OHIO E.P.A.

BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY MAR 18 2010

ENTERED DIRECTOR'S JOURNAL

In the Matter Of:

Rumpke Sanitary Landfill, Inc 10795 Hughes Road Cincinnati, OH 45251	:	Director's Final Findings and Orders
Respondent	:	I certify this to be a true and accurate copy of the official documents as filed in the records of the Ohio Environmental Protection Agency.

By: _____ Date: 3/13/10

PREAMBLE

It is agreed by the parties hereto as follows:

I. JURISDICTION

These Director's Final Findings and Orders ("Orders") are issued to Rumpke Sanitary Landfill, Inc. ("Respondent") pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency under Ohio Revised Code ("ORC") Sections 3704.03, 3734.02, 3734.13 and 3745.01.

II. PARTIES BOUND

These Orders shall apply to and be binding upon Respondent and its successors in interest liable under Ohio law. No change in ownership of Respondent or of the Facility (as hereinafter defined) shall in any way alter Respondent's obligations under these Orders.

III. DEFINITIONS

Unless otherwise stated, all terms used in these Orders shall have the same meaning as defined in ORC Chapters 3704. and 3734. and the rules promulgated thereunder. Whenever the terms listed below are used in these Orders or in any appendices, attached hereto or incorporated herein, the following definitions shall apply:

1. "Ohio EPA" shall mean the Ohio Environmental Protection Agency and its designated representatives.

2. "Response costs" shall mean all costs including, but not limited to, payroll costs, contractor costs (including the Hamilton County Department of Environmental Services), travel costs, direct costs, laboratory costs, the costs of reviewing or developing plans, reports, and other items pursuant to these Orders, verifying the

Work, or otherwise implementing or enforcing these Orders.

3. "Work" shall mean all activities Respondent is required to perform under these Orders.

IV. FINDINGS

The Director of Ohio EPA makes the following findings:

General Findings & Background

1. The Rumpke Sanitary Landfill ("Facility") is located at 10795 Hughes Road, Cincinnati, Hamilton County, Ohio.

2. Respondent is a "person" as that term is defined in ORC Sections 3734.01(G) and 3704.01(O) and in Ohio Administrative Code ("OAC") Rules 3745-27-01(P)(3) and 3745-15-01(V).

3. Respondent is the "owner" and the "operator" of the Facility as those terms are defined in OAC Rules 3745-27-01(O)(7) and 3745-27-01(O)(5), respectively, and is also the license holder for the Facility.

4. The Facility is a "sanitary landfill facility" as that term is defined under OAC Rule 3745-27-01(S)(4) and is authorized to accept "solid waste" as that term is defined under ORC Section 3734.01(E) and OAC Rule 3745-27-01(S)(24).

5. The Facility includes several "air contaminant sources" as defined in OAC Rules 3745-31-01(I) and 3745-15-01(C) and (X) and "stationary sources" as defined in OAC Rule 3745-31-01(RRRRR). Those air contaminant sources are subject to the requirements of permit to install modification (PTI) #14-05824 and a Title V operating permit, both issued by the Director to Respondent pursuant to ORC Chapter 3704.

6. The numerous air sources also constitute a "facility" as defined in OAC Rule 3745-31-01(OO), a "major source" as defined in OAC Rule 3745-77-01(X), and a "major stationary source" as defined in OAC Rule 3745-31-01(LLL) and are subject to Title V permitting and the Prevention of Significant Deterioration/New Source Review ("PSD/NSR") regulations in Ohio Administrative Code (OAC) Chapters 3745-77 and 3745-31, respectively.

7. Among the numerous air sources at the Facility, the "municipal solid waste landfill equipped with an active gas collection and control system" is identified by Ohio EPA as emissions unit P902. Emissions unit P902 emits "air pollutants" or "air contaminants" as defined in OAC Rule 3745-15-01(C) including particulate matter, sulfur dioxide, carbon monoxide, non-methane organic compounds,

nitrogen oxides, methane, and other volatile organic compounds.

8. OAC Rule 3745-31-05(D) states, in part, that the Director of Ohio EPA may impose special terms and conditions in a permit to install as are appropriate or necessary to ensure compliance with applicable laws and to ensure adequate protection of the environment.

9. PTI #14-05824 and the Title V operating permit for the Facility identify applicable rules and requirements, which include the regulations at 40 CFR Part 60, Subpart WWW, New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills. These NSPS standards include operational standards for gas collection and control systems.

10. Respondent uses a gas collection and control system to comply with the requirements of NSPS rule 40 CFR 60.752(b)(2)(ii). Pursuant to 40 CFR 60.753(c), Respondent is required to operate each interior wellhead in the collection system with a landfill gas temperature less than 55° C (131° F) and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. 40 CFR 60.753(c) and the Title V operating permit also provide that Respondent may establish a higher operating temperature at a particular well if it can demonstrate that the elevated temperature does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

11. The governing PTI #14-05824 and the Title V permit allowed Respondent to operate at a higher operating temperature, requiring Respondent to operate each interior wellhead in the gas collection system at a landfill gas temperature of less than 65° C (149° F). Going forward, allowing a higher operating temperature (i.e., above 55° C [131° F]) should be done on a well-by-well basis after the necessary showings have been made pursuant to 40 CFR 60.753(c).

12. Respondent is required to monitor the temperature at each interior wellhead monthly.

13. In 2009, Respondent implemented a program for the systematic pumping of liquid from designated wells at the north end of the Facility in an effort to increase the capture of landfill gas. A total of 30 wells were equipped with dewatering pumps and pumping began in May 2009. The pumping was conducted by GSF Energy, LLC (GSF), a company that has operated a landfill-gas-to-high-Btu-gas processing plant at the Facility since the mid-1980s.

14. On August 13, 2009, NSPS monitoring indicated that well W135 wellhead temperature was 156° F, exceeding Respondent's permitted temperature limit of 149° F. In accordance with NSPS requirements, GSF attempted to reduce the temperature but was unsuccessful. Respondent was not able to reduce the temperature within 15 calendar days. The temperature at this well has increased

and reached 204° F on December 10, 2009.

15. On August 20, 2009, Tedlar Bag samples were collected from wells W135, W124R2, DW2, W157R, and W128R. The samples were analyzed for carbon monoxide and hydrogen. The laboratory results were reported to Respondent on August 31, 2009 and the carbon monoxide result of 10,200 ppmv for well W135 led Respondent to suspect subsurface oxidation was occurring in the vicinity of wells W135 and W122R2.

16. On August 31, 2009, Respondent implemented the Facility's fire contingency plan and contacted Ohio EPA, Hamilton County Public Health, and Hamilton County Department of Environmental Services and self-reported the conditions at the Facility.

Actions Taken to Mitigate Conditions in the Affected Area of the Landfill

17. Since August 31, 2009, Respondent and GSF have been working with Ohio EPA, Hamilton County Public Health, Hamilton County Department of Environmental Services, the United States Environmental Protection Agency On-Scene Coordinator (USEPA-OSC), and Colerain Township Fire Department to create and implement an action plan and to monitor site conditions.

18. On September 1, 2009, well temperature monitoring indicated that well W122R2 had a wellhead temperature of 157° F, exceeding the permitted temperature limit of 149° F. The temperature at this well has increased and reached 198° F on December 10, 2009.

19. On September 1, 2009, Ohio EPA sent correspondence to Respondent indicating that criteria such as well temperature, the amounts of methane and oxygen present in landfill gas, the concentration of carbon monoxide in landfill gas, and the ratio of methane to carbon dioxide in the landfill gas were all relevant in evaluating the conditions at the Facility. This correspondence also indicated that it was Ohio EPA's opinion that the conditions at the Facility constitute a fire.

20. Beginning September 2, 2009, Respondent began daily monitoring of methane, nitrogen, oxygen, hydrogen, carbon dioxide, carbon monoxide, and wellhead temperature and pressure at wells in the northeast corner of the Facility. The affected area included leachate drain cleanout riser PH5ACO and wells DW1, DW2, W120R2, W121R2, W122R2, W123R2, W124R2, W125R2, W128R, W134R, W135, W136, W137R, W157R, W215, W216, and W219R. Monitoring data has been submitted to and reviewed with all involved agencies.

21. On September 3, 2009, Tedlar Bag samples were collected from fourteen wells located in the affected area of the Facility. The samples were analyzed for carbon dioxide, methane, nitrogen, oxygen, hydrogen, and carbon monoxide.

The laboratory results showed carbon monoxide concentrations above 1,000 ppmv for nine wells (DW2, W121R2, W122R2, W123R2, W124R2, W125R2, W134R, W135, and W215), landfill gas composed of less than 45 percent methane for ten wells (W121R2, W122R2, W123R2, W124R2, W125R2, W134R, W135, W136, W215, and W126), and a ratio of percent methane to percent carbon dioxide of less than one for eleven wells (DW2, W121R2, W122R2, W123R2, W124R2, W125R2, W134R, W135, W136, W215, and W216).

