

**Countywide Recycling & Disposal Facility
Ambient Air Monitoring
Monthly Report #19
December 20, 2008**

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

**Republic Services of Ohio II, LLC
Countywide Recycling & Disposal Facility
3619 Gracemont Street SW
East Sparta, Ohio 44262**

Prepared by
Lawhon & Associates, Inc.
975 Eastwind Drive, Suite 190
Westerville, OH 43081

**Countywide Recycling & Disposal Facility
Ambient Air Monitoring
Monthly Report #19**

Monitoring Events #87 through 91

December 20, 2008

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Ambient Air Monitoring
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Monitoring Events #87 through #91

1.0 INTRODUCTION

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 Monitoring Events.

Event #87: Friday October 24 to Saturday October 25

Event #88: Thursday October 30 to Friday October 31

Event #89: Wednesday November 5 to Thursday November 6

Event #90: Tuesday November 11 to Wednesday November 12

Event #91: Monday November 17 to Tuesday November 18

Starting in early August 2008, we began making incremental but significant changes in the community monitoring stations and sampling protocol in an effort to identify and (if possible) eliminate sources of variability that may have been contributing to anomalously high results for benzene and a few other VOCs. As first indicated in Report #16, the following changes have been made to sample collection procedures:

- All four of the monitoring stations were secured in chain-link enclosures topped with razor wire;
- The Wetland monitor has been moved from a temporary location on high ground off of Gracemont Street back to the low-lying, flood-prone public lands accessible from Dueber Avenue;
- The Campground monitor has been moved to the far side of the gravel parking area farther away from the road;
 - Construction equipment and a petroleum storage tank were observed within 100 feet of the new location for this monitor
- The School monitor has been relocated from the roof to an area near to and just west of the tennis courts;
- Beginning with Event #75 on August 13/14, an additional Summa canister was co-located at one of the four monitoring sites. The co-located sample location revolves amongst the monitoring sites on a pre-determined schedule;
- The tubing previously used to collect samples from a height of two meters (per Ohio EPA specifications) is no longer being used with the Summa Canisters. In order to achieve a collection height of two meters for the TO-15 samples, the Summa canisters are suspended from a wire strung across the enclosure;

- 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®; and
- Rigorous requirements for handling remaining tubing used in the sampling devices have been implemented to minimize potential for contamination during transport of the equipment.

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/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. 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 #87: Friday October 24 to Saturday October 25

September 18: Average temperature in degrees F: 48, Max. 57, Min. 42.

Winds were 5 mph with a max speed of 9 mph out of the SSE.

Average relative humidity 73% with 0.56 inches of precipitation recorded.

Complaints: A complaint occurred at 4:36pm from 3232 Downing Street NE in East Sparta. Pump maintenance, anchors set in Cell 5, and 5AB toe drain were potentially odor-causing activities noted on the Daily Odor Monitoring Summary.

October 25: Average temperature in degrees F: 47, Max. 57, Min. 37

Winds were 6 mph with max gusts of 23 mph out of the SW.

Average relative humidity 83% with 0.33 inches of precipitation recorded.

Complaints: A complaint occurred at 9:18am from 8200 Dueber Avenue in East Sparta. Pump maintenance was a potentially odor-causing activity noted on the Daily Odor Monitoring Summary.

Event #88: Thursday October 30 to Friday October 31

October 30: Average temperature in degrees F: 38, Max. 53, Min. 24.

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

Average relative humidity 79% with no precipitation recorded.

Complaints: There were no odor complaints during this time.

October 31: Average temperature in degrees F: 47, Max. 66, Min. 28.

Winds were 2 mph with max gusts of 17 mph out of the S.

Average relative humidity 61% with no precipitation recorded.

Complaints: A complaint occurred at 7:56pm from 2940 Haut Street in East Sparta. Pump maintenance and 5AB tie-in were potentially odor-causing activities noted on the Daily Odor Monitoring Summary.

Event #89: Wednesday November 5 to Thursday November 6

November 5: Average temperature in degrees F: 54, Max. 71, Min. 37.

Winds had a max speed of 6 mph out of the SE.

Average relative humidity 81% with no precipitation recorded.

Complaints: Complaints occurred at 5:22pm and 8:09pm from I-77 South between mile markers 96-97 and 9863 Sherman Church Avenue in Bolivar. General activities were noted on the Daily Odor Monitoring Summary..

November 6: Average temperature in degrees F: 54, Max. 72, Min. 37

Winds had a max speed of 5 mph out of the SSE.

Average relative humidity 75% with no precipitation recorded.

Complaints: There were no odor complaints during this time.

Event #90: Tuesday November 11 to Wednesday November 12

November 11: Average temperature in degrees F: 31, Max. 41, Min. 21.

Winds were 1 mph with a max speed of 5 mph out of variable directions.

Average relative humidity 69% with no precipitation recorded.

Complaints: A complaint occurred at 8:13am from 2940 Haut Street in East Sparta. Pump maintenance and general activities were potentially odor-causing activities noted on the Daily Odor Monitoring Summary.

November 12: Average temperature in degrees F: 45, Max. 54, Min. 36

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

Average relative humidity 64% with 0.05 inches of precipitation recorded.

Complaints: There were no odor complaints during this time.

Event #91: Monday November 17 to Tuesday November 18

November 17: Average temperature in degrees F: 32, Max. 37, Min. 28.

Winds were 4 mph with max gusts of 20 mph out of the W.

Average relative humidity 83% with 0.03 inches of precipitation recorded.

Complaints: There were no odor complaints during this time.

November 18: Average temperature in degrees F: 27, Max. 30, Min. 23

Winds were 6 mph with max gusts of 22 mph out of the NW.

Average relative humidity 80% with 0.02 inches of 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 monitoring event separated by /.

