COUNTY DEPARTMENT AGENDA REQUEST

Department:	Solid Waste Management	Presenter(s):	Vanessa Birrell
Meeting Date:	Thursday, August 25, 2011	Type of Request:	Old Business

Wording for the Agenda:

Consideration of of staff's request to approve Contract Addendum No. 1 (Proposal P764) with Jacobs Engineering Group, Inc. authorizing expenditures not-to-exceed $19,800 to complete data collection and design for the Phase I Methane Remediation Plan for the First Manassas Mile Road Southside Landfill; and authorization for the Chairman to sign the contract.

Background/History/Details:

The Southside Landfill consists of two closed, unlined, municipal solid waste (MSW) landfills; the Grady Avenue Landfill Phases I&II and the First Manassas Mile Road Sanitary Landfill. Although separate landfills, the combined facility is tracked as one. Compliance monitoring was initiated at the Southside Landfill in the early 1990s. Over the years, both passive and active gas venting systems have been installed in several locations on the Southside Landfill to mitigate methane migration. In Feb. 2011 EPD noted two paremeter wells have repeatedly exhibited methane concentration above the regulatory limit (5% methane by volume.) and, as per Ga. Solid Waste Environmental Regulations, a Methane Remedation Plan must be submitted detailing corrective measures to be implemented.

The MRP consists of two implementation phases.The current phase is the field investigation and design of the methane extraction system design. Phase II is the installation of the proposed methane extraction systems. Phase I was scheduled for completion on August 19, 2011; however, data collected from the one-day field investigation on June 20, 2011 was inconclusive. As a result, two additional days of field investigation are necessary to clarify the source of methane currently impacting MM-11 and MM-12 before the remedial design can be finalized.

What action are you seeking from the Board of Commissioners?

Motion to approve staff's request to approve Contract Addendum No. 1 (Proposal P764) with Jacobs Engineering Group, Inc. authorizing expenditures not-to-exceed $19,800 to complete data collection and design for the Phase I Methane Remediation Plan for the First Manassas Mile Road Southside Landfill. Approve budget amendment for 2012 to increase expenditures and decrease Solid Waste fund balance.

If this item requires funding, please describe:

$19,800 is needed and will be taken from the Solid Waste fund balance of $1.2M as of 8/19/2011.

Has this issue come before the Commissioners in the past?	Yes	If so, when?	
Do you need audio-visual for the presentation?	No	Back-up Material Submitted?	Yes

STAFF USE ONLY

Approved by Finance	Yes	Reviewed by Legal	Yes
Approved by Purchasing	Not Applicable	Approved by County Clerk	Yes
Administrator's Approval	Yes		

Staff Notes:

JACOBS JJG

Jordan, Jones and Goulding, Inc.

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May 4, 2011

Mr. Ken Simonton, P.G.
Staff Geologist
Georgia Department of Natural Resources
Environmental Protection Division
Solid Waste Management Program
4244 International Parkway, Suite 104
Atlanta, GA 30354

RE: Methane Remediation Plan for MM-11 and MM-12
First Manassas Mile Road Southside Landfill
Permit No. 056-014D(SL)
Fayette County, Georgia

Dear Mr. Simonton:

On behalf of the Fayette County Board of Commissioners (Fayette County), Jacobs Engineering Group Inc. (Jacobs) is providing you with this letter report, which presents a Methane Remediation Plan (MRP) for the First Manassas Mile Road Southside Landfill (Southside Landfill). This MRP describes actions that will be taken at the subject facility to remediate the presence of methane above the regulatory limit in the areas MM-11 and MM-12. This MRP is being provided in response to your letter dated February 28, 2011, which required the preparation of an MRP, and in accordance with your March 18, 2011 letter that granted a 60-day extension for the submittal of the MRP.

BACKGROUND

The Southside Landfill consists of two closed, unlined, municipal solid waste (MSW) landfills: the Grady Avenue Landfill Phases I & II and the First Manassas Mile Road Sanitary Landfill (Sanitary Landfill). Although separate landfills, the combined facility is tracked as one landfill using the permit number for the Sanitary Landfill (056-014D(SL)). Compliance monitoring was initiated at the Southside Landfill in the early 1990s. Over the years, both passive and active gas venting systems have been installed in several locations on the Southside Landfill to mitigate methane migration. As EPD noted in their February 28th letter, MM-11 and MM-12 have repeatedly exhibited methane concentrations above the regulatory limit (5% methane by volume), but no remediation methods have been implemented at these locations.

This letter report presents the MRP to be implemented at the Southside Landfill for MM-11 and MM-12. The MRP outlines the steps that will be taken to mitigate methane migration towards the property boundary in the vicinity of MM-11 and MM-12 with the goal of returning methane concentrations at the northern property boundary to below the regulatory limit. This MRP also includes a Milestone Schedule, which details the steps to be taken to implement the MRP and anticipated dates of completion for each step.

METHANE REMEDIATION PLAN

The proposed MRP will be implemented in two phases. The first phase will consist of a one-day field investigation focused on identifying the possible migration pathways of methane in the vicinity of MM-11 and MM-12. The second phase will consist of installation of a small methane extraction system at each location.

Phase One - Field Investigation

For the field investigation, Jacobs will direct the collection of discrete methane readings from soil borings advanced in close proximity to both MM-11 and MM-12.

