epoxide, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Aroclor 1254, and Aroclor 1260 contaminant concentrations are above the "Lowest Effect Level" in the Pettibone Creek sediments, but are typically 2 to 3 orders of magnitude below the "Severe Effect Level".

Since Pettibone Creek originates on-site, and contains intermittent water mostly due to stormwater, industrial outfalls, rain, and surface water runoff, no aquatic life was evident in the on-site segment of the Creek. Except during storm events, a low flow (or no flow) of surface water is anticipated, along with minimal sediment migration from the Site to downstream locations. Given the lack of an aquatic ecosystem in the on-site segment of the Creek, sediment contamination is evaluated according to its potential risk posed to human health and the environment.

Based on the inventory of environmental resources and the information presented on contaminants of potential ecological concern, the following conclusions have been made regarding overall ecological risk associated with the Site:

- There is little risk posed by site contamination to the ecology of the site because the site is located in an urban, industrialized area, and provides poor quality wildlife habitat;

- Based on current knowledge, there is potential for the Creek sediment contamination to migrate off-site and potentially impact the ecology of Lake Michigan; and

- Contaminated surface soil on-site represents a potential source of contaminants to migrate to the Creek and possibly to Lake Michigan.

While these risks and contaminant levels are comparable to those being addressed in the contaminated soil removal, the U.S. EPA decided not to address the contaminated sediments in

the initial Action Memorandum because sufficient information regarding potential upstream sources of contaminants to Pettibone Creek did not exist at that time. However, now that the U.S. EPA has received new and additional information from the City and the LCSWMC, the removal of the contaminated Pettibone Creek sediments is recommended for inclusion in the on-going NTC removal action.

C. REMOVAL ALTERNATIVES

A limited number of soil and sediment removal action alternatives were identified and evaluated for the Site, including the following:

- No Action: included as a requirement of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300;
- Natural Attenuation/Institutional Controls: relies on natural degradation processes to address contamination and is coupled with land use and site access restrictions;
- Containment with Natural Attenuation: includes a cap over the contaminated soils with natural attenuation, land use, and site access restrictions;
- Soil Excavation and Direct Disposal: excavation of nonhazardous soils and PCB-contaminated soil, and disposal at a landfill;
- Soil Excavation and On-Site Stabilization: excavation of hazardous soil and on-site stabilization prior to off-site disposal at a landfill;
- Soil Excavation and Off-Site Stabilization and Disposal: excavation of hazardous soil and stabilization/disposal at a permitted off-site faculty;
- In-Situ Stabilization: an in-situ technology to stabilize metals-contaminated soil on site; and
- Soil Vapor Extraction (SVE) followed by Metals Stabilization: an in-situ technology to treat VOC-contaminated soils through volatilization, followed by stabilization of metals-contaminated soil.

Soil and sediment removal action alternatives were evaluated against three general criteria of effectiveness, implementability, and cost. The No Action and Natural Attenuation Alternatives were not considered to be effective due to the mobility of the contaminants involved. Capping and SVE Alternatives were considered to be effective in reducing, but not completely eliminating

overall threats due to soil and sediment contamination, while Excavation and Disposal Alternatives were expected to be completely effective because all contamination exceeding the proposed cleanup levels would be removed. Excavation and Disposal Alternatives were also considered the most reliable because of the total removal of contaminated materials, including the removal of on-site groundwater contamination source. The In-Situ Stabilization Alternative was considered to be effective in providing overall protection of public health and the environment from metals contamination, but was considered to be ineffective in reducing threats posed by high levels of organic contamination. The order of implementability from easiest to most difficult follows: (1) No Action; (2) Natural Attenuation; (3) Excavation and Disposal; (4) In-Situ Stabilization; and (5) SVE. The estimated costs for the soil and sediment removal action alternatives, from highest to lowest, was as follows: (1) SVE and In-Situ Stabilization; (2) In-Situ Stabilization; (3) Excavation and Disposal of Soil and Sediment (Nonhazardous and Hazardous); and (4) Capping. This ranking of the costs of soil and sediment removal action alternatives excludes the No Action and Natural Attenuation alternatives, since both were alternatives were not considered to be effective due to the mobility of the contaminants involved.

D. PROPOSED REMOVAL ACTION

Although there is an apparently limited connection between the contamination of the Pettibone Creek sediments and the soil and groundwater contamination at the Site, the remediation of the on-site segment of the Creek will now be addressed due to the new information submitted by the City and the LCSWMC, indicating that there are no apparent upstream sources of contamination. The U.S. EPA has decided to address the sediment contamination in the on-going NTC removal action because (1) of its proximity to the contaminated soils, (2) the similar nature of the contamination and threats, and (3) the significant efficiencies gained by addressing all of the same contamination at the same time. The actual volume of hazardous material in the Creek sediments will be determined by sampling during the removal action. During the removal action, the surface flow from the upstream culverts and channels will be diverted while the contaminated sediments are being removed from Pettibone Creek.

The Excavation and Disposal Alternative addressing contaminated soil was chosen as the most effective, implementable, and economical removal action alternative to abate threats to human health and the environment, in the Action Memorandum signed May 6, 1998. Within this alternative, Excavation, On-Site Stabilization followed by Off-Site Disposal was estimated to cost less than Excavation and Off-Site Stabilization and Disposal. The Action Memorandum and EE/CA Report also indicated that similar response activities for the contaminated sediments on-site would be appropriate if the U.S. EPA could obtain the necessary additional information regarding potential upstream sources of contamination. Therefore, the recommended soil removal action alternative will be applied to the contaminated Creek sediments, i.e., a cleanup

alternative involving sediment excavation, on-site stabilization (if necessary), and off-site disposal.

E. CONTRIBUTION TO REMEDIAL PERFORMANCE

The proposed NTC removal action is the final removal action for the contaminated sediments at the Site. The Site is not currently proposed for inclusion on the National Priorities List (NPL) and therefore, no remedial actions will be conducted. Should NPL listing be pursued in the future, this source removal activity would further remedial goals.

F. ESTIMATED COSTS

PETTIBONE CREEK SEDIMENTS

The total costs to remove the contaminated sediments from Pettibone Creek, including excavation, transportation & disposal, grading, backfill, revegetation, and site administration, is estimated at $150,000, assuming no additional demobilization/ mobilization costs. The proposed additional NTC removal action is technically straight-forward, and will require less than 6 months to complete once design activities have been completed.

Direct Capital Costs

The contract costs to include the Pettibone Creek Sediments (excavation, transportation & disposal, grading, backfill and site administration) is estimated at $150,000, assuming operations continue with no additional mobilization/demobilization costs.

Long-term Operation and Maintenance Costs

No long-term operation and maintenance costs for this alternative are anticipated.

OVERALL NTC REMOVAL ACTION COSTS

Although the removal of the contaminated Pettibone Creek sediments is adding additional costs to the overall project, total project costs have actually decreased. This decrease in removal action costs, even with the addition of the removal of the contaminated sediments, is the result of on-site testing resulting in a significant decrease in the amount of soils that need to be disposed of off-site in an approved landfill, as well as transportation and disposal cost savings based upon actual quotations from disposal facilities. Therefore, rather than the project costing out at $2,710,000 plus $150,000 for a total of $2,860,000, the new total is $2,382,988, a savings of approximately $477,012.

G. PROJECT SCHEDULE

By abating threats posed due to contamination, the specific removal action objective of prevention or abatement of contaminants; treatment or elimination of high levels of hazardous substances, pollutants, or contaminants; and mitigation of the environment, will be met. Removal activities planned for the Site include removing contaminated sediments, backfilling with clean fill, grading, and revegetating. The general schedule for this removal action is anticipated as follows:

	Task	Duration
•	Design, Mobilization, Excavation, and Sampling	1 week
•	On-Site Stabilization, Off-Site Disposal	1 week
•	Grading and Revegetating:	1 week
Total Duration for Removal of Sediments		**~3 weeks**

H. POST-REMOVAL SITE CONTROL

Completion of removal activities at the Site will reduce contaminant levels in the sediment to ecological and health-based levels or background. After the completion of the NTC removal action, additional evaluation and action will be necessary to fully address the contaminated groundwater both on-site and off-site.

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

Delay or non-action may result in continued or increased likelihood of release of contaminants into the environment.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues related to this Site and the proposed work.

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this Site is contained in the Enforcement Confidential Addendum to the original Action Memorandum, signed May 6, 1998 (See Attachment 1).

IX. RECOMMENDATION

Based on the evaluation of existing field sampling data, the U.S. EPA has determined that this proposed change in the scope of the removal action, in accordance with the criteria set forth in Section 300.415(b)(2) of the NCP, is necessary to reduce the threats posed to public health and/or the environment by contaminated sediments found on-site. The proposed response action was selected after performing an EE/CA as required for all non-time-critical removal actions, pursuant to Section 300.415 (b)(4) of the NCP. You may indicate your decision by signing below:

APPROVE: _____ DATE: 9/15/98
Director, Superfund Division

DISAPPROVE: _____ DATE: _____
Director, Superfund Division

Attachments

Attachment 1 - Action Memorandum, May 6, 1998
Attachment 2 - Administrative Record Update

cc: E. Bakowski, IEPA, **w/o Enf. Addendum**
M. Gade, EPA, **w/o Enf. Addendum**
D. Henne, U.S. Department of Interior, **w/o Enf. Addendum**
T. Crause, IEPA, **w/o Enf. Addendum**
K. Mould, U.S. EPA HQ, 5202G

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REDACTED

NOT RELEVANT TO THE SELECTION OF THE REMOVAL ACTION

ATTACHMENT ONE

MAY 6, 1998, ACTION MEMORANDUM

Vulcan Louisville Smelting Company Site
(aka "Vacant Lot")
North Chicago, Lake County, Illinois
CERCLIS ID# ILD 097 271 563; Site Spill ID# A527

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF SR-6J

ACTION MEMORANDUM

DATE: MAY 0 6 1998

SUBJECT: **Request for a Non-Time-Critical Removal Action at the Vacant Lot Site, North Chicago, Lake County, Illinois**

FROM: John J. O'Grady
Remedial Project Manager

TO: William E. Muno, Director
Superfund Division

THRU: Joe Dufficy
Emergency Response Branch

THRU: Richard Karl, Chief
Emergency Response Branch

I. PURPOSE

This action memorandum provides documentation to support approval of, and requests funding for, a non-time-critical ("NTC") removal action at the Vulcan Louisville Smelting Company Site, a.k.a. "The Vacant Lot" ("the Site"), North Chicago, Lake County, Illinois; CERCLIS ID# ILD-097-271-563, Site Spill ID # A527.

The proposed removal action is being conducted as a non-time-critical removal action because the United States Environmental Protection Agency ("U.S. EPA"), Region 5 determined that a planning period of at least 6 months existed before on-site activities were to be initiated. The U.S. EPA, Region 5 conducted an Engineering Evaluation and Cost Analysis ("EE/CA") at the Site to evaluate cleanup alternatives necessary to address the contamination identified during the Site investigation. The EE/CA was completed October 30, 1997.

Based upon the EE/CA, it is anticipated that the proposed NTC action will exceed the statutory cost limit established in §300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP") and §104(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"). It is currently estimated

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that the proposed NTC removal action will cost **$2.710,000**, above the $2-million statutory expenditure limit. The proposed NTC action is technically straight-forward, and will require less than 6 months to complete once design activities have been completed.

Pursuant to the U.S. EPA's general notice letter to Fansteel, Inc., dated June 17, 1997, an EE/CA will be conducted by Fansteel to further investigate the nature and extent of sediment and groundwater contamination on property adjacent to the Site. Following the EE/CA conducted by Fansteel, it is anticipated that additional cleanup actions will be necessary to fully remediate groundwater and sediment contamination both on-site and off-site.

II. SITE CONDITIONS AND BACKGROUND

A. PHYSICAL LOCATION

The Site is a 6.4-acre parcel of land located at the northeast corner of Commonwealth Avenue and 22nd Street (See Figure C-1) in North Chicago, Lake County, Illinois (latitude 42°19'43"N, longitude 87°51'43" W). The Site is bordered on the north by elevated tracks of Elgin, Joliet & Eastern (EJ&E) Railroad, on the east by Fansteel, on the south by 22nd Street (a.k.a. Martin Luther King Jr. Drive) and on the west by Commonwealth Avenue (See Figure C-2). The EMCO facility is located on the west side of the Site, west of Commonwealth Avenue.

The area surrounding the Site meets the Environmental Justice criteria employed by the U.S. EPA Region 5 Superfund Division as a Category Three Site. The population within a one-mile radius of the Site is 39 percent minority (30.9 percent black). According to the LANView II population survey, the median income of the population within a one-mile radius of the Site is $27,015 per annum. Residences are 29.9 percent owner occupied.

B. SITE DESCRIPTION

The Site has a metal fence on the east side and a combination of metal and snow fence on the south side. The Site poses easy access through its unfenced west boundary, through gaps in the snow fence, and along the unfenced northeast corner of the Site. An access road made of gravel or badly weathered concrete pavement originates at the south end of the Site and proceeds north through approximately three-fourths of the Site length. General Site topography is uniformly flat, with the exceptions being Pettibone Creek ("the Creek") ravine and the relatively steep rise to the railroad bed along the north edge of the Site. The Site is vegetated with grass, weeds, and moss in most areas, although portions of the Site are barren. The southern two-thirds of the Site has a weathered concrete/gravel layer, under approximately 6 inches of top soil. Several areas of the northwest one-third portion of the Site have deposits of slag, ash, and cinders. The Site is transected by the Creek, an intermittent water body that lies in a relatively steep-sided ravine, and originates at the northwest boundary of the Site. The ravine is lined with large weeds, bushes, and deciduous trees. The Creek flows to the south on Site, and then flows east to finally

merge into Lake Michigan (~1.5 miles from the Site). The Creek, at its origin, receives water through the North Chicago stormwater discharge and a ditch. The Creek is also fed by rain water and outfalls from two nearby facilities (EMCO and Fansteel). As such, the Creek, within the Site premises, contains water only during rain, stormwater, or industrial discharge events. People reportedly use this Site as a throughway since it is located in an area of businesses and nearby residences. There is evidence (trash) that the Site is being used by nearby residents to visit the creek area. A local authority has also stated that the Site is sometimes inhabited by homeless people. Blankets have been observed in large diameter concrete pipes on the west side of the creek.

C. BACKGROUND

According to the U.S. EPA Site file information, a 1907 plat map indicates noncommercial ownership of the property. A 1921 plat map depicts the Site property, as well as the properties of adjacent Fansteel and the nearby North Chicago Refiners and Smelters ("NCRS") Company (east of Fansteel), were owned by Vulcan Louisville Smelting Company. The southern half of the current Fansteel property was occupied by F.E. Ball Coal & Material Co., Agartol Coal Co., and C & NS Electric Sub-station & Car Barns. A tailings pile is located on the northern portions of both the current Vacant Lot and Fansteel properties. In 1936, the property was transferred to the Chicago North Shore and Milwaukee Railroad Company. By 1954, the current Vacant Lot property was sold to an individual who developed the property as a parking lot. The owner reportedly solicited fill materials to be placed at the Site. The source, quantity, and nature of materials brought to the Site is not well documented. However, reports of foundry sand and tailings deposition at the Site is consistent with descriptions of materials observed on Site. The Vacant Lot property is currently inactive and is held in trust by the Northern Trust Bank of Lake Forest, Illinois. Site aerial photographs from 1939 through 1994 were analyzed by the U.S. EPA Office of Research and Development. Results of the analysis revealed that in 1939, disturbed ground was visible east of the Creek. In 1953, 1954, and 1967, this portion of the Site was used as a parking lot. From 1939 through 1986, staining, excavations, mounded material, and tire tracks were present in the northeastern area of the Site at the end of an access road. These stain patterns trended into the Creek. In 1981, a possible shallow trench was observed, which was filled by 1986.

D. PREVIOUS STUDIES/RESPONSE ACTIONS

Historical information indicates that the Site has been utilized by nearby industries for waste disposal. The nature and composition of the waste material is unknown. The presence of contamination came to the attention of the U.S. EPA due to an underground fire at the Site in 1988. In response to a grass fire on June 12, 1988, firemen noticed that the ground was unusually hot and the water they were applying was causing the ground to bubble, as if the water was boiling. The ground fire was allowed to burn itself out because of the unknown nature of the fire and the unknown hazards of applying water. Three soil samples were collected at the time of

the fire by the Illinois Environmental Protection Agency ("IEPA"), and analyzed for eight heavy metals by the Extraction Procedure Toxicity ("E.P. Tox") method, which is specified under the Resource Conservation and Recovery Act ("RCRA") for the purposes of evaluating the leachability of select contaminants. One of the samples contained 43.5 milligrams per liter (mg/L) E.P. Tox lead, exceeding the 1988 RCRA regulatory limit of 5 mg/L; therefore, characterizing the soil as a RCRA hazardous waste when it is excavated.

Between September 1988 and February 1989, MAECORP of Chicago, Illinois, was contracted by Karaganis and White, Ltd., of Chicago, Illinois, to collect samples at the Site in order to characterize the condition of on-site soil and groundwater. Analyses of soil and groundwater samples collected during the course of these investigations revealed heavy metal contamination in both soil and groundwater. Volatile organic compounds ("VOCs"), including chlorinated solvents, and polychlorinated biphenyls ("PCBs") were also detected in several of the soil samples. Overall, barium, cadmium, chromium, lead, and mercury were the most elevated contaminants detected in the soils. Cadmium, chromium, mercury, and lead were the most elevated contaminants detected in the groundwater.

Between February and June of 1991, Envirodyne Engineers, Inc., of Chicago, Illinois, conducted a two-phase environmental assessment of several properties along Commonwealth Avenue, including the Site. The purpose of the assessment was to evaluate the condition of the properties for the proposed installation of a public bike path. The Phase I report included a review of the historical use of the properties, as well as the results of comprehensive environmental database searches. Phase II activities included drilling several soil borings along the proposed bike path. Three of the six soil boring samples were collected on the Site. Generally, lead was the most elevated analyte detected, with 1,250 milligrams per kilogram ("mg/kg") in one sample.

In June of 1992, Aires Environmental Services, Limited, of Batavia, Illinois, collected several soil samples along Commonwealth Avenue corresponding to the proposed bike path, including two borings on the Site. The samples were located at the northwest and southwest corners of the Site. Several polynuclear aromatic hydrocarbons ("PAHs") and chloroform were detected at low levels in the samples.

The IEPA performed a CERCLA integrated Site assessment at the Site beginning in September of 1992. The assessment included groundwater, sediment, and soil sampling. For the first time, chlorinated solvents including 1,1-dichloroethene ("DCE"), 1,2-DCE, trichloroethene ("TCE"), and vinyl chloride, were detected in the monitoring wells. Of these, 1,2-DCE and vinyl chloride exceeded the Superfund removal action level ("RAL") for contaminated drinking water. Heavy metal concentrations in the groundwater were still elevated. However, cadmium, chromium, lead, and mercury concentrations were no longer greater than the RALs, as they were in the 1989 MAECORP samples. Additionally, manganese and zinc, which were not included in the MAECORP analysis, were present in the 1993 IEPA samples at levels exceeding their corresponding RALs. A trace amount of PCBs was also detected in one of the monitoring wells.

Elevated levels of heavy metals, chlorinated solvents, PAHs, pesticides, and PCBs were detected in on-site soil samples collected during the assessment; specifically, arsenic, beryllium, lead, zinc, TCE, benzo(a)pyrene, and PCBs were the most prevalent contaminants. Elevated levels of heavy metals, chlorinated solvents, PAHs, pesticides, and PCBs were detected in on-site sediment samples collected during the assessment; specifically, beryllium, lead, benzo(a)pyrene, and PCBs were the most prevalent. Several off-site soil samples, collected to the north and northwest of the Site, exhibited elevated levels of heavy metals, PAHs, pesticides, and PCBs. Based on an analysis of potential on-site and off-site sources of contamination, IEPA concluded that residential soil contamination was not attributable to the Site; several elevated parameters were more concentrated in residential soils than in Vacant Lot soils.

