Appendix B:
Written Comments Submitted by Small Entity Representatives in 2013

Small Business Advocacy Review Panel on EPA's Planned Proposed Rules
Standards of Performance for Municipal Solid Waste Landfills and Review of Emissions Guidelines for Municipal Solid Waste Landfills

The U.S. Environmental Protection Agency (EPA) conducted a pre-panel outreach meeting with potential Small Entity Representatives (SERs) on October 30, 2013. EPA, along with Panel partners, Small Business Administration's Office of Advocacy (SBA), and Office of Management and Budget's Office of Information and Regulation Affairs (OMB), hosted a Panel outreach meeting with SERs on December 19, 2013.

B2: Written Comments from Small Entity Representatives following the 12/19/2013 Panel Outreach Meeting

For the December 19, 2013 Panel outreach meeting, the following SERs submitted four sets of written comments, which are provided in this appendix:

- Todd Green, American Environmental Landfill
- Anne Germain, Environmental Industry Associations on behalf of Caroline County, Maryland
- Matt Stutz, Weaver Boos Consultants on behalf of the City of Ponca City, Oklahoma
- Michael Michels, Cornerstone Environmental Group on behalf of the City of Riverview, Michigan

American Environmental Landfill
212 N. 177th West Avenue
Sand Springs, Oklahoma 74063

January 10, 2014

Ms. Lanelle Wiggins
RFA/SBREFA Team Leader
EPA Office of Policy
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: Comments on SBAR Panel Outreach Meeting
NSPS and EG for MSW Landfills
American Environmental Landfill

Dear Ms. Wiggins

The American Environmental Landfill (AEL) is providing written comments in response to the Small Business Advocacy Review (SBAR) panel formal outreach meeting held on December 19, 2013 for proposed changes to the New Source Performance Standards (NSPS) and Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills. AEL has been selected as a Small Entity Representative (SER) to participate in the SBAR review panel process. AEL previously submitted comments on November 11, 2013 as part of the pre-panel outreach briefing, which are attached for your reference. Provided herein are comments related to the information presented during the December 19, 2013 meeting.

WRITTEN COMMENTS

As an MSW landfill currently subject to gas collection and control under NSPS, AEL is providing these comments, which focus on the December 19, 2013 discussions that will affect the operation and compliance requirements of the gas collection and control system (GCCS).

Gas Treatment Definition

EPA is considering options for changes to the gas treatment definition; industry has proposed to leave the definition as is.

AEL Comment

The GCCS installed at the AEL incorporates a gas treatment system where the LFG is compressed, chilled, and dehydrated. The gas treatment system currently meets the definition of gas treatment as provided in guidance documents from the EPA; therefore, AEL is supportive of maintaining the existing definition. If the proposed changes to NSPS incorporate specific numerical criteria for the equipment to be classified as "gas treatment", this would potentially require a modification/redesign of the existing equipment to achieve those levels. We would also have to install, maintain and operate continuous monitoring equipment to demonstrate these criteria are met during operation of the system. This would result in an increased compliance burden on the landfill.

In addition, the gas treatment system is not an emission point, but rather a physical process where the LFG is prepared for combustion in LFG fired generator sets. In the case of AEL, the LFG fired generator set is the ultimate point at which the LFG is vented to the atmosphere. The operation of the generator set in accordance with the applicable NSPS and NESHAP (in this case the RICE MACT and the NSPS for spark ignition engines), ensures that the appropriate reduction in emissions occurs. Specifying numerical criteria for equipment to qualify as gas treatment will not affect the resulting emissions from the generator sets, nor will it result in a decrease in nonmethane organic compound (NMOC) emission from the landfill. As such, incorporating numerical criteria into the proposed NSPS changes will be an increased burden with no measureable improvement in emissions.

Wellhead Requirements

Industry has proposed EPA remove the wellhead performance standards from NSPS.

AEL Comment

AEL agrees with industry's recommendation to remove the wellhead performance standards. The current requirements require monthly monitoring of pressure, temperature, and oxygen or nitrogen, and initial corrective actions within 5 calendar days, with a subsequent corrective action 15 days later, and expansion of the gas system within 120 days if the first two corrective actions are not successful. These requirements result in an overly burdensome compliance exercise that does not result in NMOC reductions.

It is our understanding that the wellhead performance standards for temperature and oxygen/nitrogen were included in NSPS to prevent landfill fires. However, the limits specified in the NSPS are not always appropriate. High oxygen levels can be a signal that waste in the vicinity of the well is old and that landfill gas production is on the decline; not indicative of a fire. For wells installed in non-producing areas, complying with the wellhead standards can be difficult. Furthermore, waste naturally degrades at varying temperatures, some of which occurs above the NSPS wellhead standard. AEL has specifically experienced this issue at our site and has several wells that naturally operate above 55°C (131°F) with no indication of fire in the vicinity of the well. It should be the responsibility of the landfill/gas system owner/operator to ensure the system is operated to prevent a fire and not a requirement of NSPS.

NSPS indicates that vacuum (pressure) at a well is monitored to determine if the gas system is operating sufficiently. However, the direct measurement of surface emissions is a better means to assess the effectiveness of a gas system. This is similar to the sentiment indicated by EPA in the background information document (BID) for the final NSPS standards (EPA-453/R-94-021). The BID states "EPA considers surface emissions monitoring to be an appropriate tool for monitoring both cover integrity and the effectiveness of well spacing and vacuum in order to ensure adequate collection efficiency" .

As such, AEL would support the removal of the wellhead performance standards from NSPS and the continued use of SEM to directly measure emissions and demonstrate compliance.

Surface Emission Monitoring (SEM) Requirements

EPA is considering various options for expanding SEM requirements.

AEL Comment

AEL believes the current SEM requirements are appropriate and there does not appear to be data to indicate the current SEM procedures are inadequate. The inclusion of enhanced SEM monitoring in a proposed rule change would be an increased compliance burden on the landfill. Furthermore, there does not appear to be data to indicate that expanded SEM would result in a direct reduction in NMOC emissions. Therefore, unless data can be provided to demonstrate enhanced SEM is better and will reduce NMOC emissions, there does not appear to be a valid reason to change the current SEM requirements.

We appreciate your consideration of these comments. If you have any questions, please feel free to contact myself at (918) 245-7786.

Sincerely,

Todd Green
General Manager

Attachments: November 11, 2013 Pre-Panel Briefing Comments

ATTACHMENT

November 11, 2013 Pre-Panel Briefing Comments

American Environmental Landfill
212 N. 177th West Avenue
Sand Springs, Oklahoma 74063

November 11, 2013

Ms. Lanelle Wiggins
RFA/SBREFA Team Leader
EPA Office of Policy
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Re: Comments on SBAR Pre-Panel Outreach Briefing
NSPS and EG for MSW Landfills
American Environmental Landfill

Dear Ms. Wiggins

The American Environmental Landfill (AEL) is providing written comments in response to the Small Business Advocacy Review (SBAR) pre-panel outreach briefing held on October 30, 2013 for proposed changes to the New Source Performance Standards (NSPS) and Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills. AEL has been selected as a potential Small Entity Representative (SER) to participate in the SBAR review panel process. AEL has considered the proposed changes discussed during the October 30, 2013 briefing and is writing to voice our comments about some of the proposed revisions. Provided herein is a brief background on AEL and our written comments.

FACILITY BACKGROUND

The AEL facility is an MSW landfill located in Sand Springs, Oklahoma, subject to the NSPS for MSW landfills. The landfill has a permitted design capacity of 12,350,000 megagrams (Mg) and encompasses approximately 222 acres, with approximately 182 acres permitted for waste disposal. The landfill consists of six disposal units including two active pre-Subtitle D disposal areas, three active Subtitle D disposal areas, and one closed Subtitle D disposal area.

A gas collection and control system (GCCS) was initially installed by Tulsa LFG, LLC (Tulsa LFG) in 2008 as part of a landfill gas (LFG) extraction and beneficial use project, in accordance with a Landfill Gas Rights, Lease and Development Agreement with AEL. In December 2009, the AEL reported facility emissions of nonmethane organic compounds (NMOCs) above 50 Mg per year, initiating the requirement to install and operate an NSPS compliant GCCS by May 2012. In 2010, Tulsa LFG submitted a construction permit application requesting authorization to install a landfill gas to energy plant consisting of a gas treatment process, where the LFG is compressed, chilled, and dehydrated; LFG fired electric generator sets, and supporting infrastructure at the AEL. The gas to energy plant was installed and began commercial operation in February 2013. Pursuant to the agreement between AEL and Tulsa LFG, Tulsa LFG is responsible for operation and maintenance of the GCCS, including compliance with NSPS and the applicable National Emission Standards for Hazardous Air

Pollutant (NESHAP) requirements. Compliance with the NSPS/NESHAPs was achieved in 2012 and continues through the present.

WRITTEN COMMENTS

As an MSW landfill currently subject to gas collection and control under NSPS, AEL is providing these comments, which focus on the proposed changes to NSPS that will affect the operation and compliance requirements of the GCCS. For clarification, we have included a summary of our understanding of the proposed changes with our responses immediately following in italics.

Owner/Operator Definition

EPA is considering three options for changes to the owner/operator definition:

1. Maintain current definition for a landfill owner/operator
2. Provide option for a landfill owner/operator and gas system owner/operator with a mandatory requirement to define the compliance responsibilities
3. Provide option for a landfill owner/operator and gas system owner/operator with a voluntary requirement to define the compliance responsibilities

AEL Comment

As an MSW landfill with a third party operating the GCCS, AEL supports the option to provide separate definitions for the landfill owner/operator and the gas system owner/operator and would furthermore support adding an additional definition for gas treatment system owner/operator. We prefer the option to include a mandatory division of compliance requirements. The GCCS at AEL is owned and operated by Tulsa LFG, therefore, AEL has little control over the operation of the equipment and does not want to be held responsible for the actions of Tulsa LFG. As such, AEL would prefer a division of liabilities be required under the NSPS to establish who will be responsible for compliance with the various portions of the NSPS.

Gas Treatment Definition

EPA is considering two options for changes to the gas treatment definition:

1. Maintain the current definition of gas treatment, which is generally understood to include compression, chilling and dehydration of the LFG
2. Incorporate numerical criteria for a system to qualify as gas treatment, such as a specific change in dew point, temperature, and filtration.

AEL Comment

The GCCS installed at the AEL incorporates a gas treatment system where the LFG is compressed, chilled, and dehydrated. The gas treatment system currently meets the definition of gas treatment as provided in guidance documents from the EPA; therefore, AEL is supportive of maintaining the existing definition. If the proposed changes to NSPS incorporate specific numerical criteria for the equipment to be classified as "gas

treatment", this would potentially require a modification/redesign of the existing equipment to achieve those levels. We would also have to install, maintain and operate continuous monitoring equipment to demonstrate these criteria are met during operation of the system. This would result in an increased compliance burden on the landfill.

In addition, the gas treatment system is not an emission point, but rather a physical process where the LFG is prepared for combustion in LFG fired generator sets. In the case of AEL, the LFG fired generator set is the ultimate point at which the LFG is vented to the atmosphere. The operation of the generator set in accordance with the applicable NSPS and NESHAP (in this case the RICE MACT and the NSPS for spark ignition engines), ensures that the appropriate reduction in emissions occurs. Specifying numerical criteria for equipment to qualify as gas treatment will not affect the resulting emissions from the generator sets. As such, incorporating numerical criteria into the proposed NSPS changes will be an increased burden with no measureable improvement in emissions.

Expanding Surface Emission Monitoring (SEM) Requirements

EPA is considering various options for expanding SEM requirements, including the following:

1. Changing the SEM pattern requirements; tighter pattern on a grid basis
2. Require both instantaneous sampling and integrated sampling
3. Incorporate restrictions on SEM monitoring during high wind and precipitation conditions

AEL Comment

AEL understands the rational for proposed restrictions on SEM events during high wind and precipitation conditions, which may reduce the effectiveness of monitoring, however, the rule language should allow for alternatives on a site specific basis. AEL does not currently understand the rational for changing the SEM pattern and requiring both an instantaneous and integrated monitoring requirement. Both of these changes, either by themselves or combined, will be an increased compliance burden on the landfill. Is there data to support that the current SEM monitoring requirements are not effective? Have areas that have implemented similar SEM requirements, such as California, seen a reduction in emissions from MSW landfills related to enhanced SEM? AEL would prefer to see data supporting the enhanced SEM program to justify the increase in resources and man-hours required to comply. If the expanded SEM program will not result in a reduction in emissions, why is EPA requiring this? AEL would also like to know if EPA is considering changing the instantaneous compliance threshold of 500 parts per million methane above background, and what compliance threshold EPA is considering for the integrated monitoring requirement.

Shorten Time for Wellfield Expansion

EPA is considering shortening the time allowed for wellfield expansion. The lowest time interval that has been considered is 1 year for closed areas or areas at final grade and 3 years for active areas.

AEL Comment

AEL has concerns with the potential decrease in time allowed for expansion of the wellfield. A reduction of the time allowed for expansion of the wellfield, particularly in active areas, could result in operational difficulties. Based on the annual quantity of waste received and the physical layout of the active area, it may be difficult to place a sufficient column of waste over a shorter time period in the affected areas for installation of gas extraction wells. Furthermore, during the first year or two after waste placement, it is likely portions of the waste will still be in the aerobic phase of LFG production when oxygen is available and carbon dioxide is the main gas produced. At this point in the LFG production process, complying with the operational standards of NSPS, specifically the oxygen and/or balance gas limitations, may be difficult. Gas collection from low producing areas will also cause a reduction in the gas quality, which will directly affect the ability to beneficially reuse the LFG in our current gas to energy facility and create more potential for subsurface fires.

Startup, Shutdown, Malfunction Changes

There was no discussion during the pre-panel briefing on proposed changes to startup, shutdown, and malfunction (SSM) requirements; however, there is a notation that EPA is proposing such changes in the briefing handouts.

AEL Comment

AEL would like to know what changes EPA is proposing to the SSM requirements. AEL understands that there have been previous concerns over how the 1-hour control device shutdown limitation in NSPS has been interpreted. AEL has interpreted the 1-hour control device shutdown limit to imply a facility could not freely vent LFG after shutdown of a control device for more than 1 hour, but a control device being offline for more than on a hour is not a compliance issue as long as there is no free venting for more than an hour. Some state agencies and various regional offices have tried to interpret this limit to imply a control device could not be down for more than one hour even if free venting of LFG is not occurring. AEL believes this was not the intent of the rule language and would suggest the EPA add clarification to NSPS and/or remove the 1-hour control device shutdown limit.

We appreciate your consideration of these comments. If you have any questions, please feel free to contact myself at (918) 245-7786.

Sincerely,

Todd Green
General Manager

National Waste & Recycling Association℠
Collect. Recycle. Innovate.

4301 Connecticut Ave NW
Suite 300
Washington DC 20008
T 202.244.4700
F 202.966.4818

January 10, 2014

Lanelle Wiggins (via e-mail)
RFA/SBREFA Team Leader
U.S. Environmental Protection Agency – Office of Policy (1806A)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Comments on New Source Performance Standards and Emissions Guidelines for Municipal Solid Waste Landfills

Dear Ms. Wiggins:

As a Small Entity Representative (SER) representing Caroline County, Maryland to the Small Business Advocacy Review (SBAR) panel, I am pleased to offer the following comments to the *New Source Performance Standards (NSPS) and Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills.*

Created in 1773, Caroline County is a rural county located on the eastern shore of Maryland with a 2010 population of 33,066. Caroline County is the current landfill host for the solid waste of four counties on the eastern shore including Talbot, Queen Anne and Kent counties. An 80-year agreement among the four counties rotates the landfill locations every twenty years.

General Comments

Emissions reductions by the solid waste and recycling sector have been significant. Using EPA's Decision Support Tool, an industry analysis estimated that actual greenhouse gas (GHG) emissions fell to about 25% of the levels emitted 30 years ago and to less than 20% of what would have been emitted if waste management practices had continued along the 1974 technology path. According to the EPA, landfills reduced GHG emissions by 27% between 1990 and 2010.

Much of the emissions reductions are a result of the current *New Source Performance Standards (NSPS) and Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills.* The success of the NSPS/EG has been demonstrated by the significant declines in methane emissions from MSW landfills as documented in EPA's U.S. Greenhouse Gas Inventory – over 11 percent since 1990. MSW landfills are one of the only sectors that can claim direct GHG emissions reductions of this magnitude. This demonstrates that the NSPS and EG works well in effectively controlling

landfill emissions. Further, the emissions reductions achieved to date have been at a reasonable cost[1].

However, additional emissions reductions can only be achieved through very high costs. The cost burden for installing a landfill gas system is significantly greater for a small facility than for a large one. For example, a significant cost can be incurred simply to mobilize a drill rig. For a facility that installs many wells, the mobilization costs can be distributed over the costs of the wells. For smaller facilities with fewer wells, the individual well cost is greater. This example can be carried forward on almost every component of the landfill gas collection and control system: from design, through permitting and construction, to monitoring and operations. Therefore, when considering the burden on small entities, the costs will be significant.

In addition, the considerations that were in force during the original rulemaking are unchanged. Therefore, it does not appear that there is any need to modify the rule for additional emissions reductions.

Specific Comments

1. *NMOC emissions threshold* – The NMOC emissions threshold is not based on actual emissions, but on a model that generally overestimates emissions. Also, landfills have demonstrated that the cover soils will oxidize the organic compounds. Therefore, any changes to the emissions threshold should consider a more reliable predictor of emissions. It is recommended that the EPA consider allowing the use of surface emissions monitoring (SEM) to confirm whether the modeled excess emissions actually exist. Adding a SEM applicability criterion to the NMOC threshold criteria will assure gas systems are installed and/or expanded at the appropriate time to maximize emissions reductions.

