Robert Stewart file

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STATE OF MISSOURI

Mel Carnahan, Governor • Stephen M. Mahfood, Director

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF ENVIRONMENTAL QUALITY

P.O. Box 176 Jefferson City, MO 65102-0176

May 22, 1998

Mr. Thomas S. Sanicola
Environmental Engineer
Modine Manufacturing Company
1500 DeKoven Avenue
Racine, WI 53403

Dear Mr. Sanicola:

At the request of the Missouri Department of Natural Resources' (MDNR) Hazardous Waste Program (HWP), the MDNR-Environmental Services Program (ESP) conducted groundwater sampling from a private well located at 178 Sunset Drive, Camdenton, Missouri, on April 23, 1998. The residence is located directly across the street from Modine Manufacturing Company.

Samples were collected and analyzed for volatile and semi-volatile organic constituents. The results for Trichloroethene (TCE) were 210 parts per billion (ppb) and 170 ppb (duplicate) and the results for cis-1,2-Dichloroethene (1,2-DCE) were 12 ppb and 13 ppb (duplicate). All other constituents were non-detect.

A copy of the sampling report and sampling results is enclosed. If you have any questions regarding this issue feel free to call me at (573) 751-3553.

Sincerely,

HAZARDOUS WASTE PROGRAM

Christine M. Kump
Environmental Engineer
Permits Section

CMK:sw

Enclosure

c: Robert Stewart, P.E., U.S. EPA Region VII
MDNR, Jefferson City Regional Office

R00085138
RCRA Records Center

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MAY 21 1998

HAZARDOUS WASTE PROGRAM
MISSOURI DEPARTMENT OF
NATURAL RESOURCES

RCRA Sampling Investigation Report

Modine Site - Burnau Private Well
Camdenton, Missouri

April 23, 1998

Prepared For:

Missouri Department of Natural Resources
Division of Environmental Quality
Hazardous Waste Program

Prepared By:

Missouri Department of Natural Resources
Division of Environmental Quality
Environmental Services Program

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1.0 Introduction

At the request of the Hazardous Waste Program (HWP) a sampling investigation was conducted on April 23, 1998, by Eric Sappington of the Environmental Services Program (ESP). The purpose of the investigation was to collect a water sample from a private well located at the Dave Burnau residence, 178 Sunset Drive in Camdenton, Missouri. The Burnau home is located across the street from the Modine Heat Transfer, Inc. facility. Information obtained from previous investigations raised concerns that organic solvent contaminants, known to exist in the soils and groundwater at the Modine site, may have migrated to the nearby Burnau well.

The private well at the Burnau residence is a secondary water source, the primary drinking water source being the Camdenton public water supply. There were no samples collected from the Camdenton public water supply during this investigation.

2.0 Site Description and History

2.1 Site Location

The Burnau residence is located at 178 Sunset Drive, Camdenton, Missouri. The Modine Heat Transfer, Inc. facility is located at 179 Sunset Drive, directly across the street from the Burnau residence.

2.2 Site Description

The Burnau home is located in a residential neighborhood adajcent to the Modine facility.

2.3 Site History/Contaminants of Concern

Previous investigations conducted at the Modine site found evidence of organic solvent contamination in both soils and groundwater in the vicinity of the manufacturing plant. Trichloroethylene (trichloroethene), tetrachloroethylene, 1,1,1-trichloroethane, and vinyl chloride are among the contaminants that have been detected in the soils and/or groundwater at the site.

Further historical or background information regarding the Modine site can be found in the ESP and HWP files.

3.0 Methods

3.1 Field Procedures

Sample 98-4702 was collected from an outside spigot located at the rear of the Burnau residence. Sample 98-4703 was collected from the same location as a duplicate to 98-4702. Prior to sample collection, the spigot was turned on and allowed to flow for 12 minutes in order to purge the stagnant water from the pressure tank. According to Mr. Burnau, the pressure tank has a capacity of 30 to 40 gallons. Using a stop watch and a graduated bucket, the flow rate was calculated at four gallons per minute. Thus, 48 gallons were purged prior to sample collection. The water was discharged into a storm drain on the Burnau property.

In order to minimize agitation and aeration at the spigot, the flow rate was reduced to a thin stream for sample collection. The vials for volatile organic parameters were filled first, then the flow rate was increased slightly to facilitate filling the one-liter sample containers for semi-volatile organic parameters.