22. On September 15, 2009, Ohio EPA, Hamilton County Public Health, and Hamilton County Department of Environmental Services met with Respondent to discuss conditions at the Facility. Respondent discussed a proposed action plan including activities to monitor and mitigate conditions in the affected area. Respondent agreed to finalize a proposed action plan and submit it to Ohio EPA.

23. By letter dated September 17, 2009, Respondent submitted the following to Ohio EPA:

    a. A summary of the following actions that had already been taken at the affected area of the Facility:

        i. GSF reduced applied vacuums to all landfill gas wells in the affected area. Wells were tuned to allow passive flow into the gas collection system. All landfill gas collected from the north end of the landfill was directed to the utility flare located on the northwest corner of the landfill.

        ii. GSF suspended the well pumping program, which GSF implemented in 2009 to pump water from designated wells at the north end of the Facility in an effort to increase the capture of landfill gas.

        iii. Respondent placed a minimum of one foot of additional clay soil on 11.6 acres to ensure that the affected area was sealed to mitigate the potential for surface air intrusion. The affected area already had at least two feet of cover in place.

        iv. Respondent began twice daily monitoring of eighteen data points including seventeen vertical wells and one leachate drain clean-out riser. The data points included the following: DW1, DW2, PH5ACO, W120R2, W121R2, W122R2, W123R2, W124R2, W125R2, W128R, W134R, W135, W136, W137R, W157R, W215, W216, and W219R. These data points were selected due to their proximity to wells W135 and W122R2 in order to delineate the limits of the elevated temperatures.

b. A description of the principal analytical components of its action plan, as follows:

   i. At each data point gas samples were obtained twice daily and analyzed via field gas chromatograph (GC) for five gases: methane, nitrogen, oxygen, hydrogen, and carbon dioxide. Samples were obtained for laboratory analysis of the above five gases beginning on September 3, 2009.

   ii. Beginning on September 3, 2009, several samples were obtained for the laboratory analysis of carbon monoxide from fourteen of the eighteen data points (excluding W128R, W157R, W219R, and PH5ACO). Down-hole temperature measurements were attempted on a daily basis from the fourteen well locations.

c. A proposal including the implementation of the following activities by Respondent for its modified action plan:

   i. Adjust all impacted wells (W122R2 and W135), immediately adjacent wells (DW1, DW2, W121R2, W123R2, W124R2, W125R2, W128R, W136, W137R, W215, W216, and W219R), and leachate drain cleanout riser PH5ACO to a free flow gas setting and route gas from these wells to the utility flare.

   ii. Manage impacted and adjacent wells to achieve a minimum controlled flow in order to mitigate the potential venting to the atmosphere.

   iii. Monitor all impacted and adjacent wells once per day for a minimum of the following gases: methane, nitrogen, oxygen, hydrogen, carbon dioxide, and carbon monoxide. Shift to monitor gases twice per week based on a well-by-well evaluation.

   iv. Collect tedlar/mylar bag gas samples from the impacted and adjacent wells and send the samples to a laboratory to confirm field testing of methane, nitrogen, hydrogen, carbon dioxide, and carbon monoxide on a weekly basis to ensure the accuracy of the data collected.

   v. Obtain down-well temperatures from each impacted and adjacent wellhead until a total of ten readings have been obtained.

   vi. Visually assess the surface area on a daily basis for evidence of slope movement or surface subsidence in the affected area of the Facility. The affected area will be surveyed weekly to detect any

surface settlement.

vii. Inspect the affected area daily for any sign of abnormal activity or conditions such as smoke, odor, or soot deposits.

viii. Restart limited pumping of landfill leachate and gas condensate from within the gas extraction well on those wells where the water in the well is above or close to the section of the well that is screened. Pumping of liquids will cease if well temperatures exceed 149° F.

24. In a letter dated October 6, 2009, Respondent submitted for approval to Hamilton County Department of Environmental Services an alternative timeline for correcting temperature exceedances at the Facility in accordance with its Title V Permit Part III.A.III.2. Respondent claimed that expansion of the landfill gas collection system would potentially allow for air infiltration into the affected area, further exacerbating the elevated temperatures. Respondent's request for an alternative timeline did not propose specific measures for correcting elevated wellhead gas temperatures nor did it propose a date by which compliance with NSPS would be achieved.

25. On October 16, 2009, Respondent completed installation of an eight-hundred-foot-long gas collection trench at the toe of the slope and applied vacuum to mitigate surface gas emissions.

26. On October 19, 2009, Respondent observed a settlement crack at the top of the slope and additional surveying was initiated. On October 22, 2009, additional settlement data was gathered and indicated localized settlement between DW2, W135, W215 and W134R. On October 23, 2009, Respondent took measures to address settlement by filling settlement cracks with soil and regrading the surface. On October 26, 2009, Respondent installed horizontal displacement pins to monitor for lateral movement.

27. On November 16, 2009, Respondent observed a settlement crack just above the gas collection trench. Respondent proposed to add pins on each side of the settlement crack to monitor lateral movement. In addition, lateral movement in the affected area of the Facility, particularly in the vicinity of well DW2 and near the toe of the slope, has been observed.

28. Since Respondent began expanded surveying, settlement in the affected area at the Facility, particularly in the vicinity of well W135, has exceeded ten feet.

29. On November 19, 2009, Respondent and GSF met with Ohio EPA, Hamilton County Public Health, Hamilton County Department of Environmental Services, and U.S. EPA to discuss the affected area and actions taken by Respondent.

Ohio EPA offered to assist Respondent in the development of an action plan designed to identify activities and time frames for Respondent to mitigate conditions in the affected area of the landfill. Since November 19, 2009, the parties have met on numerous occasions to finalize the action plan.

30. Since Respondent began expanded wellhead monitoring on September 1, 2009, at least the following wells have exhibited temperatures in excess of 149° F:

Well Location	Highest recorded wellhead temperature				
	9/2009	10/2009	11/2009	12/2009	1/2010
DW3	125.6° F	128.3° F	132.3° F	151° F	133° F
W122R2	196.4° F	191.8° F	197° F	198° F	200° F
W124R2	145° F	143.4° F	154° F	154° F	149° F
W125R2	140.7° F	153.4° F	158° F	160° F	156° F
W128R	140.7° F	130.8° F	151° F	160° F	130° F
W134R	151.9° F	160.4° F	169° F	171° F	161° F
W135	198.4° F	196.4° F	202° F	204° F	198° F
W136	138.5° F	138.5° F	146° F	159° F	171° F
W215	137.9° F	168.9° F	187° F	192° F	196° F
W221	146° F	105° F	142° F	156° F	121° F

31. Since Respondent began expanded wellhead monitoring on September 1, 2009, at least the following wells have exhibited carbon monoxide levels in excess of 1,000 ppmv:

Well Location	Highest carbon monoxide reading (ppmv)				
	9/2009	10/2009	11/2009	12/2009	1/2010
DW2	1,000	3,800	3,800	3,400	1,600
DW3	400	400	1,400	200	1,000
W121R2	9,300	7,900	7,500	6,500	5,900
W122R2	16,000	7,000	5,500	5,300	4,800
W123R2	11,000	8,800	7,600	6,900	10,900
W124R2	4,500	3,900	3,600	3,700	3,700
W125R2	9,000	1,700	2,100	2,200	2,200
W128R	0	700	700	1,100	0
W134R	6,700	4,600	4,700	4,100	5,100
W135	10,000	7,900	7,400	6,000	6,300
W136	9,600	3,400	4,600	3,000	3,800
W215	8,600	7,600	6,700	5,500	5,100
W216	4,130	2,600	2,600	1,300	1,800
W217R	3,700	2,500	2,100	1,800	1,500
W218	1,800	300	400	200	0
W219R	700	500	1,200	1,000	700
W221	0	0	0	1,200	1,800
GAT3	No data	No data	1,900	1,300	1,100

32. Since Respondent began expanded wellhead monitoring on September 1, 2009, the ratio of percent methane to percent carbon dioxide has been less than one for at least the following locations: DW1, DW2, DW3, PH5ACO, W120R2, W121R2, W122R2, W123R2, W124R2, W125R2, W128R, W133, W134R, W135, W136, W137R, W215, W216, W217R, W218, W219R, GAT1, GAT2, and GAT3.

33. On December 4, 2009, Ohio EPA requested that Respondent define the affected area and expand it to include wells W224, W117R, W148, W157R, W157A, W156, and WPH7B and all wells to the north. The affected area includes both affected wells and adjacent wells to monitor the extent of the conditions at the Facility.

New Source Performance Standards Findings

34. Because compliance with the NSPS rules is required by PTI #14-05824 and the Title V operating permit for this Facility (See Finding number 9), a violation of the NSPS requirements is a violation of PTI #14-05824 and the Title V operating permit for this Facility.

35. ORC Section 3704.05(C) prohibits any person from violating any terms or conditions of any air pollution control permit issued by the Director of Ohio EPA under ORC Chapter 3704. ORC Section 3704.05(J)(2) prohibits, in part, any person from violating any applicable requirement of a Title V permit or any permit condition, except for an emergency as defined in 40 CFR 70.6(g). OAC Rule 3745-77-02(A) provides that the owner or operator of a Title V source shall not operate that source, except in compliance with its Title V permit.

