

Issuance Date: _____

Effective Date: _____

**BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY**

In the Matter of:

Mr. Raymond Schrand	:	
City of St. Bernard	:	Director*s Final
110 Washington Avenue	:	Findings and Orders
St. Bernard, Ohio 45217	:	

I. JURISDICTION

These Director*s Final Findings and Orders (Orders) are hereby issued to the City of St. Bernard (Owner) pursuant to the authority vested in the Director of Environmental Protection (Director) pursuant to Ohio Revised Code (ORC) Sections 3734.13 and 3745.01 and Ohio Administrative Code (OAC) Rules 3745-27-12(O) and (P).

II. PARTIES

These Orders shall apply to and be binding upon the Owner of the City of St. Bernard Landfill (Facility) and successors in interest liable under Ohio law. No change in ownership shall in any way alter the Owner*s obligations under these Orders.

III. DEFINITIONS

Unless otherwise stated, all terms used in these Orders shall have the same meaning as used in ORC Chapter 3734 and the regulations promulgated thereunder.

IV. FINDINGS

1. The City of St. Bernard is the owner of the Facility which is located on Bank Avenue, between Interstate 75, St. John's Cemetery, and Bank Avenue Subdivision, in Columbia Township, Hamilton County, Ohio. The Facility is a solid waste disposal facility as that term is defined in OAC Rule 3745-27-01(C)(11) and a sanitary landfill facility as that term is defined in OAC Rule 3745-27-01(C)(4).

2. The Facility ceased accepting waste during the 1970's and was closed under the 1976 rules. Currently, 163 occupied structures are within 1000 feet of waste placement, and eight occupied structures are within 35 feet of waste placement.
3. In correspondence dated February 5, 1991, the Ohio Environmental Protection Agency (Ohio EPA) informed the Owner of their obligations as outlined in OAC Rule 3745-27-12, to submit an Explosive Gas Monitoring Plan (EGMP). This plan was to be submitted on or before April 5, 1991.
4. On October 4, 1991, Foppe Thenlen Group Inc., (Consultant representing the Owner) submitted an EGMP to Ohio EPA.
5. On April 21, 1993, the Director approved the EGMP.
6. In correspondence dated May 31, 2000, Ohio EPA requested, in part, that the Owner determine current explosive gas levels in the six existing probes (numbered 1 through 6) by performing additional monitoring and report the results. This request was based on information submitted to Ohio EPA on behalf of the Owner on May 25, 1995, for explosive gas monitoring probe 4. This probe exhibited explosive gas levels at 100% of the Lower Explosive Limit (LEL). A May 24, 2000, meeting and follow up correspondence dated May 31, 2000, requested that the Owner do the following:
 - a. Determine the current explosive gas levels by performing additional monitoring.
 - b. Revise the EGMP to reflect current LEL determinations directly and discontinue the use of the Explosive Gas Threshold Limit equation.
 - c. Review OAC Rule 3745-27-12 for any outstanding compliance issues regarding the facility.
7. In correspondence dated August 22, 2000, from Civil & Environmental Consultants, Inc. (CEC), Ralph Hirshberg, consultant representing the Owner, informed Ohio EPA that eight new explosive gas monitoring probes (numbered 7 through 14) were installed on August 18, 2000. As stated in the correspondence, the following explosive gas monitoring probes exhibited exceedances of the LEL, with the noted concentrations of explosive gas detected: MP-7 at 37%, MP-9 at 5%, MP-11 at 33%, MP-12 at 20%, MP-13 at 19%, MP-14 at 12%. The correspondence acknowledged the exceedances and stated the sampling frequency would be increased to weekly. Mr. Hirshberg stated that following two months of weekly monitoring, the situation would be reassessed and remediation options discussed.
8. In correspondence dated November 1, 2000, Ohio EPA requested sampling results and reiterated the requested actions from the May 31, 2000, correspondence. This

correspondence also requested additional documentation from the Owner regarding the following information included in the August 22, 2000, letter to Ohio EPA:

