Countywide Recycling & Disposal Facility
Ambient Air Monitoring
Monthly Report #14

July 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

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Monitoring Events #61 through 65

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 #61: Wednesday May 21 to Thursday May 22.
Event #62: Tuesday May 27 to Wednesday May 28.
Event #63: Monday June 2 to Tuesday June 3.
Event #64: Sunday June 8 to Monday June 9.
Event #65: Saturday June 14 to Sunday June 15.

Air samples were collected over a 24-hour period at four locations: Bolivar Elementary School (School); the cell tower on the Countywide facility (Cell Tower); near the top of the hill at the KOA campground to the northeast of the landfill (Campground); and east of the landfill near the floodgates located on Gracemont, off the Tri-County horse trail (Wetland). (Figure 1). The normal specified route for trucks entering the Countywide facility is Dueber Road and Gracemont Road through a wetland. Since there are no people working or residing in the wetland, it is being considered a temporary location until such time as the Agency specifies a fourth permanent monitoring location. The campground is frequently in the area of impact predicted by the air model.

For events #62 through #65, two summa canisters was placed at each monitoring location. One summa canister from each location was sent to Integrated Analytical Labs for analysis and the other summa canister from each location was sent to Test America for analysis.

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

All analyses were performed by Integrated Analytical Laboratory (IAL), Randolph, NJ. Certification numbers: ELAP-11402; NJDEP-14751; AIHA-100201.

As a conservative first evaluation, the concentrations of chemicals detected in the air samples were compared to the corresponding USEPA Region 9 Preliminary Remediation Goals (PRGs). 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^3 is lower than the average background concentration of 1.96 ug/m^3 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.

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 #61, Wednesday/Thursday May 21/22, 2008:
May 21: Average temperature in degrees F: 50, Max. 62, Min. 41.
Winds were 0 mph with max gusts of 25 mph out of the NW.
Average relative humidity 62% with 0.03 inches of precipitation recorded.
Complaints: There were no odor complaints during this time.
May 22: Average temperature in degrees F: 54, Max. 62, Min. 45
Winds were 4 mph with max gusts of 22 mph out of the NW.
Average relative humidity 62% with no precipitation recorded.
Complaints: There were no odor complaints during this time.

Event #62, Tuesday/Wednesday May 27/28, 2008:
May 27: Average temperature in degrees F: 63, Max. 73, Min. 51.
Winds were 2 mph with max gusts at 22 mph out of the N.

Average relative humidity 73% with no precipitation recorded.
Complaints: There were no odor complaints during this time.
May 28: Average temperature in degree F: 56, Max. 70, Min. 42.
Winds were 4 mph with max gusts of 20 mph out of the NE.
Average relative humidity 52% with no precipitation recorded.
Complaints: Complaints occurred at 8:00am from 9863 Sherman Church Avenue in Bolivar; and at 12:43pm from 12102 Sherman Church Avenue in Bolivar. Pump maintenance; relief well maintenance; pipeline construction in cell 7; flare 4 down time; purge pumping from well 314; temporary cap maintenance; and the EPA test on RW-4 vent were potentially odor-causing activities noted on the Daily Odor Monitoring Summary.

Event #63: Monday/Tuesday June 02/03, 2008:
June 02: Average temperature in degrees F: 62, Max. 80, Min. 46.
Winds were calm with max speed at 7 mph out of the SE.
Average relative humidity 62% with 0.01 inches of precipitation recorded.
Complaints: There were no odor complaints during this time.
June 03: Average temperature in degrees F: 64, Max. 71, Min. 57.
Winds were 2 mph with max speed of 10 mph out of the SSE.
Average relative humidity 76% with 0.02 inches of precipitation recorded.
Complaints: A complaint occurred at 8:55am from I-77 North between markers 96 and 97. Pump maintenance and relief well maintenance were potentially odor-causing activities noted on the Daily Odor Monitoring Summary.

