



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
RESEARCH TRIANGLE PARK, NC 27711

JAN 29 2008

OFFICE OF  
AIR QUALITY PLANNING  
AND STANDARDS

Laura Niemann  
Environmental Information Logistics, LLC  
130 E. Main Street  
Caledonia, MI 49316

Dear Ms. Nieman:

Thank you for your correspondence dated January 17, 2008, in which you asked permission to use alternative test procedures for determining nonmethane organic compounds (NMOC) from the ADS/McLean County Landfill No. 2 in Bloomington, Illinois. The landfill is subject to 40 CFR Part 60, Subpart W, Standards of Performance for Municipal Solid Waste Landfills, and must conduct Tier II testing to determine if its NMOC emissions are greater than 50 megagrams per year.


The landfill consists of approximately 28 acres (11.5 hectares) containing wastes that have been in place for at least 2 years. Under Tier II of Subpart W, two Method 25C samples must be collected per hectare for a total of 23 samples. You propose to collect these samples from vertical gas extraction wells and leachate risers that are in place instead of inserting surface probes (as required in Method 25C). The extraction wells are part of a collection system designed to deliver landfill gas to a flare for controls in the future. The wells are dispersed over the applicable landfill, have underground perforations to facilitate gas collection, and extend vertically below the surface into the underlying waste mass. The leachate risers are part of the leachate collection system which underlies a substantial portion of the waste mass. The extraction wells and leachate risers are capped.

You propose to collect 17 samples from extraction wells, 5 samples from leachate risers, and 1 conventional Method 25C sample. Your proposal is detailed in a revised Tier II work plan that you submitted to us and the Illinois Environmental Protection Agency for review.

We approve your request to collect NMOC samples as discussed in the Tier II work plan (enclosed) from the ADS/McLean County Landfill No. 2 in Bloomington, Illinois. Since this alternative method is applicable to other similar facilities in this source category, we will be posting this letter on our website at <http://www.epa.gov/ttn/emc/approalt.html> for use by other interested parties.

If you have questions or would like to discuss the matter further, please contact Foston Curtis at (919) 541-1063, or you may e-mail him a message at [curtis.foston@epa.epa.gov](mailto:curtis.foston@epa.epa.gov).

Sincerely,

A handwritten signature in black ink that reads "Conniesue B. Oldham". The signature is written in a cursive style with a large initial 'C'.

Conniesue Oldham, Ph.D, Group Leader  
Source Measurement Technology Group

Enclosure

cc: Foston Curtis, E143-02, RTP  
Jeff Gahris, Region 5  
Kevin Mattison, Illinois EPA



# Environmental Information Logistics, LLC

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January 17, 2008

Fed Ex Tracking No. 7918 3382 7083

Mr. Raymond Pilapil  
Compliance & Enforcement Section – MC#40  
Illinois Environmental Protection Agency  
1021 North Grand Avenue East  
Springfield, Illinois 62794-9276

Subject: **Revised Tier 2 Work Plan Submittal**  
**ADS/McLean County Landfill No. 2**  
**Bloomington, Illinois**  
**IEPA Facility ID No. 113020AFU**

Dear Mr. Pilapil:

On behalf of the ADS/McLean County Landfill No. 2, Environmental Information Logistics, LLC (EIL) is transmitting this revised work plan for Tier 2 sampling and analysis at the facility, which is located in Bloomington, Illinois. The testing will be conducted by EIL the week of February 11, 2008.

The purpose of this revised workplan is to change the proposed methodology for conducting the testing. The workplan submitted to IEPA on December 5, 2007 assumed that the newly installed active gas extraction system would be functional in mid January 2008, and that three samples would be collected at the flare station. Unfortunately, due to the ice storm in Oklahoma last year and other manufacturer's issues, the flare is now not scheduled for delivery until the end of February. Due to the deadline at this facility for Tier 2 testing (March 14, 2008), the site must now propose an alternative methodology for Tier 2 testing.

## **1.0 BACKGROUND**

### **1.1 FACILITY DESCRIPTION AND HISTORY**

The ADS/McLean County Landfill No. 2 (ADS/McLean) is owned and operated by American Disposal Services of Illinois, Inc. The landfill began accepting waste in 1995. Approximately 28.3 acres of waste have been in place for at least two years and are suitable for Tier 2 sampling. The ADS/McLean facility accepts municipal solid waste. There is approximately 1,400,000 tons of waste that have been in place for two or more years.

### **1.2 PROJECT OBJECTIVES AND APPROACH**

The purpose of this work is to determine a site-specific non-methane organic carbon (NMOC) concentration for use at the ADS/McLean County Landfill No. 2, in order to re-calculate the Tier 1 NMOC emissions and see if the site-specific value will take the site below 50 Mg/year NMOC emissions.

