
PATRICK S. SULLIVAN, BCES, CPP, REPA

Education

BA – Harvard University, Biology/Ecology, 1989

Professional License/Certifications

Approved Lead Verifier under California Air Resources Board (CARB) AB 32 Greenhouse Gas (GHG) Program
Board Certified Environmental Scientist, No. 15-ES009, American Academy of Environmental Engineers & Scientists
South Coast Air Quality Management District, Certified Permitting Professional (No. A-1716)
Registered Environmental Property Assessor, No. 519692, National Registry of Environmental Professionals

Professional Affiliations

Solid Waste Association of North America (SWANA): Vice Director, Landfill Gas (LFG) Division
Air and Waste Management Association (AWMA); Vice Chairman, Mother Lode Chapter
Technical Advisory Group; Cal Recycle, LFG
Technical Advisory Group, CARB, AB 32 Landfill Methane Rule
Waste Industry Air Coalition (WIAC); Co-Chairman
California Biomass Collaboration; Executive Board
Solid Waste Industry Group in California
Solid Waste Industry for Climate Solutions (SWICS), Co-Chairman
Society for Risk Analysis

Professional Experience

Mr. Sullivan has over 25 years of experience in the area of environmental engineering, specializing in solid waste management and other environmental issues. He is the Managing Director of SCS Engineers (SCS) consulting and engineering operations within the Southwestern United States, the largest of all of SCS's engineering business units. He also serves as the Practice Leader for SCS's Solid Waste Practice in the same region. Mr. Sullivan is the National Expert for SCS's companywide Air Quality program. He also oversees SCS's company-wide GHG and Risk Assessment programs and is one of the national experts on risk assessment and toxic exposure issues for solid waste facilities. Mr. Sullivan is a company Senior Vice President and Member of the Company's Management Advisory Committee. He is also Principal-in-Charge for projects related to solid waste facility investigation and risk assessment, redevelopment, LFG engineering, air quality permitting and compliance, GHG emissions, and groundwater investigations at solid waste and other industrial facilities, as well as related engineering services. Mr. Sullivan has published and/or presented over 100 technical papers in industry journals, publications, conferences, seminar, and workshops.

Because of this expertise, Mr. Sullivan has been involved with the following practices and projects:

Air Quality

Title V Permit Applications and Documentation for Industrial Facilities and Landfill Sites. Mr. Sullivan has been involved with over 125 Title V permitting projects, including Title V compliance reporting for over 75 facilities.

New Source Review (NSR)/Prevention of Significant Deterioration (PSD) Permit Applications and Documentation for Industrial Facilities and Landfill Sites. Mr. Sullivan has been involved with over 65 NSR/PSD projects for various types of industrial facilities. This includes permitting for over 25 landfill expansions.

New Source Performance Standard (NSPS) Applicability Reviews and Compliance Activities. Mr. Sullivan has overseen the completion of NSPS Tier 1 and 2 emission rate studies and reports, LFG system (GCCS) design plans, surface emission monitoring plans, and other documentation for landfills under the NSPS program. Mr. Sullivan has been involved with over 100 NSPS/Emission Guideline (EG) projects, including compliance reporting for over 85 landfill sites. In addition, Mr. Sullivan has worked on NSPS compliance activities for various other sources, including boilers, incinerators, engines, turbines, etc.

National Emission Standards for Hazardous Air Pollutants (NESHAPs)/Maximum Achievable Control Technology (MACT) Compliance Activities. Mr. Sullivan has been involved with over 85 NESHAPs/MACT projects for various regulated sources, including development of Startup, Shutdown, and Malfunction (SSM) plans and various other compliance documents.

Development and Teaching of Training Courses for Air Quality Compliance at over 40 Seminars. Compliance and regulatory issues that have been taught included Title V, NSPS, NESHAPs/MACT, NSR/PSD, Urban Air Toxic Strategy (UATS), GHG reporting and permitting, and related state and local requirements.

Regulatory Advocacy for the Landfill Industry on the NSPS Rule, Title V Operating Permit Programs, NESHAPs rule, and other regulations, where landfills are included as a regulated source. Mr. Sullivan has developed industry comments and negotiated with the agencies on behalf of the industry.

Preparation of Numerous Local Air District, State, and Federal Permitting Documents for the installation of air pollution control devices and industrial equipment, including boilers, cooling towers, air strippers, wastewater treatment plants, biogas collection systems and flares, biogas and recovery plants, and various industrial systems. Mr. Sullivan has managed over 125 state or local air permitting projects for landfills and industrial facilities.

Permitting, Compliance, and Due Diligence Projects for over 35 Renewable Energy Projects throughout the United States. Some of these projects have also included registration of GHG credits, facilitation of trades for GHG credits, and development of methodologies for estimation of GHG reductions as well as all of the air quality permitting tasks. Mr. Sullivan has permitted over 35 biogas to energy plants across the country.

Air Quality and Risk Assessment Sections of Environmental Impact Reports (EIRs) for approximately 35 landfill expansions, new landfills, transfer stations, other solid waste facilities, and various commercial/industrial projects in California, including evaluations of health risks, air quality, GHG, and/or odors. This has included the preparation of a variety of California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) documentation.

Air Quality Solid Waste Assessment Tests (SWATs) for various landfill sites in California.

Air Sampling and Source Testing for Various Emitting Devices, including sampling for volatile organic compounds (VOCs), criteria pollutants, particulate heavy metals, and asbestos fibers. Completion of all air sampling associated with asbestos abatement. Oversight of source testing at over 75 landfill sites and development of a database of landfill source tests for use in the work of the WIAC.

Mr. Sullivan has completed air permitting and compliance activities for the following types of industrial facilities:

- Solid waste incinerators.
- Biomass energy plants.
- Landfills.
- Recycling facilities and transfer stations.
- LFG recovery plants.
- Cement and asphalt plants.
- Chemical manufacturing facilities.
- Aerospace facilities.
- Jewelry manufacturing facilities.
- Sand and gravel facilities.
- Electronics facilities.
- Site remediation projects.
- Paint and solvent manufacturing plants.
- Boat manufacturing plants.

Completed Landfill Air Quality Services in the Following States and Air Districts: San Joaquin Valley Air Pollution Control District (APCD), Bay Area Air Quality Management District (BAAQMD), South Coast AQMD, Sacramento Metropolitan AQMD, San Diego County APCD, Yolo-Solano AQMD, Feather River AQMD, Kern County APCD, Ventura County APCD, Santa Barbara County APCD, Shasta County APCD, Antelope Valley APCD, Mojave Desert AQMD, Placer County APCD, North Coast Unified AQMD, Butte County APCD, and El Dorado County APCD. States of Nevada, Oregon, Washington, Hawaii, Arizona, Idaho, Montana, New Mexico, Colorado, Utah, Texas, Ohio, Pennsylvania, Illinois, Kansas, Virginia, Oklahoma, and several others.

