Health Consultation

CALUMET CONTAINER

HAMMOND, LAKE COUNTY, INDIANA

EPA FACILITY ID: IND980500193

APRIL 16, 2004

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

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Prepared by:

Division of Regional Operations
and
Indiana State Department of Health
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

Background and Statement of Issues

In response to a request from the Environmental Protection Agency (EPA) Region 5, the Indiana State Department of Health (ISDH) and the Agency for Toxic Substances and Disease Registry (ATSDR), Region 5, have prepared a Health Consultation for the Calumet Container site. The purpose of this health consultation is to evaluate data for surface and subsurface soils at this site to determine whether exposure to contaminants in soil pose a public health hazard, either currently or under a possible future reuse of the land.

The Calumet Container site (also known as The Steel Container Corporation) is located at 3631 State Line Avenue in Hammond, Lake County, Indiana. The Calumet Container site formerly housed a factory where 5- to 55-gallon drums containing chemicals and paints were emptied, cleaned, repainted, and sold for reuse. Most of the containers that were serviced were used in the paint and graphic art industries. This factory began its operations in the 1960s and closed in July 1981 when the owner/operator filed for bankruptcy. The property spans the Indiana-Illinois state border, with about 90% of the 11-acre site in the jurisdiction of the city of Hammond, Lake County, Indiana, and the remaining 10 percent in the city of Chicago, Cook County, Illinois. The Lake County Commissioners currently own the bulk of the Calumet Container site that is in Indiana. A small parcel of land in the northwest corner of the site is privately owned. The site is triangular in shape, bordered on the east and the west by railroad tracks, and on the north by 136th Street, as shown in an aerial map of the site (Appendix A, Figure 1).

During the years that the Calumet Container facility was in operation, the company was cited with numerous environmental violations regarding air and water contamination and material disposal. In April 1982, an explosion and fire consumed the main building at the site. Of the original facility, only the concrete foundation from the former building remains on-site [1]. In May 1982, EPA began a 14-day Immediate Removal Action. Thirty cubic yards of sludge and 5,500 gallons of contaminated liquid were packaged on site and transported off site for final disposal at an approved facility. Samples from surface water runoff, contents of processing and holding on-site tanks, and soil at the loading dock area at the time immediately following the fire contained lead, chromium, cyanide, arsenic, phenolics, other organic compounds, oil, and grease.

In January 1984, EPA began a Planned Removal Action at the site. EPA conducted surface cleanup of containerized liquids, solids, and sludges that were considered hazardous. A total of 5,000 gallons of liquids and 1,345 tons of soil, sludge, and solidified waste were removed from the site. Following the Planned Removal Action, the site was secured, and access to the site was blocked. A chain-link and barbed wire fence was later installed to surround the entire property. However, a large area of fencing has been torn away by vandals, allowing trespassers to easily access the site. The observation of worn footpaths, decorations, and a lawn chair provide evidence that people do trespass on the site on a regular basis. The remains of a pet were uncovered during EPA sampling activities in April, 2002, indicating that people may be digging into the contaminated soil. Figure 2 displays several of the site features including the wetland, drums, tanker trucks, metal debris, former foundation, and breach in the fence that serves as an entry point for trespassers.

A small intermittent pond and wetland area is in the northeast corner of the property. About ¼ mile across 136th Street to the north is Wolf Lake (Indiana side), an interstate fishing and recreational lake, where people swim and boat. About ½ mile beyond the rail line to the southwest is Powder Horn Lake and the Burnham Woods forest preserve (both on the Illinois side), where recreational activities, including swimming occur (Figure 3). Lake Michigan is less than 3 miles northeast of the site. Groundwater flow studies concluded that groundwater tends to flow in a northeast direction from the site. The movement of surface water off the site is not easily characterized; however, there may be a potential for surface water to flow offsite towards nearby Wolf Lake, Powder Horn Lake, or a small lake stream northeast of the site that feeds Wolf Lake. Although there are 17 monitoring wells onsite, records of their construction are not available to confirm their usefulness in characterizing groundwater. The site remediation plan calls for these wells to be abandoned.

