

Air Sampling Near Bridgeton Landfill Report

Monitoring Date: February 4-5, 2013

Prepared For:

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

Prepared By:

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

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1.0 Introduction and Objectives

1.0 Introduction and Objectives

The Missouri Department of Natural Resources (MDNR) Division of Environmental Quality (DEQ) requested that the MDNR Environmental Services Program (ESP) perform ambient air sampling for volatile organic compounds and other pollutants near the Bridgeton Landfill located in St. Louis, Missouri.

The objectives specified in the monitoring plan in Appendix D were as follows.

- 1) Collect individual SUMMA canister and absorbent tube aldehyde samples to identify possible odor constituents and levels of volatile organic compounds and aldehydes for assessment of whether health risks are associated with air emissions at the sampling locations.
- 2) Correlate data with the meteorological conditions during sample collection.

2.0 Background

Sampling was needed to evaluate whether health risks are associated with air emissions near the Bridgeton Landfill.

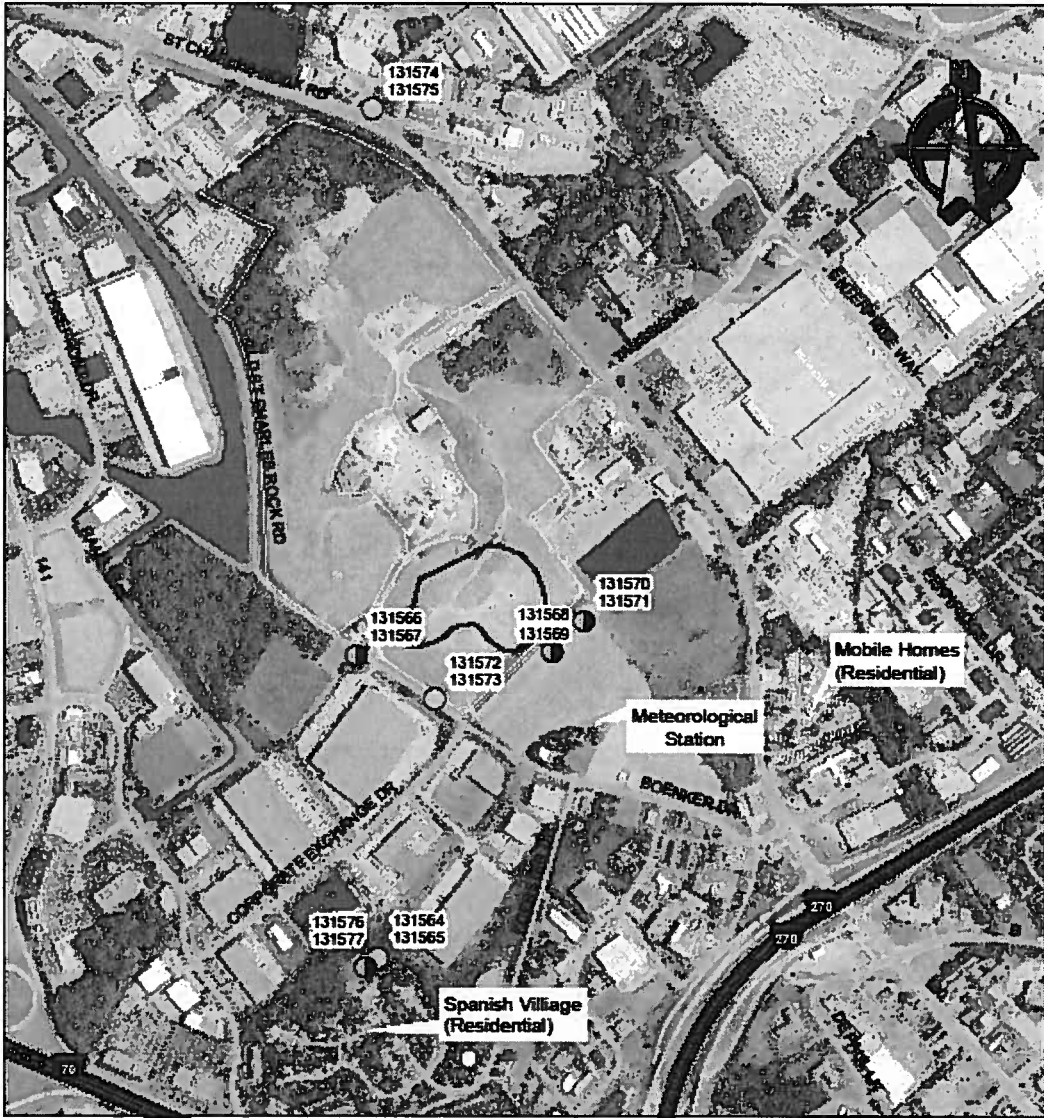
3.0 Monitoring Locations

See map on page 4. The sampling plan specified collection of both upwind and downwind samples, and sampling near the perimeter of the landfill as well as sampling in residential areas near the landfill.

4.0 Methods

Timed canister samples were collected in a 6-liter stainless steel canister using a flow controller. The monitoring plan specified that timed samples were to be collected for 4 hours. Grab samples were collected in the same type of canister without a flow controller. The monitoring plan specified 1 grab canister sample was to be collected in an upwind direction not likely influenced by emissions from the landfill.

Bridgeton Sanitary Landfill February 4, 2013 Sampling Locations



Last Updated 2/5/2013 nmond



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



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

Type, Duration	Waste Areas (approximate)
● Downwind, 4 Hour	□ Thermal Event Area (approximate)
○ Downwind, Grab	DNR sample ID
○ Upwind, Grab	VOC sample
	Aldehyde sample

Downwind canister samples were to be collected when winds were from the predicted north or northwest directions. Canister samples were collected according to the *Missouri Department of Natural Resources Quality Control Manual's* "Section 1190 Canister Sampling" Standard Operating Procedure.

Aldehyde samples were collected in an absorbent tube with a pump that pulled air into the sampling tube. The monitoring plan specified that timed samples were to be collected for 4 hours. The monitoring plan specified 1 short-term aldehyde sample was to be collected in an upwind direction not likely influenced by emissions from the landfill. Additional short-term aldehyde samples were to be collected when winds were from the predicted north or northwest directions. Aldehyde samples were collected using EPA's TO-11A method protocol as a reference.

Wind speed and direction data were also collected along with humidity and ambient temperature data. Data collection was performed with a portable meteorological station.

4.1 Procedures

Jim Brunnert, Chris Heimsoth, Doug Thompson, and Brad Harris from the MDNR Environmental Services Program performed the following sampling with assistance from Dan Norris, MDNR Hazardous Waste Program.

February 4-5, 2013

Staff waited for wind speeds to diminish and arrived at the park at Spanish Village at 18:50 CST although winds were still variable at times. They encountered odors that previously had been associated with the subsurface smoldering event at the landfill. These odors were present from the off-ramp at I-270 North to St. Charles Rock Road.

Staff proceeded to the park to set up for a 4-hour timed sample. Odors associated with the subsurface smoldering event were present at the park pavilion along with sweet solvent-like odors. Brad Harris was stationed at the park to observe the SUMMA canister and aldehyde sampler during sample collection. Samples were collected from 20:16 CST February 4, 2013 through 00:16 CST February 5, 2013.

At 19:20 CST staff arrived near the Metropolitan Sewer District lift station. An odor typically associated with something burning was present.

At 19:35 CST staff also contacted a local resident, Joe Turner. At 19:45 CST they set up the portable meteorological station behind the red barn house on Turner Hill south of the landfill. Winds were from the north.

Next, staff set up for 4-hour sampling on Turner property in a field at the fenceline. Canister and aldehyde samples were collected from 20:10 CST February 4, 2013 through 00:10 CST February 5, 2013. Odors typical of the subsurface smoldering event were present. Doug Thompson was stationed at this location to observe the SUMMA canister and aldehyde sampler during sample collection.

Jim Brunnert also set up the canister and aldehyde sampling near the Metropolitan Sewer District. Samples were collected from 20:20 CST February 4, 2013 through 00:20 CST February 5, 2013. Doug Thompson could also observe these samplers and he did this during the sampling.

Staff tried to find an additional sampling location that would be downwind of the landfill. Winds were variable and no odors were found. At 21:00 staff started 4-hour canister and aldehyde samples by the east Turner fenceline. A faint odor typical of the subsurface smoldering even was present. Samples were collected from 21:00 CST on February 4, 2013 through 01:00 CST on February 5, 2013. However, the pump at this location was found not working at 22:15 CST. By 22:30 CST a different pump was installed.

At 22:00 CST strong odors typical of the subsurface smoldering event were present at Old St. Charles Rock Road by the Material Logic building. A grab canister sample was collected by Jim Brunnert at 22:05 CST on February 4, 2013. Chris Heimsoth observed the short-term aldehyde sample at the same location from 22:05 CST to 22:35 CST. He observed the sampling device while the sample was collected.

At 22:20 CST winds were from the North-northeast and variable. No odors were detected by staff along St. Charles Rock Road.

At 22:25 CST on February 4, 2013, Jim Brunnert collected an upwind sample at Jimmy Johns. A short-term aldehyde sample was also collected from 22:28 CST through 22:58 CST at the same location. Jim Brunnert observed the sampling device while the sample was collected.

At 21:13 CST the aldehyde pump at the park monitoring location failed due to a low battery. This was not known until 23:15 CST and no other pumps were available.

At: 00:00 CST on February 5, 2013, Jim Brunnert collected another canister grab sample at the park. Slight odors typical of the subsurface smoldering event were present. Winds were from the north. A short-term aldehyde sample was also collected at the park from 00:00 CST through 00:30 CST on the same date. Staff observed the sample collection.

The 4-hour canister samples and aldehyde samples were retrieved along with the meteorological station. No odors were observed. The winds were calm. Staff left the area at 01:30 on February 5, 2013.

