Health Consultation

DETCO INDUSTRIES, INCORPORATED

CONWAY, FAULKNER COUNTY, ARKANSAS

EPA FACILITY ID: ARR000012955

FEBRUARY 17, 2005

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

Health Implications of Exposure to Soil in Residential Yards Adjacent to

DETCO INDUSTRIES, INCORPORATED

CONWAY, FAULKNER COUNTY, ARKANSAS

Prepared by:

Arkansas Department of Health
Under Cooperative Agreement with the
U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry

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SUMMARY AND STATEMENT OF ISSUES

In response to a request from the Arkansas Department of Environmental Quality (ADEQ), the Arkansas Department of Health (ADH), under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), has prepared a health consultation for the Detco Industries, Incorporated, site. The purpose of this health consultation is to evaluate data for surface soil at the site to determine whether exposure to contaminants in the soil poses a public health hazard. Data on surface water quality and ambient air was also collected from the site and will be evaluated in two separate health consultations.

Detco Industries is located in Conway, Arkansas, at 605 East Robins Street. The company produces liquid products, powders, and a line of aerosol products and industrial chemicals for use in industrial maintenance. The facility regularly stored and used methanol, hydrofluoric acid, and sulfuric acid [1]. An explosion at the plant on January 6, 2004, set off a fire that destroyed a 37,000-square foot Detco warehouse. Following the explosion, people within one-half mile of the site were evacuated. The exact number of people within the area evacuated following the explosion is not known, but among those evacuated were area residents and persons from an elementary school, a day-care center, and a paper factory that employs 540 persons [2].

On January 8, 2004, ADEQ collected nine soil samples from a mobile home park adjacent to Detco (Figures 1–3, Appendix A). The samples were collected to help identify compounds in the soil that may have come from the explosion and from the runoff water used in fighting the fire and to assess the extent to which the compounds may have become integrated into the surrounding environment [3]. Analysis of the soil samples indicated a maximum concentration of iron at 39,600 parts per million, which is above the human health medium-specific screening level developed by Region 6 of the US Environmental Protection Agency (EPA) (see Table 1 in Appendix B) [4]. Typical iron concentrations in soil, however, range from 20,000 to 550,000 parts per million [5].

On the basis of the information reviewed, ADH has concluded that the under present soil conditions, soil in the residential yards located on property adjacent to the destroyed Detco warehouse is of *No Apparent Public Health Hazard*. The limited environmental sampling data do not indicate that people are being exposed currently or have been exposed in the past to levels of contamination in the soil that would be expected to cause adverse health effects.

BACKGROUND

Site Description and History

Detco Industries is located in an industrial park in Conway, Faulkner County, Arkansas. Incorporated in 1988, Detco produces liquid products, powders, and a line of aerosol products and other industrial chemicals for use in industrial maintenance. The facility regularly stored and used methanol, hydrofluoric acid, and sulfuric acid.

On Tuesday, January 6, 2004, at 11:05 AM (Central time), a 911 emergency call was made requesting the fire department to dispatch assistance to Detco at 605 East Robins Street [6]. An

explosion had occurred in a 37,000-square foot Detco warehouse used to produce industrial chemicals. The explosion resulted in serious personal injuries to two Detco employees and the loss of the warehouse. All persons within a half-mile of the site were evacuated after the explosion. People were evacuated from 190 mobile homes, 3 houses, an elementary school, a day-care center, and a paper factory that employs 540 persons. The exact number of persons living in the area that was evacuated is not known. Residents were allowed to return to their homes on January 9, 2004 [7].

At the time the 911 emergency call was made, the sky was partly cloudy, the wind was blowing from the north at 10.4 miles per hour, and the temperature was 25.0 degrees Fahrenheit [8].

