



State of Ohio Environmental Protection Agency

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JUN 08 2007

Mr. Todd Hamilton, P.E.
General Manager
Countywide Recycling & Disposal Facility
Division of Republic Waste Services of Ohio
3619 Gracemont Street S. W.
East Sparta, Ohio 44626

Re: Deficiency comments on odor control plan and appendices

Dear Mr. Hamilton:

Enclosed are the Ohio EPA's deficiency comments on Countywide's Odor Control and Contingency Plan and Appendices. Pursuant to Order 5.B of the March 28, 2007 F&Os, Countywide "shall correct cited deficiencies in the Odor Control and Contingency Plan and Appendices and resubmit the Plan and Appendices to Ohio EPA and the Stark County Health Department within 20 days after receipt from Ohio EPA of a letter citing any deficiencies or with such longer time specified in the letter." This letter forwards those cited deficiencies.

Thank you for submitting your existing version of the plan and appendices. One of the strengths of the existing plan is the detailed procedures for preventing and repairing malfunctions of odor control measures and preventing and repairing other odor-causing disturbances, such as landfill subsidence and tears in the cover. We felt that section was an example of a thorough and succinct protocol for addressing and preventing a variety of problems.

But as in many parts of the existing plan, the procedures appear as suggested or recommended, rather than mandatory procedures. We have therefore made as one of our main comments the comment that the plan must be written in mandatory terms ("shall," "must," "will"), rather than in terms such as "it is a goal that" or "should do" or it is "suggested" or "recommended."

Some of the other major points in the deficiency comments are:

1. Consider shortening the plan to eliminate certain editorial, background, and philosophical statements about odors and odor control, so as to

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

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make the plan easier to read and reference as a statement of mandatory procedures.

2. Create a daily mandatory protocol for driving the perimeter of the landfill searching for odors, locating the source, taking corrective action, and reporting on actions and results.
3. Create a mandatory protocol for responding to, investigating, and reporting on odor complaints. Ohio EPA, Stark County, and the City of Canton Health Department will be notified of all "unique odors" (i.e., odors stemming from the underground reaction or fire) and all odors having a dilution-to-threshold ratio of 2.0 or more using the Nasal Ranger field olfactometer.
4. Provide for monthly review of procedures to assess their effectiveness; update procedures as necessary.

Please submit a revised Odor Control and Contingency Plan and Appendices that addresses these deficiency comments within twenty days after receipt of these comments.

Sincerely,



Chris Korleski
Director

cc: Jason Perdion
Baker & Hostetler LLP
Jim Orlemann, Patty Porter, DAPC
William Skowronski, Kurt Princic, NEDO-DSIWM
Gina Gerbasi, Ed Gortner, CO-DSIWM
Dan Aleman, Canton LAA
Bryan Zima, Ohio EPA Legal



Countywide RDF

Countywide Recycling & Disposal Facility

Odor Control ~~Contingency~~ Plan

Revised: ~~January, 2007~~

Pursuant to Order 5A of the March 28, 2007 Director's Findings and Orders, enclosed are Ohio EPA's statement of "deficiencies" in the Odor Control Contingency Plan including Appendices. Deficiencies are noted in the form of directives and comments in shading and occasionally in the form of strikethroughs of text to be deleted and underlining of text to be added.

**Odor Control Contingency Plan
Countywide Recycling & Disposal Facility**

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EXECUTIVE SUMMARY

This report contains detailed information that facility personnel ~~can~~ will use as a guide to address odor issues at Countywide Recycling and Disposal Facility (CWRDF).

In order to specifically address the odor concerns the following is a brief summary of CWRDF implemented activities to date:

- Implemented the 2004 Odor Contingency Plan on March 15, 2004,
- Trained CWRDF personnel on odor management and identification,
- Added odor survey to daily operations,
- Implemented complaint investigation procedures,
- Held neighborhood meetings with SCHD, neighbors, OEPA, CCHD, and local officials,
- Expanded the landfill gas (LFG) collection system,
- Installed and operate more LFG utility flares,
- Installed an odor suppressant system,
- Installed leachate extraction pumps in LFG wells,
- Installed daily and intermediate cover soils over the waste,
- Installed temporary geomembrane covers over the waste,
- Use the Nasal Ranger Ofactometer as manufactured by St. Croix Sensory to identify and manage odors at CWRDF, and
- Many other items.

Add

- Revised the 2004 Odor Contingency Plan to address the unique fugitive odors released from the landfill as a result of rapid thermal decomposition of the waste.

Deficiencies regarding the entire plan:

1. Throughout the plan, terms are used such as, "should," "may," "recommended," "suggestion," "guidance," etc. This plan should not be recommended guidance, but must contain mandatory procedures to be followed by employees once an odor is detected or reported. Therefore, the majority of these permissive terms should be replaced with mandatory terms such as, "shall," "will," "must," etc. If there are sections where the permissive is intended, Ohio EPA will evaluate that use of the permissive term in the revised plan.
2. Where the terms "verified" or "verified complaint" are used in regards to investigation of reports of odors, substitute the word "confirmed" and "unconfirmed," if for no other reason than to avoid confusion with the use of the term "verified complaint" in Ohio statutory law.
3. If this Plan is to suffice under the March 28, 2007 Findings and Orders, it needs to acknowledge and identify as a main cause of the odors the rapid thermal decomposition of waste. That said, CWRDF should consider shortening the plan. Some of the information now contained in the plan may be better suited for background education. Other information may be an expression of CWRDF's opinions on odor control and perception (which CWRDF may be entitled to, but Ohio EPA does not necessarily endorse, depending on the item). Regardless, Ohio EPA believes this plan will be more effective as a short and concise statement of mandatory procedures for monitoring, tracking and recording odors, procedures which, when coupled with the selected remedies from the Interim Activity and Evaluation Plan, will help eliminate or reduce odors. Outlining what and when to do things should be clearly set forth by CWRDF so that CWRDF personnel can quickly use the plan in responding to a report or discovery of an odor.

1. INTRODUCTION

Section 1. is a section CWRDF may wish to consider shortening or deleting parts entirely. (See general comment 3. above.) If it is left in, Ohio EPA makes the following comments: Sections “1.1 Objective” and “1.2 Purpose of the Plan” should be revised to at least identify the existence of the unique odors coming from the 88-acre portion of the landfill and the special need to act promptly to address these unique odors.

1.1 Objective

The objective of this Odor Contingency Plan is to be a good neighbor and to apply sound and consistent procedures to assessing odors and/or odor complaints.

1.2 Purpose of this Plan

Although general comment #1, above, should be applied generally to the entire plan and we will not note individual cases, the following is an example of how the emphasis of this plan must be changed.

~~The purpose of this Odor Control Contingency Plan is to provide general guidance and information outline procedures that facility personnel can shall use to address odor issues at CWRDF.~~

~~It is important to remember that no landfill is odor free, but with proper operational management and continued efforts by the operator and by the public these odor related issues can be minimized. The goal of odor control at CWRDF is not to eliminate odors, but to minimize them.~~

The goal of the plan should be to eliminate the offsite travel of offensive odors.

Although Ohio EPA does not view the remaining portions of Section 1 as containing “operational requirements” and so will limit its comment on these sections and leave the content largely up to Countywide, the section should not contain statements that may conflict with the message of the need to address every report of an odor with urgency.

Also, the sections should be expanded to note the existence of the unique odors the landfill is experiencing and the efforts needed to address them.

1.3 Site History Related to Odors

CWRDF has been receiving waste (both Municipal Solid Waste (MSW) and non-MSW) since 1991. Since CWRDF’s initial operations in 1991, the surrounding area continues to prosper and several new neighbors have moved into the area. Currently CWRDF has approximately 15 neighbors within a half-mile radius of the CWRDF property. Most of which are located to the north and east of the facility. A recreational campground is also located within 500-feet of the CWRDF property to the north.

CWRDF strives to be a good community neighbor to establish a working relationship to address issues of concern. ~~Although not required by the regulations that govern the management of solid waste landfills, this Odor Contingency Plan has been developed to formalize CWRDF’s commitment to addressing this important issue.~~ This Odor Control is also required by the March 28, 2007 Findings and Orders of the Director of Ohio EPA.

1.4 Overview

If this lengthy discussion of odors from the landfill is retained, it should be revised to prominently discuss the main cause of recent odors, namely, the rapid thermal decomposition of waste.

Odor is a human sensation resulting from stimulation of the olfactory organ. However, each person has a different level of odor sensitivity. The human nose is a highly sensitive instrument capable of detecting extremely low concentrations of certain chemicals.

Many odor complaints are based on the perception of odor. [Please provide one or more published scientific/technical references that support this statement]. CWRDF manages complaints in two forms – ~~verified~~confirmed – and ~~unverified~~unconfirmed complaints, which are further defined within this plan. If a ~~verified~~confirmed complaint of an odor is lodged, the complaint must be addressed. ~~Unverified~~confirmed complaints must be addressed differently and are discussed later in this plan. It is interesting to note that perception of odors is a function of all the senses. Experience has shown that landfills or transfer stations that are generally well operated, have attractive landscaping, deal proactively with ~~verified~~confirmed complaints, and are communicative with neighbors generally receive fewer odor complaints than poorly managed and operated facilities.

Unfortunately, the definition and ability for regulators and landfill facilities to accurately track and verify odor issues is ~~extremely~~ subjective. This plan is provided as a tool by which CWRDF ~~may will~~ track, verify, document, and mitigate odor issues potentially created by CWRDF in an objective and scientific manner.

For an odor to become a potential issue it must be (1) generated, (2) transported and (3) received. There are many variables that impact the issue. Odors are often seasonal in nature or related to specific combinations of variables (e.g. waste stream, climate, etc.) and as such plans to deal with them may vary under different circumstances. The issues with odors at waste disposal facilities include community complaints, public perception, and nuisance conditions for those affected. ~~In certain cases odors may be exploited by adversarial groups because of their complexity and subjective nature.~~

Modify the following list to note as the major cause of odors the rapid thermal decomposition of the waste.

Odors are caused by:

- Putrescible wastes, carcasses, sludges, and other types of waste;
- Decomposition gas escaping from the fill;
- Reactions of wastes with each other or liquids; and/or
- Collected or concentrated leachate or landfill gas;

Odor control can be accomplished by:

- Cover the solid waste that has reached advanced stages of decomposition immediately;
- Specialized handling for individual /odorous waste streams (e.g. trench and bury immediately, etc.)
- Work area planning to accommodate wind direction;
- Incorporate leachate collection and recirculation in a closed system that minimizes odor
- Collect more landfill gas; and/or
- Use specialty odor elimination/surfactant products and methods in some cases.