Landfill Gas

Project Director and Manager for Design, Bidding Support, and Construction Oversight for LFG Migration Control System, Highway 59 Landfill, Merced County, CA. The system was designed to prevent LFG migration and provide corrective action for groundwater impacts. The

system successfully remediated LFG migration and brought the facility in compliance with Subtitle D requirements. The LFG system was subsequently upgraded to meet NSPS and California AB 32 requirements. Currently, Mr. Sullivan oversees the O&M of the LFG system, as well as the project to design and provide construction quality assurance (CQA) for a major expansion of the existing LFG system. In addition to the LFG services, Mr. Sullivan has completed a variety of air quality tasks for the project.

Project Director, Completion of Various LFG Engineering and Construction Oversight and Groundwater Services, Various Waste Management, Inc. (WM) Landfills. Landfill sites included Bradley, Simi Valley, Columbia Ridge, DADS, Lancaster, Redwood, Lockwood, Antelope Valley, Rio Rancho, Butterfield, Northwest Regional, Anderson, and El Sobrante. Engineering tasks have included design of wellfield expansions, new blower/flare stations, header upgrades and replacements, groundwater monitoring and reporting, groundwater corrective action plans, as well as a variety of air quality services. These projects are generally completed on a design-build basis.

Project Director and Manager, LFG Engineering, American Avenue Landfill, Fresno County, CA. SCS first developed an LFG master plan for the site. Upon completion of the conceptual plan, Mr. Sullivan oversaw the completion of the engineering design, including preparation of formal plans and specifications for bidding for the original and one expansion to the LFG system. Bid assistance as well as construction management and CQA services were provided to the County. The County expanded SCS's contract to include O&M of the LFG system as well as design of two subsequent phases of LFG system expansion. In addition to the LFG services, Mr. Sullivan has completed a variety of air quality tasks for the project.

Project Director and Manager, Completion of LFG Planning and Engineering for Republic Services (Republic's) Otay, Vasco Road, West Contra Costa Sanitary, Foothills, Tower Road, ECDC, Ox Mountain, Wasatch, and Sycamore Landfills. Engineering tasks have included design of wellfield expansions, new blower/flare stations, and header upgrades and replacements as well as CQA. Under SCS's direction, SCS upgraded Republic's LFG Master Plans and prepared an LFG remediation plan to address LFG migration issues. In addition to the LFG services, Mr. Sullivan has completed a variety of air quality tasks for the projects. SCS has completed design-build services for the LFG systems on several of these sites.

Project Director and Manager, Planning, Design, and Construction Oversight for LFG System at Recology's Landfills, CA. Project Director and Manager for the planning, design, and construction oversight for an expansion to the LFG system at Recology's Pacheco Pass, Ostrom Road, and YSDI Landfills to address air quality requirements, LFG migration, and groundwater impacts. These projects were completed on a design-build basis. In addition to the LFG services, Mr. Sullivan has completed a variety of air quality tasks for Recology landfills.

Project Director and Manager, Completion of LFG Planning and Engineering for Waste Connections, Inc.'s (WCI's) Chiquita Canyon, Fairmead, Potrero Hills, and Avenal Landfills. Engineering tasks have included design of wellfield expansions, new blower/flare stations, and header upgrades and replacements, as well as CQA. SCS has upgraded WCI's LFG Master Plans and developed long-term cost estimates for LFG system expenditures. In addition to the LFG services, Mr. Sullivan has completed a variety of air quality tasks for the project. SCS has completed design-build services for some of the LFG systems on these sites.

Project Director and/or Manager, Various Other LFG Planning or Engineering Projects throughout California, Oregon, and Colorado, including Stanislaus County's Geer and Fink Road Landfills, Butte County's Neal Road Landfill, Sunnyvale Landfill, L&D Landfill, Sacramento County's Kiefer Landfill, Madera County's Fairmead Landfill, Yolo Central Landfill, as well as various other smaller closed landfill sites. Many of these projects included engineering design, CQA, and/or design-build of LFG system expansions.

CEQA/NEPA Analyses

CEQA Air Quality Analysis and Toxics Risk Assessment, Proposed Expansion to Fink Road Landfill, Stanislaus County, CA. As part of an EIR for a proposed expansion to the Fink Road Landfill in Stanislaus County, CA, SCS completed an air toxics risk assessment, which evaluated the potential human health impacts due to current and future exposures from the project. The risk assessment was part of a larger air quality analysis completed for the expansion EIR. The analysis included an evaluation of health risk due to diesel exhaust from heavy equipment and refuse hauling vehicles at the landfill. As part of this project, SCS also researched the conversion of refuse hauling fleets to alternative fuels in order to generate ERCs for CEQA mitigation measures.

CEQA Air Quality Analysis and Toxics Risk Assessment, Salinas Valley Solid Waste Authority Landfill Project, Monterey County, CA. SCS completed air quality and risk assessment sections of a large EIR being prepared for long-term refuse collection and disposal options for the Salinas Valley Solid Waste Authority's Regional Landfill Project. The project included three landfills and 10 transfer stations, which were combined into four different project scenarios. The project included emissions estimates, air dispersion modeling, and risk calculations. The analysis included an evaluation of health risk due to diesel exhaust from heavy equipment and refuse hauling vehicles at the landfills and transfer stations, which were part of the project.

CEQA Mitigation Measures Development and Implementation for El Sobrante Landfill, Corona, CA. SCS was enlisted to develop a series of mitigation measures for fugitive dust emissions from landfill construction and operations at the El Sobrante Landfill in Corona, CA. SCS also developed an implementation plan for the CEQA Mitigation Monitoring and Reporting Program (MMRP), which was required as part of the approval of the EIR. SCS is currently doing ambient monitoring for particulate matter less than 10 microns (PM10) levels and working with the SCAQMD to develop a long-term strategy to reduce dust emissions.

Landfill Risk Assessment, Closure and Post-Closure Development BKK Landfill, West Covina, CA. As part of an EIR for proposed closure and post-closure development of the Class III portion of the BKK Landfill, SCS completed a risk assessment that evaluated the potential human health impacts due to current and future exposures to contaminants in LFG and other environmental media. The risk assessment was part of a larger air quality analysis completed for the EIR. Through reasonable risk estimates, SCS was able to demonstrate that the proposed development of the landfill (i.e., golf course and Business Park) could occur without causing adverse health effects above CEQA significance levels.

CEQA Air Quality Analysis and Toxics Risk Assessment Proposed Expansion to Newby Island Sanitary Landfill, Santa Clara County, CA. As part of an EIR for a proposed expansion

to the Newby Island Sanitary Landfill in Santa Clara County, CA, SCS completed an air quality impact analysis that included a risk assessment evaluating the potential human health impacts due to current and future exposures to contaminants from the project. The risk assessment was part of a larger air quality analysis completed for the expansion EIR. The project included emissions estimates, air dispersion modeling, GHG evaluation, and risk calculations.

Landfill Investigation and Risk Assessment

Landfill Investigation, LFG Engineering, Human Health Risk Evaluation and Impact Assessment, Proposed Residential Developments, Adjacent to the Otay Landfill, Chula Vista, CA. Project activities at the site have included an evaluation of LFG migration, LFG engineering and testing, air quality permitting and compliance, soil and LFG sampling and analysis, human health risk assessment and nuisance/odor evaluation, CEQA assistance, operations and maintenance of the LFG collection and control system, and other landfill engineering and construction services. The risk assessment and odor/nuisance analysis was completed to support residential development adjacent to the landfill.