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 #87: Friday October 24 to Saturday October 25

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

Event #87: VOCs Detected Above PRGs

Concentrations in ug/m³

| Compound | Acute MRL | Chronic MRL | PRG | School | Cell Tower | Co-loc Cell Tower | Camp ground | Wetland |
|-------------------------|-----------|-------------|-------------|--------------|--------------|-------------------|--------------|---------|
| Relative Wind Direction | | | | C/U | C/U | | C/D | C/C |
| Benzene | 29 | 10 | 0.25 | 0.44J | 0.41J | 0.38J | 0.44J | NS |
| Carbon tetrachloride | 188 | 188 | 0.13 | 0.45J | 0.41J | 0.45J | 0.46J | NS |

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 #88: Thursday October 30 to Friday October 31

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

Event #88: VOCs Detected Above PRGs

Concentrations in ug/m³

| Compound | Acute MRL | Chronic MRL | PRG | School | Co-loc School | Cell Tower | Camp ground | Wetland |
|-------------------------|-----------|-------------|-------------|--------------|---------------|--------------|--------------|--------------|
| Relative Wind Direction | | | | U/U | | U/U | D/D | C/C |
| Benzene | 29 | 10 | 0.25 | 1.5 | 1.6 | 0.65 | 0.76 | 0.64 |
| Carbon tetrachloride | 188 | 188 | 0.13 | 0.68J | 0.70J | 0.55J | 0.53J | 0.50J |

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 #89: Wednesday November 5 to Thursday November 6

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

Event #89: VOCs Detected Above PRGs

Concentrations in ug/m³

| Compound | Acute MRL | Chronic MRL | PRG | School | Cell Tower | Camp ground | Co-loc Camp ground | Wet land |
|-------------------------|-----------|-------------|-------------|--------------|--------------|--------------|--------------------|--------------|
| Relative Wind Direction | | | | C/C | C/C | C/C | | C/C |
| Benzene | 29 | 10 | 0.25 | 2.8 | 0.54J | 1.3 | 1.0 | 0.98 |
| Carbon tetrachloride | 188 | 188 | 0.13 | 0.65J | 0.48J | 0.60J | 0.44J | 0.54J |
| Tetrachloroethene | 1356 | 271 | 0.32 | 0.73J | ND | 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 #90: Tuesday November 11 to Wednesday November 12

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

Event #90: VOCs Detected Above PRGs

Concentrations in ug/m³

| Compound | Acute MRL | Chronic MRL | PRG | School | Cell Tower | Camp ground | Wet land | Co-loc Wet land |
|-------------------------|-----------|-------------|-------------|--------------|--------------|--------------|--------------|-----------------|
| Relative Wind Direction | | | | V/C | V/C | V/C | V/C | |
| Benzene | 29 | 10 | 0.25 | 1.7 | 1.3 | 1.5 | 1.4 | 1.5 |
| Carbon tetrachloride | 188 | 188 | 0.13 | 0.47J | 0.44J | 0.40J | 0.43J | 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

Event #91: Monday November 17 to Tuesday November 18

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

Event #91: VOCs Detected Above PRGs Concentrations in ug/m³

| Compound | Acute MRL | Chronic MRL | PRG | School | Cell Tower | Co-loc Cell Tower | Camp ground | Wetland |
|-------------------------|-----------|-------------|-------------|--------------|--------------|-------------------|--------------|--------------|
| Relative Wind Direction | | | | C/C | C/C | | C/C | D/C |
| Benzene | 29 | 10 | 0.25 | 0.68 | 0.58J | 0.44J | 0.41J | 0.41J |
| Carbon tetrachloride | 188 | 188 | 0.13 | 0.43J | 0.57J | 0.47J | 0.48J | 0.52J |

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 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 #19: benzaldehyde, propionaldehyde, butyraldehyde, valeraldehyde and hexaldehyde. 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: In order to investigate what appeared to be spuriously high concentrations of HF coinciding with replacing all Tygon® tubing with Teflon® tubing, beginning with Monitoring Event #88 we modified the sampling equipment for aldehydes and HF/HCl as follows: the manifolds on the sampling devices used for the Cell Tower and Campground locations were fitted with Tygon® tubing and the sampling devices used for the School and Wetland locations were fitted with Teflon® tubing.

Event #87: Friday October 24 to Saturday October 25

The laboratory report is in Appendix A.

**Event #87: Aldehydes
Concentrations in ug/m³**

| Aldehyde | Acute MRL ¹ | Chronic MRL ¹ | PRG | School C/U | | | Cell Tower C/U | | | Campground C/D | | | Wetland C/C | | |
|--------------|------------------------|--------------------------|------|------------|-----|----|----------------|-----|-----|----------------|-----|-----|-------------|-----|-----|
| | | | | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Formaldehyde | 50 | 10 | 0.15 | 3.6 | 1.0 | ND | 4.8 | 4.0 | 3.3 | 3.2 | 1.7 | 3.2 | 4.7 | 4.6 | 5.3 |
| Acetaldehyde | NA | NA | 0.87 | 1.8 | 0.7 | ND | 2.1 | 1.6 | 1.5 | 1.5 | 0.8 | 1.5 | 2.7 | 2.1 | 2.0 |

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

NR: No result available

Event #88: Thursday October 30 to Friday October 31

The laboratory report is in Appendix B.

**Event #88: Aldehydes
Concentrations in ug/m³**

| Aldehyde | Acute MRL ¹ | Chronic MRL ¹ | PRG | School U/U | | | Cell Tower U/U | | | Campground D/D | | | Wetland C/C | | |
|--------------|------------------------|--------------------------|------|------------|----|-----|----------------|-----|-----|----------------|-----|-----|-------------|-----|-----|
| | | | | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Formaldehyde | 50 | 10 | 0.15 | NR | NR | 4.1 | 6.4 | 3.5 | 13 | 8.4 | 2.3 | 2.9 | 2.7 | 1.3 | 4.4 |
| Acetaldehyde | NA | NA | 0.87 | NR | NR | 2.3 | 4.9 | 3.6 | 8.9 | 6.8 | 2.7 | 2.1 | 1.8 | 0.9 | 2.5 |

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 #89: Wednesday November 5 to Thursday November 6

The laboratory report is in Appendix C.

**Event #89: Aldehydes
Concentrations in ug/m³**

| Aldehyde | Acute MRL ¹ | Chronic MRL ¹ | PRG | School C/C | | | Cell Tower C/C | | | Campground C/C | | | Wetland C/C | | |
|--------------|------------------------|--------------------------|------|------------|----|-----|----------------|-----|----|----------------|----|----|-------------|------|-----|
| | | | | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Formaldehyde | 50 | 10 | 0.15 | 5.4 | ND | 3.1 | 13 | 4.9 | 19 | 68 | NR | 60 | 6.2 | 2.0 | 8.1 |
| Acetaldehyde | NA | NA | 0.87 | 3.6 | ND | 1.8 | 7.9 | 4.5 | 12 | 32 | NR | 12 | 2.9 | 0.85 | 3.0 |

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

Note: The results for sample tubes 1 and 3 collected from the Campground are considered unreliable. Upon examination of the Chain of Custody for these samples, it was noted that the air flows through the pump were low and the sampling durations were only 82 and 230 minutes as opposed to 480 minutes (8 hours) for the other sample tubes.