- a. Status report on the installation of the five residence combustible gas indicators that were stated to be installed by August 28, 2000.
 - b. Copies of the notification for contingency plan emergency personnel.
 - c. Explosive gas sampling report results that were stated to occur weekly to assess gas migration.
9. On December 5, 2000, Ohio EPA held a meeting with the Owner and Mr. Ralph Hirshberg to discuss the direction the Owners intended to proceed with remediation. The Owner and Mr. Hirshberg stated that MP-7 was continuing to exceed the LEL with explosive gas concentrations of 27%. The Owner committed to the following:
- a. Submission of a revised EGMP, as the previously approved EGMP was not accurate.
 - b. Remediation decision would be reached by the end of December 2000.
 - c. Faxing explosive gas monitoring reports by December 8, 2000.
 - d. Boring logs submitted to the Ohio EPA by December 15, 2000.
10. In correspondence dated February 14, 2001, Ohio EPA informed the Owner that they were in non-compliance of OAC Rule 3745-27-12(l)(3)(b) through (d) and (g), regarding permanent probe monitoring parameters.
11. In correspondence dated February 16, 2001, Ohio EPA informed the Owner that the document titled "Certification Report for Explosive Gas Monitoring" did not meet the requirements of OAC Rule 3745-27-12(G).
12. In correspondence dated February 19, 2001, CEC informed Ohio EPA of the proposed gas abatement system. The explosive gas monitoring probes 1 through 6 would be converted to a passive venting system. CEC stated that the complete system installation would occur within approximately 30 days.
13. In correspondence dated March 15, 2001, Ohio EPA informed the Owner of continued non-compliance issues at the Facility for the following:
- a. Failure to submit explosive gas reporting forms and data, as stated in the February 14, 2001, correspondence, and
 - b. Failure to submit a remediation course of action, as stated in the February 14, 2001, correspondence.

14. In correspondence dated March 29, 2001, CEC responded in part to the March 15, 2001, letter with the following:

"Following completion of current remediation efforts, inclusive of establishment of a permanent network of compliance monitoring probes, the City will resume detection monitoring in accordance with the requirements of paragraph (I)(3) of the 1989 rule. However, under current implementation of the contingency plan, we are obligated to provide the City with the most cost efficient course of action, as a matter of engineering practice, which is protective of human health and the environment. To this end, while we appreciate your comments and concern regarding with respect to perceived violations of regulatory requirements, we request your indulgence with our current course of action, as well as consideration of our obligations to the City as engineering consultants."
15. In correspondence dated June 22, 2001, CEC informed Ohio EPA of the estimated schedule for completion of gas remediation. CEC estimated completion and activation of the active gas extraction system by July 6, 2001.
16. In correspondence dated August 1, 2001, CEC informed Ohio EPA of the delay of the active gas extraction system and CEC could not offer an informed estimate as to when the extraction system would be finally activated. CEC stated that they would continue routine monitoring of the Facility and maintenance of in-building combustible gas indicators.
17. The Active Gas Extraction System was installed and operating by the end of October 2001.
18. Ohio EPA inspected the operating system at the Facility on November 5, 2001.
19. In correspondence dated January 11, 2002, Ohio EPA informed the Owner that based on the submitted explosive gas migration reports, current attempts to prevent explosive gas from migrating offsite from the Facility were not successful. Gas probe 8 (MP-8) continued to exceed the LEL (11%) in November. In December, MP-8 continued to exceed the LEL (11%) and MP-7 significantly exceeded the LEL (48%). Ohio EPA informed the Owner of the need to pursue other options to meet the regulatory requirement required by OAC Rule 3745-27-12(K) and outlined in the EGMP approved October 17, 1991.
20. In correspondence dated January 18, 2002, CEC informed Ohio EPA of the following gas remediation status:

"In response to concerns expressed, CEC has proposed a series of additional landfill gas abatement activities to the [Facility] specifically to address gas concentration at monitoring locations MP-7 and MP-8. ...CEC is gathering data to be used in implementation of these activities, and will be modifying the extraction system as soon as ground and weather conditions permit."