Industrial and residential properties are found within ¼ mile of the site boundary (Figure 1). According to recent census information, approximately 300 people, including 60 children, reside within ¼ mile of the site. The residential area nearest to the site is the Sheffield Estates Trailer Park in Hammond, Indiana, located about 250 feet directly east from the east boundary of the site. The Calumet Container zip code area (46327) is populated by 72% white, 37% Hispanic, and 4% black residents [2]. Another mobile home park is on the Illinois side, about ¼ mile northwest of the site. Single-family homes are located south and east of the trailer park. Pulaski Park, located about ¼ mile southeast of the site, is the primary recreational area for this community. The park has swings, slides, tennis courts, a skating rink, picnic areas, and a swimming pool.

Current Conditions

In November 2002, staff from ISDH, the Indiana Department of Environmental Management (IDEM), and the Illinois Department of Public Health conducted a site visit. Although a chain-link and barbwire fence secures the site, there is a breach on the west side near the railroad tracks that is a likely point of entry for trespassers. There are obvious indications that trespassing and vandalism are ongoing at the site. Large mounds of scrap metal, drums, and debris currently litter the site. A total of 14 drums are onsite, two of which contain hazardous waste of flammable content, eight drums contain personal protection equipment, and the remaining four contain miscellaneous, non-hazardous material. Slag, scrap metal, drum lids, and paint chips are in several areas onsite. Two deteriorated tanker trailers remain onsite. Field screening with photoionization detectors (PIDs) indicates that volatile organic compound (VOC) vapors are emanating from the tanker trailers. Currently, the site is inactive, and conditions have not changed since the 2002 investigations.

Regulatory Agency Involvement

EPA, Region 5, is preparing an Action Memorandum to support the following activities [3]:

- Remove and dispose of 14 drums and overpacks;
- Assess the integrity of the monitoring wells and abandon all wells;

- Remove the scrap, tankers, and other metal debris;
- Excavate approximately 19,250 yards of contaminated soil;
- Characterize waste and arrange for disposal; and
- Restore excavated areas.

Environmental Investigations

Soil

IDEM conducted soil sampling at the Calumet Container site in Nov. 2001 [1,4]. EPA conducted sampling several times during 2002 [5,6,7]. Sampling included collection of surface and subsurface soils, sediment from on-site wetlands area, and groundwater samples from existing monitoring wells. Soil samples were analyzed for VOCs, SVOCs (semi volatile organic compounds), pesticides, polychlorinated biphenyls (PCBs), and metals. IDEM's initial assessment sampling included two collection and analysis of surface soil samples (0-6 inches) that contained contaminants above the IDEM Risk Integrated System for Closure (RISC) industrial levels for barium (6,000 parts per million [ppm] and 1,700 ppm), cadmium (590 ppm and 93 ppm), chromium (4600 ppm and 1300 ppm), and lead (46,000 ppm and 3,800 ppm). Because of those initial results, EPA conducted a more widespread sampling, focusing on the extent of lead contamination. EPA, using X-ray fluorescence (XRF) screening, analyzed 34 surface samples (depths that included the top 6 inches of soil) and 92 subsurface samples (depths that were below 6 inches) for lead. (ATSDR considers the top 3 inches of soil as surface soil; however, because people are digging into the soil, the top 6 inches is representative of surface soil.) As a result of the screening, the extent of lead contamination is better understood at this site than any other contaminant.

To identify chemicals that may be of a potential public health concern, the EPA soil sampling data collected in 2002 was compared to several different criteria, including the IDEM RISC levels, EPA Region 9 preliminary remediation goals (PRGs) for industrial soil, and the ATSDR soil comparison values (CVs) for child exposure, generally used for evaluating residential-type exposures. Because this is an abandoned hazardous waste site, potential exposures to site contaminants are mainly associated with individuals who may trespass on the property. These types of exposure do not fall into either a residential or an industrial scenario. Because future site use has not been decided, the most conservative screening values were used to select contaminants of concern to be protective of public health under any situation.