The sample vials for the volatile organic parameters were pre-preserved with a few drops of hydrochloric acid. The containers for semi-volatile organic parameters required no chemical preservatives. Upon collection, all sample containers were labelled and placed immediately on ice in a cooler.

Clean nitrile gloves were worn for sample collection.

Modine was contacted prior to the investigation and offered the opportunity to collect split samples from the Burnau well. The company was initially interested in collecting samples, but then declined the offer.

3.2 Chain-of-Custody

Each sample container received a numbered label upon collection. A chain-of-custody form was then completed which recorded the sample number assigned to each container, the description of the location of the sample collected, the date and time collected, and the parameters to be analyzed.

The ESP representative maintained custody of the samples and hand delivered the samples to the Environmental Services Program in Jefferson City where they were relinquished to a sample custodian.

3.3 Analyses Requested

All samples were analyzed for volatile organic and semi-volatile organic parameters.

3.4 Quality Assurance/Quality Control (QA/QC)

All samples were analyzed in accordance with the general requirements and standard operating procedures described in the Fiscal Year 1998 Generator/TSD Quality Assurance Project Plan.

Sample 98-4701 was collected as a trip blank and analyzed for the same parameters as the groundwater samples.

4.0 Investigation Derived Wastes

All disposable personal protective equipment generated by the ESP representative was returned to the ESP laboratory for proper disposal.

5.0 Observations

The samples collected from the Burnau private well were clear, colorless and had no discernable odor.

When asked at the time of the investigation, Mr. Burnau was not aware of the well characteristics (e.g. total well depth, static water level, casing depth, or depth of pump). The ESP did not open up the well and made no attempt to measure the well characteristics.

Mr. Burnau stated that he used the private well primarily for watering his lawn and that he did not use the well as a source of drinking water. There was nothing unusual noted regarding the lawn and there were no obvious signs of stressed vegetation observed.

The weather on the day of sampling was sunny and warm.

6.0 Data Reporting

The analytical results of the sampling investigation are attached to this report.

In response to a request made by Mr. Burnau at the time of the investigation, Eric Sappington provided the sample results to Mr. Burnau during a telephone conversation that took place on May 18, 1998. Mr. Burnau was informed that the level of trichloroethene (TCE) in his private well exceeded the Maximum Contaminant Level (MCL) for public drinking water supplies. The MCL for TCE is 5 parts per billion (ug/L). Mr. Burnau was advised not to drink the water and was provided with a contact at the Missouri Department of Health (Randy Maley) should he have any questions regarding the health effects of TCE.

Submitted by: Eric Sappington

Eric Sappington
Environmental Specialist
Field Services Section
Environmental Services Program

Date: 5/20/98

Approved by: James H. Long

James H. Long
Director
Environmental Services Program

ES:

c: Chris Kump, HWP
Bob Hentges, Regional Director, JCRO

Appendix A

RCRA Sampling Investigation Report
Modine Site - Burnau Private Well
Camdenton, Missouri
April 23, 1998

Analytical Results

STATE OF MISSOURI
Mel Carnahan, Governor • Stephen M. Mahfood, Director
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 98-4701
Lab Number: 98-D933

Reported To: ERIC SAPPINGTON
Affiliation: ESP
Project Code: 3735/3000

Report Date: 5/ 6/98
Date Collected: 4/23/98
Date Received: 4/24/98

Sample Collected by: ERIC SAPPINGTON, ESP
Sampling Location: MODINE SITE, CAMDENTON, MO,
Sample Description: TRIP BLANKS