2. *LFG collection system installation or expansion schedule* - The rule mandates that a landfill gas collection and control system must be installed in 30 months. It further requires that a landfill gas collection system be expanded within two years after closing or within five years after initial waste placement. Compliance with these requirements is difficult as it is.

   If the EPA shortened the installation or expansion schedules, the ability for the regulated community to comply with the installation timeframe is jeopardized. The EPA assumes that six months of these schedules will be used for permitting. However, the regulated community's experience is that six months is unrealistically optimistic. For example, according to the State of Maryland, where Caroline County is located, the construction permitting approval turnaround is six months once a completed application is submitted ***and*** as there is little public interest. The original application is almost never considered complete, leading to increased permitting times. In addition, for a site with extensive public interest (which often includes landfills), the approval timeframe is estimated to be eleven months.

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[1] EPA has available recently published information on the efficacy of the Landfill NSPS standards and has discretion to determine, pursuant to section 111(b) of the Clean Air Act, that eight year review is not appropriate for new sources. The Clean Air Act does not mandate eight year review for existing sources. See CAA Section 111(d).

In addition, Maryland requires that landfills that meet the NSPS design capacity threshold obtain a Title V operating permit. The published anticipated turnaround time for new Title V permit approvals is 36 months. Fortunately, the landfill received its Title V permit in a much shorter timeframe, only fifteen months.

The compressed schedule is also a burden on construction and operation activities. It requires installing the LFG collection system during active operations which subjects the collection system to damage from the operations – getting hit by trucks resulting in significant replacement costs. Also, there will be increased settlement in the landfill, which affects the landfill gas header alignment. This results in more operational troubleshooting, repairs and replacement costs.

Finally, any changes to the schedule will exacerbate the on-going issues with the wellhead performance standards. Earlier operation will lead to significantly greater numbers of exceedances requiring greater number of system expansions which adds to the cost burden of earlier collection.

3. *Wellhead Performance Standards, Corrective Action & System Expansion* – The regulations require that the temperature, pressure, and either nitrogen or oxygen be monitored monthly and that if a well exceeds an operating parameter, corrective action be initiated within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance.

   The EPA included the wellhead performance standards in 1996 to ensure that 1) the landfill gas collection system is operating properly and 2) a fire is not propagated. EPA is also concerned that elevated temperatures could inhibit anaerobic decomposition by killing methanogens. The overarching goal of the NSPS is to reduce landfill gas emissions.

   Based on 17 years of experience implementing the NSPS, the regulated community views the wellhead performance standards (oxygen, temperature and pressure) as overly prescriptive with extremely complex recordkeeping and reporting requirements and associated corrective actions that vary widely due to divergent agency interpretations. The amount of data tracking and paperwork to demonstrate conformance with the wellhead standards is not only very burdensome, but can delay or distract the regulated community and the state agencies from accomplishing the overarching goal of NSPS.

   The prescriptive wellhead standards are actually an obstacle to proper system operation and emissions reductions. The state agencies do not have the resources to assess and respond to landfill operator requests for operating variances, and due to staff turnover, often lack the knowledge and expertise. As it has proven difficult to impossible to obtain higher operating variances and alternative timelines from the agencies, operators may be left with no option other than to adjust the LFG flow to the wells in order to meet the specified temperature and oxygen values. This lowers the efficiency of the system and can result in less gas being extracted to fuel energy recovery projects or flares. Alternatively, unnecessary system expansions must be performed at great expense with no environmental benefit.

   Here is an illustrative example of a single well at a single landfill with supporting information attached to this letter:

In July and August 2010, the City of Jacksonville, Florida requested a temperature variance for a single well. They also requested time to gather additional data to support their initial analysis that the temperature was not the result of a fire.

The Florida DEP denied both requests because the temperature had briefly fallen within the range compliance. Then, the Florida DEP required that the City expand their landfill gas system within 120 days.

The landfill installed three additional wells, which did not resolve the higher temperature. In fact all four wells exhibited elevated temperature. The landfill again requested temperature variance for all four wells, or to decommission the new wells (as the corrective action did not work).

The Florida DEP stated it could not authorize the site to decommission the three new wells it had directed the site to install and denied the variance request for the three new wells. It did however grant the temperature variance for the initial well in question.

Conversely, as shown in the attached letter from the EPA Region 1 sent to Waste Management, the decommissioning of wells is the responsibility of states. Further, it states that temperature variances can be set by the landfill owner.

If minimizing the risk of a fire is truly the concern for the EPA, the requirement for system expansion is purely punitive, rather than corrective. Expanding the collection system would further propagate the fire by introducing more oxygen into the landfill through drilling or excavation activities.

Therefore, we recommend that the standards for oxygen and temperature be eliminated. Instead, the focus of the rule should be on the primary goal of NSPS, which is to control emissions. This can be successfully accomplished utilizing the existing surface emissions monitoring, which can evaluate the effectiveness of active and passive gas collection systems and cover.

4. *Common control* - Common control establishes a disincentive for landfill gas to energy (LFGTE) projects. In the past, major violations notices have been issued to landfill owners for issues that were beyond its control and the direct result of the third party owner. As a highly regulated industry that is very sensitive to the goodwill of the public, being held responsible for the actions or inactions of an independent contractor is untenable. Therefore, in order to encourage LFGTE projects, it is important for permits to allow clear division of responsibilities between the landfill owner and the owner of the LFGTE facility.

5. *Surface Emissions Monitoring (SEM)* – The NSPS requires that the landfill gas collection system be operated such that methane concentration at the surface of the landfill is less than 500 parts per million above the background. The EPA suggested that they might propose a tighter grid for the SEM. It does not appear that there is any quantifiable environmental benefit that can be determined from increasing the spacing on monitoring. The rules already require that additional monitoring be performed at cracks in the cover or in areas where the vegetation is stressed. This requirement adequately locates surface emissions through the cover. SEM is a time-consuming

compliance activity. Any tighter grid spacing requirement should be based on some demonstrable benefit to the environment.

6. *Closed landfills* - Based on our initial meeting, the EPA suggested that over 800 closed landfills could be impacted by the revised rule. When a landfill closes, the landfill gas begins declining. As a result, additional relief from performance and monitoring should be granted to the closed landfills. In particular, the requirements to: a) operate for a minimum of 15 years – the landfill might not have sufficient LFG to maintain an operation LFG collection system for that long; b) meet the 5% oxygen wellhead standard; and c) perform system expansion. In addition, much of the LFG emissions might have oxidized as it traveled through the cover soils resulting in minimal pollution. Consideration should be available for oxidation of the LFG.

   The rule should be revised to allow for decommissioning of portions of the LFG system. It should make provisions for both temporary and permanent decommissioning based on site specific conditions.

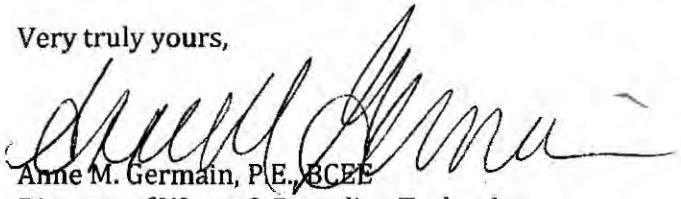
7. *Landfill lifecycle* – As written, the rule does not adequately address the lifecycle of a landfill, including phasing-in gas collection systems for newer landfills or newly developed areas of landfills, or tapering down collection systems for older landfills where gas production is diminished. Compliance with the wellhead performance standards is especially difficult at the beginning or end of the landfill's life. Sites need operational flexibility to rely on interim collection in the early generation years and intermittent system operations in the low gas producing years.

8. *EXCEL Spreadsheet Costs* - The costs shown in the spreadsheet seem low, especially considering that the facilities that would be impacted are significantly smaller and would not enjoy the same economies of scale.

   Although the EPA explained that the costs assumptions assumed that many of the facilities would benefit from beneficial use such as in Massachusetts, this rationale does not seem to consider the size of the facilities. Most beneficial use projects are located at facilities that generate a significant volume of gas. Closed landfills are unlikely to provide gas for a long enough period to ensure a return on investment. Many smaller, active landfills do not generate sufficient gas to enjoy the opportunity to install beneficial use options. Even if they are able to, the cost benefits to the facility will be minimal. Occasionally, they might be in an ideal location adjacent to an industrial user where the benefit does exist. However, this is rare. Therefore, the costs will be significantly larger than the EPA has estimated. Lowering NSPS thresholds may also impact existing beneficial use projects that have benefited from being located at sites that are non-NSPS and therefore eligible for additional revenues.

As a SER, I appreciate the opportunity to provide these comments. Should you have any questions, please contact me at agermain@wasterecycling.org or 202-364-3724. I will forward additional information as it becomes available.

Very truly yours,



Anne M. Germain, P.E., BCEE
Director of Waste & Recycling Technology

Letters between
City of Jacksonville
&
Florida DEP

SOLID WASTE DIVISION

Jacksonville
Where Florida Begins.

August 19, 2010

Mr. Christopher Kirts, P.E.
Air Program Administrator
Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256

Subject: Higher Operating Temperature Evaluation/
Alternate Timeline Request for Extraction Well TW-71
Trail Ridge Landfill, Baldwin, Florida
Facility ID No. 0310358

Dear Mr. Kirts:

The City of Jacksonville is submitting this correspondence to the Florida Department of Environmental Protection (FDEP) to request an alternate compliance timeline for landfill gas extraction well TW-71 at the Trail Ridge Landfill in Baldwin, Florida.

This site is subject to the Federal NSPS program for municipal solid waste landfills (40 CFR 60 Subpart WWW). The facility is required by the NSPS to perform monthly monitoring of all gas extraction wells for gauge pressure, temperature and oxygen. Well TW-71 at the facility is likely to exceed the 15-day timeline for temperature and past experience has shown that well adjustment or system expansion is unlikely to correct the temperature exceedance.

Pursuant to the NSPS regulations, the following actions must be taken for the above situation:

> *40 CFR 60.755(a)(5) – "If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of the first exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternate timeline for correcting the exceedance may be submitted to the Administrator for approval."*

DEPARTMENT OF PUBLIC WORKS
1031 Superior Street | Jacksonville, FL 32254 | Phone: 904.387.8922 | Fax: 904.387.8905 | www.coj.net

40 CFR 60.753(c) – " Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 °C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens."

Corrective actions were initiated within five (5) days of the initial exceedance, however it appears that the landfill gas wellhead temperature will remain above the NSPS 55 degrees Celsius (°C), or 131 degrees Fahrenheit (°F) operating requirement. The well is currently being operated in accordance with the landfill's Temperature Verification Procedures outlined in the November 3, 2008 letter submitted by the City to FDEP (Attachment 1). Based on the data shown in Table 1, the temperature exceeded 131°F on August 9, 2010 and remains above the default NSPS threshold. This is compared to the refuse temperature of 121°F encountered during the July 1, 2010 well boring and installation. The LFG concentrations demonstrate that methane is present and air intrusion is not occurring; oxygen and pressure are within NSPS compliance parameters. Carbon monoxide field monitoring results have verified that a subsurface oxidation is not occurring and continued extraction of LFG from this well is not contributing to degradation of anaerobic methanogenesis. As demonstrated in the landfill's Temperature Verification Procedures, methane below 45% with carbon monoxide readings exceeding 500 parts per million (ppm) can be an indicator of subsurface oxidation. Additionally, an inspection of the well casing/surrounding ground for evidence of air leaks has been satisfactory performed to ensure that the higher temperature is not/won't be combined with high levels of oxygen and therefore will not lead to the support of a landfill fire.

Table 1. LFG Data for TW-71, Trail Ridge Landfill, Baldwin, Florida

Device ID	Date Time	CH4 (Methane) (%)	CO2 (Carbon Dioxide) (%)	O2 (Oxygen) (%)	Balance Gas (%)	CO (Carbon Monoxide) (ppm)	Adjusted Temperature (Deg F)	Adjusted Static Pressure ("H2O)
TRLTW071	7/1/2010 18:15	53.9	45.9	0	0.2		94	-3.2
TRLTW071	7/7/2010 15:53	54.9	42.3	0	2.8		129	-28.3
TRLTW071	8/9/2010 10:43	52.5	45.3	0.3	1.9	110	133	-32
TRLTW071	8/17/2010 17:15	51.9	44.1	0.2	3.8	100	134	-22.5

Considering the FDEP's previous request for a trend of historical data to support a request for a higher operation temperature, the City is requesting an alternate timeline of 120 days to collect trend data and submit this documentation. This will allow an additional 75 days of monthly monitoring, including CO readings. Within 120 days of the initial exceedance, the City will provide the higher operating temperature demonstration results to FDEP, along with a request for a higher operating temperature or an alternative remediation plan with timeline for LFG well TW-71.

We would appreciate a written confirmation from your office approving this request for the alternative timeline to perform the higher operating temperature demonstration for the well TW-71. Please be advised that these exceedances will be reported as operational exceedances in NSPS semiannual reports, but will not be reported as items of non-compliance on our Title V annual statement of compliance unless (1) we receive written notification from you that this request is not approved, or (2) we fail to submit the required temperature variance request or alternative remediation plan with 120 days of the initial exceedance.

If you have any additional questions regarding this letter, please contact me at the letterhead number or email at jsfoster@coj.net.

Sincerely,

Jeffrey S. Foster, P.G., P.E.
Environmental Engineering Manager
City of Jacksonville

Attachment 1: November 3, 2008 City correspondence to FDEP, Well Temperatures

cc: Chris Pearson, City of Jacksonville
James Getting, Waste Management of Florida
Eric Parker, Waste Management of Florida
Jim Christiansen, Waste Management of Florida
Greg Mathes, Waste Management of Florida
Lindsey Kennelly, SCS Engineers

ATTACHMENT 1

Florida Department of Environmental Protection

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590
Phone 904.807-3300 • Fax 904.448-4366

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

August 6, 2009

Mr. Chris Pearson, Chief
City of Jacksonville
Solid Waste Division
1031 Superior Street
Jacksonville, FL 32254

Duval County - Air Permitting
City of Jacksonville-Trail Ridge Landfill
AIRS ID No. 0310358
Alternate Timeline Request for Extraction Well No. TW-29

Dear Mr. Pearson:

The purpose of this letter is to provide with a written determination regarding your request for a 180 day extension of the deadline to correct temperature exceedances at extraction well No. TW-29. The Trail Ridge Landfill is subject to the requirements of 40 CFR 60, Subpart WWW (Standards of Performance for Municipal Solid Waste Landfills).

Pursuant to 40 CFR 60.753(c), Trail Ridge Landfill must operate each interior wellhead in the collection system with a landfill gas temperature less than 55 degrees Celsius (131 degrees Fahrenheit) and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The facility may request a higher operating temperature at a particular well, provided that supporting data is submitted that demonstrates that the elevated temperature does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

If an exceedance is detected during the monthly monitoring required by 40 CFR 60.755(a)(5), the landfill must initiate action to correct the exceedance within timeframes specified within the regulation. If these exceedances cannot be corrected within these timeframes, the landfill is required to expand its gas collection system no later than 120 days from the initial measurement of positive pressure.

You are requesting a higher operating temperature of 153 degrees Fahrenheit for this well. The monthly methane, carbon dioxide, oxygen, temperature, and pressure data for this well was submitted with your letter for the months of January 2009 through July 2009. The data shows methane percentages of greater than 42 percent, oxygen percentages of less than 5 percent, with a

maximum temperature of 142 degrees Fahrenheit. Four carbon monoxide readings were measured in April, May, June, and July with the highest measurement of 200 ppm.

It appears from the submitted data that anaerobic activity within the landfill is continuing due to the methane percentages of greater than 42 percent, and the higher temperatures are not causing fires due to the carbon monoxide level of less than 500 ppm.

As stated in the meeting held on January 22, 2009, in accordance with 40 CFR 60.753(c) the Department is inclined to approve a higher operating temperature limit for the well, but the limit would be based on actual temperatures measured with a slight buffer, i.e. not 10 degrees Fahrenheit as being requested. Therefore, the Department approves a higher operating temperature limit of 147 degrees Fahrenheit for Well No. TW-29.

Trail Ridge Landfill should continue to review wellhead temperature monitoring data and closely monitor any field conditions that would indicate the presence of subsurface fires. In addition, wellhead monitoring data should be analyzed for trends that may indicate the anaerobic decomposition is being significantly inhibited due to the killing methanogens.

If you have any questions concerning this matter, please contact Rita Felton-Smith at (904) 807-3237.

Sincerely,

Christopher L. Kirts, P.E.
District Air Program Administrator

RFS/rfs

Copy to:

Lindsey E. Kennelly, P.E., Senior Project Engineer, SCS Engineers
James Getting, Waste Management

Jacksonville
Where Florida Begins.

November 3, 2008

File No. 09207041.00

Mr. Christopher L. Kirts, P.E.
District Air Program Administrator
Florida Department of Environmental Protection
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Subject: Response to Request for Additional Information for Higher Operating Temperatures
Trail Ridge Landfill, Baldwin, Florida
AIRS ID No. 0310358

Dear Mr. Kirts:

The City of Jacksonville is submitting this letter as a combined response to your September 10 and October 3, 2008 correspondence requesting additional information concerning the proposed alternate operating temperatures for extraction wells at Trail Ridge Landfill. For ease of review, each correspondence will be addressed separately.

