

ROBERT D. VIERS, P.E.

## Education

B.S. - Mechanical Engineering, California State University, Long Beach, 1990



## Professional Licenses

Professional Engineer (Mechanical) – Arkansas (20349); Arizona (48242); California (M028717); Florida (P.E. 70021); Georgia (PE031135); Idaho (14186); Illinois (072966); Indiana (14186); Kentucky (32160); Louisiana (39237); Maryland (3587642); Michigan (6202070653); Minnesota (59030); Missouri (2006028560); Montana (18663); New Hampshire (11872); New Jersey (GE 047099); North Carolina (035595); Ohio (85515); Oklahoma (30784); Oregon (78321PE); Pennsylvania (PE072598); South Carolina (27351); Texas (99777); Utah (9127845-2202); Wisconsin (40412-6)

## Professional Experience

### Biogas to Energy

Robert D. Viers joined SCS Energy in 2004. He is SCS Energy's Business Unit Director and a Senior Vice President of SCS Engineers. Over the last 19 years, he supervised the design or design/construction of almost all of SCS Energy's landfill gas power generation projects and renewable natural gas projects. Mr. Viers was personally the Project Manager and Lead Design Engineer for the following projects:

#### **Bio Energy (Ohio II), LLC, Design/Build of a Landfill Gas Treatment Facility, Lowellville, OH.**

Design/build of a 9,000 scfm landfill gas to RNG plant employing pressure swing adsorption for carbon dioxide removal and pressure swing adsorption for nitrogen removal.

#### **Bio Energy (Ohio II), LLC, Design/Build of a Landfill Gas Treatment Facility, Oberlin, OH.**

Design/build of an 8,000 scfm landfill gas to RNG plant employing pressure swing adsorption for carbon dioxide removal, pressure swing adsorption for nitrogen removal, and a deoxo/dryer for advanced oxygen removal.

#### **EDL Energy, LLC., Design/Build of a Landfill Gas Treatment Facility, Lansing, MI.**

Design/build of a 4,000 scfm landfill gas to RNG plant employing membranes for carbon dioxide removal, pressure swing adsorption for nitrogen removal, and a deoxo/dryer for advanced oxygen removal.

#### **Will County, Design/Build of a Landfill Gas Treatment Facility, Wilmington, IL.**

Design/build of a 4,500 scfm landfill gas to RNG plant employing membranes for carbon dioxide removal and pressure swing adsorption for nitrogen removal.

#### **AgPower Jerome, LLC., Design/Build of a Dairy Digester Gas Treatment Facility, Jerome, ID.**

Design of a 1,400 scfm digester gas to RNG plant employing a wet hydrogen sulfide scrubber, chilling, and membrane carbon dioxide separation.

**Waste Management, Inc., Design of a Landfill Gas Treatment Facility, Skyline Landfill, Ferris, TX.**

Design of a 5,000 scfm landfill gas to RNG plant employing membranes for carbon dioxide removal and pressure swing adsorption for nitrogen removal.

**Calgren Dairy Fuels, Digester Gas Treatment Facility, Pixley, CA.**

Design of a 2,500 scfm digester gas to RNG plant employing a wet hydrogen sulfide scrubber, chilling, and membrane carbon dioxide separation.

**New Holland Landfill Gas Treatment Facility, New Holland, PA**

Thirty percent design of an 8,500 scfm landfill gas to RNG plant employing membranes for carbon dioxide removal and pressure swing adsorption for nitrogen removal.

**Waste Management, Inc., Design of a Landfill Gas Treatment Facility, Outer Loop Landfill, Louisville, KY.**

Design of a 5,000 scfm landfill gas to RNG plant employing membranes for carbon dioxide removal and pressure swing adsorption for nitrogen removal.

**University of California Office of the President, Design of a Landfill Gas Treatment Facility, Shreveport Landfill, Shreveport, LA.**

Thirty percent design of a 2,800 scfm landfill gas to RNG plant. The facility would have converted landfill gas to pipeline quality gas utilizing pressure swing adsorption process for carbon dioxide removal. Concept was changed to employ membranes for carbon dioxide removal. Supervised the complete design of this alternative approach. Design/build project.