Environmental Investigations and Risk Assessment at the Former BKK Main Street Landfill in Los Angeles County. This landfill is a closed site that may have received both hazardous and non-hazardous wastes; it is currently occupied by two golf courses and other commercial and residential developments and is being considered for additional redevelopment. Project work at this facility has included completion of soil vapor surveys, installation and monitoring of LFG migration probes, LFG sampling/analysis, oversight of cover and subsurface soil and groundwater sampling, completion of a human health risk assessment, CEQA assistance, and negotiations with regulatory agencies. The site is currently being considered for listing on the National Priorities List (NPL) as a potential Superfund site. Oversight of the landfill is provided by EPA Region IX, Department of Toxic Substance Control (DTSC), and the Los Angeles County landfill local enforcement agency (LEA).

LFG Assessment, Cover Maintenance, and Monitoring, Cogen Kramer Landfill, Los Angeles, CA. The site is located adjacent to residential development, and two County correctional facilities have been developed on landfill property. Project tasks include LFG assessment, installation of LFG migration probes, emergency cover repair and ongoing cover maintenance, preparation of LFG and cover assessment work plan, regulatory liaison with the Los Angeles County LEA, Cal Recycle, and the South Coast AQMD. In addition, methane monitoring is conducted associated with the use of one of the closed jail facilities for TV and movie productions.

Environmental Monitoring and Postclosure Care, Cal-Compact Landfill, Carson, CA. The site is a former hazardous waste landfill that is being considered for redevelopment. The site is currently under the oversight of the DTSC. Project tasks have included LFG assessment, LFG engineering, design of methane protection systems, and development of an LFG monitoring program. In addition, Mr. Sullivan currently oversees the completion of postclosure care services at the site, including LFG monitoring, LFG system operations and maintenance (O&M), groundwater sampling and analysis, cover maintenance and repair, site security, storm water sampling/analysis and inspections, and regulatory liaison.

LFG Assessment, Cover Maintenance, and Monitoring, Lane Road Disposal Site, Irvine, CA. The site is located adjacent to residential development and has been redeveloped into a golf

course. Project tasks have included LFG assessment, including methane testing in nearby homes, installation of LFG migration probes, cover repair and ongoing cover maintenance, preparation of LFG assessment and cover maintenance plan, regulatory liaison with the Orange County LEA, Santa Ana Regional Water Quality Control Board (RWQCB), CIWMB, and SCAQMD. SCS also completed the design and installation of LFG collection and control system to prevent migration onto residential properties.

Human Health Risk Evaluation and Impact Assessment, Proposed Commercial Developments, On and Adjacent to the BKK Landfill Site, West Covina, CA. The BKK site includes two landfills: one municipal solid waste landfill and one hazardous waste site, which are under the oversight of DTSC. Mr. Sullivan provided oversight for the completion of various investigations and data reviews/analyses of soil, surface water, groundwater, LFG, and air quality. The data were used for the completion of a human health risk assessment in support of the CEQA process for a proposed golf course and business park development on the Class III landfill.

Burn Dump Investigation in San Joaquin County, CA. As part of this project, Mr. Sullivan provided technical oversight for investigations of a burn dump site, which included soil investigations, trenching investigations to determine extent of refuse, LFG migration assessment, waste sampling/analysis, hazardous waste determination, and other project tasks. The project site was slated for residential development; therefore, all project elements were completed in consideration for this type of development.

Investigation, Risk Assessment, and Remediation Kaiser Ventures, Inc., Facilities, Fontana, CA. For the former Kaiser Steel plant in Fontana, Remedial Investigation (RIs)/Feasibility Studies (FSs), Remedial Action Plans (RAPs), and Remedial Designs were prepared for three on-site operable units under DTSC's oversight. Mr. Sullivan was responsible for a number of individual soil, groundwater, surface water, and waste investigations at the Kaiser site, including treatability studies, risk assessments, RAPs, and hydrogeological studies, storm water pollution prevention plans, and spill prevention, control, and countermeasure (SPCC) plans. These projects included investigations of two landfill sites, with both hazardous and non-hazardous wastes, including soil, waste materials, hazardous waste, groundwater, and surface water issues. The site has been redeveloped into the California Speedway, a NASCAR race track.

Investigation, Risk Assessment, and Remediation Feasibility Study, Mission Bay Landfill, San Diego, CA. For this site, Mr. Sullivan managed a significant forensic investigation and site assessment of the former landfill site, which is located next to a river, bay, and amusement park and is used heavily for recreational purposes. This work has included investigations of extent of refuse, cover thickness, LFG composition and migration, soil, surface water, groundwater, and other environmental media associated with Mission Bay. The field investigations will be followed by a risk assessment, and, given the highly visible and public nature of the landfill project, focus on risk communication will be of primary importance. Ultimately, several candidate risk-based remediation methods applicable to the site will be identified with typical costs associated with each method. This project included interface with the San Diego County APCD, RWQCB, LEA, and DTSC.

Landfill Engineering, LFG Migration Assistance, and Human Health Risk Assessment, Geer Road Landfill, Modesto, CA. Mr. Sullivan has managed and been involved with a variety of

projects at the Geer Road site, including closure design and CQA services, cover repair, LFG engineering, air quality compliance, human health risk assessment, LFG system O&M, LFG and groundwater monitoring, as well as acted as an expert witness in defending the landfill against a citizen lawsuit. Project work was under the jurisdiction of the landfill LEA and RWQCB.

Odor Evaluations

Air Quality and Odor Analysis for proposed municipal solid waste (MSW) landfill and composting operation in Mariposa County, CA.

Air Quality and Odor Analysis, including ambient air testing and air dispersion modeling, for MSW landfill, composting facility, and materials recovery facility (MRF) in Placer County, CA.

Air Quality and Odor Analysis, including air dispersion modeling, for MSW landfill in Chula Vista, CA.

Odor Analysis for proposed MRF in San Bernardino County, CA.

Odor Analysis for an MSW landfill expansion in Kings County, CA.

Odor Analysis for an MSW landfill expansion in Santa Clara County, CA.

Compliance Review and Odor/Air Quality Impact Assessment for existing composting operation in San Diego, CA, which is adjacent to a proposed residential development.

Development of Expert Report and review of opposing experts' work on air quality and odor analyses of a composting facility in Adelanto, CA.

Air Quality Permitting and Compliance, including Odor Analyses, for landfills and composting facilities in Vacaville, Milpitas, and Novato, CA.

Feasibility Analysis, Best Available Control Technology (BACT) Cost-Effectiveness Analysis, and Hydrogen Sulfide Testing for the evaluation of sulfur removal technologies as odor control for LFG-derived odors for five landfill sites.

Odor analyses as part of the air quality sections of over 10 EIRs for landfill expansions.

Management of numerous LFG design projects related to odor control of LFG emissions.