Event #90: Tuesday November 11 to Wednesday November 12

The laboratory report is in Appendix D.

**Event #90: Aldehydes
 Concentrations in ug/m³**

| Aldehyde | Acute MRL ¹ | Chronic MRL ¹ | PRG | School V/C | | | Cell Tower V/C | | | Campground V/C | | | Wetland V/C | | |
|--------------|------------------------|--------------------------|------|------------|-----|-----|----------------|-----|-----|----------------|-----|-----|-------------|-----|-----|
| | | | | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Formaldehyde | 50 | 10 | 0.15 | 2.6 | 1.6 | 2.4 | 3.3 | 4.2 | 5.5 | 5.3 | 4.6 | 8.9 | 2.8 | 2.7 | 4.7 |
| Acetaldehyde | NA | NA | 0.87 | 2.3 | 1.6 | 1.8 | 2.1 | 2.5 | 3.3 | 3.1 | 2.6 | 5.0 | 2.0 | 1.8 | 2.9 |

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 #91: Monday November 17 to Tuesday November 18

The laboratory report is in Appendix E.

**Event #91: Aldehydes
 Concentrations in ug/m³**

| Aldehyde | Acute MRL ¹ | Chronic MRL ¹ | PRG | School C/C | | | Cell Tower C/C | | | Campground C/C | | | Wetland D/C | | |
|--------------|------------------------|--------------------------|------|------------|------|------|----------------|------|-----|----------------|-----|-----|-------------|-----|-----|
| | | | | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Formaldehyde | 50 | 10 | 0.15 | 1.4 | 1.0 | 1.1 | 2.1 | 1.6 | 2.3 | 3.2 | 2.2 | 2.5 | 2.5 | 2.1 | 2.4 |
| Acetaldehyde | NA | NA | 0.87 | 0.90 | 0.64 | 0.73 | 1.1 | 0.86 | 1.7 | 1.4 | 1.3 | 1.2 | 1.2 | 1.1 | 1.4 |

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

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 #87 through #91 are summarized below. All detected concentrations were very low and did not approach levels of potential concern.

Event #87: Friday October 24 to Saturday October 25

Analytical results are in Appendix A.

**Event #87: Hydrogen Fluoride and Hydrogen Chloride
Concentrations in ug/m3**

| Compound | PRG | School C/U | | | Cell Tower C/U | | | Campground C/D | | | Wetland C/C | | |
|----------|-----|---------------|----|----|-------------------|----|----|-------------------|----|----|----------------|----|----|
| | | 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 | 18 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

NA: Not Available

ND: Not Detected

NR: No result available

Event #88: Thursday October 30 to Friday October 31

Analytical results are in Appendix B.

**Event #88: Hydrogen Fluoride and Hydrogen Chloride
Concentrations in ug/m3**

| Compound | PRG | School U/U | | | Cell Tower U/U | | | Campground D/D | | | Wetland C/C | | |
|----------|-----|---------------|----|----|-------------------|----|----|-------------------|-----|----|----------------|----|----|
| | | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| HF | NA | NR | NR | ND | ND | ND | ND | ND | 5.5 | ND | ND | ND | ND |
| HCl | 21 | NR | NR | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

NA: Not Available

ND: Not Detected

NR: No result available

Event #89: Wednesday November 5 to Thursday November 6

Analytical results are in Appendix C.

**Event #89: Hydrogen Fluoride and Hydrogen Chloride
Concentrations in ug/m3**

| Compound | PRG | School C/C | | | Cell Tower C/C | | | Campground C/C | | | Wetland C/C | | |
|----------|-----|---------------|-----|-----|-------------------|-----|----|-------------------|----|----|----------------|----|----|
| | | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| HF | NA | 18 | 5.0 | 5.7 | 6.4 | 8.7 | ND | 44 | NR | 22 | ND | ND | ND |
| HCl | 21 | ND | ND | ND | ND | ND | ND | ND | NR | ND | ND | ND | ND |

NA: Not Available

ND: Not Detected

NR: No result available

Event #90: Tuesday November 11 to Wednesday November 12

Analytical results are in Appendix D.

**Event #90: Hydrogen Fluoride and Hydrogen Chloride
Concentrations in ug/m3**

| Compound | PRG | School V/C | | | Cell Tower V/C | | | Campground V/C | | | Wetland V/C | | |
|----------|-----|---------------|----|----|-------------------|-----|----|-------------------|-----|-----|----------------|-----|----|
| | | 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 | 2.5 | ND | 28 | 4.9 | 4.0 | 9.0 | 5.3 | ND |

NA: Not Available

ND: Not Detected

NR: No result available

Event #91: Monday November 17 to Tuesday November 18

Analytical results are in Appendix E.

**Event #91: Hydrogen Fluoride and Hydrogen Chloride
Concentrations in ug/m3**

| Compound | PRG | School C/C | | | Cell Tower C/C | | | Campground C/C | | | Wetland D/C | | |
|----------|-----|---------------|-----|-----|-------------------|-----|-----|-------------------|-----|-----|----------------|-----|-----|
| | | 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 | 7.3 | 6.5 | 5.4 | 5.5 | 3.8 | 7.4 | 9.2 | 5.6 | 2.9 | 6.6 | 8.2 | 5.7 |

NA: Not Available

ND: Not Detected

NR: No result available

4.0 SUMMARY

4.1 Volatile Organic Compounds

It should be noted that 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.

Benzene and carbon tetrachloride were present in all samples from all locations at very low concentrations that were above the very conservative respective Region 9 PRGs but well below the ATSDR chronic MRLs. All of the benzene concentrations measured during the monitoring events 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, an extremely low concentration of tetrachloroethene (exceeding the conservative Region 9 PRGs but 3 to 4 orders of magnitude below the respective ATSDR Acute and Chronic MRLs) was detected at the school during Monitoring Event #89.

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. On one occasion (11/5/2008), formaldehyde was reported at levels exceeding the ATSDR Acute MRL (50 ug/m^3). Each of the three sub-samples from this location / event had sampling-related problems. However, the data are reported as received. Even if this value is accurate, it did not persist for 6 days after (nor 6 days before this event) thus, it did NOT exceed the Acute MRL.

The concentrations of aldehydes detected during the community monitoring have typically been near background levels (formaldehyde at 1-2 ppb). Attachment 1 to this Monthly Report provides a summary of the daily formaldehyde results. Out of 372 sample-location-days, 11 results exceed 10 ug/m^3 for formaldehyde. These higher sample results factors may be related to actual excursions in ambient formaldehyde

levels, sample collection issues, diurnal variations, or seasonal trends / climatologic conditions.

