

**RESPONSE 77**

## 7.0 METHANE MONITORING

### 7.1 Monitoring Frequency and Methods

Methane monitoring during landfill operations will be performed quarterly using portable equipment, which can be used to detect methane concentrations. The methane monitoring will continue on a quarterly schedule for the operating life of the landfill and the post-closure care period, unless directed otherwise by the Executive ~~Director~~ Director of the TCEQ. During this period, the facility will monitor more frequently those locations where monitoring results indicate that LFG migration is occurring or is accumulating in structures.

In accordance 30 TAC §330.371(e), the methane gas monitoring and control program shall continue for a period of 30 years after certification of final closure of the facility. Authorization to reduce gas monitoring and control shall be based on a demonstration by the owner or operator that there is no potential for gas migration beyond the property boundary or into on-site structures. Demonstration of this proposal shall be supported by data collected and additional studies as required.

### 7.2 Sampling

The type of gas monitoring equipment utilized at the facility will vary over the operational life and post-closure periods; therefore, manufacturers' specifications are not included with this plan.

A hand-held Landtec GA-90 Infra-Red Gas Analyzer, a Landtec Gem 2000, or a similar instrument, which is capable of measuring methane gas concentrations in an oxygen deficient environment, may be used to measure methane gas concentrations at the site. The calibration of the methane monitoring equipment will be verified using standard calibration gas.

Methane monitoring will be performed at each probe and the methane concentration will then be recorded on the typical form shown in Appendix III-6B.

Methane readings will also be performed in enclosed structures. As with the methane probe readings, the methane concentrations will be recorded on the typical form shown in Appendix III-6B.

In accordance 30 TAC §330.371(j), sampling of specified trace gas will be performed if required by the Executive Director.

### 7.3 Reporting

Routine quarterly gas monitoring data will be maintained in the SOR during the lifetime of the landfill and post-closure care period of the facility, and will be made available to the TCEQ upon request. Record retention will consist of either electronic storage of data in proprietary software and/or in electronic or hardcopy form in the SOR. The TCEQ will be notified in the event that methane gas

## 5.0 LANDFILL GAS CONTROL PLAN

In accordance with 30 TAC §330.63(g) and 30 TAC §330, Subchapter I, a LFGMP has been developed for the facility to provide a site-specific approach for implementing LFG monitoring and control. This plan includes the requirements and procedures for: LFG monitoring using perimeter probes; combustible gas monitors in site structures; control of LFG using gas wells installed in the waste mass that convey LFG through a piping system to a LFG flare; recordkeeping and reporting; and a contingency plan to be implemented in the event that concentrations of methane in excess of the regulatory limits are measured at the site permit boundary or in on-site structures.

Figure III-6-3 depicts the existing active LFG system at the Temple Recycling and Disposal Facility. The Temple Recycling and Disposal Facility will expand the existing LFG system as the remaining waste disposal areas are developed and filled. Figure III-6-5 shows the most current gas collection system operational phase (year 2015). This figure will be updated as the LFG system expands. The timing for installation of the active LFG control system will depend on fill patterns. The future LFG system will be expanded at final closure and will be similar to the layout shown on Figure III-6-6.

### 5.1 New Source Performance Standards Compliance

The landfill is currently subject to 40 CFR Part 60, Subpart WWW, which requires landfills modified after May 30, 1991, to determine and submit an Initial Design Capacity Report. Those landfills with 2.5 million megagrams (3,674,333 CY) or more of waste must calculate non-methane organic compound (NMOC) emission rates on an annual basis. Upon approval of this permit amendment application, the site will be subject to 40 CFR Part 60, Subpart XXX.

Tier 2 testing was performed at the site in 2016 and the emission rate is greater- than 50 megagrams per year of NMOC (See Appendix III-6C).

A Gas Collection and Control System (GCCS) Plan will be submitted to the TCEQ for the existing permitted site within 1 year of the Tier 2 testing. While the site has a LFG system for odor control and to prevent methane migration, a LFG collection system designed for compliance with 40 CFR Part 60, Subpart WWW will be installed within 30 months after the first annual report in which the emission rate exceeds or equals 50 megagrams per year. The GCCS may be installed and expanded prior to the regulatory timeframe to control odors or potential methane migration. The components of the GCCS include:

- LFG wells extending into the waste
- LFG collection system
- LFG flare station

A Permit Modification (PM) Request will be submitted in accordance with TCEQ requirements documenting the as-constructed phased installation of the GCCS. An as-constructed record drawing will be prepared documenting the GCCS installation (LFG well locations, header piping locations, lateral piping locations, etc.) and will be maintained as part of the SOR.

In accordance 30 TAC §330.371(f), gas control system will be revised and maintained as needed.

## 5.2 Gas Collection and Control System Design

The GCCS consists of vertical and horizontal gas extraction wells installed over disposal areas that have been constructed to final grade and closed with final cover. Each gas well is connected to laterals that convey flow to headers around the perimeter of the landfill. A vacuum is induced on the header by a blower located at the flare station on the northwest side of the site. The applied vacuum pulls the gas from the extraction wells into the header, which conveys the gas to the flare for combustion. As additional waste is placed, the existing LFG extraction wells will either be extended and/or redrilled. Details of the gas extraction wells are included in Figures III-6-4.1 and III-6-4.2.

As the site develops, additional extraction wells will be installed over the active waste disposal area as needed to enhance gas recovery as waste in place increases and to meet New Source Performance Standards (NSPS) requirements. Vertical and horizontal gas wells will be constructed through the final cover components or intermediate cover soils and into the underlying waste. The vertical gas wells will consist of a high-density polyethylene (HDPE) or polyvinyl chloride (PVC) pipe. The lower portion of the pipe will be perforated or slotted HDPE or PVC pipe. The perforated or slotted pipe will be embedded in aggregate backfill.

Horizontal LFG wells may be installed within the waste. The horizontal gas wells will consist of HDPE or PVC pipe. The initial 20 feet (minimum) of the well will consist of non-perforated HDPE or PVC pipe. The remaining pipe will be perforated or slotted HDPE or PVC and will be embedded in aggregate backfill.

A wellhead will be attached to the top of each gas well to monitor and control the rate of LFG extraction from the well. The wellhead will include a valve for LFG flow control, access, and sample ports for measuring pressure, vacuum, flow, and gas composition and for collecting LFG samples.

HDPE piping will be installed below the surface of the final cover system to convey LFG to the LFG flare station. Installation of the LFG collection piping below the landfill surface will avoid damage to the LFG collection system by site maintenance activities. Condensate knockouts and condensate sumps will be provided to remove condensate accumulations in the LFG collection piping. Liquids collected from the condensate knockouts and condensate sumps will be transferred to the leachate storage