

**Countywide Recycling & Disposal Facility
Ambient Air Monitoring
Monthly Report #23
April 20, 2009**

**To Fulfill the Requirements Set Forth in Order 5.A. of the Ohio EPA
Director's Findings and Orders Dated March 28, 2007**

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**Countywide Recycling & Disposal Facility
Ambient Air Monitoring
Monthly Report #23
April 20, 2009
Monitoring Events #107 through #111; and
Supplemental Isolation Break Monitoring Events #7 and #8**

1.0 INTRODUCTION

1.1 Current Activities

As described in Section 1.2 below, beginning on Monday May 21, 2007 ambient air sampling is being conducted every six days as mandated by Order 5.A. of the Ohio EPA Director's Findings and Orders dated March 28, 2007. This report covers the analytical results from the following Community Monitoring Events.

Event #107: Saturday February 21 to Sunday February 22

Event #108: Friday February 27 to Saturday February 28

Event #109: Thursday March 5 to Friday March 6

Event #110: Wednesday March 11 to Thursday March 12

Event #111: Tuesday March 17 to Wednesday March 18

Coincident with excavation of the Isolation Break to separate the reaction areas from the rest of the landfill, supplemental monitoring for VOCs is being conducted in the period between the regularly scheduled every sixth-day community monitoring events. Although the samples are collected at the same community locations, the supplemental samples are collected for a period of 8-hours rather than 24-hours which coincides with the monitoring being conducted on-site during the work day when active excavation is occurring. Analytical results the following Supplemental Isolation Break Monitoring Events are included in this Monthly Report #22.

Isolation Break Monitoring Event #7: Wednesday February 25

Isolation Break Monitoring Event #8: Tuesday March 3

Previous Monthly Reports describe modifications that have been made to the sampling apparatus and sampling protocol to minimize/eliminate sources of variability. We previously indicated that the type of tubing used in the manifold to collect samples for aldehydes and for hydrogen fluoride and hydrogen chloride was switched from Tygon® to Teflon®. However, given the possibility that the Teflon® tubing may be a source of fluoride ion, all manifold tubing was replaced with Tygon®. No other significant modifications have been made to the system during the time period reflected in this Monthly Report.

1.2 Background

As specified by the Ohio EPA in Bryan Zima's March 28, 2007 letter to Jason Perdion of Baker & Hostetler, air samples were analyzed for the following groups of compounds:

- Volatile Organic Compounds (VOCs): EPA Method TO-15 modified with Tentatively Identified Compounds (TICs)
- Sulfur Compounds: EPA Method TO-15 modified
- Aldehydes and Ketones: EPA Method TO-11A
- Hydrogen Fluoride and Hydrogen Chloride: NIOSH Method 7903

EPA Method TO-15 Modified analyses were performed by Test America Laboratories, Inc. 5815 Middlebrook Pike, Knoxville, TN 37921. EPA Method TO-11A and NIOSH Method 7903 were performed by Integrated Analytical Laboratory (IAL), Randolph, NJ. Certification numbers: ELAP-11402; NJDEP-14751; AIHA-100201.

In order to identify conditions that may be of concern, results from the community monitoring are compared to conservative risk-based concentrations for chemicals in air in non-occupational settings. The most conservative (lowest) comparison is to USEPA Region 9 Preliminary Remediation Goals (PRGs), followed by the Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs). The differences between these screening levels are briefly discussed below.

The USEPA Region 9 PRG is the concentration of a chemical in the ambient air that is estimated to be without significant risk to a person who would breathe that level of chemical continuously over many decades. The Region 9 PRGs are derived using conservative mathematical formulas and do not represent the level of a chemical in the air (or other environmental media) where health effects are likely to occur. Region 9 PRGs are generally accepted as conservative screening values, such that if the concentration of a chemical in the air is less than the corresponding PRG, most public health officials and regulators are confident that there is no risk to human health. On the other hand, an analytical result that exceeds the corresponding PRG does not mean that there is an unacceptable risk to public health. The chemicals that were detected in these Monitoring Events are commonly found at low levels in ambient air. For some compounds such as benzene, the mathematically-derived Region 9 PRG of 0.25 ug/m³ is lower than the average background concentration of 1.96 ug/m³ in ambient air in Ohio (Ohio EPA, *Portsmouth Ohio Air Quality Study 2003*). Consequently, finding certain chemicals in ambient air at levels above PRGs that are very close to analytical detection limits is not uncommon and may simply reflect fluctuations in background sources.

Analytical results for VOCs are also compared to the ATSDR Acute and Chronic Minimum Risk Levels (MRLs) where available. A MRL is an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse non-cancer health effects over a specified duration of exposure. PRGs and MRLs are useful screening levels that assist risk assessors in identifying those chemicals

that may pose a health concern. Neither PRGs nor MRLs represent levels of exposure that have been documented to cause actual health effects.

It should be noted that not all of the compounds found in the air samples have corresponding PRGs or MRLs.

Chemicals that were detected below PRGs or MRLs will not be discussed unless those particular results help to explain other findings.

Ambient environmental/climate conditions are discussed in Section 2.0. Results of the monitoring are discussed in Section 3.0 and summarized in Section 4.0 of this report. Analytical results from the laboratory are provided in the Appendices.

2.0 AMBIENT CONDITIONS

The descriptions of ambient conditions are taken from the Daily Odor Monitoring Summary compiled by Countywide's consultant, Diversified Engineering.

Event #107: Saturday February 21 to Sunday February 22

February 21: Average temperature in degrees F: 28, Max. 46, Min. 10.

Winds were 1 mph with max gusts of 23 mph out of the WSW.

Average relative humidity 74% with 0.20 inches of precipitation recorded.

Complaints: There were no odor complaints during this time.

February 22: Average temperature in degrees F: 24, Max. 28, Min. 21

Winds were 9 mph with max gusts of 24 mph out of the NW.

Average relative humidity 75% with 0.01 inches of precipitation recorded.

Complaints: There were no odor complaints during this time.

Event #108: Friday February 27 to Saturday February 28

February 27: Average temperature in degrees F: 42, Max. 57, Min. 26.

Winds were 11 mph with max gusts of 30 mph out of the WNW.

Average relative humidity 78% with 0.57 inches of precipitation recorded.

Complaints: Complaints occurred at 11:27am from 3232 Downing Street SW in East Sparta and at 5:08pm from 2708 Briggles Avenue SW in East Sparta. Flare maintenance was a potentially odor-causing activity noted on the Daily Odor Monitoring Summary.

February 28: Average temperature in degrees F: 24, Max. 30, Min. 19.

Winds were 9 mph with max gusts of 20 mph out of the NE.

Average relative humidity 67% with no precipitation recorded.

Complaints: A complaint occurred at 8:57am from Dueber Avenue between Gracemont Street and Ullet Street in East Sparta. There were no potentially odor-causing activities noted on the Daily Odor Monitoring Summary.

Event #109: Thursday March 5 to Friday March 6

March 5: Average temperature in degrees F: 40, Max. 60, Min. 21.

Winds were 5 mph with max gusts of 25 mph out of the S.

Average relative humidity 45% with no precipitation recorded.

Complaints: A complaint occurred at 11:19am from 6948 Berth Avenue in Navarre. Deep trench excavation and waste in bowl were potential odor-causing activities noted on the Daily Odor Monitoring Summary

March 6: Average temperature in degrees F: 62, Max. 68, Min. 55

Winds were 8 mph with max gusts of 26 mph out of WSW.

Average relative humidity 56% with no precipitation recorded.

Complaints: Complaints occurred at 11:04am from 3232 Downing Street SW in East Sparta and at 9:38pm from 8338 Dueber Avenue SW in East Sparta. Deep trench excavation was a potential odor-causing activity noted on the Daily Odor Monitoring Summary.

Event #110: Wednesday March 11 to Thursday March 12

March 11: Average temperature in degrees F: 51, Max. 69, Min. 30.

Winds were 10 mph with max gusts of 32 mph out of the W.

Average relative humidity 53% with 0.02 inches of precipitation recorded.