Demographics

At the time of the fire, Detco had 31 employees [9]. Two employees were seriously injured, both receiving second and third degree burns. A total of 4,291 persons live within a 1-mile radius of the explosion. Following the explosion an evacuation of a half-mile radius was initiated. The exact size of the population in that area is not known, but area residents were evacuated along with persons from an elementary school, a day-care center, and a paper factory that employs 540 persons.

DISCUSSION

Potential exposure pathways to contaminants at the Detco site were evaluated to determine whether people could be exposed to potentially unsafe levels of contaminants from the site. A completed exposure pathway exists for the incidental soil ingestion exposure pathway in residential yards located in the mobile home park adjacent to Detco's destroyed warehouse. Exposure pathways consist of five elements:

1. A source of contamination
2. Transport through an environmental medium, such as soil or groundwater
3. Point of exposure
4. A route for the contaminant to enter the body, and
5. A receptor population (persons who could be exposed).

6. For a person to be exposed to a contaminant, the exposure pathway must contain all five elements. An exposure pathway containing all five elements is called a completed exposure pathway. If at least one of the elements of the exposure pathway is missing, but could exist, the pathway is said to be a potential exposure pathway. Potential pathways indicate that exposure to a contaminant could have occurred in the past, could be occurring in the present, or could occur in the future.

Comparison Values

ATSDR comparison values are media- and chemical-specific concentrations used as screening values in the preliminary identification of site-specific "contaminants of concern". The latter term should not be misinterpreted as an implication of "hazard". As ATSDR uses the phrase, a contaminant of concern only to describe a chemical substance detected at the site in question and selected for further evaluation of potential health effects. Generally, a chemical is selected as a contaminant of concern because its maximum concentration in air, water, or soil at the site exceeds one of ATSDR's comparison values.

ATSDR's Minimal Risk Levels (MRLs) are comparison values that were developed as an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse noncancer health effects over a specified duration of exposure. ATSDR health assessors and other responders use these substance-specific estimates, which are intended to serve as screening levels, potential health effects that may be of concern at hazardous waste sites. MRLs are not intended to define clean up or action levels for ATSDR or other agencies.

ATSDR uses the no-observed-adverse-effect-level/uncertainty factor (NOAEL/UF) approach to derive MRLs for hazardous substances. MRLs are set below levels that, based on current information, might cause adverse health effects in the people most sensitive to such substance-induced effects. In addition, ATSDR derives MRLs for three levels of exposure duration-acute (1-14 days), intermediate (>14-364 days), and chronic (365 days and longer) exposure-and for the oral and inhalation exposure routes. MRLs are generally based on the most sensitive substance-induced end point considered to be of relevance to humans. ATSDR does not use serious health effects (such as birth defects or irreparable damage to the liver or kidneys) as a basis for establishing MRLs. Exposure to a level above the MRL does not mean that adverse health effects will necessarily occur.

While concentrations at or below the relevant comparison value may reasonably be considered safe, it does not automatically follow that any environmental concentration that exceeds a comparison value would be expected to produce adverse health effects. The purpose behind highly conservative, health-based standards and guidelines is to enable health professionals to recognize and resolve potential public health hazards before they can become actual public health consequences. Thus, comparison values are designed to be preventive, rather than predictive, of adverse health effects. The probability that such effects will actually occur depends, not on environmental concentrations alone, but on unique combinations of site-specific conditions and individual lifestyle and genetic factors that affect the route, magnitude, and duration of actual exposure.

The following paragraphs describe various comparison values that ATSDR uses to select chemicals for further evaluation and other non-ATSDR values that are sometimes used to put chemical concentrations into a meaningful frame of reference.