Event #64: Sunday/Monday June 08/09, 2008:
June 08: Average temperature in degrees F: 83, Max. 91, Min. 75
Winds were 2 mph with max gusts at 24 mph out of the WSW.
Average relative humidity was 62% with no precipitation recorded.
Complaints: Complaints occurred at 12:35pm from 2940 Haut Street in East Sparta; 12:35pm from 2620 Haut Street in East Sparta; 4:03pm from 2620 in East Sparta; and 5:57pm from 2940 Haut Street in East Sparta. Pump maintenance; pipeline construction; north slope toe drain; and 5CD cover work were potentially odor-causing activities noted on the Daily Odor Monitoring Summary.
June09: Average temperature in degrees F: 82, Max. 91, Min. 72.
Winds were 4 mph with max speed of 20 mph out of the SW.
Average relative humidity was 60% with no precipitation recorded.
Complaints: There were no odor complaints during this time.

Event #65, Saturday/Sunday June 14/15, 2008:
June 14: Average temperature in degrees F: 74, Max. 82, Min. 63
Winds were 2 mph with max speed of 10 mph out of the WSW.
Average relative humidity 72% with 0.06 inches of precipitation recorded.
Complaints: There were no odor complaints during this time.
June 15: Average temperature in degrees F: 70, Max. 84, Min. 55.
Winds were 2 mph with max gusts of 16 mph out of the SW.
Average relative humidity was 64% with 0.01 inches of precipitation recorded.

Complaints: A complaint occurred at 12:30pm from 2940 Haut Street in East Sparta. Pump maintenance was a potentially odor-causing activity noted on the Daily Odor Monitoring Summary.

3.0 ANALYTICAL RESULTS

The laboratory analyzed the air samples for a large number of chemicals. Only those results that exceeded Region 9 PRGs will be discussed in the body of the report. Other compounds may have been detected in a sample, but were quantified at concentrations below the respective PRG. All of the analytical results from the laboratory are provided in the Appendices.

3.1 Volatile Organic Compounds

Compounds detected by Method TO-15 modified are summarized in Tables 1 through 5. Method TO-15 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, this method also has the capability to 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. Of particular relevance to interpreting the data from this monitoring effort is the fact that Method TO-15 identifies acetaldehyde, a carbonyl compound that is a specific target for Method TO-11A. All results for acetaldehyde will be discussed in Section 3.3. Data reports from the analytical laboratory are provided in the Appendices. Results that exceeded corresponding Region 9 PRGs and any other relevant findings are discussed below. Chemicals that were detected below PRGs will not be discussed unless those particular results help to explain other findings.

<u>Event #61, May 21/22, 2008</u>:
Analytical results for Method TO-15 for Event #61 are summarized in Table 1 and provided in Appendix A. The prevailing wind direction was from the northwest for 5/21 and 5/22.

Event #61: VOCs Detected Above PRGs
Concentrations in ug/m3

Compound	PRG	School 5/21 Cross : 5/22 Cross	Cell Tower 5/21 Cross/Up : 5/22 Cross/Up	Campground 5/21 Cross : 5/22 Cross	Wetland 5/21 Cross/Down : 5/22 Cross/Down
Benzene	**0.25**	**2.6**	ND	**29**	**2**
1,3-Butadiene	**0.061**	ND	ND	**10**	ND
Chloroethane	**2.3**	ND	ND	**3.9**	ND
Methylene Chloride	**4.1**	**156**	**435D**	**223D**	**163D**
1,2,4-Trimethylbenzene	**6.2**	3	ND	**7.9**	3.2

Event #62, May 27/28, 2008:
Analytical results for Method TO-15 for Event #62 are summarized in Table 2 and provided in Appendix B. With this monitoring event, we initiated the transition from Integrated Analytical Laboratories to Test America for Method TO-15 analysis of volatile organic compounds. For this and the next two monitoring events, summa canisters were obtained from each of the laboratories such that a parallel set of samples and subsequent set of analytical results were generated for each location. The findings from the two laboratories are presented side-by-side on the summary tables.