Complaints: There were no odor complaints during this time.

March 12: Average temperature in degrees F: 30, Max. 33, Min. 26.

Winds were 5 mph with max gusts of 17 mph out of the NNW.

Average relative humidity 57% with no precipitation recorded.

Complaints: There were no odor complaints during this time.

Event #111: Tuesday March 17 to Wednesday March 18

March 17: Average temperature in degrees F: 48, Max. 66, Min. 30.

Winds were 1 mph with a max speed of 8 mph out of the S.

Average relative humidity 53% with no precipitation recorded.

Complaints: Complaints occurred at 10:39am from 3232 Downing Street SW in East Sparta; at 2:37pm and 7:17pm from 2940 Haut Street SW in East Sparta; and at 3:07pm from 8200 Dueber Avenue SW in East Sparta. Deep trench excavation was a potential odor-causing activity noted on the Daily Odor Monitoring Summary.

March 18: Average temperature in degrees F: 57, Max. 73, Min. 41

Winds were 4 mph with max gusts of 25 mph out of the WSW.

Average relative humidity 55% with 0.07 inches of precipitation recorded.

Complaints: There were no odor complaints during this time.

Supplemental Isolation Break Monitoring Event #7:

Wednesday February 25: Average temperature in degrees F: 36, Max. 53, Min. 19.

Winds were 4 mph with max gusts of 17 mph out of the SE.

Average relative humidity 50% with no precipitation recorded.

Supplemental Isolation Break Monitoring Event #8:

Tuesday March 3: Average temperature in degrees F: 17, Max. 26, Min. 8.

Winds were 5 mph with a max speed of 10 mph out of the N.

Average relative humidity 61% with no precipitation recorded.

3.0 ANALYTICAL RESULTS

The laboratory analyzed the air samples for a large number of chemicals. Only those results that exceeded Region 9 PRGs and/or ATSDR MRLs will be discussed in the body of this report (see Section 1.0). Other compounds may have been detected in a sample, but were quantified at concentrations below the respective PRG. Analytical results from the laboratory are provided in the Appendices.

Prevailing wind direction for the monitoring station relative to the landfill is designated as:

- C: Crosswind
- D: Downwind
- U: Upwind
- V: Variable

Wind direction is indicated for the first and second days of the regularly scheduled monitoring event separated by /. Wind direction for the Supplemental Isolation Break Monitoring Events pertains to the single day on which the sampling was conducted.

3.1 Volatile Organic Compounds

Compounds detected by Method TO-15 modified (TO-15M) are summarized in Tables 1 through 6. TO-15M analyzes air samples collected in a summa canister for the presence of an extensive list of volatile organic compounds. In addition to a "standard analyte" list, we have requested that the laboratory tentatively identify and estimate the concentration of numerous compounds that are not on the "standard" list. These Tentatively Identified Compounds (TICs) include some compounds for which there are other specific analytical methods, such as acetaldehyde which is a target analyte for EPA Method TO-11A (TO-11A). All of the TO-15M analyses presented in this monthly report were performed by Test America. Laboratory data reports are provided in the Appendices. The QA/QC packages from Test America are not included in the Appendices because of their large size but can be made available upon request.

Only VOCs that were detected at concentrations exceeding the respective Region 9 PRG (most conservative screening level) in one or more samples during a monitoring event are presented in the summary tables that follow. The results from the analytical laboratory can be found in the Appendix noted.

Event #107 Saturday February 21 to Sunday February 22

Analytical results are summarized in Table 1 and provided in Appendix A.

**Event #107: VOCs Detected Above PRGs
Concentrations in ug/m³**

Compound	Acute MRL	Chronic MRL	PRG	School	Cell Tower	Cell Tower Co-located	Camp Ground	Wetland
Relative Wind Direction				U/C	U/C		D/C	C/D
Benzene	29	10	0.25	0.63	0.61J	0.57J	0.62	NS
Carbon tetrachloride	188	188	0.13	0.42J	0.42J	0.45J	0.42J	NS

NS=Not Sampled (Wetland location was flooded)

ND= Not Detected

Bold indicates result exceeded Region 9 PRG

Shading indicates result exceeded ATSDR Minimum Risk Level (MRL)

Laboratory Data Qualifiers

B = Compound was detected in the blank

J = Estimated concentration below laboratory reporting limit

Event #108: Friday February 27 to Saturday February 28

Analytical results are summarized in Table 2 and provided in Appendix B.

Event #108: VOCs Detected Above PRGs

Concentrations in ug/m³

Compound	Acute MRL	Chronic MRL	PRG	School	School Co-loc	Cell Tower	Camp ground	Wetland
Relative Wind Direction				C/D		C/D	C/U	D/C
Benzene	29	10	0.25	1.1	0.53J	NS	0.78J	0.48J
Carbon tetrachloride	188	188	0.13	0.42J	0.42J	NS	0.56J	0.41J

ND= Not detected

NS= Not Sampled (solenoid failed to open valve on Summa canister)

Bold indicates result exceeded Region 9 PRG

Shading indicates result exceeded ATSDR Minimum Risk Level (MRL)

Laboratory Data Qualifiers:

B = Compound was detected in the blank

J = Estimated concentration below laboratory reporting limit

Event #109: Thursday March 5 to Friday March 6

Analytical results are summarized in Table 3 and provided in Appendix C.

Event #109: VOCs Detected Above PRGs

Concentrations in ug/m³

Compound	Acute MRL	Chronic MRL	PRG	School	Cell Tower	Camp ground	Camp Ground Co-loc	Wetland
Relative Wind Direction				U/U	U/U	D/D		C/C
Benzene	29	10	0.25	2.7	0.59J	0.67	0.89	0.61J
Carbon tetrachloride	188	188	0.13	0.61J	0.63J	0.66J	0.65J	0.90J

ND= Not Detected

Ns= Not Sampled

Bold indicates result exceeded Region 9 PRG

Shading indicates result exceeded ATSDR Minimum Risk Level (MRL)

Laboratory Data Qualifiers:

B = Compound was detected in the blank

J = Estimated concentration below laboratory reporting limit

Event #110: Wednesday March 11 to Thursday March 12

Analytical results are summarized in Table 4 and provided in Appendix D.

**Event #110: VOCs Detected Above PRGs
Concentrations in ug/m³**

Compound	Acute MRL	Chronic MRL	PRG	School	Cell Tower	Cell Tower Co-loc	Camp ground	Wetland
Relative Wind Direction				C/C		C/C		D/D
Benzene	29	10	0.25	0.60J	0.52J	0.55J	0.58J	NS
Carbon tetrachloride	188	188	0.13	0.65J	0.67J	0.69J	0.76J	NS

NS=Not sampled (Wetland location was flooded)

ND= Not Detected

Bold indicates result exceeded Region 9 PRG

Shading indicates result exceeded ATSDR Minimum Risk Level (MRL)

Laboratory Data Qualifiers:

B = Compound was detected in the blank

J = Estimated concentration below laboratory reporting limit

Event #111: Tuesday March 17 to Wednesday March 18

Analytical results are summarized in Table 5 and provided in Appendix E.

**Event #111: VOCs Detected Above PRGs
Concentrations in ug/m³**

Compound	Acute MRL	Chronic MRL	PRG	School	Cell Tower	Camp ground	Wetland	Wetland Co-loc
Relative Wind Direction				U/U	U/U	D/D		C/C
Benzene	29	10	0.25	0.94	0.65	1.4	0.67	0.21J
Carbon tetrachloride	188	188	0.13	0.66J	0.78J	0.73J	0.56J	0.36J

NS=Not Sampled

ND= Not Detected

Bold indicates result exceeded Region 9 PRG

Shading indicates result exceeded ATSDR Minimum Risk Level (MRL)

Laboratory Data Qualifiers:

B = Compound was detected in the blank

J = Estimated concentration below laboratory reporting limit

Note: Consistent with the approved work plan for the supplemental isolation break monitoring, samples were analyzed only for BTEX compounds beginning in mid-January 2009.