36. Pursuant to NSPS rule 40 CFR 60.755(a)(5), if the gas temperature at the wellhead exceeds the NSPS temperature (or alternative higher operating temperature), Respondent must initiate action to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days after the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days after the initial exceedance. Any attempted corrective measure shall not cause an exceedance of other operational or performance standards. Pursuant to 40 CFR 60.753, if corrective actions are taken as specified in 40 CFR 60.755, the temperature exceedance is not a violation of the operational requirements in 40 CFR 60.753.

37. If the gas collection system has not been expanded to correct the temperature exceedance within 120 days after the initial exceedances, that is a violation of 40 CFR 60.755 unless an alternative timeline has been approved. An alternative timeline has not been approved for any of the wells at the Facility. A higher operating temperature of 65° C (149° F) has currently been established in PTI

#14-05824 and the Title V operating permit (i.e., the permits currently allow Respondent to operate each interior wellhead in the collection system with a landfill gas temperature of less than 65° C (149° F).

38. In the months of September through January, Respondent has failed to correct wellhead temperature exceedances [i.e., temperatures not less than 65° C (149° F)] in at least wells W122R2, W135, and W215. Respondent's failure to correct these exceedances at each well within 120 days of the first exceedance is a violation of 40 CFR 60.755, and a violation of the terms and conditions of PTI #14-05824 and the Title V Permit, and ORC section 3704.05(C) and (J), and OAC Rule 3745-77-02(A).

Solid Waste Landfill Operational Requirements

39. OAC Rule 3745-27-19(B)(2) provides that the owner or operator shall conduct all operations at the Facility in strict compliance with its authorizing documents. As set forth in Finding number 38, above, Respondent is currently in violation of air PTI #14-05824 and its Title V Permit, which is a violation of this OAC Rule 3745-27-19(B)(2).

40. OAC Rule 3745-27-19(B)(5) requires the owner or operator to operate the facility in such a manner that operation does not violate any regulation adopted by the director pursuant to chapter 3704. of the Revised Code. Respondent is in violation of OAC Rule 3745-77-02(A) as described in Finding number 38, above, which is a violation of OAC Rule 3745-27-19(B)(5).

41. OAC Rule 3745-27-19(E)(10) requires that the owner or operator keep a daily log of operations, upon which corrective actions taken at the Facility are to be described. Granting a variance from this requirement that relieves Respondent from the obligation to include corrective actions in the daily log that are being conducted and reported on pursuant to the Action Plan referenced in Order number 1, below, will not create a nuisance or a hazard to public health or safety or the environment and is unlikely to result in a violation of other requirements of ORC Chapters 3704, 3714, 3734, or 6111, and any rules promulgated thereunder.

42. ORC Section 3734.02(A) authorizes the Director of Ohio EPA to grant a variance from the solid waste rules if the Director is satisfied that the construction and operation of the solid waste facility in the manner allowed by the variance and any terms or conditions imposed as part of the variance will not create a nuisance or a hazard to the public health or safety or the environment.

43. ORC Section 3734.13 authorizes the Director of Ohio EPA to issue orders requiring the abatement or prevention of a violation of any section of ORC

Chapter 3734, a rule adopted under that Chapter, or a term or condition of an authorizing document issued pursuant to that Chapter.

44. The Director issues these Orders to address the violations of ORC Chapters 3704 and 3734 and the Title V permit for the Facility. The Director has given consideration to, and based his determination on, evidence relating to the technical feasibility and economic reasonableness of complying with the following Orders and their benefits to the people of the State to be derived from such compliance.

V. ORDERS

Respondent shall achieve compliance with its permits and ORC Chapters 3704 and 3734 and the rules promulgated thereunder in accordance with the following:

1. Upon the effective date of these Orders, Respondent shall comply with the attached Action Plan and any revisions made to the Action Plan pursuant to Section 4.0 of the Action Plan.

2. Notwithstanding any other provision of these Orders, if in the determination of the Director Respondent is unable to achieve the goals of the Action Plan or conditions at the Facility cause or threaten to cause a nuisance or an adverse impact to public health or safety or the environment, the Director may require alternative sampling frequencies, methods, and parameters, or require remedial actions to mitigate conditions at the Facility. Respondent shall implement the remedial actions and any alternative sampling frequencies, methods, and parameters in accordance with the terms and conditions of the Director's final action.

3. In accordance with ORC Section 3734.02, Respondent is hereby granted a variance from the requirement to include all corrective actions on the Facility's daily log of operations in accordance with OAC Rule 3745-27-19(E)(10). Respondent shall record on the daily log form only those corrective actions that are not being conducted and reported on pursuant to the Action Plan referenced in Order number 1, above.

4. Respondent's October 6, 2009 request for an alternative timeline (see Finding number 24) is disapproved.

5. Respondent shall report all exceedances of applicable parameters of the NSPS in the semi-annual report required by 40 CFR 60.757(f). [As this landfill is subject to the requirements of 40 CFR Part 63, Subpart AAAA, "National Emission Standards for Hazardous Air Pollutants (NESHAP)," the NSPS report must be filed semi-annually and not annually. See 40 CFR 63.1980(a).] Respondent also shall report exceedances that are not corrected in the manner

prescribed by 40 CFR 60.755 and within the time frames allowed by that section, as deviations in the quarterly deviation report under Respondent's Title V permit. When an exceedance is caused by conditions meant to be addressed by the Action Plan, Respondent shall comply with the Action Plan as a means of addressing its deviation under the NSPS.

6. On and after the thirtieth day after the effective date of these Orders, if any gas recovery well at the Facility outside the affected area has a wellhead gas temperature below 55° C (131° F), the allowable maximum wellhead gas temperature for that well shall thereafter be less than 55° C (131° F), as specified in 40 CFR 60.753, and not the 65° C (149° F) allowed by Respondent's PTI #14-05824 and Title V Permit. A higher operating temperature may be allowed within a given well if Respondent makes the showings required by 40 CFR 60.753(c). Nothing in these Orders shall be construed to prevent Ohio EPA from lowering the maximum wellhead gas temperature to 55° C (131° F) in all gas recovery wells at the Facility, including those wells within the affected area, by further order or by permit modification or permit renewal.

7. Respondent shall pay the amount of ninety-eight thousand dollars ($98,000) in settlement of Ohio EPA's claim for civil penalties for violations of ORC Section 3704.05(C) and OAC Rules 3745-77-02(A) and 3745-27-19(B)(5), which may be assessed pursuant to ORC Chapter 3704. Not later than thirty (30) days after the effective date of these Orders, payment to Ohio EPA shall be made by official check made payable to "Treasurer, State of Ohio" for seventy-eight thousand four hundred dollars ($78,400). The official check shall be submitted to Brenda Case, or her successor, together with a letter identifying the Respondent, to:

   Ohio EPA
   Office of Fiscal Administration
   P.O. Box 1049
   Columbus, Ohio 43216-1049

8. In lieu of paying the remaining nineteen thousand six hundred dollars ($19,600) of the civil penalty, Respondent shall, within thirty (30) days of the effective date of these Orders, fund a Supplemental Environmental Project ("SEP") by making a contribution in the amount of nineteen thousand six hundred dollars to the Ohio EPA's Clean Diesel School Bus Program Fund (Fund 5CD0). Respondent shall tender an official check made payable to "Treasurer, state of Ohio" for $19,600. The official check shall be submitted to Brenda Case, or her successor, together with a letter indentifying the Respondent and Fund 5CD0, to the above-stated address.

9. A copy of each of the above checks shall be sent to James A. Orlemann, Assistant Chief, SIP Development and Enforcement, at the following address:

Ohio EPA
Division of Air Pollution Control
P.O. Box 1049
Columbus, Ohio 43216-1049

10. Should Respondent fail to fund the SEP within the required time frame set forth in Order number 8, Respondent shall immediately pay to Ohio EPA $19,600 of the civil penalty in accordance with the procedures in Order number 7.

VI. REVIEW OF SUBMITTALS

Ohio EPA may review any work plan, report, or other item required to be submitted pursuant to these Orders in accordance with this Section. Upon review, Ohio EPA may in its sole discretion: (a) approve the submission in whole or in part; (b) approve the submission upon specified conditions; (c) modify the submission; (d) disapprove the submission in whole or in part, notifying Respondent of deficiencies; or (e) any combination of the above. The results of Ohio EPA's review shall be in writing and provided to Respondent.

In the event of approval as is, approval upon condition, or approval as modified of any submission by the Ohio EPA, Respondent shall proceed to take any action required by the submission as approved, conditionally approved, or approved as modified by Ohio EPA.

In the event that Ohio EPA initially disapproves a submission, in whole or in part, and notifies Respondent in writing of the deficiencies, Respondent shall within 14 days, or such longer period of time as specified by Ohio EPA in writing, correct the deficiencies and submit the revised submission to Ohio EPA for approval. The revised submission shall incorporate all of the changes, additions, and/or deletions specified by Ohio EPA in its notice of disapproval. Revised submissions shall be accompanied by a letter indicating how and where each Ohio EPA comment was incorporated into the submission. Any other changes made to the submission by Respondent shall also be identified in the letter.