1.4.1 Science of Odor/Characterization

Odors are mixtures of individual compounds that are generated by the decomposition of organic material containing carbon, hydrogen, nitrogen and sulfur under reducing (anaerobic) conditions. This type of condition occurs in solid waste operations including solid waste storage, trucks, transfer trailers, containers, transfer stations and landfills. Odor compounds are low molecular weight compounds (50-200 m.w.), with relatively low boiling points (45°F to 75°F) and low vapor pressure. [Please provide one or more published scientific/technical references that support this statement].

There are over 300 common odorous compounds generated by solid waste processing operations. [Please provide one or more published scientific/technical references that support this statement]. A partial list of the most common odorous substances found in landfills and leachate is shown in Table 1. Note that many of the compounds are detectable at very low concentrations. Very often compliance records indicate that food wastes, petroleum smells, sewage sludge, uncontrolled landfill gas mixtures and hydrogen sulfide (rotten egg odor) are the most common complaints. Some typical sources of these odors are listed below:

Putrescible Wastes

- Food wastes become odorous quickly, especially in warm weather.
- Solid waste that arrives wet ferments rapidly generating gas earlier than would occur otherwise. Odor under these conditions is a serious issue because gas collection methods may not be in place to remove the gas.
- Seasonal events can cause odors. For example, in Gulf Coast states, crawfish, shrimp and other seafood residuals cause container odors in spring and summer months.

Septage/Solidification Pit Materials/Sludges

- Volatile fractions from refinery waste such as tank bottoms, fuel spill cleanup residuals, and contaminated soils. These tend to evaporate in the buried garbage. The more volatile fractions are vented with landfill gas.
- Biosolids (sludge) from wastewater treatment (aerobic and anaerobic) can result in odor emissions if not covered quickly. Odors from these sources are compounded when the sludge is untreated.
- Solidification loads may cause odors over a large area because they are spread on the working face. Odorous waste streams may be desirable to be trench or pit filled

Landfill Gases

- In addition to those materials listed above, MSW and some non-MSW materials are odorous. The general decomposition process of waste materials produces several different gases or microscopic particles carried with the gas. The familiar odors of a landfill are usually attributed to trace compounds in landfill gas, including esters, phenols, organic acids, solvents, and mercaptans.

- Wallboard and dry wall, common components of C& D waste, contains calcium sulfate. When added to a landfill hydrogen sulfide (H₂S) yield can rise significantly especially if mixed with wet organic materials in the fill.

Operational Odors

- Blasting odors [Are explosives currently being used in or near the landfill? If not, please remove the reference. If they are, please provide a more detailed reference, e.g., blasting at the landfill or blasting associated with nearby mining, etc.].
- Normal earthwork related odors (e.g. organic soils, surface water treatment, etc.)

Add item such as:

- Fugitive LF gas odors from surface leaks due to subsurface pressure, temperatures, or other contributing factors, such as area rapid settlement, atmospheric changes, FML cover tears, wellhead(s) sampling, gas or leachate collection system equipment failures.

Leachate

- Exposed or stored leachate may contribute to odors.

Yard Waste/Compost

- Highly influenced by waste types (e.g. grasses, pine trees, etc.), moisture content and collection procedures (e.g. bulk collection versus individual drop off)

Other Non-Landfill Related Odors:

Other odors that are typically mistaken for those generated by a landfill facility can include many local activities typically associated with the surrounding areas. These may include mining activities, animal farms, oil & gas wells, agricultural activities, etc. As proven in 2006, odor neutralizing systems may also be mistaken for those generated by the landfill and result in complaints from neighbors. [Please give a more detailed explanation of this statement.]

1.4.2 Identification of odors at CWRDF

CWRDF through its consultant, Dr. Deborah Gray, PhD. of Lawhon and Associates, completed an exhaustive study in 2006 to determine the actual chemical constituents contained within the odors at the facility. This study determines that the odors (from the landfill gas and/or leachate) may contain a diverse set of parameters. Results are contained in Lawhon’s reports submitted under a separate cover. Also, note that the report confirmed that nothing was found on or around the landfill within the odor that constituted a health threat. [Please provide a summary of the constituents for which samples were collected and analyzed to determine that a health threat does not exist (e.g., VOCs, PAAHs, furans, dioxins, etc.)].

Table 1 - Partial List of Odorous Substances Found in Landfills and Leachate

Compound	Formula	Characteristic Odor	Odor Threshold (ppm)
Acetaldehyde	CH ₃ CHO	Pungent fruity	0.004

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Compound	Formula	Characteristic Odor	Odor Threshold (ppm)
Acetaldehyde	CH ₃ CHO	Pungent fruity	0.004

Allyl Mercaptan	CH ₂ CHCH ₂ SH	Strong garlic, coffee	0.00005
Ammonia	NH ₃	Sharp pungent	0.037
Amyl Mercaptan	CH ₃ (CH ₂) CH ₂ SH	Unpleasant, putrid	0.0003
Benzyl Mercaptan	C ₆ H ₅ CH ₂ SH	Unpleasant, strong	0.00019
Butylamine	C ₂ H ₅ CH ₂ CH ₂ NH ₂	Sour, ammonia-like	--
Cadaverine	H ₂ N (CH ₂) ₅ NH ₂	Putrid, decaying flesh	--
Chlorophenol	ClC ₆ H ₄ O	Medicinal, phenolic	0.00018
Crotyl Mercaptan	CH ₃ CHCHCH ₂ SH	Skunk-like	0.000029
Dibutylamine	(C ₄ H ₉) ₂ NH	Fishy	0.016
Dimethylamine	(CH ₃) ₂ NH	Putrid, fishy	0.047
Dimethyl Sulfide	(CH ₃) ₂ S	Decayed vegetables	0.001
Diphenyl Sulfide	(C ₆ H ₅) ₂ S	Unpleasant	0.000048
Ethylamine	C ₂ H ₅ NH ₂	Ammoniacal	0.83
Ethyl Mercaptan	C ₂ H ₅ SH	Decayed cabbage	0.00019
Hydrogen Sulfide	H ₂ S	Rotten eggs	0.00047
Methyl Mercaptan	CH ₃ SH	Decayed cabbage	0.0011
Propyl Mercaptan	CH ₃ CH ₂ CH ₂ SH	Unpleasant	0.000075
Pyridine	C ₅ H ₅ N	Disagreeable, irritating	0.0037
Styrene	C ₆ H ₅ CHCH ₂	Sharp, Sweet, Unpleasant	0.008
Tert-Butyl Mercaptan	(CH ₃) ₃ CSH	Skunk, unpleasant	0.00008
Thiocresol	CH ₃ C ₆ H ₄ SH	Skunk, rancid	0.0001
Thiophenol	C ₆ H ₅ SH	Putrid, garlic-like	0.000062
Triethylamine	(C ₂ H ₅) ₃ N	Ammoniacal, fishy	0.08

2. ODOR MANAGEMENT

Overall Comments on Sections 2.0, "Odor Management" & 3.0, "Odor Complaint Management and Analysis."

Request these two sections be expanded to address the unique fugitive odor-containing LF gases from the landfill. Emphasis should be on eliminating these odors as soon as possible, taking the most effective measures and not "moving up a ladder of cost." Also, landfills may not be odor-free, but such a statement should not suggest to employees assigned to address the unique odors being experienced that every effective action to eliminate or minimize the odors to the fullest extent possible should not be expeditiously taken. These sections should be expanded to impose mandatory procedures and to provide more details in procedures. These sections need to be expanded to cover the presently known landfill variables impacting odors and include milestones for future planned activities. The main objectives of this section are to create a system by which CWRDF will be able to (1) measure odor levels off site using the Nasal Ranger, (2) determine the general area within the landfill from which the odor is generated, (3) determine the specific source or sources within the landfill from which the odor is generated, (4) take expeditious corrective actions to eliminate or minimize off-site odors, (5) determine the effectiveness of the corrective actions, (6) gauge the overall

progress being made to control odors, and, (7) formulate a revised plan of action to control and prevent the odors on a regular basis.

The most appropriate method of odor management is strongly influenced by the odor. Odor control is generally best accomplished by a phased process of implementing simple housekeeping and operational fixes first and then moving up the ladder in complexity and cost until the odor issue is minimized. Remember that landfills are not odor free (nor are they required to be). [Please clarify by acknowledging that OAC rule 3745-27-19(B)(3) requires that “the owner or operator shall operate the facility in such a manner that noise, dust and odors are strictly controlled so as not to cause a nuisance or a health hazard.”] In general, start with operational controls such as more cover soils or cover systems, and then move to active (or enhanced) landfill gas extraction. Lastly, an odor control remediation program could be implemented. Some examples of odor control techniques are presented on the pages following. Note that not every suggestion will apply or be feasible to implement at all times at CWRDF.

Table 2 - Variables Impacting Odors

Factors Influencing Odor Generation	Factors Influencing Odor Transport	Factors Influencing Odor Reception
Amount and rate of solid waste processing. Location of processing operations. Time of day that processing takes place. Duration and frequency of odor releases. Waste characteristics. Size, location, aerial extent of odor producing operations. Odor characteristics of odorous discharges. Amount of LFG being collected and ignited. Type of daily cover. Open landfill face area. Activities in the Community (Mining, Animal Farms, Oil & Gas wells, agricultural activities, etc.).	Wind direction, variation, & speed. Open windows. [Please clarify or eliminate. It should not be implied that odors can be addressed by closing windows.] Outdoor activities. [Please give examples of which types.] Relative humidity. Atmospheric conditions. Climate. Precipitation. Local topography. Seasonal variations in local climate. Temperature.	Olfactory sensitivity of complainants. Length of exposure. Odor intensity. Time of day. Time of year. Work and recreational patterns. Exposure history of complainant. Location of complainants' property. Psychological conditioning of complainants, political issues, other odor-producing industries in the area [Please provide one or more published scientific/technical references that support this statement.]

Table 2: Odor generation and transport are affected by: chemical reactions related to waste characteristics; surface and subsurface fires; opening wellheads for repairs; leachate pump placement and leachate sampling; engineering maintenance of soil cover or FML cap cover; and fugitive surface odors due to subsurface high pressures and temperatures.

Suggest adding paragraphs that address these and any other factors influencing the generation and transport of the unique fugitive odor.

2.1 Waste Screening

The municipal solid waste stream is made up of waste from all sectors of society. People often categorize waste by its source or its characteristics. Regardless of how the type of solid waste that is received at the landfill facility, a management decision must be made on how to effectively handle that waste and or reject/accept them for disposal. CWRDF encourages screening and management of odorous waste materials in order to ensure that all that can be done to minimize odors is accomplished.

The issue with odors from incoming wastes is probably the hardest to prevent. If these types of odors become an issue, it may be necessary to place these loads in to a portion of the cell where they can be covered as soon as possible (with soil or other wastes). Sometimes, these types of loads result from an on-going commercial process. Examples might include dead animals and/or animal wastes, food processing by-products, restaurant waste, wastewater sludges, etc. CWRDF's current waste screening policy for special wastes (non-MSW) addresses this issue by considering odor and allowing approval for disposal to be contingent upon special handling requirements. This way CWRDF is prepared to handle these upon arrival at the site.