Response to September 10, 2008 Correspondence

Your September 10, 2008 correspondence requested additional information concerning the February 14, 2008 proposed alternate operating temperatures for extraction wells at Trail Ridge Landfill. For your convenience, Attachment A includes a summary of the extraction wells with their respective temperature variance request and the date the request was submitted.

All of these wells are currently operating with oxygen concentrations within NSPS parameters, and the temperatures requested are slightly higher than those observed in order to provide operational flexibility should higher temperatures be recorded in the future. During normal operating conditions, the temperatures monitored at extraction wells typically fluctuate anywhere from 5 to 10 degrees Fahrenheit (°F). Due to this natural fluctuation, a buffer of approximately 10°F was used in establishing the requested alternate operating temperatures.

The City feels that these alternate operating temperatures are reasonable based on variances granted for other sites in Florida. As shown in Attachment B, U.S. EPA Region 4 has granted site-wide higher operating temperatures of 176 degrees °F for Central Landfill (Broward County, Florida) and Medley Landfill (Dade County, Florida).

DEPARTMENT OF PUBLIC WORKS
1031 Superior Street | Jacksonville, FL 32254 | Phone: 904.387.8922 | Fax: 904.387.8905 | www.coj.net

Methane Generation

Moisture contributed by rainfall enhances waste decomposition thus increasing the landfill gas (LFG) generation rate. After waste is buried in a landfill, microorganisms begin processing the organic/biodegradable portions of the waste. The aerobic microbes consume the available oxygen and anaerobic conditions develop. Under these anaerobic conditions, the organic/biodegradable waste is then converted to complex organic acids, followed by the conversion of the organic acids into methane and carbon dioxide. The methanogenic microbes flourish in moist environments and within the mesophilic (68 to 122°F) and thermophilic (95 to 167°F) temperature ranges (SWANA, 2002). At these temperature ranges, more methane and waste heat are produced by the production of additional methanogens.

In addition to methane generation, the anaerobic bacteria also produce waste heat via exothermic reactions. The waste heat perpetuates the biological decomposition process by providing temperatures in the thermophilic range, which further encourages the production of additional methanogenic microbes and additional methane.

Temperatures of the excavated waste documented during the drilling of a number of vertical extraction wells on site have confirmed that biological decomposition in the landfill is occurring under thermophilic conditions. From the well drilling log summaries previously submitted, Attachment C summarizes the range of temperatures that were measured in the excavated waste during the extraction well drilling at Trail Ridge Landfill. Based on temperature measurements of the excavated refuse, the waste in the vicinity of many of the extraction wells was decomposing at temperatures higher than 131 °F even prior to the application of vacuum. This is one indication that the operation of the landfill gas collection and control system (GCCS) is not contributing to elevated temperatures within the landfill.

Verification of Anaerobic Conditions

Methane generated from waste decomposition represents approximately 45 to 60 percent of the gas in LFG. The methane content is often used as an indicator of whether anaerobic decomposition is occurring. If, in fact, a subsurface fire was present, the quantity of methanogens would decline, which would cause a corresponding decrease in methane concentration in the LFG. Therefore, methane concentrations would be lower than the typical methane range at each extraction well if subsurface oxidation was occurring.

As shown in Attachment D, the methane concentrations at the extraction wells are within the range of typical LFG. The methane concentrations monitored at each extraction well indicate that anaerobic conditions are present and methanogenic microbes are generating methane.

Temperature Verification Procedures

Wellhead gas flow temperature is monitored and tracked to evaluate the potential for the occurrence of underground landfill fire. Applying excessive vacuum to the landfill gas extraction well can introduce air (oxygen) into the refuse, which increases bacterial activity and raises temperatures (aerobic decomposition). With the optimal combination of heat, oxygen, and fuel, a landfill fire may begin. Because of their long-smoldering characteristics we often define this occurrence as subsurface oxidation, and one of the significant byproducts is carbon monoxide (CO) in the extracted landfill gas. Signs of subsurface oxidation include:

- Substantial settlement over a short period of time.
- Smoke or smoldering odor emanating from the gas extraction system or landfill.
- Combustion residue in extraction wells or headers.
- Elevated levels of CO in excess of 1,000 parts per million (ppm) are typically considered a positive indication of an active underground landfill fire. Levels of CO between 100 and 1,000 ppm are viewed as suspicious and require further air and temperature monitoring. Levels between 10 and 100 ppm may be an indication of a fire but active combustion is not present.
- Increase in gas temperature in the extraction system (above 140°F).
- Wellhead gas temperatures in excess of 170°F. (FEMA, 2002)

The following procedures are performed if wellhead temperatures above the NSPS compliance threshold of 131°F are encountered. If there are any indications of subsurface oxidation, the well shall be closed and the Administrator notified.

- Immediately examine the area for evidence of a subsurface fire. The inspection includes signs of settlement, smoke, and charred/melted well components. If no signs of a subsurface fire are found, the technician shall continue the troubleshooting procedures.

- Review the LFG data to determine if methane concentrations are above 45 percent. As established above, methane concentrations are typically 45 to 60 percent in LFG; these concentrations indicate *anaerobic* conditions are in place.

- Measure carbon monoxide (CO) concentrations using hand-hand instruments or colorimetric devices (Draeger tubes). Carbon monoxide (CO) is a byproduct of combustion; therefore, if a subsurface fire were present, elevated CO concentrations would be detected.

- Operate the extraction well with vacuum if the methane concentrations are above 45 percent and the CO readings are less than 500 ppmv.

- Request an alternate operating temperature variance and submit the following information to the Administrator:

  - Monitoring data for methane, oxygen, and CO concentrations, and temperature obtained from each well.
  - Excavated refuse temperatures measured during installation of the vertical extraction wells.

Gas Collection and Control System Expansion

Expansion of the GCCS in itself will not lower the temperature of the LFG that is collected from the extraction wells. If a subsurface oxidation is being caused by excessive well vacuum, then reducing that vacuum, and the resulting gas extraction zone of influence, may result in the need to install additional wells or collectors to maintain gas emissions control as evidenced by the surface emissions monitoring. Also if GCCS piping and/or equipment are damaged by higher gas temperatures, these will be replaced or ungraded. However, if additional wells or collectors are installed in the vicinity of the current LFG extraction wells where elevated temperatures are present, it is likely that they will also have elevated operating temperatures and require alternate operating temperature variances. Furthermore, the addition of too many new extraction wells can result in unintentional over-pulling of the landfill that can cause ambient air intrusion that could lead to subsurface oxidation. For these reasons, the City is requesting alternate operating temperatures for the wells in question as opposed to expanding the GCCS.

It should be noted that current efforts taken by the landfill to correct exceedances include initial corrective actions performed within five calendar days. Continued system evaluation and repairs to correct exceedances are completed within 15 calendar days when possible. This includes, but is not limited to, checking the piping and wells for damage or leaks, draining lines, adjusting valves, replacing or repairing parts, adding cover material, or any other such action as deemed appropriate based on observations and system knowledge. When system expansions are appropriate, they are completed within 120 calendar days.

Response to October 3, 2008 Correspondence

Your October 3, 2008 correspondence requested additional information concerning the higher operating temperature for the following extraction wells: TW-01, TW-02, TW-03, TW-3U, TW-13, TW-15, TW-16, TW-18, TW-18U, TW-19U, TW-20U, TW-21, TW-21U, TW-29, EW-38, TW-26, TW-31, TW-32, TW-37, TW-39, TW-42, TW-44, TW-45, TW-47, TW-48, TW-51, TW-54, TW-55, TW-56, TW-58, TW-59, TW-60, TW-61, EW-53, TW-27, TW-28, TW-30, TW-38, TW-46, TW-57 and an alternate timeline request for well TW-47. For ease of review, each Florida Department of Environmental Protection (FDEP) comment is reiterated in bold type, followed by our response.

1. **Higher operating temperatures for wells TW-01, TW-02, TW-03, TW-3U, TW-13, TW-15, TW-16, TW-18, TW-18U, TW-19U, TW-20U, TW-21, TW-21U, and TW-29. The letter states that higher operating temperatures have been previously requested for these wells, but the landfill has not received any formal written approval from RESD and therefore is requesting higher operating temperatures from the FDEP.**

2. **Higher operating temperatures for wells that have exhibited elevated temperatures of 125°F or greater as a proactive measure. These wells include EW-38, TW-26, TW-31, TW-32, TW-37, TW-39, TW-42, TW-44, TW-45, TW-47, TW-48, TW-51, TW-54, TW-55, TW-56, TW-58, TW-59, TW-60, and TW-61.**

3. **The requested higher operating temperatures are summarized in the following table:**

Temperature Variance Summary, Trail Ridge Landfill

Well	Requested Operating Temp. (°F)		Well	Requested Operating Temp. (°F)
TW-01	157		TW-32	139
TW-02	157		TW-37	140
TW-03	156		TW-39	143
TW-3U	151		TW-42	135
TW-13	153		TW-44	136
TW-15	152		TW-45	138
TW-16	153		TW-47	143
TW-18	152		TW-48	138
TW-18U	152		TW-51	143
TW-19U	154		TW-54	140
TW-20U	155		TW-55	138
TW-21	155		TW-56	138
TW-21U	147		TW-58	144
TW-29	153		TW-59	145
EW-38	143		TW-60	144
TW-26	140		TW-61	135
TW-31	148			

Department Response:

The provisions of 40 CFR 60.753(c), require interior wellheads in a gas collection and control system to be operated with a temperature of less than 55°C (131°F) and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. This regulation also stated that a higher operating temperature, nitrogen, or oxygen value at a particular well may be established provided that the facility provides supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

The provisions of 40 CFR 60.756(a) requires monthly monitoring of gas collection and control system wellhead pressure, temperature, and nitrogen/oxygen concentrations.

The September 5, 2008 letter included a summary of the temperature of the excavated refuse that was measured during the installation of the gas extraction wells (as a gauge of the level of refuse decomposition), results of carbon monoxide sampling at each of the wells, and monthly temperature, methane, and oxygen concentrations at each of these wells for the months of January through May 2008.

1. **It must be noted, that the submitted carbon monoxide results do not indicate when this monitoring occurred. Please provide this information.**

   Response: Please reference Attachment A for a list of the extraction wells, the respective proposed alternate operating temperatures, the previously reported CO results, and the date on which the sample was taken.

2. **Based upon the submitted monthly monitoring information, it doesn't appear that requested higher operating temperatures are currently warranted for wells EW-38, TW-01, TW-02, TW-13, TW-15, TW-16, TW-18, TW-18U, TW-19U, TW-20U, TW-21, TW-26, TW-31, TW-32, TW-37, TW-39, TW-42, TW-44, TW-45, TW-48, TW-54, TW-55, TW-56, TW-58, TW-59, TW-60, TW-61, as the reported temperatures are well below the less than 131°F temperature operating standard.**

   Response: As documented in previous correspondence, the City of Jacksonville's Regulatory and Environmental Services Department (RESD) approved alternate operating temperatures verbally and instructed the City to request the operating variances in the semi-annual NSPS reports. Please reference Table 1 for a summary of the extraction wells that had been previously reported to operate at temperatures above the 131°F threshold stipulated in §60.753(c) in the semi-annual NSPS reports.

Table 1. Established Alternate Operating Temperatures, Trail Ridge Landfill

WELL	ESTABLISHED OPERATING TEMPERATURE (°F)
TW-1	157
TW-2	157
TW-3	156
TW-3U	151
TW-13	153
TW-15	152
TW-16	153
TW-18	152
TW-18U	152
TW-19	152
TW-19U	154
TW-20	158
TW-20U	155
TW-21	155
TW-21U	147
TW-29	153

In addition, the September 5 correspondence requested alternate operating temperatures for extraction wells that have exhibited elevated temperatures of 125°F or greater; these extraction wells include EW-38, TW-26, TW-31, TW-32, TW-37, TW-39, TW-42, TW-44, TW-45, TW-47, TW-48, TW-51, TW-54, TW-55, TW-56, TW-58, TW-59, TW-60, and TW-61. As stated in the request of alternate operating temperatures, the City is taking a proactive approach to requesting temperature variances through FDEP. While the temperatures at these extraction wells may currently be less than 131°F, the temperature could naturally fluctuate due to the accelerated decomposition of waste on site. Under normal operation of these extraction wells, the temperature could increase further due to the natural temperature of the LFG. Please reference Attachment A for the year-to-date temperature ranges recorded for these extraction wells.

3. **As such, in accordance with the provisions of 40 CFR 60.753(g), if the temperature monitoring demonstrates a temperature of 131°F or greater, corrective action shall be taken as specified in 40 CFR 60.755(a)(5) of the subpart. If corrective actions are taken as specified, the monitored exceedance is not a violation of the operational requirements.**

Response: When a temperature is monitored above 131°F, efforts are performed to ensure that subsurface oxidation is not occurring. Once it is confirmed that the elevated temperatures are a result of accelerated waste decomposition the City proactively requests an alternate operating temperature variance at least 10°F higher than the detected temperature in accordance with §60.753(c).

4. **It doesn't appear that monitoring information was provided for well TW-03. As such, the Department cannot make a determination regarding this well at this time.**

   Response: Extraction well TW-03 was replaced with extraction well TW-03U. At this time, the City is requesting an alternate operating temperature for extraction well TW-03U. Please reference Attachment A for a list of the extraction wells with the respective requested alternate operating temperatures.

5. **Although the submitted monitoring information indicates temperatures greater than 131°F for well TW-21U during April and May, the 2008 First Semiannual NSPS and SSM Compliance Report dated July 23, 2008, indicates temperatures below the threshold for the month of June 2008.**

   Based on this information, it doesn't appear that the requested higher operating temperature is currently warranted for this well. Has the temperature exceeded the less than 131°F threshold since the month of June? Please provide the monitoring information for the months of July through September for this well.

   Response: While the temperatures at this extraction well may currently be less than 131°F, the temperatures tend to fluctuate based on waste decomposition rates. Under normal operation of this extraction well, the temperature will likely increase due to the natural temperature of the LFG. Due to this natural fluctuation, a buffer of approximately 10°F was used in determining the requested alternate operating temperature for this extraction well.

   Please reference Attachment D for the year-to-date data recorded at the extraction wells and Attachment A for a list of the extraction wells with requested alternate operating temperatures.

6. **The monitoring information for Well TW-39, indicates a high operating temperature in May, the 2008 First Semiannual NSPS and SSM Compliance Report indicated an exceedance on May 14th (131°F), but this report also shows the temperature below the threshold for the month of June.**

   Based on this information, it doesn't appear that the requested higher operating temperature is currently warranted for this well. Has the temperature exceeded the less than 131°F threshold since the month of June? Please provide the monitoring information for the months of July through September for this well.

Response: While the temperatures at this extraction well may currently be less than 131°F, temperatures of gas extracted from LFG extraction wells tend to fluctuate based on waste decomposition rates. Under normal operation of this extraction well, the temperature will likely increase due to the natural temperature of the LFG. Due to this natural fluctuation, a buffer of approximately 10°F was used in determining the requested alternate operating temperature for this extraction well.

Please reference Attachment D for the year-to-date data recorded at the extraction wells, and Attachment A for a list of the extraction wells with requested alternate operating temperatures.

7. **The monitoring information for Well TW-51 indicates a high temperature in March that was back below the threshold within an 11 day timeframe, and during the months of May and June.**

a. **In accordance with 40 CRF 60.755(a)(5), if correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance.**

Response: As previously stated, the City has taken a proactive approach to compliance of the GCCS at Trail Ridge Landfill. When possible, attempts are made to reduce the temperatures monitored at the wellhead. Since the trend of elevated LFG temperatures is prevalent on site, the City has requested that extraction wells that typically operate at 125°F have alternate operating temperatures in order to provide operational flexibility since well temperatures can fluctuate by 10°F.

b. **On September 12, 2008, the Department received a request for an extension for an additional 180 days for the City to continue efforts to reduce the wellhead temperature in well TW-51 and well TW-32. The letter states that the Subpart requirement of negative pressure at these wells has been exceeded.**

Response: The September 12, 2008 letter addressed two separate requests for extraction wells TW-32 and TW-51. The wells historically have had elevated temperatures and therefore alternate operating temperatures were previously requested in accordance with §60.753(c).

In addition, the letter requested an alternate timeline to restore vacuum to these extraction wells. A substantial amount of waste has been placed on top the lateral pipes that supply vacuum to extraction wells TW-32 and TW-51, which we suspect has reduced the effectiveness of the laterals. Once vacuum is restored to these extraction wells, the temperature will likely increase to a level consistent with the other LFG temperatures that have been witnessed in these and other wells which can be attributed to accelerated waste decomposition.

The letter does not state the efforts that have been taken by the landfill to reduce the temperature at well TW-51, what additional or different actions that will be taken in the future, nor explains why the gas collection system was not expanded as required by 40 CFR 60.755(a)(5). The Department is requesting that this be addressed and information provided.

Response: As shown in the information presented in the "Temperature Verification Procedures" portion of this correspondence, there are no indicators of subsurface oxidation at the site. The elevated temperatures detected at the extraction wells are due to the accelerated decomposition of the waste in place and the resulting elevated temperature of the LFG.

Regarding expansion of the well field, please refer to the "GCCS Expansion" portion of this correspondence.

c. **Please provide the monitoring information for the months of July through September for this well.**

Response: Please reference Attachment D for the year-to-date data recorded at the extraction wells and Attachment A for a list of the extraction wells with requested alternate operating temperatures.