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 5.0	ug/L	4/28/98	8260
Vinyl Chloride	< 5.0	ug/L	4/28/98	8260
Bromomethane	< 5.0	ug/L	4/28/98	8260
Chloroethane	< 5.0	ug/L	4/28/98	8260
1,1-Dichloroethene	< 5.0	ug/L	4/28/98	8260
Acetone	< 20.0	ug/L	4/28/98	8260
Carbon Disulfide	< 5.0	ug/L	4/28/98	8260
Methylene Chloride	< 20.0	ug/L	4/28/98	8260
Methyl Tert-Butyl Ether	< 5.0	ug/L	4/28/98	8260
trans-1,2-Dichloroethene	< 5.0	ug/L	4/28/98	8260
1,1-Dichloroethane	< 5.0	ug/L	4/28/98	8260
2-Butanone	< 20.0	ug/L	4/28/98	8260
cis-1,2-Dichloroethene	< 5.0	ug/L	4/28/98	8260
Chloroform	< 5.0	ug/L	4/28/98	8260
1,1,1-Trichloroethane	< 5.0	ug/L	4/28/98	8260
Carbon Tetrachloride	< 5.0	ug/L	4/28/98	8260
Benzene	< 5.0	ug/L	4/28/98	8260
1,2-Dichloroethane	< 5.0	ug/L	4/28/98	8260
Trichloroethene	< 5.0	ug/L	4/28/98	8260
1,2-Dichloropropane	< 5.0	ug/L	4/28/98	8260
Bromodichloromethane	< 5.0	ug/L	4/28/98	8260
2-Hexanone	< 20.0	ug/L	4/28/98	8260
Trans-1,3-Dichloropropene	< 5.0	ug/L	4/28/98	8260
Toluene	< 5.0	ug/L	4/28/98	8260
CIS-1,3-Dichloropropene	< 5.0	ug/L	4/28/98	8260

Lab Number: 98-D933
Sample Number: 98-4701
May 6, 1998

Analysis Performed	Results		Analyzed	Method
1,1,2-Trichloroethane	< 5.0	ug/L	4/28/98	8260
4-Methyl-2-Pentanone	< 20.0	ug/L	4/28/98	8260
Tetrachloroethene	< 5.0	ug/L	4/28/98	8260
Dibromochloromethane	< 5.0	ug/L	4/28/98	8260
Chlorobenzene	< 5.0	ug/L	4/28/98	8260
Ethylbenzene	< 5.0	ug/L	4/28/98	8260
Total Xylenes	< 5.0	ug/L	4/28/98	8260
Styrene	< 5.0	ug/L	4/28/98	8260
Bromoform	< 5.0	ug/L	4/28/98	8260
1,1,2,2-Tetrachloroethane	< 5.0	ug/L	4/28/98	8260
1,3-Dichlorobenzene	< 5.0	ug/L	4/28/98	8260
1,4-Dichlorobenzene	< 5.0	ug/L	4/28/98	8260
1,2-Dichlorobenzene	< 5.0	ug/L	4/28/98	8260
BNA Results:				
Phenol	< 2.0	ug/L	4/30/98	8270
bis(-2-Chloroethyl)Ether	< 2.0	ug/L	4/30/98	8270
2-Chlorophenol	< 5.0	ug/L	4/30/98	8270
1,3-Dichlorobenzene	< 2.0	ug/L	4/30/98	8270
1,4-Dichlorobenzene	< 2.0	ug/L	4/30/98	8270
N-nitrosodimethylamine	< 2.0	ug/L	4/30/98	8270
1,2-Dichlorobenzene	< 2.0	ug/L	4/30/98	8270
2-Methylphenol	< 2.0	ug/L	4/30/98	8270
bis(2-Chloroisopropyl)Eth	< 2.0	ug/L	4/30/98	8270
4-Methylphenol	< 2.0	ug/L	4/30/98	8270
N-Nitro-Di-n-Propylamine	< 2.0	ug/L	4/30/98	8270
Hexachloroethane	< 2.0	ug/L	4/30/98	8270
Nitrobenzene	< 2.0	ug/L	4/30/98	8270
Isophorone	< 2.0	ug/L	4/30/98	8270
2-Nitrophenol	< 2.0	ug/L	4/30/98	8270
2,4-Dimethylphenol	< 2.0	ug/L	4/30/98	8270
Benzoic Acid	< 2.0	ug/L	4/30/98	8270
bis(2-Chloroethoxy)Methan	< 2.0	ug/L	4/30/98	8270
2,4-Dichlorophenol	< 2.0	ug/L	4/30/98	8270
1,2,4-Trichlorobenzene	< 2.0	ug/L	4/30/98	8270
Naphthalene	< 2.0	ug/L	4/30/98	8270
4-Chloroaniline	< 5.0	ug/L	4/30/98	8270
Hexachlorobutadiene	< 2.0	ug/L	4/30/98	8270
4-Chloro-3-Methylphenol	< 5.0	ug/L	4/30/98	8270
2-Methylnaphthalene	< 2.0	ug/L	4/30/98	8270
Hexachlorocyclopentadiene	< 2.0	ug/L	4/30/98	8270
2,4,6-Trichlorophenol	< 2.0	ug/L	4/30/98	8270
2,4,5-Trichlorophenol	< 5.0	ug/L	4/30/98	8270
2-Chloronaphthalene	< 2.0	ug/L	4/30/98	8270
2-Nitroaniline	< 5.0	ug/L	4/30/98	8270
Dimethylphthalate	< 2.0	ug/L	4/30/98	8270
Acenaphthylene	< 2.0	ug/L	4/30/98	8270
2,6-Dinitrotoluene	< 2.0	ug/L	4/30/98	8270
3-Nitroaniline	< 5.0	ug/L	4/30/98	8270