A summary of all formaldehyde results collected since May 2007 indicates that the average concentrations over the entire sample period are considerably below the ATSDR Chronic MRL of 10ug/m³, even when suspect data are retained. The average and maximum concentrations of formaldehyde for the 93 sampling events conducted so far are as follows:

Summary of Formaldehyde Concentrations from May 2007 through November 2008

Concentrations in ug/m³

| | School | Cell Tower | Campground | Wetland |
|-----------------------------|--------|------------|------------|---------|
| Average | 1.08 | 1.95 | 2.19 | 1.93 |
| Maximum | 14.57 | 27.00 | 64.00 | 15.73 |
| #Days Above ASTDR Acute MRL | 0 | 0 | 1 | 0 |

It is clear that the levels of formaldehyde in the air around Countywide are typical of regional background conditions. Furthermore, the average concentrations over more than 18 months of monitoring indicate that the levels of aldehydes in community air are not unusual for the region nor 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. With the exception of some higher levels of HF reported during Monitoring Event #89, levels of HF were either low or Not Detected. Hydrogen chloride was found in a number of the sorbent tubes collected during Monitoring Events #90 and 91. There were no obvious patterns with respect to monitoring location or ambient conditions. Furthermore, there did not appear to be any difference between samples collected using Tygon® vs. Teflon® tubing in the manifold. Our hypothesis that the higher levels of HF detected during the late summer and early autumn may have originated from the fluorocarbons in the Teflon® tubing does not appear to be supported by the most recent results.

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 anomalously high concentrations of benzene, or any other VOCs 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 #19. Our specific conclusions are summarized below:

- The levels of benzene recorded at the community monitoring locations during late-October through mid-November were very low and well within Ohio background as reported by Ohio EPA (Portsmouth Ohio Air Quality Study, 2003).
- None of the results for benzene exceeded the health-based ATSDR Chronic MRL (or the Acute MRL). No other VOC approached or exceeded the corresponding ATSDR Chronic or Acute MRL.
- 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.
- There are no clear trends with regard to the specific compounds or the concentrations of those compounds detected with respect whether the monitoring location was upwind or downwind of the landfill during the monitoring event.
- The concentrations of formaldehyde and acetaldehyde, and of hydrogen fluoride reported during late-October through mid-November were similar to the previous two months. One high formaldehyde result can be explained by low total flows and flow rate through the tubes.
- The results presented in this Monthly Report #19 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 (which may include the landfill); 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 #19**

December 20, 2008

EPA Method TO-15 SUMMARY TABLES

Table 1: Event #87: Friday October 24 to Saturday October 25

Table 2: Event #88: Thursday October 30 to Friday October 31

Table 3: Event #89: Wednesday November 5 to Thursday November 6

Table 4: Event #90: Tuesday November 11 to Wednesday November 12

Table 5: Event #91: Monday November 17 to Tuesday November 18

Countywide Recycling & Disposal Facility

EPA Method TO-15 Modified: Volatile Organic Compounds

Table 1: Event # 87 October 24/25, 2008

| Analyte | *Prevailing Wind Direction | | Monitoring Location | | | |
|------------------------------|----------------------------|--------------------|---------------------|---------|--------|--------|
| | School | Campground | Cell Tower | Wetland | | |
| All results in ug/m3 | | | | | | |
| Method TO-15 Modified | Acute MRL | Chronic MRL | PRG | | | |
| Acetone | 61762 | 30881 | 3300 | 11J | 6.3J | 9.6J |
| Benzene | 29 | 10 | 0.25 | 0.44J | 0.44J | 0.38J |
| Bromomethane | 194 | 19 | 5.2 | ND | ND | ND |
| 1,3-Butadiene | NA | NA | 0.061 | ND | ND | ND |
| tert-Butyl alcohol | NA | NA | NA | 0.20J | 0.16J | 0.15J |
| Carbon disulfide | NA | 934 | 730 | 0.44J | ND | ND |
| Carbon tetrachloride | 188 | 188 | 0.13 | 0.45J | 0.46J | 0.45J |
| Chloroethane | 39583 | NA | 2.3 | ND | ND | ND |
| Chloroform | 488 | 98 | 0.083 | ND | ND | ND |
| Chloromethane | 1033 | 103 | 95 | 0.76J | 0.85J | 0.82J |
| Cyclohexane | NA | NA | 6200 | ND | ND | ND |
| Dichlorodifluoromethane | NA | NA | 210 | 1.9 | 1.8 | 1.9 |
| Ethylbenzene | 43419 | 1303 | 1100 | ND | ND | ND |
| 4-Ethyltoluene | NA | NA | NA | ND | ND | ND |
| Heptane | NA | NA | NA | 0.35J | 0.31J | 0.38J |
| Hexane | NA | 2115 | 210 | 0.38J | 0.39J | 0.31J |
| Methyl ethyl ketone | NA | NA | 5100 | 1.6J | 0.88J | 1.1J |
| Methyl isobutyl ketone | NA | NA | 3100 | ND | ND | ND |
| Methylene chloride | 2084 | 1042 | 4.1 | 0.79JB | 0.63JB | 0.76JB |
| Styrene | 8520 | 852 | 1100 | ND | ND | ND |
| Tetrahydrofuran | NA | NA | 0.99 | ND | ND | ND |
| Tetrachloroethene | 1356 | 271 | 0.32 | ND | ND | ND |
| Toluene | 3768 | 301 | 400 | 0.78 | 0.64J | 0.70J |

