## 4.6 ACCESS ROADS

A network of gravel access roads is proposed for the upper surface of the Landfill. Gravel access roads will either be crowned or superelevated for drainage. Details for the gravel access road sections are included on Contract Drawing C-503.

## 4.7 LANDFILL GAS MANAGEMENT

### 4.7.1 Existing System Description

The existing LFG collection and conveyance system at the Landfill consists of a network of vertical LFG extraction wells, with mainly above-grade polyvinyl chloride (PVC) conveyance piping. There are three known sumps within the system for the collection of condensate, which are periodically pumped out, as necessary. The original LFG collection and conveyance system and LFGE facility at the Landfill became operational in 1985, with the enclosed flare installed in 2005, and expansion of the collection system occurring through 2008. The current LFGE system was installed and connected to the grid in 2009, and subsequently ceased operations on June 1, 2017. Since 2008, an additional 27 LFG extraction wells were installed, mainly to assist with LFG migration in the Northwest, West, and Southwest Areas. LFG is currently managed by the two enclosed flares installed in 2005. Details regarding the existing LFG collection system are presented in **Attachment F**.

### 4.7.2 Anticipated LFG Production

EA used the EPA Landfill Gas Emissions Model (LandGEM) to estimate LFG production to be used as the design basis. This information was used as the basis for determining the required well spacing and the locations for proposed LFG extraction wells. Based on the historical waste disposal records and estimates provided by the County during the preparation of the ACM, the anticipated LFG production was determined. Records indicate that the Landfill received an estimated volume of 5.16 million tons of waste throughout its operational years (1965 to 1982). A conservative capture efficiency of 75 percent was assumed for the EPA LandGEM analysis, which is included in **Attachment F**. The existing capture efficiency was not further evaluated since it is anticipated to vary from the existing due to the installation of a new gas collection and conveyance system and toupee cap. The quality of the gas was utilized as 50 percent methane in the model, although it is anticipated that the captured methane may range from 30 to 50 percent.

In the analysis, projected future LFG flow rates range from 60 to 475 standard cubic feet per minute (scfm) from calendar year 2018 to 2070, with an approximate mean value of 201 scfm (**Figure 3**).

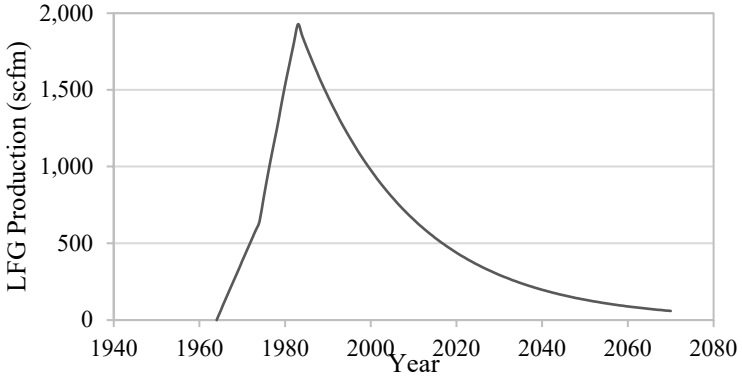


**Figure 3 Projected LFG Production from LandGEM Model**

Based on the LandGEM results, peak LFG production (1,925 scfm) occurred in 1983, approximately a year after the Landfill stopped accepting waste. The average LFG collection observed from November 2017 to April 2018 was 507 scfm. Due to the general agreement in observed LFG flow with the LandGEM model, an LFG production value of 507 scfm was utilized for the design basis. Based on 2019 monitoring data (January through November) collected by APTIM, the current LFG flow rate as measured at the flare station ranged from 354 to 734 scfm, with an average of 458 scfm. Therefore, 507 scfm is still considered conservative, but within the operational range currently observed.

### 4.7.3 System Design Details

The proposed LFG collection system will consist of the following primary components:

- Extraction wells (existing and proposed) with well heads for monitoring and control;
- New below-grade collection system piping (including laterals and header piping, and isolation valves);
- New condensate drains; and
- Existing blower-flare facility with:

  — Enclosed flares,
  — Blowers (primary and standby), and
  — Condensate knockout.

The existing LFG collection and conveyance system at the Landfill consists of a network of vertical LFG extraction wells, with mainly above-grade PVC conveyance piping. A substantial portion of the existing extraction well network and collection system of Landfill has been impacted due to the infrastructure age, waste settlement, and above-grade piping, which has been exposed to weather throughout the years. The existing collection system header and lateral piping will be demolished as the collection system will be re-designed and replaced with below-grade collection system piping to be connected with the existing enclosed flare system. Construction is to be phased to allow for the continual operation of the landfill gas collection and conveyance system in a manner that minimizes odors, LFG migration, and oxygen intrusion. The existing condensate