



PATRICK S. SULLIVAN, REA, CPP

Education

BA – Harvard University, Biology/Ecology; 1989

Professional License/Certifications

State of California, Registered Environmental Assessor (No. 05952)
South Coast Air Quality Management District, Certified Permitting Professional
(No. A-1716)
OSHA 40-Hour Health and Safety Training for Hazardous Waste Workers
Lead Verifier, California Climate Action Registry (CCAR), The Climate Registry (TCR),
and Climate Action Reserve (CAR)
California Air Resources Board (CARB), Accredited Lead Verifier (E.O. H-09-60)

Professional Affiliations

Solid Waste Association of North America (SWANA): Chairman of Rules and
Regulations Committee of Landfill Gas (LFG) Division
Landfill Gas Technical Advisory Group; CalRecycle
Technical Advisory Group, AB 32 Landfill Methane Rule, CARB
Air and Waste Management Association (AWMA); Vice Chairman, Mother Lode
Chapter
Waste Industry Air Coalition (WIAC); Chairman
California Biomass Collaboration; Executive Board; Representing LFG Industry
Solid Waste Industry Group in California
Solid Waste Industry for Climate Solutions (SWICS), Chairman
Water Environment Federation
Society for Risk Analysis

Professional Experience

Mr. Sullivan has over 20 years of experience in the area of environmental engineering, specializing in air quality, landfill gas (LFG), and landfill-related issues. He is the Practice

Leader for SCS's entire Solid Waste Practice in California, Arizona, Nevada, New Mexico, Utah, and Colorado. Mr. Sullivan is the primary Air Quality technical expert for SCS on the West Coast and the National Partner for SCS's companywide air quality compliance program as well as its greenhouse gas (GHG) services. He is also the lead for SCS's company-wide Risk Assessment program and one of the national experts on risk assessment and toxic exposure issues for landfills. Mr. Sullivan is a company Senior Vice President and Principal-in-Charge for projects related to LFG engineering, air quality permitting and compliance, landfill investigation and risk assessment, landfill redevelopment, GHG emissions, groundwater investigations at landfills as well as other landfill engineering services.

Because of this expertise, Mr. Sullivan has been the Principal-in-Charge and lead technical expert on a variety of projects related to air quality, GHG, LFG, landfill investigations, risk assessments, landfill closure and remediation, solid waste management, hazardous waste management, hazardous substance site investigation and remediation, as well as other environmental issues.

Landfill Air Quality

Preparation of Title V and 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 100 Title V permitting projects, including Title V compliance reporting for over 75 sites, and over 50 NSR/PSD projects for landfill sites. This includes permitting for over 20 landfill expansions in California.

Completion of New Source Performance Standard (NSPS) Applicability Reviews and Compliance Activities at Landfill Sites. 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 for landfills, including compliance reporting for over 75 sites.

Development of Startup, Shutdown, and Malfunction (SSM) Plans under the landfill Maximum Achievable Control Technology (MACT) rule, as well as other MACT compliance. Mr. Sullivan has been involved with over 75 MACT/SSM projects for landfills.

Development and Teaching of Training Courses for Landfill Air Quality Compliance at over 25 Seminars. Compliance and regulatory issues that have been taught included Title V, NSPS, MACT, NSR/PSD, Urban Air Toxic Strategy (UATS), and related state and local requirements.

Preparation of Comments and Completion of Regulatory Advocacy for the Landfill Industry on the NSPS Rule, Title V Operating Permit Programs, MACT Standard, and the UATS, where landfills are included as a regulated source.

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, landfill gas collection systems and flares, landfill gas energy and recovery plants, and various industrial systems.

Permitting, Compliance, and Due Diligence Projects for over 30 Landfill Gas-to-Energy Projects throughout the United States. This has also included registration of greenhouse gas credits, facilitation of trades for greenhouse gas credits, and development of methodologies for estimation of greenhouse gas reductions from landfills.

Preparation of the Air Quality and Risk Assessment Sections of Environmental Impact Reports (EIRs) for approximately 25 landfill expansions, new landfills, transfer stations, and other solid waste facility 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) documentation.