Countywide Recycling & Disposal Facility

EPA Method TO-15 Modified: Volatile Organic Compounds

Table 2: Event #88: October 30/31, 2008

| Analyte | *Prevailing Wind Direction | | Monitoring Location | | Cell Tower | Wetland |
|---------------------------------------|----------------------------|-------------|---------------------|--------------|--------------|--------------|
| | | | School | Campground | | |
| | | | Co-located | | | |
| All results in ug/m3 | | | | | | |
| Method TO-15 Modified | Acute MRL | Chronic MRL | PRG | | | |
| Acetone | 61762 | 30881 | 3300 | 22 | 18 | 8.8J |
| Benzene | 29 | 10 | 0.25 | 1.5 | 1.6 | 0.76 |
| Bromomethane | 194 | 19 | 5.2 | ND | ND | ND |
| 1,3-Butadiene | NA | NA | 0.061 | ND | ND | ND |
| tert-Butyl alcohol | NA | NA | NA | 0.28J | 0.22J | 0.18J |
| Carbon disulfide | NA | 934 | 730 | ND | ND | ND |
| Carbon tetrachloride | 188 | 188 | 0.13 | 0.58J | 0.70J | 0.53J |
| Chloroethane | 39583 | NA | 2.3 | ND | ND | ND |
| Chloroform | 488 | 98 | 0.083 | 0.37J | 0.43J | 0.25J |
| Chloromethane | 1033 | 103 | 95 | 0.73J | 1.4 | 0.78J |
| Cyclohexane | NA | NA | 6200 | 0.31J | 0.31J | 0.23J |
| Dichlorodifluoromethane | NA | NA | 210 | 2 | 2.0 | 2.1 |
| 1,1-Dichloroethane | | | | ND | ND | ND |
| Ethylbenzene | 43419 | 1303 | 1100 | 1.2 | 0.53J | ND |
| 4-Ethyltoluene | NA | NA | NA | ND | ND | ND |
| Heptane | NA | NA | NA | 0.91J | 0.62J | 0.45J |
| Hexane | NA | 2115 | 210 | 1.1J | 1.1J | 0.63J |
| Methyl ethyl ketone | NA | NA | 5100 | 3.7 | 1.9J | 1.4J |
| Methyl isobutyl ketone | NA | NA | 3100 | 0.26J | ND | ND |
| Methylene chloride | 2084 | 1042 | 4.1 | 1.9B | 1.9B | 1.3JB |
| Styrene | 8520 | 852 | 1100 | ND | ND | ND |
| Tetrahydrofuran | NA | NA | 0.99 | ND | ND | ND |
| Tetrachloroethene | 1356 | 271 | 0.32 | ND | ND | ND |
| Toluene | 3768 | 301 | 400 | 5.4 | 2.8 | 1.1 |
| 1,1,1-Trichloroethane | 10912 | 3819 | 2300 | ND | ND | ND |
| 1,1,2-Trichloro-1,1,2-trifluoroethane | NA | NA | NA | 0.54J | 0.54J | 0.55J |
| Trichlorofluoromethane | NA | NA | 730 | 1.0J | 1.0J | 1.1J |
| 1,2,4-Trimethylbenzene | NA | NA | 6.2 | 2.6 | 0.68J | ND |
| 1,3,5-Trimethylbenzene | NA | NA | 6.2 | 1.7 | ND | ND |
| 2,2,4-Trimethylpentane | NA | NA | NA | 0.40J | 0.54J | ND |
| Vinyl Chloride | 1278 | 77 | 0.11 | ND | ND | ND |
| m/p-Xylene | 8687 | 8687 | 110 | 8.1 | 1.6 | 0.57J |
| o-Xylene | 8687 | 8687 | 110 | 1.8 | 0.58J | ND |

Countywide Recycling & Disposal Facility

EPA Method TO-15 Modified: Volatile Organic Compounds

Table 3: Event #89: November 5/6, 2008

| Analyte | *Prevailing Wind Direction | | School | Cell Tower | Monitoring Location | | Wetland |
|---|----------------------------|-------------|--------|------------|---------------------|------------|---------|
| | | | | | Campground | Co-Located | |
| All results in ug/m3 | | | | | | | |
| Method TO-15 Modified | Acute MRL | Chronic MRL | PRG | | | | |
| Acetone | 61762 | 30881 | 3300 | 38 | 19 | 39 | 12 |
| Benzene | 29 | 10 | 0.25 | 2.8 | 0.54J | 1.3 | 1.0 |
| Bromomethane | 194 | 19 | 5.2 | ND | ND | ND | ND |
| tert-Butyl alcohol | NA | NA | NA | 0.68J | 0.18J | 0.73J | 0.17J |
| Carbon disulfide | NA | 934 | 730 | 0.39JB | 0.20JB | 0.24JB | 0.13JB |
| Carbon tetrachloride | 188 | 188 | 0.13 | 0.65J | 0.48J | 0.60J | 0.44J |
| Chloroethane | 39583 | NA | 2.3 | ND | ND | ND | ND |
| Chloroform | 488 | 98 | 0.083 | 0.19J | ND | ND | ND |
| Chloromethane | 1033 | 103 | 95 | 1.4 | 1.4 | 1.6 | 0.99J |
| Cyclohexane | NA | NA | NA | 0.78J | 0.41J | 0.59J | 0.43J |
| Dichlorodifluoromethane | NA | NA | 210 | 2.9 | 2.8 | 2.8 | 2.3 |
| Ethylbenzene | 43419 | 1303 | 1100 | 1.8 | ND | 0.48J | 0.56J |
| Heptane | NA | NA | NA | 1.7J | ND | 2.5 | 1.3J |
| Hexane | NA | 2115 | 210 | 3.0 | 0.82J | 2.1 | 1.8 |
| Methyl ethyl ketone | NA | NA | 5100 | 6.8 | 1.8J | 6.7 | 1.5J |
| Methyl isobutyl ketone | NA | NA | 3100 | 0.58J | ND | 0.38J | ND |
| Methylene chloride | 2084 | 1042 | 4.1 | 3.6B | 4.7B | 2.9B | 3.8B |
| Tetrachloroethene | 1356 | 271 | 0.32 | 0.73J | ND | ND | ND |
| Tetrahydrofuran | NA | NA | 0.99 | 0.26J | ND | ND | ND |
| Toluene | 3768 | 301 | 400 | 7.7 | 0.32J | 2.4 | 2.1 |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | NA | NA | NA | 0.69J | 0.65J | 0.66J | 0.53J |
| Trichlorofluoromethane | NA | NA | 730 | 1.6 | 2.0 | 1.5 | 1.4 |
| 1,2,4-Trimethylbenzene | NA | NA | 6.2 | 5.1 | ND | 0.80J | 1.6 |
| 1,3,5-Trimethylbenzene | NA | NA | 6.2 | 1.5 | ND | ND | 0.53J |
| Vinyl Chloride | 1278 | 77 | 0.11 | ND | ND | ND | ND |
| m/p-Xylene | 8687 | 8687 | 110 | 5.6 | ND | 1.5 | 1.8 |
| o-Xylene | 8687 | 8687 | 110 | 2.3 | ND | 0.53J | 0.66J |
| Tentatively Identified Compounds | | | | | | | |

