

Bridgeton Sampling

February 15, 2013

Sampling Purpose

Three SUMMA canister samples were collected near Bridgeton Landfill on February 15, 2013, and analyzed for volatile organic compounds. Samples were collected after a report was received about strong odors due to work at the landfill. The odors occurred during the drilling of a new gas extraction well when the drill hit a pocket of pressurized landfill gas about 100 feet down.

Sample Collection

A sampling team composed of Harry (Skip) Ricketts, Adam Vrabec, and Michael Ruddy from the MDNR Environmental Emergency Response office in Eureka, Missouri, collected the samples. All were grab samples.

Bridgeton Landfill Summa Canister Sampling

Samples collected: 2/15/2013
Wind Direction: W NW 10 - 15 mph estimated

Cannister #	Sample #	Sample Location		Time	Comments	Duration
		Lat	Lon			
33921	131580	38.7749	-90.4518	17:23	Up wind location	15 sec
34722	131581	38.76403	-90.4401	17:25	Landfill-like odor, downwind sample	8 sec
34444	131582	38.7604	-90.436	17:46	Smoky landfill-like odor, downwind sample	8 sec

Sample Locations

See the map on page 2.

Bridgeton Sanitary Landfill February 15, 2013 Air Sampling Locations



Last Updated 2/21/2013 nrmorrd



Missouri Department of Natural Resources
Division of Environmental Quality
Solid Waste Management Program

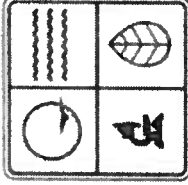
0 375 750 1,500 Feet

Although data sets used to create this map have been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.

Legend

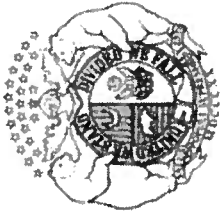
- Downwind Sample
- Upwind Sample
- Thermal Event Area (approximate)
- Waste Areas (approximate)

Sample Results



Missouri Department of Natural Resources
 Environmental Services Program

Order ID: 130220005
 Report Date: 02/21/2013
 Program, Contact: APCP Stephen Hall
 LDPR/JobCode: FEABL / NJ13BRMN



Sample: AB93169
 Customer #: 131580
 Facility ID: Bridgeton
 Site: Bridgeton
 County: Sample Reference ID:
 Collector: HARRY S. RICKETTS
 Affiliation: ESP-EER
 Entry Point:
 Sample Comment: Lot 38 7749, Lon - 90.4516 Up wind near location U-1.
 Collect Date: 2/15/2013 5:23:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	1,1,1-Trichloroethane	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,1,2,2-Tetrachloroethane	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,1,2-Trichloroethane	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,1-Dichloroethane	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,1-Dichloroethene	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,2,4-Trichlorobenzene	< 0.80	ND, 04	ppbv		TO-15
TO-15	1,2,4-Trimethylbenzene	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,2-Dibromoethane (EOB)	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,2-Dichlorobenzene	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,2-Dichloroethane	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,2-Dichloropropane	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,3,5-Trimethylbenzene	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,3-Butadiene	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,3-Dichlorobenzene	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,4-Dichlorobenzene	< 0.16	ND, 04	ppbv		TO-15
TO-15	1,4-Dioxane	< 0.16	ND, 04	ppbv		TO-15
TO-15	2,2,4-Trimethylpentane	< 0.80	ND, 04	ppbv		TO-15
TO-15	2-Butanone (MEK)	< 0.80	ND, 04	ppbv		TO-15
TO-15	2-Hexanone	< 0.80	ND, 04	ppbv		TO-15
TO-15	2-Propanol	< 0.80	ND, 04	ppbv		TO-15
TO-15	3-Chloropropene	< 0.80	ND, 04	ppbv		TO-15
TO-15	4-Ethyltoluene	< 0.16	ND, 04	ppbv		TO-16
TO-15	4-Methyl-2-pentanone(MIBK)	< 0.16	ND, 04	ppbv		TO-15
TO-15	Acetone	< 0.80	ND, 04	ppbv		TO-15
TO-15	Benzene	0.41	04	ppbv		TO-15

Sample: AB93159
Facility ID: Site: Bridgeton
County: Sample Reference ID:
Collector: HARRY S. RICKETTS **Affiliation:** ESP-EER **Collect Date:** 2/15/2013 5:23:00PM
Entry Point: Lat 38.7749, Lon - 90.4518 Up wind near location U-1.
Sample Comment:

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	Bromodichloromethane	<0.16	ND, 04	ppbv		TO-15
TO-15	Bromoforn	<0.16	ND, 04	ppbv		TO-15
TO-15	Bromomethane	<0.80	ND, 04	ppbv		TO-15
TO-15	Carbon Disulfide	<0.60	ND, 04	ppbv		TO-15
TO-15	Carbon Tetrachloride	<0.16	ND, 04	ppbv		TO-15
TO-15	Chlorobenzene	<0.16	ND, 04	ppbv		TO-15
TO-15	Chloroethane	<0.80	ND, 04	ppbv		TO-15
TO-15	Chloroform	<0.16	ND, 04	ppbv		TO-15
TO-15	Chloromethane	0.71	04	ppbv		TO-15
TO-15	Chlorotoluene	<0.16	ND, 04	ppbv		TO-15
TO-15	cis-1,2-dichloroethane	<0.16	ND, 04	ppbv		TO-15
TO-15	cis-1,3-Dichloropropene	<0.16	ND, 04	ppbv		TO-15
TO-15	Cumene	<0.16	ND, 04	ppbv		TO-15
TO-15	Cyclohexane	<0.16	ND, 04	ppbv		TO-15
TO-15	Dibromochloromethane	<0.16	ND, 04	ppbv		TO-15
TO-15	Ethanol	<0.80	ND, 04	ppbv		TO-15
TO-15	Ethylbenzene	<0.16	ND, 04	ppbv		TO-15
TO-15	Freon 11	0.28	04	ppbv		TO-15
TO-15	Freon 113	<0.16	ND, 04	ppbv		TO-15
TO-15	Freon 114	<0.16	ND, 04	ppbv		TO-15
TO-15	Freon 12	0.68	04	ppbv		TO-15
TO-15	Heptane	<0.16	ND, 04	ppbv		TO-15
TO-15	Methachlorobutadiene	<0.80	ND, 04	ppbv		TO-15
TO-15	Hexane	<0.16	ND, 04	ppbv		TO-15
TO-15	m&p-Xylenes	0.27	04	ppbv		TO-15
TO-15	Methylene chloride	<0.32	ND, 04	ppbv		TO-15
TO-15	Methyl-tert-butyl ether	<0.16	ND, 04	ppbv		TO-15
TO-15	o-Xylene	<0.16	ND, 04	ppbv		TO-15
TO-15	Propylbenzene	<0.16	ND, 04	ppbv		TO-15
TO-15	Styrene	<0.16	ND, 04	ppbv		TO-15
TO-15	Tetrachloroethane	<0.16	ND, 04	ppbv		TO-15
TO-15	Tetrahydrofuran	<0.80	ND, 04	ppbv		TO-15
TO-15	Toluene	0.52	04	ppbv		TO-15
TO-15	trans-1,2-Dichloroethane	<0.16	ND, 04	ppbv		TO-15
TO-15	trans-1,3-Dichloropropene	<0.16	ND, 04	ppbv		TO-15

Sample: AB93159
 Facility ID: Bridgeton
 County: Sample Reference ID:
 Collector: HARRY S RICKETTS Affiliation: ESP-EER Collect Date: 2/15/2013 5:23:00PM
 Entry Point: Lat 38.7749; Lon - 90.4518. Up wind near location U-1
 Sample Comment:

Customer #: 131580

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	Trichloroethane	<0.16	ND, 04	ppbv		TO-15
TO-15	Vinyl Chloride	<0.16	ND, 04	ppbv		TO-15

Sample: AB93160
 Facility ID: Bridgeton
 County: Sample Reference ID:
 Collector: HARRY S RICKETTS Affiliation: ESP-EER Collect Date: 2/15/2013 5:25:00PM
 Entry Point: Lat 38.76403; Lon - 90.4401. Sweet landfill-like odor, NE of D-1
 Sample Comment:

Customer #: 131581

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	1,1,1-Trichloroethane	<0.13	ND, 04	ppbv		TO-15
TO-16	1,1,2,2-Tetrachloroethane	<0.13	ND, 04	ppbv		TO-15
TO-16	1,1,2-Trichloroethane	<0.13	ND, 04	ppbv		TO-15
TO-15	1,1-Dichloroethane	<0.13	ND, 04	ppbv		TO-15
TO-15	1,1-Dichloroethene	<0.13	ND, 04	ppbv		TO-15
TO-15	1,2,4-Trichlorobenzene	<0.66	ND, 04	ppbv		TO-15
TO-15	1,2,4-Trimethylbenzene	<0.13	ND, 04	ppbv		TO-15
TO-15	1,2-Dibromoethane (EDB)	<0.13	ND, 04	ppbv		TO-15
TO-15	1,2-Dichlorobenzene	<0.13	ND, 04	ppbv		TO-15
TO-15	1,2-Dichloroethane	<0.13	ND, 04	ppbv		TO-15
TO-15	1,2-Dichloropropane	<0.13	ND, 04	ppbv		TO-15
TO-15	1,3,5-Trimethylbenzene	<0.13	ND, 04	ppbv		TO-15
TO-15	1,3-Butadiene	<0.13	ND, 04	ppbv		TO-15
TO-15	1,3-Dichlorobenzene	<0.13	ND, 04	ppbv		TO-15
TO-15	1,4-Dichlorobenzene	<0.13	ND, 04	ppbv		TO-15
TO-15	1,4-Dioxane	<0.13	ND, 04	ppbv		TO-15
TO-15	2,2,4-Trimethylpentane	<0.66	ND, 04	ppbv		TO-15
TO-15	2-Butanone (MEK)	3.70	04	ppbv		TO-15
TO-15	2-Hexanone	<0.66	ND, 04	ppbv		TO-15
TO-15	2-Propanol	1.70	04	ppbv		TO-15
TO-15	3-Chloropropene	<0.66	ND, 04	ppbv		TO-15
TO-15	4-Ethyltoluene	<0.13	ND, 04	ppbv		TO-15
TO-15	4-Methyl-2-pentanone(MIBK)	<0.13	ND, 04	ppbv		TO-15
TO-15	Acetone	9.40	04	ppbv		TO-15

Sampling near Bridgeton Landfill

February 15, 2013

Page 6 of 11

Sample: AB93160



Customer #: 131581

Facility ID:

County:

Collector: HARRY S. RICKETTS

Entry Point:

Sample Comment:

Site: Bridgeton

Sample Reference ID:

Affiliation: ESP-EER

Collect Date: 2/15/2013 5:25:00PM

Lat 38.76403, Lon - 90.4401, Sweet landfill-like odor, NE of D-1

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	Benzene	3.60	04	ppbv		TO-15
TO-15	Bromodichloromethane	<0.13	ND, 04	ppbv		TO-15
TO-15	Bromoborn	<0.13	ND, 04	ppbv		TO-15
TO-15	Bromomethane	<0.66	ND, 04	ppbv		TO-15
TO-15	Carbon Disulfide	<0.66	ND, 04	ppbv		TO-15
TO-15	Carbon Tetrachloride	<0.13	ND, 04	ppbv		TO-15
TO-15	Chlorobenzene	<0.13	ND, 04	ppbv		TO-15
TO-15	Chloroethane	<0.66	ND, 04	ppbv		TO-15
TO-15	Chloroform	<0.13	ND, 04	ppbv		TO-15
TO-15	Chloromethane	0.71	04	ppbv		TO-15
TO-15	Chlorotoluene	<0.13	ND, 04	ppbv		TO-15
TO-15	cis-1,2-dichloroethane	<0.13	ND, 04	ppbv		TO-15
TO-15	cis-1,3-Dichloropropene	<0.13	ND, 04	ppbv		TO-15
TO-15	Cumene	<0.13	ND, 04	ppbv		TO-15
TO-15	Cyclohexane	<0.13	ND, 04	ppbv		TO-15
TO-15	Dibromochloromethane	<0.13	ND, 04	ppbv		TO-15
TO-15	Ethanol	11.0	04	ppbv		TO-15
TO-15	Ethylbenzene	0.27	04	ppbv		TO-15
TO-15	Freon 11	0.28	04	ppbv		TO-15
TO-15	Freon 113	<0.13	ND, 04	ppbv		TO-15
TO-15	Freon 114	<0.13	ND, 04	ppbv		TO-15
TO-15	Freon 12	0.59	04	ppbv		TO-15
TO-15	Heptane	<0.13	ND, 04	ppbv		TO-15
TO-15	Hexachlorobutadiene	<0.66	ND, 04	ppbv		TO-15
TO-15	Hexane	<0.13	ND, 04	ppbv		TO-15
TO-15	m,p-Xylenes	0.44	04	ppbv		TO-15
TO-15	Methylene chloride	<0.26	ND, 04	ppbv		TO-15
TO-15	Methyl-tert-butyl ether	<0.13	ND, 04	ppbv		TO-15
TO-15	o-Xylene	<0.13	ND, 04	ppbv		TO-15
TO-15	Propylbenzene	<0.13	ND, 04	ppbv		TO-15
TO-15	Styrene	<0.13	ND, 04	ppbv		TO-15
TO-15	Tetrachloroethene	<0.13	ND, 04	ppbv		TO-15
TO-15	Tetrahydrofuran	2.40	04	ppbv		TO-15
TO-15	Toluene	0.60	04	ppbv		TO-15
TO-15	trans-1,2-Dichloroethene	<0.13	ND, 04	ppbv		TO-15