The sampling plan could not be followed exactly since wind directions varied from predicted conditions. Staff did not collect as many grab samples as indicated in the plan because odors were not pronounced enough to indicate the samples were being collected where emissions from the landfill were likely to be present. In addition, pump problems limited the sample duration for three of the timed aldehyde samples.

On February 5, 2013, Jim Brunnert, Chris Heimsoth, Doug Thompson, and Dan Norris returned to the landfill area at 08:15 CST to see if conditions were favorable for collecting additional samples. However, winds were variable and most often from the Southwest. Odors that might indicate the presence of landfill emissions were not consistent, so no additional samples were collected.

4.2 Instrumentation

Canister Sampling

Clean, 6-liter stainless steel canisters were used for collecting samples.

Aldehyde Sampling

LpDNPH-coated cartridges with sampling pumps were used for collecting the samples.

Meteorological Instruments

Wind speed and direction, humidity, and temperature data were collected during the study with a WeatherPak 400 self-aligning portable weather station. Data collected by the system was transmitted and logged wirelessly to Rae Systems software on a laptop PC. The data was exported into Excel to calculate 15 minute averages for the sampling period.

Global Positioning System

The GPS data for the site map were obtained with a Trimble Geo XH.

4.3 Analytical Parameters

Canister samples from this project were analyzed for the following EPA Method TO-15 compounds:

Summa Canister Sampling—Method Modified TO-15-LL

CAS Number Compound Rpt. Limit (ppbv)

75-71-8 Freon 12 0.10

76-14-2 Freon 114 0.10

74-87-3 Chloromethane 0.10

75-01-4 Vinyl Chloride 0.10

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106-99-0 1,3-Butadiene 0.10
74-83-9 Bromomethane 0.50
75-00-3 Chloroethane 0.50
75-69-4 Freon 11 0.10
64-17-5 Ethanol 0.50
76-13-1 Freon 113 0.10
75-35-4 1,1-Dichloroethene 0.10
67-64-1 Acetone 0.50
67-63-0 2-Propanol 0.50
75-15-0 Carbon Disulfide 0.50
107-05-1 3-Chloropropene 0.50
75-09-2 Methylene Chloride 0.20
1634-04-4 Methyl tert-butyl ether 0.10
156-60-5 trans-1,2-Dichloroethene 0.10
110-54-3 Hexane 0.10
75-34-3 1,1-Dichloroethane 0.10
78-93-3 2-Butanone (Methyl Ethyl Ketone) 0.50
156-59-2 cis-1,2-Dichloroethene 0.10
109-99-9 Tetrahydrofuran 0.50
67-66-3 Chloroform 0.10
71-55-6 1,1,1-Trichloroethane 0.10
110-82-7 Cyclohexane 0.10
56-23-5 Carbon Tetrachloride 0.10
540-84-1 2,2,4-Trimethylpentane 0.50
71-43-2 Benzene 0.10
107-06-2 1,2-Dichloroethane 0.10
142-82-5 Heptane 0.10
79-01-6 Trichloroethene 0.10
78-87-5 1,2-Dichloropropane 0.10
123-91-1 1,4-Dioxane 0.10
75-27-4 Bromodichloromethane 0.10
10061-01-5 cis-1,3-Dichloropropene 0.10
108-10-1 4-Methyl-2-pentanone 0.10
108-88-3 Toluene 0.10
10061-02-6 trans-1,3-Dichloropropene 0.10
79-00-5 1,1,2-Trichloroethane 0.10
127-18-4 Tetrachloroethene 0.10
591-78-6 2-Hexanone 0.50
124-48-1 Dibromochloromethane 0.10
106-93-4 1,2-Dibromoethane (EDB) 0.10
108-90-7 Chlorobenzene 0.10
100-41-4 Ethyl Benzene 0.10
108-38-3 m,p-Xylene 0.10

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95-47-6 o-Xylene 0.10
100-42-5 Styrene 0.10
75-25-2 Bromoform 0.10
98-82-8 Cumene 0.10
79-34-5 1,1,2,2-Tetrachloroethane 0.10
103-65-1 Propylbenzene 0.10
622-96-8 4-Ethyltoluene 0.10
108-67-8 1,3,5-Trimethylbenzene 0.10
95-63-6 1,2,4-Trimethylbenzene 0.10
541-73-1 1,3-Dichlorobenzene 0.10
106-46-7 1,4-Dichlorobenzene 0.10
100-44-7 alpha-Chlorotoluene 0.10
95-50-1 1,2-Dichlorobenzene 0.10
120-82-1 1,2,4-Trichlorobenzene 0.50
87-68-3 Hexachlorobutadiene 0.50

CAS Number Surrogate Method Limits

17060-07-0 1,2-Dichloroethane-d4 70-130
2037-26-5 Toluene-d8 70-130
460-00-4 4-Bromofluorobenzene 70-130

Aldehyde samples from this project were analyzed for the following EPA method TO-11A compounds:

Aldehyde Sampling – Method : Modified TO-11A

CAS Number Compound Rpt. Limit (ug)

50-00-0 Formaldehyde 0.050
75-07-0 Acetaldehyde 0.10
123-38-6 Propanal 0.25
67-64-1 Acetone 0.25
123-73-9 Crotonaldehyde 0.25
9999-9999-007 Methyl Ethyl Ketone/Butyraldehydes 0.25
100-52-7 Benzaldehyde 0.25
590-86-3 Isopentanal 0.25
110-62-3 Pentanal 0.25
529-20-4 o-Tolualdehyde 0.25
620-23-51 m,p-Tolualdehyde 0.25
66-25-1 Hexanal 0.25

4.4 Quality Assurance/Quality Control

Canister Samples

Chain of custody procedures were followed for collection and handling of the canister samples. The analytical laboratory that performed the analysis of the canister samples was responsible for following its own quality assurance/quality control procedures for TO-15 analysis of canisters; however, the QA/QC documentation provided by the contract laboratory was reviewed by ESP staff before official results were issued.

Aldehyde Samples

Chain of custody procedures were followed for collection and handling of the aldehyde samples. The analytical laboratory that performed the analysis of the canister samples was responsible for following its own quality assurance/quality control procedures for TO-11A analysis of canisters; however, the QA/QC documentation provided by the contract laboratory was reviewed by ESP staff before official results were issued.

Wind Instrument

The wind instrument's orientation was self-aligning and confirmed by visual observation.

5.0 Field Observations

The following circumstances were noted during monitoring:

February 4, 2013

Two candlestick flares were in place and one enclosed flare was glowing at the top during the night.

February 5, 2013

Landfill outfall 003 had a slight flow and clear to brown water. A berm was in place and retaining about 4' of liquid.

6.0 Sample Analysis and Data Summary

Canister Results

EPA method TO-15 was used to analyze the canister samples. Canister analytical results are found in Appendix A. Following is a summary of the compounds detected in the canister samples.

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Sample ID: #131564 (Park 4hr)

Compound	(ppbv) Rpt. Limit	(ppbv) Amount	(ug/m3) Rpt. Limit	(ug/m3) Amount
Freon 12	0.17	0.54	0.84	2.7
Chloromethane	0.17	0.60	0.35	1.2
Freon 11	0.17	0.23	0.96	1.3
Ethanol	0.86	1.3	1.6	2.4
Acetone	0.86	2.0	2.0	4.7
Benzene	0.17	0.70	0.55	2.2
Toluene	0.17	0.21	0.64	0.78

Sample ID: #131566 (Lift Station 4hr)

Compound	(ppbv) Rpt. Limit	(ppbv) Amount	(ug/m3) Rpt. Limit	(ug/m3) Amount
Freon 12	0.17	0.53	0.84	2.6
Chloromethane	0.17	0.52	0.35	1.1
Freon 11	0.17	0.24	0.96	1.3
Ethanol	0.86	2.2	1.6	4.2
Acetone	0.86	6.2	2.0	15
Benzene	0.17	2.8	0.55	8.8
Toluene	0.17	0.57	0.64	2.2
m,p-Xylene	0.17	0.25	0.74	1.1

Sample ID: #131568 (Turner's West 4hr)

Compound	(ppbv) Rpt. Limit	(ppbv) Amount	(ug/m3) Rpt. Limit	(ug/m3) Amount
Freon 12	0.17	0.48	0.84	2.4
Chloromethane	0.17	0.43	0.35	0.89
Freon 11	0.17	0.21	0.96	1.2
Ethanol	0.86	1.2	1.6	2.3
Acetone	0.86	1.5	2.0	3.5
Benzene	0.17	0.77	0.55	2.4
Toluene	0.17	0.22	0.64	0.84

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Sample ID: #131570 (Turner's East 4hr)

Compound	(ppbv) Rpt. Limit	(ppbv) Amount	(ug/m3) Rpt. Limit	(ug/m3) Amount
Freon 12	0.17	0.51	0.83	2.5
Chloromethane	0.17	0.52	0.35	1.1
Freon 11	0.17	0.24	0.94	1.3
Ethanol	0.84	1.3	1.6	2.4
Acetone	0.84	1.4	2.0	3.3
Methylene Chloride	0.34	0.35	1.2	1.2
Benzene	0.17	0.71	0.54	2.3
Toluene	.17	0.27	0.63	1.0

Sample ID: #131572 (Material Logic Grab)

Compound	(ppbv) Rpt. Limit	(ppbv) Amount	(ug/m3) Rpt. Limit	(ug/m3) Amount
Freon 12	0.14	0.56	0.67	2.8
Chloromethane	0.14	0.68	0.28	1.4
Freon 11	0.14	0.24	0.76	1.4
Ethanol	0.68	1.2	1.3	2.2
Acetone	0.68	2.6	1.6	6.3
Benzene	0.14	3.0	0.43	9.7
Toluene	0.14	0.47	0.51	1.8
m,p-Xylene	0.14	0.18	0.59	0.80

Sample ID: #131574 (Upwind J.Johns Grab)

Compound	(ppbv) Rpt. Limit	(ppbv) Amount	(ug/m3) Rpt. Limit	(ug/m3) Amount
Freon 12	0.14	0.48	0.67	2.4
Chloromethane	0.14	0.60	0.28	1.2
Freon 11	0.14	0.23	0.76	1.3
Ethanol	0.68	1.1	1.3	2.2
Acetone	0.68	2.2	1.6	5.3
Hexane	0.14	0.19	0.48	0.68
Carbon Tetrachloride	0.14	0.15	0.86	0.93
Benzene	0.14	0.18	0.43	0.59
Toluene	0.14	0.55	0.51	2.1

Sample ID: #131576 (Park Grab)

Compound	(ppbv) Rpt. Limit	(ppbv) Amount	(ug/m3) Rpt. Limit	(ug/m3) Amount
Freon 12	0.14	0.55	0.67	2.7
Chloromethane	0.14	0.50	0.28	1.0
Freon 11	0.14	0.24	0.76	1.4
Ethanol	0.68	2.1	1.3	3.9
Acetone	0.68	3.6	1.6	8.6
2-Butanone				
(Methyl Ethyl Ketone)	0.68	1.1	2.0	3.3
Benzene	0.14	1.6	0.43	5.2
Toluene	0.14	0.28	0.51	1.1
m,p-Xylene	0.14	0.16	0.59	0.69

Aldehyde Results

EPA method TO-11 was used to analyze the aldehyde samples. Aldehyde analytical results are found in Appendix B.. Following is a summary of the compounds detected in the aldehyde samples.