**Orlando Utilities Commission, Orlando, FL.**

Expansion of a 4,000 scfm landfill gas processing facility to 8,000 scfm. Performed on a design/build basis. The project employs multistage centrifugal blowers, flooded screw compressors, and R-134 based refrigerant system.

**BioFuels Energy, LLC, Design of a Digester Gas Treatment Facility, Point Loma Wastewater Treatment Plant, San Diego, CA.**

Design of a 1,200 scfm digester gas to high-Btu gas plant. Facility converted digester gas to pipeline quality gas utilizing membrane separation technology. Gas is injected in to the local natural gas utilities distribution network. Design/build project.

**City of Fresno, Design of a Digester Gas Treatment Facility, Fresno/Clovis Wastewater Reclamation Facility, Fresno, CA.**

Design of a 1,500 scfm digester gas to high-Btu gas plant. Facility converted digester gas to pipeline quality gas utilizing membrane separation technology. Gas is combusted in an on-site gas turbine, offsetting natural gas consumption. Design/build project.

**Kootenai Electric Cooperative, Design of a Landfill Gas to Energy Facility, Fighting Creek Landfill, Coeur d'Alene, ID.**

Design of a 3.2 MW landfill gas to energy facility. The project incorporates a 1,200 scfm landfill gas pressurization and moisture removal skid and two 1.6 MW engine/generators. Provided construction management oversight as Owner's Engineer.

**Metrogas, S.A., Design of a Digester Gas Treatment System, La Farfana Wastewater Treatment Plant, Santiago, Chile.**

Design of a 2,300 scfm digester gas to high-BTU facility in Santiago, Chile. The facility produces pipeline quality gas for distribution to Metrogas' customers. Work included process design, equipment specification and selection, detailed construction drawings, and start-up supervision.

**Chevron Energy Solutions Company, Design/Construct of a Landfill Gas to Energy Facility, Marine Corps Logistics Base, Albany, GA.**

Design and construction of a 1.9 MW landfill gas utilization facility. The project incorporates a 1,000

scfm landfill gas compression and chiller skid, a landfill gas transmission pipeline, and a 1.9 MW reciprocating engine/generator set. The facility will also produce steam from the engine exhaust and has supplemental landfill gas fired boilers. The facility is the first landfill gas fuel cogeneration plant at a Marine base in the United States.

**Orlando Utilities Commission, Orlando, FL.**

Design and construction of a 4,000 scfm landfill gas processing facility. The project employs multistage centrifugal blowers, flooded screw compressors, and R-134 based refrigerant system.

**Confidential Client, Design of a Landfill Gas to Energy Facility, Leola, PA.**

Design of an 11.8 MW landfill gas utilization project. The project employs two Solar Taurus combustion turbines and waste heat recovery boilers which produce 60,000 lb/hr of steam.

**Waste Industries USA, Inc., Design of a Landfill Gas to Energy Facility, Sampson County Landfill, Roseboro, NC.**

Design of a 9.6 MW landfill gas utilization facility. The project incorporates a 2,600 scfm landfill gas pressurization and moisture removal skid and six 1.6 MW engine/generators.

**University of New Hampshire, Design of a Landfill Gas Processing Facility, Rochester, NH.**

Design of a 6,000 scfm high-Btu landfill gas processing plant. The facility utilizes multiple stages of compression and gas cleaning to obtain high-Btu landfill gas for use in the client's combined cycle power plant. Equipment included non-regenerative hydrogen sulfide removal (SulfaTreat), pressure swing adsorption and temperature swing adsorption. The facility also includes 3.2 MW of on-site power generation to support on-site loads. Design/build project.

**Metrogas, S.A., Design of a Digester Gas Cleanup Facility, La Farfana Wastewater Treatment Plant, Santiago, Chile.**

Design of a 2,500 scfm digester gas cleanup and compression facility for Metrogas, S.A. in Santiago, Chile. The facility compressed and dehydrated 2,500 scfm of digester gas before sending it down a 3 mile pipeline to the town Gas Works. The fuel is used in a reforming process to produce town gas. Responsibilities included process design, equipment specification, and start-up supervision.

