

**Countywide Recycling & Disposal Facility  
Ambient Air Monitoring  
Monthly Report #20  
January 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 #20**

**Monitoring Events #92 through 95  
Supplemental Isolation Break Monitoring Events 1&2**

**January 20, 2009**

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**Countywide Recycling & Disposal Facility  
Ambient Air Monitoring  
Monthly Report #20  
January 20, 2009  
Monitoring Events #92 through #95; and  
Supplemental Isolation Break Monitoring Events 1&2**

## **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 #92: Sunday November 23 to Monday November 24

Event #93: Saturday November 29 to Sunday November 30

Event #94: Friday December 5 to Saturday December 6

Event #95: Thursday December 11 to Friday December 12

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 to correlate with 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 #20.

Isolation Break Monitoring Event #1: December 9, 2008

Isolation Break Monitoring Event #2: December 15, 2008

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 chemical 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/m<sup>3</sup> is lower than the average background concentration of 1.96 ug/m<sup>3</sup> 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. It should be noted that not all of the compounds found in the air samples have corresponding PRGs.

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.

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 #92: Sunday November 23 to Monday November 24

November 23: Average temperature in degrees F: 26, Max. 41, Min. 12.

Winds were 3 mph with a max speed of 7 mph out of the SSE.

Average relative humidity 63% with no precipitation recorded.

Complaints: There were no odor complaints during this time

November 24: Average temperature in degrees F: 35, Max. 45, Min. 25

Winds were 6 mph with max gusts of 24 mph out of variable directions.

Average relative humidity 82% with 0.31 inches of precipitation recorded.

Complaints: A complaint occurred at 8:30am from 6948 Beth Avenue in Navarre. Pump maintenance, flare #10 maintenance, and well drilling #374 were potentially odor-causing activities noted on the Daily Odor Monitoring Summary.

### Event #93: Saturday November 29 to Sunday November 30

November 29: Average temperature in degrees F: 30, Max. 42, Min. 19.

Winds were 1 mph with a max speed of 6 mph out of the SE.

Average relative humidity 78% with no precipitation recorded.

Complaints: There were no odor complaints during this time.

November 30: Average temperature in degrees F: 31, Max. 41, Min. 21.

Winds were 5 mph with max gusts of 18 mph out of the SSE.

Average relative humidity 88% with 0.47 inches of precipitation recorded.

Complaints: There were no odor complaints during this time.

### Event #94: Friday December 5 to Saturday December 6

December 5: Average temperature in degrees F: 20, Max. 23, Min. 18.

Winds were 6 mph with max gusts of 17 mph out of the WSW.

Average relative humidity 70% with no precipitation recorded.

Complaints: There were no odor complaints during this time.

December 6: Average temperature in degrees F: 22, Max. 28, Min. 16

Winds were 3 mph with max gusts of 22 mph out of the SW.

Average relative humidity 75% with 0.03 inches of precipitation recorded.

Complaints: There were no odor complaints during this time.

Event #95: Thursday December 11 to Friday December 12

December 11: Average temperature in degrees F: 30, Max. 32, Min. 28.

Winds were 3 mph with a max speed of 8 mph out of the NNE.

Average relative humidity 81% with no precipitation recorded.

Complaints: Complaints occurred at 8:21am from 12102 Sherman Church Avenue in Bolivar; at 9:49am from 232 Fairview Street in Bolivar; and at 4:55pm from 12080 Sherman Church Avenue in Bolivar. Pump maintenance and isolation break excavation were potentially odor-causing activities noted on the Daily Odor Monitoring Summary.

December 12: Average temperature in degrees F: 26, Max. 32, Min. 21

Winds were 9 mph with max gusts of 20 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.

Supplemental Isolation Break Monitoring Event #1: Tuesday December 9, 2008

Average temperature in degrees F: 44, Max. 55, Min. 34.

Winds were 6 mph with max speed of 10 mph out of the S.

Average relative humidity 61% with 0.19 in. precipitation recorded.

Complaints: There was one odor complaint at 3:45 PM from 3813 Haut St., East Sparta identified as Isolation Break Excavation odor.

Supplemental Isolation Break Monitoring Event #2: Monday December 15, 2008

Average temperature in degrees F: 42, Max. 57, Min. 25.

Winds were 10 mph with max speed of 16 mph out of the WSW.

Average relative humidity 70% with 0.19 in. precipitation recorded.

Complaints: There were no odor complaints during this time.