Supplemental Isolation Break Monitoring Event #7: 8-hour Sample, Wednesday February 25, 2009

Analytical results are summarized in Table 6 and provided in Appendix F.

**Isolation Break #7: VOCs Detected Above PRGs
Concentrations in ug/m³**

Compound	Acute MRL	Chronic MRL	PRG	School	Cell Tower	Camp ground	Wetland
Relative Wind Direction				C	C	C	U
Benzene	29	10	0.25	0.85	0.87	0.84	0.76

ND= Not Detected

Bold indicates result exceeded Region 9 PRG

Shading indicates result exceeded ATSDR Minimum Risk Level (MRL)

Laboratory Data Qualifiers:

B = Compound was detected in the blank

J = Estimated concentration below laboratory reporting limit

Supplemental Isolation Break Monitoring Event #8: 8-hour Sample, Tuesday March 3, 2009

Analytical results are summarized in Table 7 and provided in Appendix G.

**Isolation Break #8: VOCs Detected Above PRGs
Concentrations in ug/m³**

Compound	Acute MRL	Chronic MRL	PRG	School	Cell Tower	Camp ground	Wetland
Relative Wind Direction				D	D	U	C
Benzene	29	10	0.25	0.69	0.65	0.62	0.66

ND= Not Detected

Bold indicates result exceeded Region 9 PRG

Shading indicates result exceeded ATSDR Minimum Risk Level (MRL)

Laboratory Data Qualifiers:

B = Compound was detected in the blank

J = Estimated concentration below laboratory reporting limit

3.2 Sulfur Compounds

Carbon disulfide was the only sulfur compound detected during the seven rounds of sampling reviewed in this report for which Method TO-15M was performed. All detections were extremely low concentrations and are included on the TO-15M Summary Tables.

3.3 Aldehydes and Ketones

In order to obtain a continuous 24 hours of data, three separate gel collection tubes were sequentially exposed to ambient air for a period of approximately 8-hours each.

Consequently there are three separate sample results for each location for each monitoring event. Analysis for aldehydes and ketones by TO-11A was performed by Integrated Analytical Laboratories.

Although Method TO-11A analyzes for several different carbonyl compounds, formaldehyde and acetaldehyde are the most frequently detected and pose the greatest potential concern from a public health standpoint. In addition to formaldehyde and acetaldehyde, the following compounds were also occasionally detected in the samples summarized in this Monthly Report #23: benzaldehyde, propionaldehyde and butyraldehyde. The results for these compounds are included on the laboratory reporting sheets found in the Appendices. Only results for formaldehyde and acetaldehyde are summarized in the tables below.

Note: As indicated previously, all tubing in the sampling apparatus manifolds is now Tygon®.

Event #107 Saturday February 21 to Sunday February 22

The laboratory report is in Appendix A.

**Event #107: Aldehydes
Concentrations in ug/m³**

Aldehyde	Acute MRL ¹	Chronic MRL ¹	PRG	School			Cell Tower			Campground			Wetland		
				1	2	3	1	2	3	1	2	3	1	2	3
Prevailing Wind Direction with respect to Landfill				U/C			U/C			D/C			C/D		
Formaldehyde	50	10	0.15	11	2.1	3.1	4.3	1.9	2.4	2.9	1.5	1.7	NS	NS	NS
Acetaldehyde	NA	NA	0.87	10	2.1	3.1	4.2	2.1	3.1	6.8	2.4	3.3	NS	NS	NS

1. ATSDR Minimal Risk Levels (MRL) (ATSDR Toxicological Profile for Formaldehyde, July 1999)

Acute MRL 0.04 ppm = 50 ug/m³; Chronic MRL 0.008 ppm=10 ug/m³

NA= Not available

NS= Not Sampled (Wetland location was flooded)

ND= Not Detected

Event #108: Friday February 27 to Saturday February 28

The laboratory report is in Appendix B.

**Event #108: Aldehydes
Concentrations in ug/m³**

Aldehyde	Acute MRL ¹	Chronic MRL ¹	PRG	School			Cell Tower			Campground			Wetland		
				1	2	3	1	2	3	1	2	3	1	2	3
Prevailing Wind Direction with respect to Landfill				C/D			C/D			C/U			D/C		
Formaldehyde	50	10	0.15	5.9	1.5	2.4	3.5	1.8	2.2	2.1	1.0	1.6	1.9	1.1	1.8
Acetaldehyde	NA	NA	0.87	4.0	1.0	2.0	2.7	1.2	2.4	3.0	1.3	3.0	1.1	0.7	1.2

1. ATSDR Minimal Risk Levels (MRL) (ATSDR Toxicological Profile for Formaldehyde, July 1999)

Acute MRL 0.04 ppm = 50 ug/m³; Chronic MRL 0.008 ppm=10 ug/m³

NA= Not available
 ND= Not Detected
 NR= No result available
 NS= Not Sampled

Event #109: Thursday March 5 to Friday March 6

The laboratory report is in Appendix C.

**Event #109: Aldehydes
 Concentrations in ug/m³**

Aldehyde	Acute MRL ¹	Chronic MRL ¹	PRG	School			Cell Tower			Campground			Wetland		
				1	2	3	1	2	3	1	2	3	1	2	3
Prevailing Wind Direction with respect to Landfill				U/U			U/U			D/D			C/C		
Formaldehyde	50	10	0.15	17	8.3	12	9.8	7.5	9.6	6.3	4.6	5.0	10	7.6	13
Acetaldehyde	NA	NA	0.87	13	4.8	9.4	12	6.9	13	13	6.6	11	7.7	4.8	8.3

1. ATSDR Minimal Risk Levels (MRL) (ATSDR Toxicological Profile for Formaldehyde, July 1999)

Acute MRL 0.04 ppm = 50 ug/m³; Chronic MRL 0.008 ppm=10 ug/m³

NA: Not Available

ND: Not Detected

NR: No result available

Event #110: Wednesday March 11 to Thursday March 12

The laboratory report is in Appendix D.

**Event #110: Aldehydes
 Concentrations in ug/m³**

Aldehyde	Acute MRL ¹	Chronic MRL ¹	PRG	School			Cell Tower			Campground			Wetland		
				1	2	3	1	2	3	1*	2	3	1	2	3
Prevailing Wind Direction with respect to Landfill				C/C			C/C			C/C			D/D		
Formaldehyde	50	10	0.15	6.1	1.7	2.0	3.3	1.8	1.9	3.4	1.6	1.9	NS	NS	NS
Acetaldehyde	NA	NA	0.87	7.2	2.0	2.7	5.3	2.6	3.3	7.5	2.5	3.4	NS	NS	NS

*Denotes breakthrough from the front to the back of the sorbent tube for formaldehyde.

1. ATSDR Minimal Risk Levels (MRL) (ATSDR Toxicological Profile for Formaldehyde, July 1999)

Acute MRL 0.04 ppm = 50 ug/m³; Chronic MRL 0.008 ppm=10 ug/m³

NA= Not Available

ND= Not Detected

NS= Not Sampled (Wetland location was flooded)

NR= No result available

Event #111: Tuesday March 17 to Wednesday March 18

Analytical results are provided in Appendix E.

**Event #111: Aldehydes
Concentrations in ug/m³**

Aldehyde	Acute MRL ¹	Chronic MRL ¹	PRG	School			Cell Tower			Campground			Wetland		
Prevailing Wind Direction with respect to Landfill				U/U			U/U			D/D			C/C		
				1	2**	3	1	2	3	1*	2*	3*	1	2	3
Formaldehyde	50	10	0.15	23	4.4	9.4	11	5.8	9.5	0.58	0.51	0.73	15	3.2	16
Acetaldehyde	NA	NA	0.87	43	7.1	20	29	10	21	0.89	0.48	0.60	16	3.8	17

*Values for the campground location are estimations because the pump did not run consistently over the sampling period.