When the monitoring began on 5/27 the prevailing wind direction was from the north. By 5/28 the wind direction was from the northeast. VOCs detected at concentrations exceeding Region 9 PRGs are summarized below.

Event #62: VOCs Detected Above PRGs
Concentrations in ug/m3

Compound	**PRG**	**School** 5/27 Down : 5/28 Down		**Cell Tower** 5/27 Cross : 5/28 Cross/Down		**Campground** 5/27 Up : 5/28 Up		**Wetland** 5/27 Cross : 5/28 Cross	
		IAL	**TA**	**IAL**	**TA**	**IAL**	**TA**	**IAL**	**TA**
Benzene	**0.25**	No data	**23**	**15**	**1.3**	**80**	**30**	No Data	**18**
Carbon tetrachloride	**0.13**	No data	**0.59J**	ND	**0.54J**	ND	**0.54J**	No Data	**0.54J**
Chloroform	**0.083**	No data	**0.29J**	ND	**1.9**	ND	**0.23J**	No Data	**0.24J**
Methylene Chloride	**4.1**	No data	1.7JB	**17**	1.6JB	1.9	1.3JB	No Data	1.8B
Vinyl Chloride	**0.11**	No data	**1.5**	**2.4**	**0.21J**	ND	**0.95**	No Data	**0.35J**

IAL: Integrated Analytical Laboratory
TA: Test America Laboratory
No Data: The regulator failed on the summa canisters placed at the school and the wetland location.
Laboratory Data Qualifiers:

B = Compound was detected in the blank
J = Estimated concentration

Event #63, June 02/03, 2008:
Analytical results for Method TO-15 for Event #63 are summarized in Table 3 and provided in Appendix C. When the monitoring began on 6/02 the prevailing wind direction was from the southeast. By 6/03 the wind direction was from the south-southeast.

Event #63: VOCs Detected Above PRGs
Concentrations in ug/m3

Compound	PRG	School 6/2 Up : 6/3 Cross		Cell Tower 6/2 Cross/Up : 6/3 Down		Campground 6/2 Down : 6/3 Cross		Wetland 6/2 Cross : 6/3 Up	
		IAL	**TA**	**IAL**	**TA**	**IAL**	**TA**	**IAL**	**TA**
Benzene	**0.25**	**33**	**55**	ND	**8.8**	**2**	**1200**	**30**	**0.55J**
1,3-Butadiene	**0.061**	ND	ND	**14**	ND	ND	**ND**	ND	ND
Carbon tetrachloride	**0.13**	ND	**0.63J**	ND	ND	ND	ND	ND	**0.68J**
Chloroethane	**2.3**	ND	1.1	1.7	2	**2.8**	ND	**5.6**	0.27J
Methylene chloride	**4.1**	2.5	1.1JB	**5.6**	1.3JB	3.4	**4.7JB**	11	0.75JB
Tetrachloroethene	**0.32**	ND	**1.1J**	ND	ND	ND	ND	ND	ND
Tetrahydrofuran	**0.99**	ND	**2.2J**	ND	**1.2J**	ND	ND	ND	ND
1,2,4-Trimethylbenzene	**6.2**	**9.3**	1.5J	**7.7**	2.2	2.5	ND	**17**	2.4
Vinyl Chloride	**0.11**	ND	**1.3**	ND	**1.2**	ND	**4.0J**	ND	ND

IAL: Integrated Analytical Laboratory
TA: Test America Laboratory
Laboratory Data Qualifiers:
B = Compound was detected in the blank
J = Estimated concentration

Event #64, June 08/09, 2008:
Analytical results for Method TO-15 for Event #64 are summarized in Table 4 and provided in Appendix D. When the monitoring began on 6/08 the prevailing wind direction was from the west-southwest. By 6/09 the wind direction was from the southwest.