Lab Number: 98-D933
Sample Number: 98-4701
May 6, 1998

Analysis Performed	Results		Analyzed	Method
Acenaphthene	< 2.0	ug/L	4/30/98	8270
2,4-Dinitrophenol	< 5.0	ug/L	4/30/98	8270
4-Nitrophenol	< 5.0	ug/L	4/30/98	8270
Dibenzofuran	< 2.0	ug/L	4/30/98	8270
2,4-Dinitrotoluene	< 2.0	ug/L	4/30/98	8270
Diethylphthalate	< 2.0	ug/L	4/30/98	8270
4-Chlorophenyl-phenylethe	< 2.0	ug/L	4/30/98	8270
Fluorene	< 2.0	ug/L	4/30/98	8270
4-Nitroaniline	< 5.0	ug/L	4/30/98	8270
4,6-Dinitro-2-Methylpheno	< 5.0	ug/L	4/30/98	8270
N-Nitrosodiphenylamine	< 2.0	ug/L	4/30/98	8270
4-Bromophenyl-phenylether	< 2.0	ug/L	4/30/98	8270
Hexachlorobenzene	< 2.0	ug/L	4/30/98	8270
Pentachlorophenol	< 5.0	ug/L	4/30/98	8270
Phenanthrene	< 2.0	ug/L	4/30/98	8270
Anthrancene	< 2.0	ug/L	4/30/98	8270
Di-n-Butylphthalate	< 5.0	ug/L	4/30/98	8270
Fluoranthene	< 2.0	ug/L	4/30/98	8270
Pyrene	< 2.0	ug/L	4/30/98	8270
Butylbenzylphthalate	< 2.0	ug/L	4/30/98	8270
3-3'-Dichlorobenzidine	< 5.0	ug/L	4/30/98	8270
Benzo(a)anthracene	< 2.0	ug/L	4/30/98	8270
Chrysene	< 2.0	ug/L	4/30/98	8270
bis(2-ethylhexyl)phthalat	< 5.0	ug/L	4/30/98	8270
Di-n-Octylphthalate	< 2.0	ug/L	4/30/98	8270
Benzo(b)fluoranthene	< 2.0	ug/L	4/30/98	8270
Benzo(k)fluoranthene	< 2.0	ug/L	4/30/98	8270
Benzo(a)pyrene	< 2.0	ug/L	4/30/98	8270
Indeno(1,2,3-cd)pyrene	< 2.0	ug/L	4/30/98	8270
Dibenz(a,h)anthracene	< 2.0	ug/L	4/30/98	8270
Benzo(g,h,i)perylene	< 2.0	ug/L	4/30/98	8270

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.

James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: KATHY FLIPPIN, HWP

STATE OF MISSOURI
Mel Carnahan, Governor • Stephen M. Mahfood, Director
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 98-4702
Lab Number: 98-D935

Reported To: ERIC SAPPINGTON
Affiliation: ESP
Project Code: 3735/3000

Report Date: 5/ 6/98
Date Collected: 4/23/98
Date Received: 4/24/98

Sample Collected by: ERIC SAPPINGTON, ESP
Sampling Location: MODINE SITE, CAMDENTON, MO,
Sample Description: BURNAU RESIDENCE, GROUNDWATER, PRIVATE WELL

