Health Consultation

FORMER MOORE'S TIRE AND AUTO SITE

SHREVEPORT, CADDO PARISH, LOUISIANA

Prepared by the
Louisiana Department of Health and Hospitals

August 6, 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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List of Acronyms

ATSDR	Agency for Toxic Substances and Disease Registry
COC	Contaminant of concern
CV	Comparison value
LDEQ	Louisiana Department of Environmental Quality
LDHH	Louisiana Department of Health and Hospitals
OPH	Office of Public Health
PAH	Polynuclear aromatic hydrocarbons
ppm	Parts per million
RECAP	Risk Evaluation/Corrective Action Program
SEET	Section of Environmental Epidemiology and Toxicology
SVOC	Semivolatile organic compound
UST	Underground Storage Tank
VOC	Volatile organic compound
VPH/EPH	Volatile petroleum hydrocarbons/extractable petroleum hydrocarbons

Summary and Statement of Issues

The Louisiana Department of Health and Hospitals/Office of Public Health/Section of Environmental Epidemiology and Toxicology (LDHH/OPH/SEET) has reviewed data collected from the Former Moore's Tire and Auto site in Shreveport, Louisiana. The Biomedical Research Foundation of Northwest Louisiana intends to redevelop the site into part of Shreveport's InterTech Science Park for scientific and technology-based businesses. Through a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR), SEET has developed the following health consultation to review soil and groundwater samples from the site and to examine the public health implications of exposure to any contaminants found in these samples.

Background and Site History

The Former Moore's Tire and Auto site consists of an acre of land at 3040 Mansfield Road in Shreveport, LA (see Figure A-1) [1]. The site includes three buildings surrounded by an asphalt parking lot. The site is named for a used tire sales and repair facility which operated at the site until the 1980's [2]. Other former site uses include a lumber company, a gasoline station, an auto repair shop, and an electronic parts store [1, 3]. Five underground storage tanks, four of which contained gasoline and one which contained waste oil, have been removed from the site. Two of the buildings onsite are currently used by Mack's Radiator Service, an automobile radiator repair shop (see Figure A-2). The third building is the former tire mounting and repair garage.

The Biomedical Research Foundation of Northwest Louisiana plans to encourage economic growth in Shreveport through assessment, cleanup, and redevelopment of the site. Working through the City of Shreveport Brownfields Program, the U.S. Environmental Protection Agency's Brownfields Program and the Louisiana Department of Environmental Quality's (LDEQ) Targeted Brownfields Assessment Program, the Foundation intends to redevelop the site into part of the city's InterTech Science Park for medical, scientific and biotechnology-based businesses [1, 3].

In accordance with plans to redevelop the Former Moore's Tire and Auto site, a number of assessment activities have taken place to identify any contaminants present in site soil and groundwater. These activities include a Risk Evaluation/Corrective Action Program (RECAP) evaluation performed at the site in August 2000, Phase I and Limited Phase II Environmental Site Assessments performed in June 2002, and site investigations performed in October 2004 and July 2006. No contaminants that would pose a long-term threat to human health and safety were identified within the site limits [1,3]. On November 2007, the LDEQ released a No Further Action Notification for the site based on confirmation that site contaminants did not exceed remedial standards established for this site using RECAP Management Option 1 non-industrial standards [2].

Demographics

At the time of the U.S. Census Bureau's Census 2000, the city of Shreveport's total population was 200,145. The estimated population in 2006 was 200,199. The largest ethnic group recorded by Census 2000 was African-American (50.8%), followed by Caucasian (46.7%), two or more races (1.0%), Asian (0.8%), and American Indian or Alaskan Native (0.3%). One point six percent (1.6%) of the population identified themselves as Hispanic or Latino. Seventy-nine percent (79%) of the population age 25 years or older in 2000 had earned at least a high school diploma. The median household income was $30,526 [4]. The primary occupation was in the field of management, professional and related occupations (31.7%), followed by sales and office occupations (27.0%); and service occupations (22.8%) [5].

Discussion

Data Used

Four areas of concern were identified at the site based on historical operational activities, the RECAP evaluation performed in August 2000, Phase I and Limited Phase II Environmental Site Assessments performed in June 2002, and a site investigation performed by Sklar & Phillips Oil Company in October 2004. The areas, which are shown on the map in Figure A-2, are identified as follows:

- the former underground storage tank (UST) area on the west side of the tire dealership,
- a former tire mounting and repair garage,
- a former pump island,
- the current radiator repair shop [3].