8. **The submitted monitoring data for Well TW-32, including that in the 2008 First Semiannual NSPS and SSM Compliance Report, indicates temperatures below the 131°F temperature operating standard through the month of June 2008, and a positive pressure at the well during the month of June. Based upon this information, it doesn't appear that requested higher operating temperature for this well is currently warranted.**

Response: The temperatures requested are slightly higher than those observed to provide operational flexibility should higher temperatures be recorded in the future. During normal operating conditions, the temperatures monitored at extraction wells typically fluctuate anywhere from five to ten degrees Fahrenheit (°F). Due to this natural fluctuation, a buffer of approximately 10°F was used in determining the requested alternate operating temperature.

a. **In accordance with the provisions of 40 CFR 60.753(g), if the gauge pressure monitoring demonstrates positive pressure (with exception of the conditions allowed under §60.753(b)), corrective action shall be taken as specified in 40 CFR 60.755(a)(3) of the subpart. If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure.**

b. **The letter does not state the efforts that have been taken by the landfill to obtain negative pressure at well TW-32, what additional or different actions that will be taken in the future, nor explains why the gas collection system was not expanded as required by 40 CFR 60.755(a)(3). The Department is requesting that this be addressed.**

Has this well continued to experience a positive pressure during the months of July through now? Please provide the monitoring information for the months of July through September for this well.

Response: Data evaluation, well tuning, and visual system evaluations were included in the initial corrective actions to return negative pressure to TW-32. Initial attempts to increase vacuum and return negative pressure to TW-32 proved unsuccessful. On September 11, 2008 the existing vacuum line to TW-32 was replaced, and negative pressure was restored to TW-32, within the allowable timeline established. This negative pressure has been sustained since this system expansion was completed. Please reference Attachment D for the year-to-date monitoring data.

9. **The monitoring information for well TW-29 indicates high temperature during each month of January through April, May, and June. Has the temperature at this well exceeded the 131°F threshold since the month of June? Please provide the monitoring information for the months of July through September for this well.**

Response: Please reference Attachment D for the year-to-date monitoring data of the extraction wells for which alternate operating temperatures have been requested in Attachment A. Based on the data, extraction well TW-29 is above the 131°F threshold. The procedures addressed in the "Temperature Verification Procedures" section of this correspondence have been followed. There are currently no signs of subsurface oxidation.

Department Response to Alternate Timeline Request for Well TW-47

In the Department letter dated September 10, 2008, it is stated that the Department would address the request for an extension for an additional 180 days for the City to continue efforts to reduce the wellhead temperature in well TW-47 under separate cover.

1. **Based on the submitted information, it is not clear why the City is requesting an additional 180 day extension to reduce the wellhead temperature for this well, as the temperatures appear to be well below the less than 131°F standard. As such, the Department does not approve the extension request.**

Response: The timeline request was based on wellhead data obtained in August with temperatures above the 131°F threshold. The City was proactively requesting a timeline extension since the FDEP has yet to grant an alternate operating temperature for this extraction well. As shown in Attachment D, the LFG data for extraction well TW-47 shows that the temperatures in August and September were above 131°F.

1. **The data does indicate a positive pressure at this well during the month of June. Did the landfill follow the provisions of 40 CFR 60.755(a)(3) and initiate corrective action within 5 calendar days? Was the landfill able to achieve negative pressure without excess air infiltration at this well within 15 calendar days of the June 23rd measurement? Please provide the Department a copy of the monitoring data for this well during the months of July through September.**

   Response: Data evaluation, well tuning, and visual system evaluations were included in the initial corrective actions to return negative pressure to TW-47. Initial attempts to increase vacuum and return negative pressure to TW-47 proved unsuccessful. On August 1, 2008 the existing vacuum line to TW-47 was replaced, and negative pressure was restored to TW-47, within the allowable timeline established. This negative pressure has been sustained since this system expansion was completed. Please reference Attachment D for the year-to-date monitoring data.

2. **If the landfill was unable to achieve negative pressure at this well during the timeframes established by 40 CRF 60.755(a)(3), please address why the gas collection system was not expanded within 120 days of the initial measurement of positive pressure as required by the standard. In addition, please state the efforts that have been taken by the landfill to obtain negative pressure, what additional or different actions that will be taken in the future.**

   Response: Vacuum was restored to extraction well TW-47 on August 1, 2008, as addressed, above, in Item No. 2 of this subsection.

3. **Additional Information Request for Well Nos. EW-53, TW-27, TW-28, TW-30, TW-38, TW-46, and TW-57. Please provide the Department a copy of the monitoring data for these wells for the months of July through September.**

   Response: Please reference Attachment D for the year-to-date monitoring data of the extraction wells for which alternate operating temperatures have been requested in Attachment A.

Summary

As shown by the information and data presented in this letter, the landfill does not currently exhibit signs of subsurface oxidation. This is confirmed by the CO monitoring data provided in Attachment A and the methane/oxygen gas composition data presented in Attachment D. All of these wells are currently operating with oxygen concentrations within NSPS parameters.

The elevated temperatures recorded at Trail Ridge Landfill are a result of waste decomposition that is occurring in the thermophilic range, which can result in operating temperatures up to 167°F, or higher. This natural thermophilic decomposition of the waste results in elevated gas temperatures as observed at many of the extraction wells on site.

Considering this, expansion of the GCCS is not a viable remedial solution. Therefore, in accordance with §60.753(c), the City is requesting alternate operating temperatures for the extraction wells listed in Attachment A

The City requests a meeting with the Department to discuss the alternate operating temperature request and additional air related permitting at Trail Ridge Landfill. Please contact James Getting of Waste Management (850) 797-3760 regarding potential dates that are convenient to meet.

Sincerely,

Chris Pearson
City of Jacksonville

cc: Greg Mathes, Waste Management
James Getting, P.E., Waste Management
Mark Triplett, P.E., BCEE, Waste Management
David Thorley, P.E., Waste Management
Lindsey Kennelly, P.E., SCS Engineers

Florida Department of Environmental Protection

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590
Phone: 904/807-3300 ♦ Fax: 904/448-4366

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

September 3, 2010

Ms. Kerri Stewart, Chief Administrative Officer City of Jacksonville
Office of the Mayor
1031 Superior Street
Jacksonville, FL 32254

Duval County - Air Permitting
City of Jacksonville-Trail Ridge Landfill
AIRS ID No. 0310358
Extraction Well Higher Operating Temperature Request - Well TW-71

Dear Ms. Stewart:

The purpose of this letter is to provide with a written determination regarding your request dated August 19, 2010 and received on August 23, 2010, for a 120 day extension of the deadline to correct measured temperature exceedances at extraction well TW-71. The Trail Ridge Landfill is subject to the requirements of 40 CFR 60, Subpart WWW (Standards of Performance for Municipal Solid Waste Landfills).

Pursuant to 40 CFR 60.753(c), Trail Ridge Landfill must operate each interior wellhead in the collection system with a landfill gas temperature less than 55 degrees Celsius (131 degrees Fahrenheit) and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. If an exceedance is detected during the monthly monitoring required by 40 CFR 60.755(a)(5), the landfill must initiate action to correct the exceedance within timeframes specified within the regulation. If these exceedances cannot be corrected within these timeframes, the landfill is required to expand its gas collection system no later than 120 days from the initial measurement of the initial exceedance. A landfill may submit an alternative timeline for correcting the exceedance to the Administrator for approval in accordance with 40 CFR 60.755(a)(5).

Pursuant to 40 CFR 60.753(c), a landfill may request a higher operating temperature at a particular well, provided supporting data is submitted that demonstrates that the elevated temperature does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

The City included with its letter methane, oxygen, temperature measurements for the well on July 1 and July 7, 2010, and August 9 and August 17, 2010. In addition, the carbon monoxide level was measured on August 9 and 17, 2010. The City states that based on the data methane is present, air intrusion is not occurring, subsurface oxidation is not occurring, and continued extraction of landfill gas from this well is not contributing to degradation of anaerobic methanogenesis. The City also states that a satisfactory inspection of the well casing/surrounding ground has been performed for evidence of air leaks.

The City states that it is requesting the alternate timeline of 120 days to collect trend data for the well including CO readings. Within 120 days of the initial exceedance, the City intends to provide the higher operating temperature demonstration results to the Department along with a request for a higher operating temperature or an alternative remediation plan with timeline for the well.

In accordance with 40 CFR 60.755(a)(5),an alternative timeline for correcting the exceedance may be submitted to the Administrator for approval. The City's request does not mention correction of the exceedances within the requested 120 day alternate timeline. Furthermore, the landfill has previously submitted monthly monitoring data for this well with its July 22, 2010 request for a higher operating temperature. The submitted data, at that time, did not show a measured temperature exceeding the less than 131°F threshold. As such, the Department did not approve the higher operating temperature request.

Department hereby denies the request for a 120 day extension of the deadline to correct the temperature exceedances at extraction well TW-71.

Again, pursuant to 40 CFR 60.755(a)(5), the City may submit to Department for approval an alternate timeline to correct the exceedances. As an alternative, in accordance with 40 CFR 60.753(c), the City may request a higher operating temperature at the well. If the City wishes to pursue a higher operating temperature for this well, then a request should include the proposed temperature value, any additional supporting data that demonstrates that the elevated temperature does not cause fires or significantly inhibits anaerobic decomposition by killing methanogens, and any additional information that the City wishes the Department to consider. Such a request should be submitted to the Department in a timely manner.

Otherwise, pursuant to 60.755(a)(5), if correction of the exceedance was not achieved within 15 calendar days of the first measurement (by August 24, 2010), the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance, i.e. by December 7, 2010.

The City states in its letter that the measured exceedances at Well TW-71 will be reported as operational exceedances in NSPS semiannual reports, but will not be reported as items of non-

compliance in the facility's Title V annual statement of compliance unless 1) written notification is received from the Department that the request is not approved, or 2) the City fails to submit a temperature variance request or an alternative remediation plan within 120 days of initial exceedance.

The Department does not concur with these statements. As supported by 40 CFR 60.753(g), for those measured exceedances where corrective actions taken were not as specified in 60.755(a)(3) through (5) or §60.755(c), the monitored exceedances are considered to be violations of the operational requirements in 40 CFR 60.753.

In accordance with 40 CFR 60.757(f) and 40 CFR 63.1980(a), such exceedances are to be reported to the Department on a semi-annual basis. In addition, Rule 62-213.440(3), F.A.C. requires that all reportable deviations from and all instances of non-compliance with any applicable requirements be identified in the Annual Statement of Compliance.

If you have any questions regarding this matter, please contact Rita Felton-Smith at (904) 807-3237.

Sincerely,

Christopher L. Kirts, P.E.
District Air Program Administrator

RFS/rfs

Copy to:

Jeffrey Foster, P.G., P.E., City of Jacksonville [Email: JSFoster@coj.net]
Fred Forbes, Solid Waste Division, City of Jacksonville [Email: FForbes@coj.net]
James Getting, P.E., Waste Management [Email: JGetting@wm.com]
Eric Parker, Waste Management Inc. [Email: EParker1@wm.com]
Greg Mathes, Waste Management Inc.[Email: gmathes@wm.com]
Jim Christiansen, Waste Management Inc.[Email: jchristi@wm.com]

DEPARTMENT OF PUBLIC WORKS

Jacksonville
Where Florida Begins.

February 24, 2011

Mr. Christopher Kirts, P.E.
Air Program Administrator
Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256

Subject: Alternate Temperature Request for Extraction Well TW-71
Trail Ridge Landfill, Baldwin, Florida
Facility ID No. 0310358

Dear Mr. Kirts:

The City of Jacksonville (COJ) is submitting this correspondence to the Florida Department of Environmental Protection (FDEP) to request an alternate operating temperature of 141°F for landfill gas extraction well TW-71 at the Trail Ridge Landfill in Baldwin, Florida. The City requested an alternate temperature limit for this well July 22, 2010 and an alternate timeline to provide additional time to investigate and address elevated temperatures on August 19, 2010. FDEP denied these requests on September 3, 2010 on the basis that the well temperature had temporarily returned to a temperature below 131°F at the time of the July 22, 2010 request. FDEP directed the City to expand the system within 120 days in such instances.

The City has maintained that operational tuning or system expansion is unlikely to correct high temperature wells that are not affected by fire, and that such wells operating near the 131°F limit may naturally fluctuate around the limit over time without any influence of corrective actions or well-field management. We believe this is the case with this well, which has now returned to an operating temperature of 136°F and was clearly not affected by the installation of wells TW-79, TW-80, TW-81 just to the south (see Attachment 1 for well locations). Monitoring data for TW-71 is provided in Table 1 below. The City believes that our actions have proven that there is no operational action or system expansion that will correct this temperature exceedance, and since there is no evidence of fire or adverse impacts to methanogenesis, that a higher operating temperature is warranted and necessary. The City also does not feel it is warranted to request an extension to the 15 or 120 day NSPS timelines for this well, as we again maintain that well-tuning and system expansion are not going to correct the problems. As such, additional time for corrective measures is unlikely to yield any benefits. Natural temperature fluctuations should not be cause to deny the temperature variance or assume the issue has been addressed.

This site is subject to the Federal NSPS program for municipal solid waste landfills (40 CFR 60 Subpart WWW). The facility is required by the NSPS to perform monthly monitoring of all gas extraction wells for gauge pressure, temperature and oxygen. Wells TW-71 is approaching the 15 day timeline for temperature compliance.

Pursuant to the NSPS regulations, the following actions must be taken for the above situation:

214 N Hogan Street, 10th Floor Jacksonville, FL 32202 Phone: 904.255.8786 Fax: 904.255.8929 www.coj.net

40 CFR 60.755(a)(5) – "If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of the first exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternate timeline for correcting the exceedance may be submitted to the Administrator for approval."

40 CFR 60.753(c) – " Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 °C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens."

Corrective actions were initiated within five (5) days of the initial exceedances, however the landfill gas wellhead temperature remains above the NSPS 55 degrees Celsius (°C), or 131 degrees Fahrenheit (°F) operating requirement. Since the well temperatures were not corrected by wellfield tuning or system expansion, the wells are currently being operated in accordance with the landfill's Temperature Verification Procedures outlined in the November 3, 2008 letter submitted by the City to FDEP.

The data in Table 1 demonstrate that methane is present and air intrusion is not occurring; oxygen and pressure are within NSPS compliance parameters. Carbon monoxide field monitoring results have verified that subsurface oxidation is not occurring and continued extraction of LFG from this well is not contributing to degradation of anaerobic methanogenesis. As demonstrated in the landfill's Temperature Verification Procedures, methane below 45% with carbon monoxide readings exceeding 500 parts per million (ppm) can be an indicator of subsurface oxidation. Additionally, an inspection of the well casing/surrounding ground for evidence of air leaks has been satisfactory performed to ensure that the higher temperature is not/will not be combined with high levels of oxygen and therefore will not lead to the support of a landfill fire.

Table 1. LFG Data for TW-71, Trail Ridge Landfill, Baldwin, Florida

Device ID	Date Time	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Balance Gas (%)	Carbon Monoxide (ppm)	Gas Temp (Deg F)	Well Static Pressure ("H2O)
TRLTW071	7/1/2010 18:15	53.9	45.9	0.0	0.2		94	-3.2
TRLTW071	7/7/2010 15:53	54.9	42.3	0.0	2.8		129	-28.3
TRLTW071	8/9/2010 10:43	52.5	45.3	0.3	1.9	110	133	-32.0
TRLTW071	8/17/2010 17:15	51.9	44.1	0.2	3.8	100	134	-22.5
TRLTW071	9/2/2010 14:33	55.2	43.5	0.0	1.3	90	133	-29.3
TRLTW071	9/15/2010 17:02	54.5	42.8	0.6	2.1		134	-29.5

TRLTW071	10/7/2010 9:44	55.0	39.5	1.5	4.0		129	-38.2
TRLTW071	10/14/2010 9:01					90		
TRLTW071	11/4/2010 10:11	54.1	44.8	0.3	0.8	80	125	-36.9
TRLTW071	12/7/2010 14:55	47.2	38.1	2.4	12.3	70	128	-32.1
TRLTW071	1/6/2011 15:09	55.0	40.3	0.9	3.8	80	130	-30.3
TRLTW071	2/14/2011 11:29	50.2	37.6	2.5	9.7	30	136	-17.3

We would appreciate a written confirmation from your office approving an alternate temperature of 141°F for TW-71.

If you have any additional questions regarding this letter, please contact me at the letterhead number or email at jsfoster@coj.net.