**Denotes breakthrough from front to back of tube for acetaldehyde.

1. ATSDR Minimal Risk Levels (MRL) (ATSDR Toxicological Profile for Formaldehyde, July 1999)

Acute MRL 0.04 ppm = 50 ug/m³; Chronic MRL 0.008 ppm=10 ug/m³

NA= Not Available

ND= Not Detected

NS= Not Sampled

NR= No result available

3.4 Hydrogen Chloride and Hydrogen Fluoride

As with the aldehyde and ketone samples, three separate gel collection tubes were sequentially exposed to ambient air for a period of approximately 8-hours each. Consequently, there are three separate sample results for each location for each monitoring event. The concentrations of HF and HCl in the air are quantified based on the mass of fluoride and chloride ion captured on the gel inside the tubes and the volume of air that was passed through the tube. See the Note in Section 3.3 above regarding changes in the type of tubing on the manifold for collecting aldehyde and HF/HCl samples.

Neither HF nor HCl was detected in any of the samples collected from mid-February through mid-March, 2009. The laboratory analytical results for HF and HCl are included in Appendices A through E of this Report #23.

4.0 SUMMARY

4.1 Volatile Organic Compounds

Benzene and carbon tetrachloride were present in all samples from the regularly scheduled every-six-day community monitoring events. No other VOCs were reported to be present at concentrations above the respective Region 9 PRGs.

The benzene concentrations reported from the two 8-hour Isolation Break sampling events conducted during the time period covered by this Monthly Report were comparable to the concentrations reported from the regularly scheduled 24-hour community samples.

All of the reported benzene concentrations were within the range of background levels reported in the literature and by other investigators. As mentioned in previous Monthly Reports, there are numerous local and area sources of benzene and related compounds, including lawn mowing, emissions from the heavy equipment working on the nearby expansion area of the landfill, motor vehicles near the monitoring equipment, the Marathon refinery on the south side of Canton, and the landfill. The sources of carbon tetrachloride are not known, but the consistently low concentrations of this environmentally persistent compound across all monitoring locations indicate that like the benzene, it is not related to the landfill.

Note: For all of the compounds that were measured at concentrations (or estimated concentrations as designated by a "J" qualifier) above the Region 9 PRGs, the PRG value is either very near or in some cases below the reporting limit for the analytical laboratory. Consequently almost any quantifiable detection of the chemical will exceed the highly conservative Region 9 PRG. The ATSDR MRLs provide a more realistic basis of comparison since all of the MRLs are above the range of laboratory reporting limits for those compounds that have MRLs.

4.2 Aldehydes (Carbonyl Compounds)

Formaldehyde and acetaldehyde (less frequently) were detected at all sampling locations. The Region 9 PRGs for formaldehyde (0.15 ug/m^3) and acetaldehyde (0.87 ug/m^3) are very close to the laboratory reporting limits for these chemicals. Consequently, almost any measurable levels of formaldehyde and acetaldehyde will exceed the respective Region 9 PRG. The ATSDR Acute (50 ug/m^3) and Chronic (10 ug/m^3) MRLs are more relevant guidelines for interpreting the analytical results.

The ATSDR acute MRL for formaldehyde was not exceeded in any of the individual samples. The chronic MRL for formaldehyde was exceeded in one or more individual sorbent tubes during events #109 and #111. The 24-hour average concentration of formaldehyde was slightly above the ATSDR chronic MRL at the school and wetland locations during events #109 and #111. Neither of these locations were downwind of the landfill during the time periods when concentrations of formaldehyde exceeding the ATSDR chronic MRL were recorded.

Although this is not always the case, the first and third sorbent tubes (regardless of location) frequently capture the highest concentrations of aldehydes. It is very likely that the first and third tubes are drawing samples during the evening and morning rush hours respectively. The samplers are programmed to turn on at 3:00 PM. Thus the first 8-hour sorbent tube collects air from 3:00 PM to 11:00 PM; the second tube collects air from 11:00 PM to 7:00 AM; and the third tube collects air from 7:00 AM until 3:00 PM.

To address concerns that the landfill may be a significant source of aldehydes, 24-hour samples were collected on February 05/06, 2009 from the five permanent "Stage C" monitoring locations on the perimeter of the landfill (Attachment 1). In the table below, the daily average formaldehyde concentrations at the five "Stage C" monitoring locations

on February 05/06 are compared to the daily averages from the community monitoring events that immediately preceded (Feb 03/04) and followed (Feb 09/10) the sampling conducted around the landfill perimeter. The monthly averages for the monitoring events included in this Report #23 are also presented in the far right column.

Sample Date	Community sample Feb 3	Stage "C" Sample Feb 5	Community Sample Feb 9	*Feb-Mar average
Formaldehyde concentrations in ug/m ³				
School	3.5		9.0	7.3
Cell Tower	3.3		6.6	5.1
Campground	2.4		4.0	2.8
Wetland	6.5		NS	7.7
Stage C #1		9.6		
Stage C #2		5.7		
Stage C #3		5.9		
Stage C #4		4.0		
Stage C #5 (portable)		4.5		

*Average Formaldehyde concentration (ug/m³) for community sampling events #107 -#111

As can be seen from the aerial photo, Stage C monitor 1 is located along the southwest side of the landfill near a staging area for trucks and other equipment engaged in the remediation efforts. The range of daily average concentrations of formaldehyde on the landfill overlaps the range of concentrations found in the community within the same week. Thus it is most likely that the concentrations of aldehydes detected in ambient air on the landfill itself are indicative of regional background and do not originate from the landfill.

4.3 Hydrogen Fluoride and Hydrogen Chloride

Hydrogen fluoride and hydrogen chloride were not detected during the monitoring events covered by this Monthly Report #23.

Note: It should be recognized that NIOSH Method 7903 for inorganic acids was designed for industrial-not ambient environmental applications. The methodology appears to be sensitive to changes in ambient conditions, particularly moisture. HF and HCl were either not present or were only detected at very low levels in the majority of samples that have been collected since the initiation of this monitoring program in May 2007. Even those results that appear to be outside of the "typical range" for this program are extremely low concentrations that do not present a risk to public health.

4.4 Laboratory Issues

No major laboratory issues have been identified as of the date of this report that would alter the conclusions based upon the monitoring results presented here. Results from the co-located (duplicate) TO-15 samples were similar for all locations and events.

4.6 Conclusions

No significant concentrations of any VOC, including benzene, have been reported in the months since alterations were made to the sampling apparatus. This is still the case for the monitoring events presented in this Monthly Report #23. In addition to the 24-hour monitoring events that are conducted on an every-six-day schedule, this report also presents the findings from two supplementary 8-hour BTEX samples collected during excavation activities on February 25 and March 3.

Our specific conclusions are summarized below:

- The levels of benzene recorded at the community monitoring locations during mid-February through mid-March were very low and well within Ohio background as reported by Ohio EPA (Portsmouth Ohio Air Quality Study, 2003).
- The concentrations of benzene detected during the Supplemental Isolation Break 8-hour Monitoring Events on February 25 and March 3 were consistent with the results from the regularly scheduled 24-hour Monitoring Events. These findings demonstrate that the intrusive excavation of the Isolation Break is not having an effect on the concentrations of specific VOCs present in ambient air in the surrounding community. Collection of these supplemental samples will be terminated at the conclusion of excavation activities in mid-April.
- Because there are numerous local and regional sources of VOCs, it is expected that many of these compounds will continue to be detected at low levels as the community monitoring program moves forward.
- Concentrations of formaldehyde and acetaldehyde from mid-February through mid-March were similar to the previous month. Although the 24-hour average concentrations of formaldehyde slightly exceeded the ASTDR chronic MRL on two occasions, the average levels of formaldehyde recorded from all locations from mid-February through mid-March were below the chronic MRL.
- Neither hydrogen fluoride nor hydrogen chloride was detected in the samples collected from mid-February through mid-March. Sampling for hydrogen fluoride and hydrogen chloride should be eliminated.
- There are no clear trends with regard to the specific compounds or the concentrations of those compounds detected with respect to whether the monitoring location was upwind or downwind of the landfill during the monitoring event.
- The results presented in this Monthly Report #23 continue to support our conclusions that the occurrence of low levels of VOCs, aldehydes, and inorganic acids in the air of the community surrounding Countywide reflect local and regional sources; and that the levels of these chemicals in the ambient air do not represent either an immediate or long-term threat to public health.