If Respondent fails to submit a revised submission incorporating all changes, additions, and/or deletions within 14 days, or such period of time as specified by Ohio EPA in writing, Respondent shall be considered in breach and/or violation of these Orders. If Respondent is in breach and/or violation of these Orders, Ohio EPA retains the right to terminate these Orders, perform any additional investigation, conduct any work to address conditions at the Facility, and/or enforce the terms of these Orders.

VII. REIMBURSEMENT OF COSTS

Ohio EPA has incurred, and continues to incur, Response costs in connection with this Facility. Ohio EPA may request that Respondent reimburse Ohio EPA for any

Response costs incurred by Ohio EPA or its contractors on or after the effective date of these Orders. Not later than thirty (30) days after receiving an accounting of Response costs incurred on or after the effective date of these Orders, Respondent shall remit payment for the full amount claimed. Respondent shall remit payment pursuant to this Section (Section VII) of the Orders by official check made payable to "Treasurer, State of Ohio" to Ohio EPA for the full amount claimed. The official check shall be submitted to Ohio EPA, Office of Fiscal Administration, P.O. Box 1049, Columbus, Ohio 43216-1049, together with a letter identifying Respondent and the Facility. A copy of the letter and check shall be sent to Ohio EPA, DSIWM, Supervisor, Systems Management Unit, P.O. Box 1049, Columbus, Ohio 43216-1049.

VIII. TERMINATION

Respondent's obligations under these Orders shall terminate when Respondent certifies in writing and demonstrates to the satisfaction of Ohio EPA that Respondent has performed all obligations under these Orders and the Chief of the Division of Solid and Infectious Waste Management acknowledges, in writing, the termination of these Orders. If Ohio EPA does not agree that all obligations have been performed, then Ohio EPA will notify Respondent of the obligations that have not been performed, in which case Respondent shall have an opportunity to address any such deficiencies and seek termination as described above.

The certification shall contain the following attestation: "I certify that the information contained in or accompanying this certification is true, accurate and complete."

This certification shall be submitted by Respondent to Ohio EPA and shall be signed by a responsible official of Respondent. For purposes of these Orders, a responsible official is a principal executive officer of at least the level of vice president or his duly authorized representative, if such a representative is responsible for the overall operation of the Facility.

IX. OTHER CLAIMS

Nothing in these Orders shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership or corporation, not a party to these Orders, for any liability arising from, or related to, Respondent's Facility.

X. 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. These Orders do not waive or compromise the applicability and enforcement of any other statutes or regulations applicable to Respondent or the Facility.

Where any portion of the Work required by these Orders requires a permit or approval, Respondent shall timely submit applications and take all other actions necessary to obtain such permits or approvals. Except as expressly provided herein, these Orders are not, and shall not be construed to be, a permit, exemption, or variance issued pursuant to any statute or rule.

XI. INDEMNIFICATION

Respondent agrees to indemnify, save, and hold harmless Ohio EPA from any and all claims or causes of action arising from, or related to, any acts or omissions of Respondent and/or Ohio EPA, its officers, employees, agents, representatives, or assigns, arising from or related to the Facility and/or the Work required under these Orders. Ohio EPA agrees to provide notice to Respondent within 30 days after receipt of any claim which may be the subject of indemnity as provided in this Section, and to cooperate with Respondent in the defense of any such claim or action against Ohio EPA. Ohio EPA shall not be considered a party to and shall not be held liable under any contract entered into by Respondent in carrying out the activities pursuant to these Orders.

XII. ACCESS

Ohio EPA, Hamilton County Public Health, and Hamilton County Department of Environmental Services shall have access at all reasonable times, including during business hours, to the Facility and any other property to which access is required for the implementation of these Orders, to the extent access to the property is controlled by Respondent. Access under these Orders shall be for the purposes of conducting any activity related to these Orders including but not limited to the following:

A. Monitoring the Work;

B. Conducting sampling;

C. Inspecting and copying records, operating logs, contracts, and/or other documents related to the implementation of these Orders;

D. Conducting investigations and tests related to the implementation of these Orders; and

E. Verifying any data and/or other information submitted to Ohio EPA.

To the extent that the Facility or any other property to which access is required for the implementation of these Orders is owned or controlled by persons other than Respondent, Respondent shall use its best efforts to secure from such persons access for Respondent and Ohio EPA as necessary to effectuate these Orders. Copies of all

access agreements obtained by Respondent shall be provided to Ohio EPA upon request. If any access required to implement these Orders is not obtained within 30 days after the effective date of these Orders, or within 30 days after the date Ohio EPA notifies Respondent in writing that additional access beyond that previously secured is necessary, Respondent shall promptly notify Ohio EPA in writing of the steps Respondent has taken to attempt to obtain access. Ohio EPA may, as it deems appropriate, assist Respondent in obtaining access.

Notwithstanding any provision of these Orders, the State of Ohio retains all of its access rights and authorities, including enforcement authorities related thereto, under any applicable statute or regulation.

XIII. MODIFICATIONS

These Orders may be modified by agreement of the parties hereto. Modifications shall be in writing and shall be effective on the date entered in the journal of the Director of Ohio EPA.

XIV. NOTICE

All documents required to be submitted by Respondent pursuant to these Orders other than those required by the Action Plan shall be addressed to:

Ohio Environmental Protection Agency
Southwest District Office
Division of Solid and Infectious Waste Management
Attn: District Chief
401 East Fifth Street
Dayton, Ohio 45402

and

Ohio Environmental Protection Agency
Central Office
Division of Solid and Infectious Waste Management
Attn: DSIWM CA&IS Supervisor
P.O. Box 1049
Columbus, Ohio 43216-1049

and/or to such persons and addresses as may hereafter be otherwise specified in writing by Ohio EPA, including Hamilton County Public Health and Hamilton County Department of Environmental Services.

XV. SAMPLING AND DOCUMENT AVAILABILITY

Unless otherwise agreed to by Ohio EPA, Respondent shall notify Ohio EPA not less than 15 days in advance of all sample collection activity. Upon request, Respondent shall allow split and/or duplicate samples to be taken by Ohio EPA or its designated contractor. Ohio EPA shall also have the right to take any additional samples it deems necessary. Upon request, Ohio EPA shall allow Respondent to take split and/or duplicate samples of any samples Ohio EPA takes as part of its oversight of Respondent's implementation of the Work required by these Orders.

Ohio EPA may request copies of all documentation required by these Orders including, but not limited to, odor logs and related documentation and sampling, tests, or other data, including raw data and original laboratory reports, generated by or on behalf of Respondent with respect to the Facility. Not later than seven (7) days after Respondent's receipt of a request by Ohio EPA, Respondent shall provide Ohio EPA with a copy of the documentation requested to Ohio EPA. An electronic copy shall also be provided in a format approved by Ohio EPA. Respondent may submit to Ohio EPA any interpretive reports and written explanations concerning the raw data and original laboratory reports. Such interpretive reports and written explanations shall not be submitted in lieu of original laboratory reports and raw data. Should Respondent subsequently discover an error in any report or raw data, Respondent shall promptly notify Ohio EPA of such discovery and provide the correct information.

Ohio EPA may subject any reports and data submitted to Ohio EPA pursuant to these Orders to evaluation and validation by a third party and may incur costs for such report and data evaluation and validation. Respondent shall reimburse Ohio EPA for all costs incurred for evaluation and validation of reports and data in accordance with Section VII of these Orders.

Respondent shall retain all documentation generated as a result of these Orders for a period of 5 years following the effective date of these Orders.

XVI. RESERVATION OF RIGHTS

Ohio EPA and Respondent each reserve all rights, defenses, privileges and causes of action, except as specifically waived in Section XVII of these Orders.

XVII. WAIVER

In order to resolve disputed claims, without admission of fact, violation or liability, and in lieu of further enforcement action by Ohio EPA for only the violations specifically cited in these Orders, Respondent consents to the issuance of these Orders and agrees to comply with these Orders. Respondent hereby waives the right to appeal the issuance, terms and conditions, and service of these Orders, and Respondent hereby waives any and all rights Respondent may have to seek administrative or judicial review of these

Orders either in law or equity. Compliance with these Orders shall be a full accord and satisfaction for Respondent's liability for the violations specifically cited herein.

Notwithstanding the preceding, Ohio EPA and Respondent agree that if these Orders are appealed by any other party to the Environmental Review Appeals Commission, or any court, Respondent retains the right to intervene and participate in such appeal. In such an event, Respondent shall continue to comply with these Orders notwithstanding such appeal and intervention unless these Orders are stayed, vacated, or modified.

Nothing in these Orders waives, nor acts as an accord and satisfaction of, the requirement to report as deviations in the Title V quarterly deviation report exceedances of applicable gas recovery well operating parameters as set forth in 40 CFR 60.753, that are not corrected in the manner prescribed by 40 CFR 60.755 and within the time frames allowed by that section. Nothing in these Orders relieves Respondent from its obligation to comply with applicable NSPS regulations. Nothing in these Orders waives the Ohio EPA's right to seek civil penalties or other remedies for such exceedances of those parameters or any other violations arising from or relating to conditions at the Facility.

