Operation and Maintenance Plan

Described below are the procedures and practices developed for the operations and maintenance of the landfill gas collection and flaring system to minimize potential air emissions from the landfill.

Landfill Gas Collection System

Under normal operating procedures, the landfill gas collection system operates automatically without intervention by landfill staff. At a minimum, gas collection wells and components are monitored monthly to verify that the system is operating within design parameters. Based on the results of the monthly monitoring, the system is adjusted to maximize the collection of landfill gas and to minimize the off-site migration of landfill gas.

Every month each of the landfill gas extraction wells will be sampled. The landfill gas will also be sampled at the point in the extraction system pipes leading into the flare and at a point at the flare itself. The gas composition, static pressure, differential pressure, flow and temperatures at each of the well locations and points are recorded using the GEM 2000. The flare temperature and total gas flow at the flare reported by the flare computer are recorded by hand. In order to minimize the amount of air pulled into the system, it may be necessary to close some of the extraction wells. As a result, not all of the wells may be sampled on a monthly basis.

The data recorded using the GEM 2000 is reported in tabular form on a monthly basis. The table will also indicates which wells or point locations are not in compliance with the landfill's Title V Air Operation Permit. Compliance at a gas well or point is achieved when the concentration of oxygen is less than 5%, the concentration of nitrogen or balance gas is less than 20%, the static pressure is less than 0 inches of water (i.e., the well is under vacuum) and the temperature is less than 131° F. Shaded boxes on the data table indicate out-of-compliance parameters.

When wells are encountered with out-of-compliance parameters, changes can be made to the valve setting that may improve or eliminate the problem. If the gas composition indicates high levels of oxygen or nitrogen in the gas, the valve should be turned down. This would lower the flow at the well and lessen the amount of air that may be drawn into the system. If the static pressure at the well is positive, then the valve setting should be turned up, effectively increasing the flow at the well. The valve settings should be adjusted in small increments in order to decrease the possibility of improving gas composition while causing the pressure to become positive, or visa versa.

Landfill Gas Control System (Flare)

Under normal operating procedures, the landfill gas flare operates automatically, without intervention by landfill staff. Operation of the flare is covered in the SSM Plan. Parameters that monitor the operation of the flare are recorded during the monthly gas collection system monitoring. This includes total landfill gas to the flare and flame temperature. Manufacturers recommended maintenance activities and frequencies are followed for maintenance of flare.

Surface Emission Monitoring

Landfill surface-emission monitoring will occur quarterly in compliance with Title V. During this event, surface gas sampling will be done with a meter similar to a Foxboro Model 128 Organic Vapor Analyzer (OVA). The OVA is attached to a high-density polyethylene tube, with the sampling end fixed at a height of two to three inches above the ground surface. An activated carbon filter is used, which removes all organic vapors besides methane from the sample stream prior to entry into the OVA. As a result, the organic vapor concentration reported by the OVA is methane only. A 30-meter grid system will be traversed in a linear pattern over the surface of the landfill. In addition, the landfill gas extraction system wells, areas of distressed vegetation, cracks and/or seeps in the cover will also be monitored. The perimeter of the landfill is also monitored.

Locations at which a methane concentration of 500 parts per million (ppm) or greater as observed will be noted on a site map and the appropriate changes to the landfill gas system will be made. The location of interest will be rechecked within a week to verify that the problem has been rectified. This quarterly sampling event takes approximately one day to perform. However, depending on the number of locations (if any) that are observed to be in violation, additional monitoring time may be necessary.