

# Utility Flare Visible Emissions Test Report

**Adrian Landfill, Inc.**  
Adrian, Michigan

January 24, 2022

*Prepared for:*  
**Adrian Landfill Inc.**  
1970 North Ogden Highway  
Adrian, Michigan 49221

*Prepared by:*  
**Environmental Information Logistics, LLC**  
130 East Main Street  
Caledonia, Michigan 49316





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**EXECUTIVE SUMMARY**

Adrian Landfill Inc. retained Environmental Information Logistics, LLC. (EIL) to conduct a method 22 visible emissions test of one utility (open) flare located at Adrian Landfill in Adrian, Michigan.

The purpose of the test was to demonstrate that the utility flare meets the performance requirements of 40 Code of Federal Regulations (CFR), §60.18(f), and thus is also in compliance with 40 CFR 60.18(c)(1), in addition to R 336.1213(3), R 336.2001, R 336.2003, and R 336.2004 of the Adrian Landfill, Inc. Renewable Operating Permit (ROP).

EIL conducted the fieldwork on December 13, 2021, and in accordance with the Test Plan, dated November 11, 2021. Mr. Tyler Smith conducted the test. Mr. Dave Pachan with SCS Engineers, Inc. provided on-site coordination of the tests with landfill operations.

Parameter	Applicable Requirement	Average Test Result
Flare Exhaust Smoke Emissions (Visual Emissions in a 2-hour Period)	<5 minutes over 2 hours <sup>1</sup>	0 minutes, 0 seconds

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<sup>1</sup> 40 CFR 60.18(c)(1)

## 1.0 INTRODUCTION

Adrian Landfill Inc. retained Environmental Information Logistics, LLC. (EIL) to conduct a visible emission test of one utility (open) flare located at Adrian Landfill in Adrian, Michigan. The utility flare controls landfill gas (LFG) emissions from the municipal solid waste landfill.

The purpose of the test was to demonstrate that the utility flare meets the performance requirements of 40 Code of Federal Regulations (CFR), §60.18(f), and thus is also in compliance with 40 CFR 60.18(c)(1), in addition to R 336.1213(3), R 336.2001, R 336.2003, and R 336.2004 of the Adrian Landfill, Inc. Renewable Operating Permit (ROP).

EIL conducted the test with methodologies outlined in 40 CFR 60.18.

EIL conducted the fieldwork on December 13, 2021, and in accordance with the Test Plan, dated November 11, 2021. Mr. Tyler Smith of EIL conducted the test. Mr. Dave Pachan with SCS Engineers, Inc. provided on-site coordination of the tests with landfill operations. A test plan was submitted to EGLE on November 11, 2021. The plan did not receive an approval date.

The name, address, and telephone number of the primary contact for further information about the tests and this test report is:

<b>Name and Title</b>	<b>Company</b>	<b>Telephone</b>
Mr. Tyler Smith Environmental Scientist	Environmental Information Logistics, LLC. 130 E. Main Street Caledonia, Michigan 49316	(616) 558-3978

The name, address, and telephone number of the primary contact for further information about the flare and associated operations is:

<b>Name and Title</b>	<b>Company</b>	<b>Telephone</b>
Ms. Nicole Green Environmental Specialist	Adrian Landfill, Inc. 5011 S. Lilley Road Canton, Michigan 48188	(734) 572-6051



## 2.0 SUMMARY OF RESULTS

The test results were:

- 1) visible emissions: 0 minutes, 0 seconds (accumulated, total),

The performance criteria are less than 5 minutes visible emissions in a 2-hour period.

The test results demonstrate that the utility flare meets the performance requirements of 40 CFR §60.18, and thus also satisfies the requirements of 40 CFR 60.18(c)(1), in addition to R 336.1213(3), R 336.2001, R 336.2003, and R 336.2004 of the Adrian Landfill, Inc. Renewable Operating Permit (ROP).

## 3.0 SOURCE DESCRIPTION

Adrian Landfill, Inc. is a municipal solid waste (MSW) landfill. Anaerobic bacteria decompose the emplaced waste. The primary by-products of decomposition are methane (~45-55%, typical) and carbon dioxide (~40-45%, typical), with the remainder balance gases nitrogen, oxygen and trace amounts of non-methane organic compounds.