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 5.0	ug/L	4/28/98	8260
Vinyl Chloride	< 5.0	ug/L	4/28/98	8260
Bromomethane	< 5.0	ug/L	4/28/98	8260
Chloroethane	< 5.0	ug/L	4/28/98	8260
1,1-Dichloroethene	< 5.0	ug/L	4/28/98	8260
Acetone	< 20.0	ug/L	4/28/98	8260
Carbon Disulfide	< 5.0	ug/L	4/28/98	8260
Methylene Chloride	< 20.0	ug/L	4/28/98	8260
Methyl Tert-Butyl Ether	< 5.0	ug/L	4/28/98	8260
trans-1,2-Dichloroethene	< 5.0	ug/L	4/28/98	8260
1,1-Dichloroethane	< 5.0	ug/L	4/28/98	8260
2-Butanone	< 20.0	ug/L	4/28/98	8260
cis-1,2-Dichloroethene	12.0	ug/L	4/28/98	8260
Chloroform	< 5.0	ug/L	4/28/98	8260
1,1,1-Trichloroethane	< 5.0	ug/L	4/28/98	8260
Carbon Tetrachloride	< 5.0	ug/L	4/28/98	8260
Benzene	< 5.0	ug/L	4/28/98	8260
1,2-Dichloroethane	< 5.0	ug/L	4/28/98	8260
Trichloroethene	210	ug/L	4/28/98	8260
1,2-Dichloropropane	< 5.0	ug/L	4/28/98	8260
Bromodichloromethane	< 5.0	ug/L	4/28/98	8260
2-Hexanone	< 20.0	ug/L	4/28/98	8260
Trans-1,3-Dichloropropene	< 5.0	ug/L	4/28/98	8260
Toluene	< 5.0	ug/L	4/28/98	8260

Lab Number: 98-D935
Sample Number: 98-4702
May 6, 1998

Analysis Performed	Results		Analyzed	Method
CIS-1,3-Dichloropropene	< 5.0	ug/L	4/28/98	8260
1,1,2-Trichloroethane	< 5.0	ug/L	4/28/98	8260
4-Methyl-2-Pentanone	< 20.0	ug/L	4/28/98	8260
Tetrachloroethene	< 5.0	ug/L	4/28/98	8260
Dibromochloromethane	< 5.0	ug/L	4/28/98	8260
Chlorobenzene	< 5.0	ug/L	4/28/98	8260
Ethylbenzene	< 5.0	ug/L	4/28/98	8260
Total Xylenes	< 5.0	ug/L	4/28/98	8260
Styrene	< 5.0	ug/L	4/28/98	8260
Bromoform	< 5.0	ug/L	4/28/98	8260
1,1,2,2-Tetrachloroethane	< 5.0	ug/L	4/28/98	8260
1,3-Dichlorobenzene	< 5.0	ug/L	4/28/98	8260
1,4-Dichlorobenzene	< 5.0	ug/L	4/28/98	8260
1,2-Dichlorobenzene	< 5.0	ug/L	4/28/98	8260
BNA Results:				
Phenol	< 2.0	ug/L	4/30/98	8270
bis(-2-Chloroethyl)Ether	< 2.0	ug/L	4/30/98	8270
2-Chlorophenol	< 5.0	ug/L	4/30/98	8270
1,3-Dichlorobenzene	< 2.0	ug/L	4/30/98	8270
1,4-Dichlorobenzene	< 2.0	ug/L	4/30/98	8270
N-nitrosodimethylamine	< 2.0	ug/L	4/30/98	8270
1,2-Dichlorobenzene	< 2.0	ug/L	4/30/98	8270
2-Methylphenol	< 2.0	ug/L	4/30/98	8270
bis(2-Chloroisopropyl)Eth	< 2.0	ug/L	4/30/98	8270
4-Methylphenol	< 2.0	ug/L	4/30/98	8270
N-Nitro-Di-n-Propylamine	< 2.0	ug/L	4/30/98	8270
Hexachloroethane	< 2.0	ug/L	4/30/98	8270
Nitrobenzene	< 2.0	ug/L	4/30/98	8270
Isophorone	< 2.0	ug/L	4/30/98	8270
2-Nitrophenol	< 2.0	ug/L	4/30/98	8270
2,4-Dimethylphenol	< 2.0	ug/L	4/30/98	8270
Benzoic Acid	< 2.0	ug/L	4/30/98	8270
bis(2-Chloroethoxy)Methan	< 2.0	ug/L	4/30/98	8270
2,4-Dichlorophenol	< 2.0	ug/L	4/30/98	8270
1,2,4-Trichlorobenzene	< 2.0	ug/L	4/30/98	8270
Naphthalene	< 2.0	ug/L	4/30/98	8270
4-Chloroaniline	< 5.0	ug/L	4/30/98	8270
Hexachlorobutadiene	< 2.0	ug/L	4/30/98	8270
4-Chloro-3-Methylphenol	< 5.0	ug/L	4/30/98	8270
2-Methylnaphthalene	< 2.0	ug/L	4/30/98	8270
Hexachlorocyclopentadiene	< 2.0	ug/L	4/30/98	8270
2,4,6-Trichlorophenol	< 2.0	ug/L	4/30/98	8270
2,4,5-Trichlorophenol	< 5.0	ug/L	4/30/98	8270
2-Chloronaphthalene	< 2.0	ug/L	4/30/98	8270
2-Nitroaniline	< 5.0	ug/L	4/30/98	8270
Dimethylphthalate	< 2.0	ug/L	4/30/98	8270
Acenaphthylene	< 2.0	ug/L	4/30/98	8270
2,6-Dinitrotoluene	< 2.0	ug/L	4/30/98	8270