Completion of 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, criteria pollutants, particulate heavy metals, and asbestos fibers. Completion of all air sampling associated with asbestos abatement. Oversight of sources testing at over 75 landfill sites and development of a database of landfill source tests for use in the work of the WIAC.

Greenhouse Gas

GHG Emissions Inventory and Verification of Creditable GHG Reductions. Performed GHG emissions inventory services, verification of creditable GHG reductions, and development of a 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. Provided GHG emissions inventory services and certification of donated GHG reductions (to make event GHG neutral) for the Super Bowl, Houston, TX. Performed certification of donated GHG reductions (to make event GHG neutral) for the Winter Olympics, Salt Lake City, UT.

Approved Lead Verifier under AB-32 (GSC and Cement Reporting), TCR (Entity Reporting), and CCAR (Entity Reporting)

Lead Verifier for CCAR verification of Hershey Chocolate and Confectionary Corp., Natomas Unified School District, Johns Manville, Pacific States Environmental Contractors, State of California Department of General Services, State of California Department of Finance, and California National Guard

Lead Verifier for City of Davis verifications under TCR

Senior Internal Reviewer for CCAR verification of Orange County Sanitation District, Morningstar Packing Company, City of West Hollywood, El Paso Corporation, UC Santa Cruz, UC Merced, UC Irvine, UC Berkeley, UC Santa Barbara, SW Gas Corporation, San Benito County, and City of Los Angeles

Senior Internal Reviewer for TCR verification of Anadarko Petroleum, Levi Strauss & Company, Colorado Springs Utilities, Denver Water, Sierra Nevada Conservancy, The Timberland Company, and Washington State Department of Ecology

Completion of GHG inventory and CCAR reporting for Republic Services, Inc.

GHG Guidance Document. Lead the development of 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).

Odor Evaluations

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

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

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

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

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

Compliance Review and Odor/Air Quality Impact Assessment for existing composting operation in San Diego, California, 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, California.

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

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 5 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.

Landfill Gas

Project Director and Manager for Design, Bidding Support, and Construction Oversight for LFG Migration Control System, Highway 59 Landfill, Merced County, California. 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 RCRA Subtitle D requirements. Currently, Mr. Sullivan oversees the operations and maintenance (O&M) of the LFG system. In addition to the LFG services, Mr. Sullivan has completed a variety of air quality tasks for the project. Because of Mr. Sullivan's work, SCS was awarded a 3-year extension to its contract to provide LFG engineering and air quality services for the Merced County landfills.

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, Lancaster, Redwood, 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, Completion of LFG Master Plan, American Avenue Landfill, Fresno County, California, which covered LFG management for the next 30 years. Upon completion of the conceptual plan, Mr. Sullivan oversaw the completion of the engineering design, including preparation of formal plans and specifications for bidding. Bid assistance was provided to the County as well as construction management and CQA services. The County recently expanded SCS's contract to include O&M of the LFG system. 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 Allied Waste Industries (Allied's) Otay and Sycamore Landfills. Engineering tasks have included design of wellfield expansions, new blower/flare stations, and header upgrades and replacements. Under SCS's direction, SCS is upgrading Allied's LFG Master Plans and prepared a 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 project. SCS has completed design-build services for the LFG systems on these sites.

Project Director and Manager, Planning, Design, and Construction Oversight for LFG Migration Control System at Norcal Waste Systems, Inc. (Norcal's) Ostrom Road Landfill, Marysville, California to address LFG impacts to groundwater. Project Director and Manager for the planning, design, and construction oversight for an expansion to the LFG system at Norcal's Pacheco Pass Landfill to address air quality requirements, LFG migration, and groundwater impacts. Both of 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 Norcal landfills.

