

February 4, 2020  
File No. 23212007.08

Ms. Maria Lammers  
Ohio EPA Southwest District Office  
401 East Fifth Street  
Dayton, Ohio 45402-2911

*Submitted Electronically*

Subject: Village of St. Bernard Landfill  
Revised Explosive Gas Monitoring Plan/Request for Semiannual Monitoring

Dear Ms. Lammers:

On behalf of the Village of St. Bernard, SCS is submitting the attached revised Explosive Gas Monitoring Plan (EGMP) for the closed St. Bernard Landfill. One clean electronic copy of the complete revised EGMP and red line addition and strike out copies of the revised pages are included with this submittal.

There is one primary change and several minor changes proposed in the revised EGMP. The primary change is a request to perform monitoring of the compliance probes on a semiannual schedule, as was discussed during our August 23, 2019 meeting. This request is consistent with 3745-27-12 (E)(1)(c) as follows:

- The landfill ceased accepting waste prior to 1994.
- Per the Ohio EPA letter dated May 5, 1977, the landfill was determined to be closed in 1977.
- It has been more than 5 years since the landfill closed.

Therefore, the closed St. Bernard Landfill is eligible for the monitoring to be performed on a semiannual schedule. The Village continues to operate the collection and control system between the landfill and the residences on Bank Avenue. The operation of the system is checked on a monthly basis. The Village has completed two years of quarterly monitoring without an exceedance of the five percent combustible gas threshold, resulting in Ohio EPA's approval of the termination of the 2009 Director's Final Findings and Orders. In addition to the probes, the majority of the residences within 200 feet of the limits of waste (excluding those that declined the installation of a CGI or have requested that the CGI be removed) have combustible gas indicator alarms (CGIs) and, since the initial installation of the CGIs in 2000, there have been no alarm activations in any of the residences that have been determined to be due to the infiltration of landfill gas. Section 2.1.1 Monitoring Frequency has been revised to show a semiannual monitoring frequency.

The minor changes include the elimination of the annual monitoring in the two storm sewer drop inlets located on the top of the landfill/soccer field and revising the description of the alarm set point concentration for the CGIs. Since SCS assumed the performance of the monitoring at the closed St. Bernard Landfill in 2012, no combustible gas has been detected in any of the storm sewers monitored in general and specifically at these storm sewer locations, previously designated SS-6 and SS-8 on the markup of Figure 4 of the EGMP.



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The alarm set point description in Section 2.1.1 Monitoring Frequency has been revised to show a maximum alarm setting of 1.25 percent combustible gas, consistent with the regulations regarding the threshold value in occupied structures.

In addition, the termination of the 2009 DFF&Os was added to the summary of regulatory in the revised EGMP.

Should you have any questions or comments, please contact the undersigned.

Sincerely,



Randall C. Mills, P.G.  
Senior Project Scientist  
SCS Engineers



James J. Walsh, P.E.  
Principal  
SCS Engineers

RCM/JJW

cc: Nick Schapman, GHD  
Tom Paul, Village of St. Bernard  
Jonathan Stuchell, Village of St. Bernard  
Chuck DeJonckheere, R.S., Hamilton County Public Health

Encl.

<b>Date</b>	<b>Document</b>
May 5, 1977	Acknowledgement of Closure
April 14, 2003	Director's Final Finding and Orders
May 18, 2004	OAC 3745-27-13 Authorization
September 16, 2009	Director's Final Finding and Orders
September 9, 2010	Remedial Action Plan & Response to Comments
June 8, 2011	OAC 3745-27-13 Authorization for ODOT
December 12, 2011	Alteration to Approved EGMP
November 6, 2012	Alteration to Approved EGMP
November 6, 2012	Revised Compliance Probe Monitoring Form
November 6, 2012	Alteration to 1 <sup>st</sup> Remediation Plan
December 17, 2012	Delineation Plan
May 16, 2012	Clarification of MP-8 Series Replacement Probes
May 16, 2012	Approval of 2 <sup>nd</sup> Revision to Explosive Gas Remediation
January 17, 2013	Alteration to Approved EGMP
December 5, 2014	Alteration to Approved EGMP (approved February 2, 2015)
February 13, 2018	Approval to abandon MP-10
<u>December 16, 2019</u>	<u>Ohio EPA terminates September 2009 Director's Final Findings and Orders</u>

For several years, the disposed material was not graded or covered but during the later years of operation the material was graded and covered weekly with several feet of soil. Final grade was achieved by covering the landfill area with 3 to 5 feet of clay in 1981, with additional soil added later for the development of the soccer field.