Lab Number: 98-D935
Sample Number: 98-4702
May 6, 1998

Analysis Performed	Results		Analyzed	Method
3-Nitroaniline	< 5.0	ug/L	4/30/98	8270
Acenaphthene	< 2.0	ug/L	4/30/98	8270
2,4-Dinitrophenol	< 5.0	ug/L	4/30/98	8270
4-Nitrophenol	< 5.0	ug/L	4/30/98	8270
Dibenzofuran	< 2.0	ug/L	4/30/98	8270
2,4-Dinitrotoluene	< 2.0	ug/L	4/30/98	8270
Diethylphthalate	< 2.0	ug/L	4/30/98	8270
4-Chlorophenyl-phenylethe	< 2.0	ug/L	4/30/98	8270
Fluorene	< 2.0	ug/L	4/30/98	8270
4-Nitroaniline	< 5.0	ug/L	4/30/98	8270
4,6-Dinitro-2-Methylpheno	< 5.0	ug/L	4/30/98	8270
N-Nitrosodiphenylamine	< 2.0	ug/L	4/30/98	8270
4-Bromophenyl-phenylether	< 2.0	ug/L	4/30/98	8270
Hexachlorobenzene	< 2.0	ug/L	4/30/98	8270
Pentachlorophenol	< 5.0	ug/L	4/30/98	8270
Phenanthrene	< 2.0	ug/L	4/30/98	8270
Anthrancene	< 2.0	ug/L	4/30/98	8270
Di-n-Butylphthalate	< 5.0	ug/L	4/30/98	8270
Fluoranthene	< 2.0	ug/L	4/30/98	8270
Pyrene	< 2.0	ug/L	4/30/98	8270
Butylbenzylphthalate	< 2.0	ug/L	4/30/98	8270
3-3'-Dichlorobenzidine	< 5.0	ug/L	4/30/98	8270
Benzo(a)anthracene	< 2.0	ug/L	4/30/98	8270
Chrysene	< 2.0	ug/L	4/30/98	8270
bis(2-ethylhexyl)phthalat	< 5.0	ug/L	4/30/98	8270
Di-n-Octylphthalate	< 2.0	ug/L	4/30/98	8270
Benzo(b)fluoranthene	< 2.0	ug/L	4/30/98	8270
Benzo(k)fluoranthene	< 2.0	ug/L	4/30/98	8270
Benzo(a)pyrene	< 2.0	ug/L	4/30/98	8270
Indeno(1,2,3-cd)pyrene	< 2.0	ug/L	4/30/98	8270
Dibenz(a,h)anthracene	< 2.0	ug/L	4/30/98	8270
Benzo(g,h,i)perylene	< 2.0	ug/L	4/30/98	8270

The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.