- **Environmental media evaluation guides** (EMEGs) are concentrations that are calculated from ATSDR minimal risk levels by factoring in default body weights and ingestion rates.
- **Intermediate environmental media evaluation guides** (IEMEGs) are calculated from ATSDR minimal risk levels. They factor in body weight and ingestion rates for intermediate exposures (those occurring for more than 14 days and less than 1 year).
- **Reference dose media evaluation guides** (RMEGs) are concentration of a contaminant in air, water or soil that corresponds to EPA's reference dose for that contaminant when default values for body weight and intake rates are taken into account.
- **EPA's reference dose** (RfD) is an estimate of the daily exposure to a contaminant unlikely to cause non-carcinogenic adverse health effects. Like ATSDR's MRLs, EPA's RfD is a dose expressed in milligrams per kilogram per day (mg/kg/day).
- **EPA Region 6 human health medium-specific screening levels** specify chemical concentrations that correspond to fixed levels of risk in soil, air, and water. This information is a valuable resource in evaluating both residential and industrial exposure scenarios.

Soil Sampling

It was suspected that extinguishing the fire at Detco on January 6, 2004, might have resulted in residential yards adjacent to the destroyed Detco warehouse being contaminated by chemicals originating from the facility. To identify the compounds present in the residential yards, ADEQ collected nine surface soil samples (0–2 inches in depth) on January 8, 2004. Figure 1 in Appendix A shows the sites where the samples were collected. Analysis of these samples indicated that iron was the only analyte above screening levels. An iron concentration of 39,600 parts per million was found at sample site 7 (see Figure 1, Appendix A). The EPA Region 6 human health medium-specific screening level for iron is 23,000 parts per million. However, typical iron concentrations in soils range from 20,000 to 550,000 parts per million [5].

Estimated Daily Exposure

The estimation of the daily exposure dose involves determining contaminant concentrations at points of potential human exposure and developing assumptions regarding the extent of human exposure in the completed exposure pathways. For this evaluation, the maximum concentration detected for the contaminant of concern (iron) in surface soil is considered as the concentration at the point of potential exposure. Individuals are assumed to have had access to the site a maximum of 25 days before soil remediation efforts were completed. Children are assumed to have a body weight of 10 kg or 22 pounds and to ingest 200 mg of soil per day. Adults are assumed to have a body weight of 70 kg or 154 pounds and to ingest 100 mg of soil per day. These assumptions were intended to represent the worst-case scenarios.

Analytical results of surface soil samples revealed iron at a maximum concentration of 39,600 milligrams per kilogram (mg/kg) at sample site 7 located on the north side of mobile home 11 (see Figure 1, Appendix A). Because of the lack of toxicity data, a chronic oral ATSDR minimal risk level (MRL) or EPA RfD has not been developed to evaluate the potential for noncarcinogenic health effects following iron exposure. However, as mentioned previously, EPA

Region 6 has developed human health medium-specific screening levels that correspond to fixed levels of risk in soil, air and water.

In 2001, the Institute of Medicine set a tolerable upper intake level (UL) of 40 mg/day for infants and children through age 13, and 45 mg/day for adolescents ages 14 to 18 years and adults 19 years of age and older [12]. The upper limit does not apply to individuals who receive iron under medical supervision. There may be times when a medical doctor prescribes an intake higher than the upper limit, such as when individuals with iron deficiency anemia need higher doses of iron until their stored levels of iron return to normal.

The estimated daily exposure dose of iron for children was calculated at 0.0546 mg/kg per day or 0.546 mg/day for a child weighing 10 kg. The UL of 40 mg/day for infants and children through age 13 is 73 times higher than the estimated daily exposure dose for this site. For those over 13 years of age, the tolerable UL is set at 45 mg/day, which is 164.8 times greater than the estimated daily exposure of 0.273 mg/day for an adult who weighs 70 kg. Therefore, no children or adults are being or have been exposed to levels of contamination in the soil of residential yards adjacent to Detco that would be expected to cause adverse health effects.