Sample ID: #131565 (Park 4hr)

No Detections Were Found.

Sample ID: #131567 (Lift Station 4hr)

No Detections Were Found.

Sample ID: #131569 (Turner West 4hr)

Benzaldehyde 1.1 ug

Sample ID: #131571 (Turner East 4hr)

No Detections Were Found.

Sample ID: #131573 (Material Logic Grab)

No Detections Were Found.

Sample ID: #131575 (Upwind Grab)

No Detections Were Found.


Sample ID: #131577 (Park Grab)

No Detections Were Found.


7.0 Conclusions

Meteorological conditions were not particularly favorable for sampling since winds were more variable than predicted. However, several volatile organic compounds were detected. Aldehyde sampling on this trip only resulted in detection of one compound.

8.0 Signatures

Submitted by: 
Jim Brunnert, Project Leader
Environmental Specialist
Air Quality Monitoring Section
Environmental Services Program

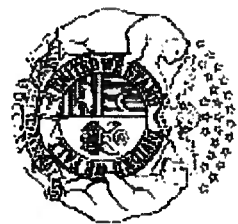
Date: 2/14/13

Approved by: 
Alan Reinkemeyer
Director
Environmental Services Program

Date: 2/14/13

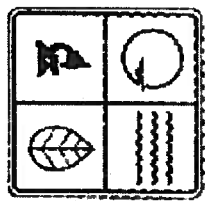
Appendix A
SUMMA Canister Sampling Results

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Missouri Department of Natural Resources
Environmental Services Program

Order ID: 130205006 Program, Contact: APCP Stephen Hall
Report Date: 02/11/2013 LDPR/JobCode: FEABL / NJ13BRMN



Sample: AB93008 Facility ID: Site: Bridgeton SLF
 Customer #: 131564 Country: Sample Reference ID:
 Collector: JIM BRUNNERT Affiliation: ESP-AQMS Collect Date: 2/4/2013 8:18 CDTM
 Entry Point: Sample Comment: Park 4tr

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-5	1,1,1-Trichloroethane	<0.17	ND, 04	ppbv		TO-15
TO-5	1,1,2,2-Tetrachloroethane	<0.17	ND, 04	ppbv		TO-15
TO-5	1,1,2-Trichloroethane	<0.17	ND, 04	ppbv		TO-15
TO-5	1,1-Dichloroethane	<0.17	ND, 04	ppbv		TO-15
TO-5	1,1-Dichloroethene	<0.17	ND, 04	ppbv		TO-15
TO-5	1,2,4-Trichlorobenzene	<0.17	ND, 04	ppbv		TO-15
TO-5	1,2,6-Trimehylbenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,2-Dibromochloroethane (EBE)	<0.17	ND, 04	ppbv		TO-15
TO-15	1,2-Dichlorobenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,2-Dichloroethane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,2-Dichloroethene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,3,5-Trimehylbenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,3-Buradiene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,3-Dichlorobenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,4-Dichlorobenzene	<0.17	ND, 04	ppbv		TO-15
TO-5	1,4-Dioxane	<0.17	ND, 04	ppbv		TO-15
TO-5	2,2,4-Trimethylpentane	<0.17	ND, 04	ppbv		TO-15
TO-5	2-Butanone (MEK)	<0.17	ND, 04	ppbv		TO-15
TO-15	2-Hexanone	<0.17	ND, 04	ppbv		TO-15
TO-15	2-Propanol	<0.17	ND, 04	ppbv		TO-15
TO-15	3-Chloropentane	<0.17	ND, 04	ppbv		TO-15
TO-15	4-Ethyltoluene	<0.17	ND, 04	ppbv		TO-15
TO-15	4-Methyl-2-pentanone(MIBK)	<0.17	ND, 04	ppbv		TO-15
TO-15	Axetone	2 C	04	ppbv		TO-15
TO-15	Benzene	0.70	04	ppbv		TO-15

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Sample: AB93008 **Facility ID:** **Site:** Bridgeton SLF
Customer #: 131564 **County:** **Sample Reference ID:**
Collector: JIM BRUNNERT **Amilution:** ESP-AQMS **Collect Date:** 2/4/2013 8:18:00PM
Entry Point: **Sample Comment:** Park 4th

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	Trichloroethene	<0.17	ND.04	ppbv		TO-15
TO-15	Very Chloride	<0.17	ND.04	ppbv		TO-15

Sample: AB93009 **Facility ID:** **Site:** Bridgeton SLF
Customer #: 131566 **County:** **Sample Reference ID:**
Collector: JIM BRUNNERT **Amilution:** ESP-AQMS **Collect Date:** 2/4/2013 8:20:00PM
Entry Point: **Sample Comment:** Lift Station 4th

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	1,1,1-Trichloroethane	<0.17	ND.04	ppbv		TO-15
TO-15	1,1,2,2-Tetrachloroethane	<0.17	ND.04	ppbv		TO-15
TO-15	1,1,2-Trichloroethane	<0.17	ND.04	ppbv		TO-15
TO-15	1,1-Dichloroethane	<0.17	ND.04	ppbv		TO-15
TO-15	1,1-Dichloroethene	<0.17	ND.04	ppbv		TO-15
TO-15	1,2,4-Trichlorobenzene	<0.86	ND.04	ppbv		TO-15
TO-15	1,2,4-Trimethylbenzene	<0.17	ND.04	ppbv		TO-15
TO-15	1,2-Dibromochloroethane (E/OB)	<0.17	ND.04	ppbv		TO-15
TO-15	1,2-Dichlorobenzene	<0.17	ND.04	ppbv		TO-15
TO-15	1,2-Dichloroethane	<0.17	ND.04	ppbv		TO-15
TO-15	1,2-Dichloropropane	<0.17	ND.04	ppbv		TO-15
TO-15	1,3,5-Trimethylbenzene	<0.17	ND.04	ppbv		TO-15
TO-15	1,3-Bisatene	<0.17	ND.04	ppbv		TO-15
TO-15	1,3-Dichlorobenzene	<0.17	ND.04	ppbv		TO-15
TO-15	1,4-Dichlorobenzene	<0.17	ND.04	ppbv		TO-15
TO-15	1,4-Dioxane	<0.17	ND.04	ppbv		TO-15
TO-15	2,2,4-Trimethylpentane	<0.86	ND.04	ppbv		TO-15
TO-15	2-Butanone (MEK)	<0.86	ND.04	ppbv		TO-15
TO-15	2-Hexanone	<0.86	ND.04	ppbv		TO-15
TO-15	2-Propanol	<0.86	ND.04	ppbv		TO-15
TO-15	3-Chloropropane	<0.86	ND.04	ppbv		TO-15
TO-15	4-Ethyltoluene	<0.17	ND.04	ppbv		TO-15
TO-15	4-Methyl-2-pentanone(MIBK)	<0.17	ND.04	ppbv		TO-15
TO-15	Aceitone	8.20	04	ppbv		TO-15

Air Sampling near Bridgeton Landfill Report
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Sample: AB93009
Customer #: 131566

Facility ID:
County:
Collector: JIM BRUNNERT
Entry Point:
Sample Comment: LIM Station 4th

Site: Bridgeton SLF
Sample Reference ID:
Affiliation: ESP/ACMS

Collect Date: 2/4/2013 8:20:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	Benzene	7.80	04	ppbv		TO-15
TO-15	Bromodichloromethane	<0.17	ND 04	ppbv		TO-15
TO-15	Bromofluoromethane	<0.17	ND 04	ppbv		TO-15
TO-15	Bromochloroethane	<0.86	ND 04	ppbv		TO-15
TO-15	Carbon Disulfide	<0.86	ND 04	ppbv		TO-15
TO-15	Carbon Tetrachloride	<0.17	ND 04	ppbv		TO-15
TO-15	Chlorobenzene	<0.86	ND 04	ppbv		TO-15
TO-15	Chloroform	<0.17	ND 04	ppbv		TO-15
TO-15	Dichloromethane	0.52	04	ppbv		TO-15
TO-15	1,2-Dichloroethane	<0.17	ND 04	ppbv		TO-15
TO-15	1,1,1-Trichloroethane	<0.17	ND 04	ppbv		TO-15
TO-15	Cumene	<0.17	ND 04	ppbv		TO-15
TO-15	Cyclohexane	<0.17	ND 04	ppbv		TO-15
TO-15	Dibromochloromethane	<0.17	ND 04	ppbv		TO-15
TO-15	Ethanol	2.20	04	ppbv		TO-15
TO-15	Ethylbenzene	<0.17	ND 04	ppbv		TO-15
TO-15	Freon 11	0.24	04	ppbv		TO-15
TO-15	Freon 113	<0.17	ND 04	ppbv		TO-15
TO-15	Freon 114	<0.17	ND 04	ppbv		TO-15
TO-15	Freon 12	0.53	04	ppbv		TO-15
TO-15	Heptane	<0.17	ND 04	ppbv		TO-15
TO-15	Hexachlorocyclopentadiene	<0.86	ND 04	ppbv		TO-15
TO-15	Hexane	<0.17	ND 04	ppbv		TO-15
TO-15	m,p-Xylenes	0.28	04	ppbv		TO-15
TO-15	Methylene chloride	<0.34	ND 04	ppbv		TO-15
TO-15	Methyl-ethyl ether	<0.17	ND 04	ppbv		TO-15
TO-15	o-Xylene	<0.17	ND 04	ppbv		TO-15
TO-15	Propylbenzene	<0.17	ND 04	ppbv		TO-15
TO-15	Styrene	<0.17	ND 04	ppbv		TO-15
TO-15	Tetrahydrofuran	<0.17	ND 04	ppbv		TO-15
TO-15	Toluene	<0.86	ND 04	ppbv		TO-15
TO-15	trans-1,2-Dichloroethane	0.57	04	ppbv		TO-15
TO-15		<0.17	ND 04	ppbv		TO-15