The area occupied by the landfill was for years a vegetable farm and orchard. The landfill began by disposal over the outslope of the Miami and Erie Canal bench. A 1958 aerial photograph and the 1959 topographic map compiled from the photo show a small area of disposal near the southern corner of the area. The canal bench was the disposal point and the disposed material fanned out onto the flat area below. Total area covered was approximately 150 feet wide by 200 feet long. The remainder of the area was orchard and gardens. I-75 had already been constructed. The

Bank Avenue, excluding 444 Bank Avenue where the owner declined the installation of a CGI and 429 Bank where the owner requested that the CGI be removed) has been equipped with an in-building combustible gas indicator (CGI). These monitoring locations have been established to provide a redundant level of detection. The location of monitoring probes and in-building CGIs is illustrated on Figures 3 and 4. All of the CGIs, ~~with the exception of 441 Bank Avenue,~~ are set to alarm at 12,500 ppm methane (1.25 percent methane by volume) or less. ~~This is below~~ The regulatory threshold concentration ~~of is~~ 1.25 percent methane by volume in occupied structures. ~~The two CGIs installed in 441 Bank Avenue are set to alarm at 2,000 ppm methane (0.2 percent methane by volume). Originally, all CGIs were set to 2,000 ppm. When the other CGIs were reset, with the permission of the occupant/owner, to 10,000 ppm to reduce the potential for false alarms and to match the concentration limit in the Ohio Administrative Code, the owner of 441 Bank Avenue requested that the alarms in that residence remain at 2,000 ppm.~~

Each monitoring probe is constructed with a bolt-down cover (flush mount) or locking well casing. Existing probes are fitted with quick-connect couplings to facilitate monitoring. Future monitoring probes (if necessary) will be equipped in a similar fashion.

Installation details for the probes may be referenced on borehole logs provided in Appendix C.

The monitoring network described above will become the network of record when this Explosive Gas Monitoring Plan (EGMP) is approved.

### 1.8.2 Methods of Construction

OAC 3745-27-12 (D)(5)(b)

Typical installation details for monitoring probe MP-1 through MP-6 may be referenced on Figure 11, which is presented in Appendix C. No individual installation logs were provided for this original series of probes.

More recent probes were installed using hollow stem rotary augers or direct push methods, with boreholes continuously sampled. Installation details for existing compliance monitoring probes

Ohio EPA. Replacement permanent monitoring probes, if required, will be positioned to provide similar detection capacity to those removed. Any replacement probes will be installed and constructed in accordance with the approved EGMP.

## 1.9 PURPOSE AND RATIONALE BEHIND THE EXPLOSIVE GAS MONITORING SYSTEM

The purpose of the explosive gas monitoring is the detection of methane gas emanating from the former City landfill. Occupied residences north of the landfill are the primary focus of the monitoring system. Continued implementation of this plan will facilitate detection of potentially explosive gases migrating toward these residences.

## 2.0 EXPLOSIVE GAS MONITORING, SAMPLING AND REPORTING

### 2.1 MONITORING, SAMPLING, AND REPORTING PROCEDURES

OAC 3745-27-12 (E)

#### 2.1.1 Monitoring Frequency

OAC 3745-27-12 (E)(1)

Monitoring of the compliance probes listed in Table 1 will be conducted ~~quarterly~~ semi-annually as specified in OAC 3745-27-12(E)(1)(c). ~~Based on development of a record of compliance, further reduction of gas monitoring frequency will be in accordance with OAC 3745-27-12(E)(1).~~

