

GALENA C&D LANDFILL

Subsurface Gas Sampling

Public Summary

Sampling Performed: July 28, 2026

BOTTOM LINE

The testing confirmed the collected samples that represented the gas within the landfill waste mass. The study identified gases present below the landfill surface at the sampled locations.

Why Galena Requested the Work

Galena residents had raised questions about landfill odors and other gases that might be present. The City requested broader sampling to characterize common landfill-gas constituents within the landfill waste mass.

Landfill gas is produced as materials within a landfill that break down over time. The types and concentrations of gases can vary according to the materials present, moisture conditions, location within the landfill, and other site-specific factors.

Key facts

15

Sampling Locations

2

Duplicate Quality-Control
Samples

3

Laboratory Methods

0–10 ft

Shallow Subsurface Drilling
Depth

What was sampled and how

Subsurface Source Sampling

A direct-push rig advanced a steel probe into the landfill waste. Tubing and a sampling train were connected to collect gas from below the surface.

Field Screening

A portable landfill-gas analyzer, GEM-5000, measured methane, carbon dioxide, oxygen, and balance gas. Field readings confirmed that each point reflected landfill gas rather than ordinary atmospheric air.

Laboratory Analysis

Gas was collected in evacuated 1-liter Summa canister and submitted under a chain of custody to SGS North America, Inc. The laboratory analyzed fixed gases, sulfur compounds, and volatile organic compounds (VOCs).

Quality Control

Fifteen primary locations and two duplicate samples were included. Samples were analyzed within the applicable method holding times.

Approximate Sampling Locations



What The Results Show

The fixed-gas results showed substantially less oxygen than typical atmospheric air. Together with the other fixed-gas measurements and field screening, this confirmed that the samples represented subsurface landfill-gas conditions at the sampled locations on July 28, 2026.

Result Group	What Was Observed	Why It Matters
Fixed Gases	Methane ranged from 0.14% to 29% by volume. Carbon dioxide ranged from 15% to 31%. Oxygen/argon was reported from below laboratory reporting limits up to 6.2%.	These measurements supported the conclusion that the samples represented subsurface landfill gas rather than normal atmospheric air.
Sulfur Compounds	Sulfur compounds varied considerably by location. Hydrogen sulfide was detected at five primary locations, with reported detections from 0.91 to 110 ppmv.	Sulfur compounds can be associated with landfill gas and odors. These are subsurface source measurements, not neighborhood-air measurements.
Volatile Organic Compounds	The laboratory reported detections of multiple VOCs, and concentrations varied among sampling locations. The full technical table lists each compound and result.	The results characterize gas within the landfill. They do not, by themselves, establish concentrations in off-site or residential air.
Spatial Variability	Results differed from point to point across the landfill.	The data describe the sampled locations and conditions at the time of sampling, not every location or every future condition.

Units: % v/v = percent by volume; ppmv = parts per million by volume; ppbv = parts per billion by volume; ND = not detected above the laboratory reporting limit.