Air Sampling near Bridgeton Landfill Report
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Sample: AB93009
Customer #: 131566

Facility ID:
County:
Collector: JIM BRUNNERT
Entry Point:
Sample Comment: LHM Station 4hr

Site: Bridgeton SLF
Sample Reference ID:
Affiliation: ESP AQMS
Collect Date: 2/4/2013 8:20:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	1,1,1-Trichloroethane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,1,2,2-Tetrachloroethane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,1,2-Trichloroethane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,1-Dichloroethane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,2-Dichloroethane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,2,4-Trichlorobenzene	<0.66	ND, 04	ppbv		TO-15
TO-15	1,2,4-Tetrahydrobenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,2-Dibromodifluoromethane (DBS)	<0.17	ND, 04	ppbv		TO-15
TO-15	1,2-Dichlorobenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,3-Dichlorobenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,3-Butadiene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,3,5-Trimethylbenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,4-Dioxane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,4-Dichlorobenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	2,2,4-Trimethylpentane	<0.66	ND, 04	ppbv		TO-15
TO-15	2-Butanone (MEK)	<0.66	ND, 04	ppbv		TO-15
TO-15	2-Hexanone	<0.66	ND, 04	ppbv		TO-15
TO-15	2-Propanol	<0.66	ND, 04	ppbv		TO-15
TO-15	3-Chloroaniline	<0.66	ND, 04	ppbv		TO-15
TO-15	4-Ethyltoluene	<0.17	ND, 04	ppbv		TO-15
TO-15	4-Methyl-2-octanone(MIBK)	<0.17	ND, 04	ppbv		TO-15

Sample: AB93010
Customer #: 131566
Facility ID:
County:
Collector: JIM BRUNNERT
Entry Point:
Sample Comment: Turner's Wheel 4hr
Site: Bridgeton SLF
Sample Reference ID:
Affiliation: ESP AQMS
Collect Date: 2/4/2013 8:10:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	1,1,1-Trichloroethane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,1,2,2-Tetrachloroethane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,1,2-Trichloroethane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,1-Dichloroethane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,2-Dichloroethane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,2,4-Trichlorobenzene	<0.66	ND, 04	ppbv		TO-15
TO-15	1,2,4-Tetrahydrobenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,2-Dibromodifluoromethane (DBS)	<0.17	ND, 04	ppbv		TO-15
TO-15	1,2-Dichlorobenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,3-Dichlorobenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,3-Butadiene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,3,5-Trimethylbenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	1,4-Dioxane	<0.17	ND, 04	ppbv		TO-15
TO-15	1,4-Dichlorobenzene	<0.17	ND, 04	ppbv		TO-15
TO-15	2,2,4-Trimethylpentane	<0.66	ND, 04	ppbv		TO-15
TO-15	2-Butanone (MEK)	<0.66	ND, 04	ppbv		TO-15
TO-15	2-Hexanone	<0.66	ND, 04	ppbv		TO-15
TO-15	2-Propanol	<0.66	ND, 04	ppbv		TO-15
TO-15	3-Chloroaniline	<0.66	ND, 04	ppbv		TO-15
TO-15	4-Ethyltoluene	<0.17	ND, 04	ppbv		TO-15
TO-15	4-Methyl-2-octanone(MIBK)	<0.17	ND, 04	ppbv		TO-15

Air Sampling near Bridgeton Landfill Report
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Sample: AB93010
Customer #: 131566

Facility ID:
County:
Collector: JIM BRUNNERT
Entry Point:
Sample Comment: Turners Weal 4th

Site: Bridgeton SLF
Sample Reference ID:
Affiliation: ESP AQMS

Collect Date: 2/4/2013 8:10:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	Acetone	1.5	04	ppbv		TO-15
TO-15	Benzene	0.77	04	ppbv		TO-15
TO-15	Bromochloromethane	<0.17	ND 04	ppbv		TO-15
TO-15	Bromodichloromethane	<0.17	ND 04	ppbv		TO-15
TO-15	Bromomethane	<0.86	ND 04	ppbv		TO-15
TO-15	Carbon Disulfide	<0.86	ND 04	ppbv		TO-15
TO-15	Carbon Tetrachloride	<0.17	ND 04	ppbv		TO-15
TO-15	Chloroethane	<0.86	ND 04	ppbv		TO-15
TO-15	Chloroform	<0.17	ND 04	ppbv		TO-15
TO-15	Chloromethane	0.43	04	ppbv		TO-15
TO-15	Chloroethane	<0.17	ND 04	ppbv		TO-15
TO-15	cis-1,2-dichloroethane	<0.17	ND 04	ppbv		TO-15
TO-15	cis-1,3-Dichloropropene	<0.17	ND 04	ppbv		TO-15
TO-15	Cumene	<0.17	ND 04	ppbv		TO-15
TO-15	Cyclohexane	<0.17	ND 04	ppbv		TO-15
TO-15	Dibromochloromethane	<0.17	ND 04	ppbv		TO-15
TO-15	Ethanol	1.2	04	ppbv		TO-15
TO-15	Ethylbenzene	<0.17	ND 04	ppbv		TO-15
TO-15	Freon 11	0.21	04	ppbv		TO-15
TO-15	Freon 113	<0.17	ND 04	ppbv		TO-15
TO-15	Freon 114	<0.17	ND 04	ppbv		TO-15
TO-15	Freon 12	0.48	04	ppbv		TO-15
TO-15	Heptane	<0.17	ND 04	ppbv		TO-15
TO-15	Hexachlorocyclopentadiene	<0.86	ND 04	ppbv		TO-15
TO-15	Hexane	<0.17	ND 04	ppbv		TO-15
TO-15	m,p-Xylenes	<0.17	ND 04	ppbv		TO-15
TO-15	Methylenedianiline	<0.34	ND 04	ppbv		TO-15
TO-15	Methyl-tert-butyl ether	<0.17	ND 04	ppbv		TO-15
TO-15	o-Xylenes	<0.17	ND 04	ppbv		TO-15
TO-15	Propylbenzene	<0.17	ND 04	ppbv		TO-15
TO-15	Styrene	<0.17	ND 04	ppbv		TO-15
TO-15	Tetrachloroethene	<0.17	ND 04	ppbv		TO-15
TO-15	Tetrahydrofuran	<0.86	ND 04	ppbv		TO-15
TO-15	Toluene	0.22	04	ppbv		TO-15

Air Sampling near Bridgeton Landfill Report
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Sample: AB93010
Customer #: 131568

Facility ID:
County:
Collector: JIM BRUNNERT
Entry Point:
Sample Comment: Turner's West Atr

Site: Bridgeton SLF
Sample Reference ID:
Affiliation: ESP-AQMS

Collect Date: 2/4/2013 8:10:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	trans-1,2-Dichloroethene	<0.17	ND 04	ppbv		TO-15
TO-15	trans-1,3-Dichloropropene	<0.17	ND 04	ppbv		TO-15
TO-15	Trichloroethene	<0.17	ND 04	ppbv		TO-15
TO-15	Vinyl Chloride	<0.17	ND 04	ppbv		TO-15

Sample: AB93011
Customer #: 131570

Facility ID:
County:
Collector: JIM BRUNNERT
Entry Point:
Sample Comment: Turner's East Atr

Site: Bridgeton SLF
Sample Reference ID:
Affiliation: ESP-AQMS

Collect Date: 2/4/2013 9:00:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	1,1,1-Trichloroethane	<0.17	ND 04	ppbv		TO-15
TO-15	1,1,2,2-Tetrachloroethane	<0.17	ND 04	ppbv		TO-15
TO-15	1,1,2-Trichloroethane	<0.17	ND 04	ppbv		TO-15
TO-15	1,1-Dichloroethane	<0.17	ND 04	ppbv		TO-15
TO-15	1,1-Dichloroethene	<0.17	ND 04	ppbv		TO-15
TO-15	1,2,4-Trichlorobenzene	<0.86	ND 04	ppbv		TO-15
TO-15	1,2,4-Trimethylbenzene	<0.17	ND 04	ppbv		TO-15
TO-15	1,2-Dibromodifluoroethane (EDB)	<0.17	ND 04	ppbv		TO-15
TO-15	1,2-Dichlorobenzene	<0.17	ND 04	ppbv		TO-15
TO-15	1,2-Dichloroethane	<0.17	ND 04	ppbv		TO-15
TO-15	1,2-Dichloropropane	<0.17	ND 04	ppbv		TO-15
TO-15	1,3,5-Trimethylbenzene	<0.17	ND 04	ppbv		TO-15
TO-15	1,3-Butadiene	<0.17	ND 04	ppbv		TO-15
TO-15	1,3-Dichlorobenzene	<0.17	ND 04	ppbv		TO-15
TO-15	1,4-Dichlorobenzene	<0.17	ND 04	ppbv		TO-15
TO-15	1,4-Dioxane	<0.17	ND 04	ppbv		TO-15
TO-15	2,2,4-Trimethylpentane	<0.86	ND 04	ppbv		TO-15
TO-15	2-Butanone (MEK)	<0.86	ND 04	ppbv		TO-15
TO-15	2-Hexanone	<0.86	ND 04	ppbv		TO-15
TO-15	2-Propanol	<0.86	ND 04	ppbv		TO-15
TO-15	3-Chloroaniline	<0.86	ND 04	ppbv		TO-15
TO-15	4-Ethyltoluene	<0.17	ND 04	ppbv		TO-15