21. In correspondence dated April 11, 2002, Landfill Gas Monitoring Results, CEC informed the Ohio EPA of the following:

"...that the recorded methane levels in the compliance probe network have begun to stabilize at or below required thresholds. ...further adjustments to gas extraction wells have been implemented...with the exception of... MP-7 (6%) on February 28th, and an 11% reading in MP-11 on February 22nd. These readings were obtained following an extended shutdown of the blower system on February 21st...While control of oxygen levels in extraction wells remains as an operational difficulty, we will continue to adjust these wells to maximize capacity, and continue the positive trends in gas levels measured through the 1st quarter of 2002."

22. In correspondence dated May 6, 2002, Landfill Gas Monitoring Results, CEC informed the Ohio EPA of the following:

"Since our last report submitted on April 11th, 2002, methane levels have been maintained within compliance ... with the exception of MP-7, which had readings of 17% on April 16th, 11% on April 23rd, and 22% on April 26th, 2002. Stabilization of MP-7's methane levels have been hindered by the seasonal increase in both temperature and precipitation, as well as continuing difficulty in maximizing extractors due to high oxygen levels. We will continue to adjust extraction wells as much as possible while maintaining set operational parameters."

23. In a second correspondence dated May 6, 2002, CEC informed Ohio EPA of a pilot project program planned for implementation on May 20, 2002. The project involved adjustment of all extraction wells to 100% vacuum for two weeks and monitoring gas probes every other day.

24. In correspondence dated June 18, 2002, Landfill Gas Monitoring Results, CEC informed the Ohio EPA of the following:

"Since our last report submitted on May 6th, 2002, methane levels have been maintained within compliance ... with the exception of MP-7. Despite continual adjustment of extractors, and maximizing vacuum of system; MP-7 remains out of compliance with the highest recorded methane level of 35% on May 28th and the

lowest at 5% on May 20th, 2002. All other probes in the Compliance Probe Network are stable and maintained within compliance. We will continue to adjust extraction wells to reduce concentrations in compliance probes to the extent practical."

25. In correspondence dated July 15, 2002, Landfill Gas Monitoring Results, CEC informed the Ohio EPA of the following:

"As you are aware, a compliance levels ... have been generally maintained throughout the monitoring network with the exception of MP-7. Methane levels in this probe have remained in the 20 to 24% range despite numerous adjustments to the vacuum extraction system. Due to this ongoing trend, a pilot extraction test was conducted from June 25th through June 28th. This pilot test was conducted to determine the feasibility of applying vacuum directly to MP-7 and essentially converting this probe into an extraction well.

The results of this pilot test were extremely encouraging...MP-7...[with] moderate vacuum application should yield compliant gas levels in this area.

Based on the results of this pilot test, it is proposed that MP-7 be permanently converted to an extraction well. To address regulatory monitoring requirements, two new monitoring probes, MP-7A and MP-7 B were installed on July 8th to complete coverage in this area. Initial sampling of these new monitoring probes indicated 0% explosive gas."

26. In correspondence dated September 16, 2002, Ohio EPA informed the Owner of the deficiencies in the revised EGMP submitted on August 23, 2002.
27. In correspondence dated September, 18, 2002, Landfill Gas Monitoring Results, CEC informed Ohio EPA of the following:

"Since our last report submitted on August 16th, 2002, methane levels have been maintained within compliance ... with the exception of MP-7A, which had a reading of 29% on August 6th, 25.5% on August 13th, 22% on August 20th, and 23% on August 27th. Currently, continued monitoring of MP-7A is proposed for the next 30 days as we continue to develop a long-term solution to attain compliance in MP-7A. All other probes in the monitoring network are stable and have been maintained at compliant gas levels."

28. In correspondence dated October 4, 2002, Ohio EPA informed the Owner of the continued concern regarding the Facility's explosive gas remediation. Ohio EPA reiterated the concerns and issues voiced in the January 11, 2002, correspondence,

outlined the recent exceedances in the newly installed explosive gas monitoring probes, and specified that the Owner would need to pursue other options to prevent gas migration from the property, as required in OAC Rule 3745-27-12(K) and as outlined in the EGMP approved on October 17, 1991. Ohio EPA requested a written response within 14 days from the receipt of the October 4, 2002, correspondence regarding a plan for remediation of the current situation.