Sincerely,

Jeffrey S. Foster, P.G.
SW Environmental Engineering Manager
City of Jacksonville
Solid Waste Division, Department of Public Works

Attachment 1: Map showing location of referenced wells

cc: Fred Forbes, City of Jacksonville
James Getting, Waste Management of Florida
Eric Parker, Waste Management of Florida
Jim Christiansen, Waste Management of Florida
Greg Mathes, Waste Management of Florida
Lindsey Kennelly, SCS Engineers

ATTACHMENT 1 (2 PAGES)
SCS Engineers

Site Name:	Trail Ridge Landfill	Well Number:	TW-21
Project #:	09210018.00	Coordinates:	
Start Date:	7-1-10	Surface Elevation:	248.00
Completed:	7-1-10	Top of Casing Elevation:	256.00
Contractor:	SCS Engineers	Boring Diameter:	36"
Inspector:	Jim Borkenski	Pipe Material Diameter	8" PVC Sch. 80
Driller:	Quality Drilling	Total Depth Drilled:	80' of 95'
		Completion:	Yes

2' of Soil Cover

5% moisture 88' 5
Papers, Cardboard
Little decomposition & loose
10% om 90' 10
Small C & D, garden hose
10% om 93' 15
Carpet, good household waste
15% om 96' 20
Yard waste, plastics
Some D - Loose
15% om 108' 25
Usual plastics, Tire, yard debris
15% om 111' 30
moderate D - Loose
20% om 116' 35
Carpet, yard waste
moderate waste condition
20% om 111' 40
metal roofing, plastics
20% om 113' 45
moderate decomposition
20% om Still loose 110' 50

Donut

COMPLETION LOG	
RISER STICK UP	8'
RISER BELOW	25'
PERF. PIPE	55'
BACKFILL	20'
BENTONITE #1	2'
BACKFILL	1'
~~BENTONITE #2~~	—
~~BACKFILL~~	Donut
GRAVEL PACK	58'
BACKFILL LOG	
Stone	Gravel
Structural fill	
Bentonite fill	
MATERIALS LIST	
TOP CAP	✓
SOLID PIPE	8'+25'
PERF PIPE	55'
BOTTOM CAP	✓
BENTONITE	34 bags
BACKFILL	1'+20'
STONE	58'

Note: Good visible gas

SCS Engineers

Site Name:	Trail Ridge Landfill	Well Number:	TW-71
Project #:	092100180.00	Coordinates:	
Start Date:	7-1-10	Surface Elevation:	248.00
Completed:	7-1-10	Top of Casing Elevation:	256.00
Contractor:	SCS Engineers	Boring Diameter:	36"
Inspector:	Jim Burkett	Pipe Material Diameter	8" PVC Sch 80
Driller:	Quality Drilling	Total Depth Drilled:	80' of 95'
		Completion:	Yes

Insulation
Lots of visible gas.

25%m 109' 55

Carpet, sofa cushions

20%m 112' 60

Cloth, yard waste

25%m 118' 65

Severe decomposition

35%m 120' 70

Waste becoming black/gray

119' 75

Muck, driller could not pickup with buckets.

121' 80

85

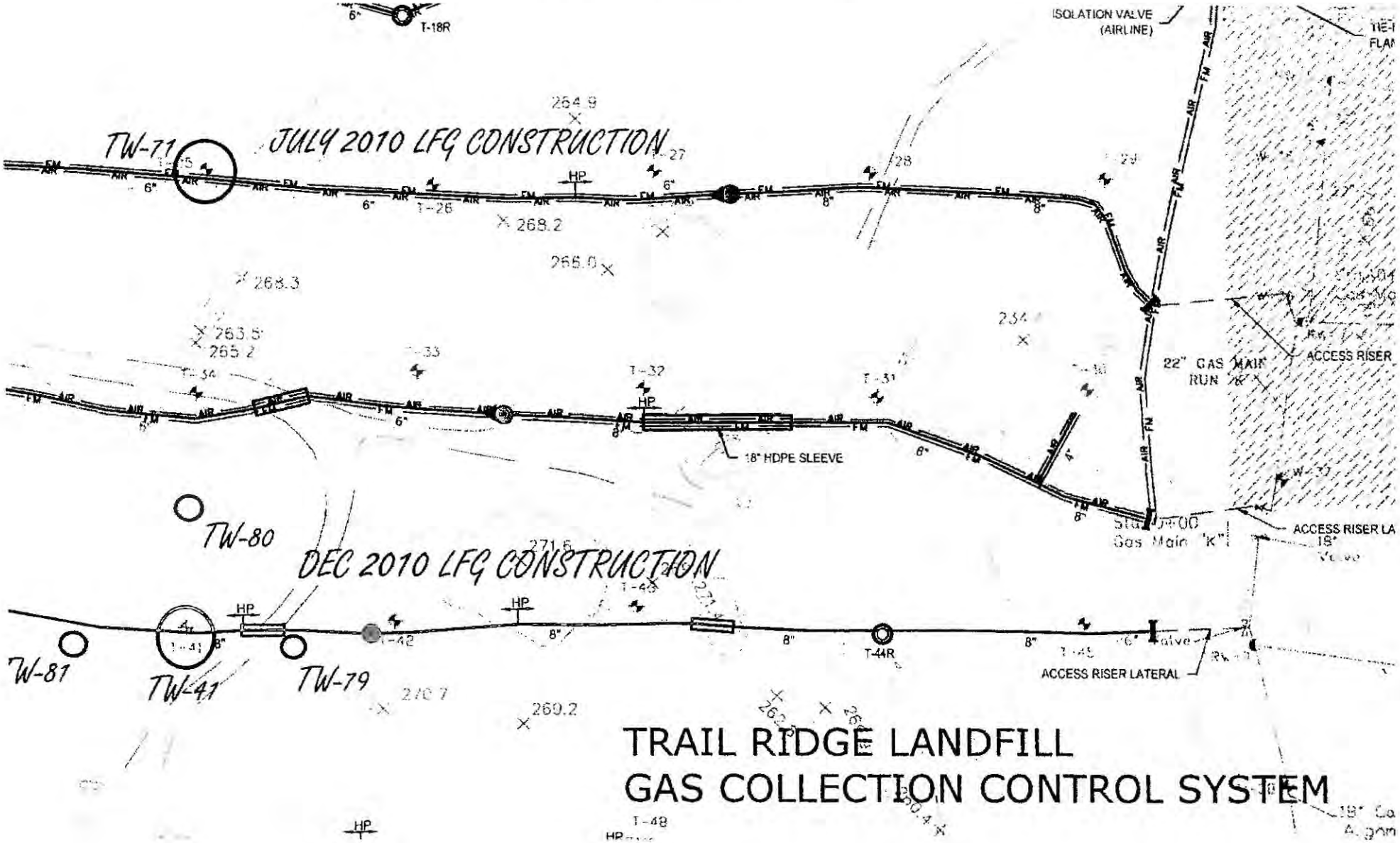
90

95

100

muck starts here

ATTACHMENT 2



DEPARTMENT OF PUBLIC WORKS

Jacksonville
Where Florida Begins.

February 24, 2011

Mr. Christopher Kirts, P.E.
Air Program Administrator
Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B-200
Jacksonville, Florida 32256

Subject: Alternate Temperature Request for Extraction Well TW-41, TW-79, TW-80, and TW-81
Trail Ridge Landfill, Baldwin, Florida
Facility ID No. 0310358

Dear Mr. Kirts:

The City of Jacksonville (COJ) is submitting this correspondence to the Florida Department of Environmental Protection (FDEP) to request an alternate operating temperature for landfill gas extraction wells TW-41, TW-79, TW-80, and TW-81 at the Trail Ridge Landfill in Baldwin, Florida. The City most recently requested an alternate operating temperature of 135°F for Extraction Well No. TW-41 on October 4, 2010. FDEP denied this request and instead requested that the City install three additional wells in the vicinity of TW-41 in hopes the additional wells would lower the operating temperature at TW-41. These wells (TW-79, TW-80, TW-81) were installed on 12/7/2010. During drilling, elevated temperatures as high as 139 F were encountered in the waste, before initial vacuum was applied to the well. No evidence of any fire or combustion was evident. See Attachment 1 for well drilling logs and Attachment 2 for a map showing the location of these wells. The wells exceeded the temperature limit of 130°F in February 2011 and are now approaching the 15 day NSPS timeline for these temperature exceedances. Monitoring data is provided in Table 1 below.

Please note the Department previously denied the City's July 23, 2010 request for a 135°F alternate operating temperature for TW-41 on September 3, 2010 and a September 10, 2010 request for a 120 day extension to collect trend data on September 24, 2010. As indicated by this letter, and as maintained by the City in past correspondence, installation of these additional wells has not reduced operating temperatures in TW-41, and in fact, has led to three additional wells with temperature exceedances that must now be maintained and monitored. The City is now requesting an alternate operating temperature for all four wells of 140°F. Because all four of these wells are in close proximity, we are including all four in a single request. If FDEP is unwilling to grant a temperature variance for the three newly installed wells, the City requests approval to abandon the three new wells, as we feel they are providing no substantial benefit to gas collection efficiency. The City does not feel it is warranted to request an extension to the 15 or 120 day NSPS timelines for these wells, as we again maintain that well-tuning and system expansion are not going to correct the problems. As such, additional time to perform any additional corrective measures is unlikely to yield any benefits.

This site is subject to the Federal NSPS program for municipal solid waste landfills (40 CFR 60 Subpart WWW). The facility is required by the NSPS to perform monthly monitoring of all gas extraction wells for gauge pressure, temperature and oxygen. Wells TW-41, TW-79, TW-80, and TW-81 are approaching the 15-day timeline for temperature compliance, and past experience has shown that well adjustment or system expansion is unlikely to correct the temperature exceedance. This has been confirmed by the failure of the three new wells to affect temperatures in the original well .

Pursuant to the NSPS regulations, the following actions must be taken for the above situation:

> *40 CFR 60.755(a)(5) – "If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of the first exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternate timeline for correcting the exceedance may be submitted to the Administrator for approval."*

> *40 CFR 60.753(c) – " Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 °C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens."*

Corrective actions were initiated within five (5) days of the initial exceedances, however the landfill gas wellhead temperature remains above the NSPS 55 degrees Celsius (°C), or 131 degrees Fahrenheit (°F) operating requirement. Since the well temperatures were not corrected by wellfield tuning or system expansion, the wells are currently being operated in accordance with the landfill's Temperature Verification Procedures outlined in the November 3, 2008 letter submitted by the City to FDEP.

The data in Table 1 demonstrate that methane is present and air intrusion is not occurring; oxygen and pressure are within NSPS compliance parameters. Carbon monoxide field monitoring results have verified that subsurface oxidation is not occurring and continued extraction of LFG from this well is not contributing to degradation of anaerobic methanogenesis. As demonstrated in the landfill's Temperature Verification Procedures, methane below 45% with carbon monoxide readings exceeding 500 parts per million (ppm) can be an indicator of subsurface oxidation. Additionally, an inspection of the well casing/surrounding ground for evidence of air leaks has been satisfactory performed to ensure that the higher temperature is not/will not be combined with high levels of oxygen and therefore will not lead to the support of a landfill fire.

Table 1. LFG Data for TW-41, TW-79, TW-80, and TW-81, Trail Ridge Landfill, Baldwin, Florida

Device ID	Date Time	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Balance Gas (%)	Carbon Monoxide (ppm)	Gas Temp (Deg F)	Well Static Pressure ("H2O)
TRLTW041	6/9/2010 13:31	55.0	44.5	0.4	0.1		127	-34.1
TRLTW041	7/7/2010 16:25	54.3	41.4	0.0	4.3		130	-34.1
TRLTW041	8/6/2010 15:21	55.0	44.6	0.0	0.4	140	132	-32.8
TRLTW041	8/17/2010 17:03	55.0	44.9	0.0	0.1	120	131	-20.6
TRLTW041	9/2/2010 16:29	55.3	43.2	0.0	1.5	110	128	-26.7
TRLTW041	9/15/2010 17:21	57.1	42.6	0.1	0.2		132	-28.4
TRLTW041	9/28/2010 17:32	55.2	43.5	0.0	1.3	50	133	-29.7
TRLTW041	10/7/2010 14:52	53.8	44.0	0.0	2.2		130	-27.3
TRLTW041	11/2/2010 11:11	54.8	45.1	0.0	0.1	60	129	-28.7
TRLTW041	12/8/2010 16:30	52.9	46.1	0.9	0.1	50	129	-10.6
TRLTW041	1/11/2011 11:20	54.5	45.0	0.4	0.1	60	130	-27.6
TRLTW041	2/16/2011 12:36	46.5	41.3	0.7	11.5	30	132	-26.3
TRLTW079	12/15/2010 13:52	55.0	44.9	0.0	0.1	40	120	-6.3
TRLTW079	1/13/2011 11:37	54.8	45.1	0.0	0.1	50	130	-28.7
TRLTW079	2/16/2011 13:01	56.0	42.6	0.5	0.9	30	131	-27.9
TRLTW080	12/15/2010 16:18	54.0	45.9	0.0	0.1	50	129	-3.1
TRLTW080	1/11/2011 11:14	54.9	44.9	0.1	0.1	40	130	-18.5
TRLTW080	2/16/2011 12:26	53.5	43.0	1.2	2.3	30	139	-26.8
TRLTW081	12/16/2010 10:00	54.5	45.3	0.0	0.2	50	130	-9.5
TRLTW081	1/11/2011 11:24	54.8	44.1	1.0	0.1	40	130	-32.3
TRLTW081	2/16/2011 12:51	56.0	43.4	0.5	0.1	30	140	-27.5

We would appreciate a written confirmation from your office approving one of the above outlined alternatives (an alternate operating temperature for all four wells of 140°F; or an alternate temperature of 135°F for TW-41 and abandonment of TW-79, TW-80, TW-81).

If you have any additional questions regarding this letter, please contact me at the letterhead number or email at jsfoster@coj.net.

Sincerely,

Jeffrey S. Foster, P.G.
SW Environmental Engineering Manager
City of Jacksonville
Solid Waste Division, Department of Public Works

Attachment 1: Well logs for TW-79, TW-80, TW-81
Attachment 2: Map showing location of referenced wells

cc: Fred Forbes, City of Jacksonville
James Getting, Waste Management of Florida
Eric Parker, Waste Management of Florida
Jim Christiansen, Waste Management of Florida
Greg Mathes, Waste Management of Florida
Lindsey Kennelly, SCS Engineers

ATTACHMENT 1 5 PAGES

SCS Engineers

Site Name: Trail Ridge Landfill — Well Number: TW-79
Project #: 09210018.61 — Coordinates:
Start Date: 12-6-10 — Surface Elevation: 270.1
Completed: 12-6-10 — Top of Casing Elevation: 275.7

Contractor: SCS — Boring Diameter: 36"
Inspector: Jim Burzenski — Pipe Material Diameter: 8" CPVC
Driller: Recovery Drilling — Total Depth Drilled: 100'
Completion: Y

Ambient temp. 30° F

1' of Soil Cover

Wood, plastics

85' 5

Yard waste, papers

10% MOISTURE 98' 10

Waste is good combination of MSW

Loose Compaction 90' 15

Visible gas, papers,

15% MOISTURE 95' 20

Visual MSW, Some decomposition becoming darker in color

100' 25

Cold conditions while drilling

20% MOISTURE 105' 30

Moderate decomposition but loose compaction

108' 35

Plastics, small C & D

25% MOISTURE 117' 40

Good MSW & gas potential

129' 45

Large piece of steel stuck in bucket

30% MOISTURE 119' 50

COMPLETION LOG	
RISER STICK UP	5'
RISER BELOW	25'
PERF. PIPE	75'
BACKFILL	20'
BENTONITE #1	—
BACKFILL	—
BENTONITE #2	2'
BACKFILL	1'
GRAVEL PACK	77'
BACKFILL LOG	
Stone	
Structural fill	
Bentonite fill	
MATERIALS LIST	
TOP CAP	✓
SOLID PIPE	5' + 25'
PERF PIPE	75'
BOTTOM CAP	✓
BENTONITE	3 4 bags
BACKFILL	1' + 20'
STONE	77'

SCS Engineers

Site Name:	Trail Ridge Landfill	Well Number:	TW-79
Project #:	09210018.07	Coordinates:	
Start Date:	12-6-10	Surface Elevation:	270.7
Completed:	12-6-10	Top of Casing Elevation:	275.7
Contractor:	SCS	Boring Diameter:	36"
Inspector:	Jim Burzenski	Pipe Material Diameter	8" C/C
Driller:	Recovery Drilling	Total Depth Drilled:	100'
		Completion:	Y

plastics,		
35% moisture	121' 55	
Yard waste, papers		
	126' 60	
Severe Waste Conditions moderate compaction		
35% moisture	120' 65	
Black bags w/ waste		
40% moisture	125' 70	
small C & D, plastics wiring		Stone
	121' 75	
Good MSW		
*Visible Liquid	124' 80	
Waste black & Sewer		
	130' 85	
Papers,		
50% moisture	129' 90	
Hard to distinguish except plastics		
	131' 95	
Very consistent waste conditions		
50% moisture	130' 100	

SCS Engineers

Site Name:	Trail Ridge Landfill	Well Number:	TW-80
Project #:	09210018.01	Coordinates:	
Start Date:	12-6-10	Surface Elevation:	263.6
Completed:	12-6-10	Top of Casing Elevation:	265.6
Contractor:	SCS	Boring Diameter:	36"
Inspector:	Jim Burzenski	Pipe Material Diameter	8" CPVC
Driller:	Recovery Drilling	Total Depth Drilled:	100'
		Completion:	Y

2' of soil cover

10% moisture — 90'

plastics, yard waste

5% moisture — 104'

Good combination of MSW

10% moisture — 109'

Electric wiring, small C&D

10% moisture — 119'

Loose compaction

125'

mattress, plastics

15% moisture — 114'

metal chains, papers, plastics

115'

Mostly plastics

15% moisture — 121'

Visible gas production

129'

Moderate decomposition

15% moisture — 124'

COMPLETION LOG	
RISER STICK UP	5'
RISER BELOW	25'
PERF. PIPE	75'
BACKFILL	20'
BENTONITE #1	—
BACKFILL	—
BENTONITE #2	2'
BACKFILL	1'
GRAVEL PACK	77'
BACKFILL LOG	
Stone	
Structural fill	
Bentonite fill	
MATERIALS LIST	
TOP CAP	✓
SOLID PIPE	5'+25'
PERF PIPE	75'
BOTTOM CAP	✓
BENTONITE	24 bags
BACKFILL	1'+20'
STONE	77'