Geraghty & Miller, Inc., of Chicago, Illinois, performed a groundwater investigation at the Site in November of 1993 on behalf of Northern Illinois Trust Company, who represented the owners of the Site. The study was conducted in order to evaluate the condition of shallow groundwater, groundwater flow direction, and potential off-site impacts to groundwater quality. Groundwater was observed at 7 to 14 feet below ground surface ("bgs"). The groundwater quality was impacted by chlorinated solvents, including 1,1-DCE, 1,2-DCE, TCE, and vinyl chloride. Of the heavy metals previously detected in groundwater, only manganese continued to exceed the RAL. For the first time, arsenic was detected in one well at levels exceeding the corresponding RAL. Despite the observed manganese and arsenic levels, the report concluded that the levels were low enough to have been caused by natural sources, and that the shallow groundwater was not impacted by metals.

In August and September of 1994, the City of North Chicago collected several sediment samples from the Creek. Six of the samples were analyzed for total phenol, paint filter, flash point, pH, PCBs, pesticides, and toxicity characteristic leaching procedure ("TCLP") metals. The seventh composite sample was analyzed for landfill disposal parameters. Low levels of pesticides and PCBs were detected in several samples. TCLP lead was also detected, but at levels below the federal-regulated hazardous characteristics concentration criteria of 5 mg/L. Zinc and chromium TCLP concentrations, and TCE and PCB concentrations, were detected at low levels in the composite sample.

In September of 1994, the U.S. EPA conducted a Site assessment at the Site at the request of the IEPA. Several soil and sediment samples were collected, including samples from the location of the previous fire incident. Generally, elevated levels of heavy metals (including arsenic, beryllium, and lead), TCE, and PCBs were detected at the Site. The Site assessment report characterized the following threats to human health and the environment which may warrant a removal action, as specified in the NCP: (1) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants; (2) Actual or potential contamination of drinking water supplies or sensitive ecosystems; (3) High levels of hazardous substances or pollutants or contaminants at or near the surface, that may

migrate; (4) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released; and (5) Threat of fire or explosion.

E. CURRENT CONDITIONS - RESULTS OF EE/CA

1. Site Geology and Hydrogeology

The depth to ground water ranged from 7.22 to 13.81 feet bgs. The Creek flows in a southerly direction across the Site. The shallow groundwater flow direction ranged from southwest to southeast, and flowed toward the Creek ravine. These variances in flow direction can be attributed to the Creek. The Creek most likely acts as a local discharge area for shallow groundwater. Horizontal hydraulic gradient at the Site was observed to range from 0.01 to 0.02 feet per foot. Hydraulic conductivity measurements were conducted at the Site in December 1996 by a U.S. Geological Survey team. The Site shallow groundwater flow direction is south and southeast.

The on-site segment of the Creek receives surface water from a storm sewer, a ditch, industrial outfalls, and rain water. After exiting the Site, the Creek flows through a series of culverts and buried pipes, flows southeast for approximately 0.5 mile, and resurfaces on the Great Lakes Naval Training Center ("GLNTC"), where it eventually contains water year-round. The Creek discharges into Lake Michigan after passing through GLNTC. It is not known how frequently the Creek flows with water at the Site.

The City of North Chicago has an ordinance that requires all residents to use City-supplied drinking water. Well logs from within a 4-mile radius of the Site, and information from IEPA, indicate no known potable groundwater usage within a one mile radius of the Site. The nearest well is in Shore Acres, located approximately one and one-half miles southeast of the Site. The well log indicates that a clay layer is present to a 24-foot depth from the surface, followed by a three foot fine gravel layer, followed by clay to 151 feet bgs, and finally sand and gravel after the clay layer. Groundwater is obtained from a sand and gravel formation, at a depth of approximately 158 feet bgs. Therefore, potential contamination of the nearest residential well in Shore Acres, due to Vacant Lot groundwater contamination, is very unlikely. The following factors were taken into consideration to evaluate potential contamination of the nearest well:

- The contamination in the Site groundwater is due to sources above the clay formation of the Shore Acres area. The monitoring wells at the Site are installed between 7- and 20-foot depths in the sandy/fill deposits.

- The Shore Acres wells are formed in sand and gravel at a depth of approximately 151 feet, overlain with approximately 124 feet of clay.

This clay layer will act as a barrier and would limit any groundwater contamination penetrating the sand and gravel formation.

- Since the groundwater flows in a south and southeast direction at the Site, groundwater from the Site would flow into the Creek and, eventually flow into Lake Michigan.

2. Sensitive Ecosystems

No sensitive ecosystems are known to be present in the immediate vicinity of the Site. The Creek drains into Lake Michigan and may serve as a migration pathway for contaminants. The Creek eventually becomes a year-round waterway (generally within GLNTC), and this aquatic environment may be considered the nearest and most vulnerable sensitive ecosystem to the Site. The relative health of the aquatic environment in the Creek downstream of the Site is not known. Samples collected from the Creek sediments at the Site were contaminated with low levels of metals, PAHs, and PCBs. Engineering controls which would restrict migration of contaminated sediments are not known to be implemented at the Site.

3. Soil Sampling Results

- Lead concentration ranged from 1,550 to 24,100 mg/kg. Lead contamination is prevalent throughout the Site and is encountered at 1-foot and 2-foot interval samples with the exception of two areas. Beryllium was detected at elevated concentrations in several soil samples (30.1 mg/kg in one soil sample), and usually is encountered coupled with lead contamination. No definitive on-site source is identifiable. It is probable that the source material, used at the Site in grading and preparing the parking lot, may have contained metal contamination.

- Benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and n-nitroso-di-n-propylamine were detected in surface and subsurface soil samples. Benzo(a)pyrene concentrations ranged from 0.8 to 49 mg/kg and dibenzo(a,h)anthracene concentrations ranged from 0.9 to 4.2 mg/kg in soil samples.

- Benzo(a)anthracene concentrations were detected as high as 51 mg/kg, benzo(b)fluoranthene concentrations were detected as high as 69 mg/kg, and indeno(1,2,3-cd)pyrene concentrations were detected as high as 14 mg/kg in soil samples. Benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene were detected in one soil sample location, even at the 2-foot depth interval sample. Only one soil sample contained n-nitroso-di-n-propylamine at an

elevated concentration. Aldrin and dieldrin were detected at elevated concentrations in two soil samples.

- Total PCB concentrations were detected at elevated levels in 13 soil samples. Four of these soil samples exceeded a PCB concentration of 50 mg/kg and qualified for classification as Toxic Substances Control Act ("TSCA") waste, if excavated. The remaining seven samples contained less than 10 mg/kg total PCBs. PCBs, especially Aroclor 1254, (contamination between 1 and 10 mg/kg) and benzo(a)pyrene (contamination between 0.8 and 2.5 mg/kg) were distributed randomly in the southern two-thirds of the Site. Elevated concentrations of PCBs, between 100 and 160 mg/kg, were detected in the soil samples collected from the former fire area. This is the only on-site area where pesticides and other contaminants were observed in individual soil samples. The source/fill area contains contamination to a 9-foot depth.

- Perchloroethene ("PERC"), also known as Tetrachloroethene, was detected at a concentration of 170 mg/kg in one sample.

4. Sediment Contamination

- Lead is present at or above the "Severe Effect Level" concentration (250 mg/kg), and is detected at a maximum concentration of 1,550 mg/kg. This concentration of lead classifies the sediments to be "highly contaminated and will likely have a significant effect on benthic biological resources". Analytical results indicate lead concentration below 250 mg/kg at the 3- to 4-foot depth.

- Copper is the other metal present at or above the "Severe Effect Level" concentration (110 mg/kg), and is detected at a maximum concentration of 3,100 mg/kg. This concentration of copper classifies the sediments to be "highly contaminated and will likely have a significant effect on benthic biological resources."

- Benzo(a)pyrene, indeno(1,2,3-cd)pyrene, anthracene, fluoranthene, pyrene, heptachlor epoxide, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, Aroclor 1254, and Aroclor 1260 contaminant concentrations are above the "Lowest Effect Level", but are typically 2 to 3 orders of magnitude below the "Severe Effect Level".

Since the Creek is originating on Site, and contains intermittent water mostly due to stormwater, industrial outfalls, rain, and surface water runoff, no aquatic life was evident in the on-site segment of the Creek. Except during storm events, a low flow (or no flow) of surface water is anticipated, along with minimal sediment migration from the Site to downstream locations. Given the lack of an aquatic ecosystem in the on-site segment of

the Creek, sediment contamination is evaluated according to its potential risk posed to human health and the environment.

5. Groundwater Sampling Results

- Vinyl chloride, 1,1-dichloroethene, 1,2-DCE, TCE, and PERC were detected above the maximum contaminant levels ("MCL") values.

- One monitoring well sample contained a vinyl chloride concentration above the RAL.

- Contaminant 1,2-DCE, detected in this sample at 0.044 mg/L during the first sampling event, decreased below the MCL of 0.07 mg/L in the second sampling event.

- TCE was detected in various geoprobe samples at 5 mg/L (5,000 parts per billion or "ppb"), 0.420 mg/L (420 ppb), and at 0.180 mg/L (180 ppb). PERC was detected at 0.003 mg/L in one geoprobe sample.

There are several different and distinctive groundwater-contaminated areas on Site.

- The first area of groundwater contamination is located in the northern one-third area of the Site. In this area, manganese, 1,2-DCE, and TCE are the contaminants detected in groundwater. TCE concentrations above RALs and 1,1-dichlorethene concentrations above MCLs were detected only in the north and northeastern perimeter Geoprobe water samples, while 1,2-DCE and vinyl chloride above RALs were detected only in the monitoring well located in the middle of the source/fill area.

- The second area of contamination is based on the results of two Geoprobe water samples collected from the southern and southeastern part of the Site. The sample collected from the Geoprobe location at the southeastern perimeter of the Site, contained the highest TCE concentration encountered on Site. TCE concentrations, below detection levels in the monitoring well 350 feet north of this Geoprobe location and the Geoprobe location 80 feet northwest of this Geoprobe location indicate a TCE groundwater plume in this area with probable origin elsewhere.

- The third area of contamination is based on the prevalent contamination in the monitoring well located on the west side of the Creek. Metal and vinyl chloride contamination above their respective RALs are detected in this well, while Geoprobe samples collected to the north and south of this location did not contain

contamination above the detection levels. Again, no source is identified here and the groundwater contamination may be due to a migrating groundwater plume with origin elsewhere.

F. HUMAN HEALTH RISK ASSESSMENT

A Streamlined Risk Evaluation ("SRE"), including a screening level human health risk assessment, was performed to estimate potential health risks related to human exposure to chemicals present at the Site. Analytical data developed during previous Site investigations, as well as during the EE/CA support sampling, were used in the development of the SRE. The screening level human health risk assessment for the Site was prepared by a U.S. EPA Region 5 risk assessor. The SRE identified several contaminants of concern ("COCs") at the Site. The human health risk assessment identified six PAH compounds (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, indeno(1,2,3-cd)pyrene, and benzo[k]fluoranthene); seven metals (antimony, beryllium, cadmium, copper, iron, manganese, and zinc); and PCBs as COCs in surface soils and sediment at the Site. Significant cancer risks were estimated for a future worker at the Site (estimated excess cancer risk of 4.2×10^{-4}). The estimated risks are primarily from dermal contact with PAHs in soil (56% of total risk). Benzo(a)pyrene accounted for 62% of the risk from combined soil and sediment exposure. A total hazard index (HI) of 2.7 was calculated for future workers at the Site. Significant non-cancer risks (i.e., hazard quotient [HQ] >1) were estimated for PCBs in surface soils (HQ=1.7), with incidental ingestion of contaminated soil accounting for over 90% of the risk.

G. ECOLOGICAL RISK ASSESSMENT

A Streamlined Ecological Risk Evaluation ("SERE") was performed to estimate potential risks related to wildlife exposure to chemicals present at the Site. Analytical data developed during previous Site investigations, as well as during the EE/CA support sampling, were used in the development of the SERE. The results of the SERE indicate that the Site contaminants pose minimal risk to the terrestrial and aquatic ecology of the Site; however, a potential exists for off-site migration of sediment and surface runoff to nearby Lake Michigan.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

Based upon the Site characterization data and the results of the SRE and SERE, removal action objectives were developed to provide a basis for the identification and evaluation of alternatives for a non-time- critical removal action. The removal action alternatives were developed in accordance with the NCP and the U.S. EPA's Guidance on Conducting Non-Time-Critical Removal Actions under CERCLA. Removal action objectives were developed for those areas of the Site which were determined to exceed a risk of 1×10^{-5}, an HI of 1, or for those areas which have a high potential to release contaminants to the environment. The following areas of the Site

were selected for the development of removal action objectives. Please refer to Appendix C for Site figures.

- The entire Site soil area, excluding two small areas is generally contaminated up to a 2-foot depth with elevated concentrations of lead (>1,400 milligrams per kilogram ["mg/kg"]);

- The source/fill area is contaminated with tetrachloroethene (PERC) to a 4-foot depth (170 mg/kg), and lead contamination to a 9-foot depth (1,700 mg/kg).

- There is an area contaminated with PCBs to a 9-foot depth (68 mg/kg);

- Within the northern one-third of the Site area, groundwater contamination of 1,2-DCE and vinyl chloride could potentially be attributed to the source/fill area. The remainder of the northern one-third of the Site area has TCE contamination attributed to an off-site plume;

- The eastern perimeter of the Site has TCE contamination;

- Although the monitoring well area on the west side of the Site contains vinyl chloride, arsenic, and manganese above RALs, a removal scope has not been prepared for this area because off-site conditions have not been characterized; and

- The entire creekbed, from the surface to the clay layer (3 to 4 feet deep), is contaminated with benzo(a)pyrene (13 mg/kg maximum). In the northern portion of the Creek, benzo(a)pyrene is prevalent to a 6-foot depth. However, a removal scope has not been prepared for this area because off-site conditions have not been characterized.

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

- **Prevention or abatement of actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.** Lead, beryllium, benzo(a)pyrene, benzo(a,h)anthracene, PCBs, and TCE contamination, prevalent in the top 2 feet of soil, pose actual or potential exposure via the ingestion pathway. Homeless people were reportedly seen inhabiting the Site; therefore, a potential threat exists. The potential exposure threat to nearby human populations is through direct

contact. The Creek water flow is intermittent, and does not provide enough water for fish to survive at the Site. However, during storm events, there is a potential for sediments to migrate into Lake Michigan, and subsequently pose potential contamination of the food chain (fish, etc.).

- **Prevention or abatement of actual or potential contamination of drinking water supplies or sensitive ecosystems.** Groundwater is contaminated with arsenic, cadmium, lead, manganese, 1,2-DCE, TCE, PERC, and vinyl chloride. Although there are no known groundwater receptors in the Site vicinity, the groundwater may cause actual or potential contamination via migration into the Creek which feeds into Lake Michigan (~1.5 miles from the Site).

- **Stabilization or elimination of hazardous substances in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release.** Seven drums, labeled TCE, were found on Site. These drums have residual material and pose a migration threat and a direct contact threat.

- **Treatment or elimination of high levels of hazardous substances, pollutants, or contaminants in soils or sediments largely at or near the surface that may migrate.** EE/CA sampling results indicate elevated to moderate levels of contaminant concentrations in surficial soils. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, benzo(k)fluoranthene, PCBs, and beryllium contamination was confirmed in on-site soils. These soils pose a migration threat due to surface runoff into the Creek.

- **Elimination of threat of fire or explosion.** Fire had occurred in the source/fill area on Site. The source of this fire was determined to originate from below the ground surface, and poses a potential for recurrence.

- **Mitigation or abatement of other situations or factors that may pose threats to public health, welfare, or the environment.** Surface water runoff can cause actual or potential migration of soil contamination, which will result in a threat to public health.

IV. ENDANGERMENT DETERMINATION

Given the Site conditions, the nature of the hazardous substances on Site, and the potential exposure pathways to nearby populations and the environment, actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare and the environment. The implementation of the response action

selected in this Action Memorandum will mitigate the actual or threatened releases of hazardous substances from this Site with respect to soil contamination only. This response action may also remove sources for further contamination of groundwater, providing an indirect improvement of groundwater conditions.

V. EMERGENCY EXEMPTION FOR STATUTORY LIMITS

Section 104(c)(1) of CERCLA [42 U.S.C. Section 9604(c)], as amended by Superfund Amendments and Reauthorization Act ("SARA"), limits Federal emergency response to $2 million unless three criteria are met. The quantities and levels of hazardous substances found at the Site warrant the $2 million exemption request based on the following factors:

Section 104(c)(1)(A)(I)	"Continued response actions are immediately required to prevent, limit or mitigate an emergency"
Section 104(c)(1)(A)(ii)	"There is an immediate risk to public health or welfare or the environment"
Section 104(c)(1)(A)(iii)	"Assistance will not otherwise be provided on a timely basis"
Section 104(c)(1)(C)	"Continued response action is otherwise appropriate and consistent with the remedial action to be taken."

CERCLA §104(c), as amended, allows an exemption from the $2 million statutory limit if the continued response action is otherwise appropriate and consistent with the remedial action to be taken. This is called the "consistency exemption". Superfund delegation 14-2-B (September 1987), delegates approval authority for consistency exemptions to the Assistant Administrator, Office of Solid Waste and Emergency Response (AA/OSWER) and Regional Administrators ("RAs"). OSWER Directive 9360.2-04, Authorization for RAs to Approve Consistency Exemptions at National Priorities List ("NPL") sites, dated February 24, 1992, authorizes the approval of this removal action by the RAs. As further described below, all of the above conditions are satisfied. CERCLA Delegation 14-2-A (4/15/94) delegates approval authority for an exemption to the $2 million limitation under the first three conditions to the AA/OSWER and RAs, limited to total costs of $6 million and to the Administrator's Management Accountability System and approved funding levels. On May 2, 1996, the RA for the U.S. EPA Region 5 re-delegated the authority to approve both consistency and emergency waivers of the $2-million statutory limit.

Section 104(c)(1)(A)(I)	"Continued response actions are immediately required to prevent, limit or mitigate an emergency"

This action is necessary to abate an immediate risk to public health and the environment from exposure to the contaminated soils on-site. This action is also consistent with future actions, since due to the fact the Site is not on the NPL, no remedial activities are currently anticipated for this Site.

Section 104(c)(1)(A)(ii) "There is an immediate risk to public health or welfare or the environment"

This removal action is necessary and required to eliminate a current and future threat to human health from exposure via inhalation or ingestion of contaminated soils. This non-time critical removal action will also prevent the spread of contaminated soils off-site.

Section 104(c)(1)(A)(iii) "Assistance will not otherwise be provided on a timely basis"

The IEPA currently does not have the funding to undertake the installation of a containment system with source removal at this Site. Assistance from local government is also limited for the same reason.

Section 104(c)(1)(C) "Continued response action is otherwise appropriate and consistent with the remedial action to be taken."

This non-time critical removal action will remove the contaminated soil from the Site. This removal action will be the final removal action for the on-site soils. Due to the fact the Site is not on the NPL, no remedial activities are currently anticipated for this Site. Funding for this action is currently available and is planned for the current fiscal year. Moreover, if the Site were to be placed on the NPL, source removal activities would be consistent with any likely remedy for groundwater and for surface water and sediments at the Site.