Maintenance and calibration checks of in-building combustible gas indicators (CGIs) will be performed as needed. Re-calibration of in-building CGIs ~~is~~ will be performed annually. The maximum alarm set point is ~~10,000~~ 12,500 ppm (~~1.2500~~ percent by volume) which is ~~less than~~ the Explosive Gas Threshold Limit (EGTL of 1.25 percent required by regulation). ~~The CGIs in most of the residential properties are set at 10,000 ppm (1.0 percent by volume). The CGIs in one residential property (441 Bank Avenue) are set at 2,000 ppm (0.2 percent by volume).~~

9. Record water level measurements. Remove sampling port or cap as required to access the probe casing. Measure depth to water in the probe from the reference point (the top of the cap if the quick connect is removed or the top of the casing if the cap is removed) to the top of the water surface.
10. Record ambient barometric pressure, ambient temperature, weather conditions and relative humidity. If portable or site-specific weather stations are not available, utilize time stamped data from the nearest NOAA registered climate data recording station.
- ~~11. Storm sewer sampling. Storm sewer sampling locations are noted on the sampling log. To sample a storm sewer inlet, lower the landfill gas analyzer sampling tube into the inlet to its full length. DO NOT ALLOW THE SAMPLING TUBE TO COME IN CONTACT WITH WATER. Record gas concentrations for a minimum of one minute.~~

With respect to monitoring equipment calibration and maintenance, the following schedule will be employed:

1. Gas Detection Equipment: Maintenance no less than annually or more frequently if recommended by the manufacturer. For detection equipment utilized to determine compliance, calibration checks will be performed prior to sampling either via “bumping” of the meter with calibration gas or completing a standard instrument calibration. Calibration gas for compliance sampling will be 15% methane by volume. If the unit is bumped, an allowable deviation of not more than 0.2% methane (by volume) relative to the calibration standard will be considered acceptable.
2. Pressure Detection Equipment: No less than annually or more frequently if recommended by the manufacturer. Pressure detection equipment will be capable of calibration to existing atmospheric pressure (zeroing) and will be calibrated to atmospheric pressure prior to each use.
3. Water Level Measurement: The unit will be tested to confirm detection of liquids either through use of test buttons or immersion into a clean water source.