In extreme instances, it may be necessary to treat these waste materials to minimize or mask their odors at the Generator, or require that specialty transportation equipment (i.e. closed containers, etc.) and handling techniques be utilized to minimize the impact these waste materials may have on the operations. The foregoing are put on waste streams. Comment: Please clarify or delete the previous sentence. CWRDF's current waste inspection program observes the effectiveness of these measures.

If in the event that treatment at the source, special handling at the site, or any odor control system that may be in-place proves to be ineffective, a given waste stream may be restricted (i.e. tons per day, delivery times, etc.) or ultimately rejected. Keep in mind that a rejected waste at CWRDF may end up at another landfill for disposal.

2.2 Operations

In many cases it is possible to modify site operations based on time of day or wind direction and speed that can significantly reduce odor release or to manage odor releases during favorable wind conditions or favorable times of day.

The first step in this management process is to identify the odor and its source. Consideration of modifying site operations for identified odorous wastes should be the next step in the development and implementation of an odor control program.

2.2.1 Current Activities Implemented by CWRDF

Please indicate that CWRDF plans to continue these activities. Please discuss the rationale for use of thicker soil cover. CWRDF should add to the following list the non-acceptance of aluminum process waste material (including intermediate materials) and the use of "odor suppression systems." Indicate what will trigger a decision to remove and or expand the "temporary cap." Also indicate that prior approval from OEPA is required before any alteration to the cap can be done.

Best Management Practices (BMPs) implemented at CWRDF currently include the following:

- Pre-screening of waste (non-MSW or special waste);
- Waste Inspection;
- Minimizing working face size(s);
- Use of soil covers thicker than regulatory minimums, as needed;
- Immediate cover of odorous waste streams with other waste materials or soils;
- Minimal possible hours of operation;
- A temporary geosynthetic cap installed in 2006;

- Daily odor monitoring;
- Formal odor complaint investigation procedures;
- Neighborhood meetings
- 2006 expansion(s) of the active gas collection system; and
- Meeting with generators/customers to identify issues and implement potential solutions at the point of generation.

Note: CWRDF encourages the interaction of all regulating agencies with the implementation of these BMPs.

2.2.2 Completed Activities by CWRDF (since 2003)

CWRDF took several measures to control odors since this plan was originally prepared in 2003, including the installation of an odor neutralizing system in 2004. In early 2006, a unique reaction was discovered within the original 88 acre area of the landfill which caused odors to be released into the atmosphere. CWRDF completed an extensive amount of work during 2006 to abate these odors. A list of this work has been well documented during progress reports and numerous meetings with OEPA, CCHD, and SCHD. A complete list of all work is not repeated here, however, in general the following work was completed by CWRDF in 2006:

- Hiring of several landfill gas and odor experts,
- Installation of nearly 6000 feet of odor suppressant systems,
- Installation of additional landfill gas collectors (from 64 collectors at the beginning of 2006 to 182 collectors by the end of the year),
- Installation of two temporary geomembrane caps on the south slope,
- Numerous studies and research by experts to determine the causes and extent of the reaction that caused the reaction as well as management techniques to be employed,
- Installation of seven (7) additional landfill gas flares and associated equipment,
- Installation of over 14,000 linear feet of header and lateral gas collection lines,
- Mobilization of a full time 3rd party team to monitor for odors, respond to complaints, and document results,
- Training of the Nasal Ranger Olfactometer for the regulatory community and neighbors,
- Completion of an air quality study to identify possible odor constituents and verify that no health risks are caused by the odors.
- Implementation of a proactive public relations program to relate ongoing progress to the media and community.
- Installation and anchorage of a 30 acre HDPE cap over the reaction area.
-

2.2.3 Planned Activities to be Implemented by CWRDF (as of January 2007)

Revise this section to specify schedules and/or triggering events for each of the planned activities. This list will need to be updated to incorporate interim action control plan measures approved by the Ohio EPA per the March 28, 2007 Findings and Orders.

Also, explain in more detail the odor management and ID training. What will trigger the additional odor measures? Specify how often periodic review will be conducted and what conditions might trigger a review.

Management practices and activities currently planned for implementation at CWRDF may include the following:

- Further training of facility personnel on odor management and identification;
- Landfill gas collection system expansion during 2007 construction season;
- Continued education of facility personnel, regulators, and neighbors on odors and odor management system; and
- Additional odor control measures (if necessary) such as gas wells, flares, additional cap, ect. to maintain odor control.
- Periodic review of all of the above.

3.0 ODOR COMPLAINT MANAGEMENT AND ANALYSIS

3.1 Facility Boundary and Complaint Odor Monitoring

In accordance with Directors Findings and Orders of September 6, 2006 and as part of Countywide RDFs on-going community out-reach program to work with our neighbors, Republic has had identified staff from Diversified Engineering Inc. as the designated odor surveyor. Staff from Diversified Engineering Inc. have been trained in the use of odor instruments and have agreed to follow the procedures in this Plan. From time to time others may conduct the odor survey (if necessary) but they too will have been trained in the use of the odor instruments and have read and agreed to follow this Plan.

Beginning in September, 2006 Republic's odor surveyor monitored odors several times daily, using a Nasal Ranger Ofactometer as manufactured by St. Croix Sensory. Refer to Appendix A for manufacturers' information on the Nasal Ranger. As of January 2007, this program continues but [Is it more accurate to say, will be replaced by this revised plan?] may be modified as necessary in the future.

CWRDF does periodic odor monitoring around the perimeter and daily monitoring inside the facility and they investigate and mitigate odor found on-site in order to minimize off-site odors. This process allows CWRDF to identify odors on-site before any complaints may occur.

The location of off-site odor monitoring will be: 1) at the facility boundary shown in Figure 1 and 2) at the complaintants location (if complaint is received during normal working hours). The odor survey will commence in accordance with the Nasal Ranger manufacturer procedures (found in Appendix A). The odor survey information will be recorded on the form provided in Appendix B.

If an odor is measured and recorded, the odor surveyor shall move quickly and safely upwind to investigate possible sources of the odor. If the odor source is determined to be the landfill, the odor monitor should discuss the results with the Landfill Operations Manager, Landfill Engineer, or the General Manager to confirm possible causes of the odor. These possible causes will be recorded on the form.

This section should be rewritten to include a practical odor monitoring program that will accomplish timely identification of specific odors escaping the landfill and provide timely feedback allowing CWRDF to quickly identify the source of the odor, make timely repairs of malfunctioning equipment or measures contributing to the odor, and implement odor prevention, suppression, mitigation or elimination measures.

The revised odor monitoring plan should include elements similar to the following:

A. Odor monitoring

Daily, except Sundays, CWRDF will perform a facility boundary odor monitoring trip at least once in the morning (~ 6:00 A.M.) and at least once in the evening (~ 6-8 P.M.), and more frequently as necessary. Monitoring will include travel by the "odor surveyor" around the perimeter boundary (Figure 1) to determine when and if odor is present at any intensity level. If odor is detected, the odor surveyor will stop and measure for approximately an hour the odor intensity and duration at the point or points within the sector where the odor is present and perceived to be the strongest. The Facility Boundary Odor Monitoring Survey Form #1 will be completed to document the results of the survey, including odor intensity, dilution to threshold (D/T) ratio, odor duration, sector location, wind direction and other pertinent data. The top section of Form #1 should be completed for each monitoring trip where an odor is not detected.

B. CWRDF's response to an odor.

1. If during facility boundary odor monitoring an odor is detected, even an odor with a dilution to threshold (D/T) ratio of less than 2 on the Nasal Ranger, the odor surveyor will attempt to determine from which sector of the landfill the odor is coming. Within one hour of measurement of the odor, the odor surveyor shall complete appropriate portions of Odor Monitoring Survey Form #1 and give the form to the appropriate personnel, if other than the surveyor, responsible for identifying the cause and source of the odor.
2. Within 2 hours of receiving the report, the odor surveyor or other appropriate staff will investigate to determine what landfill issues are causing or significantly contributing to the odor. CWRDF will determine what type of odor control corrective action(s) to take and will initiate and complete the corrective action(s) in an expeditious manner.
3. When a corrective action is taken in accord with the above paragraph, the odor surveyor or other appropriate staff will perform further monitoring to judge the effectiveness of the corrective action taken. The Facility Boundary Odor Monitoring Survey Form #1 shall be completed to document any landfill conditions causing or contributing to the odor, the corrective action(s) taken (or planned for future implementation), and the D/T ratio obtained in the post-corrective-action odor monitoring survey.

C. Periodic effectiveness review and revision of the odor management program.

1. CWRDF will review the effectiveness of the odor management program at least once every calendar month. If the review indicates that improvements can be made to more effectively and expeditiously prevent, control or abate odors, CWRDF will make any necessary improvements to the methods and types of corrective measures to be taken and will implement the improvements in a timely manner.
2. To analyze the effectiveness of the odor management program, CWRDF will monthly 1) collate and review the measured odor intensity ratios, 2) collate and review the complaints received, 3) collate and compare the effectiveness of the individual types of corrective actions taken, and 4) perform any other analysis as may be necessary. This analysis will include the preparation of the statistics required for the monthly report described below and any other types of analyses as may be necessary.

D. Record Keeping & Reports

1. All odor monitoring data and records will be on file for five years at CWRDF and available for inspection by Stark County Health Department, Ohio EPA and Ohio EPA representative(s), including the City of Canton Department of Health.
2. Whenever odor is measured by CWRDF at or outside the landfill boundary with the Nasal Ranger and the odor has a D/T ratio of 2 or more, CWRDF will make a report of excessive odors using the Facility Boundary Odor Monitoring Survey Form #1. As time permits, the form should include additional information such as the probable cause of the odors, the actions being taken to control the odors, and the estimated time to bring the off-site odor level to below a D/T value of 2. The report will be sent to the agencies indicated in Figure 2. The report will be emailed or faxed within three hours of the measurement of a D/T ratio of 2 or greater

unless the measurement was made after 6 p.m., in which case the report shall be submitted by 8 a.m. the next calendar day.