| | | | | | | | | | | | | |
|---|----|----|----|----|----|----|----|----|----|----|----|----|
| Acetaldehyde | NA |
| Decane | NA | Y | NA | NA | NA |
| Propane | NA | Y | NA | NA | NA |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| *Prevailing Wind Direction with respect to the landfill | | | | | | | | | | | | |
| U: Upwind | | | | | | | | | | | | |
| D: Downwind | | | | | | | | | | | | |
| C: Crosswind | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 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 was present in the trip blank | | | | | | | | | | | | |
| J = Estimated concentration below laboratory reporting limits | | | | | | | | | | | | |
| 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 #90: November 11/12, 2008

| Analyte | *Prevailing Wind Direction | Monitoring Location | | | Co-Located | | | |
|---------------------------------------|----------------------------|---------------------|------------|------------|------------|---------|-------|-------|
| | | School | Cell Tower | Campground | | Wetland | | |
| All results in ug/m3 | | | | | | | | |
| Method TO-15 Modified | Acute MRL | Chronic MRL | PRG | | | | | |
| Acetone | 61762 | 30881 | 3300 | 24 | 6.5J | 7.5J | 14 | 14 |
| Benzene | 29 | 10 | 0.25 | 1.7 | 1.3 | 1.5 | 1.4 | 1.5 |
| Bromomethane | 194 | 19 | 5.2 | ND | ND | ND | ND | ND |
| 1,3-Butadiene | NA | NA | 0.061 | ND | ND | ND | ND | ND |
| tert-Butyl alcohol | NA | NA | NA | 0.33J | 0.13J | ND | 0.25J | 0.28J |
| Carbon disulfide | NA | 934 | 730 | ND | ND | 0.24J | ND | ND |
| Carbon tetrachloride | 188 | 188 | 0.13 | 0.47J | 0.44J | 0.40J | 0.43J | 0.47J |
| Chloroethane | 39583 | NA | 2.3 | ND | ND | ND | ND | ND |
| Chloroform | 488 | 98 | 0.083 | ND | ND | ND | ND | ND |
| Chloromethane | 1033 | 103 | 95 | 0.97J | 0.96J | 0.95J | 0.95J | 0.89J |
| Cyclohexane | NA | NA | 6200 | 0.14J | ND | 0.21J | ND | ND |
| Dichlorodifluoromethane | NA | NA | 210 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| 1,2-Dichloroethane | NA | 2368 | 0.074 | ND | ND | ND | ND | ND |
| Ethylbenzene | 43419 | 1303 | 1100 | 0.71J | ND | 0.35J | ND | 0.68J |
| 4-Ethyltoluene | NA | NA | NA | 1.00J | ND | 0.45J | 0.38J | 0.70J |
| Heptane | NA | NA | NA | 1.0J | ND | 0.59J | 0.55J | 0.51J |
| Hexane | NA | 2115 | 210 | 0.92J | 0.56J | 0.89J | 0.64J | 0.65J |
| Methyl ethyl ketone | NA | NA | 5100 | 3.9 | 0.89J | 1.2J | 2.2J | 2.2J |
| Methyl isobutyl ketone | NA | NA | 3100 | 0.33J | ND | ND | ND | ND |
| Methylene chloride | 2084 | 1042 | 4.1 | 2.9B | 3.2B | 2.9N | 3.1B | 2.8B |
| Styrene | 8520 | 852 | 1100 | ND | ND | ND | ND | ND |
| Tetrahydrofuran | NA | NA | 0.99 | ND | ND | ND | ND | ND |
| Tetrachloroethene | 1356 | 271 | 0.32 | ND | ND | ND | ND | ND |
| Toluene | 3768 | 301 | 400 | 2.7 | 0.71J | 2.0 | 1.6 | 2.4 |
| 1,1,1-Trichloroethane | 10912 | 3819 | 2300 | ND | ND | ND | ND | ND |
| 1,1,2-Trichloro-1,1,2-trifluoroethane | NA | NA | NA | 0.53J | 0.53J | 0.50J | 0.49J | 0.50J |
| Trichlorofluoromethane | NA | NA | 730 | 1.2 | 1.2 | 1.2 | 1.1 | 1.2 |
| 1,2,4-Trimethylbenzene | NA | NA | 6.2 | 3.2 | ND | 1.2 | 1.1 | 2.0 |

| | | | | | | | | |
|---|------|------|------|-------|----|-------|-------|-------|
| 1,3,5-Trimethylbenzene | NA | NA | 6.2 | 0.76J | ND | ND | ND | 0.58J |
| 2,2,4-Trimethylpentane | NA | NA | NA | 0.23J | ND | 0.23J | ND | ND |
| Vinyl Chloride | 1278 | 77 | 0.11 | ND | ND | ND | ND | ND |
| m/p-Xylene | 8687 | 8687 | 110 | 3.0 | ND | 1.3 | 1.0 | 2.8 |
| o-Xylene | 8687 | 8687 | 110 | 1.1 | ND | 0.46J | 0.40J | 1.0 |
| | | | | | | | | |
| | | | | | | | | |
| Tentatively Identified Compounds | | | | | | | | |
| Decane | NA | NA | NA | NA | NA | NA | NA | Y |
| Acetaldehyde | NA | NA | NA | Y | NA | NA | NA | NA |
| | | | | | | | | |
| *Prevailing Wind Direction with respect to the landfill | | | | | | | | |
| U: Upwind | | | | | | | | |
| D: Downwind | | | | | | | | |
| C: Crosswind | | | | | | | | |
| | | | | | | | | |
| 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 was present in the trip blank | | | | | | | | |
| J = Estimated concentration below laboratory reporting limit | | | | | | | | |
| D = Dilution | | | | | | | | |
| E = Exceeds calibration range | | | | | | | | |
| | | | | | | | | |
| 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 #91: November 17/18, 2008