Respondent hereby waives the right to appeal the issuance, terms and conditions, and service of subsequent Orders in which the Director determines that due to the actual or potential effects of subsurface conditions at the Facility Respondent shall install an isolation break at the Facility to protect human health or safety or the environment or to abate a violation or any threatened violation of any section of R.C. Chapter 3734, a rule adopted thereunder, or a term or condition of Respondent's permit or license, and Respondent hereby waives any and all rights Respondent may have to seek administrative or judicial review of those Orders either in law or equity.

XVIII. EFFECTIVE DATE

The effective date of the Orders is the date these Orders are entered into the Ohio EPA Director's Journal.

XIX. SIGNATORY AUTHORITY

Each undersigned representative of a party to these Orders certifies that he or she is fully authorized to enter into these Orders and to legally bind such party to these Orders.

ORDERED AND AGREED:

Ohio Environmental Protection Agency

Chris Korleski, Director

AGREED:

Rumpke Sanitary Landfill, Inc.

Signature

William J. Rumpke
Printed or Typed Name

President & CEO
Title

Team Rumpke – Action Plan

March 12, 2010

Table of Contents

1.0 Team Administration

The incident at Rumpke Sanitary Landfill is a challenging situation from a variety of perspectives including:

- Involvement of multiple agencies, contractors, and consultants
- Monitoring, data gathering, interpretation
- Safety
- Communications (internal and external)
- Engineering and technical
- Legal and authorizations

For this reason, as the project advances, we must do so in a manner that maximizes the coordination and cooperation of the multiple parties involved, regardless of their affiliation, involvement, or history with the facility.

1.1 Assumptions

- Everyone involved has a role to play and value to add to the project.
- We are better off sharing information, coordinating efforts, and working together to resolve the complex issues facing the facility.
- The resolution of these issues will require a team effort, with everyone bringing their respective information, expertise, talents, and ideas to the table.

1.2 Parties Represented on the Team

- Rumpke and their consultants
- Ohio EPA Central Office, DAPC, DSIWM, PIC
- Ohio EPA Southwest District Office, DSIWM
- Hamilton County Department of Environmental Services
- Hamilton County Public Health
- Colerain Township Fire Department & Trustees
- US EPA

1.3 Team Leaders

Table 1. Team Rumpke Team Leaders

Agency	Employee
Ohio EPA	Russ Brown, SWDO, DSIWM, Field lead and local coordination
	Scott Heidenreich, CO, DSIWM Project Management & Technical Support
	Bruce McCoy, CO, DSIWM, Compliance and Enforcement Management
US EPA	Paul Ruesch
Hamilton County Department of Environmental Services	Bradley Miller
Hamilton County Public Health	Chuck DeJonckheere
Rumpke Sanitary Landfill	Larry Riddle, General Manager
	John Butler, Hughes Road LF Engineer
	Jay Roberts, Director of Engineering & Environmental Affairs

1.4 Communications Protocol

To foster good communications and minimize misunderstandings during this project the following Team Rumpke communications protocol is recommended. Each individual group represented on the team may also want to have its own internal communications protocol.

1. Regular update meetings are held – 10:30 am Thursday mornings. The meetings are held via teleconference using the following bridge line. All team members are welcome to participate.

   The call in number is 1-888-619-1583. Contact Russ Brown for the passcode if you don't have it.

2. The Hamilton County Department of Environmental Services (HCDOES) is regularly briefing the Hamilton County Solid Waste Management District program manager on the status of this project.

3. The Hamilton County Public Health (HCPH) is providing updates at the Hamilton County Solid Waste Management Policy meetings.

4. Written communications. Each group represented on Team Rumpke needs to ensure the public records generated as part of this project are managed in a manner that complies with Ohio's public records law.
    a. To assist Ohio EPA in managing our public records for this project we request all team members to do the following when sending electronic or paper documents to Ohio EPA.
        i. Include Greg Nichols, DSIWM, CO in the cc:
        ii. Scan or create PDFs of all hard copy submittals and e-mail them to Ohio EPA
        iii. On the first line of each e-mail identify which file the document belongs to as follows: "**Rumpke:**[file name]" (See Table 2 . File names to use when communicating with Ohio EPA)

Table 2 . File names to use when communicating with Ohio EPA

File Name
Correspondence to/from USEPA
Correspondence to/from Hamilton County
Correspondence to/from Rumpke
Correspondence to/from Citizen Groups
Correspondence to/from SWMD
Correspondence to/from Other Parties
E-mails to/from USEPA
E-mails to/from Hamilton County
E-mails to/from Rumpke
E-mails to/from Citizen Groups
E-mails to/from SWMD
E-mails to/from Other Parties
IOCs
Memos to File
Meeting Notes
Field Notes
Inspection Logs
Sample Results/Interpretative Reports
Air Monitoring Results
Action Plans and comments
Engineered Component Evaluation Submittals

Odor Complaints
Press Releases
Public Notices
Confidential Attorney/Client Privileged documents

b. All communications to Ohio EPA should have the following people included: Paul Pardi, Russ Brown, Tracy Buchanan, Holly Hillyer, Joleen Cook, Bruce McCoy, Joe Goicochea, Scott Heidenreich, Scott Hester, Greg Nichols, Chuck DeJonckheere, and Brad Miller.

c. All communications to Rumpke should include John Butler.

d. Rumpke has established a website as a depository for updated data.

(See contact information in Section 6.0 Team contact info for e-mail addresses)

2.0 Technical Goals for Addressing the Rumpke Incident

The overall goal of the action plan is to protect human health, safety and the environment and prevent a nuisance. The practical means of attaining that goal is focusing on the following technical goals and the actions developed to achieve them.

1. Ensure slope stability
2. Maintain the integrity of engineered components
3. Define the nature, rate and extent of the incident
4. Control odors
5. Manage the gas, pressure, leachate, and condensate properly
6. Prepare for contingencies to reduce response time
7. Ensure health and safety of regulators and Rumpke employees
8. Prevent the incident from spreading
9. Return the affected area to normal conditions as quickly as possible
10. Ensure compliance with permits, authorizing actions, and other regulatory obligations (Note: all activities associated with this plan would apply to the goal of maintaining compliance).

2.1 *Affected and Unaffected Areas Included in this Incident*

Rumpke will create and maintain a map that clearly delineates affected and non-affected areas of the landfill. The map and any subsequent revisions to the map made by Rumpke will be submitted to Ohio EPA, HCPH, HCDOES, and US EPA upon completion of each revision. For the purposes of this document "affected" means the entire northern expansion area comprised of Existing Phase IV, Phase V, Phase VI, and Phase VII depicted on the drawing titled "Affected Area North End Engineering Support"

Some portions of the affected area exhibit the characteristics listed in Table 3. The affected area also includes a number of gas extraction wells or monitoring points, sufficient to determine the lateral extent of the affected area, that do not exhibit these characteristics.

Table 3. Characteristics indicating likely involvement in incident.

Characteristic
Increased gas extraction well head or other monitoring probe gas temperatures in excess of 150 degrees Fahrenheit or a trend of increasing temperatures, even if temperatures are below 150 degrees Fahrenheit
CH_4 less than 45%
Carbon monoxide above 100 ppmv
CH_4:CO_2 ratios less than 1
Hydrogen greater than 5.0 percent by volume
Unusually increased settlement
Leachate BOD and COD are currently not a quantifiable characteristic, but may be included later based on leachate analysis

If additional locations in the landfill contiguous to the affected area exhibit any combination of one or more of the characteristics listed in Table 3 so as to indicate likely involvement, Rumpke will revise the map to incorporate the additional locations into the map. Alternatively, Ohio EPA may request the affected area to be changed and Rumpke will revise the map to show the requested change. If Ohio EPA requests a change to the affected area shown on the map, Rumpke may request a meeting to discuss the change prior to revising the map. Rumpke will submit the revised map to Ohio EPA, HCPH, HCDOES, and US EPA within five working days of a request.

All other areas of the landfill are unaffected areas for the purpose of this action plan.

2.2 *Monitoring*

Rumpke Sanitary Landfill (RSL) will monitor all gas extraction wells, sumps, shallow collector lines, monitoring points and other locations that can be properly monitored within the affected area at the frequency established in Table 4. Rumpke will post the results, at the reporting frequency, to the file transfer website (http://ra.rumpke.com/guest) that has been established for that purpose. Monitoring frequency is established by evaluating existing data and demonstrating a trend which exhibits whether the quality of the gas is good or poor and whether the well monitoring results are stable or unstable. Wells that exhibit characteristics that are unstable with gas quality that is not improving will be monitored more frequently. Table 4 includes the general monitoring frequency plan, and Appendix I includes the rationale for establishing the monitoring frequency for a well, identifies all wells that are monitored and their specific monitoring frequency and the criteria for increasing or decreasing a well's monitoring frequency.

Table 4. Affected area monitoring requirements.