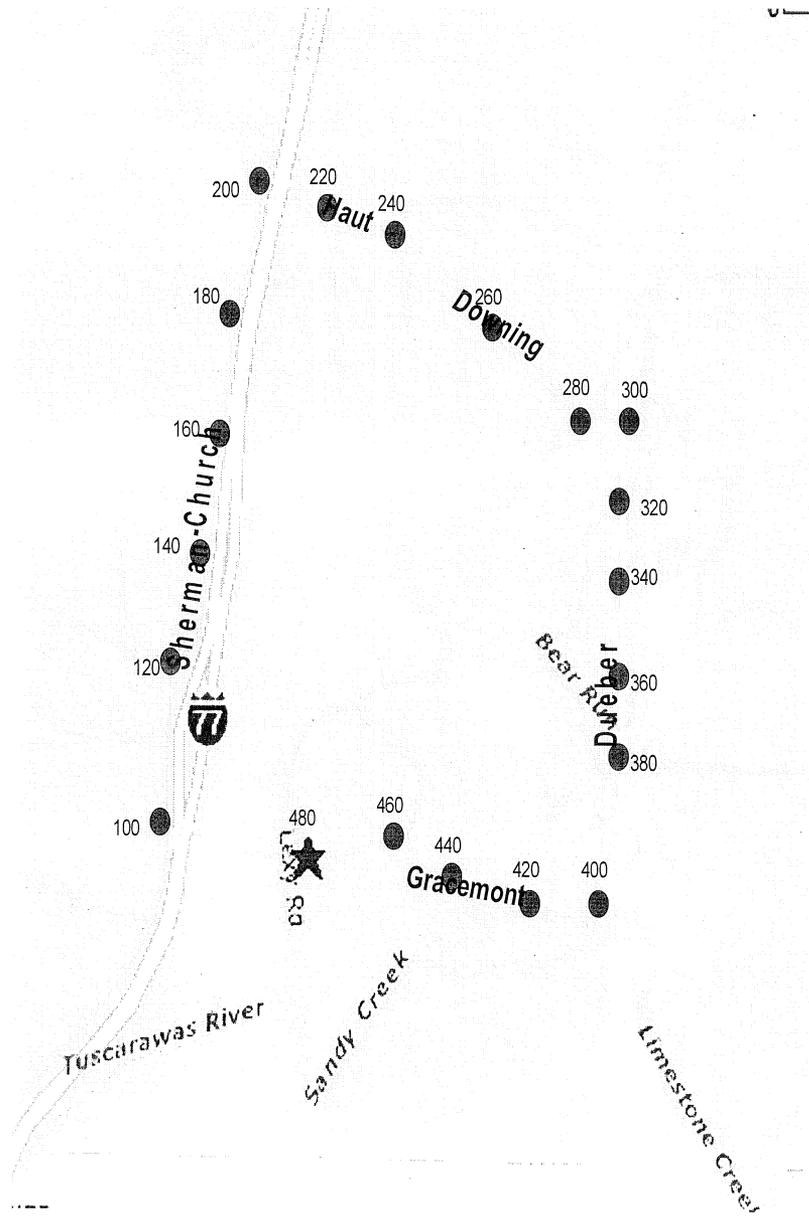


Figure 1 - Facility Boundary Odor Monitoring Locations

3.2 Community Out-Reach

While it is understandable why CWRDF would want to confirm as many reported odors as possible using the Nasal Ranger, care should be taken, and the plan should reflect, that CWRDF should err on the side of treating odor reports as credible even if unconfirmed. Time delays in arriving at the location of an odor complaint and the temporal nature of odors suggest that odor complaints should generally be treated as credible. The following should be revised accordingly.

Again, CWRDF may want to consider shortening some portions of this section and eliminating statements that represent policies or perspectives in favor of mandatory procedures that are easier to find and follow by someone implementing the odor control plan.

As part of Countywide RDFs on-going community out-reach program to work with our neighbors to become a partner in the community, it is very important that if a neighbor

says that they smell an odor, and the complaint can be ~~verified~~confirmed through the use of a Nasal Ranger Ofactometer or is ~~unverified~~confirmed, but is from a credible source, then there is a potential odor issue that must be addressed. [Please explain what criteria would define a “credible source.”]

Odor complaints usually begin with one or more persons that may be more sensitive to odors or may be closest to the site boundary. Remember that odor perception is subjective and qualitative. If attempts are not made to address the odor issue complainants may then mobilize community support and initiate more formal action that may involve community, county and state officials.

The most common factors that cause neighbors to file odor complaints are:

- The intensity of the odor
- The duration and frequency of odorous emissions
- Lack of attempts and progress on the part of the site in mitigating odorous discharges.
- A belief that no one cares
- The negative attitude of the site concerning the issue
- Not involving the neighbors in a solution
- Other issues – such as political concerns such as adversarial groups who identify odor as a subjective issue that is difficult for landfills to address

The most effective initial course of action is to adopt a strong proactive program to address odor complaints. The following are elements of an effective proactive odor control program that should be considered.

- Immediately respond via a formal documentation report and investigation
- Respond to complaints by personal visit (determine if the complaint is ~~verified~~confirmed or ~~unverified~~confirmed)
- Avoid ~~adverse~~-adversarial relationships
- Establish a single point of contact and/or a center of responsibility for dealing with odor complaints (refer to Figure 2 for an organizational flow chart) establishing and implementing a formal odor complaint management program and complaint response system.

Note: In Figure 2 – Odor complaints should go to the Stark County Health Department, Ohio EPA, and the City of Canton Department of Health. It is expected that employees or consultants of Ohio EPA, NEDO, and/or Stark County will primarily interact with CWRDF on odor complaints.

- Build a team composed of a key operations person, the “point of contact” (for CWRDF this has been assigned to the Environmental Specialist), and the General Manager of the facility.
- Develop an aggressive program to address the potential issue. This program should include an implementation schedule. Activities under this program should include:
 - Set up a meeting or a series of meetings with local authorities, complainants, and community leaders and create a reliable response system to complaints. (Complainants and authorities need to know that something is being done).
 - Set up training for site personnel to use the Nasal Ranger Ofactometer to identify intensity and type of odor.

- Enlist the neighbors to help to identify and report issues about odor directly to the site.

Other elements to add include:

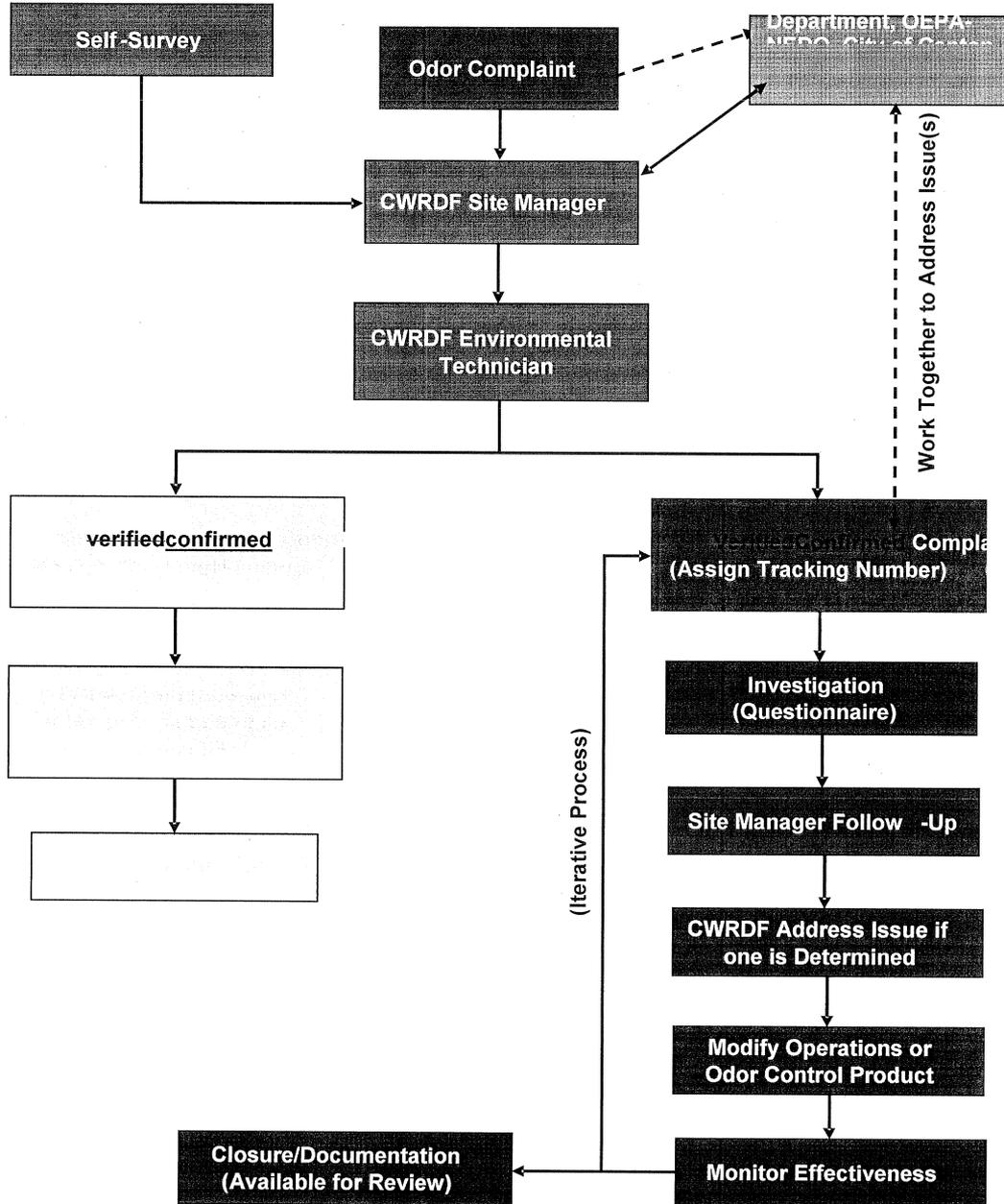
- Publicizing a telephone number, through large visible signs or otherwise, where citizens can call to complain about an odor.
- Creating a web page or telephone line where citizens can call to be informed of what corrective actions are being taken.

Again, these are all useful elements of an effective odor control program, but they must be translated into mandatory procedures and requirements, rather than left as examples of what “should be considered.”

Figure 2

Odor Management Organizational Chart

Countywide Recycling and Disposal Facility



- As necessary, enlist the help of qualified consultants and vendors who can assist your odor control efforts.
- Document your efforts to mitigate any identified issue.
- Document what operational activities were being performed at the time the odor occurred (e.g. sludge unloading, removal of cover materials, etc.)
- Let the communities know about progress or change meant to improve the odor issue.
- Set up a complaint response system for site personnel to investigate all possible complaints.

3.3 Setting Up and Managing an Odor Complaint Logging System

CWRDF odor monitoring system is setup so that as the number of complaints decreases CWRDF ~~will~~may conduct the monitoring instead of a third party consultant. Also as the number of complaints decreases the frequency of odor monitoring ~~will~~may decrease accordingly, if the revised frequency is approved in advance by Ohio EPA.

It is unclear what language in the plan describes the correlation between complaints and monitoring. Regardless, as the plan becomes more mandatory than suggested, Ohio EPA would like to review and approve any proposed decreased monitoring. It is recommended that a 0-4 scale reading also be used in addition to the Nasal Ranger reading.