Therefore, in accordance with the authority delegated to the RA in delegation R-14-2-B, I recommend that you approve an exemption to the $2 million statutory limit for completion of a removal action.

VI. PROPOSED ACTIONS AND ESTIMATED COST

A. PROPOSED ACTIONS

1. Description of Proposed Action

Based on the SRE for the Site, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCBs, and beryllium were identified as contaminants posing risk-based threats. A comparison of these risk-based concentrations with the Tiered Approach to Cleanup Objectives[1] ("TACO") values found in the TACO Guidance Document, published by the IEPA in January 1996, reveal that the T.\CO values for PCBs and Beryllium were slightly more stringent than the risk-based concentrations[2]. Therefore, the TACO values for PCBs and Beryllium were considered as the RALs. However, for benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene, the calculated PRGs were used as the RALs. The entire Site soil area, excluding two small areas, is generally contaminated to a 2-foot depth, with elevated concentrations of lead, and low concentrations of beryllium, aldrin, benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dieldrin, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, n-nitroso-di-n-propylamine, and PCBs. The soil contamination will be abated. In addition to these contaminants, the source/fill area also contains PERC contamination to a 4-foot depth, while another location within the source/fill area contains lead contamination to a 9-foot depth. Apart from this general area of contamination, particular areas of contamination include PCB contamination to a 2-foot depth, and a source/fill area with contamination to a 4-foot depth. PERC contamination was found at the 2-foot depth (170 mg/kg) and lead contamination at an 8-foot depth. All these areas have benzo(a)pyrene contamination, and therefore will be addressed with abatement actions.

The most effective, implementable, and economical removal action alternative to abate threats to human health and the environment at the present time is the Excavation and Disposal Alternative addressing contaminated soil. Within this alternative, Excavation, On-Site Stabilization followed by Off-Site Disposal is estimated to cost less than Excavation and Off-Site Stabilization and Disposal. A Site cleanup alternative involving soil excavation, on-site stabilization, and off-site disposal is recommended as the removal action which best suits the soil contamination at the Site. An additional EE/CA investigation of the neighboring Fansteel property is recommended to identify and

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[1] State generic cleanup standards under Title 35 of the *Illinois Administrative Code ("IAC")*, Part 742.

[2] The calculated preliminary remediation goal ("PRG") for PCBs was 2.9 mg/kg, whereas the TACO values were 1, 10, or 25 mg/kg depending upon soil cover and site restrictions. The calculated PRG for Beryllium was 1.3 mg/kg, whereas the TACO value was 1 mg/kg, with the caveat that background levels may also be taken into consideration.

characterize additional source areas that impact groundwater, so that comprehensive groundwater remediation alternatives can be developed.

2. Groundwater Not Addressed In This Action Memorandum

By removing the source/fill area, vinyl chloride, 1,2- DCE, and other VOC contributions to groundwater may be eliminated. Based upon the results of the EE/CA support sampling, localized groundwater contamination in the source/fill area soils is believed to be due to soil contamination in the top 5 feet of source fill area. After the source/fill area soil removal, the contamination present in groundwater may not pose a substantial threat sufficient to warrant a removal action. However, perimeter sampling by Geoprobe equipment along the eastern fence shows TCE and manganese contamination. Based upon the Geoprobe groundwater sampling results and historical Site data, it is likely that an off-site source is contributing to groundwater contamination in this area. Any active groundwater extraction/remediation addressing the perimeter groundwater contamination will likely escalate and introduce new contamination, due to potential migration from the off-site plume. Therefore, active pumping and groundwater remediation is not addressed in this Action Memorandum at the present time. Further information concerning the nature and extent of off-site groundwater contamination and source(s) will need to be developed and appropriate alternatives for groundwater remediation evaluated.

3. Pettibone Creek Sediments Not Addressed In This Action Memorandum

The actual volume of hazardous material in the Creek sediments will be determined by sampling during the removal action. Given the levels of contamination and the apparently limited connection to soil and groundwater contamination at the Site, the remediation of the on-site segment of the Creek should be considered only if upgradient sources are identified and addressed first. This may include diversion of surface flow from contaminated upstream culverts and channels, and oversight by the City of North Chicago to ensure that any stormwater discharge into the Creek is free of contamination. The Creek sediments should only be addressed if contaminant migration from upstream sources can be eliminated.

4. Contribution to Remedial Performance

The proposed non-time critical removal action is the final removal action for the contaminated soils at the Site. This action will quickly remove or reduce the major, long-term threats posed through ingestion, inhalation and direct contact with the contaminants present in the surface and subsurface soils. This action will not remove or eliminate any long-term threats posed by the contaminated sediments or groundwater at the Site, although it may eliminate a source of further groundwater contamination. The Site is not currently proposed for inclusion on the NPL and therefore, no remedial actions will be

conducted. Should listing be pursued in the future, this source removal activity would further remedial goals.

5. Description of Alternative Technologies

The following removal alternatives were considered for soil contamination abatement:

A. No Action
B. Containment - Capping
C. In-Situ Stabilization
D. Soil Vapor Extraction ("SVE") and In-Situ Stabilization
E. Excavation and Disposal, which includes:
   1. Direct Disposal
   2. Stabilization and Disposal

A. No Action

Under the No Action Alternative, the Site would be left in its present condition, contaminant migration to the groundwater would continue, and the direct contaminant exposure associated with on-site soil contamination would still exist. The No Action Alternative has been included as a requirement of the NCP to provide a basis of comparison for the remaining alternatives. No institutional controls or monitoring are included with this alternative. The Net Present Value ("NPV") of this alternative is $0.00.

B. Containment - Capping

This alternative includes capping, in addition to implementing institutional controls. The cap would provide a protective barrier that would prevent soil contaminant exposure to human and ecological receptors. If properly maintained, the cap would reduce stormwater infiltration, thereby reducing vertical migration of contaminants through the soils. The entire Site is considered under this alternative. The objective of capping is to limit infiltration of water to the waste, so as to minimize creation of leachate that would contaminate groundwater. Capping is not considered for the Creek remediation since this would disrupt or stop the flow of water. Capping would provide a protective barrier that would prevent soil contaminant exposure to human and ecological receptors. The Post-removal Site control procedures associated with this alternative include regular inspection of the cap and maintenance of the vegetative cover, fencing, as well as groundwater monitoring. The estimated NPV of this alternative is $1.1-million.

C. In-Situ Stabilization

The In-situ stabilization alternative involves introduction of a stabilization agent (cement) and a chemical reagent into contaminated soil present on-site (in-situ), and mixing them with a machine-mounted auger or steel blades. This technology is usually applicable to abate metal contamination in soil and sediments. In-situ stabilization is ideal for contamination present at deeper depths and over an extended area. However, this technology is less effective for shallow contamination and for PCBs and VOCs. After in-situ stabilization, the material is left in place. There is a waste volume increase of between 15 to 30 percent due to stabilization. Routine monitoring of the in-situ stabilized material is necessary by collecting soil samples initially and groundwater samples periodically. In-situ stabilization of the contaminated soil, not including the source/fill soil and PCB-contaminated soils, was evaluated under this alternative. A treatability study would need to be performed prior to implementation of the in-situ stabilization alternative, in order to evaluate the optimum ratio of the stabilization agent and chemical agent, and its effectiveness in rendering inorganic contamination below action levels. In-situ stabilization used alone, would not be a complete removal alternative. The estimated NPV of this alternative is $3.3-million.

D. Soil Vapor Extraction ("SVE") and In-Situ Stabilization

Under this alternative, a vapor extraction system with a vapor barrier would be employed to remediate the contamination. Semi-annual monitoring would be used to track Site conditions during SVE operations, and the vapor barrier would be used to enhance the capture of subsurface vapors and to restrict access to the area during remediation procedures. During SVE, soil vapors would be collected from the subsurface by applying a vacuum at a series of extraction points. Prior to full-scale implementation, a pilot test would have to be performed to obtain the necessary data (i.e., air permeability, obtainable flow rates, radius of influence) to determine the number and location of extraction wells, equipment requirements, expected mass removal rates, and the duration of the operation. SVE would not be a complete removal alternative for the Site soils because of its limited effectiveness in addressing metals and PCBs. The estimated NPV of this alternative is $3.34-million.

E. Excavation and Disposal

When evaluating the Excavation and Disposal Alternative, the contaminated soil is classified as hazardous and nonhazardous, based on the U.S. EPA regulatory criteria for disposal at a landfill. The nonhazardous soil materials would be excavated and directly disposed off-site. The hazardous material can either be stabilized on-site and disposed off-site at an approved landfill facility, or stabilized and disposed off-site at an approved landfill facility. Lead- and beryllium-contaminated soil needs to be excavated to a 2-foot

depth at a minimum. Approximately 24,200 cubic yards of material would be excavated and disposed. It is estimated that approximately 15,400 cubic yards of this excavated material would not need any stabilization to remove the toxicity characteristic requirements for lead prior to disposal. The remaining 8,800 cubic yards of soil (30% of excavated material) would need to be stabilized prior to disposal at a landfill. Approximately 185 cubic yards of PCB-contaminated soil with PCB levels above 50 parts per million ("ppm") would need to be disposed of at a TSCA-approved landfill. The following excavation-related work is applicable to both of the above-mentioned disposal options under the Excavation and Disposal Alternative section.

1. Direct Disposal

The Direct Disposal portion of the Alternative is for the removal of materials that are not categorized as RCRA hazardous wastes. The nonhazardous soils on-site are above the site-specific remedial action levels, but are below the nonhazardous definition of federal disposal criteria regulations and Illinois land disposal restrictions. This option calls for disposal of soils at a landfill without any stabilization. Based on the criteria for TCLP lead, TCLP beryllium, and PAHs disposal levels, 70% of the soil to be abated could be sent to a disposal facility as nonhazardous material and directly landfilled (approximately 15,400 cubic yards). This includes metals, PAHs, and small concentrations of pesticides (aldrin, dieldrin, and toxaphene) that are present in soils. Approximately 185 cubic yards of PCB-contaminated material detected in the source/fill area would be disposed of at a TSCA-approved landfill. Since this alternative would remove all on-site contamination at levels of concern, there are no institutional controls or operation and maintenance requirements associated with this alternative. The U.S. EPA would select the disposal facility, taking into account economic considerations and the U.S. EPA compliance of the disposal facility. The estimated NPV of this portion of the Alternative is $1.3-million.

2. Stabilization and Disposal

This portion of the Alternative would include the excavating of all on-site surface soil and subsurface soil that contain levels of contamination exceeding the cleanup objectives and RCRA toxicity criteria. The excavated material would then be solidified to immobilize metals contamination. The majority of the soil in the northern one-third of the Site is identified with both organic and inorganic contamination extending to an average 2-foot depth, and needs stabilization of metals contamination. The source/fill area, measuring approximately 180 feet by 100 feet by 4 feet (2,700 cubic yards), also needs stabilization of metals contamination. This soil is considered hazardous waste, based on EE/CA analytical results, and would require stabilization for rendering TCLP lead

characteristics below the regulatory criteria of 5 mg/L prior to landfilling. The VOC concentrations in the source/fill area are low enough, as far as disposal criteria is concerned, to dispose of it at a landfill without any treatment for VOC reduction. The total amount of hazardous soils to be stabilized and disposed of is estimated at 8,800 cubic yards. The U.S. EPA also evaluated off-site stabilization and disposal, but selected on-site stabilization and off-site disposal.

a) Off-Site Stabilization and Disposal

Cost estimates were provided from disposal facilities to stabilize hazardous soils and dispose of the stabilized material in a landfill. After excavation and staging, the material would be sampled systematically and then transported in trucks to the selected landfill. All applicable regulatory requirements would be met. The estimated NPV of off-site stabilization and disposal would be $1.5-million.

b) On-Site Stabilization and Off-Site Disposal

The excavated hazardous soil can be rendered nonhazardous, with respect to lead and beryllium contaminants, by stabilizing with approximately 15% Portland cement. This ratio of Portland cement to soil (15:85) is by weight, and estimates are based on previous projects that had similar metal concentrations and soil characteristics. Under this alternative, solidification equipment and the necessary reagents would be transported to the Site. Prior to the implementation of this alternative, a bench-scale pilot test would have to be conducted. The test would be conducted using contaminated Site soil and sediments and various solidifying agents (i.e., lime, Portland cement, fly ash) separately and in conjunction with each to determine the best mix and appropriate proportions needed for the on-site solidification process. By performing stabilization on-site, the U.S. EPA will reduce costs and reduce transportation risks. The estimated NPV of this portion of the Alternative is $1.36-million.

F. Conclusion

Soil removal action alternatives were evaluated against three general criteria of effectiveness, implementability, and cost. The No Action and Natural Attenuation Alternatives are not considered effective due to the mobility of the contaminants involved. Capping and SVE Alternatives are effective in reducing, but not completely eliminating overall threats due to soil contamination, while Excavation and Disposal Alternatives are expected to be completely effective because all contamination exceeding the proposed cleanup levels are removed. Excavation and Disposal Alternatives are also

considered the most reliable because of the total removal of contaminated materials, including the removal of the on-site groundwater contamination source. The In-Situ Stabilization Alternative is effective in providing overall protection of public health and the environment from metals contamination, but is considered ineffective in reducing threats posed by high levels of organic contamination. The order of implementability from easiest to most difficult is as follows: No Action, Natural Attenuation, Excavation and Disposal, In-Situ Stabilization, and SVE. The estimated costs for the soil removal action alternatives follows:

Excavation and Disposal of Nonhazardous Soil	$1,326,800
Excavation and Disposal of Nonhazardous Sediment	$100,725
Capping	$1,062,160
In-Situ Stabilization	$3,246,250
SVE and In-Situ Stabilization	$3,338,550
Soil Excavation, Off-Site Stabilization, and Off-Site Disposal	$1,504,980
Sediment Excavation, Off-Site Stabilization and Off-Site Disposal	$45,625
Soil Excavation, On-Site Stabilization, and Off-Site Disposal	$1,360,588
Sediment Excavation, On-Site Stabilization, and Off-Site Disposal	$56,340

The concentration of VOCs in the source/fill area is below regulatory disposal criteria, and as such, requires no stabilization for off-site disposal. The most effective and suitable removal action alternative to abate threats to human health and the environment is the Excavation and Disposal Alternative for contaminated soil. A portion of the contaminated material can be disposed of without any treatment, while other material will require stabilization. An added advantage of the Excavation and Disposal Alternative is that it most likely will eliminate a primary source of vinyl chloride and other VOC contamination which migrates into the groundwater. Therefore, the most effective, implementable, and economical removal action alternative to abate threats to human health and the environment at the present time is the Excavation and Disposal Alternative addressing contaminated soil. Within this alternative, Excavation, On-Site Stabilization followed by Off-Site Disposal is estimated to cost less than Excavation and Off-Site Stabilization and Disposal. For the reasons described above, Excavation and Disposal was chosen as the most economical means of addressing all soil contaminants of concern. On-site stabilization was chosen because of costs, feasibility, reduced transportation risks, and increased ability to control the treatment process. This approach addresses all contaminants effectively, with the greatest cost-efficiency, and can be readily implemented.

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

An EE/CA is required for all non-time-critical removal actions, pursuant to Section 300.415 (b)(4) of the NCP. An EE/CA identifies, evaluates, and provides a comparative

analysis of removal action options for a Superfund hazardous waste site. Ecology and Environment, Inc. (E & E), was tasked by the U.S. EPA to perform an EE/CA to evaluate alternatives for conducting a removal action under CERCLA, as amended by SARA, at the Site. The purpose of the EE/CA was to identify removal action goals and evaluate removal action alternatives for on-site soil and sediment contamination, and on-site and/or off-site groundwater contamination at the Site. The EE/CA was prepared and organized in accordance with the U.S. EPA's *Guidance for Conducting Non-Time-Critical Removal Actions Under CERCLA*. Based on the evaluation of existing field sampling data, the U.S. EPA has determined that a removal action, in accordance with the criteria set forth in Section 300.415(b)(2) of the NCP, is necessary to reduce the threats posed to public health and/or the environment by contaminated media found on-site.

7. Applicable or Relevant and Appropriate Requirements ("ARARs")

Identification of ARARs and/or requirements to be considered ("TBCs") was performed. The IEPA Bureau of Land Programs' TACO guidelines (35 IAC Part 742) were identified as potential ARARs for soil remediation at the Site. The U.S. EPA Region 3 Risk-Based Concentrations for soil were also evaluated as TBC requirements for soil at the Site. A cleanup goal for lead in soil was calculated by the U.S. EPA using a lead model recommended by the U.S. EPA Technical Review Workgroup for Lead. These standards define the primary cleanup objectives pursuant to Section 300.415 (I) of the NCP, the proposed action will comply with Federal and State ARARs to the extent practicable considering the exigencies of the situation. It is anticipated that all ARARs can be met. A complete list of potential ARARs for the Site is provided in the EE/CA.

8. Project Schedule

By abating threats posed due to contamination, the specific removal action objective of prevention or abatement of contaminants; treatment or elimination of high levels of hazardous substances, pollutants, or contaminants; and mitigation of the environment, will be met. Removal activities planned for the Site include: (1) Remove contaminated soil, backfill, and grade with clean soil; and (2) Remove contaminated source/fill area. The general schedule for this removal action is anticipated as follows:

	Task	Duration
•	Design:	3 weeks
•	Mobilization, excavation, and sampling:	4 weeks
•	Direct disposal:	4 weeks
•	On-site stabilization/off-site disposal:	4 weeks
•	Grading:	2 weeks
Total Duration		**~17 weeks (~4-1/2 months)**

9. Post Removal Site Control

Completion of removal activities at the Site will reduce contaminant levels in the soil to health-based levels or background. After the completion of the NTC action, additional evaluation and action will be necessary to fully address the contaminated sediments and groundwater both on-site and off-site.

B. ESTIMATED COSTS

The estimated costs for the soil removal action alternatives follows:

• Excavation and Disposal of 15,400 cubic yards of Nonhazardous Soil	$1,326,800
• Soil Excavation, On-Site Stabilization, and Off-Site Disposal of 8,800 cubic yards of Soil	$1,360,588

1. Direct Capital Costs

Nonhazardous Material - Soil Excavation and Direct Disposal
Approximately 15,400 cubic yards of nonhazardous soil will be excavated to a 3-foot depth and disposed of at a landfill. The excavated area will be backfilled. Direct costs for this portion of the removal include labor, equipment, excavation, analysis of samples, transportation to a disposal facility, disposal, backfilling, etc.:

Excavation and all other work	$ 133,343
Transportation (approximately 15,400 cubic yards @$21.25/ton)	327,250
Disposal (approximately 15,400 cubic yards @$40.00/ton)	616,000
Backfilling (approximately 20,020 cubic yards @$8.75/ton)	175,175
Total direct costs	$1,251,768

Soil Excavation, On-Site Stabilization and Off-Site Disposal
This portion of the removal involves on-site stabilization of hazardous material using cement, and then disposing of the stabilized material at an approved landfill. Approximately 8,800 cubic yards of hazardous material is expected to be stabilized for rendering TCLP lead characteristics below 5 mg/L (regulatory limit). An estimated 50-day work period is used. The anticipated costs are as follows:

Equipment (pugmill, excavator, front-end loader)	$ 22,000
Labor	123,300
Work supplies (trailers, sampling equipment, etc.)	172,052
Excavation (~ 8,800 cubic yds, excludes transportation and backfilling)	37,366
Transportation (approximately 12,000 cubic yards @ $21.25/ton)	255,000
Disposal of PCB-contaminated material (200 tons @ $500/ton)	100,000
Disposal (approximately 11,800 cubic yards @ $40.00/ton)	472,000

Backfilling (approximately 12,060 cubic yards @8.75/ton)		105,525
	Total direct costs	$1,287,243

2. **Indirect Capital Costs**

Nonhazardous Material - Soil Excavation and Direct Disposal
Contractor costs for on-site work, designing final backfill slope (gradient), disposal permits, etc., for the alternative are:

Contractor services		$70,000
Permits, etc.		5,000
	Total indirect costs	$75,000

On-Site Stabilization and Off-Site Disposal of Soil

Contractor services		$55,000
Permits, etc.		5,000
	Total indirect costs	$60,000

3. **Long-term Operation and Maintenance Costs**

Nonhazardous Material - Soil Excavation and Direct Disposal
No long-term operation and maintenance costs for this alternative are anticipated.