**Countywide Recycling & Disposal Facility
Ambient Air Monitoring
Monthly Report #23**

April 20, 2009

EPA Method TO-15 SUMMARY TABLES

Table 1. Event #107: Saturday February 21 to Sunday February 22

Table 2. Event #108: Friday February 27 to Saturday February 28

Table 3. Event #109: Thursday March 5 to Friday March 6

Table 4. Event #110: Wednesday March 11 to Thursday March 12

Table 5. Event #111: Tuesday March 17 to Wednesday March 18

Table 6. ISBM Event #7: Wednesday February 25

Table 7. ISBM Event #8: Tuesday March 3

Countywide Recycling & Disposal Facility

EPA Method TO-15 Modified: Volatile Organic Compounds

Table 1: Event #107: February 21/22, 2009

Analyte	*Prevailing Wind Direction	School		Monitoring Location		***Wetland ***No Sample		
		U/C	U/C	Cell Tower	Campground			
		U/C	U/C	Co-Located	D/C			
		All results in ug/m3						
Method TO-15 Modified	Acute MRL	Chronic MRL	PRG					
Acetone	61762	30881	3300	9.6J	6.0	7.6J	11J	NS
Benzene	29	10	0.25	0.63	0.61J	0.57J	0.62	NS
Bromomethane	194	19	5.2	ND	ND	ND	ND	NS
tert-Butyl alcohol	NA	NA	NA	0.14J	ND	0.15J	0.16J	NS
Carbon disulfide	NA	934	730	ND	0.30J	ND	ND	NS
Carbon tetrachloride	188	188	0.13	0.42J	0.42J	0.45J	0.42J	NS
Chlorobenzene	NA	NA	62	ND	ND	ND	ND	NS
Chloroethane	39583	NA	2.3	ND	ND	ND	ND	NS
Chloroform	488	98	0.083	ND	ND	ND	ND	NS
Chloromethane	1033	103	95	1.3	1.1	0.87J	1.0J	NS
Cyclohexane	NA	NA	6200	ND	ND	ND	ND	NS
1,4- Dichlorobenzene	12020	60	0.31	ND	ND	ND	ND	NS
Dichlorodifluoromethane	NA	NA	210	2.3	2.3	2.3	2.3	NS
cis-1,2-Dichloroethene	NA	NA	37	ND	ND	ND	ND	NS
Ethylbenzene	43419	1303	1100	ND	ND	ND	ND	NS
4-Ethyltoluene	NA	NA	NA	ND	ND	ND	ND	NS
Heptane	NA	NA	NA	0.45J	0.28J	0.24J	0.36J	NS
Hexane	NA	2115	210	0.31J	0.27J	0.27J	0.29J	NS
Methyl ethyl ketone	NA	NA	5100	1.5J	0.75J	1.7J	2.1J	NS
Methyl isobutyl ketone	NA	NA	3100	ND	ND	ND	0.95J	NS
Methylene chloride	2084	1042	4.1	0.44J	0.33J	0.48J	0.63J	NS
Styrene	8520	852	1100	ND	ND	ND	ND	NS
Tetrahydrofuran	NA	NA	0.99	ND	ND	ND	ND	NS
Toluene	3768	301	400	0.51J	0.31	0.34J	0.38J	NS
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	0.53J	0.51J	0.52J	0.51J	NS
Trichlorofluoromethane	NA	NA	730	1.1	1.1J	1.1J	1.1J	NS

1,2,4-Trimethylbenzene	NA	NA	6.2	ND	ND	ND	ND	NS
1,3,5-Trimethylbenzene	NA	NA	6.2	ND	ND	ND	ND	NS
2,2,4-Trimethylpentane	NA	NA	NA	ND	ND	ND	ND	NS
Vinyl Chloride	1278	77	0.11	ND	ND	ND	ND	NS
m/p-Xylene	8687	8687	110	ND	ND	ND	ND	NS
o-Xylene	8687	8687	110	ND	ND	ND	ND	NS
Tentatively Identified Compounds								
NONE								
*Prevailing Wind Direction with respect to the landfill								
U: Upwind								
D: Downwind								
C: Crosswind								
V: Variable								
NS = Not sampled due to flooding								
ND = Not Detected								
NA = Not Available								
Y = TIC present								
Bold indicates result exceeds Region 9 PRG								
Shading indicates result exceeds ATSDR MRL								
Laboratory Data Qualifiers:								
B = Compound present in blank								
J = Estimated concentration below laboratory reporting limit								
D = Dilution								
E = Exceeds calibration range of instrument								
TICs: Compound has been tentatively identified but the estimated concentration is highly uncertain.								

Countywide Recycling & Disposal Facility											
EPA Method TO-15 Modified: Volatile Organic Compounds											
Table 2: Event #108: February 27-28, 2009											
Analyte	*Prevailing Wind Direction	Monitoring Location									
		School		***Cell Tower		Campground		Wetland			
		Co-Located		***Solenoid did not open No Sample							
		C/D	C/D	C/U	C/D	C/U	D/C	D/C			
All results in ug/m3											
Method TO-15 Modified	Acute MRL	Chronic MRL	PRG								
Acetone	61762	30881	3300	8.1J	4.8J	NS	NS	7.0J	6.0J		
Benzene	29	10	0.25	1.1	0.53J	NS	NS	0.78J	0.48J		
Bromomethane	194	19	5.2	ND	ND	NS	NS	ND	ND		
tert-Butyl alcohol	NA	NA	NA	0.21J	ND	NS	NS	0.14J	0.19J		
Carbon disulfide	NA	934	730	ND	ND	NS	NS	0.11J	ND		
Carbon tetrachloride	188	188	0.13	0.42J	0.42J	NS	NS	0.56J	0.41J		
Chlorobenzene	NA	NA	62	ND	ND	NS	NS	ND	ND		
Chloroethane	39583	NA	2.3	ND	ND	NS	NS	ND	ND		
Chloroform	488	98	0.083	ND	ND	NS	NS	ND	ND		
Chloromethane	1033	103	95	1.1	1.3	NS	NS	1.4	1.2		
Cyclohexane	NA	NA	6200	0.14J	ND	NS	NS	ND	ND		
Dichlorodifluoromethane	NA	NA	210	2.4	2.4	NS	NS	2.9	2.4		
cis-1,2-Dichloroethene	NA	NA	37	ND	ND	NS	NS	ND	ND		
Ethylbenzene	43419	1303	1100	0.32J	ND	NS	NS	ND	ND		
4-Ethyltoluene	NA	NA	NA	ND	ND	NS	NS	ND	ND		
Heptane	NA	NA	NA	0.55J	ND	NS	NS	0.36J	ND		
Hexane	NA	2115	210	1.1J	0.17J	NS	NS	0.36J	0.18J		
Methyl ethyl ketone	NA	NA	5100	0.85J	0.66J	NS	NS	0.86J	0.89J		
Methyl isobutyl ketone	NA	NA	3100	ND	ND	NS	NS	ND	ND		
Methylene chloride	2084	1042	4.1	3.2B	0.42JB	NS	NS	0.40JB	0.35JB		
Styrene	8520	852	1100	ND	ND	NS	NS	ND	ND		
Tetrahydrofuran	NA	NA	0.99	ND	ND	NS	NS	ND	ND		
Toluene	3768	301	400	2.1	ND	NS	NS	1.1	ND		
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	0.49J	0.52J	NS	NS	0.61J	0.51J		
Trichlorofluoromethane	NA	NA	730	1.4	1.1	NS	NS	1.4	1.1		
1,2,4-Trimethylbenzene	NA	NA	6.2	ND	ND	NS	NS	0.59J	ND		

1,3,5-Trimethylbenzene	NA	NA	6.2	ND	ND	NS	ND	ND
2,2,4-Trimethylpentane	NA	NA	NA	0.49J	ND	NS	ND	ND
Vinyl Chloride	1278	77	0.11	ND	ND	NS	ND	ND
m/p-Xylene	8687	8687	110	0.97	ND	NS	1.1	ND
o-Xylene	8687	8687	110	0.32J	ND	NS	0.46J	ND
Tentatively Identified Compounds								
Propane	NA	NA	NA	Y	Y	NA	N	Y
Butane	NA	NA	NA	Y	N	NA	N	N
Butane,2-methyl-	NA	NA	NA	Y	N	NA	N	N
*Prevailing Wind Direction with respect to the landfill								
U: Upwind								
D: Downwind								
C: Crosswind								
V: Variable								
NS = No Sample								
ND = Not Detected								
NA = Not Available								
Y = TIC present								
Bold indicates result exceeds Region 9 PRG								
Shading indicates result exceeds ATSDR MRL								
Laboratory Data Qualifiers:								
B = Compound present in blank								
J = Estimated concentration below laboratory reporting limit								
D = Dilution								
E = Exceeds calibration range of instrument								
TICs: Compound has been tentatively identified but the estimated concentration is highly uncertain.								