Iron

Iron is an essential nutrient, but some adverse health effects have been observed at levels above recommended doses. Overexposure to iron would primarily occur through incidental ingestion of contaminated surface soil, surface water, and sediment. Children between 1 and 3 years of age are at highest risk for ingestion of non-food items such as soil. Children who habitually ingest non-food items (children with pica behavior) are of special concern, because they may ingest between 5,000 and 10,000 mg of soil per day [11]. We have not confirmed any cases of children with pica behavior in the residential area surrounding Detco; therefore, this route of exposure is highly unlikely. Dermal contact is not considered to be a significant route of exposure for iron, as the skin provides a barrier for most inorganic substances.

COMMUNITY HEALTH CONCERNS

ADH investigated the public health concerns received from community members at meetings and from correspondence. Specific community public health concerns were identified regarding whether people could be exposed to contaminants from the Detco fire and explosion through the soil in residential yards near the site. The evaluation of this situation is presented in the body of this document. A letter from an attorney representing some of the community members reported that community members had expressed a variety of symptoms, including headaches, blurred vision, dizziness/lightheadedness, lack of energy, impaired taste, loss of appetite, diarrhea, upset stomach, nausea, vomiting, burns/burning of face, facial sores, itching skin, rash, raw nostrils, raw sinuses, sore throat, loss of voice, coughing, shortness of breath, heart palpitations, and chest pain. As stated in the discussion section, people are not being exposed currently and have not been exposed in the past to levels of iron contamination in the soil of residential yards adjacent to Detco that would be expected to cause adverse health effects.

CHILD HEALTH CONSIDERATIONS

In communities faced with soil, air, water, or food contamination, the many physical differences between children and adults demand special emphasis. Children could be at greater risk than adults are from certain kinds of exposure to hazardous substances. Children play outdoors and sometimes engage in hand-to-mouth behaviors that increase their exposure potential. Children are shorter than adults; this means they breathe dust, soil, and vapors closer to the ground. A child's lower body weight and higher intake rate result in a greater dose of a hazardous substance per unit of body weight. If toxic exposure levels are high enough during critical growth stages, the developing body systems of children can sustain permanent damage. Finally, children are dependent on adults for access to housing, for access to medical care, and for risk identification. Adults need as much information as possible to make informed decisions regarding their children's health.

Though we have not confirmed any cases of children with pica behavior in the residential area surrounding Detco, an estimated daily exposure dose of iron for children was calculated at 0.0546 mg/kg per day or 0.546 milligrams per day for a child weighing 10 kg. This was intended to represent the worst-case scenario. The UL of 40 mg/day of iron for infants and children through age 13 is 73 times higher than the estimated daily exposure dose for this site. This information leads us to conclude that children are not being exposed now and have not been exposed in the past to levels of iron contamination in the soil of residential yards adjacent to Detco that would be expected to cause adverse health effects.

CONCLUSIONS

On the basis of the information reviewed, the Arkansas Department of Health has concluded that under present soil conditions, the soil in the residential yards located adjacent to the destroyed Detco warehouse is of *No Apparent Public Health Hazard*. The limited environmental sampling data indicate that neither children nor adults are being exposed now or have been exposed in the past to levels of iron contamination in the soil that would be expected to cause adverse health effects.

RECOMMENDATIONS

- ADH recommends that our office conduct a health consultation to evaluate data for surface water from the Detco site to determine whether exposure to possible contaminants in the water runoff poses a public health hazard.

- ADH recommends that our office conduct a health consultation to evaluate the ambient air data from the Detco site to determine whether possible past inhalation exposures pose a public health hazard.

PUBLIC HEALTH ACTION PLAN

The purpose of the public health action plan (PHAP) is to ensure that this health consultation not only identifies any public health hazards, but also provides a plan of action designed to mitigate

and prevent adverse human health effects resulting from exposure to hazardous substances in the environment. The PHAP implemented by ADH for the Detco site is as follows:

Completed Actions

- ADH evaluated soil samples collected and analyzed by ADEQ in January 2004.
- ADH initiated a community needs assessment in January 2004.
- ADH staff members, as well as ADEQ staff members and local city officials, attended a public meeting held on January 8, 2004, to inform residents about the plans for their return to their homes on January 9.

