TECHNICAL MEMORANDUM

DATE: July 7, 2025

TO: Emily Brickman, P.G., *Senior Project Manager – Geologist, EnSafe*

FROM: Thomas Huetter, PG, *Harbor Senior Project Manager*

RE: Explosive Gas Monitoring
NABORS Landfill
Three Brothers, AR
Harbor Project No: L8247885

Harbor conducted explosive gas (methane) monitoring of the existing site perimeter gas probes at the NABORS landfill site on May 5, 2025. An RKI Eagle 2 multi-gas monitor was utilized to measure methane (CH_4) in percent lower explosive limit (% LEL) from 0 – 100%, (or percent CH_4 if greater than 100% LEL), oxygen (O_2) in percent volume, carbon monoxide (CO) in parts per million (ppm), and hydrogen sulfide (H_2S) in ppm. Results of the explosive gas monitoring are summarized in the table below.

NABORS Landfill	
Semi-Annual Explosive Gas Monitoring – May 2025	
Weather Conditions:	Mostly cloudy, 5-10 mph wind, mid 70s

Sample Point	**Date**	**Time**	**CH_4 (% LEL)**	**% CH_4**	**% O_2**	**CO**	**H_2S**
GP-1	5/5/25	1346	0	—	5.1	44	0.0
GP-2	5/5/25	1428	0	—	19.8	0	0.0
GP-3	5/5/25	1433	0	—	16.5	0	0.0
GP-4	5/5/25	1445	0	—	20.9	0	0.0
GP-5	5/5/25	1507	0	—	11.5	0	0.0
GP-6	5/5/25	1518	0	—	14.2	0	0.0
GP-7	5/5/25	1520	0	—	17.4	0	0.0
GP-8	5/5/25	1543	0	—	14.8	0	0.0
GP-9	5/5/25	1612	0	—	18.2	0	0.0
GP-10	5/5/25	1620	0	—	12.7	0	0.0
GP-11	5/5/25	1642	0	—	16.1	0	0.0
GP-12	5/5/25	1647	0	—	15.2	0	0.0
GP-13	5/5/25	1653	0	—	9.2	0	0.0
GP-14	5/5/25	1704	**>100**	**26.5**	2.8	0	0.0
GP-14R	5/5/25	1658	0	—	18.1	0	0.0
GP-15	5/5/25	1713	0	—	11.6	0	0.0
GP-16	5/5/25	1254	**>100**	**52.5**	1.8	0	0.0

Sample Point	Date	Time	CH_4 (% LEL)	% CH_4	% O_2	CO	H_2S
GP-16R	5/5/25	1718	0	—	20.9	0	0.0
GP-17	5/5/25	1310	0	—	14.2	0	0.0
GP-18	5/5/25	1327	**97**	—	3.5	0	0.0
GP-18R	5/5/25	1325	0	—	12.8	0	0.0
Main Office Area	5/5/25	1727	0	—	20.9	0	0.0
Second Office	5/5/25	1727	0	—	20.9	0	0.0
Restroom/Storage	5/5/25	1727	0	—	20.9	0	0.0
Scale House	5/5/25	1723	0	—	20.9	0	0.0

Methane exceeded 100% LEL in GP-14 and GP-16 and was measured at concentrations of 26.5 and 52.5 percent, respectively. Methane was measured at 97 percent LEL in GP-18. CO was measured at 44 ppm in GP-1. No CO or H_2S was detected in any of the gas probes. Other than normal levels of O_2, no gas detections were measured in the scale house or office building. It should be noted that since 2018, no gas detections have occurred in the scale house or office building. As such, Harbor recommends removing these buildings from the gas monitoring program as they are no longer occupied or in use.

Attachments:
Attachment A – Sample Point Location Map
Attachment B – Instrument Calibration Record

Attachment A

Sample Point Location Map

Harbor
5800 Evergreen Drive
Little Rock, AR 72205
P: 501.663.8800
www.HarborEnv.com

Client: ENSAFE

N W E S

Figure 3 - Gas Monitoring Points
NABORS Landfill
Mountain Home, Baxter County, AR

Date: 5/17/2024
Drawn by: TH
Checked by: LD

Attachment B

Instrument Calibration Record

FIELD ENVIRONMENTAL INSTRUMENTS, INC.
www.fieldenvironmental.com

301 Brushton Ave
Suite A
Pittsburgh, PA 15221
Toll Free (800) 393-4009
Local (412) 436-2600
Fax (412) 436-2616

RKI Multi-Gas Detector Calibration Certificate

ID:22297 Cal Gas	Lot #	Expiration	Reading %	Acceptable Range
Oxygen	25-3046	03/28/27	18.0	(17.5% - 18.5%)

ID:22297 Cal Gas	Lot #	Expiration	Reading ppm	Acceptable Range
H2S	25-3046	03/28/27	10	(9 - 11)

ID:22297 Cal Gas	Lot #	Expiration	Reading ppm	Acceptable Range
CO	25-3046	03/28/27	50	(48 - 52)

ID:22297 Cal Gas	Lot #	Expiration	Reading %	Acceptable Range
Ch4 % LEL	25-3046	03/28/27	50	(48 - 52)

277 OR 107 Cal Gas	Lot #	Expiration	Reading % / ppm	Acceptable Range
CO2	24-2108	01/10/29	15	(13.5% - 16.5%)

Model	Eagle 2
S/N	E2D681
Barcode	U79995X
Order #	586323

Pump Flow	
730	(600+)

Calibrated By: Adam Murch

Date of Calibration: 05/01/25

Revision 2, 3/29/24

All calibrations performed by FEI conform to manufacturer's specifications. Please report any issues within 24 hours of receiving equipment.
All calibration gas used is traceable to NIST. Additional documentation is available upon request.