Samples evaluated in this assessment were collected during a site investigation performed from July 10-12, 2006. This site investigation was performed using EPA-approved State Water Project/Quality Assurance Plans. During this investigation, six soil borings were collected from the four areas of concern. These soil borings, which extended from the surface soil down to the base of the first permeable zone, were analyzed for soil and groundwater contamination [3]. Table 1 lists the types of contaminant analyses performed on each of the soil borings. Figure A-2 shows the locations at which each boring was collected.

Exposure Pathways

Exposure to contaminants present in the soil at the site would be through incidental (accidental) ingestion of this soil, through dermal contact, or through inhalation of soil or sediment particles. No fence separates the site from the surrounding community, so on-site soil is easily accessible to the public. However, no contaminants of concern were found in soil on this site.

Table 1. Analyses of soil borings and groundwater sampled from the Former Moore's Tire and Auto site, Shreveport, LA.

Soil Boring	Media analyzed	Contaminant analyses
Boring 1	Groundwater	VOCs*****
		PAHs[†]
		VPH/EPH[‡]
		Lead
Boring 2	Groundwater	VOCs
	Soil	PAHs
		VPH/EPH
		Lead
Boring 3	Groundwater	VOCs
		PAHs
		VPH/EPH
		Lead
Boring 4	Groundwater	VOCs
		PAHs
		VPH/EPH
		Lead
Boring 5	Groundwater	VOCs
	Soil	SVOCs[§]
		Metals
		VPH/EPH
Boring 6	Groundwater	VOCs
	Soil	SVOCs
		Metals
		VPH/EPH

*****VOCs = volatile organic compounds
[†]PAHs = polynuclear aromatic hydrocarbons
[‡]VPH/EPH = volatile petroleum hydrocarbons/extractable petroleum hydrocarbons
[§]SVOCs = semivolatile organic compounds

Potential exposures to groundwater contaminants from the site would occur if the groundwater discharged into a water body used as a municipal water supply or for recreational purposes or into private wells. Groundwater flow at the site is primarily to the east and southeast. The closest potential surface water discharge point is an unnamed tributary 1,500 feet east of the site. This tributary flows approximately 4 miles before it enters Bayou Pierre, which eventually drains into the Red River [1, 3]. The nearest public wells registered with the Louisiana Department of Transportation and Development Louisiana Department of Transportation and Development are more than 2 miles (10,000 feet) away from the site [6].

Potential exposure to groundwater contaminants may also occur if a groundwater plume from the site migrates underneath a building. Through vapor intrusion, volatile contaminants can travel through the soil into overlying buildings. However, no volatile contaminants were found in

groundwater samples from this site at concentrations of public health concern. Therefore, vapor intrusion from this site's groundwater does not serve as an exposure pathway to contaminants that might pose public health hazards.

Recreational exposure to the site groundwater by way of Bayou Pierre is unlikely due to the City of Shreveport's Ordinance Number 148, Section 62-59: *Swimming and Wading in Bayou Pierre and Old River*. This ordinance prohibits wading or swimming in the portion of Bayou Pierre lying within the corporate limits of the city of Shreveport and located north of the King's Highway, which lies south of the Moore's Tire and Auto site [7].

The Red River does not currently serve as a drinking water source; the current source of Shreveport's drinking water is Cross Lake, which is located approximately 1.9 miles northwest of the site. However, the Red River is considered to be an alternate water supply if and when the Cross Lake reservoir becomes depleted [8].

Evaluation Process

Appendix B describes the evaluation process used to determine whether contaminants detected in soil and groundwater sampled from the Former Moore's Tire and Auto site pose any hazard to public health. Concentrations of contaminants detected in the samples were initially screened using health-based comparison values (CVs). These conservative screening values are only used to determine which environmental contaminants need further evaluation. CVs are not used to predict adverse human heath effects. Contaminant concentrations that exceeded health-based CVs in groundwater are listed in Table B-1 and are identified as contaminants of concern (COCs).