On-Site Stabilization and Off-Site Disposal of Soil and Sediment
No long-term operation and maintenance costs for this alternative are anticipated.

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

Delay or non-action may result in continued or increased likelihood of release of contaminants into the environment.

VIII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues related to this Site and the proposed work.

IX. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this Site is contained in the Enforcement Confidential Addendum.

X. RECOMMENDATION

Based on the evaluation of existing field sampling data, the U.S. EPA has determined that a removal action, in accordance with the criteria set forth in Section 300.415(b)(2) of the NCP, is necessary to reduce the threats posed to public health and/or the environment by contaminated media found on-site. The proposed response action was selected after performing an EE/CA as required for all non-time-critical removal actions, pursuant to Section 300.415 (b)(4) of the NCP. You may indicate your decision by signing below:

APPROVE: _____ DATE: 5/6/98
Director, Superfund Division

DISAPPROVE: _____ DATE: _____
Director, Superfund Division

Appendices:

Appendix 1 - Responsiveness Summary
Appendix 2 - Administrative Record Update
Appendix 3 - Figures

cc: E. Bakowski, IEPA, **w/o Enf. Addendum**
M. Gade, EPA, **w/o Enf. Addendum**
D. Henne, U.S. Department of Interior, **w/o Enf. Addendum**
T. Crause, IEPA, **w/o Enf. Addendum**
K. Mould, U.S. EPA HQ, 5202G

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REDACTED

NOT RELEVANT TO THE SELECTION OF THE REMOVAL ACTION

APPENDIX A

RESPONSIVENESS SUMMARY

Vacant Lot Site
(aka "Vulcan Louisville Smelting Company")
North Chicago, Lake County, Illinois
CERCLIS ID# ILD 097 271 563; Site Spill ID# A527

APPENDIX A

VACANT LOT RESPONSIVENESS SUMMARY

This Responsiveness Summary addresses concerns expressed by the public and governmental bodies in written and oral comments received by the United States Environmental Protection Agency ("U.S. EPA") regarding the proposed remedy for the Vulcan Louisville Smelting Company Site (a.k.a. "The Vacant Lot" or "the Site"), North Chicago, Lake County, Illinois; CERCLIS ID# ILD-097-271-563, Site Spill ID # A527.

Community Relations Background

The U.S. EPA released the Engineering Evaluation/Cost Analysis ("EE/CA"), dated October 30, 1997, and the Proposed Plan for public review on November 3, 1996. A copy of the Proposed Plan was mailed to all residents in the Site area. An ad was also placed in the October 30, 1997, *North Suburban Edition of the Chicago Tribune* to announce the public comment period and meeting. The public comment period on the Proposed Plan was opened on November 3, 1996, and closed 30 days later on December 3, 1996. A public meeting was held at the North Chicago Public Library, 2100 North Argonne Drive, North Chicago, Illinois 60064, on November 12, 1996, to explain the alternatives evaluated in the EE/CA, to explain potential health risks, and to discuss the proposed alternative. A question and answer period was included in the meeting, along with the formal comment period. Seven members of the public attended the meeting.

Summary of Significant Comments

One commenter made five separate comments which are detailed below as comments 1-5.

Comment 1: The Lake County Stormwater Management Commission has committed funds and technical assistance through [an] inter-governmental agreement with the City of North Chicago to study and design stormwater management alternatives for the Pettibone Creek Watershed. It is in our best interest to see that this Site does not continue to remain in its current condition, as it relates to stormwater drainage.

U.S. EPA's Response: This removal action does not include the contaminated sediments in Pettibone Creek. Given the levels of contamination and the apparently limited connection to soil and groundwater contamination at the site, the remediation of the on-site segment of the Creek should only be considered if contaminant migration from upstream sources are identified and can be eliminated first. This may include diversion of surface flow from contaminated upstream culverts and channels, and oversight by the City of North Chicago ("the City") to ensure that any stormwater discharge into the Creek is free of contamination.

When the appropriate removal action for the Pettibone Creek sediments is finally decided, the U.S. EPA will work with the Lake County Stormwater Management Commission ("SMC") and the City to incorporate their studies and design for stormwater management alternatives for the Pettibone Creek Watershed into the removal action. The U.S. EPA agrees that it is in everyone's

best interest to see that this Site does not continue to remain in its current condition.

Comment 2: Homes and properties upstream of the site routinely flood during heavy storm events due to infiltration into basement sump systems as a result of "backwater effect".

U.S. EPA's Response: It is unfortunate that homes and properties upstream of the Site routinely flood during heavy storm events due to infiltration into basement sump systems as a result of "backwater effect". The U.S. EPA remains committed to the removal action of the contaminated soils at the Site, and hopes that additional studies will allow for the removal of the contaminated sediments in Pettibone Creek in the future. It must be emphasized, however, that the City and the Lake County SMC have the primary responsibility for stormwater management within the City of North Chicago. The U.S. EPA Region 5 Superfund Division's responsibilities are dictated by the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA" or "Superfund"), and limited to protecting human health and the environment as a result of releases or threatened releases of on-site contamination.

Comment 3: One of our alternatives for the watershed includes the maintenance and improvement of the Pettibone Creek stream reach located on the vacant parcel under Superfund.

U.S. EPA's Response: The U.S. EPA supports the Lake County SMC's alternative to maintain and improve the Pettibone Creek stream located on the Vacant Lot. When the appropriate removal action for the Pettibone Creek sediments is finally evaluated and decided, the U.S. EPA will work with the Lake County SMC and the City to incorporate their studies and design for stormwater management alternatives for the Pettibone Creek Watershed into any removal action.

Comment 4: The SMC encourages the U.S. EPA to include into the selected project Alternative for mitigation, at a minimum, the grading and restoration design based on our aforementioned inter-governmental agreement. This includes grading the channel thalweg to ensure positive drainage throughout the surface flow reach and an appropriate restoration and planting plan designed to improve water quality.

U.S. EPA's Response: The U.S. EPA will work with the Lake County SMC and the City to incorporate their studies and design for stormwater management alternatives for the Pettibone Creek Watershed into all removal activities at the Site. The U.S. EPA would take grading and design into account, including grading the channel to ensure positive drainage.

Comment 5: The SMC encourages the U.S. EPA, when appropriate, to coordinate efforts with the SMC relating to "upstream: sediment sampling and ultimate creek restoration design for the entire stream in question.

U.S. EPA's Response: The U.S. EPA will coordinate additional study efforts with the Lake

County SWC and the City, when appropriate, relating to upstream sediment sampling and ultimate creek restoration design for the entire stream in question.

Another commenter made two separate comments which are detailed below as comment numbers 6 and 7.

Comment 6: "On behalf of The Northern Trust Bank/Lake Forest, as trustee under a certain residuary trust, we make the following comments addressing certain factual inaccuracies contained in the Engineering Evaluation/Cost Analysis ("EE/CA"), prepared for the United States Environmental Protection Agency by Ecology and Environment, Inc., dated October 30, 1997. On page 2 of section 1 and page 7 of section 2, the EE/CA reads: "By 1954, the current Vacant Lot property was sold to an individual who developed the property as a parking lot. The owner reportedly solicited fill materials to be placed at the site."

These statements are incorrect. As evidenced by the enclosed equity search conducted by Chicago Title Insurance Company, the so-called Vacant Lot Site was owned by the Chicago North Shore and Milwaukee Railroad from 1940 until 1968. On January 29, 1968, the property was conveyed to Judith Hartmann, who in turn immediately conveyed the Property to Chicago Title and Trust Co., Trust No. 40966."

U.S. EPA's Response: The commenter notes that both of the statements about ownership may appear to be contradicted by a real estate title examination at the Site, which discloses that on January 28, 1968, title was conveyed from the Chicago North Shore and Milwaukee Railroad ("the Railroad") to a Judith Hartman, who immediately conveyed the fee interest to Chicago Title and Trust Company under its trust number 40966. Obviously, then, before 1968, title was vested in the Railroad and was subsequently conveyed into a trust, which are both substantially different from what the EE/CA reports.

It must be noted that the observations found in the EE/CA were not restricted to formal fee ownership of the Site, but rather addressed Site ownership and control from a more factual perspective, rather than from one which was only legal. Ample evidence has been gathered specifically identifying a named individual who dealt with the Site, other than the Railroad, much earlier than 1968. For instance, the Railroad deed discloses that its 1968 conveyance was in conformity with its duty to convey under a land contract, which undoubtedly was dated earlier than the date of the conveyance from the Railroad. Furthermore, in a case filed in 1966 in Lake County, Illinois, City of North Chicago v. Chicago Title and Trust Co., et al, (66-2382), the Railroad acknowledged that it had entered into the land contract concerning the Site, which then had already been assigned to the trust. At the conclusion of that case, the trial court made a specific finding identifying "the individual" as the Site owner. From information gathered from other sources, it appears that the land contract acknowledged by the Railroad as being signed, was signed during 1954, the date appearing within the EE/CA and that the owner of the trust was

the person mentioned in the 1966 court case.

Comment 7: "Additionally, the above statement implies that the Property was developed as a parking lot during or after 1954, in part by importing fill material to the Property. This statement is inconsistent with the description of the May 1, 1953 aerial photograph contained in the Aerial Photographic Analysis included in the administrative record. The description states that "the site is relatively flat, with a slightly higher elevation in the northern portion of the site (not discernable in 1939)" and that "the southeast portion of the site is used for parking." The photographic analysis demonstrates that the Property had been filled or leveled and developed as a parking lot prior to May 11, 1953. Accordingly, the reference to the timing of the filling and development of the Property as a parking lot also should be appropriately amended."

U.S. EPA's Response: To the contrary, the aerial photo analysis report explicitly states, at page III of its Abstract, that, "In 1953, 1954, 1967 this (east side of Pettibone Creek) was used as a parking lot. From 1939 through 1986, staining, excavations, mounded material, and tire tracks were present primarily in the northeastern part of the Site at the end of an access road. Stain patterns trended into the nearby creek."

This analysis indicates that the filling operations in the area of the parking lot took place over a number of years, up to and including 1967. By then, the Site was owned and controlled by "the individual." Even if one were to assume that landfill operations aimed at accommodating parking did cease earlier, the mere maintenance and operations of a gravel filled parking lot would require on-going periodic fill material to be deposited at the Site. In addition, to the parking area being maintained, Fansteel used other portions of the Site to accommodate material deliveries being made to it via commercial trucks as is represented by an internal memo dated June 30, 1997, addressed to its managers. In view of all these facts, the statement that fill material was being used at the site while owned by "the individual" seems appropriately to characterize what occurred.

Comments Received During the November 12, 1997, Public Meeting

Comment 8: Have you identified responsible parties?

U.S. EPA's Response: The U.S. EPA is currently working with Fansteel, Inc., to assess whether and to what extent Fansteel operations may have contributed to contamination at the eastern edge of the Site. The property owner has been identified. In terms of determining whether any other entities may have caused the original contamination on the Site itself, the U.S. EPA has not yet identified any potentially responsible parties ("PRPs").

Comment 9: Who owns the property?

U.S. EPA's Response: The property is owned as a land trust held by the Northern Trust Bank. It was previously held by the Stack Family.

Comment 10: In the event that there are no PRPs identified that are viable or willing to work with the U.S. EPA, what's the priority level for funding the cleanup?

U.S. EPA's Response: This removal action is being performed under Superfund Removal Program authority. This can either be funded out of the U.S. EPA Region 5 Superfund Division's Removal Budget or go before the National Prioritization Panel. The cleanup is estimated at $2.7-million, which is over the statutory removal cleanup level of $2-million. Funding for this project will be evaluated based upon the amount of risk posed by this Site, as compared with other candidate sites and available funds.

Comment 11: What are some of the other alternatives? I've heard of where you can find -- if you do a market analysis -- find a potential developer who would be willing to come in and look at the site for whatever he wants to do with it and take it, clean it up first or -- you know, where there's a trade-off. How does that work, and at what point does that get looked at?

U.S. EPA's Response: The U.S. EPA supports the reuse of Superfund sites once they have been cleaned up. In fact, one of the U.S. EPA's Administrative Reforms is called the "Brownsfield Initiative", which looks at abandoned industrial properties and how those properties can best be put back to use to benefit the community. This Site could qualify as a "Brownsfield" Site, under the Brownsfield program. Regardless, the fact remains that the Site must be cleaned up prior to any reuse scenario, since there are levels of lead and other contaminants on-site that exceed the U.S. EPA's Removal Action Levels. Until the Site is cleaned up, it cannot be re-used for a commercial industrial scenario. As of this date, no potential buyers have contacted the U.S. EPA or the property owner.

Comment 12: Say you do go in there and do the cleanup. Who owns the piece of property after the cleanup's done?

U.S. EPA's Response: The U.S. EPA will finance the cleanup of the Site in the event that there are no identifiable PRPs, provided that the U.S. EPA has funds available for the cleanup and the Site priority is high enough on the U.S. EPA's list. There would be a lien against the property filed by the U.S. EPA. Therefore, in the event the Site property was sold to a private party, the U.S. EPA could recover part of the cost of the cleanup. However, in the event that the City took possession of the property and would make use of the property to benefit the community, the U.S. EPA may not be as interested in recovering its costs through the property lien. However, that needs to be discussed between the U.S. EPA and any prospective purchaser, if and when the property is sold.

Comment 13: We have a storm sewer problem in this area. And what's why I asked that question. This may figure into it.

U.S. EPA's Response: The U.S. EPA acknowledges that there is a stormwater problem in the general vicinity of the Site. It must be emphasized, however, that the City and the Lake County SMC have the primary responsibility for stormwater management within the City of North Chicago. The U.S. EPA Region 5 Superfund Division's responsibilities are dictated by the *Comprehensive Environmental Response, Compensation and Liability Act* ("CERCLA" or "Superfund"), and limited to protecting human health and the environment as a result of on-site contamination. When the appropriate removal action for the Pettibone Creek sediments is finally evaluated and decided, the U.S. EPA will work with the Lake County SMC and the City to incorporate their studies and design for stormwater management alternatives for the Pettibone Creek Watershed into any removal action.

Comment 14: I guess I'd like to make one more comment to put on the record, that the Lake County Storm Water Management Commission has been working with the City of North Chicago for the last, I'd say, five years on this site, on this particular site. We got to the stage of design, review, permit at the State and Army Corps level to have this creek, which is right through the site, maintained regraded and cleaned up so that the storm sewer system upstream would flow properly. Then we ran into the Superfund issue. So it kind of stopped in its tracks. I just want to make sure that whatever is done that storm water and the City of of Chicago are integral partners in the final design, not necessarily the cleanup and remediation, but how the site is going to be when it's all said and done, final grading and all that. It's an important stretch in the storm sewer system of North Chicago.

U.S. EPA's Response: The U.S. EPA acknowledges that the City and the Lake County SMC have the primary responsibility for stormwater management within the City of North Chicago. The U.S. EPA Region 5 Superfund Division's responsibilities are dictated by CERCLA, and limited to protecting human health and the environment as a result of on-site contamination. When the appropriate removal action for the Pettibone Creek sediments is finally evaluated and decided, the U.S. EPA will work with the Lake County SMC and the City to incorporate their studies and design for stormwater management alternatives for the Pettibone Creek Watershed into any removal action.

APPENDIX B

ADMINISTRATIVE RECORD

Vacant Lot Site
(aka "Vulcan Louisville Smelting Company")
North Chicago, Lake County, Illinois
CERCLIS ID# ILD 097 271 563; Site Spill ID# A527

AR

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

ADMINISTRATIVE RECORD
FOR
VULCAN LOUISVILLE SMELTING COMPANY SITE
(A.K.A. VACANT LOT SITE)
NORTH CHICAGO, ILLINOIS

UPDATE #3
APRIL 23, 1998

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	00/00/00 *	O'Grady, J., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Request for a Non-Time-Critical Removal Action at the Vacant Lot Site **(PENDING)**	

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMEDIAL ACTION

ADMINISTRATIVE RECORD
FOR
VULCAN LOUISVILLE SMELTING COMPANY SITE
(A.K.A. VACANT LOT SITE)

UPDATE #2
MARCH 24, 1998

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	06/17/97	U.S. EPA	Jarosz, W., Fansteel, Inc.	General Notice of Potential Liability re: the Vulcan Louisville Smelting Company Site	6
2	09/22/97	O'Grady, J., U.S. EPA	Triller, J., IEPA	Letter Providing Draft EE/CA for the Vacant Lot Site to IEPA for Comment	1
3	09/26/97	Triller, J., IEPA	O'Grady, J., U.S. EPA	Letter re: Comments from IEPA to U.S. EPA on the Draft EE/CA for the Vacant Lot Site	1
4	10/29/97	O'Grady, J., U.S. EPA	Triller, J., IEPA	Letter re: U.S. EPA's Response to IEPA's Comments on the Draft EE/CA for the Vacant Lot Site	3
5	11/00/97	U.S. EPA	Public	Fact Sheet for the Vacant Lot Site	8
6	11/04/97	O'Grady, J., U.S. EPA	Vickery, R.; Freeborn & Peters	Transmittal Letter Accompanying Final EE/CA for the Vacant Lot Site	1
7	11/04/97	O'Grady, J., U.S. EPA	Bakowski, E. and T. Crause; IEPA	Transmittal Letter Accompanying Final EE/CA for the Vacant Lot Site	1
8	11/04/97	O'Grady, J., U.S. EPA	Lake, C.; McBride, Baker & Coles	Transmittal Letter Accompanying Final EE/CA for the Vacant Lot Site	1
9	11/06/97	Lake, C.; McBride, Baker & Coles	O'Grady, J., U.S. EPA	Letter Acknowledging Receipt of Final EE/CA and Submittal of Fansteel EE/CA by December 8, 1997	1

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
10	11/12/97	Gaiser, V., Independent Court Reporters	U.S. EPA	Transcript of November 12, 1997 Public Meeting re: the Vacant Lot Site	33
11	11/24/97	Royal, F., Lake County Stormwater Management Commission	Emeric, N., U.S. EPA	Letter re: SMC's Comments on the November 1997 Fact Sheet for the Vacant Lot Site	1
12	12/03/97	Baratta, R., Freeborn & Peters	Emeric, N., U.S. EPA	Letter re: Public Comments on the October 1997 EE/CA Report for the Vacant Lot Site w/Attachments	6
13	12/08/97	Lake, C., McBride, Baker & Coles	O'Grady, J., U.S. EPA	Letter Forwarding Fansteel's Outline of the EE/CA Work Plan for the Vulcan Louisville Smelting Company Site	6
14	02/09/98	O'Grady, J., U.S. EPA	Lake, C., McBride, Baker & Coles	Letter re: U.S. EPA's Comments on Fansteel's Outline of the EE/CA Work Plan for the Vacant Lot Site	4
15	02/23/98	Lake, C.; McBride, Baker & Coles	O'Grady, J., U.S. EPA	Letter Acknowledging U.S. EPA's Comments on Fansteel's Outline of the EE/CA Work Plan for the Vulcan Louisville Smelting Company Site and Commitment to Submit a Revised EE/CA Work Plan by April 15, 1998	1