At each location, a soil boring will be advanced by drilling down with a Geoprobe direct push rig to groundwater or top of rock, whichever is encountered first. Subsurface methane will be measured at 5 foot intervals by advancing the boring to each interval utilizing one inch drill rods with a one-foot sliding screen located at the bottom of the drill string. Upon reaching the desired interval the drill string will be lifted one foot exposing the screen. The subsurface methane concentration will be measured through the drill steel by attaching a gas detector to a coupling on top of the drill string.

Methane data that is collected during this field investigation will be evaluated to better understand the location of the subsurface methane migration pathways, which will aid in final design of Phase Two.

Phase Two - Installation of Methane Extraction Systems

Once the methane data from Phase One has been collected and evaluated, Jacobs will direct the installation of a small methane extraction system in the vicinity of MM-11, and another system at MM-12. Each system will consist of a series of 2-inch diameter extraction wells which are connected via a header pipe to an electric blower. Each header pipe will drain to a small sump, which will collect condensate from the landfill gas. The condensate will be disposed of in accordance with the Southside Landfill permit.

The methane extraction systems will be designed to intercept and vent the methane which is currently migrating in the areas of MM-11 and MM-12. The locations of the systems will be determined based on the findings of Phase One. Preliminary locations of the proposed systems are shown on Figure 1; however, these locations may be modified based on methane data collected during Phase One.

Extraction Well Installation

Jacobs will monitor the installation of extraction wells in the vicinity of MM-11 and MM-12. Five wells are currently proposed for each system, although this may change based on the findings of the Phase One field investigation. A typical detail of the proposed wells is shown on Figure 2. The wells will be installed as follows:

- Well borings will be advanced utilizing 4.25-inch inside diameter hollow stem augers (HSA).
- Boreholes will be advanced to groundwater or rock, whichever is encountered first.
- Extraction wells will be constructed using 2-inch diameter, ASTM NSF-rated, flush-threaded, Schedule 40 PVC riser pipe and machine slotted (20-slot) or perforated PVC screen.
- Screened intervals will extend from a minimum of 10 feet below the ground surface to the bottom of each borehole.
- Solid pipe will extend from the top of the screen to a minimum of 3 feet above the ground surface.
- Well screens will be surrounded with clean gravel from the bottom of the boring to a minimum of 0.5 feet above the top of the screen. A hydrated bentonite seal will be placed above the gravel pack extending to 0.5 feet below the ground surface. The remaining 0.5 feet will be backfilled with clean soil.
- A well head with an adjustable 2-inch ball valve for vacuum control and sample ports for gas monitoring will be installed on top of each extraction well as shown in the well head detail on Figure 2. Flexible pipe will connect the well head to the header, as shown on Figure 2.

Jacobs may elect to retrofit some of the existing passive vents currently installed in the vicinity of MM-11 and MM-12 for inclusion into the extraction systems. If the existing vents are deemed to be viable for this purpose, the vents will be retrofitted as follows:

- The area around each vent pipe will be hand excavated to a minimum depth of 4 feet and backfilled with hydrated bentonite chips.

- A geomembrane boot with a minimum 10 foot diameter well skirt will be clamped to each vent pipe. A minimum of 6 inches of soil will be placed over the well skirt.
- Each vent pipe will be cut and a well head with an adjustable 2-inch ball valve for vacuum control and sample ports for gas monitoring will be installed, as shown in the detail on Figure 2. Flexible pipe will connect the well head to the header, as shown on Figure 2.

Header and Blower Installation

Jacobs will monitor the installation of header piping which connects the extraction wells of each system to an electric blower. The header pipe will be installed as follows:

- A minimum 12-inch deep trench will be excavated in the approximate locations shown on Figure 1. For each system, a condensate sump will be placed at the low point in the header, and the trench will be constructed to slope toward the condensate sump.
- The header will consist of 4-inch diameter Schedule 40 PVC pipe which will be laid in the base of the trench. A 4-inch tee with a 4x2 reducer will be installed in the header at each extraction well location. Soil backfill will then be placed over and around the header pipe.
- Extraction wells will be connected to the header as shown in the wellhead detail on Figure 2.
- Each header pipe will be connected to an electric blower at the approximate location shown on Figure 1. The blower will be placed on a concrete pad.

REPORTING

Following the implementation of the MRP as described above, Jacobs will prepare a letter report documenting the results of the field investigation and the installation of the methane extraction systems. Jacobs will also prepare a minor modification to the facility's Design and Operation (D&O) Plan to incorporate the systems. Both the letter report and minor modification will be submitted to EPD for review and approval.

EVALUATION

Following installation of the methane extraction systems, monthly methane data will be collected and evaluated in order to determine the effectiveness of the MRP. After six (6) months of post-installation monitoring, a preliminary determination will be made regarding the effectiveness of the remedy.

MILESTONE SCHEDULE

Milestone	Target Completion Date
MRP submittal to EPD	May 9, 2011
EPD approval of MRP	June 6, 2011
Completion of Phase One field investigation	June 24, 2011
Installation of Phase Two extraction systems	August 26, 2011
Submittal of installation report and minor mod	October 28, 2011
Preliminary evaluation of updated MRP effectiveness	March 30, 2012

Please feel free to contact either of the undersigned at 770-455-8555 if you have any questions regarding this methane remediation plan.

Sincerely,

JACOBS ENGINEERING GROUP INC.

Ellen G. McManus, P.E.
Senior Engineer

Joshua L. Lawson, P.G.
Senior Project Manager

JOSHUA L. LAWSON
No. PG001818
GEORGIA REGISTERED PROFESSIONAL GEOLOGIST

Attachments

cc: Fayette County Landfill Operating Record
Vanessa Birrell – Fayette County
Tony Parrott – Fayette County