Letter Health Consultation

NORTH IOWA HUMANE SOCIETY SITE
FORT DODGE, IOWA

Prepared by the
Iowa Department of Public Health

SEPTEMBER 30, 2009

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners 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 or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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LETTER HEALTH CONSULTATION

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FORT DODGE, IOWA

Prepared By:

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

Iowa Department of Public Health
Promoting and Protecting the Health of Iowans

Thomas Newton, MPP, REHS
Director

Chester J. Culver
Governor

Patty Judge
Lt. Governor

September 22, 2009

Mel Pins
Brownfields Coordinator
Iowa Department of Natural Resources
Wallace State Office Building
Des Moines, IA 50319

RE: Health Consultation
North Iowa Humane Society Site – Fort Dodge, Iowa

Dear Mr. Pins:

This letter has been prepared as a consultation to evaluate human health impacts from residual contamination left from the former operation of a salvage yard on this property that is planned to be utilized by the North Iowa Humane Society located in Fort Dodge, Iowa. The Iowa Department of Public Health's priority is to ensure the Fort Dodge community has the best information possible to safeguard its health. That information is included in following paragraphs.

Background and Statement of Issues

The site of a former salvage yard located in Fort Dodge, Iowa is being considered by the North Iowa Human Society for redevelopment as a place of operation. An auto salvage yard was operated on site from 1959 until 1984. At the present time, the site is vacant and vegetated in grass.

The Iowa Department of Natural Resources has completed a Phase II Environmental Site Assessment at the location of the former salvage yard to determine the degree and extent of soil and groundwater contamination (1). Soil and groundwater samples were collected from various locations at the site and analyzed for various chemical parameters. Six composite surface soil samples (0 to 2 inches in depth) were analyzed for Resource Conservation and Recovery Act (RCRA) metals, total extractable hydrocarbons, and volatile petroleum hydrocarbons. Three groundwater samples were analyzed for RCRA metals and volatile organic compounds.

This letter consultation will evaluate the health impacts of exposure to the chemicals that were detected in the soil and groundwater. The exposures that will be considered in this health consultation will include exposure to people working at the proposed facility.

Discussion – Exposure to Surface Soils

The following is a discussion of the potential for exposure to surface soils at the site. There is a potential for exposure to surface soils through the inadvertent consumption of soil on hands or food items, through dermal absorption of soil contaminants from contact with the soils, and through inhalation of dust. The following table is a summary of the maximum concentration of contaminants found within the surface soils located at the site.

Table 1 – Maximum Concentration of Chemicals Found within Site Surface Soils (1)

Chemical Parameter	Concentration (mg/kg)
Arsenic, Total	8.7
Barium, Total	160
Cadmium, Total	2.9
Chromium, Total	15
Lead, Total	140
Mercury, Total	ND
Selenium, Total	ND
Silver, Total	ND
Gasoline	ND
Mineral Sprits	ND
Kerosene	ND
Diesel Fuel	ND
Waste Oil	300
Methyl-t-butyl-ether	ND
Benzene	ND
Toluene	ND
Ethylbenzene	ND
Total Xylenes	ND

mg/day is milligram per day
ND means not detected by the laboratory analytical method

A comparison can be made between the levels of chemicals found within the site soils to levels of chemicals found within soils that have the potential to cause adverse health impacts to individuals. The Agency of Toxic Substances and Disease Registry (ATSDR) has determined and published a set of comparison values for substances that may be found in air, water and soil. Comparison values (environmental guidelines) are measures of substance concentrations that are set well below levels that are known or anticipated to result in adverse health effects. The following table is a list of comparison values for those chemicals found in the site surface soils that have corresponding published comparison values.

Table 2 – Comparison Values for Chemicals within Soil (2)

Chemical Parameter	Comparison Value (mg/kg)	Exposure Frequency	Person
Arsenic	20	Chronic	Child
	200	Chronic	Adult
	10	Acute	Pica Child
Barium	10,000	Chronic	Child
	100,000	Chronic	Adult
	400	Intermediate	Pica Child
Cadmium	5	Chronic	Child
	70	Chronic	Adult
	1	Intermediate	Pica Child
Lead	400*	Chronic	Child

"Chronic" exposure is for longer that 1 year
"Intermediate" exposure is between 14 days and 1 year
"Acute" exposure is up to 14 days
"Pica Child" is a child beyond the age of 18 months that exhibits a behavior of eating non-food items such as soil
* EPA's screening level for lead in residential soils

The levels of contaminants, arsenic, barium, and lead, in the site surface soil are below comparison values. Since comparison values are set well below levels that are known or anticipated to result in adverse health effects, it is concluded that exposure to these contaminants in the site surface soil will not adversely effect the health of any person or animal who would be on the site property.