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U.S. ENVIRONMENTAL PROTECTION AGENCY
REMEDIAL ACTION

ADMINISTRATIVE RECORD
FOR
VULCAN LOUISVILLE SMELTING COMPANY SITE
(AKA: VACANT LOT SITE)
NORTH CHICAGO, ILLINOIS

UPDATE #1
OCTOBER 30, 1997

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	10/30/97	Ecology and Environment, Inc.	U.S. EPA	Engineering Evaluation/ Cost Analysis for the Vacant Lot Sice	597

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U.S. ENVIRONMENTAL PROTECTION AGENCY
REMEDIAL ACTION

ADMINISTRATIVE RECORD
FOR
VULCAN LOUISVILLE SMELTING COMPANY SITE
(A.K.A. VACANT LOT SITE)
NORTH CHICAGO, ILLINOIS

ORIGINAL
JULY 12, 1997

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	00/00/00	IEPA		CERCLA Screening Site Inspection Analytical Results (CONFIDENTIAL MATERIAL MAY BE ENCLOSED)	155
2	00/00/00	U.S. EPA	File	Tables: Summaries of (1) Groundwater Sampling Results; (2) On-Site Soil Sampling Results; (3) Off-Site Soil Sampling Results for the Vacant Lot Site	3
3	06/30/75	Mcdonald, J., U.S. EPA	Lavin, N., North Chicago Refiners and Smelters, Inc.	Letter Forwarding Attached NPDES Permit, No. IL 0002755 w/Permit Application and Correspondence	45
4	07/07/88	Krebs, L., National Environmental Testing, Inc.	Doubet, S., IEPA	Letter Forwarding Attached Final Report Submission for the North Chicago Ground Fire Project	14
5	10/09/88	MAECORP, Inc.	Northern Trust Co.	Report: Water Sampling Results from the 22nd Street Property	20
6	02/10/89	Laukant, R., MAECORP, Inc.	Magel, B., Karaganis & White, Ltd.	Letter Forwarding Attached Interim Report for Stack Property	37
7	03/27/89	MAECORP, Inc.	Karaganis & White, Ltd.	Final Report for Sampling and Analytical Investigation at the Stack Property	44
8	11/13/89	MAECORP, Inc.	Karaganis & White, Ltd.	Revised Final Report and Analytical Investigations at the Stack Property	41

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
9	12/12/90	Lesko, K., U.S. EPA	IEPA/Cleanup Objective Team	Memorandum Re: RCRA Closure Log for Fansteel, Inc.	62
10	02/00/91	Envirodyne Engineers, Inc.	Lake County Division of Transportation	Phase I Report: Environmental Site Assessment for the North Chicago Bike Path	125
11	06/07/91	Envirodyne Engineers, Inc.	Lake County Division of Transportation	Phase II Report: Environmental Assessment for the North Chicago Bike Path	42
12	06/00/92	Aires Environmental Services, Ltd.	Tenney Pavoni Associates, Inc.	Report: Soil Sampling Survey at the Proposed Bike Path in North Chicago	17
13	12/00/93	U.S. EPA / Office of Water	U.S. EPA	Drinking Water Regulations and Health Advisories	13
14	04/25/94	McSwiggin, T., IEPA	Fansteel, Inc.	Letter Re: Notice of Coverage Under the Non-Contact Cooling Water General Permit w/ Attached Permit, Correspondence, and Illinois Pollution Control Board Order and Opinion Documents	92
15	06/00/94	Geraghty & Miller, Inc.	The Northern Trust Co., U.S. EPA	Report: Groundwater Investigation at the Stack Property	94
16	07/11/94	Smith, R., U.S. EPA	RBC Table Mailing List	Risk-Based Concentration Table: Third Quarter 1994	20
17	09/06/94	Triller, J., IEPA	Bruce D., U.S. EPA	Memorandum Re: Groundwater and Sediment Sample Survey at the Vacant Lot Site	5
18	12/15/94	Gillig, R., USDHHS/USPHS/ ATSDR	Fabinski, L., USDHHS/U.S. EPA Region 5	Memorandum Re: Health Consultation for the Vacant Lot Site	16
19	02/09/95	Smith, R., U.S. EPA	U.S. EPA	U.S. EPA Region 3 Risk-Based Concentration Table: Background Information	21

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
20	02/24/95	Ecology & Environment, Inc.	U.S. EPA/ EERB	Site Assessment Report for North Chicago Site	52
21	03/07/95	Smith, R., U.S. EPA	RBC Table Mailing List	Risk-Based Concentration Table: January-June 1995	3
22	03/23/95	Riley, J., U.S. EPA	U.S. EPA	Memorandum Re: Update #2 to Removal Action Levels with Draft Soil Screening Level Guidance	25
23	05/00/95	U.S. EPA/ Office of Water	U.S. EPA	Drinking Water Regulations and Health Advisories	15
24	03/12/96	Burris, B., Ciorba Group, Inc.	Graey, J., U.S. EPA (O'Grady, J.)	Excerpts from the Following Reports: (1) Phase II Environmental Assessment; (2) IEPA Onsite & Offsite Soil Sample Information; (3) American Environmental Analytical Lab Report for 6 Locations; (4) CBC Composite Soil Sample for Pettibone Creek	37
25	07/25/96	O'Grady, J., U.S. EPA	File	Groundwater Sampling Data (ANNOTATED)	4
26	08/01/96	O'Grady, J., U.S. EPA	Nabasny, G., U.S. EPA	Action Memorandum: Funding for Engineering Evaluation/Cost Analysis for the Vacant Lot Site w/Attachments	21
27	10/20/96	Smith, R., U.S. EPA/ Region 3	RBC Table Mailing List	Risk-Based Concentration Table: July-December 1995	30
28	11/13/96	O'Grady, J., U.S. EPA	Triller, J., IEPA	Letter Re: Brief Update of Activities Undertaken by U.S. EPA in Regards to the Vulcan Louisville Smelting Site, Including a Request for Additional Information Necessary to Complete Site Studies	1
29	11/27/96	Triller, J., IEPA	O'Grady, J., U.S. EPA	Memorandum Re: NPDES Permits for Fansteel and R. Lavin & Sons	2

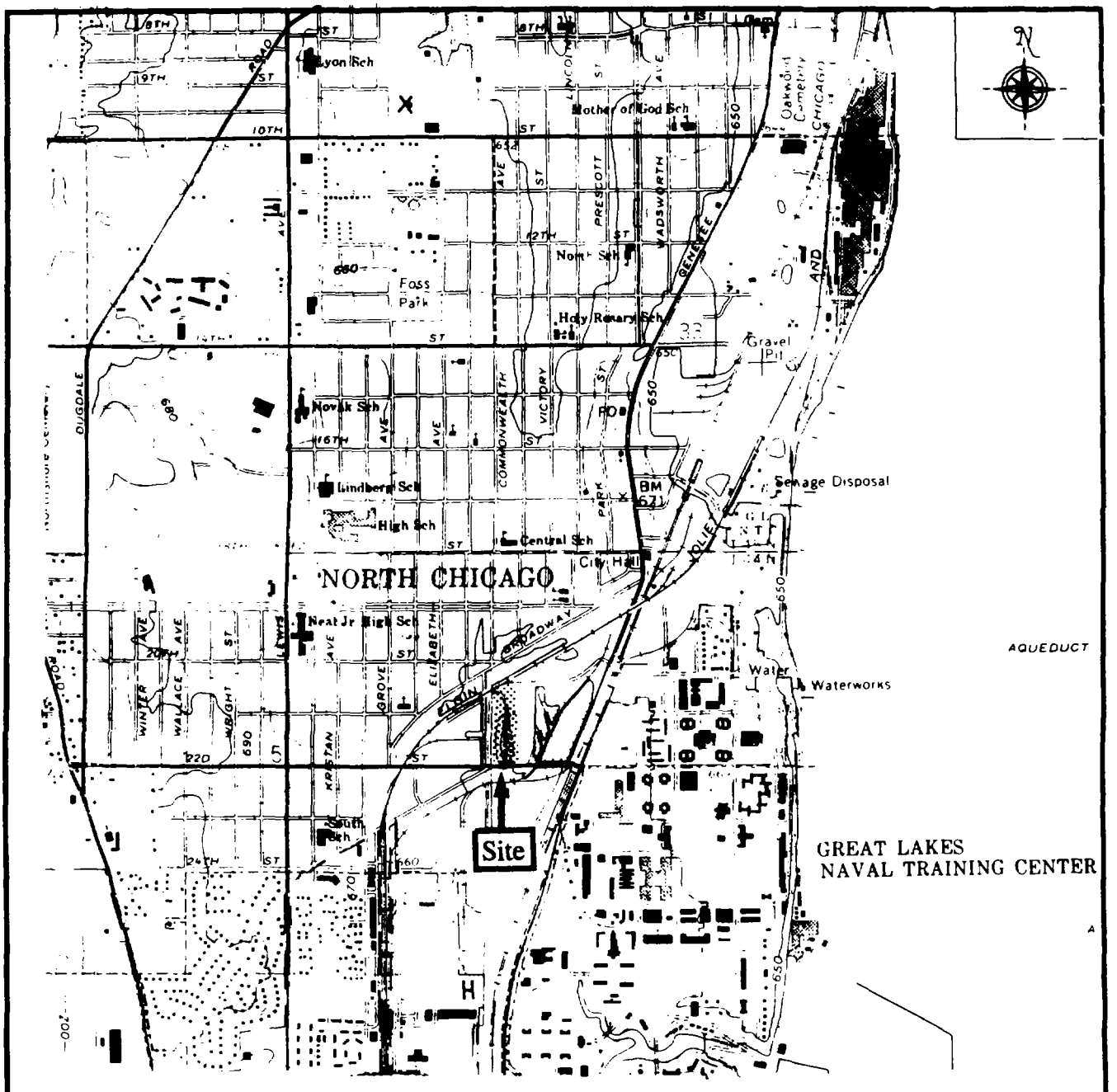
NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
30	12/10/96	Triller, J., IEPA	O'Grady, J., U.S. EPA	Information Concerning RCRA Closure at the Fansteel Site w/ Sampling Data	41
31	12/11/96	Crause, T., et al; IEPA	O'Grady, J., U.S. EPA	Letter Re: Inclusion of Fansteel, Inc. in the EE/CA Being Performed for the Vacant Lot Site	1
32	4/10/97	Pullen, L., U.S. EPA	O'Grady, J., U.S. EPA	Memorandum Re: Vacant Lot Site: Determination of a Clean-Up Goal for Lead	8
33	05/00/97	U.S. EPA	File	Aerial Photographic Analysis: Vacant Lot Site-North Chicago, IL	32
34	05/00/97	U.S. EPA	Public	Superfund Fact Sheet: Vacant Lot Site	4
35	05/00/97	Nagam, Raghu Ecology & Environment, Inc.	O'Grady, J., U.S. EPA	Memorandum Re: Update on First Sampling Event Conducted at Vacant Lot Site	5

APPENDIX C

FIGURES

Vacant Lot Site
(aka "Vulcan Louisville Smelting Company")
North Chicago, Lake County, Illinois
CERCLIS ID# ILD 097 271 563; Site Spill ID# A527

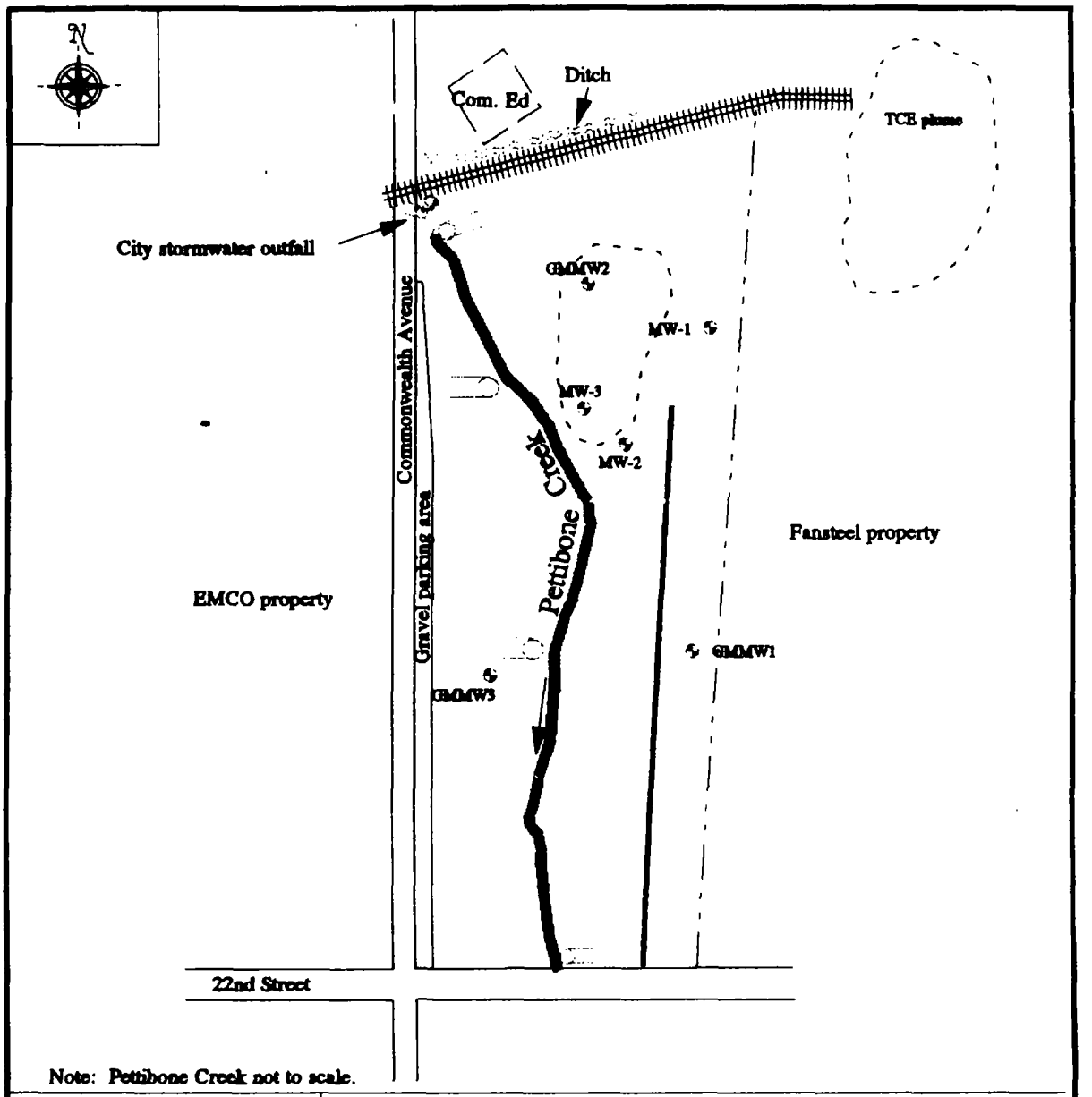
Figure	Title
C-1	Site Location Map
C-2	Site Features Map
C-3	Sample Location Map
C-4	Soil Inorganic Contamination Map
C-5	Soil Organic Contamination Map
C-6	Groundwater Inorganic Contamination Map
C-7	Groundwater Organic Contamination Map
C-8	Sediment Inorganic Contamination Map
C-9	Sediment Organic Contamination Map
C-10	Source Contamination Contour Map
C-11	Surface Water Drainage Map
C-12	Habitat Map
C-13	Land Use Map
C-14	Sites of Potential Concern Map



Quadrangle Location

ecology and environment, inc.
Superfund Technical Assessment and Response Team
Region 5
33 North Dearborn Street, Suite 900, Chicago, Illinois 60602

TITLE	Site Location Map	FIGURE #	C-1
SITE	Vacant Lot	SCALE	1:24,000
CITY	North Chicago	STATE Illinois	TDD # S05-9609-017
SOURCE	USGS Map, 7.5 Minute Series, Waukegan Quadrangle	DATE	1960
		REVISED	1980



Note: Pettibone Creek not to scale.

Legend

- Outfall
- Monitoring well/number
- Source/fill area
- Access road
- Fence
- Ditch water
- TCE plume
- Elgin, Joliet Eastern Railroad tracks

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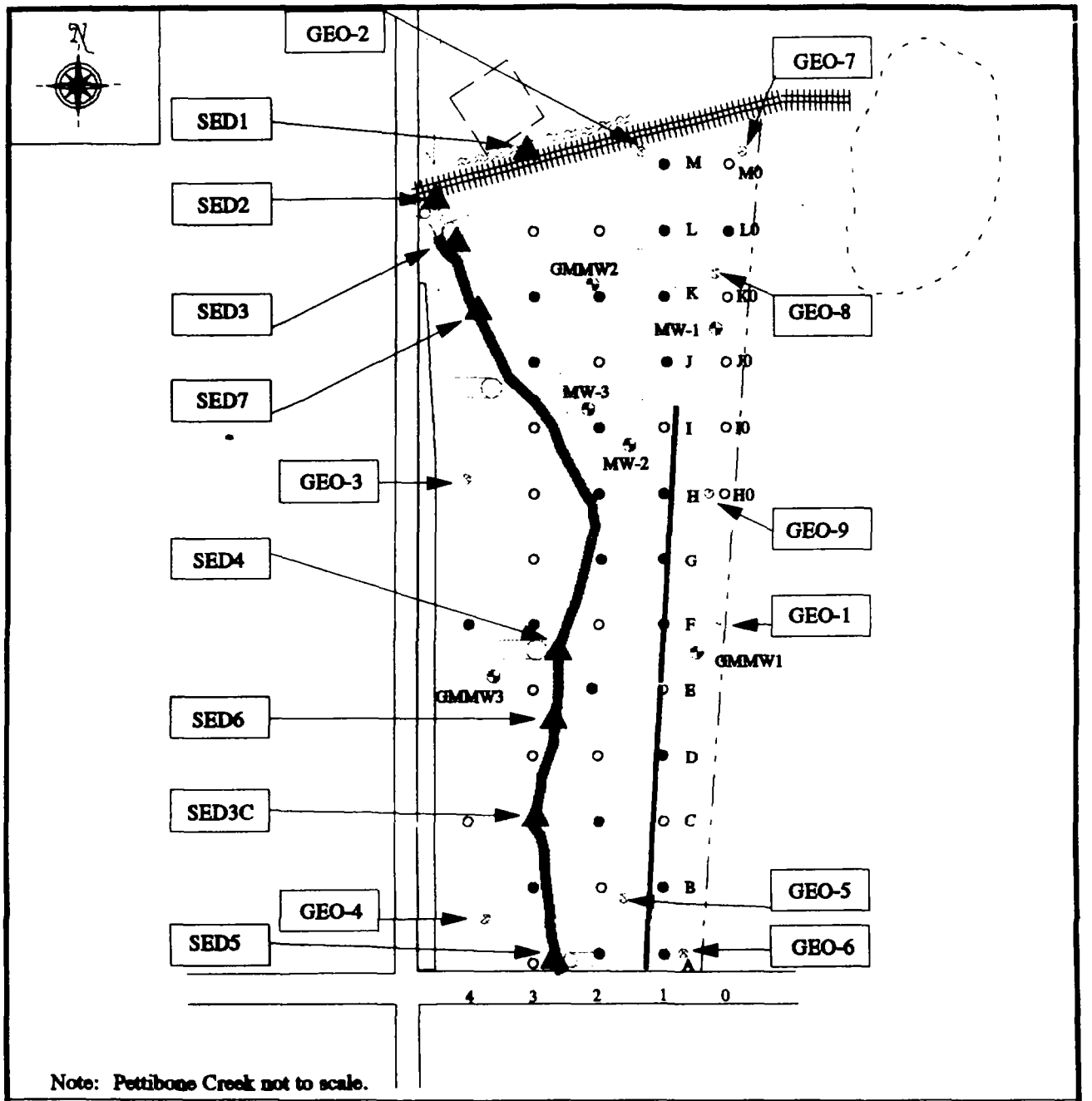
Region 5
33 North Dearborn Street, Suite 900, Chicago, Illinois 60602

TITLE: Site Features Map	FIGURE #: C-2
SITE: Vacant Lot	0 100 200 Scale in feet
CITY: North Chicago STATE: Illinois	TDD #: S05-9609-017
SOURCE: Ecology & Environment, Inc.	DATE: 1996 REVISED: 1997



Note: Pettibone Creek not to scale.