Event #64: VOCs Detected Above PRGs
Concentrations in ug/m3

Compound	PRG	School 6/8 Cross : 6/8 Cross		Cell Tower 6/8 Cross/Up : 6/9 Cross/Up		Campground 6/8 Cross/Down : 6/9 Cross/Down		Wetland 6/8 Cross : 6/9 Cross	
		IAL	**TA**	**IAL**	**TA**	**IAL**	**TA**	**IAL**	**TA**
Benzene	**0.25**	**20**	**16**	**2.5**	**0.9**	**32**	**620**	**4.6**	**9.5**
1,3-Butadiene	**0.061**	**6.0**	ND	ND	ND	**8.7**	ND	ND	ND
Carbon tetrachloride	**0.13**	**ND**	**ND**	ND	**0.7J**	ND	ND	ND	**0.62J**
Chloroethane	**2.3**	**2.9**	**3.4**	1.7	ND	**7.5**	**9.5**	ND	**7.1**
1,2-Dichloropropane	**0.099**	ND	ND	ND	ND	ND	ND	**6.0**	ND
Methylene Chloride	**4.1**	**108**	2.4JB	ND	1.3JB	3.5	**6.7JB**	**81**	1.8JB
Tetrachloroethene	**0.32**	ND	ND	ND	ND	ND	ND	**5.9**	ND

Tetrahydrofuran	**0.99**	ND	**7.2J**	ND	ND	ND	**5.9J**	ND	**7.5**
Trichloroethylene	**0.017**	ND	ND	ND	ND	**3.5**	ND	**4.2**	ND
1,2,4-Trimethylbenzene	**6.2**	**11**	ND	3.0	0.46J	**14**	3.4J	**19**	**10**
Vinyl chloride	**0.11**	ND	**2.1**	ND	ND	**3.3**	**3.8J**	ND	**0.49J**

IAL: Integrated Analytical Laboratory
TA: Test America Laboratory
Laboratory Data Qualifiers:

B = Compound was detected in the blank
J = Estimated concentration

Event #65, June 14/15, 2008:
Analytical results for Method TO-15 for Event #65 are summarized in Table 5 and provided in Appendix E. When the monitoring began on 6/14 the prevailing wind direction was from the west-southwest. By 6/15 the wind direction was from the southwest. All TO-15 results for this sampling event are from Test America.

Event #65: VOCs Detected Above PRGs
Concentrations in ug/m3

Compound	**PRG**	**School** 6/14 Cross : 6/15 Cross	**Cell Tower** 6/14 Cross/Up : 6/15 Cross/Up	**Campground** 6/14 Cross/Down : 6/15 Cross/Down	**Wetland** 6/14 Cross : 6/15 Cross
Benzene	**0.25**	**5.2**	**0.89**	**0.74**	**10**
Carbon tetrachloride	**0.13**	**0.91J**	**0.91J**	**0.99J**	ND
Chloroethane	**2.3**	0.5	ND	0.32J	**6.9**
Chloroform	**0.083**	**0.39J**	ND	**0.45J**	ND
Methylene Chloride	**4.1**	**4.5B**	0.91JB	**1.1JB**	1.9JB
Tetrachloroethene	**0.32**	**0.44J**	**ND**	ND	ND
Tetrahydrofuran	**0.99**	**2.8J**	**0.25J**	ND	**5.5J**
1,2,4-Trimethylbenznene	**6.2**	**6.1**	**4.8**	0.31J	8.1
Vinyl Chloride	**0.11**	**0.36J**	ND	ND	**0.77J**

Laboratory Data Qualifiers:

B = Compound was detected in the blank
J = Estimated concentration

3.2 Sulfur Compounds

Event #61, May 21/22, 2008:
Carbon disulfide results for Method TO-15 for Event #61 are summarized below and provided in Appendix A.

Event #61: Sulfur Compounds
Concentrations in ug/m3

Compound	PRG	School 5/21 Cross : 5/22 Cross	Cell Tower 5/21 Cross/Up : 5/22 Cross/Up	Campground 5/21 Cross : 5/22 Cross	Wetland 5/21 Cross/Down : 5/22 Cross/Down
Carbon disulfide	**730**	2	5.4	3.2	1.9

Event #62, May 27/28, 2008:
Carbon disulfide results for Method TO-15 for Event #62 are summarized below and provided in Appendix B.