Measurement	Measurement Frequency	Reporting Frequency
Wellhead temperature & pressure (T&P)	Weekly readings except for unstable, poor quality wells which will be 2X per week	Uploaded weekly to file transfer website (Wednesday)
Temperature in well at depth of 10ft, ½ of well depth and bottom/above liquid level	Monthly only for sentinel monitoring points. Increase frequency to weekly if gas quality becomes poor	Uploaded with T&P readings during weeks when monitored
Six gases, CH4, N2, O2, H_2, CO2 & CO via field GC	Same as wellhead temp & pressure	Uploaded weekly with T&P readings
Well pumping - Status and cumulative pumping hours	Daily readings	Uploaded weekly with T&P readings
Topographic survey (Including settlement cracks)	Monthly on-the-ground survey	submitted monthly
Stability pin monitoring (lateral measurement & elevation)	Surveyed weekly and every 2 weeks after soil buttress is installed	submitted weekly until soil buttress is installed then submitted monthly
NSPS compliance monitoring for affected and unaffected area	Monthly in accordance with 40 CFR 60.756 requirements	submitted monthly

2.3 Activities

The following activities, included in Table 5, are tasks that are intended to provide greater insight and information into the subsurface incident taking place at RSL as well as support the technical goals established in Section 2.0. These activities establish a beginning to the investigation process and are not necessarily exhaustive. RSL will complete the activities and actions in accordance with the schedule established in Table 5. Any document or plan described in Table 5, below, that has been or will be submitted to Ohio EPA is hereby incorporated into this Action Plan, including any revisions made to the plan.

Table 5. Activities and deadlines.

Act No.	Activity	Reason	Goal Supported	Due Date	Rumpke Action
1	Evaluate RSL's waste profiling and disposal records and try to identify if any waste could be creating an exothermic reaction.	If a waste that generates an exothermic reaction is identified, the information will aid in understanding the possible scope of the reaction and can be used to identify other areas of the landfill where this waste was also disposed.	3, 6, 8,9	Report was submitted 2/24/2010	Utilize RSL special waste approval and scale house waste receipt databases to identify quantities and characteristics of significant industrial waste volumes disposed in the affected area during 1997 through 2005. RSL will prepare a report and submit it to Ohio EPA, to summarize the evaluation and identify any waste streams of concern. At a minimum all loads from industrial solid waste customers who disposed more than 5,000 tons per year, particularly those that contain high cellulose, iron oxide, aluminum, glycols, or wastes that may produce exothermic reactions at standard temperature and pressure, under increased temperature and pressure, or increased moisture should be identified.

Act No.	Activity	Reason	Goal Supported	Due Date	Rumpke Action
2	Measure the quantity of leachate, condensate, and liquids removed over time using pump run-time from the leachate collection system and gas extraction system.	Flow trend graphs over time can be used to evaluate intensity of the incident; ensure that pumps, piping, and storage tanks are of sufficient size; ensure that the leachate system and gas extraction system function properly; give early indications of liquid levels, movement, and saturation that may adversely affect slope stability.	1, 2, 3, 5, 6	First report, for reporting month of 1/2010 and historical data, was submitted on 2/12/2010 and subsequent reports are due monthly on the 15th thereafter.	RSL monitors pump run times for all leachate pumps in Phase IV-VII and has a master flow meter that records total flow to the MSD wastewater collection system. Average daily flow to the sewer is approximately 100,000 gpd and there is no volume limitation on the permitted discharge. RSL will prepare reports plotting historical pump run times compared to weekly recordings to identify any upward trends in leachate production from the affected area. Additionally, daily flow measurements will be taken of the two existing and any future landfill gas condensate discharge lines to monitor condensate flow rates.
3	Evaluate gas extraction boring logs and create cross sections through the landfill and identify when the wells were constructed.	Provides information to understand the rate and extent of the incident and timing for when different parts of the landfill were put into gas production relative to when the incident started/was noticed.	3	Plan and cross section drawings submitted 1/20/2010. Boring logs and summary table submitted on 2/01/2010.	RSL will compile all gas well borings and well construction logs from the affected area, and prepare a summary table, identifying well installation date, surface elevation, bottom elevation, screened interval, and landfill liner elevation. Plan and cross section drawings will be prepared depicting liner, 1997 through 2004 annual topography waste grades and existing waste grades; landfill gas well locations; and leachate collection system locations.
4	Provide cross-sections, especially N-S, that show cell bottom, barrier layers, and waste/waste interfaces to identify how far south the incident can move and where such movement could occur.	This information will provide a better understanding of the possibility for the incident to spread south and help identify early warning monitoring locations and the location for an isolation break or some other prophylactic to prevent incident from spreading.	2, 3, 6, 8	Cross sections submitted 1/22/2010.	Plan and cross section drawings will be prepared depicting liner, 1997 through 2004 annual topography waste grades and existing waste grades; landfill gas well locations; and leachate collection system locations.

Act No.	Activity	Reason	Goal Supported	Due Date	Rumpke Action
5	Characterize the leachate, condensate, and liquids removed from the gas extraction wells and the leachate collection system in the affected area. Do the same characterization from unaffected areas of the landfill for comparison purposes.	Provides an understanding of chemical changes being created by the incident; can be used to understand whether liquids being removed from the gas extraction wells are leachate or condensate; can be used to identify parameters peculiar to the liquids from the incident area that can be monitored over time to evaluate the intensity of the incident; provides testing to ensure that POTWs will not be adversely affected by the liquids from the incident area; provides information for chemical compatibility evaluations to ensure existing materials and new materials used in engineered components will function properly; ensures appropriate PPE is used when exposure to these liquids is possible.	2, 3, 5, 6, 7	Samples were obtained on 2/1/2010 to characterize leachate from a sump in a non-affected area and the affected area; and condensate from the gas extraction system in the affected area and non-affected areas. Test results were received on 2/17/2010 and the results of the analyses were submitted 2/26/2010.	Collect at least one sample from each of the following locations and analyze for OAC 3745-27-10, Appendix 1 parameters and BOD, COD, pH, alkalinity, temperature, DO, phenolic/organic acids, anions, cations, ammonia and redox potential (parameters analyzed for March, 2009 anti-scaling study and parameters that may indicate biological activity): Phase V Leachate Sump Phase 2 Vertical Expansion Leachate Sump Gas Condensate from Phase V LFG Well condensate pumping system. Samples should be taken from a place that limits turbulence/off-gassing of VOCs and as near the source as is safe. A reduced list may be created based on the results of this first round of testing.
6	Evaluate the slope stability analysis in the PTI.	Provides for revisiting the assumptions of the original slope stability analysis and, updating them as needed to ensure a good understanding of the existing stability of the affected area.	1	SWDO reports that as of 12/11/2009 their review of the assumptions used in the PTI slope stability analysis are correct. However, assumptions for the incident must be adjusted to account for reduced waste strength and increased pressures and moisture content due to the effects of the incident. Results of analyses were submitted 2/12/2010.	Complete a slope stability analysis of the exterior slope of Phase V/VI: 1.) utilizing PTI stability assumptions and 2.) using conservative estimates of waste strength assuming accelerated waste decomposition, increased pressure, and liquid content. Utilize the results of the stability analysis to complete Activity 13.

Act No.	Activity	Reason	Goal Supported	Due Date	Rumpke Action
7	Complete borings in the affected area to obtain cores and temperature readings.	Provides a visual inspection of the waste; identifies the vertical and lateral extent of the incident; can provide information that may be useful for proposing control measures; can be used to understand changes in waste strength due to the incident.	1, 3, 6	Drilling began 2/17/2010.	RSL will complete at least two borings in the affected area to better define vertical extent of incident. The borings will be advanced to a depth that passes through the area or layer where the heating incident is occurring but not closer than 20 feet to the top of the leachate drainage layer. One boring may be converted to an inclinometer following further research. Both borings will have thermocouples installed at intervals of 25-foot depths.
8	Convert borings in affected area to incident monitoring probes. The probes would be to a depth that extends below the incident. The probes would have thermocouples every 25 feet.	Provides vertical heat profile of waste in a manner that does not cause exposure of staff measuring down-hole temperatures; provides direct monitoring of the temperatures of the affected area to determine intensity trends over time.	3, 6, 7, 8, 9	Will be completed simultaneously with Activity 7. Boring 2 has been converted Borings 1 & 3 are in progress.	See 7 Above.
9	Install surface trenches as needed for intercepting gas and leachate.	Provides some odor control and increase slope stability by reducing liquids in slope.	1, 4, 5, 8	Ongoing installation as needed to control odors, pressure, and leachate outbreaks. Rumpke re-evaluated its design using information provided by US EPA and submitted a written recommendation that included the design and installation on 2/12/2010.	RSL will continue to install surface trenches as necessary to control odors. The decision to install surface trenches and their location will be determined by the results of landfill cover inspections and surface emissions scans. The results of these inspections and surface scans will be recorded in the daily inspection log for the affected area. Since the scanning of the surface is to expand surface trenches and in effect the gas collection system, surface scanning for this activity is separate and not subject to NSPS reporting.