3.3.1 Complaint Sources

Odor complaints are received in a number of ways including:

- Direct call in or e-mail from complainant(s);
- Calls referred to the site from local officials such as Mayors, City Council members, County commissioners, other governmental officials, fire departments, etc.;
- Calls and letters from City, County, Regional, or State or Federal regulatory officials;
- Written reports from officials that have investigated complaints; and/or
- Written reports from assigned site personnel that investigate complaints.

3.3.2 Complaint Logging

There are numerous ways to set up and manage an odor complaint system. The goal of any system is to create a logical method of recording and maintaining a history of complaints. The system should be established to record the following basic information:

- Complainant – name, sex and age
- Complainant – address
- Complainant – location of complaint
- Complainant – date of complaint
- Complainant – time of day of complaint
- Complainant – weather conditions (at the time of the complaint)
- Complainant – wind direction and speed (at the time of the complaint)
- Duration of odor

- Characteristic of odor (What did it smell like)
- Intensity of odor (very weak, weak, moderate, strong, very strong)
- Characteristic of wind (steady, variable, swirling)
- Any other general observations

3.3.3 ~~Verified~~Confirmed and ~~Unverified~~confirmed Complaints

In addition to the above basic information, the complaint record should indicate the type and source of the complaint. It is helpful to distinguish the difference between a "~~verified~~confirmed" and "~~unverified~~confirmed" complaint.

- "~~Verified~~Confirmed Complaints" are complaints where a second party* (other than the complainant) was present at the complaint location during the time of the odorous discharge and perception and filed a form in Appendix B.

* Note: For the purposes of this plan the definition of a second party includes any of the following:

- A CWRDF employee (or 3rd party designee)
- A Regulatory Agent [It may be more clear to say, "An authorized representative of the Ohio EPA, the Canton City Department of Health, or other regulatory agent.]
- An official from Pike Township or Stark County

- "~~Unverified~~confirmed Complaints" are complaints from a single person that could not be ~~verified~~confirmed with the nasal ranger by CWRDF odor surveyor or were not investigated at the time the complaint was received.

The odor complaint record system should include the type and source of complaint as:

- Single complaint call in
- Referred complaint
- Field investigated complaint

3.3.4 Complaint Analysis

Complaint forms have been developed by CWRDF and are provided in Appendix B. These forms may be utilized to record information and to analyze potential odor issues. Several formats may be utilized for this analysis, these include:

- By time of day, time of year, monthly totals
- By wind direction
- As a function of site processing activities
- Seasonal changes in weather and prevailing wind
- As a function of implementation of odor control practices

3.4 Investigation & Response by CWRDF

Once an odor complaint is received, an odor survey will commence expeditiously in accordance with the Nasal Ranger Olfactometer manufacturer's procedures found in Appendix A. The odor survey will be recorded on forms found in Appendix B and saved for two five years. If an odor is ~~verified~~confirmed the surveyor shall move quickly and safely upwind to investigate the ~~problem~~ probable sources of the odor. ~~If the odor is determined to originate from the landfill the surveyor should discuss the results with the landfill Operations Manager, Landfill Engineer, or Landfill Manager to confirm possible causes of the odor. These possible causes will be recorded on the form and corrective action may be taken.~~

Suggested replacement text:

"If the odor is determined to originate from the landfill, the surveyor shall complete the Complaint Odor Survey Form #2 and Investigated Complaint Form #3 or #4 and record the odor intensity and duration. In addition, CWRDF will perform facility boundary odor monitoring (Figure 1) to determine if the odor is present at any intensity level. If odor is detected, even an odor with a dilution to threshold (D/T) ratio of less than 2 on the Nasal Ranger, the odor surveyor will stop and measure for approximately an hour the odor intensity and duration at the point or points within the sector where the odor is present and perceived to be the strongest. The Facility Boundary Odor Monitoring Survey Form #1 will be completed to document the odor intensity, odor duration, sector location, wind direction and other pertinent data. The completed Odor Monitoring Survey Form #1 and/or the Complaint Odor Survey Form #2 shall be given within one hour of measurement of the odor to the appropriate site personnel responsible to identify the cause and source of the odor.

"Within 2 hours of receiving the report, CWRDF shall investigate to determine what landfill conditions are causing or significantly contributing to the odor. CWRDF will determine what type of odor control corrective action or actions need to be taken and will initiate and expeditiously complete the corrective action or actions.

"When a corrective action is taken in accordance with the above paragraph, the odor surveyor or other appropriate staff will perform further monitoring to judge the effectiveness of the corrective action taken. The Facility Boundary Odor Monitoring Survey Form #1 shall be completed to document any landfill conditions causing or contributing to the odor, the corrective action(s) taken (or planned for future implementation), and the D/T ratio obtained in the post-corrective-action odor monitoring survey.

"All odor monitoring data and records shall be kept on file at CWRDF and available for inspection by Stark County Health Department, Ohio EPA and Ohio EPA representative(s), including the City of Canton Health Department.

"Whenever odor is measured off-site with the Nasal Ranger and has a D/T ratio of 2 or more, CWRDF will make a report of excessive odors using the Facility Boundary Odor Monitoring Survey Form #1 and/or the Complaint Odor Survey Form #2. As time permits, the forms should include additional information such as the probable cause of the odors, the actions being taken to control the odors, and the estimated time to bring the off-site odor level to below a D/T value of 2. The report will be sent to the agencies indicated in Figure 2. The report will be emailed or faxed within three hours of the measurement of a D/T ratio of 2 or greater unless the measurement was made after 6 p.m. in which case the report will be submitted by 8 a.m. the next calendar day."

Comments:

The forms should not only record the possible cause of the odor, but should also record any corrective actions taken to correct the odor or the reason why no corrective action was taken. Additionally, each odor complaint should be recorded regardless of an investigation. CWRDF should address what circumstances would not be investigated, such as a complaint received in the middle of a night and no landfill personnel are available to investigate the complaint. Additionally, the plan should indicate if unconfirmed complaints are assumed credible and when there is no complaint preceding action, such as when a known landfill

condition, such as subsidence and a tear in the cover, is causing odors, or a survey has already identified an odor, or a complaint is assumed to be confirmed due to a large number of complaints received from a concentrated area, etc.

Lack of timely response also leads to loss of credibility with neighbors, customers, regulators and the community at large. Odor is one of the liabilities associated with the waste industry, and a site must be prepared to address the issue.

Refer to Figure 2 for an organizational flow chart and Appendix B for standard forms that will be utilized by CWRDF to track each reported complaint (~~verified~~confirmed or ~~unverified~~confirmed) that is received by the facility as part of formally implementing this plan. The following forms may be utilized:

- Facility Boundary Odor Monitoring Survey Form #1
- Complaint Odor Survey Form #2
- Investigated Complaint Form #3
- Non-Investigated Complaint Form #4

The above paragraph states “as part of formally implementing this plan” the “organizational flow chart and standard forms” will be used. What is meant by “formally implementing?” Please indicate specifically what is being proposed and a schedule of the implementation as well as what forms will be used.

As each complaint is received, it will be assigned a ‘tracking number’ this tracking number will be a unique number assigned by CWRDF and utilized on each of the subsequent forms if a complaint is ~~verified~~confirmed and requires additional activities on the behalf of CWRDF. CWRDF will keep an on-going record containing all complaint forms that may be utilized at a later date to analysis potential odor issues and for review by the regulatory community.

The above paragraph mentions a tracking number for each complaint, and that the tracking number will be used on subsequent forms if a complaint is confirmed and requires additional activities on behalf of CW. Please explain this system in more detail where, more example, there are many complaints for one incident, and over a number of days. This section should be revised to identify the types of summary reports that will be prepared and submitted to the Ohio EPA and other regulatory agencies concerning the complaint investigations.

3.5 Mitigation (if Applicable) by CWRDF

Once a complaint is ~~verified~~confirmed and ~~potentially~~ during the verification process, CWRDF will investigate the potential source of that odor and make all reasonable attempts to mitigate the odor at the source if it is determined to originate from the CWRDF facility. The Best Management Practices (BMPs) utilized at the facility will be reviewed and modified as necessary. This may include the use of additional BMPs as deemed necessary by facility personnel. BMPs currently utilized at the CWRDF include:

Suggest this list be expanded to include the previous list of practices that is more definitive. Also, please add BMPs that address the unique odor such as timely repairing tears in the FML cap and the notification to the regulatory agencies and the public of the upset condition.

- Cover materials and the use of waste materials to cover special wastes,
- Timely burial of special wastes,
- Working with CWRDF’s customers to implement BMP’s at the generators,
- Working with CWRDF’s customers to implement BMP’s with the transporters,
- An on-going, long-term capital investment on the landfill control systems (e.g. gas system modifications, etc.)

If the source of the odor is determined not to be from the CWRDF facility, this information should also be logged and communicated to all involved parties.

3.6 Follow-up by CWRDF

Each ~~verified~~confirmed odor complaint or ~~unverified~~confirmed odor complaint from a reliable source will be followed-up by CWRDF to determine the source and or corrective action. This may be an iterative process by which on-going modifications to facility operations will be tracked with complainants in order to track progress. It is CWRDF's goal to document each incident and keep this documentation for future analysis or review.

Please define what a reliable source is and how the determination will be made. Is a reliable source different from a credible source? Explain in more detail what the interactive process is and if it will be used.

3.7 Odor Investigation Results

~~Extensive odor monitoring was conducted by DEI in late 2006. This monitoring included both complaint verification monitoring and monitoring at a predetermined route around the landfill, (the facility boundary). This program was conducted in accordance with orders #4 and #5 of the September 6, 2006 Directors Findings and Orders.~~

~~Results of this program indicate that the odor controls implemented during 2006 have been successful. Odor monitoring reports have also been submitted under separate cover.~~

Section 3.7 seems unnecessary in this part of the plan.

4.0 ~~ODOR CONTROL~~ MITIGATION PRODUCTS AND APPLICATION

Odor control products and their application are primarily used as the final step in the odor mitigation process and are usually only used as the only remaining option. Eighty percent (80%) or more of odor issues can be addressed through modified operational procedure. A very small fraction of odor issues are directly addressed through odor control chemicals.

For an odor control product and application system to be effective the following questions must be answered:

- What odor(s) is a facility trying to mitigate?
- What odor control product and application methodology will be best suited for the identified odor(s) and odor related issue(s)?
- Where will the system be located and how will it be operated to effectively address the issue?

Once these questions have been answered, an odor control system can be effectively chosen to assist in the mitigation of the odor issue. In absence of a probable source, an odor control system installed prematurely may be ineffective and may further complicate identifying the root cause of the issue.

4.1 Equipment and Hardware

The effective odor control program actually comes in two parts, (1) the right product for the application and (2) the right equipment to apply it with. The second part and perhaps

even more important than the chemical is the choice of application equipment. No matter how good the odor control product, if it is not applied with the proper equipment and sufficiently misted into the atmosphere it will not effectively reduce odor. In fact the right system can make even a mediocre product work better. But the converse is not true; a bad system may make a good product fail. The success of an odor control program hinges on being able to deliver the right dosage into the atmosphere in a consistent and reliable manner.