### **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 #92: Sunday November 23 to Monday November 24**

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

**Event #92: VOCs Detected Above PRGs  
Concentrations in ug/m<sup>3</sup>**

Compound	Acute MRL	Chronic MRL	PRG	School	Co-loc School	Cell Tower	Camp ground	Wetland
Relative Wind Direction				C/V		C/V	C/V	C/V
Benzene	29	10	<b>0.25</b>	<b>1.5</b>	<b>1.5</b>	<b>0.84</b>	<b>0.74</b>	<b>0.53J</b>
Carbon tetrachloride	188	188	<b>0.13</b>	<b>0.54J</b>	<b>0.53J</b>	<b>0.69J</b>	<b>0.56J</b>	<b>0.52J</b>

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

**Event #93: Saturday November 29 to Sunday November 30**

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

**Event #93: VOCs Detected Above PRGs  
Concentrations in ug/m<sup>3</sup>**

Compound	Acute MRL	Chronic MRL	PRG	School	Cell Tower	Camp ground	Co-loc Camp ground	Wetland
Relative Wind Direction				C/U	C/U	C/C		U/C
Benzene	29	10	0.25	1.9	1.1	1.0	1.1	0.74
Carbon tetrachloride	188	188	0.13	0.64J	0.56J	0.55J	0.62J	0.53J

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 #94: Friday December 5 to Saturday December 6**

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

**Event #94: VOCs Detected Above PRGs  
Concentrations in ug/m<sup>3</sup>**

Compound	Acute MRL	Chronic MRL	PRG	School	Cell Tower	Camp ground	Wet land	Co-loc Wet land
Relative Wind Direction				U/U	U/U	D/D	D/C	
Benzene	29	10	0.25	0.7	0.57J	0.53J	ND	0.34J
Carbon tetrachloride	188	188	0.13	0.98J	0.56J	0.51J	ND	ND
Chloroform	488	98	0.083	0.77J	0.19J	ND	ND	ND

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 #95: Thursday December 11 to Friday December 12**

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

**Event #95: VOCs Detected Above PRGs  
Concentrations in ug/m<sup>3</sup>**

Compound	Acute MRL	Chronic MRL	PRG	School	Cell Tower	Co-loc Cell Tower	Camp ground	Wet land
Relative Wind Direction				D/C	D/C		U/C	C/C
Benzene	29	10	0.25	11	0.86	1.1	0.87	1.1
Carbon tetrachloride	188	188	0.13	0.44J	0.46J	0.45J	0.44J	0.47J

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 #1: 8-hour Sample December 9, 2008**

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

**Isolation Break #1: VOCs Detected Above PRGs  
Concentrations in ug/m<sup>3</sup>**

Compound	Acute MRL	Chronic MRL	PRG	School	Cell Tower	Camp ground	Wet land
Relative Wind Direction				UC	UC	DC	C
Benzene	29	10	0.25	0.60J	0.58J	0.45J	0.52J
Carbon tetrachloride	188	188	0.13	0.72J	0.67J	0.70J	0.49J
Chloroform	488	98	0.083	0.31J	0.24J	0.23J	ND

**Supplemental Isolation Break Monitoring Event #2: 8-hour Sample December 15, 2008**

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

**Isolation Break #2: VOCs Detected Above PRGs  
Concentrations in ug/m<sup>3</sup>**

Compound	Acute MRL	Chronic MRL	PRG	School	Cell Tower	Camp ground	Wet land
Relative Wind Direction				U	U	D	C
Benzene	29	10	0.25	0.48J	0.39J	0.52J	0.52J
Carbon tetrachloride	188	188	0.13	0.50J	0.39J	0.59J	0.93J

**3.2 Sulfur Compounds**

Carbon disulfide was the only sulfur compound detected during the five rounds of sampling reviewed in this report. 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 a number of carbonyl compounds, formaldehyde and acetaldehyde are most frequently detected and are the aldehydes of 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 #20: 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 #92: Sunday November 23 to Monday November 24

The laboratory report is in Appendix A.

#### Event #92: Aldehydes Concentrations in ug/m<sup>3</sup>

Aldehyde	Acute MRL <sup>1</sup>	Chronic MRL <sup>1</sup>	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/V			C/V			C/V			C/V		
Formaldehyde	50	10	0.15	2.8	2.0	1.7	3.5	2.9	2.7	4.3	3.7	3.6	1.9	1.5	3.1
Acetaldehyde	NA	NA	0.87	1.8	2.0	1.3	2.8	2.7	2.5	3.5	3.4	3.2	1.2	1.0	1.9

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

Acute MRL 0.04 ppm = 50 ug/m<sup>3</sup>; Chronic MRL 0.008 ppm=10 ug/m<sup>3</sup>

NA: Not available

NR: No result available

**Event #93: Saturday November 29 to Sunday November 30**

The laboratory report is in Appendix B.