Act No.	Activity	Reason	Goal Supported	Due Date	Rumpke Action
10	Establish temperature monitoring of leachate sumps and laterals.	Provides an understanding of the rate and extent of the incident and allows monitoring of temperature exposure for liner/LCS.	2, 3, 5	Thermocouples were installed 1/19/2010. Frequency established by initial monitoring results, reported monthly. The first report, for reporting month of 1/2010 and historical data, was submitted on 2/12/2010. Subsequent reports are due monthly on the 15th thereafter.	RSL will install two thermocouples in Phase VD2 cleanout riser, on the floor of Phase V, and beneath LFG wells W-135 and DW-2. A temperature reading will be taken initially and monitored at least monthly thereafter. Also, at a minimum, 1 temperature reading will be obtained from each sump in each phase of the affected area. Should the temperature monitoring beneath W-135 and DW-2 show a significant increase or exceed 140 degrees F an increased frequency for monitoring and inspections of the leachate collection system (see activity 12) will be established. Should temperature monitoring beneath W-135 and DW-2 show a significant temperature increase, within 14 days, RSL will install thermocouples in the other leachate sumps and lateral lines in the affected area.
11	Evaluate and improve replacement and maintenance frequencies for gas and leachate collection components in the affected area.	Provides information for determining the number of replacement parts to have on hand and how often to swap out degraded parts prior to failure.	2, 4, 5, 6	Plan submitted on 2/12/2010.	RSL will submit a plan summarizing the existing components of the LFG collection system for the affected area. Required replacement parts assuming a worst-case scenario of LFG system failure will be developed, a replacement part material list developed and the required materials obtained and stored on-site

Act No.	Activity	Reason	Goal Supported	Due Date	Rumpke Action
12	Create and implement a leachate system inspection protocol.	Ensures that the leachate collection system is operating properly and has not been crushed or adversely affected by increased temperatures, leachate flow, or sediments from the incident.	2, 3, 5	System was Inspected 1/8/2010. Report was submitted 1/8/2010.	The 2009 leachate line cleaning and inspection was completed in September, 2009 and no problems were identified. Prior to installing thermocouples in Phase VD2 cleanout, this cleanout will be cleaned and televised to identify any existing integrity issues. Based on results of monitoring conducted in action item 10, inspections and monitoring may be expanded and frequency may increase.
13	Identify stockpiles of soils and other items needed to buttress the exterior slope of Phase V and create shovel ready design for soil buttress so that it can be implemented at a moment's notice.	Provides a plan and materials to react quickly (within minutes or an hour) if evidence of a failure occurs.	1, 2, 4, 5, 6, 7	Buttress design was submitted to Ohio EPA on 1/6/2010. Buttress construction at the toe of Phase V slope as a preventive measure was completed to elevation 840 2/5/10. Certification report of construction will be submitted by 3/15/10.	RSL is proceeding with installation of a buttress in the area of the horizontal displacement pins up to an elevation of approximately 840. Additionally, RSL is considering the installation of an inclinometer.
14	Maintain a protocol and general standards for dewatering gas extraction wells that will increase gas flow and reduce the likelihood of slope failure by removing liquid but not exacerbate the incident.	Provides for a planned approach to balancing the need for slope stability with the need for limiting oxygen and removing gas to prevent excessive pressures and reduce odors.	1, 4, 5, 6, 8	A revised gas well dewatering protocol was submitted on 2/28/2010. The revised protocol includes pumping status and hours with weekly temperature & pressure uploads. Rumpke will summarize changes in dewatering status in each Monthly Report (Activity 25).	RSL will evaluate and revise the existing well pumping protocol to include consideration of historical and current gas parameters, water levels, temperatures, flow rates and surface scan results in determining changes in pumping status. The rational for any changes to the dewatering status will be included in the Monthly Report.

Act No.	Activity	Reason	Goal Supported	Due Date	Rumpke Action
15	Sample landfill gas to establish fingerprint for gas coming from the affected area versus unaffected areas.	Allows appropriate parameters to be selected for off-site air monitoring of emission from the affected area. Provides data to inform public of what is in air emissions.	4, 5	Sampling was conducted on 01/21/2010. The results of the analysis were submitted 2/16/2010.	One gas sample will be obtained from the following wells: W-135 (affected area) and W-1 and 310 (unaffected area) Laboratory analyses will be completed for: VOC, Method TO15 Aldehyde/keytones, and Carbonyl compounds using Method T0-11a Sulfur Compounds, ASTM 5504.
16	Create a health and safety plan for all employees, regulatory personnel, contractors, etc. who will be entering the affected area and train them.	Reduce the likelihood of injury or death of persons entering the affected area.	7	Training of regulators was conducted 1/28/2010.	RSL has drafted an updated HASP and ERP that will be forwarded to Ohio EPA, US EPA, HCPH, and HCDOES when finalized. Training of on-site personnel has been completed and will be completed for individuals that will be working/visiting the affected area.
17	Provide emergency response training for all employees, regulatory personnel, contractors, etc. who will be entering the affected area.	Ensures persons entering the affected area understand how they will be notified of need to evacuate the site, rally locations, and resources available to respond.	7	Training of first responders was conducted 2/25/2010.	See Item 16.
18	Continue to implement an odor control and response plan.	Ensures reduction in odor emissions off-site and ensures employees are responsive to citizens who file odor complaints. Provides Rumpke with documentation on verifiable off-site odors if they occur. (Note: this is in addition to and can be conducted in conjunction with any complaint response protocol implemented by Ohio EPA, US EPA, or HCPH, HCDOES).	4,7	Odor response plan submitted 1/20/2010. Submit odor control plan by 3/31/2010.	Rumpke anticipates no changes to the odor complaint response plan currently utilized by HCPH/HCDOES/Rumpke.

Act No.	Activity	Reason	Goal Supported	Due Date	Rumpke Action
19	Prepare a narrative history of the sequence of events that preceded and occurred during the discovery of the incident.	This information will be helpful in documenting what happened when to provide an understanding of this occurrence and provide information that may be useful in recognizing conditions that may lead to such occurrences in the future at Rumpke or other landfills. This should include the years waste was disposed; when the wells were installed; conditions of the wells becoming watered in, dewatered, and put into production; history of elevated temps; and other indications of a incident occurring in the area. If a reactive waste is identified, then filling history, volumes, and locations would also be included.	3, 7, 8	Submitted 2/26/2010.	RSL will prepare a narrative history of the sequence of events that preceded and occurred during the discovery of the incident.
20	Record foaming events at gas wells and in the leachate collection system.	May provide an understanding of extent of incident. May provide information for protecting workers if foam is indication of working with an affected well. Escaped foam may cause water pollution if not controlled.	3, 7	Record foaming events at all gas extraction wells or shallow collector lines when they are observed. As of 12/18/2009 this is occurring. Observations of foaming are noted in the *Visual comments* column of the well field data submittal.	RSL will note all gas well foaming events in the comments column of the Wellhead T&P report spreadsheet.
21	Create a contingency plan for the location, conceptual design, installation trigger conditions, and implementation of an isolation break based on the information gathered from other activities.	The location and conceptual design of the isolation break should be used to determine where to put the IMPs for use as an early warning of the incident moving towards the area where the isolation break would be constructed if ever needed.	3, 6, 8	Conceptual plan for the location and design was submitted 2/12/2010. Installation trigger conditions and implementation plan was submitted 2/28/2010.	RSL will develop drawings depicting the geometry of the isolation break in the area between phases 2 and phase 4 (south of sentinel monitoring points). RSL will propose, to Ohio EPA, conditions detected in the affected area and/or the sentinel wells that will trigger the installation of the isolation break. RSL will calculate volume of material to be removed, plan for removal and ultimate disposal location for material should an isolation break become necessary.

Act No.	Activity	Reason	Goal Supported	Due Date	Rumpke Action
22	Establish a line of sentinel monitoring points between the hot portion of the affected area and the conceptual location of the isolation break.	This sentinel line of monitoring points would be used to determine if the incident is moving toward where the conceptual isolation break would be located. The goal being that the monitoring points would be located far enough away from the location of the conceptual isolation break that sufficient time would be provided to install the IB before the incident reaches the construction area.	3, 6, 8, 10	Wellhead T&P monitoring and down well temperature monitoring as established in Table 4 began 1/21/2010.	RSL will utilize existing gas wells, 117R, 120R2, 224, 223,148, 149 and 157R as sentinel monitoring points. Wells will be maintained as free of liquid as possible to provide representative temperature results. Results of boring activity in action item 7 may cause revision to sentinel monitoring points. Monitor sentinel points as established in table 4 and Appendix I. Wells will be modified to allow for down hole temperature measurements and minimize well disturbance by having to disassemble the wellhead.
23	Prepare and update a map that depicts the affected area and includes all gas extraction well, gas header, shallow gas collector, and shallow leachate collector locations.	This map will ensure that the team is kept up-to-date as to the extent of the incident and will be used to determine where the affected area monitoring requirements will be implemented.	3, 6, 5	Submitted 01/29/2010 (Revise and submit as required in Section 2.1).	RSL will prepare a map that depicts the affected area and includes all gas extraction well, gas header, shallow gas collector, and shallow leachate collector locations.
24	Produce aerial infrared imaging maps.	This map will provide qualitative information for the surface and near surface temperatures of the landfill, identify heat flow through the gas extraction system, identify locations where heat may be escaping through the cover, and provide comparisons from one period to the next of thermal changes occurring at the landfill.	3, 6, 8	TBD	RSL will discuss conditions and predicted usefulness with flight company and imaging companies and consider obtaining at least one infrared imaging map to provide a baseline and evaluate its utility for the future.
25	Prepare monthly Progress Report.	This report will list the activities for the previous month that were conducted by Rumpke to contain and eliminate the incident. This report should include the status of the activities in this action plan.	10	First report submitted 2/12/10 for reporting month of January 2010. Subsequent reports due by the 15th of each month thereafter.	Examples will be provided to RSL. Create and submit plan monthly.

