RESPONSE 75

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

6.0 PERMANENT METHANE MONITORING SYSTEM

6.1 General

The Temple Recycling and Disposal Facility has been designed to inhibit lateral methane migration from the site. A permanent methane monitoring system has been previously installed at the site for the existing waste placement area. This system will be expanded in phases to include the expansion area. Methane probes currently located in the expansion area will be abandoned as required. The existing and proposed methane probes installed around the perimeter of the site are shown on Figure III-6-2, and will be used to detect the subsurface migration of methane.

In accordance 30 TAC §330.371(f), the methane monitoring system will be revised and maintained as needed. Post-closure care shall not interfere with the gas monitoring system and all utility trenches crossing the facility shall be vented and monitored.

6.2 Monitoring Probe Placement

A network of permanent gas monitoring probes will be in place at key locations around the permit boundary to provide data on the presence of methane in the unsaturated subsurface zone. Probe locations and spacing are a function of site geology/hydrogeology, adjacent land use, and site geometry.

Probe locations have been selected to provide monitoring points between the waste disposal areas and nearby off-site receptors and other structures. The overall network of probes reflects the general perimeter of the waste placement areas and facility boundary. Permanently installed gas monitoring probes have been designed to monitor both the unsaturated zone beneath the ground surface and the depth to the elevation of the base of the nearest waste placement. The depth of gas monitoring probes must be equal to the seasonal low groundwater table, or the maximum depth of waste as measured within 1,000 feet of the monitoring point, whichever is shallower. Since the base of the landfill is near the Stratum II/III interface, the gas probes will extend to the top of the unweathered claystone.

The LFG monitoring probe network at the landfill incudes 11 existing LFG monitoring probes located along the perimeter of the active waste fill area. LFG monitoring probes GMP-1 through GMP-11 have previously been installed and monitored at the locations shown on Figure III-6-2. There will be eight new LFG monitoring probes installed as part of the phased development of the expansion area, in addition to the abandonment of four existing LFG monitoring probes. LFG monitoring probes GMP-6, GMP-7, GMP-8, and GMP-9A will be replaced, as indicated in the phasing schedule on Figure III-6-2, to account for the expansion associated with this PAA.