| Analyte | *Prevailing Wind Direction | | Monitoring Location | | | | |
|---------------------------------------|----------------------------|-------------|---------------------|--------|------------|------------|---------|
| | Acute MRL | Chronic MRL | PRG | School | Cell Tower | Campground | Wetland |
| | 61762 | 30881 | 3300 | 8.7J | 52 | 4.1J | 4.6J |
| Method TO-15 Modified | | | | | | | |
| Acetone | 29 | 10 | 0.25 | 0.68 | 0.58J | 0.44J | 0.41J |
| Benzene | 194 | 19 | 5.2 | ND | ND | ND | ND |
| Bromomethane | NA | NA | NA | NA | 2.3J | ND | 0.12J |
| tert-Butyl alcohol | NA | 934 | 730 | 0.11JB | 0.16JB | 0.22JB | 0.28JB |
| Carbon disulfide | 188 | 188 | 0.13 | 0.43J | 0.57J | 0.47J | 0.48J |
| Carbon tetrachloride | NA | NA | 62 | ND | ND | ND | ND |
| Chlorobenzene | 39583 | NA | 2.3 | ND | ND | ND | ND |
| Chloroethane | 488 | 98 | 0.083 | ND | ND | ND | ND |
| Chloroform | 1033 | 103 | 95 | 0.83J | 1.1 | 0.88J | 0.91J |
| Chloromethane | NA | NA | 6200 | ND | ND | ND | ND |
| Cyclohexane | NA | NA | 210 | 2.3 | 2.3 | 1.9 | 2.1 |
| Dichlorodifluoromethane | 43419 | 1303 | 1100 | ND | 0.34J | 0.38J | ND |
| Ethylbenzene | NA | NA | NA | ND | 0.67J | 0.42J | ND |
| 4-Ethyltoluene | NA | NA | NA | ND | ND | 0.25J | 0.27J |
| Heptane | NA | 2115 | 210 | 5.1 | ND | 0.32J | 0.23J |
| Hexane | NA | NA | 5100 | ND | 6.4 | ND | ND |
| Methyl ethyl ketone | NA | NA | 3100 | ND | 0.80J | ND | ND |
| Methyl isobutyl ketone | 2084 | 1042 | 4.1 | 7.5B | 1.1JB | 1.7JB | 0.81JB |
| Methylene chloride | 8520 | 852 | 1100 | ND | ND | ND | ND |
| Styrene | NA | NA | 0.99 | ND | ND | ND | ND |
| Tetrahydrofuran | 3768 | 301 | 400 | 1.00 | 0.75 | 0.82 | 0.52J |
| Toluene | NA | NA | NA | 0.54J | 0.64J | 0.58J | 0.56J |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | NA | NA | 730 | 1.3 | 1.3 | 1.1 | 1.1 |
| Trichlorofluoromethane | NA | NA | 6.2 | ND | 1.7 | 0.99 | 0.64J |
| 1,2,4-Trimethylbenzene | NA | NA | 6.2 | ND | 0.35J | ND | ND |
| 1,3,5-Trimethylbenzene | NA | NA | 6.2 | ND | 0.35J | ND | ND |

All results in ug/m3

| Analyte | *Prevailing Wind Direction | | | Monitoring Location | | | |
|---|----------------------------|------------|------------|---------------------|--------|------------|------------|
| | School | Cell Tower | Campground | Wetland | School | Cell Tower | Campground |
| | Co-Located | | | | | | |
| All results in ug/m3 | | | | | | | |
| 2,2,4-Trimethylpentane | NA | NA | NA | 0.18J | ND | ND | ND |
| Vinyl Chloride | 1278 | 77 | 0.11 | ND | ND | ND | ND |
| m/p-Xylene | 8687 | 8687 | 110 | ND | 1.7 | 0.66J | 0.88 |
| o-Xylene | 8687 | 8687 | 110 | ND | 0.46J | 0.62J | ND |
| Tentatively Identified Compounds | | | | | | | |
| Acetaldehyde | NA | NA | NA | NA | Y | NA | NA |
| *Prevailing Wind Direction with respect to the landfill | | | | | | | |
| U: Upwind | | | | | | | |
| D: Downwind | | | | | | | |
| C: Crosswind | | | | | | | |
| 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 #19**

December 20, 2008

**Attachment 1
Summary of Formaldehyde Results from TO-11A Analyses
May 2007 through November 2008**

Summary of Formaldehyde Results from TO-11 Analyses (in ug/m3)

| # | Date | School | CellTower | Campground | Wetland |
|----|------------|--------|-----------|--------------|--------------|
| 1 | 5/21/2007 | 0.10 | 0.10 | 0.10 | 0.10 |
| 2 | 5/27/2007 | 0.62 | 0.41 | 0.47 | 0.34 |
| 3 | 6/2/2007 | 0.42 | 0.51 | 0.87 | 0.43 |
| 4 | 6/8/2007 | 0.10 | 0.34 | 0.31 | 0.35 |
| 5 | 6/14/2007 | 0.59 | 0.39 | 0.10 | 0.15 |
| 6 | 6/20/2007 | 0.43 | 0.38 | 0.28 | 0.16 |
| 7 | 6/26/2007 | 0.44 | 0.95 | 0.10 | 0.43 |
| 8 | 7/2/2007 | 0.10 | 0.19 | 0.22 | 0.15 |
| 9 | 7/8/2007 | 0.17 | 0.63 | 0.40 | 0.43 |
| 10 | 7/14/2007 | 0.40 | 0.22 | 0.54 | 0.24 |
| 11 | 7/20/2007 | 0.34 | 0.30 | 0.33 | 0.28 |
| 12 | 7/26/2007 | 0.79 | 0.10 | 1.02 | 0.36 |
| 13 | 8/2/2007 | 0.24 | 0.67 | 0.54 | 0.10 |
| 14 | 8/8/2007 | 0.32 | 0.39 | 0.27 | 0.83 |
| 15 | 8/14/2007 | 0.23 | 0.19 | 0.47 | 0.10 |
| 16 | 8/20/2007 | 0.29 | 0.24 | 0.15 | 0.14 |
| 17 | 8/26/2007 | 0.21 | 0.10 | 0.10 | 0.10 |
| 18 | 9/4/2007 | 0.19 | 0.10 | 0.10 | 0.10 |
| 19 | 9/10/2007 | 0.10 | 0.17 | 0.19 | 0.22 |
| 20 | 9/16/2007 | 1.70 | 6.47 | 3.03 | 2.87 |
| 21 | 9/22/2007 | 0.10 | 0.29 | 0.28 | 0.42 |
| 22 | 9/28/2007 | 0.10 | 0.14 | 0.10 | 0.27 |
| 23 | 10/4/2007 | 3.83 | 4.00 | 14.30 | 5.70 |
| 24 | 10/10/2007 | 0.43 | 4.13 | 1.34 | 0.41 |
| 25 | 10/16/2007 | 0.40 | 2.66 | 2.30 | 11.33 |
| 26 | 10/22/2007 | 0.27 | 8.77 | 3.30 | 14.00 |
| 27 | 10/28/2007 | 0.16 | 0.10 | 0.10 | 0.10 |
| 28 | 11/3/2007 | 0.10 | 0.10 | 0.14 | 0.10 |
| 29 | 11/9/2007 | 0.46 | 1.63 | 1.90 | 5.43 |
| 30 | 11/15/2007 | 0.17 | 0.31 | 0.69 | 2.97 |
| 31 | 11/20/2007 | 0.52 | 8.50 | 6.50 | 2.20 |
| 32 | 11/26/2007 | 0.10 | 1.53 | 0.84 | 4.47 |
| 33 | 12/2/2007 | 0.10 | 0.50 | 0.26 | 2.33 |
| 34 | 12/8/2007 | 0.10 | 0.15 | 0.36 | 0.15 |
| 35 | 12/14/2007 | 0.15 | 1.13 | 0.15 | 0.15 |
| 36 | 12/20/2007 | 0.10 | 0.90 | 1.73 | 0.17 |
| 37 | 12/26/2007 | 0.16 | 1.48 | 0.11 | 0.97 |
| 38 | 1/4/2008 | 0.10 | 0.10 | 1.30 | 1.08 |
| 39 | 1/10/2008 | 0.10 | 0.10 | 0.53 | 0.73 |
| 40 | 1/16/2008 | 0.10 | 0.10 | 0.10 | 0.10 |
| 41 | 1/22/2008 | 0.10 | 0.10 | 0.10 | 0.10 |
| 42 | 1/28/2008 | 0.10 | 0.10 | 0.10 | 0.10 |
| 43 | 2/3/2008 | 0.10 | 0.10 | 0.10 | 0.10 |
| 44 | 2/9/2008 | 0.10 | 0.10 | 0.10 | 0.10 |
| 45 | 2/15/2008 | 0.10 | 0.10 | 0.10 | 0.10 |
| 46 | 2/21/2008 | 0.17 | 0.10 | 0.10 | 0.10 |
| 47 | 2/27/2008 | 0.10 | 0.10 | 0.10 | 1.20 |
| 48 | 3/4/2008 | 0.10 | 0.10 | 0.10 | 0.73 |
| 49 | 3/11/2008 | 0.10 | 0.10 | 0.10 | 0.10 |