**Event #93: Aldehydes  
Concentrations in ug/m<sup>3</sup>**

Aldehyde	Acute MRL <sup>1</sup>	Chronic MRL <sup>1</sup>	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/U			C/U			C/C			U/C		
Formaldehyde	50	10	0.15	4.6	1.8	1.7	3.3	2.3	2.3	0.73	0.64	ND	1.5	1.2	1.1
Acetaldehyde	NA	NA	0.87	3.2	1.7	1.2	1.9	1.8	1.6	ND	ND	ND	0.80	0.89	0.85

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

Acute MRL 0.04 ppm = 50 ug/m<sup>3</sup>; Chronic MRL 0.008 ppm=10 ug/m<sup>3</sup>

NA: Not available

ND: Not Detected

NR: No result available

**Event #94: Friday December 5 to Saturday December 6**

The laboratory report is in Appendix C.

**Event #94: Aldehydes  
Concentrations in ug/m<sup>3</sup>**

Aldehyde	Acute MRL <sup>1</sup>	Chronic MRL <sup>1</sup>	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			D/C		
Formaldehyde	50	10	0.15	1.4	1.1	1.0	1.3	1.2	1.0	2.0	1.6	2.1	1.2	0.95	1.1
Acetaldehyde	NA	NA	0.87	1.1	1.0	0.89	1.1	1.1	1.2	1.4	1.2	1.5	0.91	0.80	0.98

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

Acute MRL 0.04 ppm = 50 ug/m<sup>3</sup>; Chronic MRL 0.008 ppm=10 ug/m<sup>3</sup>

NA: Not Available

ND: Not Detected

NR: No result available

**Event #95: Thursday December 11 to Friday December 12**

The laboratory report is in Appendix D.

**Event #95: Aldehydes  
Concentrations in ug/m<sup>3</sup>**

Aldehyde	Acute MRL <sup>1</sup>	Chronic MRL <sup>1</sup>	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				D/C			D/C			U/C			C/C		
Formaldehyde	50	10	0.15	2.3	1.3	1.4	3.0	2.1	1.8	5.1	3.3	2.6	1.9	1.9	1.4
Acetaldehyde	NA	NA	0.87	1.5	0.80	1.2	2.3	2.2	1.7	2.6	2.1	1.6	1.3	1.2	1.0

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

Acute MRL 0.04 ppm = 50 ug/m<sup>3</sup>; Chronic MRL 0.008 ppm=10 ug/m<sup>3</sup>

NA: Not Available

ND: Not Detected

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.

Analytical results for sampling events #92 through #95 are summarized below. All detected concentrations were very low and did not approach levels of potential concern.

**Event #92: Sunday November 23 to Monday November 24**

Analytical results are in Appendix A.

**Event #92: Hydrogen Fluoride and Hydrogen Chloride  
Concentrations in ug/m<sup>3</sup>**

Compound	PRG	School			Cell Tower			Campground			Wetland		
		1	2	3	1	2	3	1	2	3	1	2	3
Prevailing Wind Direction		C/V			C/V			C/V			C/V		
HF	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HCl	21	ND	6.7	3.2	ND	3.5	ND	6.5	4.0	5.4	6.0	6.4	4.1

NA: Not Available

ND: Not Detected

NR: No result available

**Event #93: Saturday November 29 to Sunday November 30**

Analytical results are in Appendix B.

**Event #93: Hydrogen Fluoride and Hydrogen Chloride  
Concentrations in ug/m3**

Compound	PRG	School			Cell Tower			Campground			Wetland		
		1	2	3	1	2	3	1	2	3	1	2	3
HF	NA	ND	ND	ND	ND	ND	NR	ND	ND	ND	ND	ND	ND
HCl	21	5.2	ND	4.8	ND	ND	NR	ND	ND	4.4	ND	4.2	7.2

NA: Not Available

ND: Not Detected

NR: No result available

**Event #94: Friday December 5 to Saturday December 6**

Analytical results are in Appendix C.

**Event #94: Hydrogen Fluoride and Hydrogen Chloride  
Concentrations in ug/m3**

Compound	PRG	School			Cell Tower			Campground			Wetland		
		1	2	3	1	2	3*	1	2	3	1	2	3
HF	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HCl	21	2.6	ND	ND	ND	ND	12	4.5	5.1	8.8	2.6	4.2	7.7

NA: Not Available

ND: Not Detected

NR: No result available

\*Denotes breakthrough from front to back portion of sorbent tube. This condition may be associated with moisture and renders the result unreliable.