Air Sampling near Bridgeton Landfill Report
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Sample: AB93011
Customer #: 131570

Facility ID:
County:
Collector: JIM BRUNNERT
Entry Point:
Sample Comment: Turner's East 4th

Site: Bridgeton SLF
Sample Reference ID:
Affiliation: ESP-AQMS

Collect Date: 2/4/2013 9:00:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	4-Methyl-2-pentanone(MIBK)	<0.17	ND 04	ppbv		TO-15
TO-15	Acetone	1.4	04	ppbv		TO-15
TO-15	Benzene	0.71	04	ppbv		TO-15
TO-15	Bromochloromethane	<0.17	ND 04	ppbv		TO-15
TO-15	Bromodichloromethane	<0.17	ND 04	ppbv		TO-15
TO-15	Bromomethane	<0.86	ND 04	ppbv		TO-15
TO-15	Carbon Dioxide	<0.86	ND 04	ppbv		TO-15
TO-15	Carbon Tetrachloride	<0.17	ND 04	ppbv		TO-15
TO-15	Chlorobenzene	<0.17	ND 04	ppbv		TO-15
TO-15	Chloroethane	<0.86	ND 04	ppbv		TO-15
TO-15	Chloroform	<0.17	ND 04	ppbv		TO-15
TO-15	Chloroethane	0.52	04	ppbv		TO-15
TO-15	Chloromethane	<0.17	ND 04	ppbv		TO-15
TO-15	cis-1,2-dichloroethane	<0.17	ND 04	ppbv		TO-15
TO-15	cis-1,3-dichloropropene	<0.17	ND 04	ppbv		TO-15
TO-15	Cumene	<0.17	ND 04	ppbv		TO-15
TO-15	Cyclohexane	<0.17	ND 04	ppbv		TO-15
TO-15	Dibromochloromethane	<0.17	ND 04	ppbv		TO-15
TO-15	Ethanol	1.3	04	ppbv		TO-15
TO-15	Ethylbenzene	<0.17	ND 04	ppbv		TO-15
TO-15	Freon 11	0.24	04	ppbv		TO-15
TO-15	Freon 113	<0.17	ND 04	ppbv		TO-15
TO-15	Freon 114	<0.17	ND 04	ppbv		TO-15
TO-15	Freon 12	0.51	04	ppbv		TO-15
TO-15	Heptane	<0.17	ND 04	ppbv		TO-15
TO-15	Hexachlorobutadiene	<0.86	ND 04	ppbv		TO-15
TO-15	Hexane	<0.17	ND 04	ppbv		TO-15
TO-15	m,p-Xylenes	<0.17	ND 04	ppbv		TO-15
TO-15	Methylene chloride	0.35	04	ppbv		TO-15
TO-15	Methyl-tert-butyl ether	<0.17	ND 04	ppbv		TO-15
TO-15	o-Xylene	<0.17	ND 04	ppbv		TO-15
TO-15	Propylbenzene	<0.17	ND 04	ppbv		TO-15
TO-15	Styrene	<0.17	ND 04	ppbv		TO-15
TO-15	Tetrachloroethene	<0.17	ND 04	ppbv		TO-15
TO-15	Tetrahydrofuran	<0.86	ND 04	ppbv		TO-15

Air Sampling near Bridgeton Landfill Report
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Sample: AB93011 **Facility ID:** **Site:** Bridgeton SLF
Customer #: 131570 **County:** **Sample Reference ID:**
Collector: JIM BRUNNERT **Affiliation:** ESP-ADMS **Collect Date:** 2/4/2013 9:00:00PM
Entry Point: **Sample Comment:** Turner's East Air

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	Yoluene	0.27	04	ppbv		TO-15
TO-15	trans-1,2-Dichloroethene	<0.17	ND 04	ppbv		TO-15
TO-15	trans-1,3-Dichloropropene	<0.17	ND 04	ppbv		TO-15
TO-15	Trichloroethene	<0.17	ND 04	ppbv		TO-15
TO-15	Vinyl Chloride	<0.17	ND 04	ppbv		TO-15

Sample: AB93012 **Facility ID:** **Site:** Bridgeton SLF
Customer #: 131572 **County:** **Sample Reference ID:**
Collector: JIM BRUNNERT **Affiliation:** ESP-ADMS **Collect Date:** 2/4/2013 10:06:00PM
Entry Point: **Sample Comment:** Material Logic Grab

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	1,1,1-Trichloroethene	<0.14	ND 04	ppbv		TO-15
TO-15	1,1,2,2-Tetrahydroethane	<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	<0.66	ND 04	ppbv		TO-15
TO-15	1,2,4-Trimethylbenzene	<0.14	ND 04	ppbv		TO-15
TO-15	1,2-Dichlorobenzene (EDB)	<0.14	ND 04	ppbv		TO-15
TO-15	1,2-Dichlorobenzene	<0.14	ND 04	ppbv		TO-15
TO-15	1,2-Dichloroethane	<0.14	ND 04	ppbv		TO-15
TO-15	1,3,5-Trimethylbenzene	<0.14	ND 04	ppbv		TO-15
TO-15	1,3-Bisulfone	<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	<0.66	ND 04	ppbv		TO-15
TO-15	2,2,4-Trimethylpentane	<0.66	ND 04	ppbv		TO-15
TO-15	2-Butanone (MEK)	<0.66	ND 04	ppbv		TO-15
TO-15	2-Hexanone	<0.66	ND 04	ppbv		TO-15
TO-15	2-Propanol	<0.66	ND 04	ppbv		TO-15
TO-15	3-Chloropropene	<0.66	ND 04	ppbv		TO-15

Air Sampling near Bridgeton Landfill Report
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Sample: AB93012
 Customer #: 131572
 Facility ID: County: Site: Bridgeton SLF
 Collector: JIM BRUNNERT Sample Reference ID:
 Entry Point: Affiliation: ESP-ACMS
 Sample Comment: Material Logic Grab Collect Date: 2/4/2013 10:05:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	4-Ethyltoluene	<0.14	ND_04	ppbv		TO-15
TO-15	4-Methyl-2-pentanone(MBK)	<0.14	ND_04	ppbv		TO-15
TO-15	Acetone	2.8	04	ppbv		TO-15
TO-15	Benzene	3.0	04	ppbv		TO-15
TO-15	Bromochloroethane	<0.14	ND_04	ppbv		TO-15
TO-15	Bromobenzene	<0.14	ND_04	ppbv		TO-15
TO-15	Bromomethane	<0.80	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	0.98	04	ppbv		TO-15
TO-15	Chloroethane	<0.14	ND_04	ppbv		TO-15
TO-15	cis-1,2-dichloroethane	<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	1.2	04	ppbv		TO-15
TO-15	Ethylbenzene	<0.14	ND_04	ppbv		TO-15
TO-15	Freon 11	0.24	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	0.56	04	ppbv		TO-15
TO-15	Heptane	<0.14	ND_04	ppbv		TO-15
TO-15	Hexachlorocyclopentadiene	<0.80	ND_04	ppbv		TO-15
TO-15	Hexane	<0.14	ND_04	ppbv		TO-15
TO-15	m,dc-Xylenes	0.18	04	ppbv		TO-15
TO-15	Methylcyclohexane	<0.27	ND_04	ppbv		TO-15
TO-15	Methyl-1-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

Air Sampling near Bridgeton Landfill Report
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Sample: AB93012
Customer #: 131572

Facility ID:
County:
Collector: JIM BRUNNERT
Entry Point:
Sample Comment: Material Logic Grab

Site: Bridgeton SLF
Sample Reference ID:
Affiliation: ESP-AQMS

Collect Date: 2/4/2013 10:05:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	Tetrahydrofuran	<0.63	ND_04	ppbv		TO-15
TO-15	Toluene	0.47	04	ppbv		TO-15
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

Sample: AB93013

Customer #: 131574

Facility ID:
County:
Collector: JIM BRUNNERT
Entry Point:
Sample Comment: Usernd J Johns Grab

Site: Bridgeton SLF
Sample Reference ID:
Affiliation: ESP-AQMS

Collect Date: 2/4/2013 10:25:00PM

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-Dibromocyclohexane (E08)	<0.14	ND_04	ppbv		TO-15
TO-15	1,2-Dichlorobenzene	<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-Styrene	<0.14	ND_04	ppbv		TO-15
TO-15	1,3-Dichloropropane	<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	<0.88	ND_04	ppbv		TO-15
TO-15	2-Butanone (MEK)	<0.88	ND_04	ppbv		TO-15
TO-15	2-Hexanone	<0.88	ND_04	ppbv		TO-15
TO-15	2-Propanol	<0.88	ND_04	ppbv		TO-15

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Sample: AB93013
Customer #: 131574



Facility ID: _____ Site: Bridgeton SLF
 County: _____ Sample Reference ID: _____
 Collector: JIM BRUNNERT Affiliation: ESP-AQMS Collect Date: 2/4/2013 10:25:00PM
 Entry Point: _____
 Sample Comment: Upwind J Johns Grab