Summary of Formaldehyde Results from TO-11A Analyses (in ug/m3)

| # | Date | School | CellTower | Campground | Wetland |
|-------------|------------|--------------|--------------|--------------|--------------|
| 50 | 3/16/2008 | 0.10 | 0.10 | 0.10 | 0.10 |
| 51 | 3/22/2008 | 0.10 | 0.14 | 0.25 | 0.57 |
| 52 | 3/28/2008 | 0.10 | 0.10 | 0.15 | 0.10 |
| 53 | 4/3/2008 | 0.10 | 0.10 | 0.15 | 0.10 |
| 54 | 4/9/2008 | 0.10 | 0.14 | 0.24 | 0.29 |
| 55 | 4/15/2008 | 0.10 | 0.10 | 0.32 | 0.27 |
| 56 | 4/21/2008 | 0.19 | 0.31 | 0.22 | 0.20 |
| 57 | 4/27/2008 | 0.10 | 0.25 | 0.18 | 0.46 |
| 58 | 5/3/2008 | 0.22 | 1.24 | 0.21 | 0.30 |
| 59 | 5/9/2008 | 1.50 | 0.19 | 0.15 | 0.10 |
| 60 | 5/15/2008 | 0.16 | 0.29 | 0.20 | 0.25 |
| 61 | 5/21/2008 | 0.10 | 0.17 | 0.13 | 0.14 |
| 62 | 5/27/2008 | 0.10 | 0.10 | 0.13 | 0.12 |
| 63 | 6/2/2008 | 0.10 | 0.14 | 0.10 | 0.10 |
| 64 | 6/8/2008 | 0.40 | 0.70 | 0.44 | 0.29 |
| 65 | 6/14/2008 | 0.29 | 0.55 | 0.55 | 0.30 |
| 66 | 6/20/2008 | 0.18 | 0.10 | 0.10 | 0.29 |
| 67 | 6/26/2008 | 0.10 | 0.22 | 0.19 | 0.17 |
| 68 | 7/2/2008 | 0.23 | 0.31 | 0.25 | 0.20 |
| 69 | 7/8/2008 | 1.60 | 1.90 | 0.15 | 2.57 |
| 70 | 7/14/2008 | 0.32 | 0.43 | 0.56 | 0.30 |
| 71 | 7/20/2008 | 0.32 | 0.47 | 0.39 | 0.24 |
| 72 | 7/26/2008 | 0.11 | 0.23 | 0.25 | 0.17 |
| 73 | 8/1/2008 | 0.12 | 0.19 | 0.17 | 0.11 |
| 74 | 8/7/2008 | 3.14 | 6.70 | 6.30 | 3.01 |
| 75 | 8/13/2008 | 0.79 | 1.37 | 0.41 | 1.62 |
| 76 | 8/19/2008 | 1.91 | 0.34 | 1.54 | 2.55 |
| 77 | 8/25/2008 | 0.39 | 2.06 | 1.30 | 1.13 |
| 78 | 8/31/2008 | 9.40 | 27.00 | 18.57 | 15.73 |
| 79 | 9/6/2008 | 5.23 | 0.53 | 3.33 | 9.50 |
| 80 | 9/12/2008 | 5.17 | 11.30 | 5.90 | 14.33 |
| 81 | 9/18/2008 | 2.78 | 6.27 | 4.27 | 7.50 |
| 82 | 9/24/2008 | 14.57 | 7.93 | 6.07 | 8.93 |
| 83 | 9/30/2008 | 7.67 | 8.10 | 3.97 | 4.90 |
| 84 | 10/6/2008 | 3.67 | 4.20 | 5.20 | 8.13 |
| 85 | 10/12/2008 | 5.70 | 8.13 | 6.87 | 6.60 |
| 86 | 10/18/2008 | 2.53 | 2.67 | 3.23 | 1.83 |
| 87 | 10/24/2008 | 1.54 | 4.03 | 2.70 | 4.87 |
| 88 | 10/30/2008 | 1.43 | 7.63 | 4.53 | 2.80 |
| 89 | 11/5/2008 | 2.84 | 12.30 | 64.00 | 5.43 |
| 90 | 11/11/2008 | 2.20 | 4.33 | 6.27 | 3.40 |
| 91 | 11/17/2008 | 1.17 | 2.00 | 2.63 | 2.33 |
| 92 | 11/23/2008 | 2.17 | 3.03 | 3.87 | 2.17 |
| 93 | 11/29/2008 | 2.70 | 2.63 | 0.46 | 1.30 |
| | max | 14.57 | 27.00 | 64.00 | 15.73 |
| | min | 0.10 | 0.10 | 0.10 | 0.10 |
| 1.79 | avg | 1.08 | 1.95 | 2.19 | 1.93 |