Health Effects Evaluation

No contaminants at levels of concern were identified in the soil samples collected from the site. Although iron, lead, and manganese were identified as COCs in the site groundwater, exposure to these contaminants is unlikely because the site groundwater is not associated with the area's domestic water supply or with recreational exposures such as swimming or wading.

Cancer Health Effects Evaluation

None of the COCs detected at the site are identified as carcinogens. They were therefore not evaluated for their potential to cause cancer health effects.

Child Health Considerations

Because no COCs were detected in soils from the site and the groundwater is not currently associated with the domestic water supply or with recreational activities, SEET found that the site soils and groundwater presently pose no harm to children.

Conclusions

Soils from the Former Moore's Tire and Auto site pose no harm to site workers or to residents of Shreveport. Groundwater from the site also poses no harm because it is not associated with the source of the area's domestic water supply or with recreational exposures such as swimming or wading. However, if Shreveport's current drinking water source becomes depleted, the site's groundwater should be reevaluated because it eventually discharges into the Red River, which would serve as an alternate municipal water source for the city.

Recommendations

Community members and stakeholders in Shreveport, LA should be informed of the results of this assessment.

Public Health Action Plan

The information produced within this health consultation should be made available to the community members and stakeholders within Shreveport, Louisiana.

Preparers of this Report

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2. Louisiana Department of Environmental Quality. Basis of Decision for No Further Action: Moore's Tire Service. AI Number 138659. 25 Nov 2007.
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8. Shreveport Department of Operational Services. 2007 Water Quality Report. Accessed 18 Feb 2009 at URL: http:// www.ci.shreveport.la.us/PDF/ccr00-4revised.PDF

Certification

This Former Moore's Tire and Auto public health consultation was prepared by the Louisiana Department of Health and Hospitals under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures at the time the health consultation was begun. The editorial review was conducted by the Cooperative Agreement Partner.