29. In correspondence dated October 15, 2002, Landfill Gas Monitoring Results, CEC informed Ohio EPA of the following:

"Since our last report submitted on September 18th, 2002, methane levels have been maintained within compliance ... with the exception of MP-7A. Methane readings for MP-7A were recorded at 25% (by volume) on September 4th, 31% on the 10th, 27% on the 19th, and 23% on the 24th.

Due to the sustained elevation of methane concentrations in MP-7A, the City has approved installation of two additional compliance probes in this area. These two probes will be located immediately adjacent to the site property boundary, approximately 10 feet closer to the boundary than MP-7A. Monitoring of these new probes, designated MP-7C and MP-7D will begin immediately following installation."

30. On November 5, 2002, Ohio EPA, SWDO telephoned Mr. Ralph Hirshberg of CEC regarding the following:

- a. a missing explosive gas report for September,
- b. the status for the EGMP revisions as requested in the September 16, 2002, correspondence, and
- c. the status for gas remediation as requested in the October 4, 2002, correspondence.

31. In correspondence dated November 14, 2002, Landfill Gas Monitoring Results, CEC informed Ohio EPA of the following:

"For the reporting period, compliance probes exceeding the 5% explosive gas threshold included MP-7A (October 1st, 9th, 16th), MP-11 (October 31st), and MP-13 (October 31st).

Since our last report submitted on October 15th, 2002, two additional compliance monitoring probes, designated MP-7C and MP-7D were installed at the property line abutting 429 Bank Avenue. ...permanent vacuum piping [between extraction well EW-6 to extraction well EW-7 was installed] to assist in more efficient collection of

subsurface gas in the vicinity of the '7-series' compliance probes. The results of initial sampling for MP-7C and MP-7D during the month of October indicate explosive gas concentrations well below 5%.

...elevated gas concentration in MP-11 (21.5%) and MP-13 (7.7%) [coincided with extended periods of precipitation]. In response to these elevated gas levels, adjustments to the extraction system were implemented,...following further system adjustments, full compliance for the entire compliance network was eventually achieved on November 12th.

In each instance where elevated gas concentrations were recorded in the compliance network, the groundwater table was sufficiently elevated to allow suction of groundwater into gas extraction wells. As this water is drained from the extraction wells, response in compliance wells is generally noted within 10 to 15 minutes. Complete recovery of the system and compliant gas levels are generally recorded within one to two days.

...near-term compliance can be achieved in the monitoring system with regular maintenance control of water levels within extraction wells....This process is proposed ...to be continued through the year 2002 monitoring period.

Finally, as a follow up to monitoring data...September, water level measurements were inadvertently omitted from sampling schedules by CEC's field technician."

32. In correspondence dated December 13, 2002, Landfill Gas Monitoring Results - November 2002, CEC informed Ohio EPA of the following:

"For the month of November, non-compliant levels of explosive gas were recorded in probes MP-7C (several dates) [November 1, 18, 20, 21], MP-7D (November 4th) and MP-11 (November 1st, and 18th).

33. OAC Rule 3745-27-12(O), as effective June 1, 1994, states that "upon the director's finding that explosive gas formation and migration threaten human health, safety, or the environment, he may order the Owner to perform such measures to abate or minimize the formation or migration of explosive gas."

34. OAC Rule 3745-27-12(P), as effective June 1, 1994, states that "the director may require the installation of additional temporary or permanent monitors or abandonment of permanent monitors as necessary to monitor the explosive gas pathways or eliminate the potential contamination of ground water."

35. Pursuant to OAC Rule 3745-27-12(O), the formation and migration of explosive gas from the Facility constitutes a threat to human health, safety, or the environment, and the immediate abatement of the formation or migration of explosive gas is required.