The Tier 2 landfill gas sampling and analysis will be conducted in accordance with 40 CFR 60.754. This sampling follows EPA Reference Method 25C for NMOC and Method 3C for methane, carbon dioxide, nitrogen, and oxygen. The determined NMOC concentration will be used with the equation specified in §60.754(a)(3)(i) to evaluate the landfill mass emission rate of NMOC in Mg/yr.

## 2.0 SAMPLING METHODOLOGY

### 2.1 SAMPLING LOCATIONS

The NSPS requires collection of two samples per hectare of landfill surface area in which waste has been in-place for a minimum of two years. At the ADS/McLean facility approximately 28.3 acres, or 11.5 hectares, have waste in place that is at least two years of age. The NSPS requires that a total of 2 samples/hectare be collected. Therefore, 23 samples would be required.

As shown in Figure 1, the gas collection system (GCS) for odor control which is being installed in the fall of 2007 consists of 17 vertical gas extraction wells. Additionally, the site is requesting approval from USEPA (under separate cover) to collect samples from five (5) existing leachate cleanout risers. Therefore, only one "traditional" Tier 2 sample probe would need to be installed. This proposed location is also shown on Figure 1.

### 2.2 GAS SAMPLING

In accordance with Method 25C, sample temperatures, atmospheric temperatures and barometric pressures will be measured with the Landtech GEM meter during the sampling, and recorded with other field data.

#### *Vertical Gas Extraction Wells:*

#### *Gas Wells:*

The seventeen existing gas wells consist of 6 inch SDR-11 HDPE pipe. The pipe extends vertically into the underlying waste mass, and terminates approximately 15 feet above the landfill's bottom liner. The pipe is perforated to facilitate gas collection. Currently, each well is equipped with a Landtech wellhead, that is set in the closed position. Sampling ports are also present on each of the wells. The Tier II sample will be collected from this location. A 24 hour waiting period is not necessary, since the wells have been in place and will have been accumulating gas for over four months by the date of the Tier 2 test.

The gas quality inside each well will be measured with a Landtech field gas analyzer, and the nitrogen level will be estimated by difference to assure the samples are valid in the field (less than 20 percent N<sub>2</sub> or less than 5% O<sub>2</sub>). **It is not proposed that the wells be evacuated twice, as per the method, since the volume of gas in these wells is several orders of**

**magnitude larger than the volume of gas inside a small probe, and it would take hours using the sampling instrumentation available.**

*Leachate Cleanout Risers:*

The leachate collection system underlies a substantial portion of the waste mass in the areas that require Tier 2 sample probes. The production of landfill gas usually begins in the moist, lower levels of the landfill (which normally becomes anaerobic more quickly than the upper levels of waste). The leachate cleanout risers contained within the leachate collection system consist of 18 inch diameter HDPE pipe, which is capped at the end to prevent emissions. EIL proposes to drill a hole into the side or cap of each cleanout riser, and install a sampling port. The Tier 2 sample will be collected from this location. Since the risers have been in place and collecting gas for several years, a 24 hour waiting period is not applicable.

The gas quality inside each cleanout riser will be measured with a Landtech field gas analyzer, and the nitrogen level will be estimated by difference to assure the samples are valid in the field (less than 20% N<sub>2</sub> and less than 5% O<sub>2</sub>). **It is not proposed that the cleanout risers be evacuated twice, as per method, since the volume of gas in these risers is several orders of magnitude larger than the volume of gas inside a small probe, and it would take hours to purge them using the sampling equipment available.**

*Sample Probe:*

One (1) Tier 2 sample probe will need to be installed to bring the total number of sample locations up to 23. The sample probe will be installed into the surface of the waste, in accordance with Method 25C, using a bar punch. A pre-cleaned 6-foot long by 3/8 inch diameter stainless steel sampling rod will be inserted through the landfill cover. The sample rod will be inserted at least 3 feet (0.9 meters) into the underlying landfill waste material, and so that at least one foot (0.3 meters) extends above the surface. The sample rod will be sealed at the ground surface with bentonite to ensure a good seal between the landfill cover and the sample rod. After the sample rod is sealed in place, a nylon compression fitting will be placed on top of the rod to prevent ambient air from entering the rod or gases from seeping out of the landfill gas sampling location.