Litigation Support

Litigation Support and Preparation of Expert Report in Defense of a Landfill Company in Pittsburgh, PA, which was sued under the third-party provisions of the federal Clean Air Act. Project tasks including emissions estimation, regulatory applicability review, and preparation of an expert report. The case was settled in favor of our client.

Litigation Support as part of a CERCLA Cost Recovery Action Filed by a Group of PRPs Against Various Municipalities and Public Agencies that Disposed Refuse at a Mixed Hazardous and Municipal Solid Waste Landfill in California. Project tasks included review of

depositions, evaluation of industrial and hazardous waste disposed in the landfill, and development of a draft report on the contribution of the various PRPs to contamination in the landfill. Our clients were successful in the litigation.

Litigation Support in Defense of a Landfill Company in San Antonio, Texas Against Enforcement Action Brought by the State of Texas. Project tasks including emissions estimation, odor assessment, and air modeling. The case was settled in favor of our client.

Litigation Support in a Lawsuit Filed by a Landfill Owner/Operator in New Mexico Versus the State Environmental Agency with Respect to Air Quality Permitting for Landfills. The case included litigation support and preparation of expert reports.

Litigation Support and Expert Testimony as Part of a Toxic Tort Litigation Filed by a Local Residence Against a County-owned Closed Landfill in Modesto, CA. Project tasks included a site investigation, risk assessment, groundwater evaluation, and expert testimony (deposition and trial). The case was settled with minimal damages for our client.

Litigation Support and Expert Testimony as Part of a Toxic Tort Litigation Filed by a Local Residence against a County-owned Active Landfill in Merced, CA. Project tasks included a LFG assessment, site investigation, risk assessment, groundwater evaluation, and expert testimony (deposition and trial). The case was ruled in favor of our client.

Litigation Support and Expert Testimony in Defense of a Nuisance Claim and a CERCLA Cost Recovery Action Filed Against an Electronic Relay Manufacturing Facility in Los Angeles, CA. Project tasks included a remedial investigation, feasibility study, remedial design, remedial action, risk assessment, and expert testimony (deposition only). The first case was settled with insurance coverage; the second case was settled for de minimis contribution from our client.

Litigation Support in Defense of a CERCLA Cost Recovery Action Filed Against an Electronic Relay Manufacturing Facility in Azusa, CA. Project tasks included a review of documents and preparation of a technical response to US EPA's proposed settlement offer.

Litigation Support and Expert Testimony as Part of a Toxic Tort Litigation Filed by a Plaintiff Group Against a Large Aerospace Company in Burbank, CA. Project tasks included emissions estimation, air dispersion modeling, air toxics risk assessment, and expert testimony before arbitration judge. The case was settled in favor of our clients.

Litigation Support and Preparation of an Expert Report as Part of a Toxic Tort Litigation in Defense of a Metal Heat Treating Facility in Phoenix, AZ. Project tasks included emissions estimation, air dispersion modeling, and air toxics risk assessment. The case was settled in favor of our client.

Litigation Support and Expert Testimony as Part of a Nuisance Lawsuit Filed by the Current Owner of a Screw Manufacturing Facility Against the Former Owner in Santa Fe Springs, CA. Project tasks included a site investigation, compliance audit, evaluation of on-site disposal of waste oil, and expert testimony before an arbitration judge.

Litigation Support as Part of an Insurance Claim Filed by an Aerospace Facility Against Its Insurance Carrier in Natick, MA. Project tasks included review of soil vapor data, vadose zone modeling, determination of the vapor-phase plume, and preparation of exhibits to be used in court. Our client was successful in the litigation.

Litigation Support in Defense of a Nuisance Claim and a CERCLA Cost Recovery Action Filed Against a Steel Mill in Fontana, CA. Project tasks included a remedial investigation, feasibility study, remedial design, remedial action, risk assessment, and assistance in the cross-examination of opposing experts. The case was settled in favor of our client.

Litigation Support in two Lawsuits Where Contractors Were Unwittingly Exposed to Asbestos during Building Demolition after the property owners claimed that the buildings did not have asbestos-containing materials.

Litigation Support as Part of a Property Damage Filed by the Property Owner Against its Former Tenant at a Plastic and Rubber Manufacturing Plant in Ontario, CA. Project tasks included a site investigation, remediation, risk assessment, and expert testimony (deposition only).

Mr. Sullivan's litigation experience includes the following Proposition 65 cases in California. These cases include preparation of exposures and risk analyses and participation in settlement conferences:

- Litigation support for a defendant in a Proposition 65 lawsuit concerning exposure to methylene chloride in a silk flower cleaner.
- Litigation support for a defendant in a Proposition 65 lawsuit concerning exposure to dichlorobenzene and toluene in a bicycle tire repair kit.
- Litigation support for a defendant in a Proposition 65 lawsuit concerning exposure to lead in PVC grips and handles for various tools and equipment.
- Litigation support for a defendant in a Proposition 65 lawsuit concerning exposure to lead in cosmetics.
- Litigation support for a defendant in a Proposition 65 lawsuit concerning exposure to chromated copper arsenate in treated wood used for children's playground equipment.
- Litigation support for a defendant in a Proposition 65 lawsuit concerning the exposure to various pollutants emitted from landfills and other solid waste facilities in California (six total facilities).

Expert Witness Experience (within the last 4 years)

- Crane, et al., v. County of Merced. LFG exposure case. Expert report and deposition and trial testimony.
- Brian Kahn v. The Dewey Group. LFG exposure case. Expert report and deposition and trial testimony.

- Tommy McCarty, et al., v. Oklahoma City Landfill, LLC. LFG emission and odor case. Expert report and deposition.
- Peter Ng, et al., v. International Disposal Corporation of California. LFG emission and odor case. Expert report and deposition.
- Republic Services, Inc., v. Fortistar, Inc. Dispute over LFG rights and the loss of royalties for undeveloped LFG resources. Draft expert report. Litigation settled.
- Eklutna v. Municipality of Anchorage. Dispute over LFG rights and the value of the LFG resource. Expert affidavit. Litigation is ongoing.
- Yeshayahu Michaely, et al., v. Browning Ferris Industries of California, Inc., et al. LFG emission and odor case. Expert report and deposition. Litigation ongoing.
- Timerline Energy, LLC, v. Waste Connections of Kansas, Inc. LFG carbon credits dispute. Expert report. Litigation ongoing.