Future Activities

- ADH will provide concerned residents and other interested stakeholders with copies of this completed health consultation on the health implications of exposure to soil.
- ADH will provide health education activities in the vicinity of the Detco site as needed and/or requested.
- ADH will complete a health consultation on surface water data for the Detco site.
- ADH will complete a health consultation on ambient air data for the Detco site.

AUTHORS, TECHNICAL ADVISORS

Health Assessor

Dan Seaton
Arkansas Department of Health

Designated Reviewer

Lori Simmons
Arkansas Department of Health

ATSDR Regional Representative

George Pettigrew
Region 6
Agency for Toxic Substances and Disease Registry

ATSDR Technical Project Officers

Tammie McRae
Division of Health Assessment and Consultation
Agency for Toxic Substances and Disease Registry

Jeff Kellam
Division of Health Assessment and Consultation
Agency for Toxic Substances and Disease Registry

CERTIFICATION

This health consultation for Detco Industries, Incorporated, was prepared by the Arkansas Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedure existing at the time the health consultation was initiated.

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Jeff Kellam, MS
Technical Project Officer
Division of Health Assessment and Consultation (DHAC)
ATSDR

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

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Roberta Erlwein
Cooperative Agreement Team Leader, DHAC, ATSDR

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APPENDICES

Appendix A - Figures

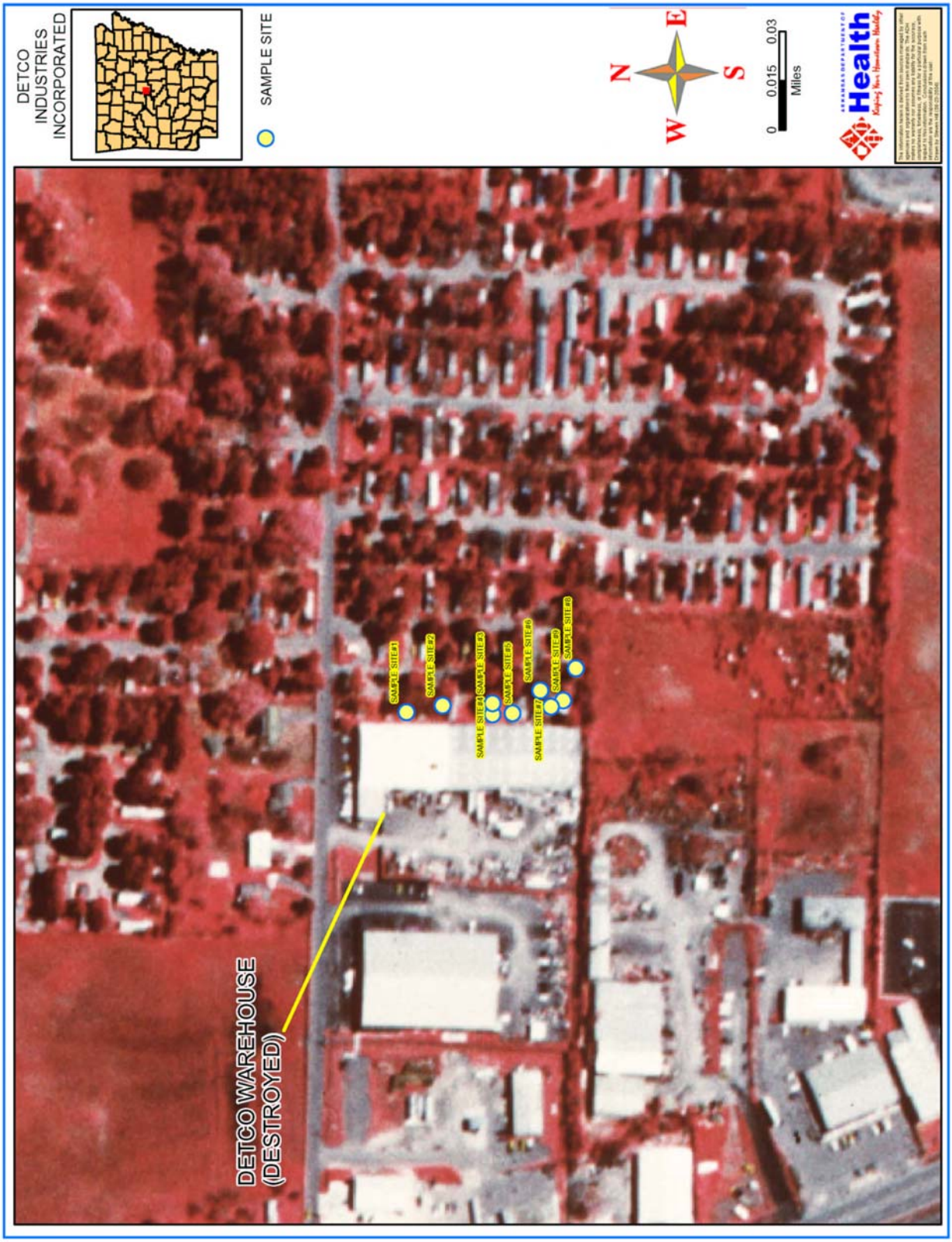

Figure 1. Aerial photo of Detco warehouse destroyed in the explosion and the adjacent soil sampling sites