Table 1 summarizes the sampling data from the 2001 IDEM [1,4] and 2002 EPA site assessment investigation [5,6,7]. The number of samples, the range of detections for the metals and organic chemicals, and the fraction of samples that exceed the health-based criteria are summarized. The results of this screening indicate that lead is found to be a widespread contaminant throughout the site. Although ATSDR does not have a soil screening value for lead, over 50% of the surface soil samples exceed the IDEM RISC industrial soil criteria for lead of 230 ppm, and 38% exceeded the EPA industrial criteria of 750 ppm.

There is less certainty about the extent of contamination for other metals, SVOCs, and VOCs. The maximum detections of cadmium, arsenic, chromium, and PCBs exceeded health-based

screening levels. However, the limited number of samples collected for these samples does not indicate how widespread the contamination may be. As a result, the magnitude of potential current exposure to occasional trespassers from these chemicals is uncertain. However, future reuse plans for the Calumet Container property by the city of Hammond include possible redevelopment as a recreational park and wetland area. If such an option is selected, then the intensity of exposure to these contaminants would be expected to be greater because people would be encouraged to visit the area.

Lead was selected as a contaminant of concern, because of the high frequency of detection above health-based screening criteria at many locations across the site. Cadmium, arsenic, and chromium were selected as contaminants of concern due to their detection at levels well above health-based screening criteria at the limited number of locations where soil samples were analyzed for these metals.

Table 1 Calumet Container Surface and Subsurface Soil Sample Results

Chemical	Depth[a]	# of Samples	Range of Detection (ppm)	ATSDR Soil Comparison Values (ppm)[b]	IN RISC Indust. values (ppm)[c]	EPA R9 Indust. PRGs (ppm)[d]	Samples exceeding Health Based Criteria[e]
Metals							
Lead (XRF)	Surf	36	N.D. - 46,000	N.A.	230	750	21/36 (>230 ppm) 15/36 (>750 ppm)
	Sub-s	92	N.D. - 8,058				23/92 (>230 ppm) 18/92 (>750 ppm)
Cadmium	Surf	4	2.64 - 27,000	10 (child)	780	450	3/4 (>10 ppm)
	Sub-s	6	N.D. - 21,500				3/6 (>10 ppm)
Arsenic	Surf	2	14.4 - 280	20 (child)	20	1.6[g]	1/2 (>20 ppm)
	Sub-s	6	N.D. - 64.9				2/6 (>20 ppm)
Barium	Surf	4	0.38 - 6,000	4,000 (child)	5,900	67,000	1/4 (>4,000 ppm)
	Sub-s	7	N.D. - 610				0/7 (>4,000 ppm)
Chromium[f]	Surf	4	0.38 - 4,600	200 (child)	120	450	3/4 (>120 ppm)
	Sub-s	6	1.00 - 780				2/6 (>200 ppm)
Organics:							
PCBs	Surf	6	N.D. - 5.7	0.4	5.3	0.74	3/6 (>0.4 ppm)
	Sub-s	5	N.D.				0/5 (>0.4 ppm)
Toluene	Surf	1	N.D.	1,000 (child)	2,200	520	0/1 (>520 ppm)
	Sub-s	12	N.D. - 8,400				3/12 (>520 ppm)
Xylenes (total)	Surf	1	0.07	10,000 (child)	170	420	0/1 (>170 ppm)
	Sub-s	16	N.D. - 4,200				5/16 (>170 ppm)

N.D.: not detected (below limit of detection)
N.A.: not available
ppm: parts per million

a Surface soil is considered to be less than 6 inches for a discrete sample, or when a vertical composite sample includes the top 6 inches

b ATSDR Soil Comparison Values are based on residential exposure assumptions for children, and serve only a screen for selecting contaminants for further evaluation,

c The state of Indiana Risk Integrated System for Closure (RISC) program; the default industrial screening levels are cited to reflect non-residential exposure criteria recognized by the state

d EPA- Region 9 Preliminary Remediation Goals (PRGs), the industrial screening levels are cited to reflect non-residential exposure criteria recognized by EPA

e Screening of chemicals based on the lowest health-based criteria

f As a conservative measure, the screening assumed that all of the chromium was in the hexavalent state

g Below background level for soil; not used to screen for chemicals of concern

Groundwater

The IDEM field investigations conducted in November 2001 included collection of groundwater samples from three of the 17 existing monitoring wells. These monitoring wells were selected for sampling because of their perceived down-gradient location from the most contaminated areas known on site. The samples were analyzed for VOCs, SVOCs, and metals. The maximum sample results were compared to the RISC values for industrial VOCs and metals contamination and to residential SVOCs levels. Levels also were compared to ATSDR CVs. CVs are media-specific concentrations used by health assessors to select the environmental contaminants for further evaluation. Sample results were below the screening levels; however, the sampling was limited and did not reflect similar results from historical sampling [1,4].