Countywide Recycling & Disposal Facility

EPA Method TO-15 Modified: Volatile Organic Compounds

Table 3: Event #109: March 5/6, 2009

Analyte	*Prevailing Wind Direction		Monitoring Location		All results in ug/m3			
	Acute MRL	Chronic MRL	PRG	School		Cell Tower	Wetland	
				U/U		D/D	C/C	
								Campground
Method TO-15 Modified	Acute MRL	Chronic MRL	PRG					
Acetone	61762	30881	3300	36	8.3J	13	6.9J	14
Benzene	29	10	0.25	2.7	0.67	0.89	0.59J	0.61J
Bromomethane	194	19	5.2	ND	ND	ND	ND	ND
tert-Butyl alcohol	NA	NA	NA	0.42J	0.22J	0.22J	ND	0.39J
Carbon disulfide	NA	934	730	ND	ND	ND	ND	ND
Carbon tetrachloride	188	188	0.13	0.61J	0.66J	0.65J	0.63J	0.90J
Chlorobenzene	NA	NA	62	ND	ND	ND	ND	ND
Chloroethane	39583	NA	2.3	ND	ND	ND	ND	ND
Chloroform	488	98	0.083	ND	ND	ND	0.20J	0.23J
Chloromethane	1033	103	95	1.3	1.5	ND	1.3	1.8
Cyclohexane	NA	NA	6200	1.6J	ND	ND	ND	ND
Dichlorodifluoromethane	NA	NA	210	5.0	2.3	ND	2.3	2.5
cis-1,2-Dichloroethene	NA	NA	37	ND	ND	ND	ND	ND
Ethylbenzene	43419	1303	1100	2.3	ND	ND	0.32J	ND
4-Ethyltoluene	NA	NA	NA	0.46J	ND	ND	ND	ND
Heptane	NA	NA	NA	2.8	0.51J	ND	0.35J	ND
Hexane	NA	2115	210	6.2	0.40J	0.67J	0.33J	0.35J
Methyl ethyl ketone	NA	NA	5100	3.0	1.3J	2.1J	1.1J	2.5
Methyl isobutyl ketone	NA	NA	3100	0.63J	ND	ND	ND	0.26J
Methylene chloride	2084	1042	4.1	1.9	0.58J	1.3J	0.59J	0.51J
Styrene	8520	852	1100	ND	ND	ND	ND	ND
Tetrachloroethene	1378	276	0.32	ND	ND	ND	0.30J	ND
Tetrahydrofuran	NA	NA	0.99	0.94J	ND	0.24J	0.36J	ND
Toluene	3768	301	400	9.4	0.67J	0.93	0.55J	0.63J
1,1,1-Trichloroethane	10800	NA	2300	0.22J	0.19J	0.24J	ND	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	0.59J	0.57J	0.40J	0.61J	0.66J

Trichlorofluoromethane	NA	NA	730	1.6	1.3	1.4	1.2	1.3
1,2,4-Trimethylbenzene	NA	NA	6.2	1.1	ND	ND	0.44J	0.48J
1,3,5-Trimethylbenzene	NA	NA	6.2	ND	ND	ND	ND	ND
2,2,4-Trimethylpentane	NA	NA	NA	1.8	ND	ND	0.24J	ND
Vinyl Chloride	1278	77	0.11	ND	ND	ND	ND	ND
m/p-Xylene	8687	8687	110	6.7	0.54J	0.61J	ND	ND
o-Xylene	8687	8687	110	2.3	ND	ND	ND	ND
Tentatively Identified Compounds								
Propane	NA	NA	NA	Y	Y	N	Y	Y
Butane, 2-methyl-	NA	NA	NA	Y	N	N	N	N
Ethyl alcohol	NA	NA	NA	Y	N	N	N	N
Pentane	NA	NA	NA	Y	N	N	N	N
Butane	NA	NA	NA	Y	N	N	N	N
*Prevailing Wind Direction with respect to the landfill								
U: Upwind								
D: Downwind								
C: Crosswind								
V: Variable								
ND = Not Detected								
NA = Not Available								
Y = TIC present								
Bold indicates result exceeds Region 9 PRG								
Shading indicates result exceeds ATSDR MRL								
Laboratory Data Qualifiers:								
B = Compound present in blank								
J = Estimated concentration below laboratory reporting limit								
D = Dilution								
E = Exceeds calibration range of instrument								
TICs: Compound has been tentatively identified but the estimated concentration is highly uncertain.								

Countywide Recycling & Disposal Facility

EPA Method TO-15 Modified: Volatile Organic Compounds

Table 4: Event #110: March 10/11, 2009

Analyte	*Prevailing Wind Direction		Acute MRL	Chronic MRL	PRG	Monitoring Location			D/D	
	C/C	C/C				School	Cell Tower Co-Located	Campground		***Wetland
	All results in ug/m3									
Method TO-15 Modified										
Acetone	61762	30881	3300	6.4JB	ND	5.5JB	4.1JB	NS	NS	
Benzene	29	10	0.25	0.60J	0.52J	0.55J	0.58J	NS	NS	
Bromomethane	194	19	5.2	ND	ND	ND	ND	NS	NS	
tert-Butyl alcohol	NA	NA	NA	0.17J	ND	0.12 J	0.12J	NS	NS	
Carbon disulfide	NA	934	730	ND	ND	ND	ND	NS	NS	
Carbon tetrachloride	188	188	0.13	0.65J	0.67J	0.69J	0.76J	NS	NS	
Chlorobenzene	NA	NA	62	ND	ND	ND	ND	NS	NS	
Chloroethane	39583	NA	2.3	ND	ND	ND	ND	NS	NS	
Chloroform	488	98	0.083	ND	ND	ND	ND	NS	NS	
Chloromethane	1033	103	95	1.4	1.3	1.8	1.3	NS	NS	
Cyclohexane	NA	NA	6200	ND	ND	ND	ND	NS	NS	
Dichlorodifluoromethane	NA	NA	210	2.6	2.6	2.6	2.6	NS	NS	
cis-1,2-Dichloroethene	NA	NA	37	ND	ND	ND	ND	NS	NS	
Ethylbenzene	43419	1303	1100	ND	ND	ND	ND	NS	NS	
4-Ethyltoluene	NA	NA	NA	ND	ND	ND	ND	NS	NS	
Heptane	NA	NA	NA	0.37J	0.25J	0.29J	0.29J	NS	NS	
Hexane	NA	2115	210	0.33J	0.31J	0.37J	0.25J	NS	NS	
Methyl ethyl ketone	NA	NA	5100	1.2JB	ND	0.88JB	0.66JB	NS	NS	
Methyl isobutyl ketone	NA	NA	3100	ND	ND	ND	ND	NS	NS	
Methylene chloride	2084	1042	4.1	0.50J	0.57J	0.78J	0.46J	NS	NS	
Styrene	8520	852	1100	ND	ND	ND	ND	NS	NS	
Tetrahydrofuran	NA	NA	0.99	ND	ND	ND	ND	NS	NS	
Toluene	3768	301	400	0.51J	0.46J	0.50J	0.36J	NS	NS	
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	0.64J	0.53J	0.60J	0.58J	NS	NS	
Trichlorofluoromethane	NA	NA	730	1.4	1.4	1.5	1.4	NS	NS	
1,2,4-Trimethylbenzene	NA	NA	6.2	ND	ND	ND	ND	NS	NS	