Legend

- Monitoring well/number
- Geoprobe location/number
- Soil sample location analyzed for all parameters except VOCs
- Soil sample location analyzed for all parameters including VOCs
- Sediment sample location
- A 1 Grid node identification

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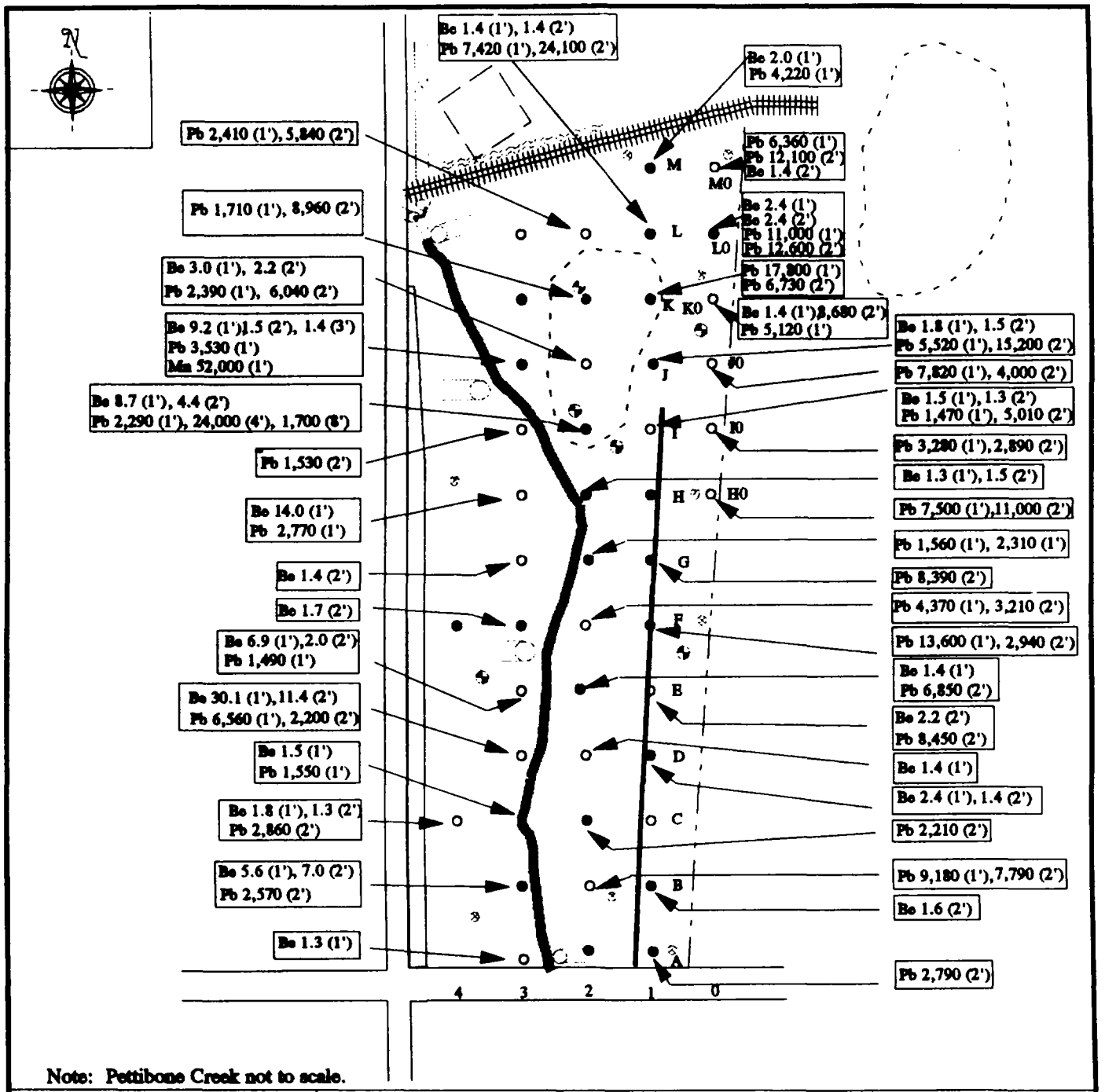
Region 5
33 North Dearborn Street, Suite 900, Chicago, Illinois 60602

TITLE: Sample Location Map	FIGURE #: C-3
SITE: Vacant Lot	0 100 200 Scale in feet
CITY: North Chicago STATE: Illinois	TDD #: S05-9609-017
SOURCE: Ecology & Environment, Inc.	DATE: 1996 REVISED: 1997



Note: Pettibone Creek not to scale.

Legend

Concentration in mg/kg
Depth in feet (')

- Pb Total lead
- Be Total beryllium
- Mn Total manganese
- Monitoring well
- Geoprobe location
- ○ Soil sample location analyzed for all parameters except VOCs
- ● Soil sample location analyzed for all parameters including VOCs
- A 1 Grid node identification

Note: Contamination is defined by concentrations above general and site-specific industrial RBCs.

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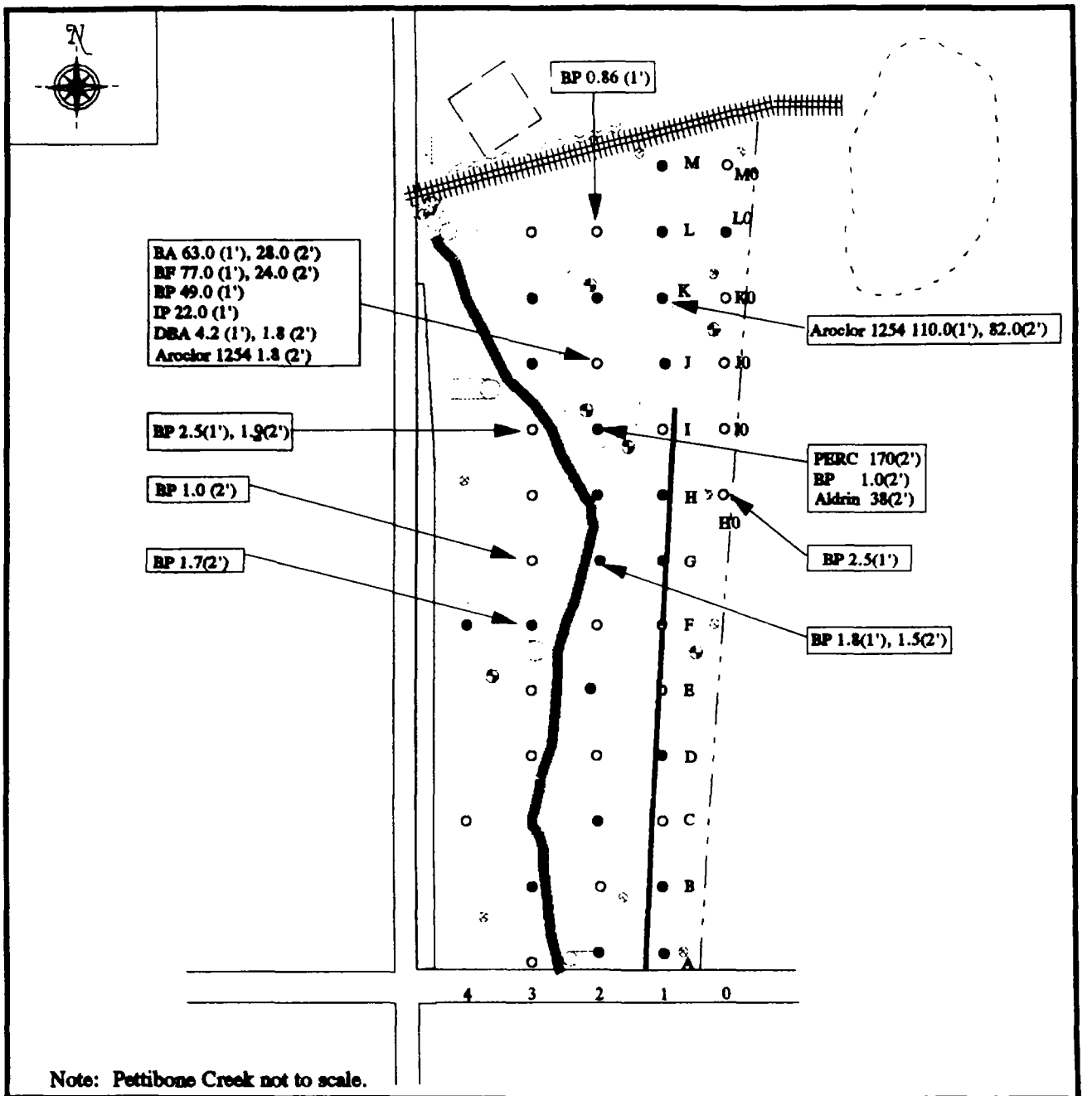
TITLE: Soil Inorganic Contamination Map	FIGURE #: C-4
SITE: Vacant Lot	0 100 200 Scale in feet
CITY: North Chicago STATE: Illinois	TDD #: S05-9609-017
SOURCE: Ecology & Environment, Inc.	DATE: 1997 REVISED: 1997



Note: Pettibone Creek not to scale.

Legend

Concentration in mg/kg
Depth in feet (')

BP	benzo(a)pyrene
BA	benzo(a)anthracene
BF	benzo(b)fluoranthene
IP	indeno(1,2,3-cd)pyrene
DBA	dibenzo(a,h)anthracene
PERC	tetrachloroethene
	Monitoring well
	Geoprobe location
○	Soil sample location analyzed for all parameters except VOCs
●	Soil sample location analyzed for all parameters including VOCs
A 1	Grid node identification
Note:	Contamination is defined by concentration above general and site-specific industrial RBCs

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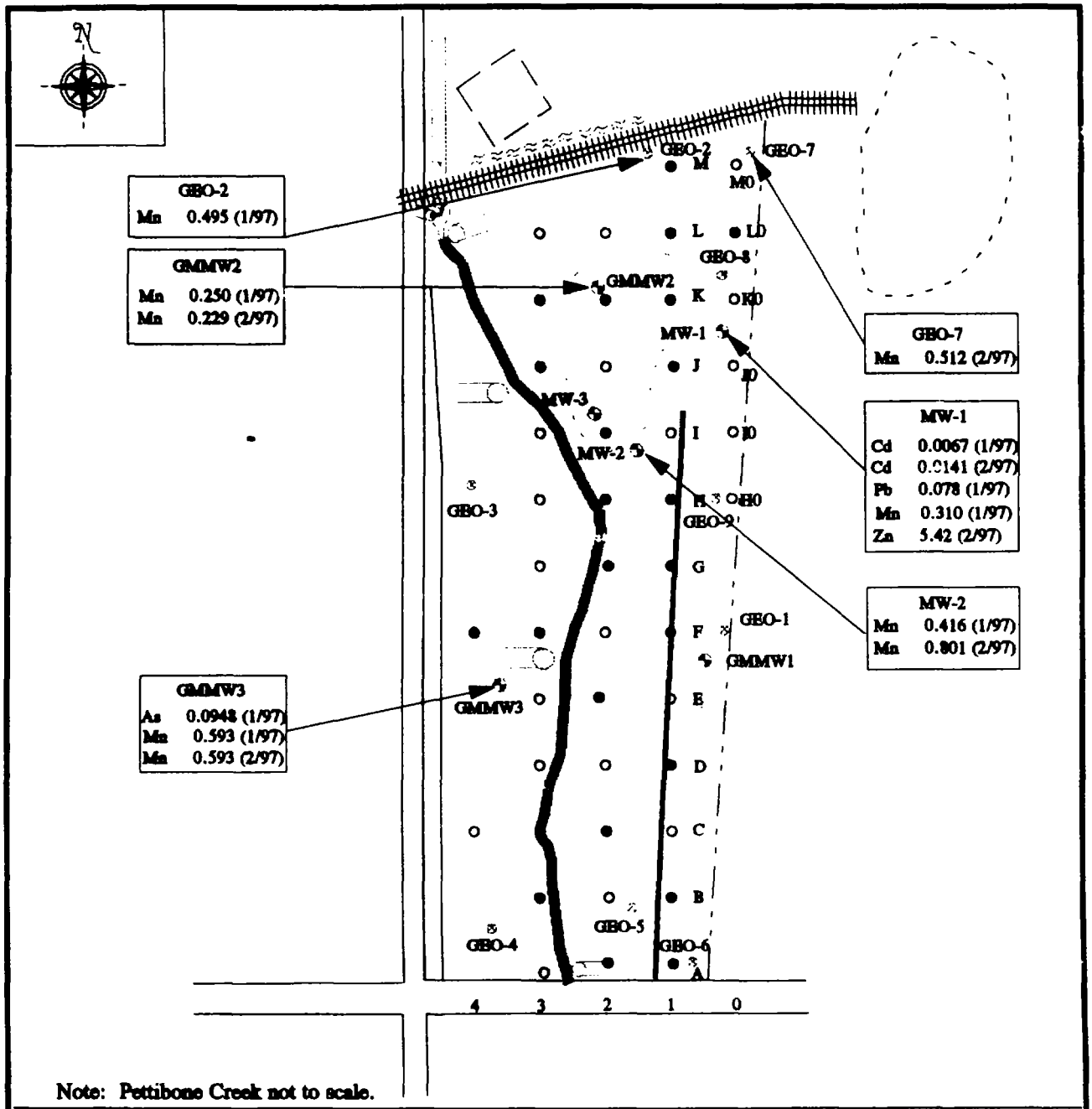
33 North Dearborn Street, Suite 900, Chicago, Illinois 60602

TITLE	Soil Organic Contamination Map
FIGURE #	C-5
SITE	Vacant Lot
Scale in feet	0 100 200
CITY	North Chicago
STATE	Illinois
TDD #	S05-9609-017
SOURCE	Ecology & Environment, Inc.
DATE	1996
REVISED	1997



Note: Pettibone Creek not to scale.

Legend

Concentration in mg/L - contaminant concentrations exceed RALs
(1/97) = First sampling event
(2/97) = Second sampling event

Mn Total manganese
As Total arsenic
Cd Total cadmium
Pb Total lead
Zn Total zinc
Monitoring well/number
Geoprobe location/number
O Soil sample location analyzed for all parameters except VOCs
● Soil sample location analyzed for all parameters including VOCs
A 1 Grid node identification

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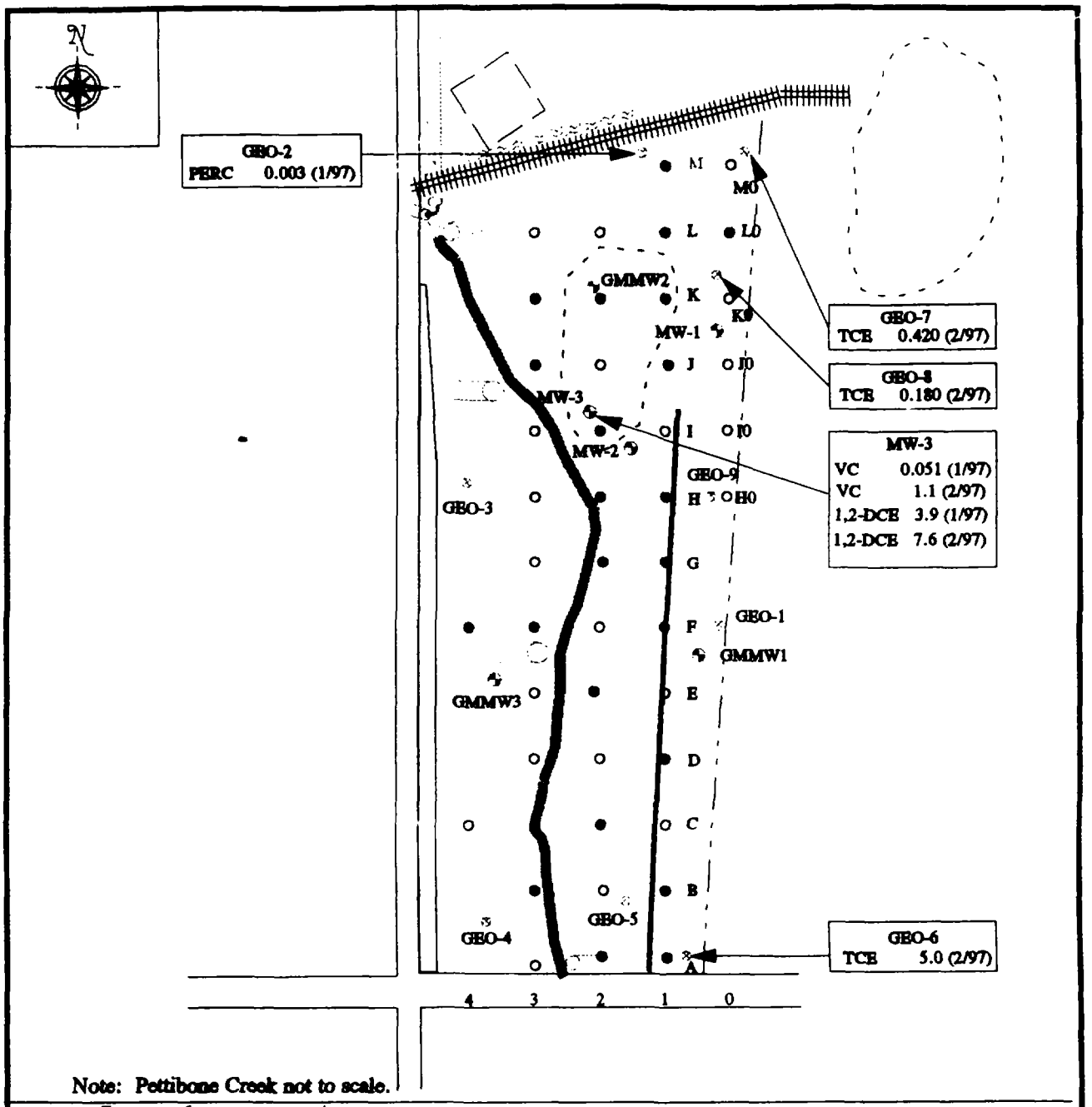
Region 5
33 North Dearborn Street, Suite 900, Chicago, Illinois 60602

TITLE Groundwater Inorganic Contamination Map	FIGURE # C-6
SITE Vacant Lot	0 100 200 Scale in feet
CITY North Chicago STATE Illinois	TDD # S05-9609-017
SOURCE Ecology & Environment, Inc.	DATE 1996 REVISED 1997



Note: Pettibone Creek not to scale.