The quality and construction of the monitoring wells onsite remains unknown, because of the inability to secure documented information on the wells. Historical groundwater data for these wells have been collected, but not all of that data were available for this evaluation.

Because residents near the Calumet Container site area on both the Indiana and Illinois side of the site use public water, and there is no known use of private wells in the area, there is no direct exposure to any contaminants in groundwater. However, the limited amount of groundwater sampling data that were available for review indicate there is evidence of metals contamination (lead and chromium) in groundwater. Historical evidence suggests there were elevated levels of organic chemicals in site groundwater. In addition, studies conducted by Illinois and by IDEM indicate that the groundwater is shallow (about 15 feet below ground surface) and generally flows in a northeasterly direction towards Wolf Lake [7,8]. A U.S. Geological Survey report states that discharge from the Calumet aquifer (underlying the site) is primarily to area rivers, lakes, and wetlands [8].

Exposure Pathways

In evaluating this and every site, ISDH and ATSDR uses established methodologies for determining how people may be exposed to contamination from a site and what effects, if any, may result from exposure to those contaminants. The ways that people may come into contact with chemical contaminants (such as breathing air and drinking water) are called **exposure pathways.** Table 2 summarizes the pathways for this site and indicates whether each is complete or potential. If one or more of the exposure pathways are complete, ISDH and ATSDR then consider whether exposure to the chemicals present may be harmful to people.

The routes of exposure for this site would be through inhalation of soil dusts and organic vapors, ingestion of contaminated soil, and dermal contact with the soil. Based on observations from site visits and investigations from the Hammond Police Department, a major type of exposure appears to be the use of an area of the site as a pet cemetery. Trespassers (likely vagrants and teenagers) appear to dig in contaminated soil. They breathe contaminated dust, touch the contaminated soil, and accidentally ingest soil. They can track the contaminated soil on clothes and shoes home where others might then come in contact with it.

Table 2: Exposure Pathway Analysis

Media	Exposure Point	Exposure Route	Exposure Time	Exposed Population	Chemicals of Concern	Completed Pathway
Soil	On site	Inhalation Ingestion Dermal contact	Past/Current	Trespassers	Lead Cadmium Arsenic Chromium	Yes
	On site		Future	Recreational users		Yes (without remediation)
	Off site		Present/ Future	People in homes of trespassers		Unknown
Surface water	On site	Dermal	Past/Current	Trespassers	Unknown; only sediment sampled	Yes
			Future	Potential recreational		Yes
Groundwater	On site	Ingestion Dermal	Past/current	Trespasser	Lead Chromium	No
			Future	Potential recreational		No
Groundwater	Off site: direct contact	Ingestion Inhalation Dermal	Past/Current	None	Unknown: no characterization of migration of on-site contamination	No, residents in area on municipal water supply
			Future	None		
	Off site: indirect contact	Biota impacted by migration of GW contaminants into SW	Future	Fishing population		No evidence of current impact or completed pathway

Hazard Evaluation

Lead

Lead is a natural component of soil and dust. Typical background levels in soil range from 10–50 parts per million in an uncontaminated setting. Exposure to lead can occur through many sources, particularly by breathing contaminated dust in air, drinking water, eating foods, or by swallowing or touching dust or dirt that contains lead. The primary health concern with lead exposure is the adverse effects on development of the nervous system in children, resulting in diminished mental capacity. The Centers for Disease Control and Prevention (CDC) has concluded that the most common source of lead exposure for children is lead-based paint that has deteriorated into paint chips and lead dust and that the most common sources of lead exposure for adults are occupational [9,10]. The lead contamination at Calumet Container is likely to be

the result of the recycling of drums containing lead-based paint material and disposal of lead-containing waste.