Greenhouse Gas

CARB, Approved Lead Verifier or Internal Senior Reviewer

- Alameda Municipal Power¹
 - Biggs Municipal Utility¹
 - Cal Portland Company – Mojave Plant²
 - Cal Portland Company – Colton Plant²
 - California Steel Industries
 - City of Lompoc¹
 - City of Roseville, CA¹
 - City of Ukiah, Electric Utilities Division¹
 - City of Victorville¹
 - Collins Pine Company
 - Corn Products
 - Georgia Pacific
 - Gridley Electric Utility¹
 - Healdsburg Electric Department¹
 - Hilmar Cheese Company
 - Imperial Irrigation District¹
 - Imperial Irrigation District – Coachella Gas Turbines
 - Imperial Irrigation District – El Centro Generating Station
 - Imperial Irrigation District – Niland Gas Turbines Plant
 - Imperial Irrigation District – Rockwood Gas Turbines
 - JP Morgan Chase Bank¹
 - Kinergy¹
 - Lodi Electric Utility¹
 - Metropolitan Water District¹
 - Orange County Sanitation District
 - Pacific Ethanol¹
 - Port of Oakland¹
 - Port of Stockton, CA¹
 - Riverside Wastewater Treatment Plant
 - San Francisco Hetch Hetchy Water & Power¹
 - Truckee Donner Public Utility District¹
 - Temple Inland University of California at Davis
 - University of California at Irvine
 - University of California at Santa Cruz
 - University of California at San Diego
 - Western Area Power Authority¹
- ¹ Verification includes electrical/fuel transactions.
- ² Verification included process emissions (landfill, wastewater treatment, geothermal, or other process emissions).
- ³ Verification includes oil and gas emissions.

CAR GHG Project Reduction Services

Landfill Protocol

- Dalton-Whitfield Regional Solid Waste Management Authority
- L & D Landfill
- Larimer County Landfill Electric Generation Project
- Hay Road Landfill Feasibility Study
- Montana-Dakota Utilities Billings Landfill
- YSDI Landfill Feasibility Study Central Landfill, Citrus County, Florida
- Raleigh County Solid Waste Authority
- Pendleton County Landfill
- Eagle Point, Wolf Creek, and Stones Throw Landfills Project

Organic Waste Composting Protocol

- American Organics OWC
- Grover Environmental Products
- Jepson Prairie Organics
- South Valley Organics

AB32 Mandatory Reporting. Completed State of California Mandatory GHG reporting under AB32 for the following general stationary combustion facilities:

- Altamont Landfill
- Bradley Landfill
- CalEnergy Geothermal Plants City of Fresno Wastewater Treatment Plant
- El Sobrante Landfill
- G2 Ostrom Road
- Kirby Canyon Landfill
- Mid-Valley Landfill
- Penrose Landfill Gas Conversion, LLC
- Redwood Landfill
- San Bernardino County Solid Waste Mgmt. - MVSL
- Simi Valley Landfill
- Sunnyvale WWTP Toyon Landfill Gas Conversion, LLC

GHG Compliance for Landfills. Completed GHG compliance services for over 75 landfills related to the AB32 mandatory reporting rule, AB32 landfill methane rule, and federal “Tailoring” rule for GHG.

U.S. EPA GHG Reporting Rule. Management and oversight for over 500 U.S. EPA GHG mandatory reporting rule projects for landfills.

GHG Emissions Inventory and Verification of Creditable GHG Reductions. Performed GHG emissions inventory services, verification of creditable GHG reductions, and development of GHG management plan under CEQA for Kern County Waste Management Department, California.

GHG Consulting. Provided GHG consulting services for Sacramento County, Los Angeles County, City of Carlsbad, City of Alameda, and the City of Palo Alto and virtually all of the major solid waste companies. Acted as the primary consultant supporting the membership of the SWICS group. As part of this effort, Mr. Sullivan has developed protocols for landfill GHG emission estimates and lead SWICS advocacy efforts on the proposed AB 32 early action rule for landfills.

GHG Emissions Inventory and Certification of Donated GHG Reductions (to make event GHG neutral), Super Bowl, Houston, TX.

Certification of Donated GHG Reductions (to make event GHG neutral), Winter Olympics, Salt Lake City, UT.

GHG Inventory and CCAR Reporting for Republic Services, Inc. Under Mr. Sullivan's direction, SCS prepared an entity-wide GHG inventory for Republic's solid waste operations and facilities in California.

SWICS Group. Involvement with the leadership of the SWICS group. As part of this effort, Mr. Sullivan has developed protocols for landfill GHG emission estimates and led SWICS advocacy efforts on the proposed AB32 early action rule for landfills, cap and trade, as well as the AB32 and federal GHG mandatory reporting rules.

Private Waste Company GHG Consulting. Provided GHG consulting for all of the large private waste management companies.

Development of GHG Guidance Document. Developed the guidance document titled, "*Technologies and Management Options for Reducing Greenhouse Gas Emissions from Landfills,*" under contract to the California Integrated Waste Management Board (CIWMB).

Publications and Presentations

Sullivan, Patrick S., and Zbozinek, Jasenka V., *Exposure Assessment and Toxic Distribution Modeling In Toxic Tort Litigation: Air and Soil Pathways*, Seminar Proceedings, Phoenix Chapter of the State of Arizona Bar Association, One-Day Technical Meeting, November 1996.

Sullivan, Patrick S., and Lister, Kenneth H., *Use of Screening Level Risk Assessment for Risk-Based Corrective Action*, Conference Proceedings, Association for the Environmental Health of Soils, 7th Annual West Coast Conference on Contaminated Soil and Groundwater, Oxnard, California, February 1997.

Sullivan, Patrick S., Nuno, Julio A., and Lister, Kenneth H., *The Use of Risk-Based Corrective Action in Site Mitigation Projects*, Conference Proceedings, Environmental Engineering Conference, Canadian Society of Civil Engineers/American Society of Civil Engineers (CSCE/ASCE), Edmonton, Alberta, July 1997.

Albert, Lon, Kubis, Elizabeth L., and Sullivan, Patrick S., *Ongoing Challenges of Emission Inventories at Municipal Solid Waste Landfills*, Conference Proceedings, Emission Inventory Conference, Air and Waste Management Association (AWMA), Raleigh-Durham, North Carolina, October 1997.

Kubis, Elizabeth L., Rankin, Sue, and Sullivan, Patrick S., *Strategic Planning for Landfill Gas and Air Quality Compliance at Municipal Solid Waste Landfills*, Conference Proceedings, 28th Annual SWANA Western Regional Symposium, South Lake Tahoe, Nevada, April 1999.