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	3-Chloropropane	<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
TO-15	Acetone	2.2	04	ppbv		TO-15
TO-15	Benzene	0.18	04	ppbv		TO-15
TO-15	Bromodichloromethane	<0.14	ND_04	ppbv		TO-15
TO-15	Bromoforn	<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	0.15	04	ppbv		TO-15
TO-15	Chlorobenzene	<0.14	ND_04	ppbv		TO-15
TO-15	Chloroform	<0.68	ND_04	ppbv		TO-15
TO-15	Chloroethane	<0.14	ND_04	ppbv		TO-15
TO-15	Chloromethane	0.60	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	Dibromodichloromethane	<0.14	ND_04	ppbv		TO-15
TO-15	Ethanol	1.1	04	ppbv		TO-15
TO-15	Ethylbenzene	<0.14	ND_04	ppbv		TO-15
TO-15	Freon 11	0.23	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	0.48	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	0.19	04	ppbv		TO-15
TO-15	MIB-Xylenes	<0.14	ND_04	ppbv		TO-15
TO-15	Methyl-tert-butyl ether	<0.27	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

Air Sampling near Bridgeton Landfill Report
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Sample: AB93013
Customer #: 131574

Facility ID: County: Site: Bridgeton SLF
Collector: JIM BRUNNERT Sample Reference ID: Affiliation: ESP-AQMS Collect Date: 2/4/2013 10:25:00PM
Entry Point: Sample Comment: Upward J Johns Grab

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	Tetrachloroethane	<0.14	ND_04	ppbv		TO-15
TO-15	Tetrahydrofuran	<0.68	ND_04	ppbv		TO-15
TO-15	Toluene	0.55	04	ppbv		TO-15
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	Trichloroethene	<0.14	ND_04	ppbv		TO-15
TO-15	Vinyl Chloride	<0.14	ND_04	ppbv		TO-15

Sample: AB93014
Customer #: 131576
Facility ID: County: Site: Bridgeton SLF
Collector: JIM BRUNNERT Sample Reference ID: Affiliation: ESP-AQMS Collect Date: 2/5/2013 12:00:00AM
Entry Point: Sample Comment: Park Grab

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	1,2,4-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-Dibromochloroethane (E/DB)	<0.14	ND_04	ppbv		TO-15
TO-15	1,2-Dichlorobenzene	<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)	1.1	04	ppbv		TO-15
TO-15	2-Hexanone	<0.68	ND_04	ppbv		TO-15

Air Sampling near Bridgeton Landfill Report
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Sample: AB93014
Customer #: 131578

Facility ID:
County:
Collector: JIM BRUNNERT
Entry Point:
Sample Comment: Park Grab

Site: Bridgeton SLF
Sample Reference ID:
Affiliation: ESP-AQMS

Collect Date: 2/5/2013 12:00:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	2-Propanol	<0.66	ND 04	ppbv		TO-15
TO-15	3-Chloropropane	<0.66	ND 04	ppbv		TO-15
TO-15	4-Ethyltoluene	<0.17	ND 04	ppbv		TO-15
TO-15	4-Allyl-2-pentanone(MIBK)	<0.17	ND 04	ppbv		TO-15
TO-15	Acetone	3.6	04	ppbv		TO-15
TO-15	Benzene	1.6	04	ppbv		TO-15
TO-15	Bromochloroethane	<0.14	ND 04	ppbv		TO-15
TO-15	Bromodum	<0.14	ND 04	ppbv		TO-15
TO-15	Bromotrifluoroethane	<0.66	ND 04	ppbv		TO-15
TO-15	Carbon Disulfide	<0.66	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	<0.66	ND 04	ppbv		TO-15
TO-15	Chloroform	<0.14	ND 04	ppbv		TO-15
TO-15	Chloromethane	0.50	04	ppbv		TO-15
TO-15	Chlorobutane	<0.14	ND 04	ppbv		TO-15
TO-15	cis-1,2-dichloroethane	<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	2.1	04	ppbv		TO-15
TO-15	Ethylbenzene	<0.14	ND 04	ppbv		TO-15
TO-15	Freon 11	0.24	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	0.55	04	ppbv		TO-15
TO-15	Heptane	<0.14	ND 04	ppbv		TO-15
TO-15	Hexachlorobutadiene	<0.66	ND 04	ppbv		TO-15
TO-15	Hexane	<0.14	ND 04	ppbv		TO-15
TO-15	m-Xylene	0.18	04	ppbv		TO-15
TO-15	Methylenedichloride	<0.27	ND 04	ppbv		TO-15
TO-15	Methylalcohol 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

Sample: AB93014
Customer #: 131578

Facility ID:
County:
Collector: JIM BRUNNERT
Entry Point:
Sample Comment: Park Graz

Site: Bridgeton SLF
Sample Reference ID:
Affiliation: ESP-AQMS

Collect Date: 2/5/2013 12:00:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-15	Styrene	<0.14	ND, 04	ppbv		TO-15
TO-15	Tetraethioethane	<0.14	ND, 04	ppbv		TO-15
TO-15	Tetrahydrofuran	<0.68	ND, 04	ppbv		TO-15
TO-15	Toluene	0.28	04	ppbv		TO-15
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

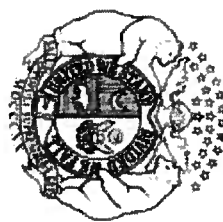
The analysis of this sample was performed in accordance with procedures approved or recognized by the U.S. Environmental Protection Agency.

Jim Brunert

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

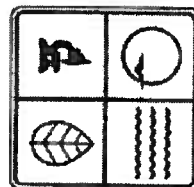
- Qualifier Descriptions**
- 01 Improper collection method
 - 03 Exceeded holding time
 - 06 Estimated value, reported below PQL
 - 07 Estimated value, analyte outside calibration range
 - 09 Sample was diluted during analysis
 - 11 Estimated value, matrix interference
 - 13 Estimated value, true result is > reported value
 - 18 No Result - Failed Quality Control Requirements
 - 17 Results in dry weight
 - 19 Estimated value
 - 21 No result - spectral interference
 - 23 Contaminant 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, QC data outside limits
 - 08 Analyte present in blank at > 1/2 reported value
 - 10 Laboratory error
 - 12 Inconsistent 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 Dichlorination

Appendix B
Aldehyde Results



Missouri Department of Natural Resources
Environmental Services Program

Order ID: 130205002 Program, Contact: APCP Stephen Hall
Report Date: 02/11/2013 LDPRJobCode: FEABL / NJ13BRMN



Sample: AB92997
Customer #: 131565

Facility ID: Site: Bridgeton SLF
County: Sample Reference ID:
Collector: JIM BRUNNERT Affiliation: ESP-AQMS Collect Date: 2/4/2013 8:16:00PM
Entry Point: Sample Comment: (Park 4w) Start time 2016 End time 0016 Duration 57min Final Volume 45.9L

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-11A	Acetaldehyde	<Q 25	ND 04	ug		TO-11A
TO-11A	Acetone	<Q 25	ND 04	ug		TO-11A
TO-11A	Benzaldehyde	<Q 25	ND 04	ug		TO-11A
TO-11A	Cis-2-pentene	<Q 25	ND 04	ug		TO-11A
TO-11A	Formaldehyde	<Q 25	ND 04	ug		TO-11A
TO-11A	Hexanal	<Q 25	ND 04	ug		TO-11A
TO-11A	Isopentanal	<Q 25	ND 04	ug		TO-11A
TO-11A	m,p-Toluenediols	<Q 25	ND 04	ug		TO-11A
TO-11A	Methyl Ethyl Ketone/Diethylketone	<Q 25	ND 04	ug		TO-11A
TO-11A	o-Tolualdehyde	<Q 25	ND 04	ug		TO-11A
TO-11A	Pinene	<Q 25	ND 04	ug		TO-11A
TO-11A	Propanal	<Q 25	ND 04	ug		TO-11A

Sample: AB92998
Customer #: 131567
Facility ID: Site: Bridgeton SLF
County: Sample Reference ID:
Collector: JIM BRUNNERT Affiliation: ESP-AQMS Collect Date: 2/4/2013 8:20:00PM
Entry Point: Sample Comment: (LIM Station 4W) Start time 2020 End time 0020 Duration 240 min Final Volume 192 L

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-11A	Acetaldehyde	<Q 25	ND 04	ug		TO-11A
TO-11A	Acetone	<Q 25	ND 04	ug		TO-11A
TO-11A	Benzaldehyde	<Q 25	ND 04	ug		TO-11A
TO-11A	Cis-2-pentene	<Q 25	ND 04	ug		TO-11A

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Sample: AB92998
Customer #: 131567

Facility ID: Site: Bridgeton SLF
County: Sample Reference ID:
Collector: JIM BRUNNERT Affiliation: ESP-AQMS Collect Date: 2/4/2013 8:20:00PM
Entry Point: (Lin Station 4N) Start time 2020 End time 0020 Duration 240 min Final Volume 182 L
Sample Comment:

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-11A	Formaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Hexanal	<0.25	ND 04	ug		TO-11A
TO-11A	Isopentanal	<0.25	ND 04	ug		TO-11A
TO-11A	m,p-Tolaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Methyl Ethyl Ketone/Diethylketones	<0.25	ND 04	ug		TO-11A
TO-11A	o-Tolaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Pentanal	<0.25	ND 04	ug		TO-11A
TO-11A	Propenal	<0.25	ND 04	ug		TO-11A

Sample: AB92999
Customer #: 131569

Facility ID: Site: Bridgeton SLF
County: Sample Reference ID:
Collector: JIM BRUNNERT Affiliation: ESP-AQMS Collect Date: 2/4/2013 8:10:00PM
Entry Point: (Turner West 4th) Start time 2010 End time 0010 Duration 207 min Final Volume 166.6 L
Sample Comment:

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-11A	Acetaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Acetone	<0.25	ND 04	ug		TO-11A
TO-11A	Benzaldehyde	1.1	04	ug		TO-11A
TO-11A	Crotonaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Formaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Hexanal	<0.25	ND 04	ug		TO-11A
TO-11A	Isopentanal	<0.25	ND 04	ug		TO-11A
TO-11A	m,p-Tolaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Methyl Ethyl Ketone/Diethylketones	<0.25	ND 04	ug		TO-11A
TO-11A	o-Tolaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Pentanal	<0.25	ND 04	ug		TO-11A
TO-11A	Propenal	<0.25	ND 04	ug		TO-11A

Air Sampling near Bridgeton Landfill Report
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Sample: AB93000
Customer #: 131571

Facility ID: Site: Bridgeton SLF
County: Sample Reference ID:
Collector: JIM BRUNNERT Affiliation: ESP-AQMS Collect Date: 2/4/2013 9:00:00PM
Entry Point: (Turner East 4th) Start time 2100 End time 0100 Duration 185 min Final Volume 70.3 L
Sample Comment:

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-11A	Acetaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Acetone	<0.25	ND 04	ug		TO-11A
TO-11A	Benzaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Crotonaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Formaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Hexanal	<0.25	ND 04	ug		TO-11A
TO-11A	Isopentanal	<0.25	ND 04	ug		TO-11A
TO-11A	m,p-Tolualdhyde	<0.25	ND 04	ug		TO-11A
TO-11A	Methyl Ethyl Ketone/Butyraldehydes	<0.25	ND 04	ug		TO-11A
TO-11A	o-Tolualdehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Pentanal	<0.25	ND 04	ug		TO-11A
TO-11A	Propenal	<0.25	ND 04	ug		TO-11A

Sample: AB93001
Customer #: 131573
Facility ID: Site: Bridgeton SLF
County: Sample Reference ID:
Collector: JIM BRUNNERT Affiliation: ESP-AQMS Collect Date: 2/4/2013 10:05:00PM
Entry Point: (Material Lager Grab) Start time 2205 End time 2235 Duration 30 min Final Volume 66.8 L
Sample Comment:

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-11A	Acetaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Acetone	<0.25	ND 04	ug		TO-11A
TO-11A	Benzaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Crotonaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Formaldehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Hexanal	<0.25	ND 04	ug		TO-11A
TO-11A	Isopentanal	<0.25	ND 04	ug		TO-11A
TO-11A	m,p-Tolualdhyde	<0.25	ND 04	ug		TO-11A
TO-11A	Methyl Ethyl Ketone/Butyraldehydes	<0.25	ND 04	ug		TO-11A
TO-11A	o-Tolualdehyde	<0.25	ND 04	ug		TO-11A
TO-11A	Pentanal	<0.25	ND 04	ug		TO-11A
TO-11A	Propenal	<0.25	ND 04	ug		TO-11A

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Sample: AB93002
Customer #: 131575
Facility ID: _____
County: _____
Collector: JIM BRUNNERT
Entry Point: _____
Sample Comment: (Upwind Grab) Start time 2228 End time 2258 Duration 30 min Flow Volume 57.7 L
Site: Bridgeton SLF
Sample Reference ID: _____
Affiliation: ESP-AQMS
Collect Date: 2/4/2013 10:26:00PM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-11A	Acetaldehyde	<0.25	ND_04	ug		TO-11A
TO-11A	Acetone	<0.25	ND_04	ug		TO-11A
TO-11A	Benzaldehyde	<0.25	ND_04	ug		TO-11A
TO-11A	Chromaldehyde	<0.25	ND_04	ug		TO-11A
TO-11A	Formaldehyde	<0.25	ND_04	ug		TO-11A
TO-11A	Hexanal	<0.25	ND_04	ug		TO-11A
TO-11A	Isopentanal	<0.25	ND_04	ug		TO-11A
TO-11A	m,p-Tolaldehyde	<0.25	ND_04	ug		TO-11A
TO-11A	Methyl Ethyl Ketone/Butyraldehydes	<0.25	ND_04	ug		TO-11A
TO-11A	o-Tolaldehyde	<0.25	ND_04	ug		TO-11A
TO-11A	Pentanal	<0.25	ND_04	ug		TO-11A
TO-11A	Propanal	<0.25	ND_04	ug		TO-11A

Sample: AB93003
Customer #: 131577
Facility ID: _____
County: _____
Collector: JIM BRUNNERT
Entry Point: _____
Sample Comment: (Park Grab) Start time 0000 End time 0030 Duration 30 min Flow Volume 57.7 L
Site: Bridgeton SLF
Sample Reference ID: _____
Affiliation: ESP-AQMS
Collect Date: 2/5/2013 12:00:00AM

Test	Parameter	Result	Qualifier	Units	QC Batch ID	Method
TO-11A	Acetaldehyde	<0.25	ND_04	ug		TO-11A
TO-11A	Acetone	<0.25	ND_04	ug		TO-11A
TO-11A	Benzaldehyde	<0.25	ND_04	ug		TO-11A
TO-11A	Chromaldehyde	<0.25	ND_04	ug		TO-11A
TO-11A	Formaldehyde	<0.25	ND_04	ug		TO-11A
TO-11A	Hexanal	<0.25	ND_04	ug		TO-11A
TO-11A	Isopentanal	<0.25	ND_04	ug		TO-11A
TO-11A	m,p-Tolaldehyde	<0.25	ND_04	ug		TO-11A
TO-11A	Methyl Ethyl Ketone/Butyraldehydes	<0.25	ND_04	ug		TO-11A
TO-11A	o-Tolaldehyde	<0.25	ND_04	ug		TO-11A
TO-11A	Pentanal	<0.25	ND_04	ug		TO-11A
TO-11A	Propanal	<0.25	ND_04	ug		TO-11A

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

Chris Bolt

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

Qualifier Descriptions

- 01 Improper collection method
- 02 Extended holding time
- 03 Estimated value, detected below PQL
- 04 Estimated value, analysis outside calibration range
- 05 Estimated value, analysis outside limits
- 06 Analyte present in blank or > 1/2 reported value
- 07 Sample was diluted during analysis
- 08 Laboratory error
- 09 Estimated value, matrix interference
- 10 Insufficient quantity
- 11 Estimated value, true result is >= reported value
- 12 Not analyzed - instrument failure
- 13 No Result - Failed Quality Control Requirements
- 14 Not analyzed - instrument failure
- 15 Results in dry weight
- 16 Estimated value
- 17 Not analyzed - matrix interference
- 18 No result - spectral interference
- 19 Not analyzed - instrument failure
- 20 Confirmed Lab specific qualifier - see sample comments
- 21 No result - matrix interference
- 22 No Result - Excessive Dilution
- 23 No Result - Excessive Dilution
- 24 No Result - Excessive Dilution
- 25 No Result - Excessive Dilution
- 26 No Result - Excessive Dilution
- 27 No Result - Excessive Dilution
- 28 No Result - Excessive Dilution
- 29 No Result - Excessive Dilution
- 30 No Result - Excessive Dilution
- 31 No Result - Excessive Dilution
- 32 No Result - Excessive Dilution
- 33 No Result - Excessive Dilution
- 34 No Result - Excessive Dilution
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- 93 No Result - Excessive Dilution
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- 95 No Result - Excessive Dilution
- 96 No Result - Excessive Dilution
- 97 No Result - Excessive Dilution
- 98 No Result - Excessive Dilution
- 99 No Result - Excessive Dilution
- 100 No Result - Excessive Dilution

Appendix C—Meteorological Results

WS Wind Speed in meters per second
WD Wind Direction in degrees
TEMP Ambient Temperature in degrees Celcius
RH Relative Humidity in percent

DATE	TIME	WS	WD	TEMP	RH
2/4/2013	20:30	4.82	354.66	-0.28	77.15
2/4/2013	20:45	4.11	357.92	-0.42	78.14
2/4/2013	21:00	4.05	354.54	-0.42	78.00
2/4/2013	21:15	2.19	19.09	-0.44	77.98
2/4/2013	21:30	1.89	34.11	-0.58	77.40
2/4/2013	21:45	1.43	38.52	-0.61	78.50
2/4/2013	22:00	1.46	59.18	-0.67	78.90
2/4/2013	22:15	1.94	33.37	-0.75	79.06
2/4/2013	22:30	1.73	62.25	-0.82	79.26
2/4/2013	22:45	1.93	38.84	-0.90	79.59
2/4/2013	23:00	2.09	26.39	-0.96	80.27
2/4/2013	23:15	2.73	8.13	-1.06	80.61
2/4/2013	23:30	2.55	15.55	-1.20	80.42
2/4/2013	23:45	2.74	3.76	-1.28	80.32
2/5/2013	0:00	2.34	8.53	-1.31	80.57
2/5/2013	0:15	1.65	22.49	-1.30	80.33
2/5/2013	0:30	1.26	33.17	-1.29	80.29
2/5/2013	0:45	1.45	63.05	-1.31	80.30

Appendix D
Plan for Air Sampling near Bridgeton Landfill

PROPOSED DATES: February 4, 2013

LOCATIONS:

The samples will be collected both upwind and downwind of the Bridgeton Sanitary Landfill located at 13570 St. Charles Rock Road, Maryland Heights, St. Louis, Missouri. Samples will be collected off the property of the facility.

MONITORING OBJECTIVES:

- 1) Collect individual SUMMA canister and sorbent tube samples to identify possible odor constituents and levels of volatile organic compounds and aldehydes for assessment of whether health risks are associated with air emissions at the sampling locations.
- 2) Correlate data with the meteorological conditions during sample collection.