Given the uncertainty about the frequency that young children may trespass on this property and be exposed to the lead contamination in the soil, it is difficult to quantify the level of exposure. However, because there are many potential sources of children's exposure to lead, direct contact to contaminated soil from this site could add to the existing body burden children may already have from other sources. Because elevated lead levels occur throughout the property, ranging up to 46,000 ppm, children may be exposed in many areas. In addition, future reuse of the property as a recreational area will allow the area to more accessible to children, resulting in greater exposures to areas of lead contamination. The form of lead in paint is lead oxide, a form that is particularly soluble and readily absorbed in the gastrointestinal tract. Therefore, even intermittent exposure to these levels could result in increases in blood lead levels for children who play in these areas. It is expected that trespassers on the property are mainly older children and adults. However, if the property is re-used for a recreational area, it is anticipated that people will be encouraged to use the property and increase the potential exposure of young children to site contaminants. This is a particular concern because of the sensitivity of young children to the effects of lead.

Other Contaminants

The maximum concentrations detected in surface soil (summarized in Table 1) for several other chemicals, including cadmium (27,000 ppm), arsenic (280 ppm), chromium (4,600 ppm), PCBs (5.7 ppm), and barium (6,000 ppm) exceeded health-based screening levels. Exposure of current trespassers or future recreational users to these levels consistently across the site would represent a public health hazard. However, due to the limited sampling for contaminants other than lead, it is uncertain whether these concentrations would be found throughout the site. It is also uncertain whether these contaminants would be co-located with lead, and therefore, would have a similar pattern of distribution. These uncertainties result in a data gap that limits the evaluation of potential exposure to these contaminants.

There was also limited sampling of surface soils for VOCs, but because of their volatility, they would not be expected to be retained in surface soils. The levels of toluene and xylene were only elevated above screening levels in subsurface soils, which would not be considered to be a concern for exposure.

In spite of these uncertainties, the scope of the site remediation will be based on the distribution of lead contamination in surface and subsurface soil. As a result, it would be expected that these other contaminants will also be removed with the lead. It will be important to confirm and verify through sample collection and analyses that all contamination at the site has been addressed. If the removal action does not take place, additional sampling to characterize the extent of cadmium, arsenic, chromium, and PCB contamination would be needed to further assess these hazards.

Physical Hazards

Physical hazards are present throughout the site, as observed with the 14 drums, extensive metal debris, and 2 tanker trailers. Also present south of the wetland area is a concrete slab, the concrete foundation of a former office building. People who trespass on to the site could subject themselves to trip and fall injury or cuts and abrasions from contact with these hazards. These physical hazards will remain in place until the site is remediated.

Child Health Considerations

A child's exposure may differ from an adult's exposure in many ways. Children drink more fluids, eat more food, breathe more air per kilogram of body weight, and have a larger skin surface in proportion to their body volume. They may exhibit more hand-to-mouth activity than adults. They may also ingest inappropriate things such as dirt or paint chips, and at certain times of the year, they may spend more time outdoors. Children are also closer to the ground, and they do not have the judgment of adults in avoiding hazards. The contaminated soil found onsite poses a threat to children by potentially increasing the blood lead level concentration through ingesting lead-based paint chips and inhaling contaminated soil dust.

Exposure to lead is more dangerous for young children and unborn fetuses who could be exposed if trespassers carry the contamination home on clothing and shoes. Harmful effects include premature births, smaller weight babies, decreased mental ability in the infant, learning difficulties, and reduced growth in young children. These effects are more common if the mother or baby was exposed to high levels of lead.

Because of the severe neurological effects of lead, exposure to lead from all sources is a general concern for children. Exposure to lead can be estimated by lead levels found in the blood stream. If parents have a concern that their child has been exposed to lead, they can contact their family physician to inquire about blood lead testing for the child. Effects in children generally occur at lower blood lead levels than in adults [9,10]. Future reuse of the area for recreational purposes could result in additional exposure of children to lead in soil.

The health effects seen in children from exposure to toxic levels of other metals, such as cadmium, are expected to be similar to the effects seen in adults [11]. However, there are insufficient data to assess the hazards of exposure to other contaminants at this site.

