

JOSHUA G. ROTH, PE

Education

M.S. - Civil (Environmental) Engineering, Virginia Tech University, 2005

B.S. - Civil (Environmental) Engineering, University of Pittsburgh, 1994

Professional Licenses

Professional Engineer Registered in Virginia and Pennsylvania

40-Hour OSHA Health and Safety Training for Hazardous Materials Site Workers

Professional Affiliations

Pennsylvania Waste Industries Association (PWIA) Air Technical Committee

Professional Experience

Mr. Roth is a Project Director and Vice President in SCS's Reston, VA office and serves as SCS's Landfill Gas and Clean Air Act Permitting practice leader for the office. He has over nearly 30 years of professional experience, including over 25 years with SCS working on a wide variety of projects. His professional experience is focused primarily on projects throughout Pennsylvania, the mid-Atlantic region, and EPA Region III however he has experience on many projects throughout the U.S. and abroad. Mr. Roth is one of SCS's national experts in the area of air quality and Clean Air Act services.

Mr. Roth's extensive and diverse experience is focused primarily in the areas of air quality, greenhouse gases, State and Federal air regulations (Title V, NSR, NSPS, NESHAP, MACT), landfill gas engineering and operations, odor control and mitigation, gas system troubleshooting, landfill design and permitting, air emission inventories, source testing, dispersion modeling, renewable energy and renewable natural gas, gas transmission pipeline design, regulatory compliance audits, gas modeling and projections, sampling and testing, site assessments, voluntary carbon reduction, and economic feasibility studies.

A summary of this expertise includes the following:

- Over two decades of experience with all aspects of air permitting for new sources (including minor source and PSD major source), operating permits and renewals, permit modifications, general permits, permitting/exemptions applicability determinations, draft permit review and negotiations.
- A long history of air permitting, compliance support, and reporting in Pennsylvania including working with staff in PADEP's central office and the various regional offices.
- Involved with air permitting and permit modifications at over 50 facilities including air regulatory compliance support at over 50 facilities, primarily in the areas of solid waste and renewable energy and compliance with various state and Federal air regulations including greenhouse gases (GHG) and NSPS, NESHAPs, MACT, RACT, BAT, and BACT.
- Air permitting, compliance, due diligence and other related support on dozens of landfill renewable energy and renewable natural gas (RNG) projects
- Extensive experience with all aspects of landfill gas collection and control system engineering and design, system operations and troubleshooting, and construction engineering support at dozens of landfills throughout the US and abroad.

- LFG and air monitoring and testing, source testing, odor studies and management plans.
- Development and presentation of landfill gas and air permitting and compliance training materials at many seminars and through Solid Waste Association of North America (SWANA).

A few specific examples of recent related project experience include:

Blue Ridge Landfill, PA. Project manager and lead design engineer for the initial gas system and subsequent expansions and the blower/flare station. Responsible for all air permitting at the site as well as NSPS and Title V compliance services, such as Title V reporting and compliance, preparation of Title V renewal applications, NSPS Tier 2 reporting. Also involved with the development of the 3rd party LFGTE project at the facility and the site's voluntary carbon reduction project with Terrapass.

Bethlehem Landfill, PA. Project manager and lead design engineer for air emissions and LFG consulting services for the landfill. Specific tasks include: regular Title V and NSPS compliance reporting, preparation of Air Plan Approval applications, design of LFG system expansion and flaring station, and Title V permitting. Also involved with the development of LFGTE projects at the facility including the prior turbine plant and renewable natural gas project.

Waste Management Inc. Landfills Air Permitting and Compliance. Project manager and lead for SCS's ongoing landfill gas consulting services at a number of WM facilities throughout the mid-Atlantic including Pine Grove Landfill (PA), Dauphin Meadows Landfill (PA), Mountain View Reclamation Landfill (PA), Grand Central Sanitary Landfill (PA), Pottstown Landfill (PA), Alliance Landfill (PA), GROWS and GROWS North Landfills (PA), Tullytown Landfill (PA), L&D Landfill (NJ), Parklands Landfill (NJ), Middle Mar Tee Landfill (NJ), Cinnaminson Landfill (NJ), Moretown Landfill (VT), Granby Landfill (MA), Cottage Street Landfill (MA), LCS Landfill (WV).