- Pierce, Jeffrey L., and Sullivan, Patrick S., *NSPS, NESHAPs, NSR, and Title V: The Impact of Federal Air Quality Regulations on Landfill Construction and Operation*, Conference Proceedings, 28th Annual SWANA Western Regional Symposium, South Lake Tahoe, Nevada, April 1999.
- Sullivan, Patrick S., *A Practical Approach to Clean Air Act Compliance for Landfills*, Presentation at the Annual WASTECON Conference, Reno, Nevada, October 1999.
- Sullivan, Patrick S., *The Use of Methane Gas from Landfills as an Alternative Fuel Source*, Presentation at the U.S. Conference of Mayors/Municipal Solid Waste Management Association Fall Summit, San Jose, California, November 1999.
- Sullivan, Patrick S. (lead author: Risk Assessment section), *Environmental Site Characterization and Remediation Design Guidance*, American Society of Civil Engineers (ASCE) Manuals and Reports on Engineering Practice No. 99, ASCE, Reston, Virginia, 1999.
- Michels, Mike, and Sullivan, Patrick S., *Actual LFG Emissions Lower than EPA Estimates*, Conference Proceedings, National Solid Waste Management Association (NSWMA)/ Environmental Industries Association (EIA) Waste Tech 2000 Conference, Orlando, Florida, March 2000.
- Sullivan, Patrick S., and Michels, Mike, *The Time Is Now for Changes to the AP-42 Section on Landfills*, Conference Proceedings, 23rd Annual SWANA Landfill Gas Symposium in La Jolla, California, March 2000.
- Sullivan, Patrick S., *U.S. EPA's Urban Air Toxics Strategy*, Conference Proceedings, Conference Proceedings, 10th Annual Technical Conference, Air and Waste Management Association (AWMA) Golden Empire Chapter, Golden West Section, Bakersfield, California, March 2000.
- Mezzacappa, David, and Sullivan, Patrick S., *Air Quality Pre-Construction Permits for Municipal Solid Waste Landfills*, Conference Proceedings, 9th Annual SWANA Landfill Symposium in Austin, Texas, June 2000.
- Sullivan, Patrick S., *Risk Characterization in Site Characterization and Remediation Design*, Conference Proceedings, Convergence 2000 Environmental Engineering and Pipeline Engineering Conference, American Society of Civil Engineers (ASCE), Kansas City, Missouri, July 2000.
- Nuno, Julio A., and Sullivan, Patrick S., *Site Characterization*, Presentation at Convergence 2000 Environmental Engineering and Pipeline Engineering Conference, ASCE, Kansas City, Missouri, July 2000.
- Sullivan, Patrick S., *Getting Down to Cases: Just What Is a Bioreactor Landfill*, MSW Management, July/August 2000.
- Sullivan, Patrick S., and Stege, G. Alexander, *An Evaluation of Air and Greenhouse Gas Emissions and Methane Recovery from Bioreactor Landfills*, MSW Management, September/October 2000.

- Green, Roger B., Vogt, W. Gregory, and Sullivan, Patrick S., *Comparison of Emissions from Bioreactor and Conventional Landfills*, Conference Proceedings, Annual SWANA WASTECON Conference, Cincinnati, Ohio, October 2000.
- Vogt, W. Gregory, and Sullivan, Patrick S., *Literature Review and Research Needs for Bioreactor Landfills*, Conference Proceedings, NSWMA/ EIA Waste Tech 2001 Conference in San Diego, California, February 2001.
- Sullivan, Patrick S., and Caponi, Frank R., *The Potential Impacts of the MACT Standard and Urban Air Toxics Strategy on MSW Landfills*, Conference Proceedings, 24th Annual SWANA 24th Annual Landfill Gas Symposium in Dallas, Texas, March 2001.
- Sullivan, Patrick S., *Bioreactor Landfill Energy Recovery*, Proceedings of the U.S. EPA's and Water Environment Federation's Innovative Processes to Produce Useful Materials from Biosolids and Animal Manures—A Symposium, Chicago, Illinois, June 2001.
- McCready, Ambrose A., Nordell, David, and Sullivan, Patrick S., *Bioreactor Operation Feasibility Study for Fink Road Landfill*, Conference Proceedings, 10th Annual SWANA Landfill Symposium, San Diego, California, June 2001.
- Sullivan, Patrick S., *Landfill Gas Modeling and Emission Estimates for a Large Bioreactor Landfill in California*, Presentation at the 10th Annual SWANA Landfill Symposium, San Diego, California, June 2001.
- Sullivan, Patrick S., and Green, Roger, *Air Emissions, Methane Generation and Recovery, and Energy Potential for Bioreactor Landfills: Comparing the Theoretical to the Actual*, Proceedings of the Annual SWANA WASTECON Conference, Baltimore, Maryland, October 2001.
- Pierce, Jeffrey L., and Sullivan, Patrick S., *Economic and Financial Aspects of LFGTE Project Development in California*, California Energy Commission/U.S. EPA Landfill Methane Outreach Program (LMOP), California Landfill Gas to Energy Workshop, California Landfill Gas Primer, Sacramento, California, October 2001.
- Sullivan, Patrick S., *Enhancing Energy Recovery from Landfills Using the Bioreactor Technology*, Presentation at the 5th Annual U.S. EPA LMOP Conference and Project Expo, Washington, D.C., December 2001.
- Sullivan, Patrick S., and Caponi, Frank R., *Air Quality Compliance for Landfill Gas to Energy Projects*, Conference Proceedings, 25th Annual SWANA, 25th Annual Landfill Gas Symposium, Monterey, California, March 2002.
- Sullivan, Patrick S., Huff, Raymond, and Tinker, Amy, *Human Health Risk Assessment Issues for Landfills*, Conference Proceedings, 25th Annual SWANA Landfill Gas Symposium in Monterey, California, March 2002.
- Sullivan, Patrick S., *Update on Air Quality Permitting and Compliance Issues for MSW Landfills*, Presentation at the 31st Annual SWANA Western Regional Symposium, South Lake Tahoe, Nevada, May 2002.

- Walsh, James, and Sullivan, Patrick S., *NSPS and Other Clean Air Act Issues—Recent Development and Workarounds*, Proceedings of the SWANA WASTECON Conference, Long Beach, California, October 2002.
- Sullivan, Patrick S., and Bins, John, *Measurement of Toxic Emissions from Landfills: History and Current Developments*, Conference Proceedings, Symposium on Air Quality Measurement Methods and Technology—2002, AWMA, San Francisco, California, November 2002.
- Sullivan, Patrick S., and Bins, John, *Toxic Emissions from Landfills: History and Current Developments*, Conference Proceedings, NSWMA Waste Tech 2003 Conference, New Orleans, Louisiana, February 2003.
- Morris, Jeremy, Sullivan, Patrick S., et al., *Performance-Based System for Post-Closure Care at MSW Landfill—A New Approach to the Current 30-Year Time-Based System of Subtitle D*, Conference Proceedings, NSWMA Waste Tech 2003 Conference, New Orleans, Louisiana, February 2003.
- Sullivan, Patrick S., et al., *Landfill Gas Module, Performance-Based System for Post-Closure Care at MSW Landfill*, Conference Proceedings, Conference Proceedings, 26th Annual SWANA Landfill Gas Symposium in Tampa, Florida, March 2003.
- Sullivan, Patrick S., *Landfill Gas Aspects of Bioreactor Landfills*, Presentation at Association of State and Territorial Solid Waste Management Officials (ASTSWMO) Annual State Solid Waste Managers' Conference, Salt Lake City, Utah, July 2003.
- Huff, Raymond H., Leonard, Michelle P., and Sullivan, Patrick S., *Composting Emissions Update and New Southern California Regulations*, Presentation at SWANA WASTECON Conference, St. Louis, Missouri, October 2003.
- Huff, Raymond H., and Sullivan, Patrick S., *Unique Landfill Gas Issues on Urban Inactive Landfills*, Conference Proceedings, 27th Annual SWANA Landfill Gas Symposium, San Antonio, Texas, March 2004.
- Clarke, Steve, and Sullivan, Patrick S., *Estimating the Trend in NMOC Generation and Emissions After Closure of MSW Landfills*, Conference Proceedings, 27th Annual SWANA Landfill Gas Symposium, San Antonio, Texas, March 2004.
- Huff, Raymond H., and Sullivan, Patrick S., *Air Quality and Odor Impacts from Landfill-Related Emissions*, Conference Proceedings, Water Environment (WEF) and AWMA Odor and Air Emissions 2004, Bellevue, Washington, April 2004.
- Sullivan, Patrick S., *Air Quality and Odor Impacts from Landfill-Related Emissions*, Presentation at the 33rd Annual SWANA Western Regional Symposium, San Luis Obispo, California, May 2004.
- Sullivan, Patrick S., *The Role of LFGTE in California's RPS and the California Biomass Collaborative*, Presentation at the 8th Annual U.S. EPA LMOP Conference and Project Expo, Baltimore, Maryland, January 2005.