Event #62: Sulfur Compounds
Concentrations in ug/m3

Compound	PRG	School 5/27 Down : 5/28 Down		Cell Tower 5/27 Cross : 5/28 Cross/Down		Campground 5/27 Up : 5/28 Up		Wetland 5/27 Cross : 5/28 Cross	
		IAL	TA	IAL	TA	IAL	TA	IAL	TA
Carbon disulfide	**730**	No data	0.82J	9.1	0.36J	ND	0.61J	No Data	1.1J

IAL: Integrated Analytical Laboratory
TA: Test America Laboratory
Laboratory Data Qualifiers:
B = Compound was detected in the blank
J = Estimated concentration

Event #63, June 02/03, 2008:
Carbon disulfide results for Method TO-15 for Event #63 are summarized below and provided in Appendix C.

Event #63: Sulfur Compounds
Concentrations in ug/m3

Compound	PRG	School 6/2 Up : 6/3 Cross		Cell Tower 6/2 Cross/Up : 6/3 Down		Campground 6/2 Down : 6/3 Cross		Wetland 6/2 Cross : 6/3 Up	
		IAL	TA	IAL	TA	IAL	TA	IAL	TA
Carbon disulfide	**730**	ND	10	ND	1.2J	ND	3.1J	5.4	0.24J

IAL: Integrated Analytical Laboratory
TA: Test America Laboratory
Laboratory Data Qualifiers:

B = Compound was detected in the blank
J = Estimated concentration

Event #64, June 08/09, 2008:
Carbon disulfide results for Method TO-15 for Event #64 are summarized below and provided in Appendix D.

Event #64: Sulfur Compounds
Concentrations in ug/m3

Compound	**PRG**	**School** 6/8 Cross : 6/8 Cross		**Cell Tower** 6/8 Cross/Up : 6/9 Cross/Up		**Campground** 6/8 Cross/Down : 6/9 Cross/Down		**Wetland** 6/8 Cross : 6/9 Cross	
		IAL	TA	IAL	TA	IAL	TA	IAL	TA
Carbon disulfide	**730**	ND	18	ND	3.8	ND	ND	6.5	1.5J

IAL: Integrated Analytical Laboratory
TA: Test America Laboratory
Laboratory Data Qualifiers:

B = Compound was detected in the blank
J = Estimated concentration

Event #65, June 14/15, 2008:
Carbon disulfide results for Method TO-15 for Event #65 are summarized below and provided in Appendix E. All TO-15 results, including sulfur compounds for this sampling event are from Test America.

Event #65: Sulfur Compounds
Concentrations in ug/m3

Compound	**PRG**	**School** 6/14 Cross : 6/15 Cross	**Cell Tower** 6/14 Cross/Up : 6/15 Cross/Up	**Campground** 6/14 Cross/Down : 6/15 Cross/Down	**Wetland** 6/14 Cross : 6/15 Cross
Carbon disulfide	**730**	0.7J	0.33J	0.22J	2.5J

Laboratory Data Qualifiers:

B = Compound was detected in the blank
J = Estimated concentration

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.

Event #61, May 21/22, 2008:
Analytical results for aldehydes are summarized on the following page. Formaldehyde was detected in one of the three samples from the Cell Tower, Campground, and Wetland at a level above the Region 9 PRG. Analytical results are in Appendix A.

Event #61: Aldehydes
Concentrations in ug/m3

Aldehyde	**PRG**	**School** 5/21 Cross : 5/22 Cross			**Cell Tower** 5/21 Cross/Up : 5/22 Cross/Up			**Campground** 5/21 Cross : 5/22 Cross			**Wetland** 5/21 Cross/Down : 5/22 Cross/Down		
		1	2	3	1	2	3	1	2	3	1	2	3
Formaldehyde	**0.15**	ND	ND	ND	ND	ND	**0.63**	ND	ND	**0.42**	ND	ND	**0.46**
Acetaldehyde TO-11A	**0.87**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Event #62, May 27/28, 2008:
Analytical results for aldehydes are summarized below. Formaldehyde was detected in one of the three samples from the School, Cell Tower, and Wetland; and all three of the samples from the Campground at a level above the Region 9 PRG. Analytical results are in Appendix B.