Since a bar punch is being used, the requirement to wait 24 hours to collect a sample does not apply per guidance received from USEPA. However, gas quality and pressure will be measured with a Landtech field gas analyzer prior to collecting the sample to insure that landfill gas is present, and that the sample will contain less than 20 percent N<sub>2</sub> or less than 5% O<sub>2</sub>. Then, the gas/air inside the sample rods or vents will be evacuated at least twice with the Landtech GEM meter. After the rod or vent volume is purged, the probes will be allowed to accumulate gas for an additional hour. Then, an evacuated stainless steel four-liter sample canister will be attached to each sample rod. The landfill gas sample will be collected at a flow rate of less than 500 ml/min. If the gauge pressure at the sample probe is not more than 0.05-inch H<sub>2</sub>O or the methane and carbon dioxide concentrations do not total greater than 80 percent, **the sample probe will not be used and a new sampling site will be selected.**

### 2.3 FIELD COMPOSITING

The October 17, 2000 Federal Register amendments to the NSPS Test Methods allow for compositing of samples in the field, provided that equal volumes can be taken from each sample location. EIL is proposing to field composite the samples collected from the

seventeen existing gas wells, the five leachate cleanout risers and the one sample probe. The samples will be composited at a ratio of three field samples to one summa canister for analytical testing. This will result in a total of 8 summa canisters for analysis from the 11.5 hectare landfill area.

Field composite sampling will be performed by taking an initial vacuum reading from the sample tank. To assure the cylinder does not reach ambient pressure and to maintain a vacuum in the sample canister, one (1) inch Hg will be subtracted from the initial tank pressure that will be recorded prior to sampling. To calculate the change in vacuum needed to insure that each sample is of equal volume, one (1) inch Hg will be subtracted from the initial vacuum and will be divided by three (3). All three samples for this tank will use the set amount of vacuum calculated above. Upon completion of the third sample, the remaining vacuum should be one (1) inch mercury (Hg).

## **2.4 DECONTAMINATION**

All sampling equipment will be thoroughly cleaned prior to use. The following cleaning procedure will be used:

- Detergent wash using potable water and non-organic detergent.
- Distilled water rinse.
- All equipment will be allowed to air dry in a pre-cleaned sample rod holder.

## **2.5 ANALYSIS**

After sample collection, the canisters will be shipped to the laboratory for analysis. Sample analysis will be performed by Triangle Environmental Services, Inc., of Research Triangle Park, North Carolina. A total of three (3) samples will be analyzed using EPA Reference Method 25C and 3C. Reference Method 25C provides results for NMOC, carbon dioxide, and methane. Nitrogen, oxygen, methane, and carbon dioxide content will be analyzed in the laboratory using EPA Reference Method 3C. The laboratory will provide a report of NMOC by Method 25C, and of nitrogen, oxygen, methane and carbon dioxide by Method 3C.

## **3.0 REPORTING PROCEDURES**

The final report will contain the results of the landfill gas analysis and the estimated mass emission rate of NMOC based on the sample results. The report will also include a five year projection of NMOC emissions, as allowed by the regulations. A proposed outline for the report is as follows:

- Executive Summary
- 1.0 Background
  - Facility Description and History
  - Project Objectives and Approach
- 2.0 Sampling Methodology
  - Gas Sampling
  - Sampling Locations
- 3.0 Laboratory Analysis
- 4.0 Data Analysis and Calculations

Figures:

Sampling Location Map

Tables:

Field Data

Laboratory Data Summary

Appendices:

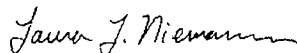
NMOC Emission Calculations

Laboratory Results for EPA Methods 25C and 3C

The report will be submitted to the IEPA within 60 days of the completion of testing or by March 14, 2008 (whichever occurs first). If you have any questions regarding this work plan or the proposed date of sampling, please contact me at (616) 891-2592.