**Event #95: Thursday December 11 to Friday December 12**

Analytical results are in Appendix D.

**Event #95: Hydrogen Fluoride and Hydrogen Chloride  
Concentrations in ug/m3**

Compound	PRG	School			Cell Tower			Campground			Wetland		
		1	2	3	1	2	3	1	2	3	1	2	3
HF	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HCl	21	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NA: Not Available

ND: Not Detected

NR: No result available

## 4.0 SUMMARY

### 4.1 Volatile Organic Compounds

Benzene and carbon tetrachloride were present in all samples from all locations (both the regularly scheduled monitoring and the additional Isolation break monitoring) at very low concentrations that were above the very conservative respective Region 9 PRGs but well below the ATSDR chronic MRLs, with the exception of the benzene concentration (11 ug/m<sup>3</sup>) measured at the Bolivar Elementary School during regularly scheduled monitoring Event #95. It is likely that this result is a chance occurrence and reflects the close physical proximity of a source (such as automotive exhaust) to the sampling apparatus during that time period. The landfill is clearly not the source since the benzene level at the Cell Tower location during the same time period was only 0.86 ug/m<sup>3</sup>. The Cell Tower is in the same prevailing wind direction with respect to the landfill, but is much, much closer.

The concentrations of benzene and carbon tetrachloride reported from the 8-hour Isolation Break sampling events were comparable to the concentrations reported from the regularly scheduled 24-hour samples. As of the time that this Monthly Report #20 was prepared, there does not appear to be any discernable change in either the range of concentrations or the specific VOC compounds detected in the community that could be related to the intrusive activities on the landfill.

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.

In addition to benzene and carbon tetrachloride, extremely low concentrations of chloroform (exceeding the conservative Region 9 PRGs but 3 to 4 orders of magnitude below the respective ATSDR Acute and Chronic MRLs) were detected at the School and Cell Tower during Monitoring Event #94, and at all locations except the Wetland during Isolation Break Monitoring Event #1.

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 ( $0.15 \text{ ug/m}^3$ ) and acetaldehyde ( $0.87 \text{ ug/m}^3$ ) 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 ( $50 \text{ ug/m}^3$ ) and Chronic ( $10 \text{ ug/m}^3$ ) MRLs are more relevant guidelines for interpreting the analytical results.

The range of concentrations of formaldehyde and acetaldehyde recorded from mid-November through mid-December were lower than those recorded during the early autumn. As stated previously, there appears to be a seasonal trend towards higher concentrations of aldehydes in the autumn which then decline during the winter months. None of the formaldehyde results included in this Monthly Report #20 exceeded or even approached the ATSDR Chronic MRL. This issue was discussed in more depth in the previous monthly report.

The apparent seasonal trend towards a temporary autumnal increase in aldehyde concentrations supports our conclusion that the levels of formaldehyde in the air around Countywide are typical of regional background conditions and are not a threat to public health.

## **4.3 Hydrogen Fluoride and Hydrogen Chloride**

Starting in mid-August, we began observing higher levels and much more frequent detections of hydrogen fluoride than in previous months. However, the levels and frequency of HF detections began to decline in early November and by mid-November to mid-December no HF was reported in any of the samples. Although HCl was found in a number of samples, the concentrations were very low. All samples included in this Monthly Report #20 were collected with Tygon® tubing in the manifold. It is not entirely clear if the composition of the tubing was a factor in the higher analytical results observed during the late summer through early autumn or if these findings are indicative of a seasonal trend (as with the aldehydes).

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.

#### 4.5 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 #20. In addition to the 24-hour monitoring events that are conducted on an every-six-day schedule, this report also presents the findings from supplementary 8-hour TO-15 samples that are being collected at mid-points between the 24-hour events. The purpose of these supplementary samples is to characterize any changes in VOC levels in the community that may correspond to the intrusive Isolation Break excavation activities that were initiated in December 2008.