Event #62: Aldehydes
Concentrations in ug/m3

Aldehyde	**PRG**	**School** 5/27 Down : 5/28 Down			**Cell Tower** 5/27 Cross : 5/28 Cross/Down			**Campground** 5/27 Up : 5/28 Up			**Wetland** 5/27 Cross : 5/28 Cross		
		1	2	3	1	2	3	1	2	3	1	2	3
Formaldehyde	**0.15**	ND	**0.22**	ND	ND	ND	**0.23**	**0.23**	**0.26**	**0.28**	ND	ND	**0.31**

Event #63, June 02/03, 2008:
Analytical results for aldehydes are summarized on the following page. Formaldehyde was detected in all three samples from the School, Cell Tower, Campground, and Wetland at a level above the Region 9 PRG. Analytical results are in Appendix C.

Event #63: Aldehydes
Concentrations in ug/m3

Aldehyde	PRG	School 6/2 Up : 6/3 Cross			Cell Tower 6/2 Cross/Up : 6/3 Down			Campground 6/2 Down : 6/3 Cross			Wetland 6/2 Cross : 6/3 Up		
		1	2	3	1	2	3	1	2	3	1	2	3
Formaldehyde	**0.15**	**0.30**	**0.28**	**0.27**	**0.58***	**0.31**	**0.31**	**0.29**	**0.25**	**0.35**	**0.26**	**0.23**	**0.28**

Note: * denotes breakthrough from front to back of sorbent tube

Event #64, June 08/09, 2008:
Analytical results for aldehydes are summarized below. Analytical results are in Appendix D.

Event #64: Aldehydes
Concentrations in ug/m3

Aldehyde	PRG	School 6/8 Cross : 6/8 Cross			Cell Tower 6/8 Cross/Up : 6/9 Cross/Up			Campground 6/8 Cross/Down : 6/9 Cross/Down			Wetland 6/8 Cross : 6/9 Cross		
		1	2	3	1	2	3	1	2	3	1	2	3
Formaldehyde	**0.15**	ND	ND	ND	**0.83**	ND	**ND**	ND	0.58	0.26	0.69	0.25	ND

Event #65, June 14/15, 2008:
Analytical results for aldehydes are summarized below. Analytical results are in Appendix E.

Event #65: Aldehydes
Concentrations in ug/m3

Aldehyde	PRG	School 6/14 Cross : 6/15 Cross			Cell Tower 6/14 Cross/Up : 6/15 Cross/Up			Campground 6/14 Cross/Down : 6/15 Cross/Down			Wetland 6/14 Cross : 6/15 Cross		
		1	2	3	1	2	3	1	2	3	1	2	3
Formaldehyde	**0.15**	**1.2**	**0.48**	ND	**0.79**	ND	**0.28**	ND	ND	ND	ND	ND	ND
Acetaldehyde TO-11A	**0.87**	ND	ND	ND	0.50	ND	ND	ND	ND	ND	ND	ND	ND

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.

Analytical results for sampling events #61 through #65 are summarized on the following pages. All detected concentrations were very low, and were orders of magnitude below the PRG of 210 ug/m^3 for HCl.

Event #61, May 21/22, 2008:
Hydrogen fluoride was not detected in any of the samples from any of the four locations. Hydrogen chloride not was detected any of the samples from any of the four locations. Analytical results are in Appendix A.

Event #62, May 27/28, 2008:
Hydrogen fluoride was not detected in any of the samples from any of the four locations. Hydrogen chloride not was detected any of the samples from any of the four locations. Analytical results are in Appendix B.