Sincerely,

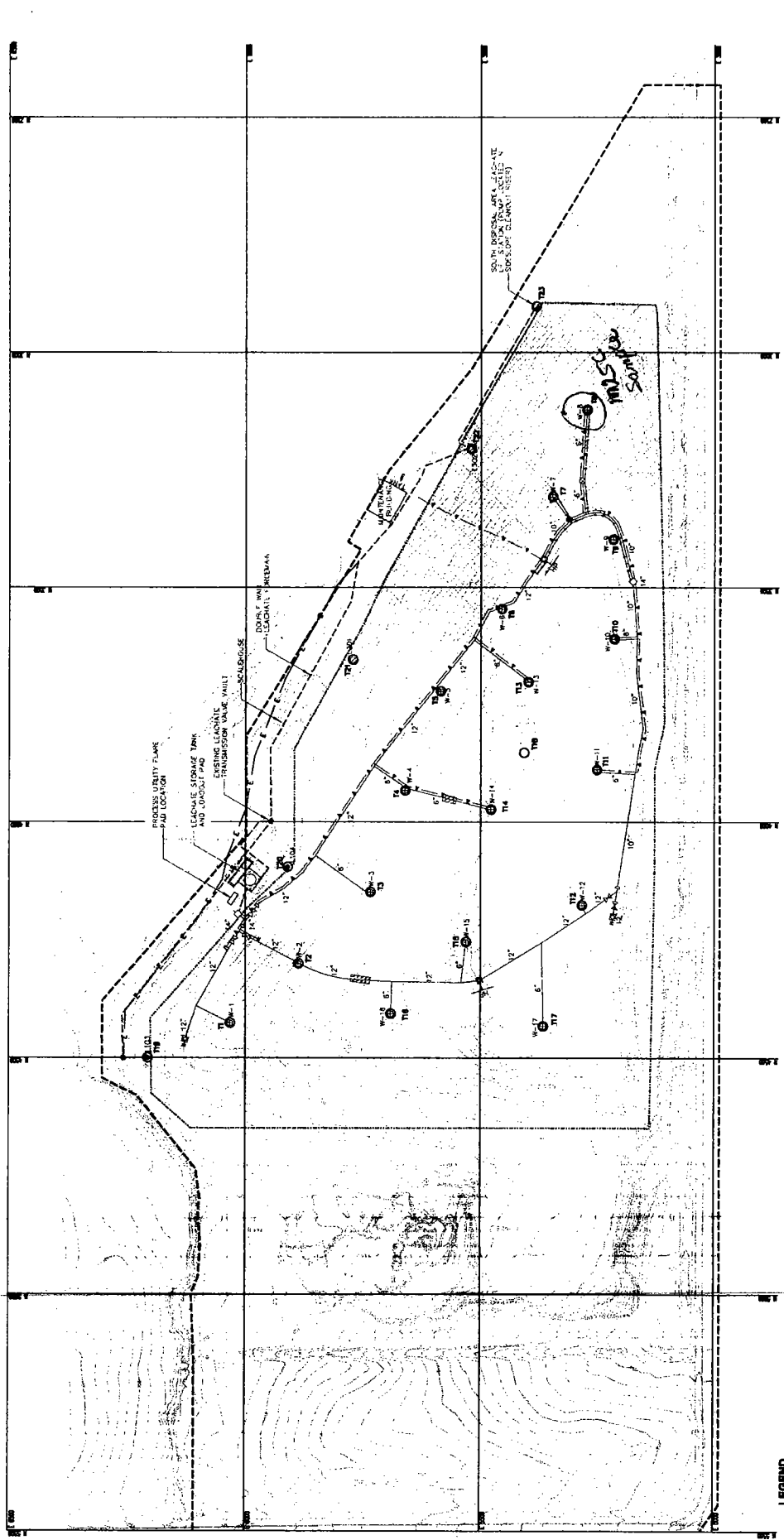
Environmental Information Logistics, LLC



Laura Niemann  
Senior Project Engineer

Cc: Kevin Mattison, IEPA  
Terry Bent, ADS/McLean County Landfill No. 2  
Niki Wuestenberg, Allied Waste Industries (e-copy)  
Foston Curtis, USEPA (e-copy)

**NOTES**  
 1. AS-BUILT GAS SYSTEM SHOWS TRENCH FROM EXISTING L. DITCHED TRENCH, GAS COLLECTION AND CONTROL SYSTEM 2007 EXPANSION AS-BUILT SITE PLAN, PROVIDED BY SAUF ENVIRONMENTAL, INC., DATED JANUARY 8, 2008.  
 2. TOPO PROVIDED BY SURGEX CORPORATION DATED MARCH 20, 2007.



**LEGEND**

---	GRID COORDINATES	◇	AS-BUILT CONDENSATE PUMP STATION
---	APPROXIMATE FACILITY BOUNDARY	▨	AS-BUILT ROAD CROSSING
---	APPROXIMATE WASTE LIMITS	⊕	AS-BUILT HIGH POINT IN PIPELINE
---	EXISTING TOPO	⊙	EXISTING LEACHATE TRANSFER VALVE
---	EXISTING DATA CONTAINED IN SUBSEQUENT TOWNSHIP MAP	⊖	EXISTING LEACHATE COLLECTION RISER
---	AS-BUILT HEADER AND LATERAL PIPELINE	⊙	EXISTING LEACHATE COLLECTION RISER
---	AS-BUILT AIR LINE	⊙	EXISTING LEACHATE COLLECTION MANHOLE
○	PROPOSED TERN H TEST LOCATION	⊙	EXISTING LIFT STATION
		---	APPROXIMATE ELECTRICAL LINE
		---	EXISTING SYNTHETIC FINAL COVER AREA