Republic Services Inc. Landfill Air Permitting and Compliance. Practice lead for various SCS landfill gas and permitting services at a number of Republic Services landfills throughout the mid-Atlantic.

Energy Power Partners (EPP), Ameresco Energy, Archaea Energy, Aria Energy, Green Gas Americas: Air permitting and operating permits, dispersion modeling, risk assessment permitting strategies at various renewable energy and renewable natural gas projects throughout the East Coast for several project developers.

Blythe Recycling and Demolition Site (BRADS), PA. Project manager for air permitting support for the BRADS C&D landfill. Air Plan Approval application for the planned facility, and development of various solid waste permitting forms related to gas control and air emissions from the planned facility. Air permitting and associated odor control work for the ongoing gas collection and treatment system.

McKean County, PA. Program Manager and lead engineer for our engineering consulting services for Casella at the landfill. Engineering LFG system design and expansion, new source and Title V air permitting, and various compliance and reporting services including certifications, emissions reporting, inspections, etc.

Greater Lebanon Refuse Authority, PA. Program Manager and lead engineer for our engineering consulting services for the Authority. New source and Title V air permitting, compliance audit, and various compliance and reporting services including certifications, emissions reporting, greenhouse gases, inspections, etc.

Lancaster County Solid Waste Authority, PA. Program Manager for our engineering consulting services for the Authority at the Frey Farm landfill. New source and Title V air permitting, compliance

audit, and various compliance and reporting services including certifications, emissions reporting, greenhouse gases, inspections, etc.

Rockingham County, VA. Program Manager and lead engineer for our engineering consulting services for the County. Engineering LFG system design and expansion, new source and Title V air permitting, landfill cell design and construction activities, odor testing and management plan, and various compliance and reporting services including certifications, emissions reporting, inspections, etc. Engineering project manager and lead design engineer for the engineering of the 3-mile transmission pipeline to deliver gas to RMH for use in its boilers.

Shenandoah County, VA. Project Manager and lead engineer for landfill gas consulting services for the County's landfill. Services have included gas system engineering and expansion, VDEQ and EPA permitting, odor management plan, air compliance and reporting, subsurface methane remediation and reporting, gas system troubleshooting and repairs, and renewable energy project feasibility and evaluation.

US Coast Guard (USCG) in Baltimore. New source permitting, operating permits, compliance audits, NESHAP compliance, emissions inventories, LFGE plant consulting and testing.

Anne Arundel County, MD. Project manager and lead design engineer for a variety of services, including air testing, landfill gas system engineering, air permitting, Clean Air Act (CAA) Title V reporting services (and EPA NSPS/NESHAP operational reporting), and emissions inventory and air toxic reports in accordance with EPA and MDE regulations.

Howard County, MD. New Cut and Alpha Ridge Landfills Design services of a comprehensive LFG collection and control systems at both landfills, including review of existing site conditions and requirements for LFG migration control at the site for final design of the site's LFG collection system, which included the development of construction drawings and specifications. Flare station design, Tier 2 testing, NSPS consulting, CQA.

Hilltop C&D Landfill, VA. Project manager and lead design engineer for the gas system and subsequent expansions and the blower/flare station. Performed site testing for odor assessment and control at the landfill, gas migration assessments and dispersion modeling, post-closure care site use including development of a golf course and retail shopping. Also involved with the evaluation and development of the voluntary carbon reduction project at the closed landfill.

Augusta County, VA. Project Manager and lead engineer for landfill gas consulting services for the Augusta County Service Authority. Services have included VDEQ and EPA permitting, compliance and reporting, new source permitting and planning, Title V permitting, regulatory compliance, greenhouse gas emissions, and EPA Tier 2 NMOC testing and reporting.

Cumberland County Solid Waste Complex, NJ. Permit and design assistance of the LFG collection and flaring system at the Cumberland County Landfill. Air permit application for the construction of the LFG flaring system at the landfill, and updated Title V application. Also prepared conceptual design for a combined leachate recirculation system and future LFG system expansion.