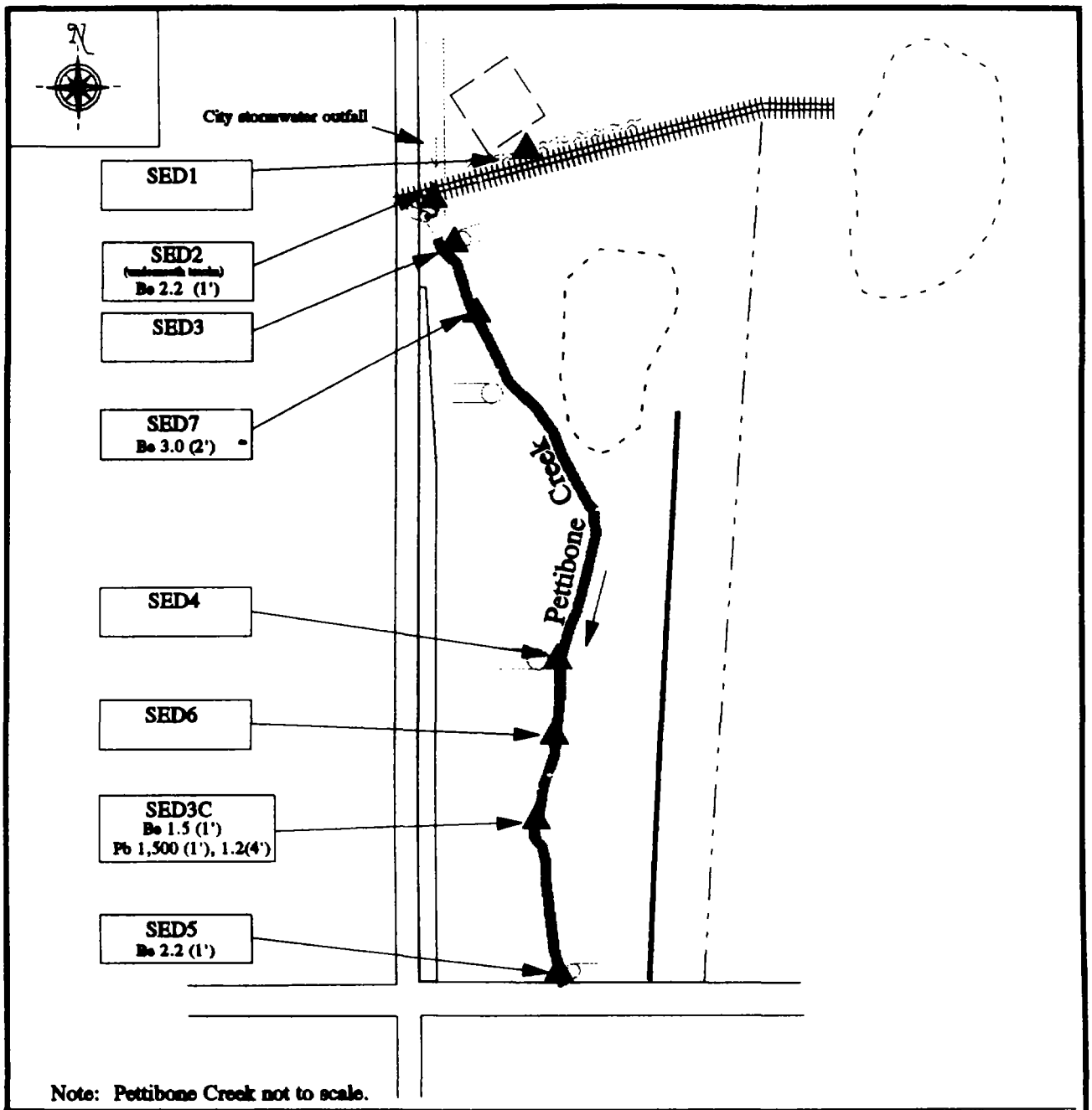
Legend

Compound concentration in mg/L - contaminant concentrations exceed RALs
(1/97) = First sampling event
(2/97) = Second sampling event

VC	vinyl chloride
1,2-DCE	1,2-dichloroethene
TCE	trichloroethene
PERC	tetrachloroethene
⚲	Monitoring well/number
⊙	Geoprobe location/number
○	Soil sample location analyzed for all parameters except VOCs
●	Soil sample location analyzed for all parameters including VOCs
A 1	Grid node identification

ecology and environment, inc.
Superfund Technical Assessment and Response Team
Region 5
33 North Dearborn Street, Suite 900, Chicago, Illinois 60602

TITLE	Groundwater Organic Contamination Map
FIGURE #	C-7
SITE	Vacant Lot
Scale in feet	0 100 200
CITY	North Chicago
STATE	Illinois
TDD #	S05-9609-017
SOURCE	Ecology & Environment, Inc.
DATE	1996
REVISED	1997



Note: Pettibone Creek not to scale.

Legend

Analyte concentration in mg/kg
depth in feet (')

Be Total beryllium

Pb Total lead

▲ Sample location

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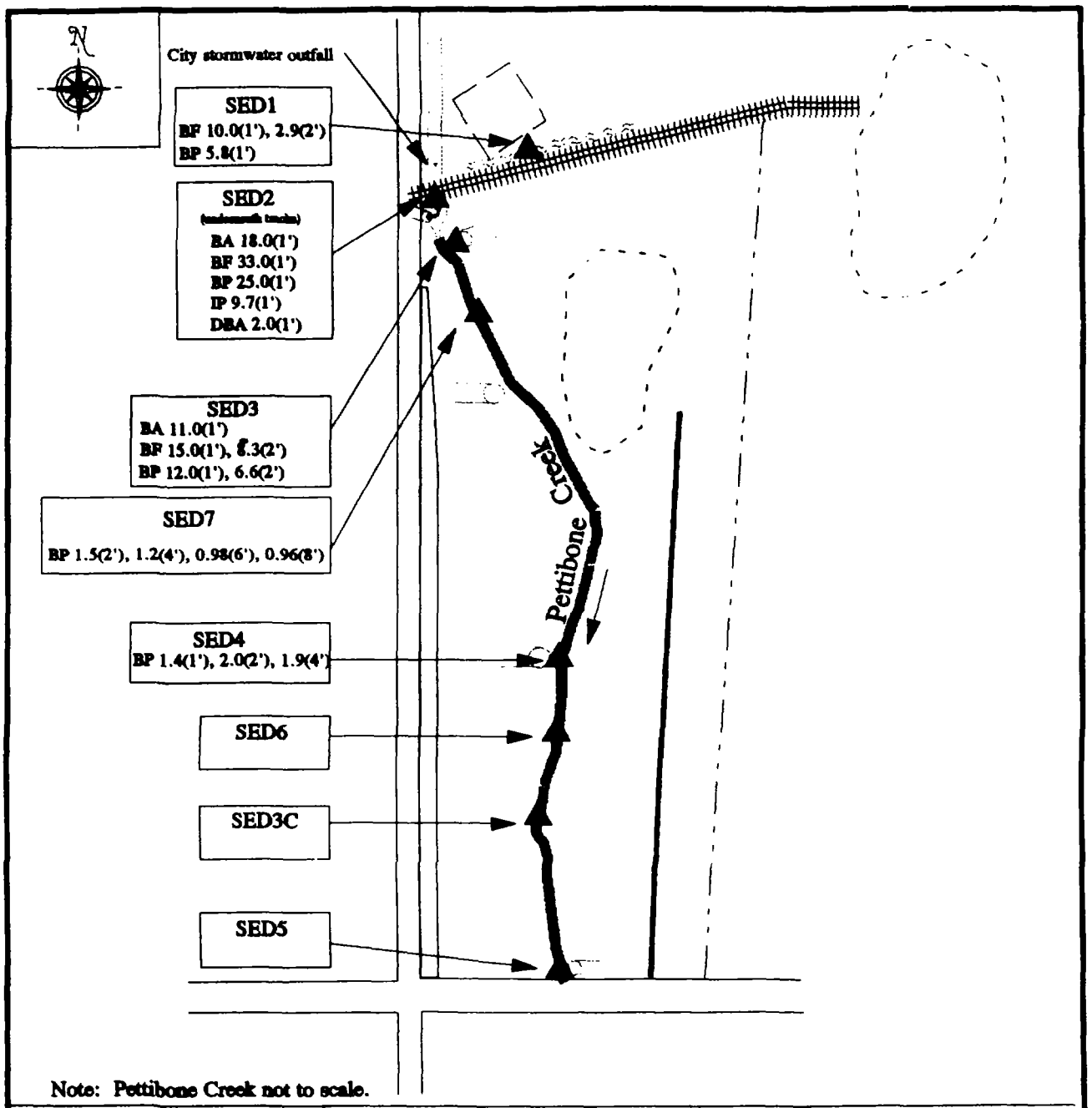
Superfund Technical Assessment and Response Team
Region 5
33 North Dearborn Street, Suite 900, Chicago, Illinois 60602

TITLE: Sediment Inorganic Contamination Map	FIGURE #: C-8
SITE: Vacant Lot	0 100 200 Scale in feet
CITY: North Chicago STATE: Illinois	TDD #: S05-9609-017
SOURCE: Ecology & Environment, Inc.	DATE: 1996 REVISED: 1997



Note: Pettibone Creek not to scale.

Legend

Analyte concentration in mg/kg
depth in feet (')

BA	benzo(a)anthracene
BF	benzo(b)fluoranthene
BP	benzo(a)pyrene
IP	indeno(1,2,3-cd)pyrene
DBA	dibenzo(a,h)anthracene

▲ Sample location

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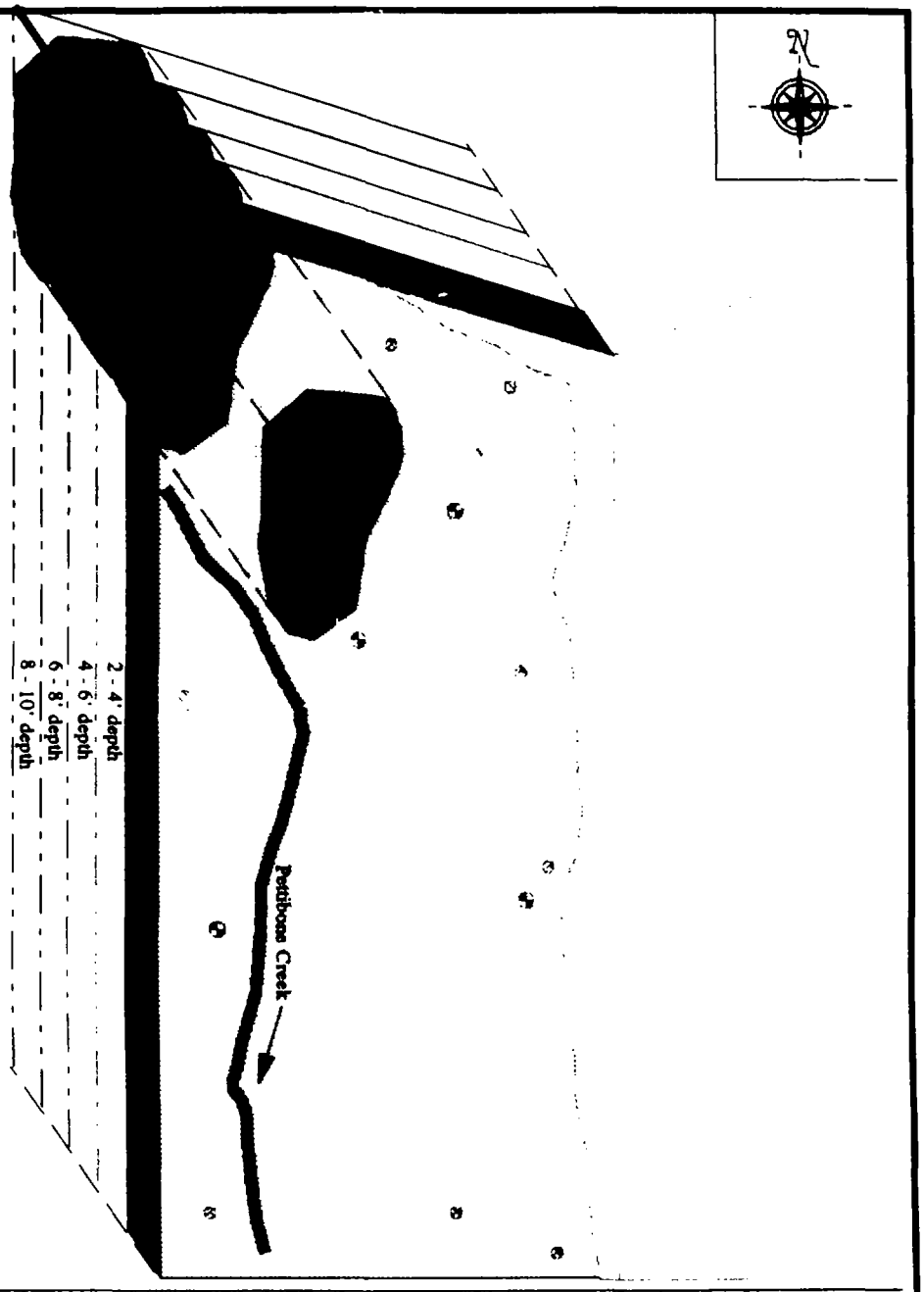
Region 5
33 North Dearborn Street, Suite 900, Chicago, Illinois 60602

TITLE: Sediment Organic Contamination Map	FIGURE #: C-9
SITE: Vacant Lot	0 100 200 Scale in feet
CITY: North Chicago STATE: Illinois	TDD #: S05-9609-017
SOURCE: Ecology & Environment, Inc.	DATE: 1996
	REVISED: 1997



Note: Pettibone Creek not to scale.

Legend

- Source/fill area & groundwater contamination area
- Approximate TCE-contaminated groundwater plume
- (') feet
- 0 - 2' depth contamination area
- 4' depth
- 6' depth
- 8' depth
- 10' depth
- Monitoring well
- Geoprobe location

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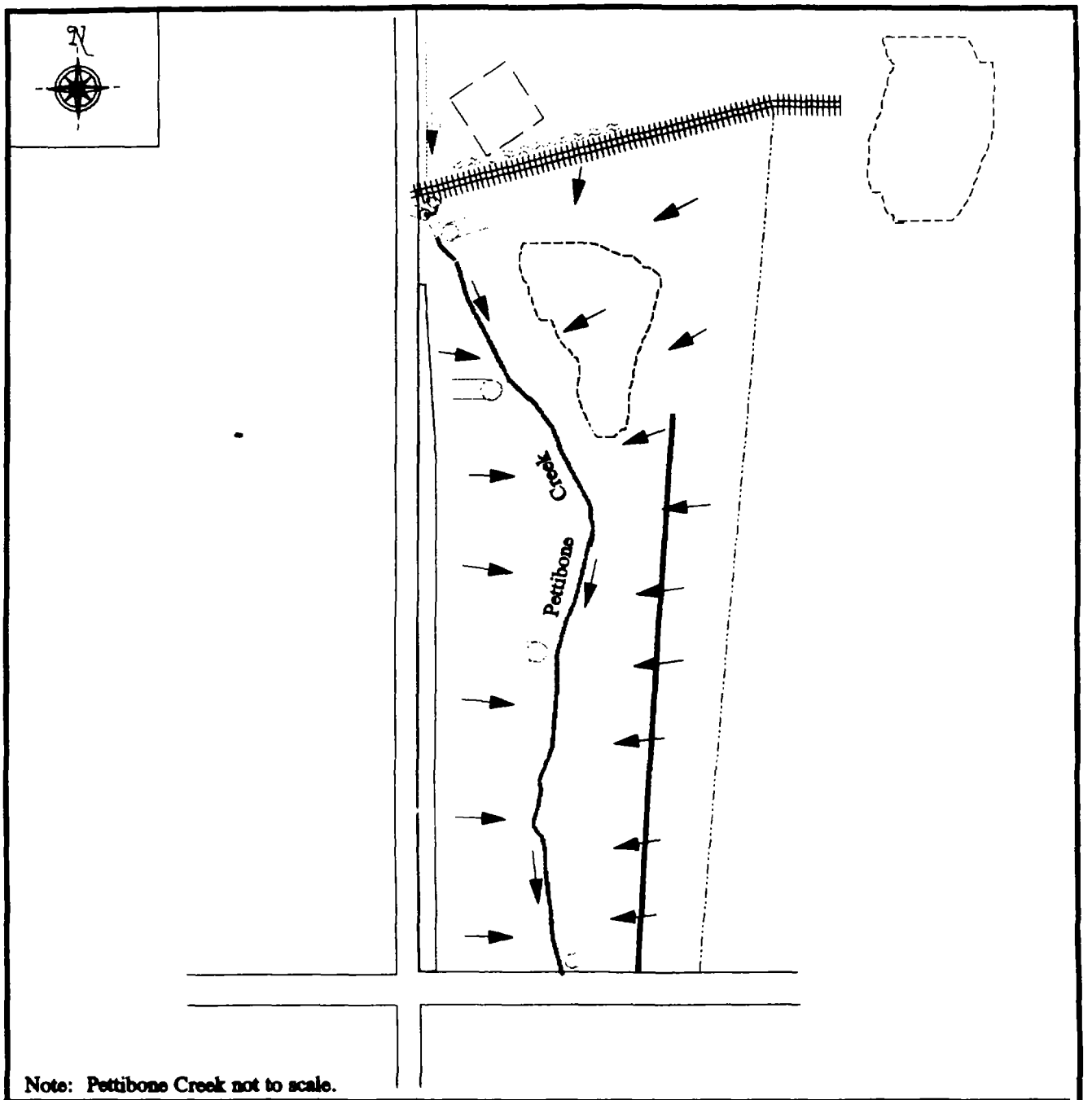
TITLE: Source Contamination Contour Map	FIGURE #: C-10
SITE: Vacant Lot	SCALE: Not to Scale
CITY: North Chicago STATE: Illinois	TDD #: S05-9609-017
SOURCE: Ecology & Environment, Inc.	DATE: 1996 REVISED: 1997



Note: Pettibone Creek not to scale.

Legend

→ Direction of surface water drainage

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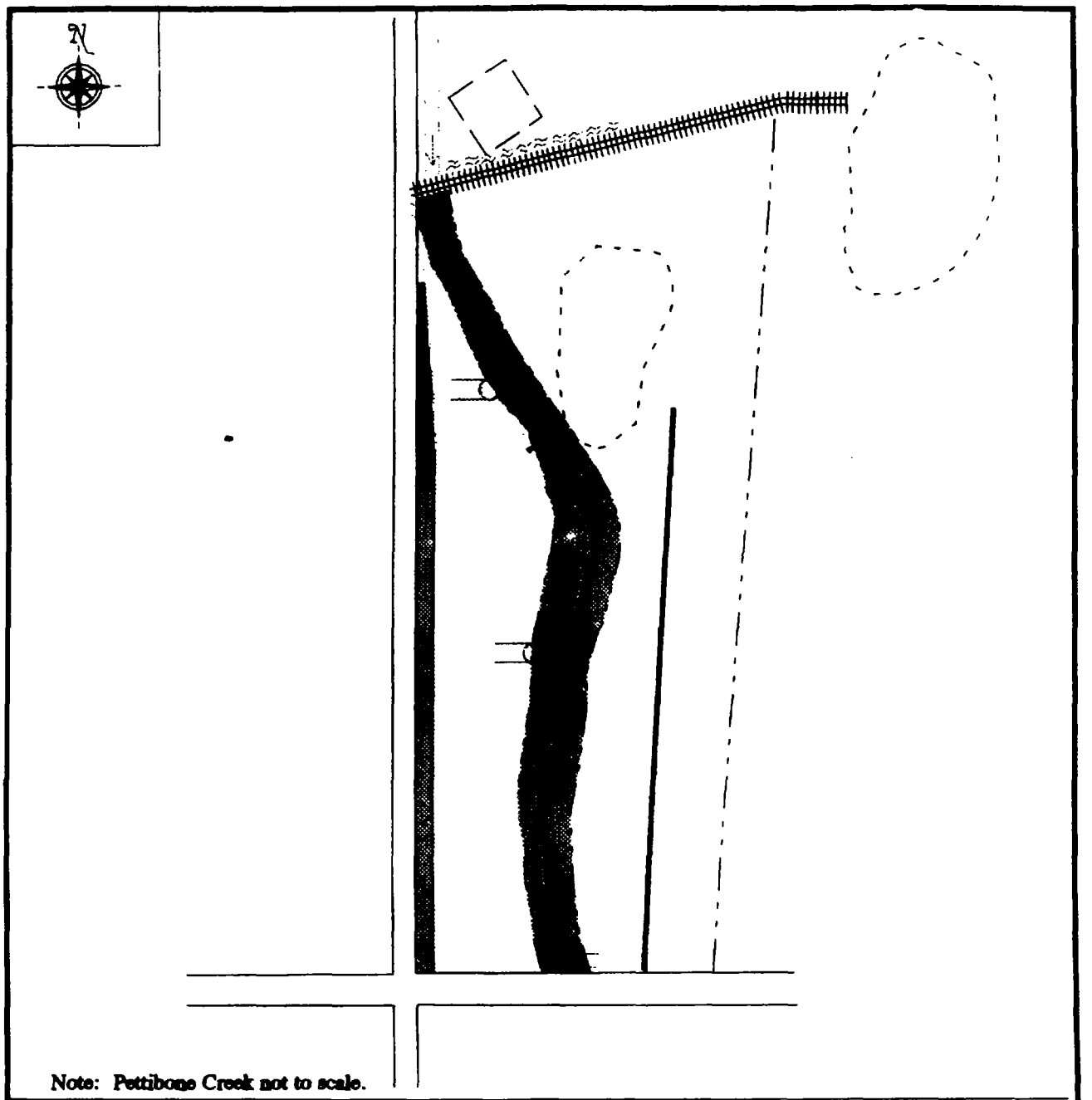
TITLE: Surface Water Drainage Map	FIGURE #: C-11
SITE: Vacant Lot	0 100 200 Scale in feet
CITY: North Chicago STATE: Illinois	TDD #: S05-9609-017
SOURCE: Ecology & Environment, Inc.	DATE: 1997



Note: Pettibone Creek not to scale.