- Sullivan, Patrick S., *Where Should I Put My Organic Waste: Bioreactor Landfill or Composting Facility*, Conference Proceedings, NSWMA/EIA Waste Expo, Las Vegas, Nevada, May 2005.
- Sullivan, Patrick S., *LFG and Development on and Adjacent to Landfills in California*, Presentation at the 34th Annual SWANA Western Regional Symposium, San Luis Obispo, California, May 2005.
- Sullivan, Patrick S., *Comparison of Air, Health, and Odor Impacts from Landfills vs. Composting*, Presentation at the Annual SWANA WASTECON Conference, St. Louis, Missouri, September 2005.
- Sullivan, Patrick S., *LFG and Air Quality Aspects of Bioreactor Landfills*, Presentation at the Annual Technical Meeting, SWANA Evergreen Chapter, Yakima, Washington, October 2005.
- Sullivan, Patrick S., *LFG Issues During Post-Closure Development of Landfills*, Presentation at the California Integrated Waste Management Board's Post-Closure Land Use Symposium, Stockton and Ontario, California, February 2006.
- Leonard, Michael L., Huff, Raymond H., and Sullivan, Patrick S., *Unique Solutions to Complex LFG Migration Problems*, Conference Proceedings, 29th Annual SWANA Landfill Gas Symposium, St. Petersburg, Florida, March 2006.
- Sullivan, Patrick S., *Current Status of Air Quality Regulations in the Solid Waste Industry*, SWANA Arizona Landfill Seminar, Phoenix, Arizona, May 2006.
- Sullivan, Patrick S., et al., *Fugitive Dust Modeling with AERMOD for PM10 Emissions from a Municipal Solid Waste Landfill*, Proceeding of Guidelines on Air Quality Models; an AWMA Specialty Conference, Denver, Colorado, September 2006.
- Sullivan, Patrick S., *CNG, LNG, and Other Fuels from LFG*, Presentation at 4th Annual Forum CA Biomass Collaborative, Sacramento, California, March 2007.
- Sullivan, Patrick S., et al., *Field Comparison of Landfill Gas Collection Efficiency Measurements*, Conference Proceedings, 30th Annual SWANA Landfill Gas Symposium, Monterey, California, March 2007.
- Sullivan, Patrick S., *Update on Major Air Quality Regulations Affecting Landfills*, Conference Proceedings, 30th Annual SWANA Landfill Gas Symposium, Monterey, California, March 2007.
- Sullivan, Patrick S., *Landfill Management Practices for Reducing GHG Emissions*, Presentation for the California Integrated Waste Management Board (CIWMB) Strategic Policy Development Committee Public Workshop, Sacramento, California, May 2007.
- Sullivan, Patrick S., *Mitigation of Unique LFG Migration Issues*, Conference Proceedings, SWANA WASTECON Conference, Reno, Nevada, October 2007.

- Sullivan, Patrick S., *SWICS Landfill GHG Inventory Methodology*, Presentation for SWANA WASTECON Conference Landfill Gas Division Meeting, Reno, Nevada, October 2007.
- Sullivan, Patrick S., *Air Quality Issues Affecting Landfills in California*, Presentation at SWANA Sierra Chapter Board Meeting, Fresno, California, January 2008.
- Sullivan, Patrick S., *GHG Programs in California and their Impacts on MSW Landfills*, Conference Proceedings, 31st Annual SWANA Landfill Gas Symposium, Houston, Texas, March 2008.
- Sullivan, Patrick S., *Air Quality Issues Affecting Landfills in California*, Presentation SWANA Gold Rush Chapter Board Meeting, Monterey, California, April 2008.
- Sullivan, Patrick S., *Practicalities of Implementing and Permitting a Landfill Methane Project*, Presentation for the California Climate Action Registry (CCAR) Climate Action Reserve Workshop on California Landfill Methane Projects, Los Angeles, California, April 2008.
- Sullivan, Patrick S., *Air Quality Issues for Composting Facilities*, Presentation at the 38th Annual SWANA Western Regional Symposium, Seaside, California, May 2009.
- Huff, Raymond H., and Sullivan, Patrick S., *Carbon Footprint and Impact of Biosolids*, Presentation at CWEA's "Government Affairs: Global Climate Issues" Specialty Conference for the Cities of Whittier and Roseville, California, June 2008.
- Huff, Raymond H., and Sullivan, Patrick S., *GHG Credit Trading*, Presentation at CWEA's "Government Affairs: Global Climate Issues" Specialty Conference for the Cities of Whittier and Roseville, California, June 2008.
- Sullivan, Patrick S., *The New World of GHG Emissions for Landfills*, Presentation for SWANA Landfill Symposium, Palm Springs, California, June 2008.
- Sullivan, Patrick S., *Quantification Methods for GHG Emissions from Landfills*, SWANA E-Session, October 2008.
- Sullivan, Patrick S., *AB 32 Climate Change Issues Impacting Landfills in California*, Presentation at Rural Counties' Environmental Services Joint Power Authority Board and Technical Advisory Meeting, Sacramento, California, December 2008.
- Sullivan, Patrick S., *Greenhouse Gas Regulations, Programs, and Reporting*, Presentation to Clark County Department of Air Quality and Environmental Management, Las Vegas, Nevada, January 27, 2009.
- Sullivan, et al., *New LFG Monitoring Requirements in California: More Stringent and Expensive*, Conference Proceedings, 32nd Annual SWANA Landfill Gas Symposium, Atlanta, Georgia, March 2009.
- Sullivan, Patrick S., *Operational and Financial Impacts of CARB's New Early Action Rule for Landfills*, Presentation at the 38th Annual SWANA, Western Regional Symposium, Palm Springs, California, April 2009.

