



Photo courtesy of SCS Engineers

Gauging the flow

WM's Gray Wolf Regional Landfill anticipates the installation of its first gas collection and control system by March 2023 with support from SCS Engineers.

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Since the U.S. Environmental Protection Agency (EPA) issued updated New Source Performance Standards (NSPS) in 2016, the way new, modified or reconstructed municipal solid waste landfills address landfill gas (LFG) emissions has changed.

The updated NSPS lowered the threshold emission rate for nonmethane organic compounds (NMOCs) from 50 megagrams per year (mg/yr) to 34 mg/yr, affecting an estimated 128 landfills. Those landfills that reach or exceed the 34 mg/yr limit are required to install and operate an LFG collection and control system (GCCS) within 30 months.

While some smaller landfills might not reach this limit, SCS Engineers' Southwest Region Manager Art Jones says landfills that are subject to heavy rainfall often produce higher quantities of NMOCs.

“The more rainfall you get, the more moisture is in the waste bed, and the faster degradation occurs,” he says.

Meanwhile, drier sites—typically found in the Southwest—could take longer or might never reach the permitted threshold.

In Dewey, Arizona, the Gray Wolf Regional Landfill, which provides disposal services for Yavapai County and northern Arizona, just reached the threshold. The landfill’s owner, Houston-based WM (<http://www.wm.com>), enlisted Long Beach, California-based SCS Engineers (<https://www.scsengineers.com/>) to construct its first GCCS.

According to SCS, the GCCS will be a critical component to keep Gray Wolf compliant with federal emissions standards. The system collects gases that are a natural byproduct of the decomposition of organic material in landfills and directs them to a central point where they are processed and combusted via flare.

“The system being installed includes a candlestick flare, also called a utility flare or open flare, [manufactured] by LFG Specialties,” Jones says. “We have experienced some delays due to supply chain issues, but completion will be before the NSPS deadline.”

Jones says the flare from LFG Technologies, based in Kalamazoo, Michigan, can burn the methane that is extracted from the 172-acre landfill with help from two centrifugal blowers that use suction to pull LFG from the waste mass.

The Gray Wolf Landfill “will pull the gas out of the landfill and send it to a utility flare where ... both methane and volatile organic compounds are destroyed,” he says.

As part of the GCCS, WM also will employ remote alarm systems at the site to offer personnel monitoring capabilities and respond to any system shutdowns.

“On a system like this, you can have the ability for continuous monitoring to make sure it’s operating at the proper temperature, the flow rates and vacuum levels are correct and that you don’t show any vibrations on the blower or any of the ancillary equipment,” Jones says.

“Although we have the capability to perform remote restarts when flares go offline, best practices recommend it be used with safety protocols in place, including cameras or video monitoring.”

While gas collection and flare systems are common at most landfills, he says SCS has been exploring new, more advanced technology to benefit landfill operators.

He says the engineering firm began implementing drones, GPS and remote monitoring software at some of its client's sites years ago.

"We have been, and are using more frequently, drones [to do] overflights at landfills to pinpoint methane emissions and to give ... a bird's eye view of what the landfill looks like," Jones says.

"Current regulations require you to walk the landfill, which can be effective, but the regulations stipulate that you can be 30 meters parallel pathway apart and have to check all your penetrations.

"So, in between those parallel pathways, there [are] large swaths of areas that don't get checked unless you see something visually, like dead vegetation or a crack that's going to clue you in to go over and check it as a technician."

The firm also uses a remote monitoring and control system, known as SCS RMC, to analyze landfill trends in real-time from devices such as smartphones, tablets or laptops.

"We retrofit those types of systems into older flares and older units so that those can be viewed online where they didn't have that capability before," Jones says. "So, you can verify everything is OK with the landfill. It also allows you to have ... backup storage capability for all your compliance monitoring data, your flare temperatures, flow rates, just to ... distribute things a little better so you're less likely to lose information."