SCS Engineers

Site Name:	Trail Ridge Landfill	Well Number:	TW-80
Project #:	09201118.01	Coordinates:	
Start Date:	12-6-10	Surface Elevation:	263.6
Completed:	12-6-10	Top of Casing Elevation:	268.6
Contractor:	SCS	Boring Diameter:	36"
Inspector:	Jim Burzenski	Pipe Material Diameter	8" CPVC
Driller:	Recovery Drilling	Total Depth Drilled:	100'
		Completion:	Y

Wood, yard waste, plastics		
30% moisture	124°	55
Loose compaction, layer of soil cover	129°	60
Plastics, cloth.	119°	65
Severe waste conditions		
40% moisture	122°	70
Nothing unusual, good MSW	130°	75
Waste looks like white ash & moderate compaction		
45% moisture	136°	80
Lots of gas production		
50%+ moisture	131°	85
Gray waste - plastics showing	138°	90
Plastics, papers		
Wet conditions	136°	95
Severe waste - Compaction & decomposition	131°	100

SCS Engineers

Site Name: Trail Ridge Landfill — Well Number: TW-31
Project #: 09210018.01 — Coordinates:
Start Date: 12-7-10 — Surface Elevation: 267.3
Completed: 12-7-10 — Top of Casing Elevation: 272.3

Contractor: SCS — Boring Diameter: 36"
Inspector: Jim Burzenski — Pipe Material Diameter: 8" cPVC
Driller: Recovery Drilling — Total Depth Drilled: 100'
Completion: Y

3' of soil cover

10% moisture — 85'

Usual MSW, blue plastic barrel

97'

yard waste, carpet

15% moisture — 118'

plastics, wood, papers

15% moisture — 126'

this well consistent with others

122'

plastics, papers, carpet

15% moisture — 119'

Cloth wrapped around drilling bucket

122'

yard waste, papers

20% moisture — 128'

Newspapers, plastics

20% moisture — 123'

25% moisture — 123'

COMPLETION LOG	
RISER STICK UP	5'
RISER BELOW	25'
PERF. PIPE	75'
BACKFILL	20'
BENTONITE #1	—
BACKFILL	—
BENTONITE #2	2'
BACKFILL	1'
GRAVEL PACK	77'
BACKFILL LOG	
Stone	
Structural fill	
Bentonite fill	
MATERIALS LIST	
TOP CAP	✓
SOLID PIPE	5' + 25'
PERF PIPE	75'
BOTTOM CAP	✓
BENTONITE	246 GS
BACKFILL	1' + 20'
STONE	77'

SCS Engineers

Site Name:	Trail Ridge Landfill	Well Number:	TW-8'
Project #:	09210018.81	Coordinates:	
Start Date:	12-7-10	Surface Elevation:	267.3
Completed:	12-7-10	Top of Casing Elevation:	272.3
Contractor:	SCS	Boring Diameter:	36"
Inspector:	Jim Burneski	Pipe Material Diameter	8" CPVC
Driller:	Recovery Drilling	Total Depth Drilled:	100'
		Completion:	Y

Carpet, papers, plastics

30% moisture — 127° — 55

visible gas, good MSW

30% moisture — 130° — 60

Wood, yard waste

35% moisture — 129° — 65

Electrical wiring, papers
Small C+D.

136° — 70

Good gas production possible
w/ good MSW

45% moisture — 131° — 75

Mattress, plastics, papers

visible liquid — 139° — 80

Waste wet but good
combination of trash

130° — 85

Good combination of MSW

wet — 134° — 90

papers, mixture of usual
MSW

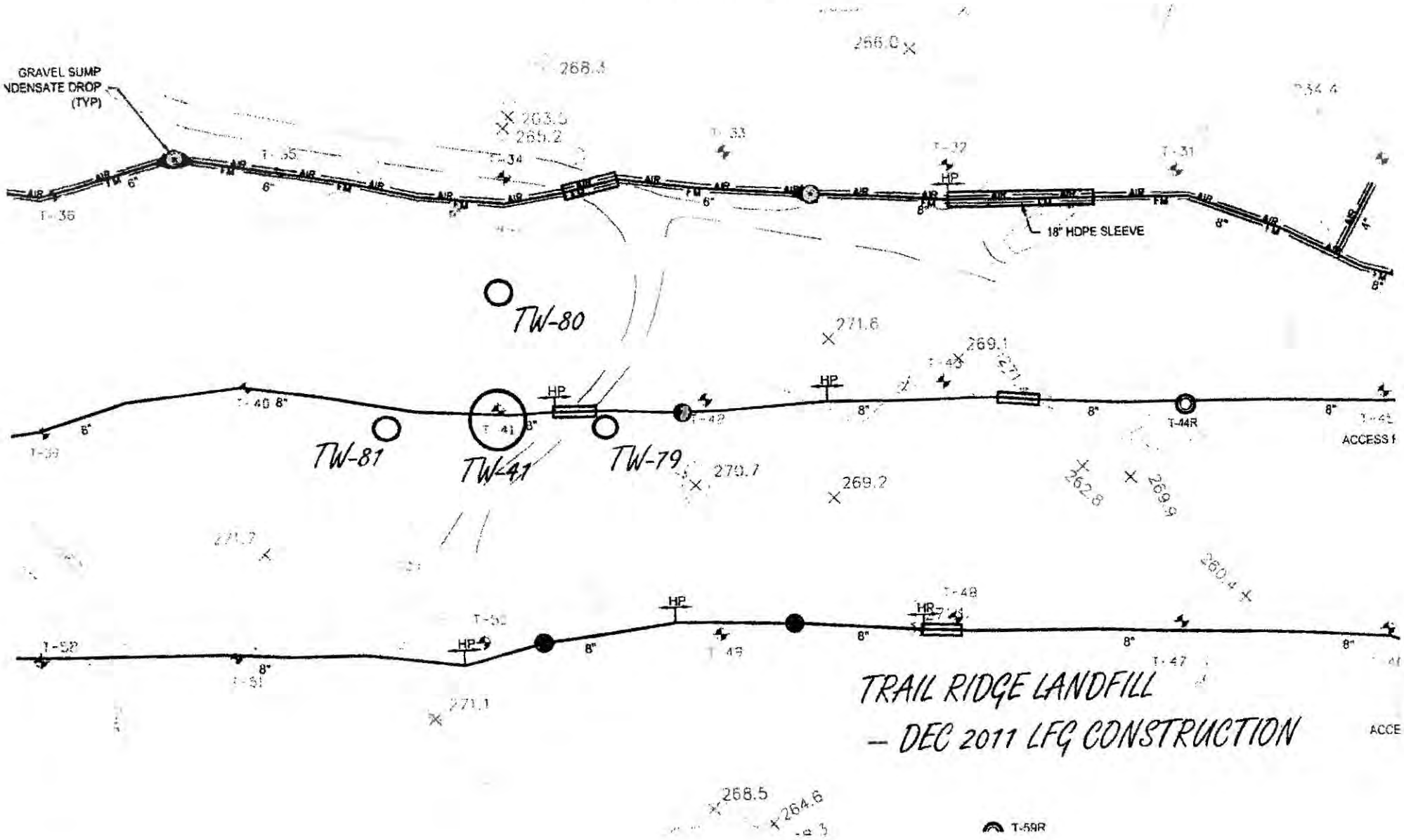
129° — 95

Waste black & severe as
to decomposition &

50% Compaction — 130° — 100

Stone

ATTACHMENT 2



Florida Department of Environmental Protection
Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

March 17, 2011

Ms. Kerri Stewart, Chief Administrative Officer City of Jacksonville
Office of the Mayor
1031 Superior Street
Jacksonville, FL 32254

Duval County - Air Permitting
City of Jacksonville-Trail Ridge Landfill
AIRS ID No. 0310358
Extraction Well Higher Operating Temperature Request - Wells TW-41, TW-79, TW-80, TW-81

Dear Ms. Stewart:

The purpose of this letter is to provide a written determination regarding the request from Mr. Jeffery Foster, Environmental Engineer Manager, dated February 24, 2011 and received electronically on February 28, 2011, for a higher operating temperature of 140 °F for each landfill gas extraction Well Nos. TW-41, TW-79, TW-80, and TW-81 located within the Trail Ridge Landfill or approval for a higher operating temperature of 135°F for Well No. TW-41 and the abandonment of Well Nos. TW-79, TW-80, and TW-81. The Trail Ridge Landfill is subject to the requirements of 40 CFR 60, Subpart WWW (Standards of Performance for Municipal Solid Waste Landfills).

The City included with its letter and by subsequent electronic mail correspondence on March 9, 2011, monthly monitoring data for each of the stated wells of methane, oxygen, carbon monoxide, pressure and temperature measurements. The City states that based on the data, methane is present, air intrusion is not occurring, subsurface oxidation is not occurring, and continued extraction of landfill gas from this well is not contributing to degradation of anaerobic methanogenesis. The City also states that an inspection of the well casing/surrounding ground for evidence of air leaks has been performed to ensure that the higher temperature is not/will not be combined with high levels of oxygen and therefore will not lead to the support of a landfill fire.

Pursuant to 40 CFR 60.753(c), a landfill shall operate each interior wellhead in the collection system with a landfill gas temperature less than 55 degrees Celsius (131 degrees Fahrenheit) and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value

demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

If an exceedance is detected during the monthly monitoring required by 40 CFR 60.755(a)(5), the landfill shall initiate action to correct the exceedance within timeframes specified within the regulation. If these exceedances cannot be corrected within these timeframes, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval.

Based on the submitted data, the Department approves a higher operating temperature limit of 135 °F at Well No. TW-41.

This higher operating temperature approval is contingent upon the continued demonstration by the landfill that the elevated temperature does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

The Trail Ridge Landfill shall continue to review the wellhead temperature monitoring data at this well and closely monitor any field conditions that would indicate the presence of subsurface fires. In addition, Trail Ridge Landfill shall analyze wellhead monitoring data for trends that may indicate the anaerobic decomposition is being significantly inhibited due to the killing of methanogens.

The Department requests this information, including the percent methane and the CO level, be recorded for this well on a monthly basis and submitted to the Department on a semi-annual basis in the reports required by 40 CFR 60.757(f) and 40 CFR 63.1980(a).

Please note that as supported by 40 CFR 60.753(g), for those measured exceedances where corrective actions taken were not as specified in 60.755(a)(3) through (5) or §60.755(c), and approval of an alternate timeline in which to correct an exceedance was not received, the monitored exceedance is considered to be a violation of the operational requirements in 40 CFR 60.753.

In accordance with 40 CFR 60.757(f) and 40 CFR 63.1980(a), such exceedances are to be reported to the Department on a semi-annual basis. In addition, Rule 62-213.440(3), F.A.C. requires that all reportable deviations from and all instances of non-compliance with any applicable requirements be identified in the Annual Statement of Compliance.

Because Well Nos. TW-79, TW-80, and TW-81 appear to have been installed by the City pursuant to the requirements of 40 CFR 60.755(a)(5), the Department does not have the authority to approve the request to abandon these wells. In addition, because these three wells were recently installed by the City in December of 2010, and are in the initial phase of operation, the Department requests the landfill to continue with the monthly monitoring for an additional 120 days. At the conclusion of this time period, the Department will reevaluate the request for higher temperatures on Well Nos. TW-79, TW-80, and TW-81 with the submittal of the additional monitoring data.

A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the agency clerk in the Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000 (Telephone: 850/245-2241). Petitions must be filed within fourteen days of receipt of this notice. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of when and how each petitioner received notice of the agency action or proposed decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so state; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action including an explanation of how the alleged facts relate to the specific rules or statutes; and, (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the agency to take with respect to the agency's proposed action. A petition that does not dispute the material facts upon which the Permitting Authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this written notice. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation is not available in this proceeding.

This permitting decision is final and effective on the date filed with the clerk of the Permitting Authority unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition pursuant to Rule 62-110.106, F.A.C., and the petition conforms to the content requirements of Rules 28-106.201 and 28-106.301, F.A.C.

Upon timely filing of a petition or a request for extension of time, this action will not be effective until further order of the Permitting Authority.

Any party to the Order has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate procedure, with the Clerk of the Department in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days after the Final Order is filed with the Clerk of the Department.

If you have any questions regarding this matter, please contact Rita Felton-Smith at (904) 256-1556.

Sincerely,

Christopher L. Kirts, P.E.
District Air Program Administrator

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Air Permit Determination was sent by electronic mail (or a link to these documents made available electronically on a publicly accessible server) with received receipt requested before the close of business on March 17, 2011 to the persons listed below.

Copy to:

Jeffrey Foster, P.G., P.E., City of Jacksonville [Email: JSFoster@coj.net]
Fred Forbes, Solid Waste Division, City of Jacksonville [Email: FForbes@coj.net]
James Getting, P.E., Waste Management [Email: JGetting@wm.com]
Eric Parker, Waste Management Inc. [Email: EParker1@wm.com]
Greg Mathes, Waste Management Inc.[Email: gmathes@wm.com]
Jim Christiansen, Waste Management Inc.[Email: jchristi@wm.com]

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), Florida Statutes, with the designated agency clerk, receipt of which is hereby acknowledged.

Monique Jordan

(Clerk) 3/17/2011 (Date)

EPA Region 1 letter

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

Certified Mail –
Return Receipt Requested

September 21, 2010

Michael A. Trupin
Director of Environmental Protection, East Group
Waste Management
448 Lincoln Highway
Fairless Hills, PA 19030

Re: Notification, Reporting, and Request Procedures at the Municipal Solid Waste Landfill in Chicopee, Massachusetts

Dear Mr. Trupin:

Thank you for meeting with representatives of the Massachusetts Department of Environmental Protection ("MassDEP") and the U.S. Environmental Protection Agency ("EPA") on July 23, 2010. The meeting gave the parties an opportunity to discuss Waste Management's ("WM's") past air pollution related notifications and requests sent to the regulatory authorities regarding the Chicopee Landfill. As discussed at the meeting, the purpose of this letter is to clarify how future notifications, requests, and annual reports should be handled.

As background, the Standards of Performance for Municipal Solid Waste Landfills regulations at 40 C.F.R. § 60.750 et seq. ("the Landfill NSPS") were promulgated as federal law on March 12, 1996. MassDEP issued a Title V permit to WM for the Chicopee Municipal Landfill on June 25, 2002, and reissued the permit on January 22, 2010. In a letter dated July 23, 1997, EPA delegated the Landfill NSPS to Massachusetts through Title V permits. The details of this delegation are outlined in EPA's June 25, 1982 delegation to MassDEP, the Memorandum of Agreement between EPA and MassDEP dated April 28, 1995, and EPA's Interim Approval of the Operating Permits Program (61 FR 3827). Under such delegation, MassDEP has the authority to enforce the conditions of the Landfill NSPS upon issuance of a Title V permit.

However, according to the Landfill NSPS, EPA retains sole authority to approve alternative methods used to determine the non-methane organic compound ("NMOC") concentration or a site specific factor. See 40 C.F.R. § 60.750(b) and 40 C.F.R. § 60.754(a)(5)). Additionally, according to EPA guidance[1], EPA retains the authorities to approve *major changes to test methods, major changes to recordkeeping/reporting requirements and major changes to monitoring techniques* ("major changes"). This

[1] "How to Review and Issue Clean Air Act Applicability Determinations and Alternative Monitoring," U.S. EPA, EPA 305-B-99-004, Feb. 1999."

guidance has been incorporated as part of the general provisions of the National Emission Standards for Hazardous Air Pollutants for Municipal Solid Waste Landfills regulations ("Landfill NESHAP"). See the definitions at 40 C.F.R. § 63.90(a), and the restrictions on delegation at §§ 63.91(g) and 63.1985(c).

Therefore, although MassDEP has taken delegation of the federal NSPS and NESHAP standards for landfills through the issuance of the Title V permit, WM must send requests for "major changes" or requests for alternative methods used to determine the NMOC concentration or a site specific factor to EPA for consideration. WM must copy MassDEP on such a correspondence and must not proceed with the changes without written approval from EPA.

For all other requests that are not considered "major changes," WM should submit these requests to MassDEP given that it is the primary regulatory authority. In these instances, WM should also send a copy of its request to EPA. Described below are some of the procedures for notifying or requesting approval of various plans or alternative operating conditions that should be submitted to MassDEP for consideration. This list is not meant to be exhaustive but responds to the common types of notifications and requests that WM has submitted over the past few years.

1. Approval of the Collection and Control System Plans and Modifications

According to 40 C.F.R. § 60.752(b)(2)(i)(D), the Administrator shall review the collection and control system to either approve, disapprove, or request additional information. As discussed, WM should submit these requests to MassDEP. WM must make it clear in such requests that it is seeking approval under both air and solid waste regulations. As the Adminstrator's representative, MassDEP will respond to this type of request.

2. Decommissioning Wells

Decommissioning (or abandoning) a well by permanently removing the well from the active gas collection system is considered a design change. As a design change, WM should request an approval from MassDEP, as required by 40 C.F.R. § 60. 753(b)(3).

Temporarily turning a wellhead off must be discussed in the facility's operation and maintenance plan. WM must continue to perform the periodical monitoring at the wellhead after turning off the wellhead as required by 40 C.F.R. § 60.756(a). Notification of this activity is optional but must be reported in the annual reports submitted to both MassDEP and EPA.