Event #63, June 02/03, 2008:
Hydrogen fluoride was not detected in any of the samples from any of the four locations. Hydrogen chloride not was detected any of the samples from any of the four locations. Analytical results are in Appendix C.

Event #64, June 08/09, 2008:
Hydrogen fluoride was detected in the first and second tubes from the Cell Tower (2.1 and 3.9 ug/m^3). Hydrogen chloride was found in the second tube from the Cell Tower (5.5 ug/m^3); the first and second tubes from the School (2.3 and 1.8 ug/m^3); and the first and second tubes from the Campground (11 and 175 ug/m^3). The analytical laboratory noted that there were breakthrough issues with the samples. Analytical results are in Appendix D.

Event #65, June 14/15, 2008:
Hydrogen fluoride was detected at 3.8 ug/m^3 in the first tube from the Cell Tower. Hydrogen chloride was detected in the first and second tubes from the Cell Tower (14.0 and 2.2 ug/m^3); in the third tube from the School (1.1 ug/m^3); in the first and second tubes from the Campground (3.4 and 10.0 ug/m^3); and in all three of the tubes from the Wetland location (3.5, 2.2 and 4.0 ug/m^3). The laboratory noted possible breakthrough issues with the samples. All of these results are well below risk-based screening levels. Analytical results are in Appendix E.

4.0 SUMMARY

4.1 Volatile Organic Compounds

We had previously indicated our intention to transition the TO-15 analyses from Integrated Analytical Laboratories to Test America Laboratories. To further investigate our suspicion that many of the high concentrations of benzene (and several other compounds) previously reported might be laboratory artifact, we collected two duplicate sets of summa canister samples at each location during Monitoring Events #62, 63, and

64. One set was analyzed by Integrated Analytical Laboratories and the other was analyzed by Test America. Each lab supplied its own summa canisters.

For the most part, the results from the two laboratories were very similar in terms of the specific compounds detected and the levels of those compounds. In most instances, Test America reported a greater number of compounds than Integrated Analytical, but the concentrations were estimated ("J-flagged") near the method detection limits. With a couple of minor exceptions, the concentrations of benzene reported by the two laboratories for parallel samples from the same monitoring site were within an order of magnitude of each other. This suggests that (at least many of) the previously high concentrations of benzene reported by IAL actually reflected the presence of this compound. However, the concentrations reported by IAL are likely to be upper bounds of the actual concentrations (i.e. the true concentrations were likely to have been lower, but very unlikely to have been higher than reported).

4.2 Aldehydes (Carbonyl Compounds)

As in previous rounds of sampling, low levels of formaldehyde were occasionally detected. Acetaldehyde was less frequently detected by Method TO-11A. There were no apparent differences in the concentrations of aldehydes found upwind as opposed to downwind with respect to the landfill. It is likely that the low concentrations of aldehydes simply reflect regional air quality, have numerous sources and are not related to emissions from the landfill.

4.3 Hydrogen Fluoride and Hydrogen Chloride

Low concentrations of these two inorganic acids were found sporadically. However, the analytical laboratory noted that many of the samples had issues with breakthrough. This sampling method is particularly sensitive to moisture and we have frequently had unreliable results related to breakthrough from the front to the back of the sorbent tubes. The occasional low levels of HF and HCl detected in the ambient air do not present a risk to public health and are not clearly related to any single source.

4.4 Laboratory Issues

As indicated, we are transitioning from Integrated Analytical to Test America for the Method TO-15 analyses. Integrated Analytical will continue to perform the analyses for Method TO-11A (carbonyl compounds) and hydrogen fluoride-hydrogen chloride.

4.5 Conclusion

Given that there are no clear trends with regard to the compounds or concentrations of compounds detected with respect to upwind or downwind of the landfill, we stand by our previous statements that the monitoring results likely represent regional air quality and are not specifically related to the landfill.