James H. Long, Director
Environmental Services Program
Division of Environmental Quality

c: KATHY FLIPPIN, HWP

STATE OF MISSOURI
Mel Carnahan, Governor • Stephen M. Mahfood, Director
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176, Jefferson City, MO 65102-0176

ENVIRONMENTAL SERVICES PROGRAM

RESULTS OF SAMPLE ANALYSES

Sample Number: 98-4703
Lab Number: 98-D936

Reported To: ERIC SAPPINGTON
Affiliation: ESP
Project Code: 3735/3000

Report Date: 5/13/98
Date Collected: 4/23/98
Date Received: 4/24/98

Sample Collected by: ERIC SAPPINGTON, ESP
Sampling Location: MODINE SITE, CAMDENTON, MO,
Sample Description: BURNAU RESIDENCE, GROUNDWATER, PRIVATE WELL (DUPLICATE)

Analysis Performed	Results		Analyzed	Method
VOA Results:				
Chloromethane	< 5.0	ug/L	4/29/98	8260
Vinyl Chloride	< 5.0	ug/L	4/29/98	8260
Bromomethane	< 5.0	ug/L	4/29/98	8260
Chloroethane	< 5.0	ug/L	4/29/98	8260
1,1-Dichloroethene	< 5.0	ug/L	4/29/98	8260
Acetone	< 20.0	ug/L	4/29/98	8260
Carbon Disulfide	< 5.0	ug/L	4/29/98	8260
Methylene Chloride	< 20.0	ug/L	4/29/98	8260
Methyl Tert-Butyl Ether	< 5.0	ug/L	4/29/98	8260
trans-1,2-Dichloroethene	< 5.0	ug/L	4/29/98	8260
1,1-Dichloroethane	< 5.0	ug/L	4/29/98	8260
2-Butanone	< 20.0	ug/L	4/29/98	8260
cis-1,2-Dichloroethene	13.0	ug/L	4/29/98	8260
Chloroform	< 5.0	ug/L	4/29/98	8260
1,1,1-Trichloroethane	< 5.0	ug/L	4/29/98	8260
Carbon Tetrachloride	< 5.0	ug/L	4/29/98	8260
Benzene	< 5.0	ug/L	4/29/98	8260
1,2-Dichloroethane	< 5.0	ug/L	4/29/98	8260
Trichloroethene	170	ug/L	4/29/98	8260
1,2-Dichloropropane	< 5.0	ug/L	4/29/98	8260
Bromodichloromethane	< 5.0	ug/L	4/29/98	8260
2-Hexanone	< 20.0	ug/L	4/29/98	8260
Trans-1,3-Dichloropropene	< 5.0	ug/L	4/29/98	8260
Toluene	< 5.0	ug/L	4/29/98	8260

Lab Number: 98-D936
Sample Number: 98-4703
May 13, 1998

Analysis Performed	Results		Analyzed	Method
CIS-1,3-Dichloropropene	< 5.0	ug/L	4/29/98	8260
1,1,2-Trichloroethane	< 5.0	ug/L	4/29/98	8260
4-Methyl-2-Pentanone	< 20.0	ug/L	4/29/98	8260
Tetrachloroethene	< 5.0	ug/L	4/29/98	8260
Dibromochloromethane	< 5.0	ug/L	4/29/98	8260
Chlorobenzene	< 5.0	ug/L	4/29/98	8260
Ethylbenzene	< 5.0	ug/L	4/29/98	8260
Total Xylenes	< 5.0	ug/L	4/29/98	8260
Styrene	< 5.0	ug/L	4/29/98	8260
Bromoform	< 5.0	ug/L	4/29/98	8260
1,1,2,2-Tetrachloroethane	< 5.0	ug/L	4/29/98	8260
1,3-Dichlorobenzene	< 5.0	ug/L	4/29/98	8260
1,4-Dichlorobenzene	< 5.0	ug/L	4/29/98	8260
1,2-Dichlorobenzene	< 5.0	ug/L	4/29/98	8260
BNA Results:				
Phenol	< 2.0	ug/L	4/30/98	8270
bis(-2-Chloroethyl)Ether	< 2.0	ug/L	4/30/98	8270
2-Chlorophenol	< 5.0	ug/L	4/30/98	8270
1,3-Dichlorobenzene	< 2.0	ug/L	4/30/98	8270
1,4-Dichlorobenzene	< 2.0	ug/L	4/30/98	8270
N-nitrosodimethylamine	< 2.0	ug/L	4/30/98	8270
1,2-Dichlorobenzene	< 2.0	ug/L	4/30/98	8270
2-Methylphenol	< 2.0	ug/L	4/30/98	8270
bis(2-Chloroisopropyl)Eth	< 2.0	ug/L	4/30/98	8270
4-Methylphenol	< 2.0	ug/L	4/30/98	8270
N-Nitro-Di-n-Propylamine	< 2.0	ug/L	4/30/98	8270
Hexachloroethane	< 2.0	ug/L	4/30/98	8270
Nitrobenzene	< 2.0	ug/L	4/30/98	8270
Isophorone	< 2.0	ug/L	4/30/98	8270
2-Nitrophenol	< 2.0	ug/L	4/30/98	8270
2,4-Dimethylphenol	< 2.0	ug/L	4/30/98	8270
Benzoic Acid	< 2.0	ug/L	4/30/98	8270
bis(2-Chloroethoxy)Methan	< 2.0	ug/L	4/30/98	8270
2,4-Dichlorophenol	< 2.0	ug/L	4/30/98	8270
1,2,4-Trichlorobenzene	< 2.0	ug/L	4/30/98	8270
Naphthalene	< 2.0	ug/L	4/30/98	8270
4-Chloroaniline	< 5.0	ug/L	4/30/98	8270
Hexachlorobutadiene	< 2.0	ug/L	4/30/98	8270
4-Chloro-3-Methylphenol	< 5.0	ug/L	4/30/98	8270
2-Methylnaphthalene	< 2.0	ug/L	4/30/98	8270
Hexachlorocyclopentadiene	< 2.0	ug/L	4/30/98	8270
2,4,6-Trichlorophenol	< 2.0	ug/L	4/30/98	8270
2,4,5-Trichlorophenol	< 5.0	ug/L	4/30/98	8270
2-Chloronaphthalene	< 2.0	ug/L	4/30/98	8270
2-Nitroaniline	< 5.0	ug/L	4/30/98	8270
Dimethylphthalate	< 2.0	ug/L	4/30/98	8270
Acenaphthylene	< 2.0	ug/L	4/30/98	8270
2,6-Dinitrotoluene	< 2.0	ug/L	4/30/98	8270