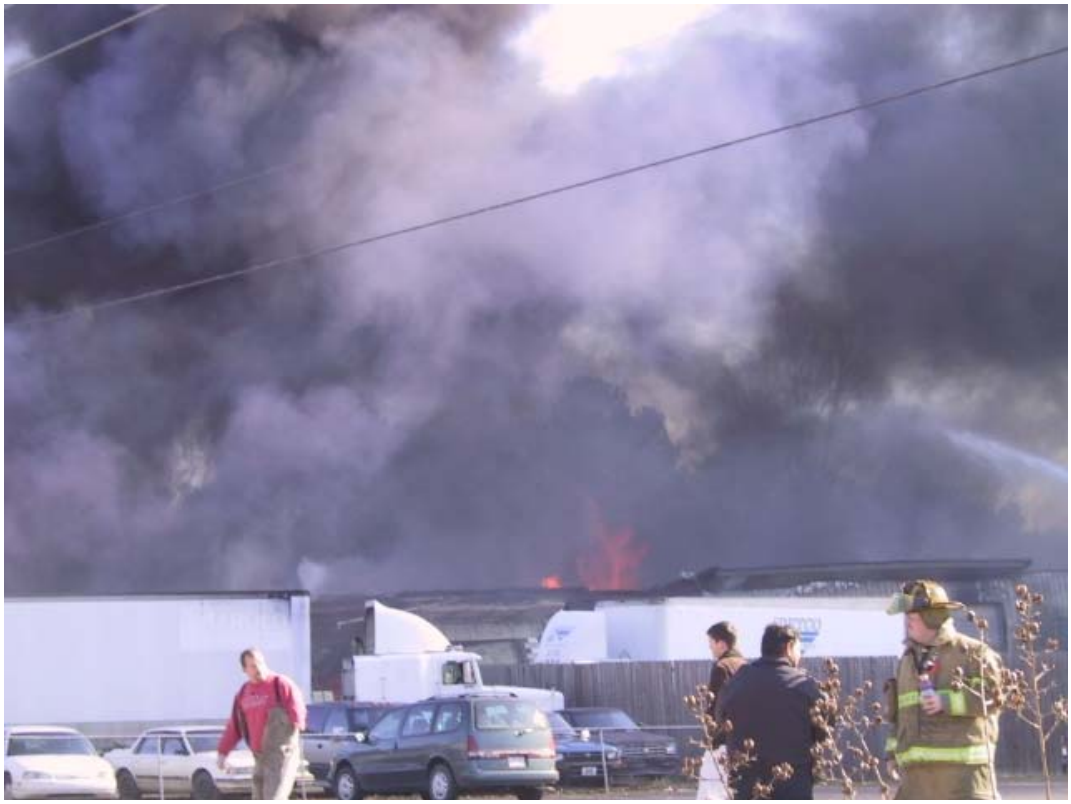

Figure 2. Detco warehouse on fire following explosion, January 6, 2004

Figure 3. Proximity of Detco warehouse (left) to the mobile home park (right)

Appendix B - Table

Table 1. Surface soil samples collected January 8, 2004, in the mobile home park next to the Detco warehouse										
Analyte	Sample Site 1	Sample Site 2	Sample Site 3	Sample Site 4	Sample Site 5	Sample Site 6	Sample Site 7	Sample Site 8	Sample Site 9	Soil Comparison Value (ppm)
1,1,1,2-Tetrachloroethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	3 *
1,1,1-Trichloroethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	1,400 *
1,1,2,2-Tetrachloroethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.38 *
1,1,2-Trichloroethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	200 RMEG (Child)
1,1-Dichloroethene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
1,1-Dichloropropene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
1,2,3-Trichlorobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
1,2,3-Trichloropropane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	300 RMEG (Child)
1,2,4-Trichlorobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	500 RMEG (Child)
1,2,4-Trimethylbenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	52 *
1,2-Dibromo-3-chloropropane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	100 IEMEG (Child)
1,2-Dibromoethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
1,2-Dichlorobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	5,000 RMEG (Child)
1,2-Dichloroethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	10,000 IEMEG (Child)
1,2-Dichloropropane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	4,000 IEMEG (Child)
1,3,5-Trimethylbenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	21 *
1,3-Dichlorobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
1,3-Dichloropropane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
1,4-Dichlorobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	20,000 IEMEG (Child)
2,2-Dichloropropane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
2-Chlorotoluene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	1,000 RMEG (Child)
4-Chlorotoluene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
Benzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	200 RMEG (Child)
Bromobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
Bromochloromethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
Bromodichloromethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	1,000 RMEG (Child)
Bromoform	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	1,000 RMEG (Child)
Bromomethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	70 RMEG (Child)

Table 1. Surface soil samples collected January 8, 2004, in the mobile home park next to the Detco warehouse (continued)										
Analyte	Sample Site 1	Sample Site 2	Sample Site 3	Sample Site 4	Sample Site 5	Sample Site 6	Sample Site 7	Sample Site 8	Sample Site 9	Soil Comparison Value (ppm)
Carbon Tetrachloride	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	40 RMEG (Child)
Chlorobenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	1,000 RMEG (Child)
Chloroethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
Chloroform	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	500 RMEG (Child)
cis-1-2-Dichloroethene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	20,000 IEMEG (Child)
cis-1-3-Dichloropropene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2,000 RMEG (Child)
Dibromochloromethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
Dibromomethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
Dichlorodifluoromethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	10,000 RMEG (Child)
Ethylbenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	5,000 RMEG (Child)
Hexachlorobutadiene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	10 IEMEG (Child)
Isopropylbenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
M&p_Xylene	<0.20	<0.20	<0.20	<0.20	<0.20	2.56	<0.20	<0.20	<0.20	400 IEMEG (Child)
Methylene chloride	<0.20	<0.20	<0.20	<0.20	1.96	<0.20	<0.20	1.02	1.18	3,000 RMEG (Child)
Naphthalene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	1,000 RMEG (Child)
n-Butylbenzene	<0.20	<0.20	<0.20	<0.20	1.64	3.25	<0.20	<0.20	<0.20	140 *
n-Propylbenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	140 *
o-Xylene (µg/g)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	280 *
p-Isopropyltoluene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	N/A
sec-Butylbenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	110 *
Styrene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	10,000 RMEG (Child)
tert-Butylbenzene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	130 *
Tetrachloroethene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	500 RMEG (Child)
Toluene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	10,000 RMEG (Child)
Total recoverable aluminum	23,400	15,400	12,000	14,000	15,800	15,300	25,500	22,200	12,700	100,000 IEMEG (Child)
Total recoverable antimony	4.10	2.20	<2.20	<2.20	<2.20	<2.20	4.00	3.20	<2.20	20 RMEG (Child)
Total recoverable arsenic	11.2	7.90	<5.00	7.70	6.30	8.30	15.5	9.00	5.90	20 RMEG (Child)