The four basic rules for a successful vapor phase application are:

- (1) Choose and use the right product (chemistry) for your specific application.
- (2) Make sure the distribution system is sized correctly, situated to give good coverage, delivers the needed flows and is economical to operate.
- (3) Make sure the dosage control is correct.
- (4) A trained and responsible party for the system. Ongoing monitoring, adjustments and maintenance assure effective and economical results.

The systems commonly used for dispersing counteractants into the atmosphere can vary widely. CWRDF is continuing to evaluate it's current system and others that maybe appropriate for it's situation.

[Will spraying associated with odor neutralization result in water infiltration into the waste mass that may cause further aluminum salt cake reaction?]

- 1) Tractor mounted sprayers (used for small area application, such as working face);
- 2) High-pressure wand systems used to treat as needed at the working face, usually mounted to a truck or trailer with small volume working tank;
- 3) Backpack sprayers used to treat very small areas; and/or
- 4) Portable high pressure systems (may be skid or trailer mounted)

Delivery systems may be operated continuously depending upon circumstances such as wind direction; time of day or other factors. Intermittent operation of a system can be achieved with a timer, manual control or more sophisticated controls such as wind directional sensors that shut the system down when the wind is favorable.

4.2 System Design

A system design must take into account the following:

- Nozzle placement (i.e elevation and distance from odor source);
- Nozzle spacing;
- Optimum mix of the counteract ant with the odorous air plume;
- Local site conditions (topography, location of neighbors, etc.); and

- Local climate (e.g. freezing conditions, prevailing winds).

4.3 Weather Station

CWRDF currently maintains a weather station at the facility. The weather station provides a means of recording data on time and date, precipitation, wind direction, wind

speed, barometric pressure, relative humidity, and temperature. It is anticipated that the odor control system that may again be connected to the odor chemistry delivery system so that, for example, the system is shut down when the wind is from a certain direction. Occasionally it has been found that the systems bounce on and off due to wind fluctuation so a combination of wind sensor with a delay or timer function is typically beneficial.

4.4 Description of CWRDF Existing Odor Neutralizing System

CWRDF installed an initial odor neutralizing system in 2004. This system consisted of approximately 1500 linear feet of pole mounted spray system on the west berm of the landfill.

In 2006, CWRDF greatly expanded the size of this system to assist in controlling odors as classified previously. As of January 2007, this system was expanded to nearly 6000 linear feet of neutralizer system. These system are split to two separate areas 1) the expanded west berm and 2) through the middle of 88 acre landfill footprint.

These two systems essentially surround the reaction zone identified during 2006 so that odors that emanate from this zone may be neutralized by these systems.

Comment:

Please explain how and when the existing odor neutralizing system will be used. Please provide clarification and documentation that the odor neutralization system will not cause further aluminum salt cake reaction.

5.0 SUMMARY

Consider deleting this section as unnecessary. There is already an executive summary.

The first sentence mentions an implementation schedule. As mentioned throughout, this plan needs to include a mandatory implementation schedule.

This Odor Contingency Plan has outlined an action plan and implementation schedule for CWRDF's to address odor concerns at its facility. This Plan was updated in January 2007 to reflect extensive work completed in 2006 and changes to the odor management and monitoring programs during 2006, as requested by the ~~Canton City Health Department~~ Ohio EPA.

CWRDF strives to be a good community neighbor and has a track record of working with its local communities and neighbors to establish a working relationship to address issues of concern. Although not required by the regulations that govern the management of solid waste landfills, this Odor Contingency Plan has been developed to formalize CWRDF's commitment to addressing this important issue.

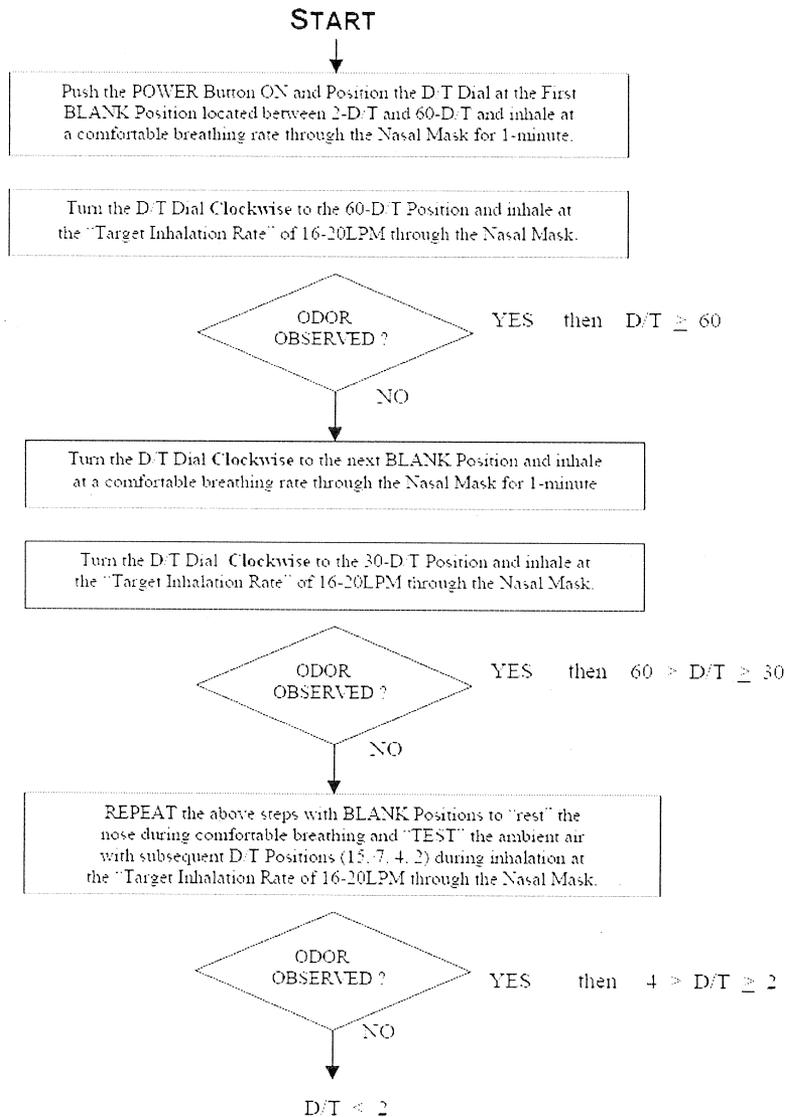
CWRDF plans on addressing issues that are identified and mitigate any short term or long term issues. CWRDF plans on reviewing and updating this program periodically in order to deal with this dimension of the waste disposal business.

APPENDIX A

NASAL RANGER MANUFACTURERS DATA

NASAL RANGER® FIELD OLFACTOMETER

TEST PROCEDURE FLOW CHART



Nasal Ranger[®] Field Olfactometer

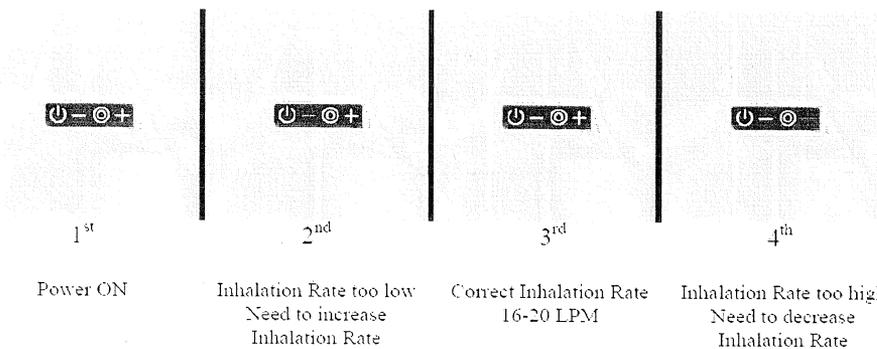
QUICK START GUIDE

The Nasal Ranger[®] Field Olfactometer, a portable odor detecting and measuring device developed by St. Croix Sensory, Inc., is the "state-of-the-art" in field olfactometry for confidently measuring and quantifying odor strength in the ambient air using the Operating Principle of mixing odorous ambient air with odor-free filtered air in discrete volume ratios called "Dilution-to-Threshold" ratios (D/T ratios).

Field olfactometry with the Nasal Ranger[®] Field Olfactometer is a cost effective means to quantify odor strength. Facility operators, community inspectors, and neighborhood citizens can confidently monitor odor strength at specific locations around a facility's property line and within the community.

The following information allows an informed user to quickly understand the operation of the Nasal Ranger Field Olfactometer. It assumes the user has some familiarity with field olfactometry and odor monitoring concepts. [See also "Operation Principles" and "Application Guide"]

1. Hold the Nasal Ranger Field Olfactometer parallel to the ground and press the power button which is located below the nasal mask. All four LED lights should illuminate for one second, and then the 1st (left) Power LED will stay illuminated.
2. Follow the Test Procedure Flow Chart for the sequenced testing procedure.
3. The LED's on the Nasal Ranger Field Olfactometer provide feedback for the user to inhale at the "factory calibration flow rate". The LED's are labeled as follows:



4. After 45 seconds of non-use, the 1st LED will blink slowly in a "Power Save" mode.
5. After five minutes of non-use, the Power will automatically turn OFF.
6. To turn off the Nasal Ranger Field Olfactometer manually, press and hold the power button for 3 seconds. All four LEDS will illuminate and then power off. The Nasal Ranger Field Olfactometer is now OFF.

Thank you for joining the ranks of Nasal Ranger[®] owners. The Nasal Ranger[®] Field Olfactometer is a precision calibrated tool and will yield reliable odor strength results for your monitoring and measurement needs.

APPENDIX B

Forms

FACILITY BOUNDARY ODOR SURVEY FORM #1
DAILY ODOR MONITORING DATA SHEET
COUNTYWIDE RECYCLING AND DISPOSAL FACILITY
 DATE: _____

TIME	LOCATION	60	30	15	7	4	2	<2	ND	DESCRIPTORS & HT	COMMENTS
	CP-???										
	CP-???										
	CP-???										
	CP-???										