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

Alan W. Yarbrough
Cooperative Agreement Team Leader, DHAC, ATSDR

APPENDIX A: Maps

Figure A-1: Location of the Former Moore's Tire and Auto Site

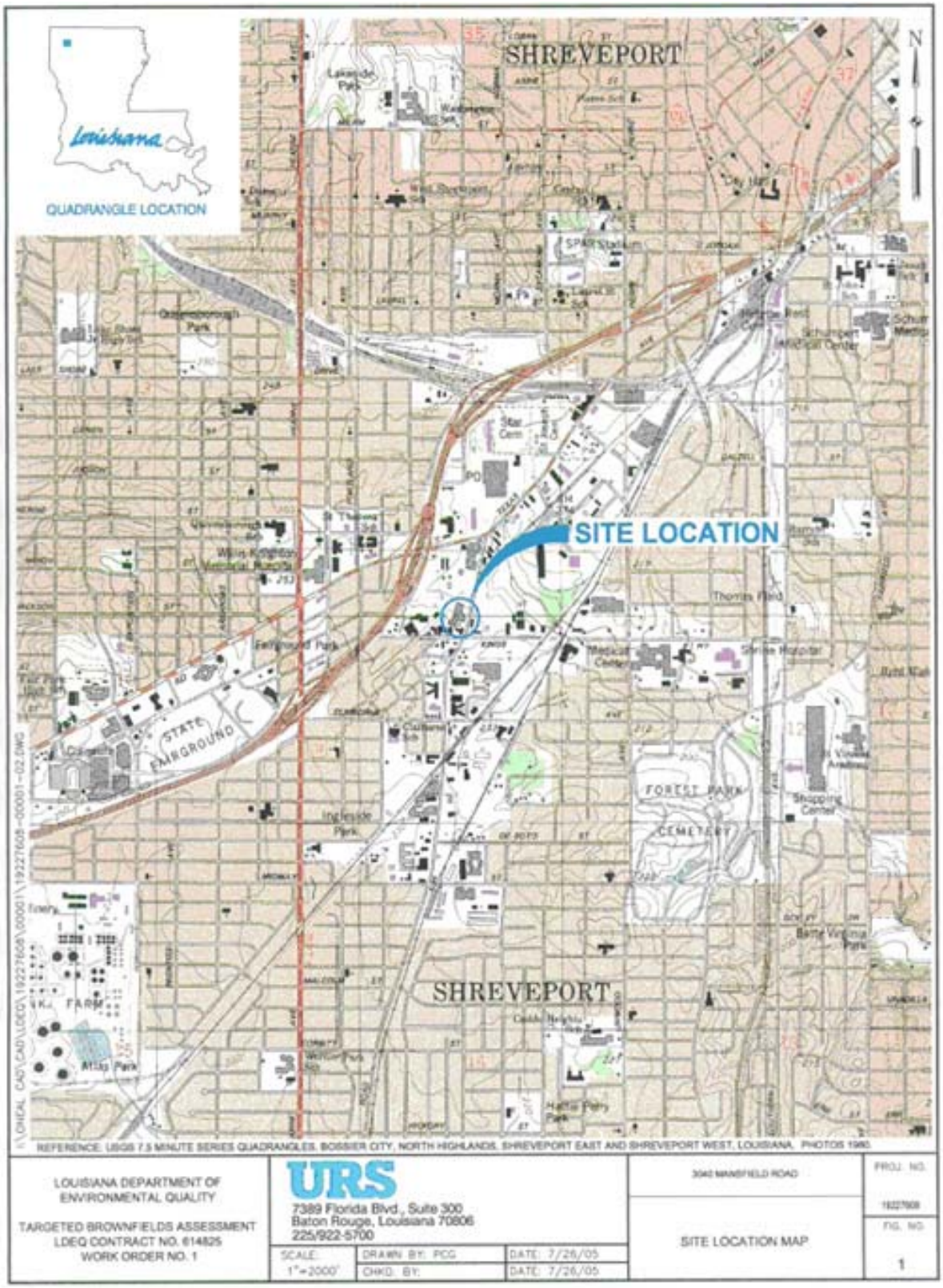
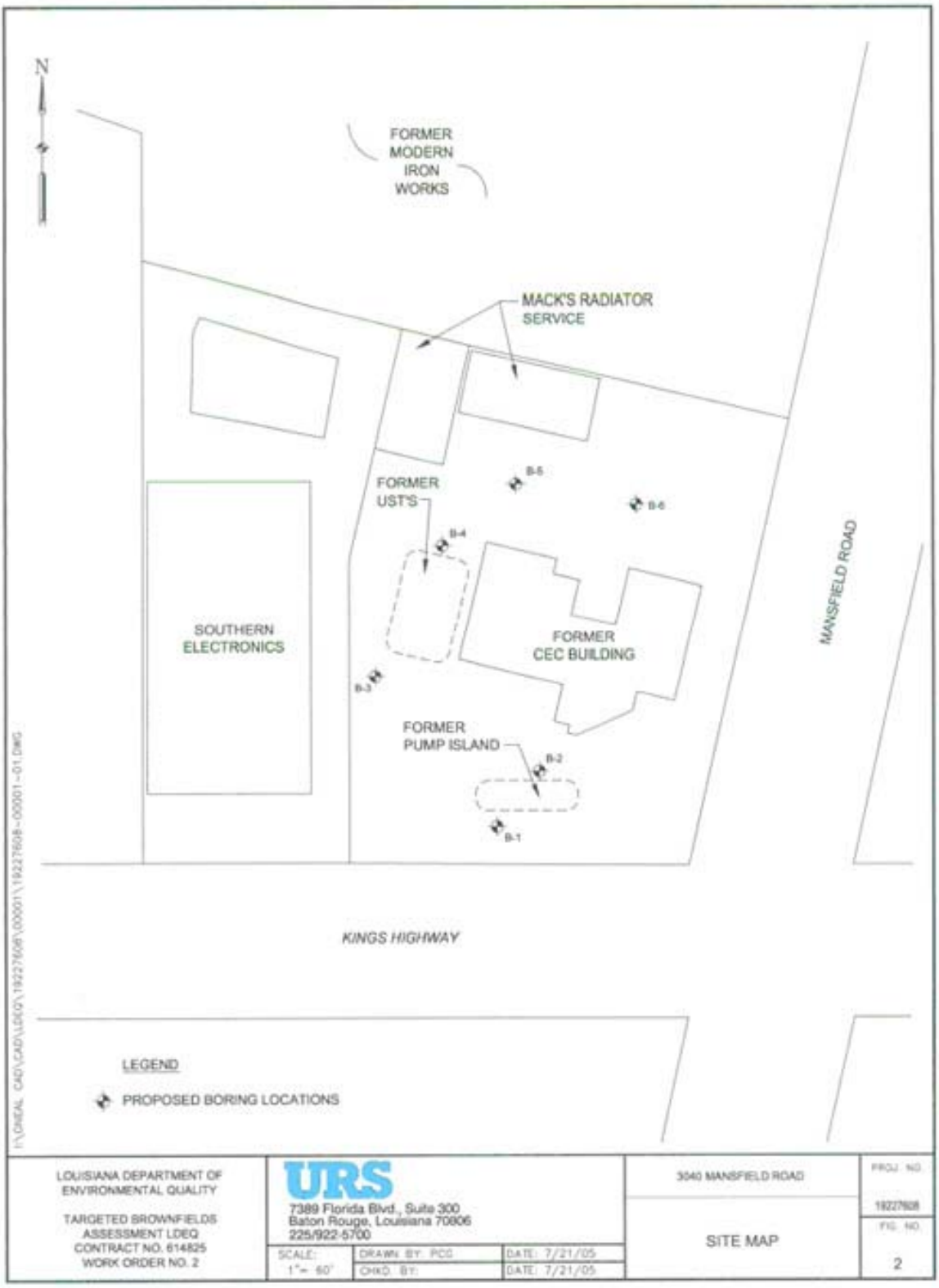