Our specific conclusions are summarized below:

- The levels of benzene recorded at the community monitoring locations during mid-November through mid-December were very low and well within Ohio background as reported by Ohio EPA (Portsmouth Ohio Air Quality Study, 2003).
- Only one benzene result (11 ug/m<sup>3</sup> recorded at the School during Monitoring Event #95) just barely exceeded the health-based ATSDR Chronic MRL (10 ug/m<sup>3</sup>). No other benzene results even came close to the Chronic or Acute MRL. This single result was still consistent with the range of benzene levels reported by other investigators in the open literature. It is likely that it was the result of source(s) in close physical proximity to the sampling device at the School and is not related to the landfill.
- The concentrations of specific VOCs detected during the Supplemental Isolation Break 8-hour Monitoring Events were consistent with the results from the regularly scheduled 24-hour Monitoring Events. To date, these findings suggest that the intrusive excavation of the Isolation Break is not having an effect on the concentrations or specific VOCs present in ambient air in the surrounding community.
- 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 declined during the time period from mid-November through mid-December as compared to the immediately preceding two months. This supports the existence of a seasonal trend as described in the previous Monthly Report. All concentrations of formaldehyde reported during this time period were well below the ASTDR Chronic MRL and do not present a threat to public health.
- The concentrations of hydrogen fluoride and hydrogen chloride reported during mid-November through mid-December also declined as compared to the immediately preceding two months. The presence of very low levels of these two inorganic acids does not constitute a threat to public health.

- 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 #20 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 #20**

January 20, 2009

**EPA Method TO-15 SUMMARY TABLES**

- Table 1. Event #92: Sunday November 23 to Monday November 24**
- Table 2. Event #93: Saturday November 29 to Sunday November 30**
- Table 3. Event #94: Friday December 5 to Saturday December 6**
- Table 4. Event #95: Thursday December 11 to Friday December 12**
- Table 5. ISBM Event #1: Tuesday December 9, 2008**
- Table 6. ISBM Event #2: Monday December 15, 2008**

**Countywide Recycling & Disposal Facility**

**EPA Method TO-15 Modified: Volatile Organic Compounds**

**Table 1: Event #92: November 23/24, 2008**

Analyte	*Prevailing Wind Direction	Monitoring Location		
		School	Cell Tower	Campground
		Co-Located CV	CV	CV
All results in ug/m3				
Method TO-15 Modified	Acute MRL	Chronic MRL	PRG	
Acetone	61762	30881	3300	
Benzene	29	10	0.25	17 6.4J 8.4J 23 15
Bromomethane	194	19	5.2	1.5 0.84 0.74 0.53J
tert-Butyl alcohol	NA	NA	NA	ND ND ND ND
Carbon disulfide	NA	934	730	0.44J 0.38J 0.14J 0.24J 0.78J
Carbon tetrachloride	188	188	0.13	0.13JB 0.12JB 0.11JB 0.15JB 0.11JB
Chlorobenzene	NA	NA	62	0.54J 0.53J 0.60J 0.56J 0.52J
Chloroethane	39583	NA	2.3	ND ND ND ND ND
Chloroform	488	98	0.083	ND ND ND ND ND
Chloromethane	1033	103	95	0.90J 0.94J 0.87J 0.87J 0.92J
Cyclohexane	NA	NA	6200	0.39J 0.39J 0.20J 0.24J ND
Dichlorodifluoromethane	NA	NA	210	2.1 2.0 2.1 2.0 2.2
Ethylbenzene	43419	1303	1100	0.54J 0.55J ND ND ND
4-Ethyltoluene	NA	NA	NA	ND 0.61J 0.59J ND
Heptane	NA	NA	NA	0.79J 0.67J ND ND ND
Hexane	NA	2115	210	1.2J 1.1J 0.55J 0.51J 0.31J
Methyl ethyl ketone	NA	NA	5100	1.8J 0.77J 0.87J 2.9J 1.8J
Methyl isobutyl ketone	NA	NA	3100	ND 0.25J ND 0.22J 0.22J
Methylene chloride	2084	1042	4.1	1.5JB 0.99JB 15B 1.3JB 4.1B
Styrene	8520	852	1100	ND ND ND ND ND
Tetrahydrofuran	NA	NA	0.99	ND ND ND ND ND
Toluene	3768	301	400	3.0 2.9 1.1 0.85 0.73J
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	0.51J 0.52J 0.55J 0.52J 0.52J
Trichlorofluoromethane	NA	NA	730	1.1 1.1 1.2 1.1J 1.3
1,2,4-Trimethylbenzene	NA	NA	6.2	0.54J 1.4 1.3 0.54J ND
1,3,5-Trimethylbenzene	NA	NA	6.2	ND 0.43J ND ND ND