Exposure to Cadmium

The concentration of cadmium in the site soil is greater than one of the comparison values shown in the table above. The cadmium concentration in the site surface soil, and corresponding comparison values are as follows:

- Cadmium at 2.9 mg/kg (comparison value of 1 mg/kg for intermediate exposure to a child exhibiting pica behavior)

Since the level of cadmium within the site soils is above one of its comparison values, it is important to consider the context of potential exposures at the site to determine if there is a potential for adverse health impacts. The site is proposed to be utilized as an operational building for the North Iowa Humane Society. Knowing this, it is anticipated that the individuals who may be exposed to site surface soils on a somewhat frequent basis will be workers at the human society and animals that will be housed

at the facility. It is not anticipated that children will be exposed to site soils on a regular basis. Furthermore, even if children were exposed to site surface soils, they would not be present long enough to engage in pica behavior. Since the only comparison value that was exceeded is specifically developed for exposure to a child exhibiting pica behavior, and that a child is not expected to engage in pica behavior when present at the site, it is concluded that the levels of cadmium in site surface soils will not contribute to adverse health impacts.

Exposure to Waste Oil

Waste oil was detected in the site surface soil samples collected at the site. The maximum concentration of waste oil detected in site surface soils was 300 mg/kg. There are no comparison values for evaluating waste oil in soil, and there is very limited toxicological information available on exposure to waste oil. In addition, there are no cleanup standards in Iowa for waste oil detected in soil. As a result, it is not possible to evaluate the potential adverse health effects from exposure to soil containing waste oil. It is the experience of the Iowa Department of Public Health from looking at data from other sites that have detected waste oil in surface soils, that a level of waste oil at 300 mg/kg is low.

The Iowa Department of Public Health recommends that soil samples be analyzed for potential components of waste oil such as individual poly-aromatic hydrocarbons (PAHs) which have comparison values. This would enable to Iowa Department of Public Health to provide an analysis of the potential impacts to human health from exposure to any PAHs that were detected in surface soils.

Discussion – Exposure to Site Groundwater

As reported in the Phase II Environmental Site Assessment completed by the Iowa Department of Natural Resources, groundwater in the vicinity of the site is not being used as a drinking water supply (1). All residential and commercial property in the area is supplied with drinking water from the Fort Dodge public water supply. The nearest supply well for the Fort Dodge public water supply is located about 2.5 miles west of the site. The nearest private well found recorded with the Iowa Department of Natural Resources is located about 160 feet west of the southern portion of the site and records indicated that this well has been plugged. Since individuals will not be exposed to groundwater at the site, there are no concerns of adverse impact to health from any contamination that may be present in groundwater located at the site.

Conclusions

Exposure to Site Soil

The Iowa Department of Public Health concludes that incidentally eating soil, getting soil on the skin, or breathing in dust particles from soil located at the future location of the North Iowa Humane Society will not harm people's health. The level of exposure to metals found within the site surface soils is below the level that has been shown to impact human health, or the exposures are anticipated to be too small to adversely impact health.

It is noted that waste oil was also detected within surface soils at the site. As previously discussed, there are no comparison values for evaluating the level of waste oil in the soil. As a result, the Iowa Department of Public Health cannot conclude whether incidentally eating soil, getting soil on the skin, or breathing in dust particles from soil containing waste oil located at the future location of the North Iowa Humane Society could harm people's health. It is the experience of the Iowa Department of Public Health from looking at data from other sites that have detected amount of waste oil in surface soils that the levels of waste oil found in site surface soils at this site are low.

Exposure to Site Groundwater

The Iowa Department of Public Health concludes that the presence of any contamination within the groundwater located at the site will not harm people's health because people are not and will not be drinking this water.

Recommendations

The Iowa Department of Public Health recommends that that soil samples be analyzed for potential components of waste oil such as individual poly-aromatic hydrocarbons (PAHs) which have comparison values. This would enable to Iowa Department of Public Health to provide an analysis of the potential impacts to human health from exposure to any PAHs that were detected in surface soils. If the site is planned to be used for any other uses different from the proposed use by the North Iowa Humane Society, such as for residential purposes, it is recommend that a separate health consultation be prepared that accounts for any other uses.

References

1. Site Specific Assessment for the North Iowa Humane Society Site, Contaminate Sites Section, Iowa Department of Natural Resources, February 2009.
2. Agency for Toxic Substances and Disease Registry. Comparison Values. Atlanta: US Department of Health and Human Services; May 2009.

If you have any questions regarding the information in this letter please contact me at (515) 281-8707 or by email at sschmitz@idph.state.ia.us.

Sincerely,

Stuart C. Schmitz, M.S., P.E.
Principal Investigator / Environmental Toxicologist
Hazardous Waste Site Health Assessment Program

CERTIFICATION

The Iowa Department of Public Health, Hazardous Waste Site Health Assessment Program, has prepared this letter health consultation evaluating human health impacts from residential contamination left from the former operation of a salvage yard on property that is planned to be utilized by the North Iowa Humane Society located in Fort Doge, Iowa under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). The document is in accordance with approved methodology and procedures existing when the health consultation was being prepared. The editorial review of this document was completed by the cooperative agreement partner.

Technical Project Officer, CAT, CAPEB, DHAC, ATSDR

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

Team Lead, CAT, CAPEB, DHAC, ATSDR