**Monmouth County, Design of a Landfill Gas to Energy Facility, Monmouth County Reclamation Center, Tinton Falls, NJ.**

Design of a 970 kW landfill gas utilization facility. The project incorporates a 500 scfm landfill gas pressurization and moisture removal skid and a 970 kW reciprocating engine/generator set. The facility provides power to onsite electrical loads, exporting excess power to the electrical grid. The facility came on line in April 2008. Responsibilities included process design, facility layout, equipment selection, and project management.

**DeKalb County, Design of a Landfill Gas to Energy Facility, Seminole Road Landfill, Ellenwood, GA.**

Design of a 3.2 MW landfill gas utilization facility project. The project incorporates a 1,300 scfm landfill gas pressurization and moisture removal skid and two 1.6 MW reciprocating engine/generator sets, with facilities for installation of a third, in a prefabricated metal building. The facility was designed as a showcase facility for DeKalb County to highlight their continued effort to develop environmentally friendly projects that benefit the citizens of the County. His responsibilities included securing an electrical interconnect agreement with Georgia Power.

**Oregon Environmental Industries, Design of a Landfill Gas to Energy Facility, Dry Creek Landfill, Eagle Point, OR.**

Design of a 3.2 MW landfill gas utilization facility project. The project incorporates a 1,300 scfm landfill gas pressurization and moisture removal skid and two 1.6 MW reciprocating engine/generator sets, with facilities for installation of a third, in a prefabricated metal building. The facility was designed as a showcase facility for Oregon Environmental Industries to highlight their continued effort to develop environmentally friendly projects. The project began operation in April

2007. His responsibilities included assisting the Owner in securing an electrical interconnect agreement with PacifiCorp.

**County of Sonoma, Design of a Compressed Natural Gas (CNG) Facility, Central Landfill, Petaluma, CA.**

Construction and operation of a pilot scale landfill gas to high-Btu processing facility. The process includes the removal of carbon dioxide, hydrogen sulfide, VOC's and other contaminants from landfill gas and compression to 2,600 psig to produce automotive quality CNG. Equipment includes two stages of compression, adsorbent media, CO<sub>2</sub> removal membranes, and associated instrumentation and controls. Responsibilities include securing necessary operating permits from the BAAQMD.

**ALZA Corporation, Design of a Landfill Gas to Energy Facility, Mountain View, CA.**

Design of a 2.9 MW landfill gas utilization project. The project incorporates a 1,300 scfm landfill gas pressurization and moisture removal skid, a two mile landfill gas transmission main, and three 970 kW reciprocating engine/generators at three separate office buildings. Waste heat is used to produce hot water for use in the buildings. The project was commissioned in Spring 2006. Responsibilities included securing the PG&E interconnection.

**JM Electric, Design of a Digester Gas Pretreatment Skid, Carmel Wastewater Treatment Plant, Carmel, CA.**

Design and fabrication of a digester gas compressor/gas clean-up skid for a microturbine power plant at the Carmel, California wastewater treatment plant.

**PPL Energy Plus, LLC, Design of a Landfill Gas to Energy Facility, Lancaster Landfill, Conestoga, PA.**

Design of a 3.2 MW landfill gas fired reciprocating engine facility at a landfill. The project incorporated waste heat recovery in the form of steam for export to a dairy.

**Stewart and Stevenson, Cogeneration Facility Modifications, Bradley Landfill, Sun Valley, CA.**

Design and installation of a 6,000 scfm blower retrofit, and in a subsequent assignment for complete rehabilitation of a 2,000 scfm compressor and moisture removal facility at this same landfill.

**Alliance Monterey, LLC, Design of a Fuel Cell Power Plant, Sierra Nevada Brewing Company, Chico, CA.**

Design of 1.0 MW natural gas fired fuel cell cogeneration plant.

Prior to joining SCS, Mr. Viers was employed by a company that designed, manufactured and provided maintenance services for customized mechanical skids and mechanical packages for a wide range of industries. His responsibilities included review of proposals from bidders and subcontractor's submittals for compliance with project specifications, codes and regulations, and company standards; equipment inspections during fabrication; management of personnel; preparation of project budgets; equipment commissioning; and technical support and specifications. Fabricated packages utilized positive displacement blowers, sliding vane compressors, multi-stage centrifugal blowers, pumps, liquid ring vacuum pumps, and other rotating equipment used in the environmental, power, water and wastewater treatment, flash-freezing, and commercial sectors.