2,2,4-Trimethylpentane	NA	NA	NA	NA	0.37J	0.33J	ND	ND	ND
Vinyl Chloride	1278	77	0.11	NA	ND	ND	ND	ND	ND
m/p-Xylene	8687	8687	110	110	1.9	1.9	0.80J	0.56J	ND
o-Xylene	8687	8687	110	110	0.68J	0.73J	0.30J	ND	ND
<b>Tentatively Identified Compounds</b>									
Ethylene oxide	NA	NA	NA	NA	N	N	N	Y	N
Butane	NA	NA	NA	NA	Y	Y	N	N	N
Decane	NA	NA	NA	NA	N	Y	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									
<b>Laboratory Data Qualifiers:</b>									
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 #93: November 29/30, 2008**

Analyte	*Prevailing Wind Direction	Monitoring Location				C/C	U/C
		School	Cell Tower	Campground	Wetland		
		C/U	C/U	C/C	C/C		
All results in ug/m3							
<b>Method TO-15 Modified</b>	<b>Acute MRL</b>	<b>Chronic MRL</b>	<b>PRG</b>				
Acetone	61762	30881	3300	5.0J	5.6J	9.0J	5.2J
Benzene	29	10	0.25	1.9	1.1	1.0	1.1
Bromomethane	194	19	5.2	ND	ND	ND	ND
tert-Butyl alcohol	NA	NA	NA	0.11J	0.18J	0.14J	ND
Carbon disulfide	NA	934	730	0.14JB	0.16JB	0.13JB	0.13JB
Carbon tetrachloride	188	188	0.13	0.64J	0.56J	0.55J	0.62J
Chlorobenzene	NA	NA	62	ND	ND	ND	ND
Chloroethane	39583	NA	2.3	ND	ND	ND	ND
Chloroform	488	98	0.083	ND	ND	ND	ND
Chloromethane	1033	103	95	1.0J	0.99J	0.94J	0.92J
Cyclohexane	NA	NA	6200	0.26J	ND	ND	0.15J
Dichlorodifluoromethane	NA	NA	210	2.5	2.3	2.2	2.4
Ethylbenzene	43419	1303	1100	0.52J	ND	ND	ND
4-Ethyltoluene	NA	NA	NA	ND	ND	ND	ND
Heptane	NA	NA	NA	0.63J	0.44J	0.48J	0.43J
Hexane	NA	2115	210	1.0J	0.51J	0.61J	0.61J
Methyl ethyl ketone	NA	NA	5100	ND	0.70J	0.97J	0.71J
Methyl isobutyl ketone	NA	NA	3100	ND	ND	ND	ND
Methylene chloride	2084	1042	4.1	1.4JB	1.6JB	1.6JB	1.6JB
Styrene	8520	852	1100	ND	ND	ND	ND
Tetrahydrofuran	NA	NA	0.99	ND	ND	ND	ND
Toluene	3768	301	400	2.6	1.0	0.90	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	0.68J	0.66J	0.66J	0.64J
Trichlorofluoromethane	NA	NA	730	1.4	1.3	1.2	1.3
1,2,4-Trimethylbenzene	NA	NA	6.2	0.70J	0.51J	0.46J	0.67J
1,3,5-Trimethylbenzene	NA	NA	6.2	ND	ND	ND	ND

2,2,4-Trimethylpentane	NA	NA	NA	NA	0.35J	ND	ND	ND	ND
Vinyl Chloride	1278	77	0.11	NA	ND	ND	ND	ND	ND
m/p-Xylene	8687	8687	110	110	1.5	0.71J	0.60J	0.79J	ND
o-Xylene	8687	8687	110	110	0.53J	0.27J	ND	0.34J	ND
<b>Tentatively Identified Compounds</b>									
Butane	NA	NA	NA	NA	Y	N	N	N	Y
Propane	NA	NA	NA	NA	N	N	N	Y	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									
<b>Laboratory Data Qualifiers:</b>									
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 #94: December 5/6, 2008**