Lab Number: 98-D936
Sample Number: 98-4703
May 13, 1998

Analysis Performed	Results		Analyzed	Method
3-Nitroaniline	< 5.0	ug/L	4/30/98	8270
Acenaphthene	< 2.0	ug/L	4/30/98	8270
2,4-Dinitrophenol	< 5.0	ug/L	4/30/98	8270
4-Nitrophenol	< 5.0	ug/L	4/30/98	8270
Dibenzofuran	< 2.0	ug/L	4/30/98	8270
2,4-Dinitrotoluene	< 2.0	ug/L	4/30/98	8270
Diethylphthalate	< 2.0	ug/L	4/30/98	8270
4-Chlorophenyl-phenylethe	< 2.0	ug/L	4/30/98	8270
Fluorene	< 2.0	ug/L	4/30/98	8270
4-Nitroaniline	< 5.0	ug/L	4/30/98	8270
4,6-Dinitro-2-Methylpheno	< 5.0	ug/L	4/30/98	8270
N-Nitrosodiphenylamine	< 2.0	ug/L	4/30/98	8270
4-Bromophenyl-phenylether	< 2.0	ug/L	4/30/98	8270
Hexachlorobenzene	< 2.0	ug/L	4/30/98	8270
Pentachlorophenol	< 5.0	ug/L	4/30/98	8270
Phenanthrene	< 2.0	ug/L	4/30/98	8270
Anthrancene	< 2.0	ug/L	4/30/98	8270
Di-n-Butylphthalate	< 5.0	ug/L	4/30/98	8270
Fluoranthene	< 2.0	ug/L	4/30/98	8270
Pyrene	< 2.0	ug/L	4/30/98	8270
Butylbenzylphthalate	< 2.0	ug/L	4/30/98	8270
3-3'-Dichlorobenzidine	< 5.0	ug/L	4/30/98	8270
Benzo(a)anthracene	< 2.0	ug/L	4/30/98	8270
Chrysene	< 2.0	ug/L	4/30/98	8270
bis(2-ethylhexyl)phthalat	< 5.0	ug/L	4/30/98	8270
Di-n-Octylphthalate	< 2.0	ug/L	4/30/98	8270
Benzo(b)fluoranthene	< 2.0	ug/L	4/30/98	8270
Benzo(k)fluoranthene	< 2.0	ug/L	4/30/98	8270
Benzo(a)pyrene	< 2.0	ug/L	4/30/98	8270
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