Act No.	Activity	Reason	Goal Supported	Due Date	Rumpke Action
26	Prepare a data quality control plan.	This plan will provide the data quality standards that are to be used by RSL for field sampling and analysis, lab analysis, data reduction and reporting, and chain of custody. Necessary to ensure that data reported relating to this incident are accurate and valid. The data quality control plan should also include a data revision protocol that will be used to meet the requirements of Section 3.0 Data Quality and Reporting.	10	Submit by 3/31/2010.	Create and submit plan.

The operational requirements of OAC 3745-27-19 state that corrective actions or other such activities that occur at a landfill facility are to be noted in the daily operational log. To avoid recording activities conducted pursuant to this action plan in two different places, the daily logs should have a standard notation indicating that activities being conducted per this action plan are being reported to Ohio EPA, HCPH, and HCDOES in accordance with the action plan and are not required to be repeated in the Daily Log of Operations.

RSL will submit all documents required by this action plan to Ohio EPA, HCPH, HCDOES, and US EPA.

3.0 Data Quality and Reporting

Rumpke will take all necessary actions to ensure that the data being collected, analyzed, and reported meet standard data quality objectives and validation procedures. Appropriate chain-of-custody will be obtained and made available upon request. Due to the quick turn-around time needed to obtain data to make decisions regarding this incident, it is understood that data errors may be discovered after submittal to Ohio EPA, HCPH, HCDOES, or US EPA. Rumpke will conduct due diligence to prevent that from occurring and to discover data errors and resubmit corrected data as quickly as possible while the action plan is being implemented.

4.0 Action Plan Revision Process

This action plan is intended to be a "living" document. As described in this action plan most activities are to be self-implemented by Rumpke with infrequent need for authorizations or changes. Over the life of this work, site features will change; gas wells will need to be replaced and piping rerouted; air delivery lines and liquid transmission lines will need to be added or moved; etc. Such changes will be reflected in revised as-built drawings, which will be kept up-to-date at the facility and submitted annually or upon request to regulatory agencies. For routine maintenance issues which do not fundamentally alter or extend a feature's purpose or function, maintenance records will be kept at the facility to be available for inspection by regulatory agencies.

Rumpke-initiated changes to procedures or requirements that are part of this action plan will be submitted to Ohio EPA HCPH, HCDOES or US EPA for review. The proposed changes will be considered effective if no comment is received within 30 days. However, if Ohio EPA concurs with the revisions in writing to Rumpke the revisions shall take effect as of the date of Ohio EPA's written concurrence.

Action plan revisions to be submitted for review include but are not limited to: revisions to data collection, fundamental process changes, proposed decreases in certain maintenance tasks, etc. Revisions will be issue-focused and submitted in a way which allows identifying revisions (*e.g.*, a revision block on a drawing, colored paper or forms in the plan, revision date in the corner, etc.) Likewise, Ohio EPA may request or require changes to the action plan. Such changes may be discussed at the Team Rumpke meetings or at special meetings requested by Ohio EPA.

An up-to-date action plan will be kept by Rumpke, at the facility, and complete copies of updated plans will be submitted upon request to regulatory agencies or posted by Rumpke to the file transfer website to which team members listed in Section 6.0 Team contact info, have been given access.

Note that changes to the action plan may result in alterations or modifications to the facility. Notwithstanding any provision of this action plan, no change to the action plan that results in an alteration or modification shall be implemented by Rumpke until Rumpke has obtained the necessary approvals from Ohio EPA. Rumpke will provide engineering certification reports and drawings upon completion of each work activity in this action plan as is required to comply with Ohio laws and regulations and reporting requirements of this plan.

5.0 Incident Cessation

This incident will be considered ended and Rumpke may request that the additional monitoring and control measures implemented pursuant to this action plan cease, when the chief of the Division of Solid and Infectious Waste Management concurs in writing that the following criteria are acceptable for all portions of all affected areas:

- Waste and gas extraction well, gas temperatures.
- Settlement and stability of the waste mass.
- Stability of gas quality.

6.0 Team contact info

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Appendix I
Section 2.2 Monitoring

MONITORING FREQUENCY RATIONALE:

Rumpke Sanitary Landfill (RSL) will monitor all gas extraction wells, sumps, shallow collector lines, monitoring points and other locations that can be properly monitored within the affected area at the frequency established in Table 4. Monitoring frequency is established by evaluating existing data and demonstrating a trend which exhibits whether the quality of the gas is good or poor and whether the well monitoring results are stable or unstable. Wells that exhibit characteristics that are poor and unstable will be monitored more frequently at twice per week for wellhead temperature, pressure, and the six gases of CH4, N2, O2, H2, CO2, and CO via field GC. Gas well characteristics that are poor and unstable shall be defined as any well in the affected area whose most recent monitoring round has the ratio of CH4/CO2 at <1.00, and whose ratio has fallen by >0.20 since the prior round. A well being monitored twice per week will revert to weekly monitoring when its current round has not declined 0.20 from the prior round. Once methane has fallen to <10%, the prescribed ratio trigger of 1.00 and decline of 0.20 is no longer applicable since conditions will have stabilized at that point, and weekly monitoring shall suffice again.

Less frequent monitoring than that prescribed by Table 4 will be allowed when results become sufficiently stable that further deterioration of gas characteristics is unlikely based on the stability of results recorded over the prior month. RSL can apply for approval of less frequent monitoring, based on a case that stable results have been achieved and are likely to continue, and that a sudden further significant deterioration in results is unlikely to occur quickly, within the timeframe between two monitoring rounds.

The Affected Area monitoring points and monitoring frequency effective February 22, 2010 are identified on the following table.

RSL Action Plan
Affected Area Monitoring Points

Location	Description	Frequency as of 2/22/10
DW1	Gas extraction well	Weekly

W149	Sentinel gas extraction well	2X Weekly
W150R	Gas extraction well	Weekly
W151R	Gas extraction well	Weekly
W152	Gas extraction well	Weekly
W153	Gas extraction well	Weekly
W154	Gas extraction well	Weekly
W155R	Gas extraction well	Weekly
W156	Gas extraction well	Weekly
W157A	Gas extraction well	Weekly
W157R	Sentinel gas extraction well	Weekly
W215	Gas extraction well	Weekly
W216	Gas extraction well	Weekly
W217R	Gas extraction well	Weekly
W218	Gas extraction well	Weekly
W219R	Gas extraction well	Weekly
W220	Gas extraction well	Weekly
W221	Gas extraction well	Weekly
W222	Gas extraction well	2X Weekly
W223	Sentinel gas extraction well	Weekly
W224	Sentinel gas extraction well	Weekly
WPH7	Gas extraction well	Weekly
WPH7A	Gas extraction well	Weekly
WPH7B	Gas extraction well	Weekly
WSE	Gas extraction well	Weekly

DW2	Gas extraction well	Weekly
DW3	Gas extraction well	Weekly
DW4	Gas extraction well	2X Weekly
GAT1	Gas extraction well	Weekly
GAT1B	Gas extraction trench	Weekly
GAT2	Gas extraction trench	Weekly
GAT3	Gas extraction trench	Weekly
GAT3A	Gas extraction trench	Weekly
GAT3B	Gas extraction trench	Weekly
GAT4	Gas extraction trench	Weekly
PH5GAT	Gas extraction trench	Weekly
PH4CO	Cleanout	Weekly
PH5ACO	Cleanout	Weekly
PH7ACO	Cleanout	Weekly
T15	Gas extraction trench well	Weekly
TW16	Gas extraction trench well	Weekly
TW28	Gas extraction trench well	Weekly
TW29	Gas extraction trench well	Weekly
W117R	Sentinel gas extraction well	Weekly
W120R2	Sentinel gas extraction well	Weekly
W121R2	Gas extraction well	Weekly
W122R2	Gas extraction well	Weekly
W123R2	Gas extraction well	Weekly
W124R2	Gas extraction well	2X Weekly
W125R2	Gas extraction well	Weekly
W126R2	Gas extraction well	Weekly
W128R	Gas extraction well	Weekly
W130R	Gas extraction well	Weekly
W131	Gas extraction well	Weekly
W132	Gas extraction well	Weekly
W133	Gas extraction well	Weekly
W134R	Gas extraction well	Weekly
W135	Gas extraction well	Weekly
W136	Gas extraction well	Weekly
W137R	Gas extraction well	Weekly
W141	Gas extraction well	Weekly
W144	Gas extraction well	Weekly
W148	Sentinel gas extraction well	Weekly