PERSONNEL AND AGENCIES INVOLVED:

Stephen Hall, MDNR-APCP	(573) 751-4817
Celeste Koon, MDNR-ESP-AQMS	(573) 526-3363 or (573) 644-3199
Jim Brunnert, MDNR-ESP-AQMS	(573) 893-5255
Chris Heimsoth, MDNR-ESP-AQMS	(573) 821-4990
Doug Thompson, MDNR-ESP-AQMS	(573) 418-8950
Dan Norris, MDNR-SWMP-C/ES	(573) 526-3915 or (317) 258-1746 (cell)
Chris Nagel, MDNR-SWMP	(573) 751-5401
Renee Bungart, MDNR, Director's Office	(573) 751-1010

RESPONSIBILITIES

Serve as project leader	Jim Brunnert
Develop monitoring plan	Jim Brunnert/Celeste Koon/Steve Hall
Manage equipment	Jim Brunnert/Chris Heimsoth/Doug Thompson
Obtain permission for access	ESP Staff
Handle news media inquiries	Renee Bungart
Participate in air monitoring sample collection	Jim Brunnert/Chris Heimsoth/Doug Thompson
Observe collection of air quality samples	Dan Norris
Collection of GPS sample location data	Dan Norris or ESP Staff
Send canisters to laboratory	Jim Brunnert
Review analytical laboratory data and QA/QC	CAS staff

Document sampling trip

Dan Norris/Jim Brunnert/Chris Heimsoth

EQUIPMENT TO BE USED:

Trimble GPS unit, SUMMA canisters and flow controllers, sampling pumps and aldehyde sample tubes, coolers.

PROPOSED MONITORING SCHEDULE:

SUMMA and aldehyde samples are to be collected at the following locations on February 4, 2013:

Collect 1 upwind grab SUMMA sample and a short-term aldehyde sample with winds from the northwest (NW) in an area where no odors consistent with the landfill are detected. Upwind concentrations are designed to sample air with for pollutants expected to be typical of the local urban area emissions and not likely influenced by emissions from the landfill.

Collect 1 upwind grab SUMMA sample and a short-term aldehyde sample with winds from the north (N) in an area where no odors consistent with the landfill are detected.

If at all possible, within an hour that an upwind sample is collected when winds are from The northwest, staff will collect 1 grab SUMMA sample and a short-term aldehyde sample near the downwind perimeter of the landfill and 1 grab SUMMA sample and a short-term aldehyde sample from a downwind residential area. If odors consistent with the landfill are detected, downwind site selection should focus on areas with the strongest odors.

If at all possible, within an hour that an upwind sample is collected when winds are from the north, staff will collect 1 grab SUMMA sample and a short-term aldehyde sample near the downwind perimeter of the landfill and 1 grab SUMMA sample and a short-term aldehyde sample from a downwind residential area. If odors consistent with the landfill are detected, downwind site selection should focus on areas with the strongest odors.

4-hour timed samples will also be collected, with two samples being collected downwind Near the perimeter of the landfill and two 4-hour timed samples being collected in nearby residential areas. The 4-hour samples may be used to assess relative concentration gradients from the landfill emission sources to residential areas. These sampling locations may or may not be located radially from each other depending on the availability of sampling locations determined in the field.

TARGET ANALYTES:

Parameters to be collected by AQMS staff and sent off for analysis to the contract laboratory are listed in Table 1, along with the method of analysis.

SAMPLING EQUIPMENT SITING:

Sampling equipment will be located 1-3 meters above the ground. Staff should park their vehicles downwind of the sampling locations and ensure that their vehicles are not idling in the immediate vicinity of the samples while they are being collected.

QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES:

A chain-of-custody record will be prepared for each canister sample. The SUMMA canister sampling will be conducted according to the Environmental Services Program's *Quality Control Manual for Ambient Air Monitoring, Quality Control Procedures for Canister Sampling*.

The analytical laboratory that performs the analysis of the canister samples is responsible for following its quality assurance/quality control procedures for TO-15 analysis; The QA/QC documentation provided by the contract laboratory will be reviewed by CAS staff before official results are issued.

DOCUMENTATION AND RECORDS TO BE KEPT DURING STUDY:

AQMS and other DNR staff will keep a log for noting site activities related to monitoring. The field log shall include information such as site drawings, monitoring notes, and any notes about deviations from the monitoring plan or QAPP and observations about sample collection. All necessary records related to canister sampling and handling and GPS data collection will be kept, including chain-of custody forms for each sample.

DATA ANALYSIS PROCEDURES:

SUMMA Canisters will be analyzed by a contract lab using the TO-15 method. Aldehyde samples will be analyzed by a contract lab using the TO-11 method.

DATA FORMAT:

Analytical and any necessary meteorological data from the laboratory will be reported to the SWMP in accordance with ESP AQMS policies or SOPs. Whenever possible, results will be included in the form of a tabular text result sheet and in an electronic spreadsheet format. Analytical values will be reported in ppbv, unless the analytical method specifies an alternate format.

DATA REVIEW AND VALIDATION:

The QA/QC documentation provided by the laboratory that analyzes the samples collected by AQMS staff and the landfill's contract laboratory will be reviewed by AQMS/CAS staff for factual errors, completeness, and consistency. AQMS or CAS staff will contact the contract laboratory for corrections, if necessary. Review of the laboratory's analysis report, matrix spike and matrix spike duplicate report, method blank analysis report, calibration and calibration checks report, laboratory control sample report, and a report indicating any abnormalities associated with the sample analyses will be conducted by CAS staff. If any problems are identified, AQMS or CAS staff will contact the contract laboratory to determine appropriate

corrective actions.

PROJECT REPORT CONTENTS:

AQMS staff shall assist with preparation of a sampling trip report detailing observations of the sample collection event. The contents of the project report will show the sampling locations, monitoring methodology, meteorological data. The concentrations of the parameters detected in the samples will be contained in this report, but probably transmitted before the report is completed. The report will be completed as soon as possible after receipt of all analytical laboratory results.

PROJECT REPORT RECIPIENTS:

Chris Nagel will be the recipient of the results and a report about the sampling trip.

FUTURE ACTIONS: ESP, SWMP, HWP and/or APCP staff will review the data and final report. DHSS staff are expected to compare chemical compound concentrations to health-based screening levels.

TABLE 1

Summa Cannister Sampling—Method Modified TO-15-LL

CAS Number Compound Rpt. Limit (ppbv)

75-71-8 Freon 12	0.10
76-14-2 Freon 114	0.10
74-87-3 Chloromethane	0.10
75-01-4 Vinyl Chloride	0.10
106-99-0 1,3-Butadiene	0.10
74-83-9 Bromomethane	0.50
75-00-3 Chloroethane	0.50
75-69-4 Freon 11	0.10
64-17-5 Ethanol	0.50
76-13-1 Freon 113	0.10
75-35-4 1,1-Dichloroethene	0.10
67-64-1 Acetone	0.50
67-63-0 2-Propanol	0.50
75-15-0 Carbon Disulfide	0.50
107-05-1 3-Chloropropene	0.50
75-09-2 Methylene Chloride	0.20
1634-04-4 Methyl tert-butyl ether	0.10
156-60-5 trans-1,2-Dichloroethene	0.10
110-54-3 Hexane	0.10
75-34-3 1,1-Dichloroethane	0.10

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78-93-3 2-Butanone (Methyl Ethyl Ketone) 0.50
156-59-2 cis-1,2-Dichloroethene 0.10
109-99-9 Tetrahydrofuran 0.50
67-66-3 Chloroform 0.10
71-55-6 1,1,1-Trichloroethane 0.10
110-82-7 Cyclohexane 0.10
56-23-5 Carbon Tetrachloride 0.10
540-84-1 2,2,4-Trimethylpentane 0.50
71-43-2 Benzene 0.10
107-06-2 1,2-Dichloroethane 0.10
142-82-5 Heptane 0.10
79-01-6 Trichloroethene 0.10
78-87-5 1,2-Dichloropropane 0.10
123-91-1 1,4-Dioxane 0.10
75-27-4 Bromodichloromethane 0.10
10061-01-5 cis-1,3-Dichloropropene 0.10
108-10-1 4-Methyl-2-pentanone 0.10
108-88-3 Toluene 0.10
10061-02-6 trans-1,3-Dichloropropene 0.10
79-00-5 1,1,2-Trichloroethane 0.10
127-18-4 Tetrachloroethene 0.10
591-78-6 2-Hexanone 0.50
124-48-1 Dibromochloromethane 0.10
106-93-4 1,2-Dibromoethane (EDB) 0.10
108-90-7 Chlorobenzene 0.10
100-41-4 Ethyl Benzene 0.10
108-38-3 m,p-Xylene 0.10
95-47-6 o-Xylene 0.10
100-42-5 Styrene 0.10
75-25-2 Bromoform 0.10
98-82-8 Cumene 0.10
79-34-5 1,1,2,2-Tetrachloroethane 0.10
103-65-1 Propylbenzene 0.10
622-96-8 4-Ethyltoluene 0.10
108-67-8 1,3,5-Trimethylbenzene 0.10
95-63-6 1,2,4-Trimethylbenzene 0.10
541-73-1 1,3-Dichlorobenzene 0.10
106-46-7 1,4-Dichlorobenzene 0.10
100-44-7 alpha-Chlorotoluene 0.10
95-50-1 1,2-Dichlorobenzene 0.10
120-82-1 1,2,4-Trichlorobenzene 0.50
87-68-3 Hexachlorobutadiene 0.50

CAS Number Surrogate Method Limits

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17060-07-0 1,2-Dichloroethane-d4 70-130
2037-26-5 Toluene-d8 70-130
460-00-4 4-Bromofluorobenzene 70-130

Aldehyde Sampling – Method : Modified TO-11A

CAS Number Compound Rpt. Limit (ug)

50-00-0 Formaldehyde 0.050
75-07-0 Acetaldehyde 0.10
123-38-6 Propanal 0.25
67-64-1 Acetone 0.25
123-73-9 Crotonaldehyde 0.25
9999-9999-007 Methyl Ethyl Ketone/Butyraldehydes 0.25
100-52-7 Benzaldehyde 0.25
590-86-3 Isopentanal 0.25
110-62-3 Pentanal 0.25
529-20-4 o-Tolualdehyde 0.25
620-23-51 m,p-Tolualdehyde 0.25
66-25-1 Hexanal 0.25