Conclusions

The Calumet Container site is a closed facility with widespread lead contamination of surface soils and with extensive physical hazards. The extent of other contaminants is less clear, although levels of some of the contaminants, such as cadmium, exceed comparison values in some areas. People are known to trespass on the site and actually dig into the contaminated soil. Those people are likely to carry contaminated soil home on their clothes and shoes. Because of lead's toxic effects, especially on children, ATSDR and ISDH conclude that this site poses a **current public health hazard** for people who trespass on this property. Future redevelopment of the property as a recreational park area and wetlands is likely to encourage access to the property, particularly to younger children who may be at a greater risk for exposure to site contaminants. Without remediation, these conditions will pose a **future public health hazard**. Specifically we conclude the following:

1. The Calumet Container site has widespread contamination of surface and subsurface soils with lead and possibly other metals. This contamination is at levels of health concern in surface soil for both current conditions and future reuse of the property as a recreational area.

2. The hazard evaluation is based on current and proposed future recreational use of the property. Changes in the re-use plans will impact this evaluation.

3. There is clear evidence of trespassing and soil digging activity on the property, indicating that people, possibly children, are coming in direct contact with contaminated soils. Continued vandalism of the fencing indicates that it has not been an adequate barrier to trespassing.

4. There are many physical hazards such as rusting metal surfaces of drums, large storage containers, tanker trailers, and extensive debris throughout the site, presenting an injury hazard.

5. There has been no sampling of surface water in the wetlands on the site to determine if soil contaminants have migrated into surface water. This represents a data gap for evaluating the hazards of potential contact of trespassers and future recreational users to surface water.

6. There is a hydraulic connection between the groundwater underlying the site and nearby surface water bodies that are used for recreational purposes such as fishing and boating. The limited groundwater sampling that has been conducted on-site indicates that soil contaminants have been detected in on-site groundwater. However, there is a data gap regarding whether groundwater contaminants have migrated away from the site towards the nearest down-gradient surface water, Wolf Lake.

Recommendations

1. Eliminate exposure to site contaminants by means such as maintaining fencing around the site until the site is remediated.

2. Confirm that future use of this property assumed in this evaluation is consistent with the actual redevelopment and reuse of the site.

3. To ensure that all site contamination has been characterized, the surface water and sediment of on-site wetlands should be sampled.

4. Implement a site remediation plan to remove the physical hazards and remediate the areas of lead, cadmium, and other contamination in surface soils.

5. ATSDR and ISDH support and recommend the proposal that IDEM coordinate further characterization of groundwater contamination to determine if there is off-site migration and impact on surrounding surface waters.

Public Health Action Plan

1. EPA will repair the breach in the fence to restrict access as an interim measure to prevent exposure.

2. The city of Hammond, EPA, and IDEM will develop a property redevelopment plan.

3. EPA will take samples of on-site surface water in wetlands

4. EPA will develop and oversee the implementation of the site remediation plan.

5. IDEM will lead the evaluation of off-site migration of groundwater contaminants.

6. ISDH with ATSDR and local entities will coordinate public health education activities for community members impacted by the site. A health education plan will be initiated within 60 days after discussion with the community.

Note: The time frame for completion of actions 1–5 are currently under negotiation.

References

1. U.S. Environmental Protection Agency, Action Memorandum, Calumet Container, November 2002.

2. Roy F. Weston, Incorporated, Calumet Container Site, Extent of contamination report, revision 2, November 2002.

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6. Roy F. Weston, Incorporated, Calumet Container site assessment report, April 2002.

7. Roy F. Weston, Incorporated, Calumet Container site assessment and extent of contamination report, July 2002.

8. U.S. Geological Survey Water Resources Investigation Report (95-4253) Groundwater in NW Indiana and Lake Calumet Area of Illinois.

9. Herbert L. Needleham, Human Lead Exposure, CRC Press, 1992.

10. Agency for Toxic Substances and Disease Registry, Toxicological Profile for Lead (Update), July 1999.

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Certification

This Calumet Container Health Consultation was prepared by the Indiana State Health Department in cooperation with the Agency for Toxic Substances and Disease Registry. The health consultation is in accordance with guidelines and procedures present at the time the health consultation was begun.