3. Operating Conditions at a Wellhead

Pressure: As an operator of an active gas collection system at a municipal solid waste landfill, WM must monitor the pressure at each wellhead on a monthly basis as required by 40 C.F.R. § 60.756(a)(1). WM is required to maintain a negative pressure as set out in 40 C.F.R. §§ 60.753(b). If a negative pressure at a wellhead is not maintained, WM can set a higher operating value by showing with supporting

data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens. Alternatively, if a negative pressure at a wellhead is not maintained, WM must initiate an action to correct the exceedance as required by 40 C.F.R. § 60.755(a)(5) and has up to 120 days to correct the exceedance or expand the gas collection system. However, the NSPS allows WM to submit a notification to MassDEP (with a copy to EPA), requesting an alternative timeline for approval.

Temperature and oxygen or nitrogen levels: As an operator of an active gas collection system at a municipal solid waste landfill, WM must monitor the temperature and the oxygen or the nitrogen level at each wellhead on a monthly basis as required by 40 C.F.R. § 60.756(a)(2) & (3). WM is required to maintain a temperature less than 55 °C and an oxygen level less than 5% or a nitrogen level less than 20% as set out in 40 C.F.R. §§ 60.753(c). If these conditions are not maintained, WM can set a higher operating value by showing with supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens. Alternatively, if a wellhead exceeds one of these parameters, WM must initiate an action to correct the exceedance as required by 40 C.F.R. § 60.755(a)(5) and has up to 120 days to correct the exceedance. However, the NSPS allows WM to submit a notification to MassDEP (with a copy to EPA), requesting an alternative timeline for approval.

4. Surface Emission Monitoring

Surface emission monitoring: As an operator of municipal solid waste landfill subject to Landfill NSPS, WM must perform quarterly surface emission monitoring in accordance with 40 C.F.R. §60.755(c)(1). WM must operate the collection system so that the methane concentration is less than 500 parts per million (ppm) at the surface of the landfill (see 40 C.F.R. § 60.753(d)). For any location where monitoring exceeds 500 ppm three times within a quarterly period, WM must install a new well or other collection device within 120 days of the initial exceedance. However, according to 40 C.F.R. §60.755(c)(4)(v), WM may submit a notification with an alternative remedy and a corresponding timeline for installation of the collection device to MassDEP (with a copy to EPA), for approval.

5. Annual Reports

The landfill regulations require WM to submit Annual Reports, including information related to the types of requests and notifications discussed in this letter. For example, as required by 60.757(f)(1), the reports must include values and lengths of exceedances of negative pressure, temperature, oxygen or nitrogen levels at wellheads. Additionally, WM must report the location of each exceedance of the 500 ppm for the surface emission monitoring and the location for the previous month where exceedances were recorded as required by 40 C.F.R. § 60.757(f)(5). Similarly, in accordance with 40 C.F.R. § 60.757(f)(6), WM must also report the date of installation and the location of each well or collection system added pursuant to pressure, temperature, oxygen or nitrogen, and surface emission monitoring exceedances. WM should send these reports to MassDEP (with a copy to EPA).

Finally, our discussion on July 23, 2010 clarified the intention of, and in some cases obviated the need for, many of WM's previously submitted requests and notifications. Therefore, some of the requests may no longer require a response. However, to ensure that all parties fully understand which requests are still active, I ask that you identify or resubmit any previous requests that you believe are still pending a decision by either MassDEP or EPA.

I hope this letter provides clarification to WM regarding future communication with MassDEP and EPA concerning these types of requests and notifications. If you have any questions, please contact me, at 617-918-1551, or Steve Calder, at 617-918-1744.

Sincerely,

Steve Rapp
Chief, Air Technical Unit
US EPA Region I

Cc: Thomas Heaton, Waste Management Inc., Environmental Protection Manager
Saadi Motamedi, MassDEP WERO
Larry Hanson, Mass DEP, WERO
Marc Simpson. MassDEP, WERO
Dan Hall, MassDEP, WERO

WEAVER BOOS CONSULTANTS LLC SOUTHWEST

6420 SOUTHWEST BLVD, SUITE 206
FORT WORTH, TEXAS 76109
PHONE: 817.735.9770
FAX: 817.735.9775
www.weaverboos.com

Chicago, IL
Naperville, IL
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Griffith, IN
St. Louis, MO
Springfield, MO
Kansas City, MO
Columbus, OH
Denver, CO
Fort Worth, TX
Clermont, FL
Grand Rapids, MI

January 10, 2014

Lanelle Wiggins (via e-mail)
RFA/SBREFA Team Leader
U.S. Environmental Protection Agency – Office of Policy (1806A)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Comments on New Source Performance Standards and Emissions Guidelines for Municipal Solid Waste Landfills

Dear Ms. Wiggins:

As a Small Entity Representative for and on behalf of the City of Ponca City (City) located in Ponca City, Oklahoma, we are submitting the following comments to the EPA's anticipated proposed rule revisions to 40 CFR 60 Subpart WWW – New Source Performance Standards for Municipals Solid Waste Facilities (NSPS). This letter reiterates as well as provides some additional comments from comment letter which as submitted on November 12, 2013.

The City owns and operates the Ponca City Landfill (Landfill). As a small business entity and given that the potential financial burden to comply with a potentially more stringent NSPS, the City appreciates the opportunity to provide these comments and to be a part of the rule revision process.

Currently the Landfill is not subject to the control requirements under the current NSPS rule and is not projected to exceed the current NMOC threshold for several more years. However, should the revised NSPS rules lower the emissions threshold, the site could be required to install and operate a landfill gas collection and control system (GCCS) in the next couple of years at a significant cost. Typically an initial GCCS costs about $2 million. Once installed the monitoring, recordkeeping and reporting cost, under the current NSPS, is estimated to cost about $50,000/year. The site would then need to expand the gas system every couple of years at a cost of approximately $250,000 each event. In addition, there would also be associated costs for electrical usage to operate the blowers. To cover these additional costs there would most likely need to be an increase in the disposal rates charged to the citizens the Landfill serves. The City certainly understands the need for environmental controls, is willing to do what is required; however, there does not seem to be enough justification behind lowering the emissions thresholds. Given the substantial costs that a GCCS would impose on the Landfill and the desire to not increase disposal rates to its citizens, the City requests that EPA not make changes to the current NSPS thresholds.

It should be noted that the proposed lowering of the emissions threshold within the NSPS is based on estimated modeled emissions of NMOCs and not actual emissions, including model variables that are not site-specific. Although the solid waste industry is working very hard to develop more accurate methods to estimate actual emissions, at this point there is not a sufficiently accurate method to determine actual emissions for compliance purposes. The current gas generation model can overestimate emissions by up to 400%. However, the current surface emissions monitoring (SEM) method within the NSPS is a very reliable method for determining if a site is actually having excess surface emissions and does not rely on theoretical models. As such, it is recommended that NSPS rule be revised to include SEM as an additional step in determining whether or not a GCCS needs to be installed at landfill. This additional step of adding a SEM applicability criteria would eliminate the uncertainly associated with modeling and use actual site specific conditions to determine the need for a GCCS. That is, if a site can show compliance with surface emissions standards without the benefit of GCCS, then it should not be require by the NSPS to install one.

Since the implementation of the NSPS, a significant amount of research has been done on determining the effects of methane oxidation on landfill gas emissions. As such, given this "new technology" or new information, it is recommended that EPA incorporate methane oxidation into the emission calculation methodology for estimating landfill emissions.

Although, the City is currently not subject to operating a GCCS under the requirement of the NSPS, the City would also request the EPA consider the following comments, which were based on a list previously provided to the EPA as part of the pre-Panel list of questions as well as other discussions with the EPA.

1) Owner/operator definition – As a landfill owner, the City does not want to be held responsible for the actions and/or the equipment of independent 3rd party entities. If by rule revision, the City could become liable for the actions of independent 3rd parties; the likelihood of the City pursuing a landfill gas-to-energy (LFGTE) project is very low. The City would not be willing to allow equipment they do not own and personnel they do not control to potentially put the City in a non-compliance situation. As such, this type of change in the rules would hurt the potential for a LFGTE project, which otherwise could be very viable, create jobs and reduce emissions. The City would support allowing a division of liabilities to be established between parties which could be provided to the regulating entity.

2) Treatment Definition – The 1996 NSPS rule does not include a definition of treatment system. EPA proposed the following definition in the May 23, 2002 proposed amendments to the original 1996 rule: *Treatment system* means a system that filters, de-waters and compresses landfill gas. (67 FR 36480) EPA should

simply adopt this definition of treatment. Any landfill gas that is collected and used for beneficial use should be allowed without prescriptive requirement. The LFGTE project will treat the gas to the needed conditions to be used by the proposed equipment. The LFGTE equipment, in most cases, will already have other environmental requirements placed on it. As such, placing requirements on the treatment process will only create a disincentive to do a LFGTE project. It is the LFGTE project that creates the real environmental benefit, not the treatment process, and as such, the treatment definition should not be changed.

3) Expanding Surface Emissions Monitoring (SEM) – It does not appear that there is any substantial reasons for changing the current SEM requirements. As it was presented, there may be some other possible methods, but there does not appear to be any quantifiable results that would suggest the current requirements are not adequate or that another method would result in something better. The cost benefit would need to be clearly defined before suggesting changes that would increase or expand the scope of SEM. As a general idea, the adoption of a method that is currently being used in only one part of the country, does not seem to be appropriate reason to make a global change to the SEM, unless it was part of other proposed changes in the rule that would be related to a more stringent SEM requirement (e.g. the removal of wellhead standards).

4) Wellhead Performance Standards – We would highly recommend that the EPA consider removing the wellhead performance standards. These very prescriptive standards are not warranted and create a very complex and onerous set of monitoring and remediation standards. The standards are not needed and in most cases the requirement to expand the GCCS will result in making operation of the GCCS worse and not better. Unnecessary expansions are costly; typical costs to install one vertical well range from $12,000 to $15,000, which does not include drill crew mobilization charges. The landfills are looking to maximize LFG collection; however, the current wellhead performance standards actually impede and/or hinder a site from being able to do so. The ultimate goal of the NSPS is to reduce surface emissions and that should be the only performance criteria. If site can meet the SEM requirements, the EPA should not be dictating what individual parameters need to be met at each wellhead for pressure, oxygen, and temperature. The monitoring and remediation of these parameters is a significant cost and creates an undue level of complexity in data tracking and regulatory correspondence that has no direct impact on reducing surface emissions.

5) EPA proposed options:

   a. Lowering the design size threshold – A landfill with a design capacity of less than 2.5 million Mg and 2.5 million cubic meters is a very small landfill by today's standards and most likely would not be able to support the additional burden placed on it by more stringent NSPS requirements. By virtue, smaller

landfills have less gas generation, less opportunity for gas-to-energy projects, and fewer emissions. As such, the design size threshold should not be changed. No new technology has been developed since the implementation of current NSPS that would warrant or justify changing the current size threshold. EPA's cost benefit analysis ($/ton NMOC reduced) that supported the 2.5 million Mg and 2.5 million cubic meter design capacity threshold established in the 1996 Final NSPS rule remains relevant today. The EPA analysis noted that the selected threshold exempted 90% of the existing landfills, while missing only 15% of total NMOC emission potential. The total emissions potential should be much lower today given many of the small sites are closed landfills. The EPA's current size threshold appropriately identifies those landfills that need to be further evaluated for potential controls.

b. Lowering the emission threshold – There does not seem to be any technical or scientific justification for a downward adjustment to the emissions threshold. Any downward adjustment would have a significant impact on the operations and costs for the City and all smaller landfill owners. No new technology has been developed since the implementation of current NSPS that would warrant or justify changing the current emission threshold. EPA's cost benefit analysis ($/ton NMOC reduced) that supported the 50 Mg/yr threshold established in the 1996 Final NSPS rule remains relevant today. The EPA's current emission threshold appropriately identifies those landfills that may need to have controls installed. As stated previously, the current emissions threshold (based on modeling) coupled with actual SEM data, would be recommended before a GCCS is required to be installed.

c. Shortening the time allowed for GCCS installation and shortening the time allowed for well field expansion – Should the City's landfill be required under the NSPS to install a GCCS and then make routine expansions to the GCCS, the shortening of time would be very burdensome if not impossible. The process of getting designs, permits, city council approvals, plus the time needed for advertisement, bidding, and construction, would be difficult under the current timeframes. Given the needed time to properly design, permit, bid, and construct a project, the shortening of timeframes for any site, especially a municipality, would create a hardship. In addition, requiring systems and components to be installed earlier will greatly increase the cost of operating and maintaining the system. Having to install components at a site early will greatly increase the need to have those components replaced in future. Placing GCCS components within the active working areas of a landfill is already an issue but then to require them to be installed even earlier will result in more well extensions and redrilling, which adds a significant cost. It should also be noted that with the increased permitting requirements associated with greenhouse gas

permitting under the Tailoring Rule, it could take over a year to get an air permit to install a control device or longer if biogenic emissions are not exempt.

6) EXCEL spreadsheet and Background Information – As stated above, for the options that propose early installation of wells needs to include the cost for additional repairs and needed replacements. Typically, a vertical well that is installed in an area that will receive additional waste will need to be extended and then eventually replaced. These extension and replacement costs will greatly increase for options that require earlier installations. As a general rule, each 5 foot well extension costs about $500 and once a well has been extended 4 times or 20 feet, the well will need to replaced. The same would be true for early installation of horizontal collectors, which will fail sooner and require replacement since more lifts of refuse will be placed over them after installation. In addition, as previously discussed, it is recommended that methane oxidation be incorporated in both the rule and in the background equations.

   For those proposed options that lower the applicability threshold and would require new sites to install a GCCS, the cost for bringing the needed power service to the site needs to be included in the EPA's cost calculations. For example, many sites do not currently have sufficient power to run blowers and as such would need to have additional electrical service brought into the site. The cost of this electrical service is very site specific but based on recent experience the cost can be as high as $500,000.

   It was noted that the costs were adjusted to account for "recovery credits". The benefit of a LFGTE project is very site specific. Given changes in energy markets, tax laws, and regulations, some LFGTE projects make very little to no money. In many cases it is currently more economical to flare the gas than it is to install and operate a LFGTE project, and as such, it would not seem appropriate to apply a reduction in the cost of compliance. The assumption that a site could have a LFGTE project and that it could generate enough revenue to offset compliance costs cannot be applied across all sites. As a small business entity, the economies of scale may not allow the LFGTE project to be viable, but the cost of compliance will still be incurred. As stated throughout this letter, some of the proposed NSPS options would increase costs and thus reduce the viability of being able to do a LFGTE project at smaller sites.

7) 15-yr GCCS requirement - Although we recommend that EPA not change the current NSPS thresholds which may lead to the installation of GCCS, we do recommend that EPA make changes to address how a site/area is able to remove or be excluded from GCCS operations. As currently stated in the rule, once a GCCS is required to be installed, it must remain in-place for 15 years. Given that

the requirement to install a GCCS is based on NMOC emissions (and as recommended above, SEM), it is recommended that criteria be included in the rule that would allow a site to cease NSPS operation and control requirements based on NMOC emissions and/or SEM compliance, regardless of how long the GCCS has been on-line. For example, a site that can demonstrate that they do not have surface emission exceedances and/or is below the 50 Mg/yr threshold of NMOCs should be allowed to cease GCCS operations under the NSPS requirements.

8) 1% exclusion - The rule currently allows an area to be excluded from GCCS coverage if the total excluded areas do not exceed 1% of the total amount of NMOC emissions from the landfill based on model results. It is recommended that this be clarified or revised to address adjacent closed landfills or closed portions of a landfill. Given the issues discussed with modeling, some closed areas of a landfill and/or closed adjacent landfills may still show they are above 1% of the total NMOCs due to the modeled values. However, based on SEM, actual flow rates, and wellhead monitoring, these areas are generating very small amounts for LFG and even less NMOCs. As such, the landfill should be able to decommission collection in non-producing areas based on SEM results and not modeling. If a percentage of NMOCs continues to be used in the rule, the percentage should be increased from 1%, which has shown to be an unattainable standard for almost all sites.

The City understands the need for effective environmental controls and regulations. As a small business entity, the City looks forward to working with the EPA as the current NSPS rule is being reviewed, and appreciates the EPA's consideration of the issues presented in this letter.

Sincerely

Matt K. Stutz, P.E.,
Principal – LFG/Air Services

cc: David Horinek, City of Ponca City

January 10, 2014

Via Electronic Transmittal: Wiggins.Lanelle@epa.gov
David.Rostker@sba.gov

Ms. Lanelle Bembenek Wiggins
RFA/SBREFA Team Leader
US EPA - Office of Policy (1806A)
1200 Penn Ave NW
Washington, DC 20460

And

Mr. David J. Rostker
Assistant Chief Counsel
Environmental Regulatory Reform
US Small Business Administration, Office of Advocacy
409 Third St SW, Suite 7800
Washington, DC 20416

Re: Revisions to Landfill NSPS and EG Rules

Dear Ms. Wiggins and Mr. Rostker:

On behalf of the City of Riverview, Michigan and Delta County Solid Waste Management Authority (DSWMA), Escanaba, Michigan, Cornerstone Environmental Group herein submits written comments to the United States Environmental Protection Agency (EPA) and the Small Business Administration (SBA) as you consider changes to the *New Source Performance Standards (NSPS) and Emission Guidelines (EG) for Municipal Solid Waste (MSW) Landfills*.