Analyte	*Prevailing Wind Direction	Monitoring Location			
		School	Cell Tower	Campground	Wetland
		U/U	U/U	D/D	D/C
All results in ug/m3					
<b>Method TO-15 Modified</b>	<b>Acute MRL</b>	<b>Chronic MRL</b>	<b>PRG</b>		
Acetone	61762	30881	3300		
Benzene	29	10	0.25	8.1J	11J
Bromomethane	194	19	5.2	0.7	0.57J
tert-Butyl alcohol	NA	NA	NA	ND	ND
Carbon disulfide	NA	934	730	0.16J	0.25J
Carbon tetrachloride	188	188	0.13	0.15J	ND
Chlorobenzene	NA	NA	62	0.98J	0.51J
Chloroethane	39583	NA	2.3	ND	ND
Chloroform	488	98	0.083	0.77J	0.19J
Chloromethane	1033	103	95	1.3	1.2
Cyclohexane	NA	NA	6200	ND	ND
1,2-Dichlorobenzene	NA	NA	210	ND	3.2
1,3-Dichlorobenzene	NA	NA	110	ND	0.48J
1,4-Dichlorobenzene	12000	60	310	ND	0.42J
Dichlorodifluoromethane	NA	NA	210	2.3	2.3
Ethylbenzene	43419	1303	1100	ND	0.31J
4-Ethyltoluene	NA	NA	NA	0.38J	ND
Heptane	NA	NA	NA	0.38J	0.24J
Hexane	NA	2115	210	0.43J	0.43J
Methyl ethyl ketone	NA	NA	5100	1.2J	0.76J
Methyl isobutyl ketone	NA	NA	3100	ND	0.29J
Methylene chloride	2084	1042	4.1	5.0B	5.5B
Styrene	8520	852	1100	ND	ND
Tetrahydrofuran	NA	NA	0.99	ND	ND
Toluene	3768	301	400	0.99	3.0
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	0.53J	0.52J

Trichlorofluoromethane	NA	NA	730	1.2	1.5	1.3	0.92J	1.2
1,2,4-Trimethylbenzene	NA	NA	6.2	0.96	1.0	0.66J	ND	ND
1,3,5-Trimethylbenzene	NA	NA	6.2	ND	ND	ND	ND	ND
2,2,4-Trimethylpentane	NA	NA	NA	ND	ND	ND	ND	ND
Vinyl Chloride	1278	77	0.11	ND	ND	ND	ND	ND
m/p-Xylene	8687	8687	110	0.85	1.4	1.4	ND	ND
o-Xylene	8687	8687	110	0.34J	0.49J	0.64J	ND	ND
<b>Tentatively Identified Compounds</b>								
Propane	NA	NA	NA	N	Y	N	N	N
Hexadecane	NA	NA	NA	N	Y	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								
<b>Laboratory Data Qualifiers:</b>								
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 #95: December 11/12, 2008											
Analyte	*Prevailing Wind Direction			School			Monitoring Location				
				D/C			Cell Tower			Campground	
				D/C			Co-Located			U/C	
All results in ug/m3											
Method TO-15 Modified	Acute MRL	Chronic MRL	PRG								
Acetone	61762	30881	3300	22	7.6J	4.5J	5.9J	4.3J			
Benzene	29	10	0.25	11	0.86	1.1	0.87	1.1			
Bromomethane	194	19	5.2	ND	ND	ND	ND	ND			
tert-Butyl alcohol	NA	NA	NA	0.25J	ND	ND	ND	ND			
Carbon disulfide	NA	934	730	0.29J	ND	ND	ND	ND			
Carbon tetrachloride	188	188	0.13	0.44J	0.46J	0.45J	0.44J	0.47J			
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	ND	ND			
Chloromethane	1033	103	95	1.1	1.2	1.0J	1.1	1.2			
Cyclohexane	NA	NA	6200	0.43J	ND	ND	ND	0.19J			
1,2-Dichlorobenzene	NA	NA	210	ND	ND	ND	1.1J	ND			
Dichlorodifluoromethane	NA	NA	210	2.4	2.3	2.5	2.4	2.5			
Ethylbenzene	43419	1303	1100	1.3	0.47J	0.47J	0.32J	0.45J			
4-Ethyltoluene	NA	NA	NA	0.42J	0.41J	ND	0.34J	ND			
Heptane	NA	NA	NA	0.85J	0.49J	0.46J	0.47J	0.46J			
Hexane	NA	2115	210	1.1J	0.51J	0.58J	0.45J	0.64J			
Methyl ethyl ketone	NA	NA	5100	1.9J	1.2J	0.94J	0.80J	0.72J			
Methyl isobutyl ketone	NA	NA	3100	0.19J	ND	ND	ND	ND			
Methylene chloride	2084	1042	4.1	1.4JB	1.0JB	1.6JB	1.9B	1.9B			
Styrene	8520	852	1100	ND	ND	ND	ND	ND			
Tetrahydrofuran	NA	NA	0.99	ND	ND	ND	ND	ND			
Toluene	3768	301	400	2.3	1.9	16	1.7	2.2			
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	0.53J	0.55J	0.57J	0.54J	0.58J			
Trichlorofluoromethane	NA	NA	730	1.2	1.3	1.4	1.2	1.3			
1,2,4-Trimethylbenzene	NA	NA	6.2	1.2	1.1	0.61J	0.94J	ND			