1,3,5-Trimethylbenzene	NA	NA	6.2	ND	ND	ND	ND	ND	NS
2,2,4-Trimethylpentane	NA	NA	NA	ND	ND	ND	ND	ND	NS
Vinyl Chloride	1278	77	0.11	ND	ND	ND	ND	ND	NS
m/p-Xylene	8687	8687	110	ND	ND	ND	ND	ND	NS
o-Xylene	8687	8687	110	ND	ND	ND	ND	ND	NS
Tentatively Identified Compounds									
Propane	NA	NA	NA	Y	Y	Y	Y	Y	NA
*Prevailing Wind Direction with respect to the landfill									
U: Upwind									
D: Downwind									
C: Crosswind									
V: Variable									
NS = No Sample due to flooding									
ND = Not Detected									
NA = Not Available									
Y = TIC present									
Bold indicates result exceeds Region 9 PRG									
Shading indicates result exceeds ATSDR MRL									
Laboratory Data Qualifiers:									
B = Compound present in blank									
J = Estimated concentration below laboratory reporting limit									
D = Dilution									
E = Exceeds calibration range of instrument									
TICs: Compound has been tentatively identified but the estimated concentration is highly uncertain.									

Countywide Recycling & Disposal Facility

EPA Method TO-15 Modified: Volatile Organic Compounds

Table 5: Event #111: March 17/18, 2009

Analyte	*Prevailing Wind Direction	Monitoring Location				C/C
		School	Cell Tower	Campground	Wetland	
		U/U	U/U	D/D		
All results in ug/m3						
Method TO-15 Modified	Acute MRL	Chronic MRL	PRG			
Acetone	61762	30881	3300	27	9.3J	9.1J 21
Benzene	29	10	0.25	0.94	0.65	1.4 0.67 0.21J
Bromomethane	194	19	5.2	ND	ND	ND ND
tert-Butyl alcohol	NA	NA	NA	0.53J	0.15J	0.16J 0.35J
Carbon disulfide	NA	934	730	0.23J	0.28J	0.14J 0.13J
Carbon tetrachloride	188	188	0.13	0.66J	0.78J	0.73J 0.56J 0.36J
Chlorobenzene	NA	NA	62	ND	ND	ND ND
Chloroethane	39583	NA	2.3	0.11J	ND	ND ND
Chloroform	488	98	0.083	0.26J	0.35J	0.29J ND 0.18
Chloromethane	1033	103	95	1.2	1.1	1.1 1.0 1.1
Cyclohexane	NA	NA	6200	0.26J	0.14J	0.20J ND ND
1,4- Dichlorobenzene	12020	60	0.31	ND	ND	ND ND
Dichlorodifluoromethane	NA	NA	210	2.3	2.2	2.2 2.3 2.2
cis-1,2-Dichloroethene	NA	NA	37	ND	ND	ND ND
Ethylbenzene	43419	1303	1100	0.52J	ND	0.31J ND ND
4-Ethyltoluene	NA	NA	NA	0.46J	ND	ND 0.34J ND
Heptane	NA	NA	NA	0.62J	0.31J	0.45J 0.37J ND
Hexane	NA	2115	210	1.2J	0.86J	1.0J 1.1J 0.21J
Methyl ethyl ketone	NA	NA	5100	5.7	1.3J	1.8J 3.2 0.99J
Methyl isobutyl ketone	NA	NA	3100	0.42J	ND	ND 0.26J ND
Methylene chloride	2084	1042	4.1	0.47J	0.57J	0.58J 1.1J 2.1
Styrene	8520	852	1100	ND	ND	ND ND ND
Tetrahydrofuran	NA	NA	0.99	ND	ND	0.53J 0.21J ND
Toluene	3768	301	400	2.6	0.90	1.1 1.2 ND
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	0.53J	0.58J	0.56J 0.42J
Trichlorofluoromethane	NA	NA	730	1.2	1.1	1.2 1.3 1.2

Countywide Recycling & Disposal Facility											
EPA Method TO-15 Modified: Volatile Organic Compounds											
Table 7: Special Event Isolation-Break 8 hour TO-15 sampling: March 3, 2009 Analyzed for BTEX ONLY											
Analyte	*Prevailing Wind Direction	Monitoring Location				PRG	Chronic MRL	Acute MRL	Wind	Wetland	
		School	Cell Tower	Campground	Wetland						
All results in ug/m3											
Method TO-15 Modified											
Benzene					0.25	10	29	0.69	0.65	0.62	0.66
Ethylbenzene					1100	1303	43419	ND	ND	ND	ND
Toluene					400	301	3768	0.55J	0.56J	1.1	0.66J
m/p-Xylene					110	8687	8687	ND	ND	ND	ND
o-Xylene					110	8687	8687	ND	ND	ND	ND
*Prevailing Wind Direction with respect to the landfill											
U: Upwind											
D: Downwind											
C: Crosswind											
V: Variable											
ND = Not Detected											
NA = Not Available											
Y = TIC present											
Bold indicates result exceeds Region 9 PRG											
Shading indicates result exceeds ATSDR MRL											
Laboratory Data Qualifiers:											
B = Compound present in blank											
J = Estimated concentration below laboratory reporting limit											
D = Dilution											
E = Exceeds calibration range of instrument											
TICs: Compound has been tentatively identified but the estimated concentration is highly uncertain.											

**Countywide Recycling & Disposal Facility
Ambient Air Monitoring
Monthly Report #23**

April 20, 2009

Attachment 1: Aldehyde Samples from Locations on the Landfill
Landfill samples collected February 02/03, 2009

Sample Locations on the Landfill

Summary of Results

Lawhon & Associates, Inc.
 975 Eastwind Drive Suite 190
 Westerville, OH 43081
 Att: Shawn Ansbro
 Jobsite: Countywide
 Project: #07-0082

Report Date: 02/23/09
 Job Number: E09-01333
 Date Received: 02/10/09
 Date Analyzed: 02/20/09

Analysis: Aldehydes and Ketones, EPA Method TO-11a

Sample Name:	020509-St1-01A		020509-St1-02A		020509-St1-03A		Reporting
IAL ID:	E09-01333-17		E09-01333-18		E09-01333-19		Limits
Compound	ug	ug/m ³	ug	ug/m ³	ug	ug/m ³	ug
1 Formaldehyde	1.5	12	0.58	5.8	1.5	11	9.6 0.1
2 Acetaldehyde	0.72	5.7	0.46	4.6	0.94	6.8	0.1
3 Acetone	< 0.1	< 0.8	< 0.1	< 1	< 0.1	< 0.7	0.1
4 Acrolein	< 0.1	< 0.8	< 0.1	< 1	< 0.1	< 0.7	0.1
5 Propionaldehyde	0.16	1.3	< 0.1	< 1	0.19	1.4	0.1
6 Crotonaldehyde	< 0.1	< 0.8	< 0.1	< 1	< 0.1	< 0.7	0.1
7 Butyraldehyde	0.26	2.0	0.13	1.3	0.32	2.3	0.1
8 Benzaldehyde	< 0.1	< 0.8	< 0.1	< 1	< 0.1	< 0.7	0.1
9 Isovaleraldehyde	< 0.6	< 5	< 0.6	< 6	< 0.6	< 4	0.6
10 Valeraldehyde	< 0.2	< 2	< 0.2	< 2	< 0.2	< 1	0.2
o-Tolualdehyde	< 0.2	< 2	< 0.2	< 2	< 0.2	< 1	0.2
m- and p-Tolualdehyde	< 0.1	< 0.8	< 0.1	< 1	< 0.1	< 0.7	0.1
11 Hexaldehyde	0.40	3.1	< 0.1	< 1	< 0.1	< 0.7	0.1