We are providing comment on four specific issues:

1. Compliance Mechanisms In The Current Rule that Do Not Make Sense;
2. How Non-methane Organic Compounds (NMOC) From Landfills Can Be Further Reduced;
3. EPA's Recent Proposals For Rule Change and,
4. New Technology Since the Rules Were Promulgated.

Below is detailed discussion on each of these topics.

1. Compliance Mechanisms In The Current Rule That Do Not Make Sense

Wellhead Performance Standards, Corrective Action and System Expansion – The regulations require that the temperature, pressure, and either nitrogen or oxygen be monitored monthly and that if a well exceeds an operating parameter, corrective action be initiated within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance.

The EPA included the wellhead performance standards in 1996 to ensure that 1) the landfill gas collection system is operating properly and 2) a fire is not propagated. EPA is also concerned that elevated temperatures could inhibit anaerobic decomposition by killing methanogens. The overarching goal of the NSPS is to reduce landfill gas emissions.

Based on 17 years of experience implementing the NSPS, the regulated community views the wellhead performance standards (oxygen, temperature and pressure) as overly prescriptive with extremely complex recordkeeping/reporting. The amount of data tracking for compliance is unnecessary to accomplish the overarching goal of NSPS. In addition, if minimizing the risk of a fire is truly the concern for the EPA, the requirement for system expansion in many circumstances would further propagate the fire by introducing more oxygen into the system through drilling or excavation activities.

We think it is important for EPA to note that 40CFR 258.21 already requires controls to reduce landfill fires namely: "Cover material requirements. (a) Except as provided in paragraph (b) of this section, the owners or operators of all MSWLF units must cover disposed solid waste with six inches of earthen material at the end of each operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging. (b) Alternative materials of an alternative thickness (other than at least six inches of earthen material) may be approved by the Director of an approved State if the owner or operator demonstrates that the alternative material and thickness control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment." As such, we recommend that the wellhead standards for be eliminated. Instead, the focus of the rule should be on the primary goal of NSPS, which is to control NMOC emissions. This can be successfully accomplished utilizing surface emissions monitoring. If the EPA remains concerned about potential fire risks, it is recommended that the facility include prevention and mitigation practices in the GCCS Design Plan, sealed by a professional engineer.

In addition, the rule does not address ramping up the gas collection and control system (GCCS) for new landfills or tapering down the GCCS for old landfills. Compliance with the wellhead performance standards are especially difficult at the beginning and end of the landfill's life.

We urge EPA to eliminate wellhead standards in the NSPS/EG - Since the rule promulgation in 1996, the industry has gained significant and widespread field operations experience. The existing wellhead standards are not the best indicator of GCCS performance because they

are arbitrary limits on a limited number of parameters which do not accurately represent proper GCCS performance.

The existing wellhead operating standards do not reduce NMOC emissions. We believe that landfill owners are already heavily incentivized to maximize GCCS collection efficiency to control odor, control subsurface migration, minimize groundwater impacts, maintain cap stability and integrity, control surface emissions, and maximize energy recovery.

Of the current wellhead operating standards, only pressure is indirectly tied to controlling emissions. We do not believe that the wellhead pressure standard provides additional environmental protection in light of other operating incentives described above. However, considering that the landfill cover soils have emission retention qualities even gas pressure under the cap is not an indicator of emissions.

We ask that EPA keep in mind that wellhead standards do not measure emissions. That can only be done with surface emission monitoring (SEM). We ask that EPA let the landfill owners operate their well field consistent with their GCCS Design Plan such that surface emissions are maintained below the standard.

Option for Failed Tier II Test – Under the current NSPS/EG rule if an owner fails a tier II test (i.e.: the calculated NMOC emissions are greater than 50Mg/year) then they must conduct tier III testing or install/operate an active LFG collection system. We recommend another option be allowed, namely, an SEM demonstration. This SEM demonstration would be performed using current NSPS procedures and if methane emissions were found or repaired to be lower than 500 ppm below background, then installation of a GCCS could be delayed. Based on our 17 years' experience with the NSPS/EG rule we believe numerous GCCS have been installed and operated at great expense that are not justified because they reduce very few emissions that a good soil cover could achieve at much lower capital and operating costs.

2. How NMOC From Landfills Can Be Further Reduced

Surface Emissions Monitoring (SEM) – Currently, NSPS requires that the landfill gas collection system be operated such that methane concentration at the surface of the landfill is less than 500 parts per million methane above the background. If EPA were to require the enhanced SEM nationwide, we believe it would be burdensome for small facilities like Riverview and DSWMA, with significant increase in cost, new equipment, and training of personnel. For example: at the City of Riverview Landfill with 211 acres of landfill foot print, current NSPS SEM costs $20,000 annually to perform. If Riverview has to perform similar to California Landfill Methane Rule it will cost approximately $100,000 per year; a significant increase in cost of compliance.

Passive flare devices – Use of passive flare devices may allow reductions of NMOCs in remote areas such as landfill cleanouts to the leachate collection system and low methane producing areas. Under current NSPS rules this installation is not possible because the NSPS requires open flares to meet 60.18 and have continuous flow recorders and flare pilot flame monitoring. However, this equipment is not cost effectively available at remote

locations such as the leachate cleanout devices. As such, if EPA wants to promote destruction of more NMOCs then EPA will need to waive the requirements for flow measurement and pilot flame monitor in remote areas and low methane producing areas.

LFG Treatment - The 1996 NSPS rule does not include a definition of treatment system. EPA proposed the following definition in the May 23, 2002 proposed amendments to the original 1996 rule: *Treatment system* means a system that filters, de-waters and compresses landfill gas. (67 FR 36480) EPA should adopt this definition.

In 2006 EPA proposed "treatment" standards to include operating limits and monitoring. We believe that proposal is inappropriate and unnecessary because:

1. Treatment systems are not control devices,

2. EPA's proposal would not provide the operator of the treatment system with any information that would enable a reduction in emissions because neither the filtration, compression, nor the dewatering process produce emissions that could be reduced, and

3. Regulating the operating limits and monitoring will inhibit the development of LFGTE at small entity facilities which are already challenged with numerous technical and financial barriers due to their small LFG flow. Adding more unnecessary regulatory and financial burden to these projects is inappropriate.

The City of Riverview employs "treatment" for its LFG in 2 two ways:

1. Some raw LFG is sold to DTE Biomass. DTE filters the LFG, compresses it, and dewaters prior to destruction in gas turbines which generate electricity for distribution to the local grid.

2. Some raw LFG is used by the City in a BioCNG treatment system which filters it, compresses it, dewaters it, and lowers the H_2S, siloxane, and CO_2 concentration, prior to a fueling station where it is discharged into vehicles and destroyed. The waste gas from the BioCNG system is vented into the gas collection system and blended with other LFG and routed to DTE treatment system.

Both treatment systems are treating the LFG to different levels. These treatment levels are dictated by the control devices located after treatment. Both treatment systems function well. Both treatment systems have safety shutoffs if malfunctions occur. Neither treatment systems have emissions. Neither treatment systems are control devices.

A one-size-fits-all approach, such as EPA put forth in the proposed 2006 rule, does not account for the site-specific characteristics that may impact operating requirements for each LFG treatment system and control device. We believe a site-specific preventative maintenance plan and a Start-up, Shutdown and Malfunction Plan are sufficient and prescriptive standards not warranted. Operating according to these two plans is sufficient to assure that it is done properly. As such, we believe that regulating the treatment of LFG is simply not necessary to ensure that LFG is properly combusted.

3. EPA's Recent Proposals for Rule Change

EPA recently explored changing some parameters in the existing rule in an attempt to capture more emissions. In this section we comment on those proposals.

Reduce time allotted for installation of the GCCS, currently at 30 months. Considering the rules of procurement for municipalities it will be difficult to reduce this time. Once a landfill exceeds the emission threshold they must procure an engineering firm to design the GCCS. Once that design has been completed it is issued to the EPA delegated authority for approval. This approval period has been very long in most States and some States have never approved a submitted design, making it very cumbersome for the landfill owner to go to bid for construction. Once the design is approved, then bidding may commence for a construction contractor. Once the contractor is selected, equipment is ordered (longest lead time is typically the flare at 9 to 10 months) and construction commences. We feel that shortening the time allotted for installation of the GCCS would create added burden on small entities and should not be pursued.

Reduce the emission threshold, currently at 50 Mg/yr NMOC's. We feel this action would require many additional landfills to comply and the cost to comply versus the emission reductions would be unreasonable at approximately $14,000 / metric ton NMOC reduction.

Reduce the design threshold, currently at 2.5 million cubic meters of waste. We feel this action would require many additional landfills to comply and the cost to comply versus the emission reductions would be unreasonable at approximately $18,000 / metric ton NMOC reduction.

Reduce the time allowed for well field expansion, currently at 2 years if waste is at final grade and 5 years if still actively receiving waste. In our experience, waste is typically not to final grade for at least 7 years at most landfills so the 2 year rule is rarely applicable at today's modern landfill. In our experience most landfill owners / LFG operators in wet climates are installing temporary LFG collectors before the 5 year rule is invoked, partially in an effort to comply with NSPS/EG but also partially to maintain control of odors or to capture energy. This early installation is not typically occurring in dry climates. These early GCCS installations almost never comply with the wellhead standards but they don't have to comply until the 5 year clock is triggered. This is preferred by the industry. Since landfill owners / LFG operators in wet climates already typically install the GCCS before 5 years if the EPA changes the rule to less than 5 years it would result in no less emission reductions than the current rule already provides. Lowering the 5 year rule would create more administrative burden for LFG collectors that can't meet the existing NSPS/EG wellhead standards, would not lower emissions, and would create undue expense on the landfill owners / LFG operators. Therefore we do not recommend any change to the 2yr/5yr rule.

4. New Technology

The landfill industry has not developed new control technologies since the original implementation of NSPS. The best demonstrated technology remains flares. Barriers

identified in the 1996 rulemaking to control technologies other than flaring still exist today. It is important that any rule revisions seek to remove and not add barriers to technologies such as energy recovery and fuel conversion. Creating prescriptive treatment system standards along with monitoring and recordkeeping requirements will add significant barriers to these types of projects and could squash further development.

Industry has made improvements to wellhead and collector designs, and improved data collection and tracking. Because the NSPS/EG rule is so prescriptive, it is difficult to develop new technology. However, all these improvements have been developed to address compliance with the existing NSPS rules. The NSPS/EG rule does not have sufficient flexibility and most regulators are not interested in allowing exceptions to this rule. This stymies creativity and development of new technology.

The landfill industry is beginning to invest in research that will ultimately improve our ability to predict LFG generation and collection rates more accurately. It is widely thought that the methane generation rate (k) varies over time, lowering when the landfill cap is installed and stormwater is cutoff. In addition, it is widely thought in our industry that NMOC, VOC, Siloxane, H_2S, and other compounds typically found in landfill gas have varying emission factors over time, lowering as waste decomposition progresses. These issues and many others are now receiving some funding for research. More funding is needed to advance the state of practice in this regard and better understand what the "real" emissions from landfills are.

In closing, Cornerstone, The City and Riverview, and DSWMA appreciate the opportunity to get involved with EPA's rule making process and welcome future exchange of information with the EPA and SBA.

Sincerely,
Cornerstone Environmental Group, LLC

Michael S. Michels, P.E.
Executive Vice President

cc: Stephanie N. Brown, USEPA, Office of Policy (Electronically)
Robert Bobeck, Riverview Land Preserve (Electronically)
Don Pyle, Delta County Solid Waste Management Authority (Electronically)
Khaled Mahmood, Cornerstone Environmental Group (Electronically)

Issues for EPA Consideration While reviewing the Landfill NSPS/EG

Date for Delivery: 12/19/2013

Presented in-person by: Khaled Mahmood, Cornerstone Environmental Group on behalf of The City of Riverview, Michigan (small entity).

EPA is considering regulatory options to revise Landfill NSPS and EG. Due to time constraint I will touch base on three issues mainly 1) LFG Treatment System 2) Wellfield compliance & 3) Surface Emission Monitoring.

LFG Emission Control via Treatment:

Treatment filters, dewaters, and compresses the LFG.

Treatment is an alternative to flaring or combustion.

Treatment is a good option for small entities.

Current treatment system definition allows implementation of innovative gas to energy project.

Treatment allows use of the LFG as an energy source and thereby good for the environment

Treatment is not a control device but instead preparation for a control device.

Treatment does not typically have emissions (periodic use of a vent stack being the exception).

The City of Riverview employs "treatment" for its LFG in 2 ways:

1. Some raw LFG is sold to DTE Biomass. DTE filters the LFG, compresses it, and dewaters prior to destruction in gas turbines which generate electricity for distribution to the local grid.
2. Some raw LFG is used by the City in a BioCNG treatment system which filters it, compresses it, dewaters it, and lowers the H_2S, siloxane, and CO_2 concentration, prior to a fueling station where it is discharged into vehicles and destroyed. The waste gas from the BioCNG system is vented into the gas collection system and blended with other LFG and routed to DTE treatment system.

In summary, the City has two treatment systems on the same landfill. Both treatment systems are treating the LFG to different levels. These treatment levels are dictated by the control devices located after treatment. Both treatment systems function well. Both treatment systems have safety shutoffs if malfunctions occur. Neither treatment systems have emissions. Neither treatment systems are control devices.

In 2006 EPA proposed revising "treatment" to include operating limits and monitoring. We believe these proposals are inappropriate and unnecessary:

1. because the treatment systems are not control devices,
2. because the proposals would not provide the operator of the treatment system with any information that would enable a reduction in emissions because the filtration, compression, nor the dewatering process produce emissions that could be reduced, and
3. because regulating the operating limits and monitoring will inhibit the development of LFGTE at small entity facilities which are already challenged with numerous technical

and financial barriers to entry due to their small LFG flow. Adding more unnecessary regulatory and financial burden to these projects is inappropriate.

A one-size-fits-all approach, such as EPA put forth in the proposed 2006 rule, does not account for the site-specific characteristics that may impact operating requirements for each LFG treatment system and control device.

In closing we believe that all treatment systems need are a site-specific preventative maintenance plan and a Start-up, Shutdown and Malfunction Plan. Operating according to these two plans is sufficient to assure that it is done properly. As such, we believe that regulating the treatment of LFG is simply not necessary to ensure that LFG is properly combusted.

Regulating Wellhead Operation

I have been personally dealing with NSPS regulations/MRR for the last 14 years.

EPA's current wellhead compliance mechanism is very prescriptive and raises more questions, requires a significant amount of paperwork and reduces ZERO emissions.

Compliance mechanism attributes to generating letters, reports and paperwork. Let me illustrate the above noted issues with one example:
An oxygen exceedance greater than 15 days triggered a letter to the agency for alternate compliance time line. The facility reported this event as a deviation in the semi-annual Title V compliance report and subsequently in the Title V annual compliance certification. The facility received a notice of violation for this issue. In the notice of violation letter the agency required the facility to respond in great detail about the event, corrective action, and plan to prevent future occurrence of such event. So, what happened to the well that exceeded oxygen for 15-days? The well returned to compliance on 20th day. It was just a simple tuning issue. This is only one example of the pitfalls of prescriptive nature of the NSPS/EG regulation. The issue and its resolution did NOT provide any reductions in NMOC but cost the facility significant $$.

We urge EPA to eliminate the temperature and oxygen standards in the NSPS/EG:
Since the rule promulgation in 1996, the industry has gained significant and widespread field operations experience. The existing wellhead standards are not the best indicator of GCCS performance because they are arbitrary limits on a limited number of parameters which do not accurately represent proper GCCS performance.

Further, the existing wellhead operating standards do not provide any protection to the environment. We believe that landfill owners are already heavily incentivized to maximize GCCS collection efficiency to control odor, control subsurface migration, minimize groundwater impacts, maintain cap stability and integrity, control surface emissions, and maximize energy recovery. In addition, landfill owners diligently operate to avoid causing subsurface fires as potential damage to leachate containment liners, gas collection and control systems and other environmental controls can result in non-compliance and be extremely costly to mitigate.

The temperature limit in NSPS/EG was established as an alert level that may indicate a problem that prompts further investigation; well temperature at or above 55 degrees Celsius (^{0}C) does not mean there is a fire or indicate improper operation. A well temperature at or above 55^{0}C may be normal operating conditions for a facility based on site-specific climate and waste characterization. In the rulemaking record, EPA states that vacuum adjustment is the solution to reduce temperature, not system expansion. Nonetheless, some delegated agencies have required automatic system expansions as a result of well temperature above the action level.

Of the current wellhead operating standards, only pressure is directly tied to controlling emissions. We do not believe that the wellhead pressure standard provides additional environmental protection in light of other operating incentives described above. However, this negative pressure parameter could be maintained to ensure a minimum standard of gas collection is maintained.

We ask that EPA keep in mind that wellhead standards do not measure emissions that can only be done with surface emission monitoring. We ask that EPA relax wellhead standards and let the landfill owners operate their well field in whatever safe manner they feel appropriate such that surface emissions are maintain below the standard.

Surface Emission Monitoring (SEM)

Current SEM is adequate and no tweaking is desirable. EPA should allow more flexibility in SEM monitoring and locations.

Integrated SEM in grids with 25 ppmv limit (California's approach) is not desirable.
Integrated SEM will be burdensome for a small facility like Riverview, significant increase in cost, new equipment and training of personnel.

Riverview is a site with 211 acres of landfill foot print. Current estimate shows $5,000 of annual cost to perform NSPS SEM in the entire footprint. If the Riverview has to perform the SEM in accordance with Integrated SEM (~184 Grids of 50,000 sqft) it will cost approximately $100,000.00; a significant increase in cost of compliance.