Countywide Recycling & Disposal Facility					
EPA Method TO-15 Modified: Volatile Organic Compounds					
Table 1: Event #61 May 21/22, 2008					
Analyte		**Monitoring Location**			
	PRG	***School***	***Cell Tower***	***Campground***	***Wetland***
		5/21 Cross : 5/22 Cross	5/21 Cross/Up : 5/22 Cross/Up	5/21 Cross : 5/22 Cross	5/21 Cross/Down : 5/22 Cross/Down
	All results in ug/m3				
Method TO-15 Modified					
Acetone	3300	ND	ND	426D	ND
Benzene	**0.25**	2.6	ND	29	2
1,3-Butadiene	**0.061**	ND	ND	10	ND
tert-Butyl alcohol	NA	8.8	ND	73	11
Carbon disulfide	730	2	5.4	3.2	1.9
Chloroethane	**2.3**	ND	ND	3.9	ND
Chloromethane	95	2.4	2.4	9.4	2.5
Cyclohexane	6200	ND	ND	ND	ND
Dichlorodifluoromethane	210	6.7	ND	4.2	4.9
Ethylbenzene	1100	ND	ND	6.2	2.2
4-Ethyltoluene	NA	ND	ND	2.5	ND
Heptane	NA	3.2	ND	31	4.3
Hexane	210	2.7	3.7	8.3	3
Methyl ethyl ketone	5100	8	2.1	105	9.1
Methyl isobutyl ketone	3100	ND	ND	7	ND
Methylene chloride	**4.1**	156	435D	223D	163D
Styrene	1100	ND	ND	ND	ND
Toluene	400	15	11	31	17
Trichlorofluoromethane	730	5	15.0	4.8	5.3
1,2,4-Trimethylbenzene	**6.2**	3	ND	7.9	3.2
1,3,5-Trimethylbenzene	6.2	ND	ND	2.5	ND
2,2,4-Trimethylpentane	NA	ND	ND	ND	ND
Vinyl Chloride	0.11	ND	ND	ND	ND
m/p-Xylene	110	11	6.2	35	11
o-Xylene	110	3.2	ND	8.5	3.3

Analyte	PRG	Monitoring Location			
		School	***Cell Tower***	***Campground***	***Wetland***
		5/21 Cross : 5/22 Cross	5/21 Cross/Up : 5/22 Cross/Up	5/21 Cross : 5/22 Cross	5/21 Cross/Down : 5/22 Cross/Down
	All results in ug/m3				
Tentatively Identified Compounds					
Acetaldehyde	0.87	ND	ND	Y	Y
Acetonitrile	62	Y	Y	Y	Y
Butanal	NA	ND	ND	Y	ND
Butane	NA	Y	Y	ND	Y
Butane, 2-methyl-	NA	Y	Y	ND	Y
Difluorochloromethane	NA	ND	ND	ND	ND
Ethanol	NA	Y	ND	ND	ND
Heptane, 3-methylene	NA	Y	ND	Y	Y
1-Heptene	NA	ND	ND	Y	ND
5-Heptene-2-one, 6-methyl	NA	ND	Y	ND	ND
Hexanal	NA	ND	ND	ND	ND
1-Hexene	NA	ND	ND	Y	ND
2-Hexene, 3,5-dimethyl	NA	ND	ND	ND	ND
Isobutane	NA	Y	Y	ND	Y
Octanal	NA	ND	Y	ND	ND
Pentanal	NA	ND	ND	ND	ND
Pentane	NA	Y	Y	Y	Y
Pentane, 2-methyl	NA	ND	Y	ND	ND
1-Pentanol	NA	ND	ND	ND	Y
1-Pentene	NA	Y	ND	Y	ND
2-Pentanone	NA	ND	ND	ND	ND
1R- .alpha. -Pinene	NA	ND	ND	Y	ND
Propane	NA	Y	Y	ND	Y
Propene	NA	ND	ND	Y	ND
1-Propene-2-methyl	NA	Y	ND	ND	Y
Tetrahydrofuran	0.99	ND	Y	ND	ND
ND = Not Detected					
NA = Not Available					
Shading indicates result exceeds PRG					
TICs: Compound has been tentatively identified but the estimated concentration is highly uncertain.					