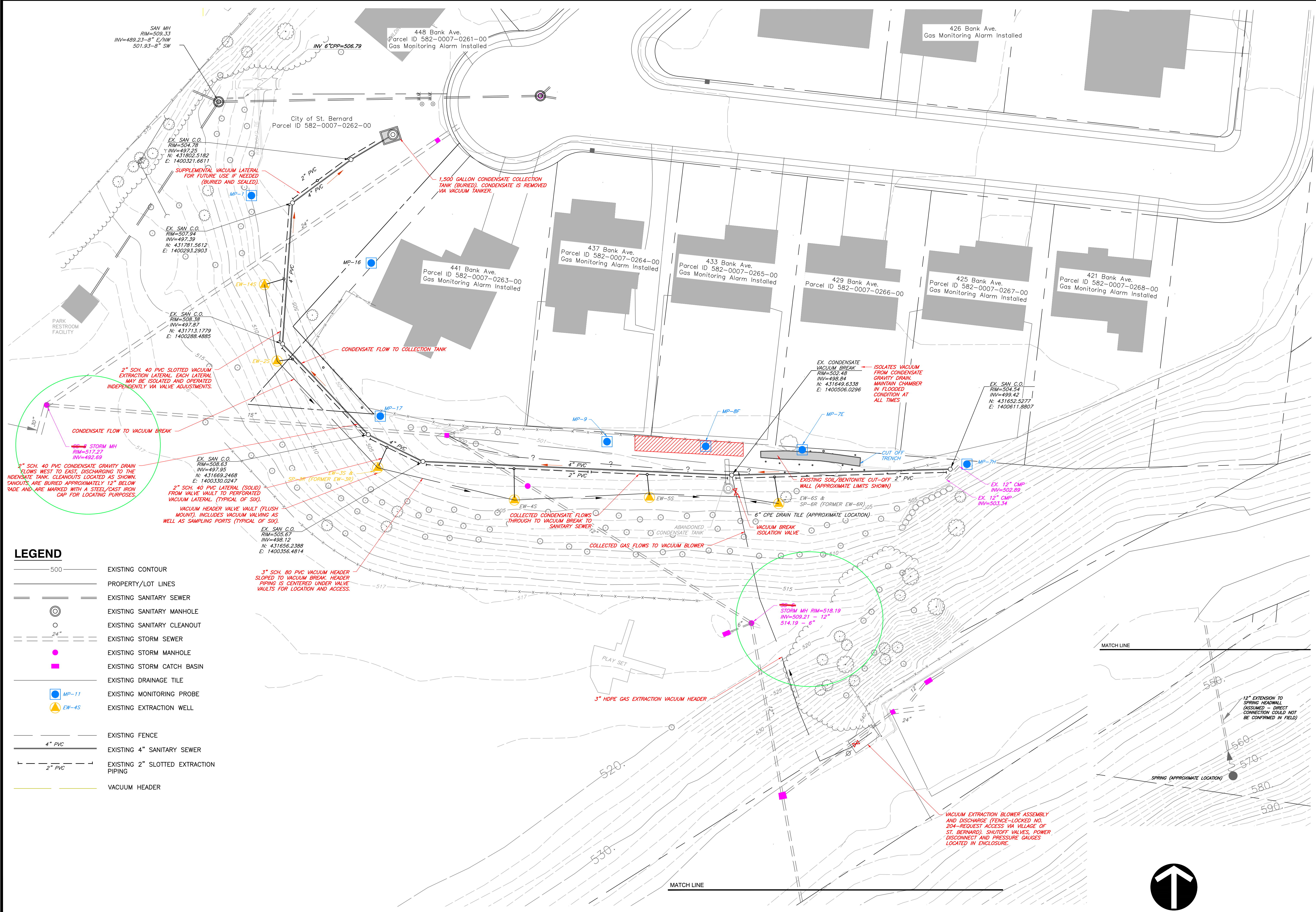
#### 2.1.5 Validation of Data

OAC 3745-27-12 (E)(3)

Data obtained from monitoring probes will be compared to the applicable compliance threshold levels established by regulation. Currently, an explosive gas concentration equal to or greater than 5% in a compliance probe is the regulatory threshold.



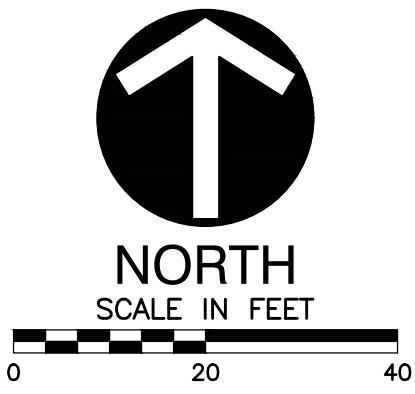
I:\PROJECT\2012 Projects\23212007.00 St. Bernard LF\Deliverables\EGMP\Draft Revised EGMP\2018 revision\Fig 4.dwg Apr 17, 2018 - 9:47am Layout Name: FIG 4 By: 0649fbb



**LEGEND**

	EXISTING CONTOUR
	PROPERTY/LOT LINES
	EXISTING SANITARY SEWER
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY CLEANOUT
	EXISTING STORM SEWER
	EXISTING STORM MANHOLE
	EXISTING STORM CATCH BASIN
	EXISTING DRAINAGE TILE
	EXISTING MONITORING PROBE
	EXISTING EXTRACTION WELL
	EXISTING FENCE
	EXISTING 4" SANITARY SEWER
	EXISTING 2" SLOTTED EXTRACTION PIPING
	VACUUM HEADER

**NOTES:**  
 1. BASE MAP SOURCE CEC DRAWING 2B, DATED MARCH 31, 2011



CK. BY	
DESCRIPTION	
REV. DATE	
SHEET TITLE	MONITORING NETWORK
PROJECT TITLE	ST. BERNARD LANDFILL VILLAGE OF ST. BERNARD, OHIO
CLIENT	VILLAGE OF ST. BERNARD 110 WASHINGTON AVENUE ST. BERNARD, OHIO 45217
DESIGNER	SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC. 2060 READING ROAD, CINCINNATI, OH 45202 PH. (613) 421-5353 FAX. (613) 421-2847
DRAWN BY	FDB
CHECKED BY	RCM
DATE	SEPTEMBER 2014
SCALE	AS SHOWN
DRAWING NO.	FIG 4