Table 1. Surface soil samples collected January 8, 2004, in the mobile home park next to the Detco warehouse (continued)

Analyte	Sample Site 1	Sample Site 2	Sample Site 3	Sample Site 4	Sample Site 5	Sample Site 6	Sample Site 7	Sample Site 8	Sample Site 9	Soil Comparison Value (ppm)
Total recoverable barium	102	62.8	70.4	66.3	72.4	99.2	104	119	62.0	4,000 RMEG (Child)
Total recoverable beryllium	1.40	1.00	0.80	1.20	1.20	1.10	2.10	1.50	1.10	100 RMEG (Child)
Total recoverable cadmium	0.90	0.50	0.30	0.50	0.30	0.60	0.50	0.50	0.30	50 RMEG (Child)
Total recoverable calcium	1,370	569	1,620	758	709	2,140	719	1,500	604	N/A
Total recoverable chromium	36.4	23.5	18.3	27.4	26.1	23.7	47.7	33.2	20.9	210 *
Total recoverable cobalt	9.20	5.90	5.60	7.10	8.40	9.50	12.6	9.50	7.10	500 IEMEG (Child)
Total recoverable copper	95.6	5.00	5.00	3.70	4.30	11.2	6.70	6.50	2.70	1,000 IEMEG (Child)
Total recoverable iron	21,200	16,900	13,100	21,900	19,400	14,800	**39,600**	22,000	20,600	23,000 *
Total recoverable lead	8.10	8.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	400 *
Total recoverable magnesium	1,590	952	886	884	953	1,890	1,490	1,490	727	N/A
Total recoverable manganese	499	260	306	326	448	926	604	552	290	3,000 RMEG (Child)
Total recoverable molybdenum	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	300 RMEG (Child)
Total recoverable nickel	51.9	12.1	9.40	11.0	12.7	18.3	18.3	17.3	9.90	1,000 RMEG (Child)
Total recoverable potassium	115,000	75,700	63,400	46,400	75,000	129,000	114,000	120,000	47,200	N/A
Total recoverable selenium	7.40	<5.00	<5.00	6.90	7.50	8.20	19.3	8.90	10.4	300 RMEG (Child)
Total recoverable silver	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	<2.10	300 RMEG (Child)
Total recoverable thallium	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	N/A
Total recoverable vanadium	39.7	27.0	21.0	29.2	29.8	26.9	53.8	39.3	24.1	78*
Total recoverable zinc	277	118	47.4	81.9	82.1	153	102	152	62.8	20,000 RMEG (Child)
trans-1-2-Dichloroethene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	1,000 RMEG (Child)
trans-1-3-Dichloropropene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	2,000 RMEG (Child)
Trichloroethene	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	400 Acute EMEG (Pica Child)
Trichlorofluoromethane	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	20,000 RMEG (Child)
Vinyl chloride	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	200 RMEG (Child)

ppm: parts per million; **EMEG:** Environmental media evaluation guide; **IEMEG:** Intermediate environmental media evaluation guide; **RMEG:** Reference dose media evaluation guide; **N/A:** Not analyzed. *Source: EPA Region 6 Human Health Medium-Specific Screening Levels.