Sample Name:	020509-ST2-01A		020509-St2-02A		020509-St2-03A		Reporting
IAL ID:	E09-01333-20		E09-01333-21		E09-01333-22		Limits
Compound	ug	ug/m ³	ug	ug/m ³	ug	ug/m ³	ug
Formaldehyde	1.1	5.9	0.62	3.0	1.7	8.3	5.7 0.1
Acetaldehyde	0.62	3.2	0.54	2.6	1.0	4.9	0.1
Acetone	< 0.1	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	0.1
Acrolein	< 0.1	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	0.1
Propionaldehyde	0.13	0.68	0.11	0.54	0.22	1.1	0.1
Crotonaldehyde	< 0.1	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	0.1
Butyraldehyde	0.20	1.0	< 0.1	< 0.5	0.32	1.6	0.1

Benzaldehyde	0.20	1.0	< 0.1	< 0.5	0.26	1.3	0.1
Isovaleraldehyde	< 0.6	< 3	< 0.6	< 3	< 0.6	< 3	0.6
Valeraldehyde	< 0.2	< 1	< 0.2	< 1	< 0.2	< 1	0.2
o-Tolualdehyde	< 0.2	< 1	< 0.2	< 1	< 0.2	< 1	0.2
m- and p-Tolualdehyde	< 0.1	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	0.1
Hexaldehyde	< 0.1	< 0.5	< 0.1	< 0.5	< 0.1	< 0.5	0.1

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Lawhon & Associates, Inc.

Job Number: E09-01333

Jobsite: Countywide

Project: #07-0082

Analysis: Aldehydes and Ketones, EPA Method TO-11a

Sample Name:	020509-St3-01A		020509-St3-02A		020509-St3-03A		Reporting
IAL ID:	E09-01333-23		E09-01333-24		E09-01333-25		Limits
Compound	ug	ug/m3	ug	ug/m3	ug	ug/m3	ug
Formaldehyde	0.98	7.9	0.64	3.0	1.5	6.9	5.9 0.1
Acetaldehyde	0.68	5.5	0.56	2.6	0.98	4.5	0.1
Acetone	< 0.1	< 0.8	< 0.1	< 0.5	< 0.1	< 0.5	0.1
Acrolein	< 0.1	< 0.8	< 0.1	< 0.5	< 0.1	< 0.5	0.1
Propionaldehyde	0.13	1.0	0.11	0.53	0.20	0.91	0.1
Crotonaldehyde	< 0.1	< 0.8	< 0.1	< 0.5	< 0.1	< 0.5	0.1
Butyraldehyde	0.18	1.4	0.11	0.53	0.30	1.4	0.1
Benzaldehyde	0.11	0.92	< 0.1	< 0.5	0.18	0.83	0.1
Isovaleraldehyde	< 0.6	< 5	< 0.6	< 3	< 0.6	< 3	0.6
Valeraldehyde	< 0.2	< 2	< 0.2	< 0.9	< 0.2	< 0.9	0.2
o-Tolualdehyde	< 0.2	< 2	< 0.2	< 0.9	< 0.2	< 0.9	0.2
m- and p-Tolualdehyde	< 0.1	< 0.8	< 0.1	< 0.5	< 0.1	< 0.5	0.1
Hexaldehyde	< 0.1	< 0.8	< 0.1	< 0.5	< 0.1	< 0.5	0.1

Sample Name:	020509-St4-01A		020509-St4-02A*		020509-St4-03A		Reporting
IAL ID:	E09-01333-26		E09-01333-27		E09-01333-28		Limits
Compound	ug	ug/m3	ug	ug/m3	ug	ug/m3	ug
Formaldehyde	0.80	4.5	0.59	3.1	0.72	4.5	4.0 0.1
Acetaldehyde	0.50	2.8	0.40	2.1	0.46	2.9	0.1
Acetone	< 0.1	< 0.6	< 0.1	< 0.5	< 0.1	< 0.6	0.1
Acrolein	< 0.1	< 0.6	< 0.1	< 0.5	< 0.1	< 0.6	0.1

Propionaldehyde	0.11	0.60	< 0.1	< 0.5	< 0.1	< 0.6	0.1
Crotonaldehyde	< 0.1	< 0.6	< 0.1	< 0.5	< 0.1	< 0.6	0.1
Butyraldehyde	0.14	0.79	0.13	0.66	0.14	0.90	0.1
Benzaldehyde	< 0.1	< 0.6	0.13	0.69	< 0.1	< 0.6	0.1
Isovaleraldehyde	< 0.6	< 3	< 0.6	< 3	< 0.6	< 4	0.6
Valeraldehyde	< 0.2	< 1	< 0.2	< 1	< 0.2	< 1	0.2
o-Tolualdehyde	< 0.2	< 1	< 0.2	< 1	< 0.2	< 1	0.2
m- and p-Tolualdehyde	< 0.1	< 0.6	< 0.1	< 0.5	< 0.1	< 0.6	0.1
Hexaldehyde	< 0.1	< 0.6	< 0.1	< 0.5	< 0.1	< 0.6	0.1

*Denotes breakthrough from the front to the back of the sorbent tube for Formaldehyde.

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Lawhon & Associates, Inc.

Job Number: E09-01333

Jobsite: Countywide

Project: #07-0082

Analysis: Aldehydes and Ketones, EPA Method TO-11a

Sample Name:	020509-St5-01A		020509-St5-02A		020509-St5-03A		Reporting Limits
IAL ID:	E09-01333-29		E09-01333-30		E09-01333-31		
Compound	ug	ug/m3	ug	ug/m3	ug	ug/m3	ug
Formaldehyde	1.1	5.6	0.30	1.8	1.3	6.2	4.5 0.1
Acetaldehyde	0.70	3.5	0.34	2.0	0.82	4.0	0.1
Acetone	< 0.1	< 0.5	< 0.1	< 0.6	< 0.1	< 0.5	0.1
Acrolein	< 0.1	< 0.5	< 0.1	< 0.6	< 0.1	< 0.5	0.1
Propionaldehyde	0.10	0.49	< 0.1	< 0.6	0.18	0.89	0.1
Crotonaldehyde	< 0.1	< 0.5	< 0.1	< 0.6	< 0.1	< 0.5	0.1
Butyraldehyde	0.18	0.89	0.10	0.6	0.32	1.5	0.1
Benzaldehyde	0.15	0.72	< 0.1	< 0.6	0.20	1.0	0.1
Isovaleraldehyde	< 0.6	< 3	< 0.6	< 4	< 0.6	< 3	0.6
Valeraldehyde	< 0.2	< 1	< 0.2	< 1	< 0.2	< 1	0.2
o-Tolualdehyde	< 0.2	< 1	< 0.2	< 1	< 0.2	< 1	0.2

m- and p-Tolualdehyde	< 0.1	< 0.5	< 0.1	< 0.6	< 0.1	< 0.5	0.1
Hexaldehyde	< 0.1	< 0.5	< 0.1	< 0.6	0.22	1.1	0.1

Sample Name:	020509-Blnk-A						Reporting
IAL ID:	E09-01333-32						Limits
<u>Compound</u>	<u>ug</u>	<u>ug/m3</u>					<u>ug</u>
Formaldehyde	0.11	N/A					0.1
Acetaldehyde	< 0.1	N/A					0.1
Acetone	< 0.1	N/A					0.1
Acrolein	< 0.1	N/A					0.1
Propionaldehyde	< 0.1	N/A					0.1
Crotonaldehyde	< 0.1	N/A					0.1
Butyraldehyde	< 0.1	N/A					0.1
Benzaldehyde	< 0.1	N/A					0.1
Isovaleraldehyde	< 0.6	N/A					0.6
Valeraldehyde	< 0.2	N/A					0.2
o-Tolualdehyde	< 0.2	N/A					0.2
m- and p-Tolualdehyde	< 0.1	N/A					0.1
Hexaldehyde	< 0.1	N/A					0.1

Note: Calculations of concentrations in air are based upon air sampling data reported by client.
Analytical results relate only to the samples as received at the laboratory.

Michael H. Leftin, Ph.D.
Laboratory Director

Analyst: J. Walukiewicz