V. ORDERS

1. Pursuant to OAC Rule 3745-27-12(O), the Owner shall abate or minimize the formation and migration of explosive gas at the Facility such that the threat to human health, safety, or the environment no longer exists. At a minimum, the Owner shall perform such measures as specified in Orders Number 2 through 5, below, until released from the obligations of these Orders pursuant to Section VI of these Orders - Termination.
2. As soon as practical, but no later than thirty (30) days after the effective date of these Orders, the Owner shall perform assessment activities in order to determine an appropriate solution or remediation plan.
3. As soon as practical, but not later than sixty (60) days after the effective date of these Orders, the Owner shall prepare and submit a remediation plan to Ohio EPA, SWDO, and shall begin implementation of the plan. The Owner shall notify Ohio EPA, SWDO in writing of the date that any remediation plan pursuant to these Orders is implemented. The remediation plan shall include, but may not be limited to, how explosive gas migration will be abated or minimized for each pathway.
4. As soon as practical, but not later than sixty (60) days after implementation of the remediation plan has begun, the Owner shall submit to Ohio EPA, SWDO a revised explosive gas monitoring plan as required by OAC Rule 3745-27-12, which shall include, at a minimum:
 - a. A description of the measures performed to abate or minimize the formation and migration of explosive gas at the Facility; and
 - b. A plan drawing(s) showing the location of all explosive gas monitoring probes and explosive gas monitoring locations that are monitored pursuant to the remediation plan, and all monitoring probes and explosive gas extraction wells installed; and
 - c. A summary of the results of explosive gas monitoring for each permanent or temporary probe or monitoring location, including a discussion of the trend(s) noted based on review of the monitoring data.

5. Pursuant to OAC Rules 3745-27-12(O) and (P), the Director may, based upon the information submitted in the plan, order the Owner to implement additional measures, including submittal of an additional explosive gas remediation plan, in order to abate or minimize the formation and migration of explosive gas at the Facility.

VI. TERMINATION

These Orders shall terminate when the Owner demonstrates and certifies, in writing, that explosive gas formation and migration at the Facility have been abated or minimized such that the threat to human health, safety, or the environment no longer exists, and the Owner has received written concurrence of such certification from Ohio EPA.

Certification shall be signed by a responsible official of the Owner. The certification shall make the following attestation: "I certify that the information contained in, or accompanying, this certification is true, accurate, and complete."

VII. OTHER CLAIMS

Nothing in these Orders shall be construed as a release from any claim, cause, action, or demand in law or equity against any person, firm, partnership, or corporation not a signatory to these Orders for any liability arising out of, or related to, the operation of the Facility.

VIII. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to these Orders shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations. Nothing in these Orders shall be construed as waiving, or compromising in any way, the applicability of Ohio EPA's right to enforce any other statutes or regulations applicable to the operation of the Facility. Ohio EPA reserves all rights and privileges except as specified herein.

IX. NOTICE

All documents demonstrating compliance with these Orders and all other documents required pursuant to these Orders shall be submitted to Ohio EPA at the following address unless otherwise specified, or to such persons and addresses as may be otherwise specified in writing by Ohio EPA.

Ohio Environmental Protection Agency
Southwest District Office
Division of Solid and Infectious Waste Management
401 East Fifth Street

Dayton, Ohio 45402
Attn: Unit Supervisor

X. RESERVATION OF RIGHTS

Nothing contained herein shall be construed to prevent Ohio EPA from seeking legal or equitable relief to enforce the terms of these Orders or from taking other administrative, legal or equitable action as deemed appropriate and necessary, including seeking penalties against the Owner for non-compliance with these Orders.

Nothing contained herein shall be construed to prevent Ohio EPA from exercising its lawful authority to require the Owner to perform additional activities pursuant to ORC Chapter 3734 or any other applicable law in the future. Nothing herein shall restrict the right of the Owner to raise any administrative, legal, or equitable claim or defense with respect to such further actions which Ohio EPA may seek to require of the Owner. Nothing in these Orders shall be construed to limit the authority of Ohio EPA to seek relief for violations at the Facility.

IT IS SO ORDERED:

Christopher Jones, Director
Ohio Environmental Protection Agency