LA COUNTY SOLID WASTE MANAGEMENT COMMITTEE/
INTEGRATED WASTE MANAGEMENT TASK FORCE

Sunshine Canyon Landfill Gas Beneficial Use Project Update

Sunshine Gas Producers, L.L.C.
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Landfill Energy Systems

Electric generation at landfills is recognized as environmentally beneficial waste management policy

- The US EPA runs the Landfill Methane Outreach Program to promote beneficial use of LFG
  - Projects help destroy methane, a potent heat-trapping gas.
  - Projects generate renewable energy and offset the use of non-renewable resources such as coal, natural gas, and oil.
  - Projects help reduce air pollution.
  - Projects create jobs and tax revenues
- Projects create no odors
- Projects enhance gas collection and thereby reduce odors.

The SGP Project Has the Lowest Emissions of Any LFG to Energy Facility Permitted by SCAQMD

- The facility meets or exceeds all applicable standards for emissions controls meeting SCAQMD standards for BACT
- Compared to the most recent permits
  - NOx emissions are 30% lower
  - CO emissions are 65 to 75% lower
  - PM emissions are lower than Chiquita and Bowerman and comparable to Calabasas (Sunshine siloxane content in LFG much higher than Calabasas so the Sunshine project more effectively removes particulates)

Permitted Emission Comparison to Other LFTGE Facilities (lb/MMBTU)

Landfill	NO_x	CO	PM_{10}
Sunshine Canyon (proposed)	0.067	0.068	0.019 [1]
Calabasas	0.103	0.302	0.017
Chiquita Canyon	0.098	0.289	0.023
Bowerman	0.108	0.209	0.021

[1] The PM emissions are slightly higher than the Calabasas project; however, this is likely due to the higher siloxane present in the landfill gas at SCLF (4 times higher than Calabasas) which would result in higher PM emissions.

The SGP Project has been studied and found to present no significant risk to neighbors or landfill workers

- South Coast AQMD released a draft Supplemental Environmental Impact Report finding no significant environmental impact for:
  - Oxides of nitrogen, particulate matter, health, noise and traffic among many others
  - Subsequently both NOx and CO emissions were reduced in our draft permit
- SGP Facility emissions will be safe for the neighbors
- SGP Facility will contribute to reduced LFG emissions from the landfill surface, reducing neighborhood odors

An independent engineering study has determined that further reductions are not feasible

- NOx
  - Negotiations with turbine supplier has resulted in equipment being supplied with 40% lower permit limits than studied in the DSEIR
  - Further NOx reductions measures would be counterproductive
    - SCR would result in creation of additional risks/impacts
      - introduction of ammonia emissions,
      - increase in odors associated with ammonia
      - increases in solid and hazardous waste generation and disposal
      - potential increase in truck traffic
- CO/VOC
  - Negotiations with turbine supplier has resulted in equipment being supplied with 60% lower permit limits than studied in the DSEIR
  - There is no demonstrated landfill gas-fired turbine with an oxidation catalyst that has lower sustained emissions than the proposed SGP project

An independent engineering study has determined that further reductions are not feasible

(Continued)

- PM
  - Further PM reductions were found to be technically infeasible
    - Cyclone is not suited for this application
      - Turbine PM emissions outside of effective removal range for device
    - Baghouse is not suited for this application
      - Exhaust gas temperature from turbines beyond typical baghouse maximum limit
    - Wet scrubber is not suited for this application, and would result in creation of additional risks/impacts
      - Exhaust gas temperature from turbines beyond typical wet scrubber maximum limit
      - Not efficient in situations where inlet PM loadings are as low as contained in turbine exhaust
      - Generate substantial water demand and wastewater that would likely be corrosive, requiring special treatment/handling
    - Wet Electrostatic Precipitator is not suited for this application, and would result in creation of additional risks/impacts
      - Exhaust gas temperature from turbines is well beyond typical wet ESP maximum limit
      - Potential to generate substantial water demand and wastewater that would likely be corrosive, requiring special treatment/handling
    - Dry Electrostatic Precipitator is not suited for this application, and would result in creation of additional risks/impacts
      - Turbine PM emissions outside of effective removal range for device

The SGP Project is part of the solution to the odor problems at the Sunshine Canyon landfill

- Energy recovery projects enhance gas collection and reduce odors (typical references below)
  - WRI, Opportunities with LFG – "LFGTE projects can also significantly reduce the odors associated with landfills"[1]
  - NYSDEC – "LFGTE facilities are typically considered to have a low environmental impact and a positive impact on landfills with respect to collection and use of landfill gas, which otherwise may cause odor or migration problems at landfills." [2]
  - EPA Landfill Outreach Methane Program website – "Thus, a landfill with an LFG energy facility, if subject to the NSPS rule, will likely have the same or lower amounts of fugitive emissions than a similar landfill that is simply flaring the gas."
- Generation facility creates no odors
- SGP's gas collection experience will supplement Republic to maximize gas collection
- Delivery of gas to one location will allow collection system to be balanced in a consistent manner and with fewer fluctuations due to blower flare shut downs

[1]World Resources Institute, p.5
[2]NY State Department of Conservation, Volume Four: Renewable Supply Technical Report, 2003, p. 4-110

The SGP Project will be a positive addition to the Sunshine Canyon landfill and is environmentally sound waste management policy

- LFG to energy projects are recognized as preferred waste management policy at municipal landfills
- The SGP facility will have the lowest emissions of any LFG to energy facility permitted by SCAQMD
- The SGP facility has been studied and found to have no significant impact on landfill neighbors
- A third party study, reviewed by SCAQMD, has determined that the facility has the lowest feasible emissions
- The SGP facility is part of the solution to the neighbors odor problems at the landfill

Questions?

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