Figure A-2: Map of the Former Moore's Tire and Auto Site



APPENDIX B: Evaluation Process

Screening Process

Comparison values are media-specific concentrations of chemicals that are used by health assessors to screen environmental contaminants for further evaluation. These values are not used as predictors of adverse health effects. The comparison values used in the evaluation of soil and groundwater from the Moore's Tire and Auto Site are listed below:

Environmental media evaluation guides (EMEGs) and *reference dose media evaluation guides* (RMEGs) are estimated contaminant concentrations at which noncarcinogenic health effects are unlikely. EMEGs are calculated from the Agency for Toxic Substances and Disease Registry's (ATSDR) minimal risk levels (MRLs). RMEGs are calculated from the U.S. Environmental Protection Agency's (EPA) reference dose (RfD).

Risk-based concentrations (RBCs) are estimated contaminant concentrations in a media at which noncarcinogenic or carcinogenic health effects are unlikely. The RBCs used in this health consultation were last updated in June 2008.

Maximum contaminant levels (MCLs) are the maximum permissible level of a contaminant in water which will ultimately be delivered to a public water system. MCLs are established by the EPA's Office of Ground Water and Drinking Water.

Action levels are concentrations above which operators of a public water system must take additional steps to decrease the amount of the contaminant in their water. Action levels are determined by the EPA.

When no health-based comparison value was available for a contaminant, screening was based on the Louisiana Department of Environmental Quality's Risk Evaluation/Corrective Action Program (RECAP) value. *RECAP values* are concentrations at or above which remediation of a medium (soil, sediment, or water) should occur. Contaminants for which no RECAP value existed (calcium, iron, magnesium, and potassium) were evaluated using dietary reference intakes obtained from the United States Department of Agriculture's National Agricultural Library Food and Nutrition Information Center website[1].

Contaminants present in concentrations that exceed heath-based comparison values are identified as contaminants of concern (COCs). These contaminants need further consideration to determine whether they pose a health hazard to workers or community members. Table B-1 lists groundwater contaminants from the Former Moore's Tire and Auto site that were identified as COCs. No contaminants of concern were found in soil sampled from the site.

[1] United States Department of Agriculture: National Agricultural Library. Food and Nutrition Information Center. Accessed 10 Jun 2009 at URL: http://fnic.nal.usda.gov/nal_display/index.php?info_center=4&tax_level=3&tax_subject=256&topic_id=1342&level3_id=5140

Table B-1: Contaminants of Concern (COCs) detected in groundwater samples collected at the Former Moore's Tire and Auto site

COC	Concentration Range (ppm*) Low	High	CV † (ppm)	CV reference
Iron	4.61	37.9	26.0	RBC‡
Lead	0.0074	0.022	0.015	Action level
Manganese	2.46	3.51	0.50	Child RMEG§

* ppm = parts per million
†CV=comparison value
‡RBC=Risk-Based Concentration
§Child RMEG = Child reference dose media evaluation guide