Weather Conditions

Mostly Sunny
 Partly Cloudy
 Mostly Cloudy
 Overcast
 Hazy

Precipitation

None
 Fog
 Rain
 Sleet
 Snow

Wind Direction

N
 NW
 W
 SW
 S

Wind Speed

Calm
 1-5 mph
 5-15 mph
 15-higher

Temperature: _____ F Relative Humidity: _____ % Barometric Pressure: _____

Notes:

DATE

NAME

SIGNATURE

The "FACILITY BOUNDARY ODOR SURVEY FORM #1" should be revised consistent with the comments to Section 3.1. Also, on form #1 and #2, Countywide should additionally specify that their staff must indicate: the level of an odor on the 0 to 4 scale; whether an investigation occurred; if odor was identified by Countywide personnel and no investigation occurred, why; if a complaint was made and no investigation was made, why; by whom, when, and what the results of any investigation were; what corrective actions were taken, if any; the results of the corrective action; if no corrective actions were taken, state why; if future corrective actions are planned, identify them and include a schedule for completing them. There should be a "followup" section, confirming whether the corrective action taken proved successful, discussing whether the successful action was contained in the odor control plan, and if not, plans for amending the plan to include successful corrective measures. There should also be a section indicating that Countywide staff has notified the Ohio EPA, Stark County and Canton Department of Health of the odor.

Similar information should be included on "complaint investigation" forms, in addition to items such as the name and address of the person complaining, when the complaint was received, and what the complaint was.

The multiple forms may add a complexity that is not necessary. CWRDF may want to consider a more generalized form, even if all portions of the form are not completed in every situation.

Investigated Complaint Form #3

Date: _____ Time of Complaint: _____ Time of Inspection: _____

Name of Inspector: _____

Name of Complainant: _____

Age: _____ Sex: _____

Address: _____

GPS Location: _____ N _____ W

Vector to Landfill _____

Level of Odor (Complainant) Scale 0-4 _____

Nasal Ranger Reading _____

Duration of Odor: _____ days _____ hours _____ minutes

Characteristic of Odor: _____

Weather Conditions:

Temperature: _____

Barometric Pressure: _____

Wind Direction: _____

Wind Speed: _____ mph

Precipitation: _____

Humidity: _____ %

Notes: _____

Tracking Number: _____

**Countywide Recycling and Disposal Facility
Non-Investigated Complaint Form #4**

Date: _____ Time of Complaint: _____

Name of Complainant: _____

Age: _____ Sex: _____

Address: _____

Level of Odor (Complainant) Scale 0-4 _____

Duration of Odor: _____ days _____ hours _____ minutes

Characteristic of Odor: _____

Weather Conditions:

Temperature: _____

Barometric Pressure: _____

Wind Direction: _____

Wind Speed: _____ mph

Precipitation: _____

Humidity: _____ %

Notes: _____

3. MALFUNCTION PREVENTION AND ABATEMENT PLAN PREVENTION, DETECTION AND CORRECTION OF MALFUNCTIONS AND DISRUPTIONS

This ~~Malfunction Prevention and Abatement Plan (MP&A Plan)~~ ~~Odor Control and Abatement Plan (OC&A Plan)~~ is prepared to address four main odor control system components at Countywide RDF. These components include the:

- Gas collection and control system (GCCS);
- Intermediate cover system (including soil and FML covers);
- Leachate removal system, and
- Odor suppressant system.

The following sections detail procedures intended to address the prevention of malfunctions, detection of malfunctions, and correction of malfunctions and disruptions of for each of the odor control system components at the landfill identified above.

3.1 Gas Collection & Control ~~MP&A Plan~~

3.1.1 Description of the Gas Collection and Control System

Countywide RDF operates an active gas collection and control system (GCCS). As of January 10, 2007 the GCCS consisted of 182 landfill gas (LFG) collectors (154 vertical wells and 28 “other collectors”) interconnecting piping, blower and flare. The existing vertical extraction wells have a well spacing ranging from 100-300 feet throughout the fill area. An as-built drawing of the GCCS as of December 12, 2006 was submitted to OEPA on December 13, 2006.

Interim or supplemental horizontal LFG collectors, connection to leachate cleanouts, connections under intermediate FML cap, and connections to leachate sideslope risers (collectively referred to as “other LFG collectors”) are for interim odor control. These other LFG collectors allow extraction of LFG from areas that are not easily accessible to vertical wells.

Lateral and header pipes are installed above and below ground surface and are typically constructed of high-density polyethylene (HDPE) pipe. LFG is currently conveyed through this pipe network to a number of landfill gas blower / utility flare skids (As of January 10, 2007, 8 B/F skids are in place). The number of LFG blower / utility flare skids is subject to change depending on the need to collect and control odors.

3.1.2 Prevention and Detection

Table 1 shows the recommended GCCS items and/or conditions that are inspected, the recommended frequency of the inspections, the procedures designed to aid in the prevention of a malfunction, recommended monitoring parameters that may be used to detect and/or prevent a malfunction and/or equipment failure, and the normal range of these parameters. As the systems evolve, inspection and monitoring frequencies are subject to change.

Table 1

**Countywide RDF
List of GCCS Prevention / Detection Items**

Item or Conditions to Be Inspected	Approximate Frequency of Inspection /Monitoring	Procedures to be Followed to Aid in the Prevention of Malfunctions	Monitoring Parameter To Be Used to Detect a Malfunction & The Normal Range of The Parameter
Overview of Each B/F Skid	Weekdays	Visual observation for excessive vibration, leaks, abnormal noises, damage, etc...	Pass/Fail
Each Blower	Once per week	Measure and record the blower hours	Increasing hours from the last measurement
Blower Lubrication	Once per week	Check oil/grease levels and lubricate only if needed	Pass/Fail
Each Flame Arrestor	Once per month	Remove cleanout cover and perform visual inspection of arrestor	Pass/Fail
Pressures at Each B/F skid	Once per week	Measure and record the blower inlet vacuum and outlet pressure, and compare to historic readings	Confirm range of vacuum between -25" to -70" WC. Confirm range of pressure between 0" to +15" WC
Condensate Knockout Pot	Once per week	Check differential pressure across KOP demister pad and clean as necessary	Confirm range of differential pressure is less than 5" water column
Propane	Once per week	Confirm that adequate amounts of propane are available to fuel the flare pilot	Confirm range is 20 to 100 % full
Flow to the Flare	Once per week	Visually inspect flow output panel or chart recorder to confirm proper operation	Confirm range is 10% to 100% of the flare design capacity (scfm)
Flow to the Flare	once per month	Independently measure the lfg flowrate using hand held instruments.	Confirm range is less than plus or minus 20% of the previous independent measure of the lfg flowrate
Flare Operation	Once per month	Shut down and restart flare to verify proper operation of pilot/ignition system	Pass/Fail
Flare Operation	Once per day	Observe the flare stack for any visible emissions	Confirm there are no visible emissions. Heat distortions are not visible emissions.
Flare Temperature	Once per week	Visually inspect temperature output or chart recorder to confirm proper operation	Confirm range is > 400 degrees F
Header Vacuum	Once per Quarter	Conduct Header Vacuum Survey at every LFG well connection or other access port	Confirm range is >5" WC vacuum in all headers
Wellheads	Once per Month	Visually inspect wellheads for cracked fittings, broken sample ports, missing caps and damaged flex hoses	Pass/Fail
Well Casing	Once per Month	Visually observe if waste settlement is stressing the well casing or if the well casing is getting too tall to facilitate monitoring	Pass Fail
Diesel Powered Electric Generators	Once per week	Check lubrication	Pass/Fail

B/F = Blower/Flare Station

Table 2 contains a list of parts that are recommended to be maintained on site so as to facilitate quick repair and replacement of parts causing a shutdown or malfunction. Inventory may vary from time to time.

Either in the previous table or elsewhere, a requirement should be added to keep for 5 years records noting routine maintenance, in addition to keeping records of corrections made per Table 3.

Again, mandatory language should be used.

Table 2
Countywide RDF
GCCS Recommended-Spare Parts Inventory

Part	Recommended Quantity to be Maintained in Inventory
Spark plug igniter for the flare ¹	2 total
Blower lubricant	5 quarts total
4" dia SDR 17 HDPE Lateral Pipe	200 feet
6" dia SDR 17 HDPE Lateral Pipe	100 feet
8" dia SDR 17 HDPE Lateral Pipe	100 feet
10" dia SDR 17 HDPE Header Pipe	20-100 feet
Flare Thermocouple	2 total
Flare UV sensor	2 total
Flare arrestor insert core	1 for each operational flare
Blower belts	1 extra set for each belt driven blower that is operational
Blower bearings	1 extra set for each blower that is operational
Thermal pen for flare chart recorders	3 pens total
2" Landtec Wellheads	3 total
3" Landtec Wellheads	1 total
1/4" Wellhead sample ports and caps	25 total
Wellhead Hose	100 feet
Fuji PXZ temperature controller	2 total
Idec 4PDT relay	2 total
H3C Omron Timer	1 total
Honeywell flame detection relay w/ amplifier	1 total
1/2" Propane solenoid valve	1 total

3.1.3 Correction

Table 3 contains the recommended procedures to be followed to correct a malfunction or failure of the GCCS. Table 3 also provides recommendations outlines procedures with respect to recording / retaining repair and replacement records.

¹ In the unlikely event that the automatic spark re-ignition system fails to operate normally, the flare can be restarted and operated manually until the automatic ignition system can be repaired.

Table 3
Countywide RDF
List of Recommended GCCS Malfunction Correction Procedures

Description of Malfunction	Recommended Procedures to be Followed to Correct the Malfunction	Record & Retain Records as Required (see below)
Broken Blower Bearing or Other Blower Problem	Replace bearing, replace blower, or install and operate a backup blower/flare skid	5 years if the correction was necessary to comply with the monitoring parameters listed in the air permit. <u>[This revision should be made throughout this entire column.]</u>
Clogged Flame Arrestor	Remove and clean with a water pressure washer or replace the arrestor with a new one	5 years if the correction was necessary to comply with the monitoring parameters listed in the air permit
Lack of Inlet Blower Vacuum	Inspect and repair or replace blower	5 years if the correction was necessary to comply with the monitoring parameters listed in the air permit
Excessive Blower Discharge Pressure	Inspect and clean or replace the flame arrestor	5 years if the correction was necessary to comply with the monitoring parameters listed in the air permit
Excessive Differential Pressure Across the Condensate Knockout Pot	Clean the demister pad and drain condensate	5 years if the correction was necessary to comply with the monitoring parameters listed in the air permit
Flame Temperature and/or Flow is Not Recording at Control Panel	Check that the pens are working properly and replace pens if necessary. Check the instrumentation and control in the panel and repair if necessary. Check flow probe and clean is necessary. Check flame thermal couple and replace if necessary.	5 years if the correction was necessary to comply with the monitoring parameters listed in the air permit
More than -5" WC header pressure	Pinpoint the reason for excessive pressure in the headers (such as a sagged header, improperly functioning drip trap, etc..) and repair	5 years if the correction was necessary to comply with the monitoring parameters listed in the air permit
Broken Leachate Pump	Repair or replace the pump	5 years if the correction was necessary to comply with the monitoring parameters listed in the air permit
Leaking LFG header, lateral, or connections	Repair the leak	5 years if the correction was necessary to comply with the monitoring parameters listed in the air permit
Malfunctioning blower/flare skid	Repair the equipment on the skid or open valves to the redundant blower/flare skid nearby and start up the redundant skid	N/A 5 years if the correction was necessary to comply with the monitoring parameters listed in the air permit
Visible Emissions from the flare	Perform additional diagnostics until the problem is found and corrected.	5 years if the correction was necessary
Non-functioning Diesel Powered Electric Generator	Repair the Generator	N/A 5 years if the correction was necessary to comply with the monitoring parameters listed in the air permit

3.2 Intermediate Cover MP&A Plan

3.2.1 Description of the Intermediate Cover System

Countywide RDF's intermediate cover system assists with odor control by reducing fugitive LFG from potentially migrating into the atmosphere. The cover system at Countywide RDF varies but is either minimum 12" thickness of soil or an HDPE geomembrane cover. This section of the ~~odor~~ MP&A Plan focuses on malfunction and disruption prevention and repair of these intermediate covers.