Technical Project Officer
DHAC, SSAB, CAT

This health consultation has been reviewed by the Division of Health Assessment and Consultation, ATSDR. ATSDR concurs with the findings in the health consultation.

Chief, CAT, SSAB, DHAC, ATSDR

Appendix A

Calumet Container Site Maps

Figure 1. Calumet Container Site
General Location

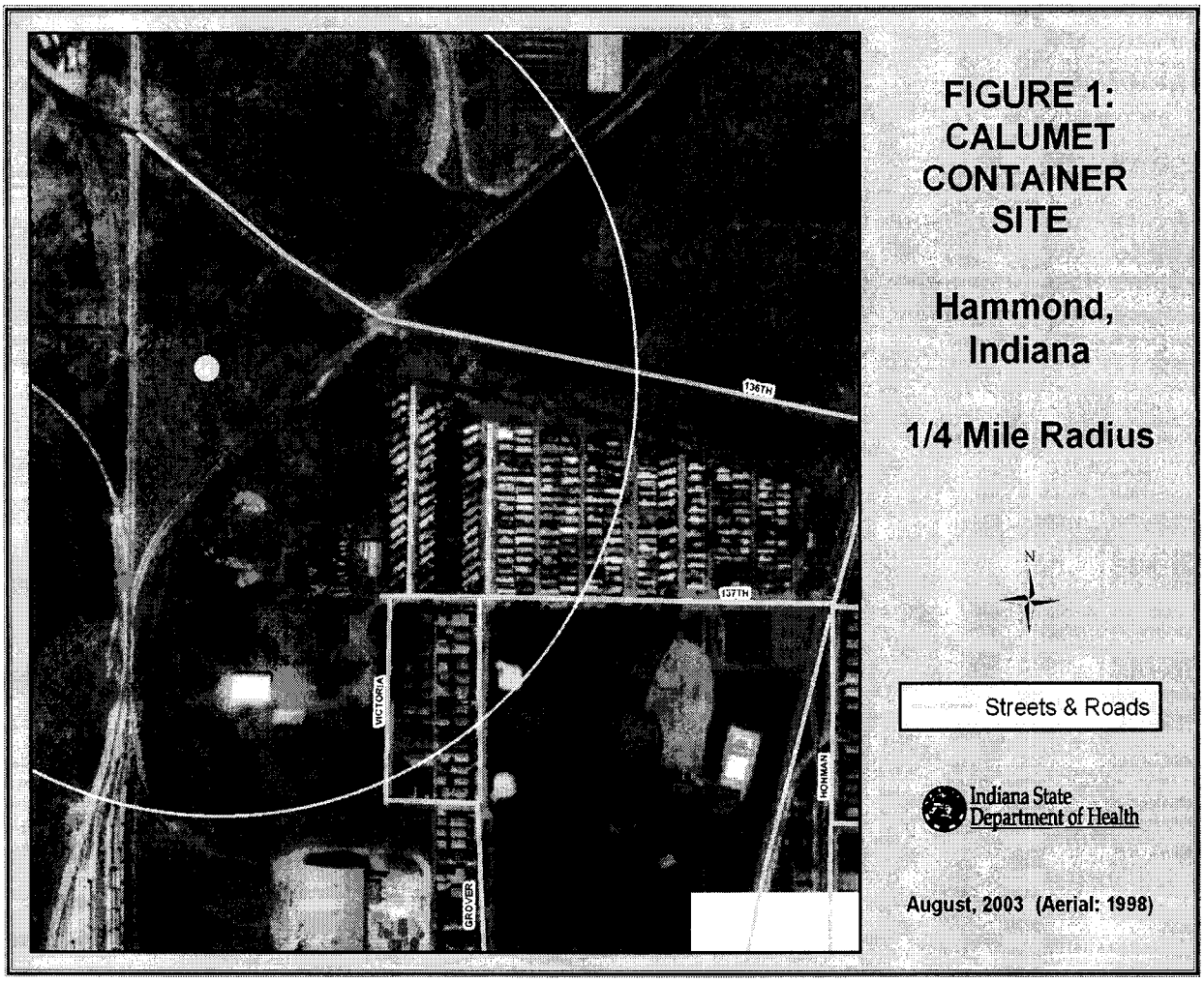

Figure 2. Calumet Container Site
Site Features

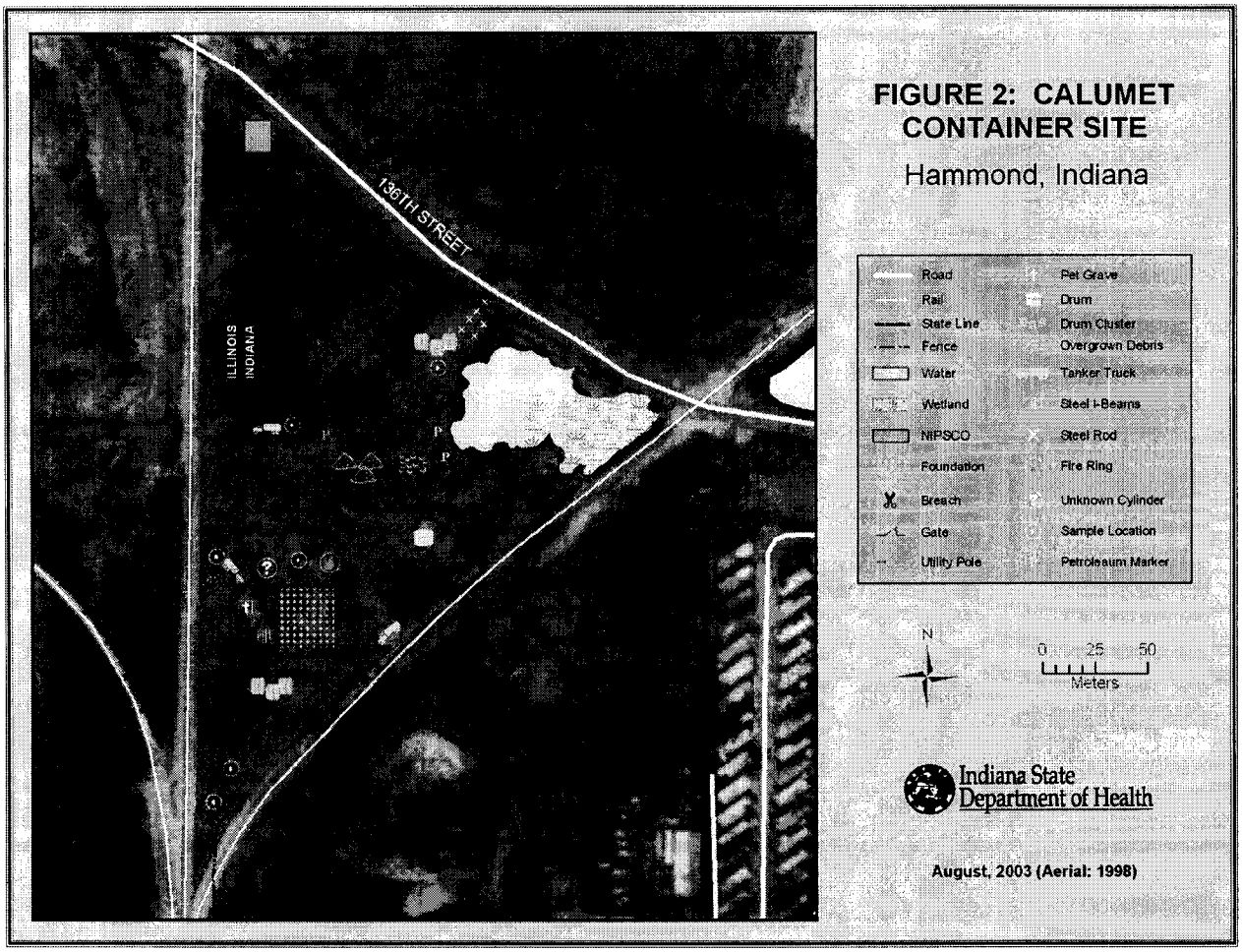

Figure 3: Topographical map of Calumet Container site and surrounding area (from Reference 2)