Adrian Landfill, Inc. employs a gas collection and control system to meet the requirements of Subpart OOO and AAAA. Gas collection wells are installed in a grid pattern about the landfill. The wells are connected to a common header system. A blower produces a vacuum on the well field. Collected gas is routed to a third-party gas developer. The utility flare is used to control landfill gas emissions in the event the gas developer experiences downtime.

Adrian Landfill, Inc. conducted an initial performance test on December 21, 2006. The flare is designed to meet the requirements of 60.753(b)(2)(iii) at a flow rate up to 2,200 scfm. The landfill gas flow is variable and depends on gas production in the landfill. The composition of the landfill gas varies, but the average Method 3C values obtained on December 21, 2006, may be considered 'typical:' methane, 59.23%; carbon dioxide, 38.70%; oxygen, 0.323%; and nitrogen, 3.44%. The LFG temperature at the utility flare inlet averaged 50°F. Static pressure at the inlet duct was -57.12 inches of water column.

The utility flare is equipped with a thermocouple to monitor for the presence of a flame. The utility flare is equipped with an automatic shutdown that activates if the presence of flame cannot be verified by the sensor.

#### 4.0 SAMPLE AND ANALYTICAL PROCEDURES

EIL conducted measurements in accordance with USEPA Reference Test Methods, as presented in 40 CFR 60, Appendix A. The method used in the test program are listed in the table below.

<u>Sample Method</u>	<u>Parameter</u>	<u>Analysis</u>
USEPA Method 22	Visible Emissions	Field Observation

#### 4.1 Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares (Method 22)

EIL conducted a single, 120-minute, non-continuous observation of the utility flare exhaust for smoke emissions. EIL observed continuously for 20 minutes, then took a break for at least 5 – but no more than 10 minutes, and then resumed observation in this pattern until a full 120-minute period of observation time had accrued. A copy of the Method 22 observation data is presented in Appendix A.

#### 5.0 RESULTS AND DISCUSSION

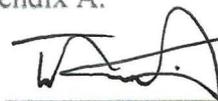
On December 13, 2021, EIL observed an accumulated total of 0 minutes, 0 seconds of visible emissions from the utility flare exhaust. The limit for visible emissions is less than 5 minutes per 2-hour time period [60.18(c)(1)].

EIL did not note any variations and/or anomalies in normal sample collection procedures.

EIL did not note any control equipment upset conditions over the test period.

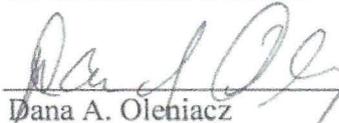
Raw field data used in the determination of the utility flare visible emissions observation data are presented in Appendix A.

This report prepared by:



Tyler G. Smith  
Environmental Scientist

This report reviewed by:



Dana A. Oleniacz  
Senior Project Manager

January 24, 2022



**APPENDIX A**  
**FIELD AND CALCULATED DATA SHEETS**

FUGITIVE OR SMOKE EMISSION INSPECTION OUTDOOR LOCATION			
Company <u>Republic Services</u> Location <u>Adrain Landfill</u> Company Rep. <u>Nicole Green</u>	Observer <u>Tyler Smith</u> Affiliation <u>EEL</u> Date <u>12/13/2021</u>		
Sky Conditions <u>clear</u> Precipitation <u>no rain/snow</u>	Wind Direction <u>W</u> Wind Speed <u>11 mph</u>		
Industry <u>Landfill</u>	Process Unit <u>Flare</u>		
<p>Sketch process unit: indicate observer position relative to source; indicate potential emission points and/or actual emission points.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> </div>			
OBSERVATIONS	Clock Time	Observation period duration, min:sec	Accumulated emission time, min:sec
Begin Observation	<u>11:30</u>	_____	_____
	<u>11:30-11:50</u>	<u>20:00</u>	<u>00:00</u>
	<u>11:55-12:15</u>	<u>20:00</u>	<u>00:00</u>
	<u>12:20-12:40</u>	<u>20:00</u>	<u>00:00</u>
	<u>12:45-13:05</u>	<u>20:00</u>	<u>00:00</u>
	<u>13:10-13:30</u>	<u>20:00</u>	<u>00:00</u>
	<u>13:35-13:55</u>	<u>20:00</u>	<u>00:00</u>
	_____	_____	_____
	_____	_____	_____
End Observation	<u>13:55</u>	<u>120:00</u>	<u>00:00</u>

Figure 22-1