1,3,5-Trimethylbenzene	NA	NA	6.2	ND	ND	ND	ND	ND	ND
2,2,4-Trimethylpentane	NA	NA	NA	0.47J	0.21J	ND	ND	ND	0.25J
Vinyl Chloride	1278	77	0.11	ND	ND	ND	ND	ND	ND
m/p-Xylene	8687	8687	110	1.9	1.7	1.2	1.2	1.2	0.92
o-Xylene	8687	8687	110	0.49J	0.57J	0.46J	0.49J	0.49J	0.39J
<b>Tentatively Identified Compounds</b>									
Limonene	NA	NA	NA	N	N	N	N	Y	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									
<b>Laboratory Data Qualifiers:</b>									
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: Special Event Isolation-Break 8 hour TO-15 sampling: December 9, 2008**

Analyte	*Prevailing Wind Direction	Monitoring Location		
		School	Cell Tower	Wetland
		UC	UC	DC
All results in ug/m3				
Method TO-15 Modified	Acute MRL	Chronic MRL	PRG	
Acetone	61762	30881	3300	
Benzene	29	10	0.25	7.5J 12 16 10
Bromomethane	194	19	5.2	0.60J 0.58J 0.45J 0.52J
tert-Butyl alcohol	NA	NA	NA	ND ND 0.25J 0.28J 1.7J
Carbon disulfide	NA	934	730	ND ND ND ND
Carbon tetrachloride	188	188	0.13	0.72J 0.67J 0.70J 0.49J
Chlorobenzene	NA	NA	62	ND ND ND ND
Chloroethane	39583	NA	2.3	ND ND ND ND
Chloroform	488	98	0.083	0.31J 0.24J 0.23J ND
Chloromethane	1033	103	95	1.4 1.3 1.3 1.4
Cyclohexane	NA	NA	6200	ND ND ND ND
Dichlorodifluoromethane	NA	NA	210	2.4 2.4 2.4 2.5
Ethylbenzene	43419	1303	1100	ND ND ND ND
4-Ethyltoluene	NA	NA	NA	ND ND ND ND
Heptane	NA	NA	NA	0.24J 0.41J 0.31J 0.25J
Hexane	NA	2115	210	0.44J 0.44J 0.65J 0.38J
Methyl ethyl ketone	NA	NA	5100	0.64J 1.3J 1.8J 0.75J
Methyl isobutyl ketone	NA	NA	3100	ND ND ND 0.44J
Methylene chloride	2084	1042	4.1	12B 9.7B 18B 11B
Styrene	8520	852	1100	ND ND ND ND
Tetrahydrofuran	NA	NA	0.99	ND ND ND ND
Toluene	3768	301	400	0.61J 0.58J 0.61J 0.61J
1,1,2-Trichloro-1,2,2-trifluoroethane	NA	NA	NA	0.54J 0.53J 0.58J 0.51J
Trichlorofluoromethane	NA	NA	730	1.3 1.2 1.4 1.3
1,2,4-Trimethylbenzene	NA	NA	6.2	ND ND ND ND
1,3,5-Trimethylbenzene	NA	NA	6.2	ND ND ND ND

2,2,4-Trimethylpentane	NA	NA	NA	NA	ND	0.18J	ND	ND
Vinyl Chloride	1278	77	0.11	ND	ND	ND	ND	ND
m/p-Xylene	8687	8687	110	ND	ND	ND	ND	ND
o-Xylene	8687	8687	110	ND	ND	ND	ND	ND
<b>Tentatively Identified Compounds</b>								
Undecane, 4,7-dimethyl-	NA	NA	NA	N	N	N	N	Y
*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								
<b>Laboratory Data Qualifiers:</b>								
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.								



1,3,5-Trimethylbenzene	NA	NA	6.2	ND	ND	ND	ND
2,2,4-Trimethylpentane	NA	NA	NA	0.27J	ND	0.72J	1.1J
Vinyl Chloride	1278	77	0.11	ND	ND	ND	ND
m/p-Xylene	8687	8687	110	ND	ND	ND	1.1
o-Xylene	8687	8687	110	ND	ND	ND	0.49J
<b>Tentatively Identified Compounds</b>							
Acetaldehyde	NA	NA	NA	N	N	Y	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							
<b>Laboratory Data Qualifiers:</b>							
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.							