- Sullivan, Patrick S., *Estimating Your Landfill's Carbon Footprint*, Presentation at the NSWMA/EIA Waste Expo in Las Vegas, Nevada, June 2009.
- Sullivan, Patrick S., *CARB's New Early Action Rule for Landfills: Beyond NSPS and into the Climate Change World*, Presentation for SWANA WASTECON Conference, Long Beach, California, September 2009.
- Sullivan, Patrick S., *Global Setting: Waste Management's Response to Climate Change*, Presentation for SWANA WASTECON Conference, Long Beach, California, September 2009.
- Sullivan, Patrick S., *AB 32/Scoping Plan Impact on Solid Waste Industries and Local Governments*, Presentation at the Southern California Waste Management Forum Annual Conference, Ontario, California, November 2009.
- Sullivan, Patrick S., *Meeting EPA's Mandatory GHG Reporting Requirements*, NSWMA Webinar, December 2009.
- Sullivan, Patrick S., *General Overview of EPA's Mandatory GHG Reporting Rule for Landfills*, Presentation at the SWANA Oregon Chapter, Winter Forum, January 2010.
- Sullivan, et al., *The Impact of Federal Climate Change Legislation and Regulation on The Solid Waste Industry*, Conference Proceedings, 33rd Annual SWANA Landfill Gas Symposium, San Diego, California, March 2010.
- Sullivan, Patrick S., *Comparison of Landfilling and Organic Waste Diversion in Terms of Air Quality and GHG Impacts*, Presentation at the 39th Annual SWANA Western Regional Symposium, San Luis Obispo, California, April 2010.
- Sullivan, Patrick S., *The Importance of Landfill Gas Capture and Utilization in the U.S.*, Columbia University, Earth and Engineering Center, Council for the Sustainable Use of Resources (SUR), April 2010.
- Sullivan, Patrick S., *Federal Mandatory Reporting Rule (MRR) and Tailoring Rule for Greenhouse Gas (GHG)*, Presentation at Waste Connections, Inc., Meeting, Copper Mountain, Colorado, August 2010.
- Sullivan, Patrick S., *The Confusing Maze of State and Federal Greenhouse Gas (GHG) Reporting Programs*, Presentation for SWANA WASTECON Conference, Boston, Massachusetts, August 2010.
- Van Kolken Banister, Amy, and Sullivan, Patrick S., *LFG Collection Efficiency: Debunking the Rhetoric*, MSW Magazine, Elements 2011 Issue, September 2010.
- Sullivan, Patrick S., *Tailoring Talk*, Waste Age, February 2011.
- Sullivan, Patrick S., *Not Another GHG Regulation—The Impact of the Tailoring Rule on Landfills*, Presentation for 34th Annual SWANA Landfill Gas Symposium, Dallas, Texas, March 2011.

- Sullivan, Patrick S., *When Can Co-Located Facilities be Considered Separate Sources for Air Compliance Purposes the Concept of Common Control*, Presentation for 34th Annual SWANA Landfill Gas Symposium, Dallas, Texas, March 2011.
- Sullivan, Patrick S., *GHG Regulatory Overload*, Presentation for 40th Annual SWANA Western Regional Symposium, Seaside, California, May 2011.
- Sullivan, Patrick S., *Comparison of Air Quality and GHG Impacts from Organic Waste Disposal*, Presentation for AWMA Golden West Chapter Annual Technical Conference, Bakersfield, California, May 2011.
- Sullivan, Patrick S., *Comparison of GHG Emissions Methodologies for Landfills*, Presentation for AWMA Annual Conference, Orlando, Florida, June 2011.
- Sullivan, Patrick S., *Air Modeling for LFG Projects*, Presentation for SWANA WASTECON Conference, Nashville, Tennessee, August 2011.
- Sullivan, Patrick S., *Impacts from Organic Waste Management*, AWMA Mother Lode Chapter Meeting, Sacramento, California, September 2011.
- Sullivan, Patrick S., *The Effects of New Air Modeling Standards on Landfill Gas Projects*, Presentation for 35th Annual SWANA Landfill Gas Symposium, Orlando, Florida, March 2012.
- Sullivan, Patrick S., *The Impact of the GHG Tailoring Rule on Title V and PSD Permitting for Landfills*, Regulation Week e-Seminar, April 2012.
- Sullivan, Patrick S., *Clean Air Act Update*, Conference Proceedings, Waste Expo, Las Vegas, Nevada, April 2012.
- Sullivan, Patrick S., *Air Quality Requirements for Composting Facilities are Changing—Are You Ready?*, 41st Annual SWANA Western Regional Symposium, April 2012.
- Sullivan, Patrick S., *The Effects of New Air Modeling Standards on Landfill Gas Projects*, SWANA E-Session, May 2012.
- Sullivan, Patrick S., et al., *Defending Landfills Accused of Landfill Gas Impacts on Neighboring Properties*, Paper and Presentation for SWANA WASTECON Conference, Washington, D.C., August 2012.
- Sullivan, Patrick S., et al., *Lessons Learned from the First Two Years of Compliance with the Federal GHG Mandatory Reporting Rule*, Paper and Presentation for 36th Annual SWANA Landfill Gas Symposium, Las Vegas, Nevada, March 2013.
- Sullivan, Patrick S., *Why Won't They Just Stop? More Changes to the Air and GHG Regulations for Landfills*, 42nd Annual SWANA Western Regional Symposium, San Luis Obispo, California, April 2013.

- Sullivan, Patrick S., et al., *LFG Rules and Regulations Committee Update*, Panel Presentation at SWANA WASTECON Conference, Long Beach, California, September 2013.
- Sullivan, Patrick S., *The Implications of California Air Regulations on Composting Facilities*, Presentation at the U.S. Composting Council Annual Conference, Oakland, California, January 2014.
- Sullivan, Patrick S., et al., *Lessons Learned from California Landfill Methane Rule Reporting*, Presentation at the 37th Annual SWANA Landfill Gas Symposium, Monterey, California, March 2014.
- Sullivan, Patrick S., et al., *Update on Federal Air and GHG Regulations Affecting Landfills*, Published in *Waste Advantage* magazine, Volume 5, Number 3, March 2014.
- Huff, Ray H., and Sullivan, Patrick S., *Redundancy and Inconsistency in Voluntary, State, and Federal Greenhouse Gas Reporting for Landfills*, Published in the Proceedings of the AWMA National Conference, Long Beach, June 2014.
- Walker, Scott, and Sullivan, Patrick S., *California Landfill Methane Control Efficiency Based on Recent Direct Measurement Studies*, Published in the Proceedings of the Global Waste Symposium, Orlando, Florida, June 2014.
- Huff, Ray, H., and Sullivan, Patrick S., *Air Compliance Hurdles and Necessary Regulatory Flexibility for Landfill Gas System Compliance When Managing Subsurface Reactions*, Published in the Proceedings of the Global Waste Symposium, Orlando, Florida, June 2014.
- Sullivan, Patrick S., *Regulatory Aspects Affecting LFG Management*, Presentation at Environmental Research and Education Foundation (EREF) Regional Summit, Austin, Texas, November 2014.
- Sullivan, Patrick S., *Air and GHG Regulatory Update*, Presentation at the 38th Annual SWANA Landfill Gas Symposium, New Orleans, Louisiana, March 2015.
- Sullivan, Patrick S., et al., *A Landfill Game Changer*, Published in *MSW Management Magazine*, March/April 2015.
- Sullivan, Patrick S., *Comparison of Air Quality and GHG Benefits/Impacts for Organic Waste Diversion Options*, Presentation at Waste Expo, Las Vegas, Nevada, June 2015.