3.2.2 Prevention and Detection

Table 4 shows the intermediate cover items or conditions recommended to be inspected, the recommended frequency of the inspections, the recommended procedures designed to prevent a malfunction, the recommended monitoring parameters used to detect and aid in the prevention of a malfunction or equipment failure.

Table 4
Countywide RDF
List of Recommended-Intermediate Cover Prevention / Detection Items

Item or Conditions to Be Inspected	Approximate Frequency of Inspection /Monitoring	Procedures to be Followed to Aid in the Prevention of Malfunctions	Monitoring Parameter To Be Used to Detect a Malfunction & The Normal Range of The Parameter
Cracks / Separation of the Soil Cover	Once per <u>Week</u> Month	Visual observation for cracks, erosion, etc.. in the soil cover	Pass/Fail
Rip or Tear in the Geomembrane Cover	Once per <u>Week</u> Month	Visual observation of tear, rip, or stress in the geomembrane cover	Pass/Fail
Non-uniform Waste Decomposition	Once per Day	Visual observation for stormwater ponding	Pass/Fail
Liquids Under the Geomembrane Cover	Once per Week	Visual observation for bulging of the geomembrane cover near the toe of slopes	Pass/Fail
Geomembrane Boot Connected to Gas Well Casing or Other Structures	Once per <u>Week</u> Month	Visual observation of stressed geomembrane	Pass/Fail
Gas Under the Geomembrane Cover	Once per <u>Day</u> Week	Visual observation to confirm the absence of gas build-up under the geomembrane cover	Pass/Fail
<u>Perimeter anchor integrity of the Geomembrane Cover</u>	<u>Once per Week</u>	<u>Visual observation to confirm the e integrity of perimeter anchor of the geomembrane cover</u>	<u>Pass/Fail</u>

To facilitate quick replacement of the intermediate cover (including temporary geomembrane cap), it is recommended that the materials identified in Table 5 be maintained on site. Inventory may vary from time to time.

Time frames for performing corrective measures should be specified, either in this section or in Table 6.

Table 5
Countywide RDF
Intermediate Cover Recommended Spare Parts Inventory

Description	Recommended Quantity/Volume to be Maintained
HDPE geomembrane	1/2 roll total
Silty or clayey cover soils	1000 cubic yards
4" or 6" SDR 17 HDPE Pipe	200 feet

3.2.3 Correction

Table 6 contains the recommended procedures to be followed with respect to intermediate cover malfunctions. Countywide will implement these procedures to correct the event.

Table 6
Countywide RDF
Recommended Intermediate Cover Malfunction Correction Procedures

Description of Malfunction	Procedures to be Followed to Correct the Malfunction
Cracks / Separation of the Soil Cover	Fill cracks and separations with more soil and compact in place in 12" lifts finishing the surface with a smooth drum roller
Rip or Tear in the Geomembrane Cover	Replace the geomembrane cover with a new piece of geomembrane and fusion or extrusion weld all edges to an air tight seal. Other sealants may be used if welding equipment is not immediately available. Alternately cover the location with a minimum of 24" thickness of clayey or silty soils or use GCL.
Ponding water on top of the Cover	Fill the area to promote sheet flow or install a stormwater pump in the low area to remove the water.
Liquids Under the Geomembrane Cover	Cut the geomembrane, collect the liquids and treat as appropriate, then install a pipe and boot for future liquids accumulation in the area is to be managed automatically.
Failure of the geomembrane boot at a gas well or structure	Cut the boot and repair the failure by patching in more geomembrane.
Gas Build-up under the Geomembrane Cover	Increase vacuum extraction of LFG near the floating cover or install cap gas collectors and boot them to the geomembrane and route the LFG to the collection system .

Web pages or other public notices should be updated to note if odors are expected to increase as a result of a malfunction or its correction.

3.3 Leachate Removal ~~MP&A~~ Plan

3.3.1 Description of the Leachate Removal System

Leachate is removed from some LFG wells at Countywide RDF via leachate pumps in LFG wells. Leachate removal from the LFG can sometimes maximize LFG collection and contribute to minimizing odors. The location of leachate pumps in LFG wells varies based on liquid levels in the LFG wells, odor control needs and other issues. The exact number of these pumps in LFG wells varies over time and will be utilized as needed. This section of the ~~odor~~ ~~MP&A~~ ~~OC&C~~ Plan focuses on malfunction prevention of these pumping systems. It is important to note that leachate pumping from LFG wells is a temporary measure that is not expected to be an ongoing component of odor control measures at the site.

3.3.2 Prevention and Detection

Table 7 shows the ~~recommended~~ leachate removal items or conditions that are to be inspected, the ~~recommended~~ frequency of the inspections, the ~~recommended~~ procedures to be followed, and ~~recommended~~ monitoring parameters that are used to detect and aid in the prevention of a malfunction or equipment failure.

Table 7
Countywide RDF
Recommended Leachate System Prevention / Detection Items

Item or Conditions to Be Inspected	Recommended Frequency of Inspection /Monitoring	Procedures to be Followed to Aid in the Prevention of Malfunctions	Monitoring Parameter To Be Used to Detect a Malfunction & The Normal Range of The Parameter
Leachate Temperature	Once per Quarter	Temperature measurement of the leachate piping at each sideslope riser while actively discharging leachate from the sideslope risers	Confirm Range is < 140 degrees F
Pump Operation	Once per Week	Visual observation of leachate pump installed in a LFG well to confirm its proper operation	Pass/Fail
Leachate Level in LFG Wells	Semi-Annually Quarterly	Manually measure leachate level in all LFG wells that do not have remote wellheads	Normal range is < 50% of the well screen is covered with leachate
If any leachate visible on the ground or on other aboveground surfaces in areas of leachate handling such as where leachate is transferred from a leachate storage tank	Once per Day	Perform a daily walking inspection in the appropriate areas of the landfill	If more than about one cup of leachate is visible, clean up the leachate. If there is a moist area on the surface of the ground caused by leachate and it is greater in area than 1 square foot, clean up the moist area.

To facilitate quick replacement of the leachate removal system, the spare or replacement materials shown in Table 8 are ~~recommended~~ to be maintained on site. Inventory may vary from time to time.

Table 8
Countywide RDF
Recommended Leachate Removal System Recommended Spare Parts Inventory

Description	Recommended Quantity to be Maintained in Inventory
Leachate pump with hoses and cables	2
4" SDR 17 HDPE leachate pipe	200 feet
2" SDR 11 HDPE air pipe	1000 feet

3.3.3 Correction

Table 9 contains the recommended procedures to be followed to correct a malfunction or failure of the leachate removal system. Countywide will implement these procedures to correct the malfunction as applicable.

Table 9
Countywide RDF
List of Leachate Removal System Malfunction Correction Procedures

Description of Malfunction	Procedures to be Followed to Correct the Malfunction
Pump Does Not Operate Properly	Repair or replace the pump.
Excessive Leachate Levels in LFG Well	If the well has a leachate pump in it, confirm the pump is working properly, pump the leachate out, and continue to monitor the liquid levels. If the well has no pump installed, then install a pump in this locations.

3.4 Odor Suppressant MP&A Plan

3.4.1 Description of the Odor Suppressant System

The odor suppressant system at Countywide RDF consists of a misting system that is installed on perimeter fencing. The system consists of more than 5800 feet of misting hose and nozzles hung on fencing and posts. The odor suppressant is mixed with water, pumped under pressure, and transported via tubing to spray nozzles. In addition a separate mobile system exists that delivers the odor suppressant via mobile trailer(s). The mobility of the trailers allows the odor suppressant to be applied at precise locations.

The odor suppressant systems will be operated as determined by CWRDF management depending on many factors including odor monitoring results, weather, and wind direction, effectiveness of various systems, etc.

3.4.2 Prevention and Detection

The odor suppressant systems will be inspected regularly as needed to ensure they are working properly and as shown in the following table.. Pumps and hoses will be checked as

needed (more often in the winter) to aid in the prevention of a malfunction. Pumps should be operational and able to pump liquid. If the system is down during inspection the pumps will be turned on temporarily to confirm normal operation is possible.

Table ???
Countywide RDF
Recommended Odor Suppressant System Prevention / Detection Items

Item or Conditions to Be Inspected	Recommended Frequency of Inspection /Monitoring	Procedures to be Followed to Aid in the Prevention of Malfunctions	Monitoring Parameter To Be Used to Detect a Malfunction & The Normal Range of The Parameter
Is the odor suppressant visibly being sprayed out of the nozzles?	Twice per Day if the system is in operation	Visual observation of whether flow is present in each independent section of the system	Flow or No Flow

To facilitate quick replacement of the odor suppressant system, it is recommended that the spare or replacement materials shown in Table 10 be maintained on site. Inventory may vary from time to time.

Table 10
Countywide RDF
Recommended Odor Suppressant System Recommended Spare Parts Inventory

Description	Recommended Quantity to be Maintained in Inventory
Anti-freeze	20 gallons (winter months only)
Nozzles	20
Liquid pump	1
Hoses	200 feet

3.4.3 Correction

CWRDF will correct a malfunction or failure of the odor suppressant system by repairing or replacing broken pumps and repairing cracks in hoses.

3.5 *General Provisions of the MP&A Plan*

CWRDF must maintain monthly records of all the malfunctions detected as a result of these inspections, the corrective actions taken, and the date each problem was corrected. CWRDF also must submit quarterly reports to the regulatory community (Ohio EPA, Stark County and Canton) that summarize the above-mentioned information. Also, as previously noted, CWRDF must maintain records of all preventive and routine maintenance conducted under this plan.

3.5.1 Implementation of the Plan

Most of the recommendations contained in this plan are currently being implemented. The recommendations, however, will be assessed for applicability to any particular malfunction or issue that may arise. Recommendations will be implemented as expeditiously, as practicably possible to detect, prevent, and correct malfunctions to the odor control systems.

Again, mandatory, more definite language is needed.