Legend

- Disturbed Mixed Deciduous Forest
- Barren Land
- Early Successional Old Field
- Intermittent Stream

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Region 5
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TITLE Habitat Map	FIGURE # C-12
SITE Vacant Lot	0 100 200 Scale in feet
CITY North Chicago STATE Illinois	TDD # S05-9609-017
SOURCE Ecology & Environment, Inc.	DATE 1996 REVISED 1997

Note: Pettibone Creek not to scale.

Legend

- Industrial
- Commercial and Services
- Transportation, Communications, and Utilities

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Region 5
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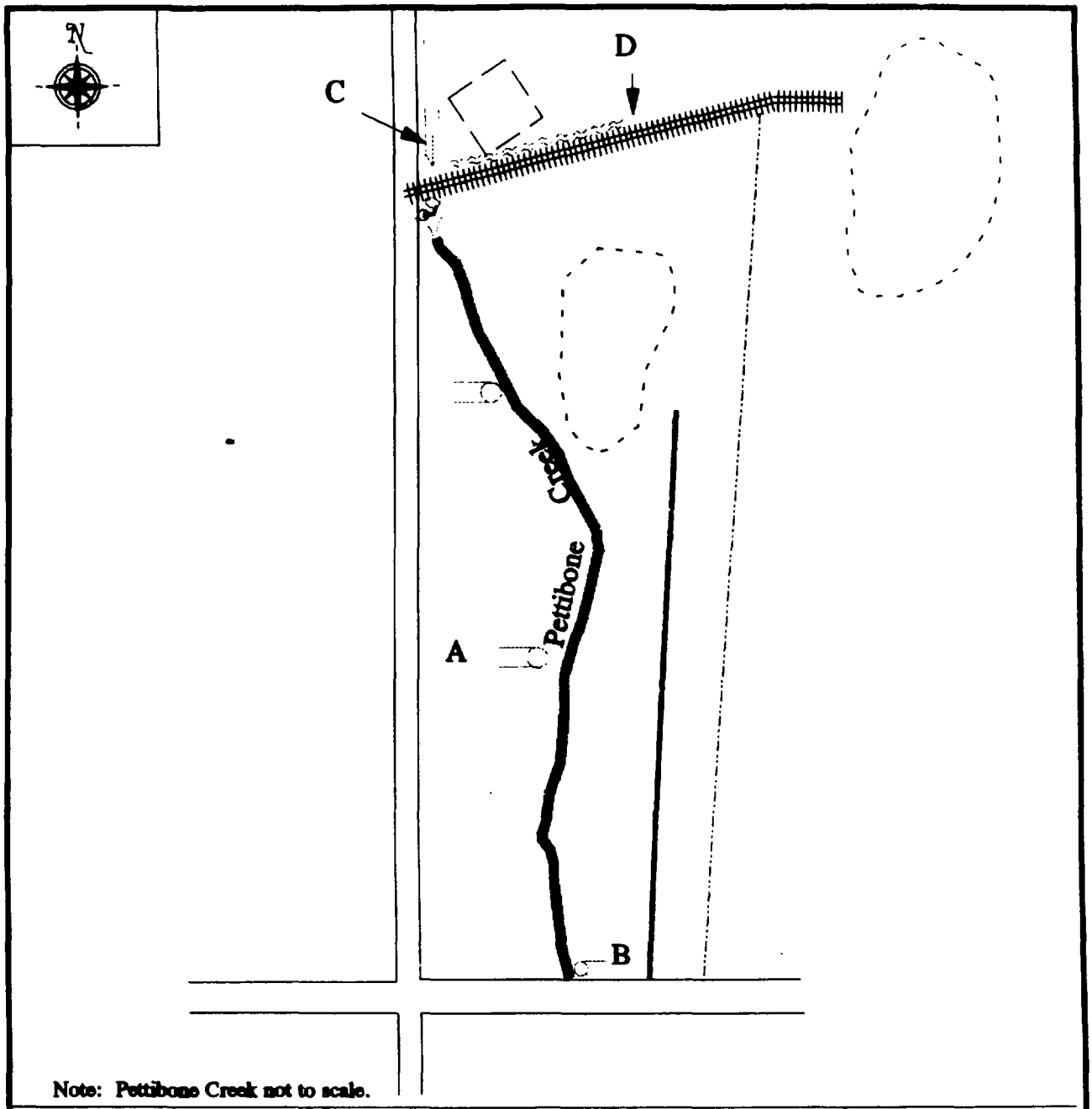
TITLE Land Use Map	FIGURE # C-13
SITE Vacant Lot	0 100 200 Scale in feet
CITY North Chicago STATE Illinois	TDD # S05-9609-017
SOURCE Ecology & Environment, Inc.	DATE 1996 REVISED 1997



Note: Pettibone Creek not to scale.

Legend

A	EMCO outfall
B	Fenstool outfall
C	City of North Chicago stormwater drainage
D	Drainage ditch

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Region 5
33 North Dearborn Street, Suite 900, Chicago, Illinois 60602

TITLE: Sites of Potential Concern Map	FIGURE #: C-14
SITE: Vacant Lot	0 100 200 Scale in feet
CITY: North Chicago STATE: Illinois	TDD #: S05-9609-017
SOURCE: Ecology & Environment, Inc.	DATE: 1996 REVISED: 1997

ENFORCEMENT CONFIDENTIAL
ADDENDUM
TO THE
ACTION MEMORANDUM
FOR THE VACANT LOT SITE
(AKA VULCAN LOUISVILLE SMELTING COMPANY)
NORTH CHICAGO, LAKE COUNTY, ILLINOIS

REDACTED

NOT RELEVANT TO THE SELECTION OF REMOVAL ACTION

2 PAGES

ATTACHMENT TWO

ADMINISTRATIVE RECORD UPDATE

Vulcan Louisville Smelting Company Site
(aka "Vacant Lot")
North Chicago, Lake County, Illinois
CERCLIS ID# ILD 097 271 563; Site Spill ID# A527

AR

ATTACHMENT 2

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMEDIAL ACTION

ADMINISTRATIVE RECORD
FOR
VULCAN LOUISVILLE SMELTING COMPANY SITE
(A.K.A. VACANT LOT SITE)
NORTH CHICAGO, ILLINOIS

UPDATE #1
OCTOBER 30, 1997

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	10/30/97	Ecology and Environment, Inc.	U.S. EPA	Engineering Evaluation/ Cost Analysis for the Vacant Lot Site	597

UPDATE #2
MARCH 24, 1998

1	06/17/97	U.S. EPA	Jarosz, W., Fansteel, Inc.	General Notice of Potential Liability re: the Vulcan Louisville Smelting Company Site	6
2	09/22/97	O'Grady, J., U.S. EPA	Triller, J., IEPA	Letter Providing Draft EE/CA for the Vacant Lot Site to IEPA for Comment	1
3	09/26/97	Triller, J., IEPA	O'Grady, J., U.S. EPA	Letter re: Comments from IEPA to U.S. EPA on the Draft EE/CA for the Vacant Lot Site	1
4	10/29/97	O'Grady, J., U.S. EPA	Triller, J., IEPA	Letter re: U.S. EPA's Response to IEPA's Comments on the Draft EE/CA for the Vacant Lot Site	3
5	11/00/97	U.S. EPA	Public	Fact Sheet for the Vacant Lot Site	8
6	11/04/97	O'Grady, J., U.S. EPA	Vickery, R.; Freeborn & Peters	Transmittal Letter Accompanying Final EE/CA for the Vacant Lot Site	1
7	11/04/97	O'Grady, J., U.S. EPA	Bakowski, E. and T. Crause; IEPA	Transmittal Letter Accompanying Final EE/CA for the Vacant Lot Site	1
8	11/04/97	O'Grady, J., U.S. EPA	Lake, C.; McBride, Baker & Coles	Transmittal Letter Accompanying Final EE/CA for the Vacant Lot Site	1
9	11/06/97	Lake, C.; McBride, Baker & Coles	O'Grady, J., U.S. EPA	Letter Acknowledging Receipt of Final EE/CA and Submittal of Fansteel EE/CA by December 8, 1997	1

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
10	11/12/97	Gaiser, V., Independent Court Reporters	U.S. EPA	Transcript of November 12, 1997 Public Meeting re: the Vacant Lot Site	33
11	11/24/97	Royal, F., Lake County Stormwater Management Commission	Emeric, N., U.S. EPA	Letter re: SMC's Comments on the November 1997 Fact Sheet for the Vacant Lot Site	1
12	12/03/97	Baratta, R., Freeborn & Peters	Emeric, N., U.S. EPA	Letter re: Public Comments on the October 1997 EE/CA Report for the Vacant Lot Site w/Attachments	6
13	12/08/97	Lake, C., McBride, Baker & Coles	O'Grady, J., U.S. EPA	Letter Forwarding Fansteel's Outline of the EE/CA Work Plan for the Vulcan Louisville Smelting Company Site	6
14	02/09/98	O'Grady, J., U.S. EPA	Lake, C., McBride, Baker & Coles	Letter re: U.S. EPA's Comments on Fansteel's Outline of the EE/CA Work Plan for the Vacant Lot Site	4
15	02/23/98	Lake, C.; McBride, Baker & Coles	O'Grady, J., U.S. EPA	Letter Acknowledging U.S. EPA's Comments on Fansteel's Outline of the EE/CA Work Plan for the Vulcan Louisville Smelting Company Site and Commitment to Submit a Revised EE/CA Work Plan by April 15, 1998	1
			UPDATE #3 **APRIL 23, 1998**		
1	05/06/98	O'Grady, J., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Request for a Non-Time-Critical Removal Action at the Vacant Lot Site (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED)	60
			UPDATE #4 **JULY 10, 1998**		
1	05/29/98	Carney, W., U.S. EPA	Northern Trust Bank/ Lake Forest, IL	Letter re: General Notice of Potential Liability for the Vulcan Louisville Smelting Company Site	3

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
2	06/16/98	Baratta, R., *Freeborn & Peters*	Williams, D., U.S. EPA	Letter re: Northern Trust Bank/Lake Forest's Response to U.S. EPA's General Notice of Potential Liability for the Vulcan Louisville Smelting Company Site	2

UPDATE #5
SEPTEMBER 11, 1998

1	07/22/98	O'Grady, J., U.S. EPA	Royal, F., Lake County Stormwater Management Commission	Letter re: U.S. EPA's Request for Additional Information Concerning Possible Sources of Contaminated Sediments at Pettibone Creek	2
2	08/12/98	Royal, W., Lake County Stormwater Management Commission	O'Grady, J., U.S. EPA	Letter: SMC's Response to U.S. EPA's Request for Information Concerning Possible Sources of Contaminated Sediments at Pettibone Creek	16
3	00/00/00	O'Grady, J., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Request for an Amendment to the Scope of the Response for the Non-Time-Critical Removal Action at the Vulcan Louisville Smelting Company (aka Vacant Lot) Site **(PENDING)**	

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMEDIAL ACTION

ADMINISTRATIVE RECORD
FOR
VULCAN LOUISVILLE SMELTING COMPANY SITE
(A.K.A. VACANT LOT SITE)
NORTH CHICAGO, ILLINOIS

ORIGINAL
JULY 12, 1997

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	00/00/00	IEPA		CERCLA Screening Site Inspection Analytical Results (CONFIDENTIAL MATERIAL MAY BE ENCLOSED)	155
2	00/00/00	U.S. EPA	File	Tables: Summaries of (1) Groundwater Sampling Results; (2) On-Site Soil Sampling Results; (3) Off-Site Soil Sampling Results for the Vacant Lot Site	3
3	06/30/75	Mcdonald, J., U.S. EPA	Lavin, N., North Chicago Refiners and Smelters, Inc.	Letter Forwarding Attached NPDES Permit, No. IL 0002755 w/Permit Application and Correspondence	45
4	07/07/88	Krebs, L., National Environmental Testing, Inc.	Doubet, S., IEPA	Letter Forwarding Attached Final Report Submission for the North Chicago Ground Fire Project	14
5	10/09/88	MAECORP, Inc.	Northern Trust Co.	Report: Water Sampling Results from the 22nd Street Property	20
6	02/10/89	Laukant, R., MAECORP, Inc.	Magel, B., Karaganis & White, Ltd.	Letter Forwarding Attached Interim Report for Stack Property	37
7	03/27/89	MAECORP, Inc:	Karaganis & White, Ltd.	Final Report for Sampling and Analytical Investigation at the Stack Property	44
8	11/13/89	MAECORP, Inc.	Karaganis & White, Ltd.	Revised Final Report and Analytical Investigations at the Stack Property	41

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
9	12/12/90	Lesko, K., U.S. EPA	IEPA/Cleanup Objective Team	Memorandum Re: RCRA Closure Log for Fansteel, Inc.	62
10	02/00/91	Envirodyne Engineers, Inc.	Lake County Division of Transportation	Phase I Report: Environmental Site Assessment for the North Chicago Bike Path	125
11	06/07/91	Envirodyne Engineers, Inc.	Lake County Division of Transportation	Phase II Report: Environmental Assessment for the North Chicago Bike Path	42
12	06/00/92	Aires Environmental Services, Ltd.	Tenney Pavoni Associates, Inc.	Report: Soil Sampling Survey at the Proposed Bike Path in North Chicago	17
13	12/00/93	U.S. EPA / Office of Water	U.S. EPA	Drinking Water Regulations and Health Advisories	13
14	04/25/94	McSwiggin, T., IEPA	Fansteel, Inc.	Letter Re: Notice of Coverage Under the Non-Contact Cooling Water General Permit w/ Attached Permit, Correspondence, and Illinois Pollution Control Board Order and Opinion Documents	92
15	06/00/94	Geraghty & Miller, Inc.	The Northern Trust Co., U.S. EPA	Report: Groundwater Investigation at the Stack Property	94
16	07/11/94	Smith, R., U.S. EPA	RBC Table Mailing List	Risk-Based Concentration Table: Third Quarter 1994	20
17	09/06/94	Triller, J., IEPA	Bruce D., U.S. EPA	Memorandum Re: Groundwater and Sediment Sample Survey at the Vacant Lot Site	5
18	12/15/94	Gillig, R., USDHHS/USPHS/ ATSDR	Fabinski, L., USDHHS/U.S. EPA Region 5	Memorandum Re: Health Consultation for the Vacant Lot Site	16
19	02/09/95	Smith, R., U.S. EPA	U.S. EPA	U.S. EPA Region 3 Risk-Based Concentration Table: Background Information	21

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
20	02/24/95	Ecology & Environment, Inc.	U.S. EPA/ EERB	Site Assessment Report for North Chicago Site	52
21	03/07/95	Smith, R., U.S. EPA	RBC Table Mailing List	Risk-Based Concentration Table: January-June 1995	3
22	03/23/95	Riley, J., U.S. EPA	U.S. EPA	Memorandum Re: Update #2 to Removal Action Levels with Draft Soil Screening Level Guidance	25
23	05/00/95	U.S. EPA/ Office of Water	U.S. EPA	Drinking Water Regulations and Health Advisories	15
24	03/12/96	Burris, B., Ciorba Group, Inc.	Graey, J., U.S. EPA (O'Grady, J.)	Excerpts from the Following Reports: (1) Phase II Environmental Assessment; (2) IEPA Onsite & Offsite Soil Sample Information; (3) American Environmental Analytical Lab Report for 6 Locations; (4) CBC Composite Soil Sample for Pettibone Creek	37
25	07/25/96	O'Grady, J., U.S. EPA	File	Groundwater Sampling Data (ANNOTATED)	4
26	08/01/96	O'Grady, J., U.S. EPA	Nabasny, G., U.S. EPA	Action Memorandum: Funding for Engineering Evaluation/Cost Analysis for the Vacant Lot Site w/Attachments	21
27	10/20/96	Smith, R., U.S. EPA/ Region 3	RBC Table Mailing List	Risk-Based Concentration Table: July-December 1995	30
28	11/13/96	O'Grady, J., . U.S. EPA	Triller, J., IEPA	Letter Re: Brief Update of Activities Undertaken by U.S. EPA in Regards to the Vulcan Louisville Smelting Site, Including a Request for Additional Information Necessary to Complete Site Studies	1
29	11/27/96	Triller, J., IEPA	O'Grady, J., U.S. EPA	Memorandum Re: NPDES Permits for Fansteel and R. Lavin & Sons	2

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
30	12/10/96	Triller, J., IEPA	O'Grady, J., U.S. EPA	Information Concerning RCRA Closure at the Fansteel Site w/ Sampling Data	41
31	12/11/96	Crause, T., et al; IEPA	O'Grady, J., U.S. EPA	Letter Re: Inclusion of Fansteel, Inc. in the EE/CA Being Performed for the Vacant Lot Site	1
32	4/10/97	Pullen, L., U.S. EPA	O'Grady, J., U.S. EPA	Memorandum Re: Vacant Lot Site: Determination of a Clean-Up Goal for Lead	8
33	05/00/97	U.S. EPA	File	Aerial Photographic Analysis: Vacant Lot Site-North Chicago, IL	32
34	05/00/97	U.S. EPA	Public	Superfund Fact Sheet: Vacant Lot Site	4
35	05/00/97	Nagam, Raghu Ecology & Environment, Inc.	O'Grady, J., U.S. EPA	Memorandum Re: Update on First Sampling Event Conducted at Vacant Lot Site	5

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ATTACHMENT 2

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

ADMINISTRATIVE RECORD
FOR
VULCAN LOUISVILLE SMELTING COMPANY SITE
(A.K.A. VACANT LOT SITE)
NORTH CHICAGO, ILLINOIS

UPDATE #6
DECEMBER 1, 1998

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	00/00/00	O'Grady, J., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Request for a Ceiling Increase for the Non-Time-Critical Removal Action at the Vulcan Louisville Smelting Company (aka Vacant Lot) Site **(PENDING)**	