Sample: AB93160
 Facility ID: Bridgeton
 County: Sample Reference ID:
 Collector: HARRY S. RICKETTS Affiliation: ESP-EER Collect Date: 2/15/2013 5:25:00PM
 Entry Point: Lat 38.78403; Lon -90.4401 Sweet landfill-like odor, NE of D-1
 Sample Comment:

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	trans-1,3-Dichloropropene	<0.13	ND, 04	ppbv		TO-15
TO-15	Trichloroethane	<0.13	ND, 04	ppbv		TO-15
TO-15	Vinyl Chloride	<0.13	ND, 04	ppbv		TO-15

Sample: AB93161
 Facility ID: Bridgeton
 County: Sample Reference ID:
 Collector: HARRY S. RICKETTS Affiliation: ESP-EER Collect Date: 2/15/2013 5:46:00PM
 Entry Point: Lat 38.7804; Lon -90.436 Sweet, smoky landfill-like odor, N NW of D-2A.
 Sample Comment:

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	1,1,1-Trichloroethane	<0.14	ND, 04	ppbv		TO-15
TO-15	1,1,2,2-Tetrachloroethane	<0.14	ND, 04	ppbv		TO-15
TO-15	1,1,2-Trichloroethane	<0.14	ND, 04	ppbv		TO-15
TO-15	1,1-Dichloroethane	<0.14	ND, 04	ppbv		TO-15
TO-15	1,1-Dichloroethene	<0.14	ND, 04	ppbv		TO-15
TO-15	1,2,4-Trichlorobenzene	<0.68	ND, 04	ppbv		TO-15
TO-15	1,2,4-Trimethylbenzene	<0.14	ND, 04	ppbv		TO-15
TO-15	1,2-Dibromoethane (EDB)	<0.14	ND, 04	ppbv		TO-15
TO-15	1,2-Dichloroethane	<0.14	ND, 04	ppbv		TO-15
TO-15	1,2-Dichloropropane	<0.14	ND, 04	ppbv		TO-15
TO-15	1,3,5-Trimethylbenzene	<0.14	ND, 04	ppbv		TO-15
TO-15	1,3-Butadiene	<0.14	ND, 04	ppbv		TO-15
TO-15	1,3-Dichlorobenzene	<0.14	ND, 04	ppbv		TO-15
TO-15	1,4-Dichlorobenzene	<0.14	ND, 04	ppbv		TO-15
TO-15	1,4-Dioxane	<0.14	ND, 04	ppbv		TO-15
TO-15	2,2,4-Trimethylpentane	<0.68	ND, 04	ppbv		TO-15
TO-15	2-Butanone (MEK)	2.80	04	ppbv		TO-15
TO-15	2-Hexanone	<0.88	ND, 04	ppbv		TO-15
TO-15	2-Propanol	1.10	04	ppbv		TO-15
TO-15	3-Chloropropene	<0.68	ND, 04	ppbv		TO-15
TO-15	4-Ethyltoluene	<0.14	ND, 04	ppbv		TO-15
TO-15	4-Methyl-2-pentanone(MIBK)	<0.14	ND, 04	ppbv		TO-15

Sample: AB93161

 Customer #: 131582

Facility ID: Site: Bridgeton
 County: Sample Reference ID:
 Collector: HARRY S. RICKETTS Affiliation: ESP-EER Collect Date: 2/15/2013 5:46:00PM
 Entry Point: Lat 38.7604; lon -90.436. Sweet, smoky landfill-like odor. If NW of D-2A
 Sample Comment:

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	Acetone	7.80	04	ppbv		TO-15
TO-15	Benzene	2.60	04	ppbv		TO-15
TO-15	Bromodichloromethane	<0.14	ND, 04	ppbv		TO-15
TO-15	Bromobrom	<0.14	ND, 04	ppbv		TO-15
TO-15	Bromomethane	<0.68	ND, 04	ppbv		TO-15
TO-15	Carbon Disulfide	<0.68	ND, 04	ppbv		TO-15
TO-15	Carbon Tetrachloride	<0.14	ND, 04	ppbv		TO-15
TO-15	Chlorobenzene	<0.14	ND, 04	ppbv		TO-15
TO-15	Chloroethane	<0.68	ND, 04	ppbv		TO-15
TO-15	Chloroform	<0.14	ND, 04	ppbv		TO-15
TO-15	Chloromethane	0.74	04	ppbv		TO-15
TO-15	Chloroethene	<0.14	ND, 04	ppbv		TO-15
TO-15	cis-1,2-dichloroethene	<0.14	ND, 04	ppbv		TO-15
TO-15	cis-1,3-dichloropropene	<0.14	ND, 04	ppbv		TO-15
TO-15	Cumene	<0.14	ND, 04	ppbv		TO-15
TO-15	Cyclohexane	<0.14	ND, 04	ppbv		TO-15
TO-15	Dibromochloromethane	<0.14	ND, 04	ppbv		TO-15
TO-15	Ethanol	11.0	04	ppbv		TO-15
TO-15	Ethylbenzene	0.14	04	ppbv		TO-15
TO-15	Freon 11	0.26	04	ppbv		TO-15
TO-15	Freon 113	<0.14	ND, 04	ppbv		TO-15
TO-15	Freon 114	<0.14	ND, 04	ppbv		TO-15
TO-15	Freon 12	0.66	04	ppbv		TO-15
TO-15	Heptane	<0.14	ND, 04	ppbv		TO-15
TO-15	Hexachlorobutadiene	<0.68	ND, 04	ppbv		TO-15
TO-15	Hexane	<0.14	ND, 04	ppbv		TO-15
TO-15	m,p-Xylenes	0.26	04	ppbv		TO-15
TO-15	Methylene chloride	<0.27	ND, 04	ppbv		TO-15
TO-15	Methyl-t-butyl ether	<0.14	ND, 04	ppbv		TO-15
TO-15	o-Xylene	<0.14	ND, 04	ppbv		TO-15
TO-15	Propylbenzene	<0.14	ND, 04	ppbv		TO-15
TO-15	Styrene	<0.14	ND, 04	ppbv		TO-15
TO-15	Tetrachloroethene	<0.14	ND, 04	ppbv		TO-15
TO-15	Tetrahydrofuran	1.70	04	ppbv		TO-15
TO-15	Toluene	0.65	04	ppbv		TO-15

Sample: AB93161
 Facility ID: Bridgeton
 County: Sample Reference ID:
 Collector: HARRY S. RICKETTS Affiliation: ESP-EER Collect Date: 2/15/2013 5:45:00PM
 Entry Point: Sweet, smoky landfill-like odor, N NW of D-2A
 Sample Comment: Lat 38 7604 Lon -90 4336
 Customer #: 131582

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	trans-1,2-Dichloroethane	<0.14	ND, 04	ppbv		TO-15
TO-15	trans-1,3-Dichloropropene	<0.14	ND, 04	ppbv		TO-15
TO-15	Trichloroethane	<0.14	ND, 04	ppbv		TO-15
TO-15	Vinyl Chloride	<0.14	ND, 04	ppbv		TO-15

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

Qualifier Descriptions

- 01 Improper collection method
- 03 Exceeded holding time
- 05 Estimated value, detected below PQL
- 07 Estimated value, analyte outside calibration range
- 09 Sample was distorted during analysis
- 11 Estimated value, matrix interference
- 13 Estimated value, true result is >= reported value
- 15 No Result - Failed Quality Control Requirements
- 17 Results in dry weight
- 19 Estimated value
- 21 No result - spectral interference
- 23 Contract Lab specific qualifier - see sample comments
- 25 No Result - Excessive Chlorination
- ND Not detected at reported value
- 02 Improper preservation
- 04 Analyzed by Contract Laboratory
- 06 Estimated value, OC data outside limits
- 08 Analyte present in blank at > 1/2 reported value
- 10 Laboratory error
- 12 Insufficient quantity
- 14 Estimated value, non-homogeneous sample
- 16 Not analyzed - related analyte not detected
- 18 Sample pH is outside the acceptable range
- 20 Not analyzed - instrument failure
- 22 pH was performed at the Laboratory
- 24 No result - matrix interference
- 26 No Result - Excessive Dechlorination

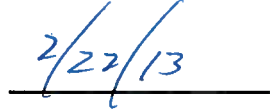
Chris Boldt

Chris Boldt, Laboratory Manager
 Environmental Services Program
 Division of Environmental Quality

Signatures



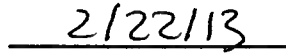
Harry M. Ricketts
Environmental Specialist
Environmental Emergency Response Section
Environmental Services Program



Date



Alan Reinkemeyer
Program Director
Environmental Services Program



Date