Project Director and Manager, Completion of LFG Planning and Engineering for Republic Services' (Republic's) Chiquita Canyon, Vasco Road, Potrero Hills, and West Contra Costa County Sanitary Landfills. Engineering tasks have included design of wellfield expansions, new

blower/flare stations, and header upgrades and replacements. SCS has upgraded Republic'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 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, Allied's, Imperial and Tower Road Landfills, Norcal's YSDI Landfill, Salinas Valley Solid Waste Authority's Crazy Horse Landfill, City of Palo Alto Landfill, Madera County's Fairmead Landfill, Yolo Central Landfill, as well as various other smaller closed landfill sites. Many of these projects included design-build of LFG system expansions.

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, California. 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, DTSC, and the Los Angeles County landfill LEA.

Landfill Gas Assessment, Cover Maintenance, and Monitoring, Cogen Kramer Landfill, Los Angeles, California. 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, CIWMB, and SCAQMD. 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, California. 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 a LFG monitoring program. In addition, Mr. Sullivan currently oversees the completion of post-closure care

services at the site, including LFG monitoring, LFG system O&M, groundwater sampling and analysis, cover maintenance and repair, site security, storm water sampling/analysis and inspections, and regulatory liaison.

Environmental Investigations at the Ostrom Road Landfill in Wheatland, California. Project work at this site has included sampling/analysis of LFG, assessment of LFG migration using soil-vapor techniques, sampling and monitoring of LFG migration probes, installation of additional migration probe for LFG monitoring and compliance, design and installation of a LFG collection and control system to mitigate LFG migration and groundwater impacts, O&M of the LFG and leachate systems, air quality permitting and compliance, as well as other engineering and permitting assignments.

Landfill Gas Assessment, Cover Maintenance, and Monitoring, Lane Road Disposal Site, Irvine, California. 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, RWQCB, CIWMB, and SCAQMD. Future tasks will include the design and installation of LFG collection and control system to prevent migration onto residential properties.

Landfill Investigation and Human Health Risk Evaluation/Impact Assessment, Proposed Residential Development, Adjacent to a Landfill Site, Union City, California. The project included completion of various soil, LFG, and groundwater investigations and development of two risk assessments to support the development of residences adjacent to the landfill as well as clean closure of portion of the site for additional residential development on site. SCS also provided CEQA assistance for the proposed developments. In addition, Mr. Sullivan oversees LFG engineering services, O&M of the on-site LFG collection and control system, and various air quality compliance activities.

Human Health Risk Evaluation and Impact Assessment, Proposed Commercial Developments, On and Adjacent to the BKK Landfill Site, West Covina, California. 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, California. 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 we completed in consideration for this type of development.

Investigation, Risk Assessment, and Remediation Kaiser Ventures Inc. Facilities, Fontana, California. For the former Kaiser Steel plant in Fontana, RI/FSs, 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, California. For this site, Mr. Sullivan is currently managing 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 is an ongoing project that includes interface with the SDAPCD, RWQCB, LEA, and DTSC.

Landfill Engineering, CEQA Assistance, and Human Health Risk Assessment, Fink Road Landfill, Crows Landing, California. Mr. Sullivan has managed or otherwise been involved with a variety of projects at this site since 1997. These projects have included implementation of formal closure of a landfill cell, LFG engineering and field assistance, completion of an EIR under CEQA for a proposed landfill expansion, a bioreactor landfill feasibility study, completion of a human health risk assessment and air impact analysis, air quality permitting and compliance, and other solid waste services. Project work is under the jurisdiction of the landfill LEA and RWQCB.

Landfill Engineering, LFG Migration Assistance, and Human Health Risk Assessment, Geer Road Landfill, Modesto, California. Mr. Sullivan has managed and been involved with a variety of project 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 is under the jurisdiction of the landfill LEA and RWQCB.

Air Quality Impact Analysis, Human Health Risk Evaluation, and CEQA Assistance, Regional Landfill Project, Salinas Valley Solid Waste Authority, Monterey County, California. Regional air quality impacts, including a human health risk assessment, were evaluated as part of an EIR for four different combinations of the expansion of three regional landfills and the placement of 10 regional transfer stations throughout the Salinas Valley. One of the landfills contained hazardous waste, including burn ash, which also had to be evaluated for potential health risks. The risks assessments included an evaluation of risks from diesel exhaust from mobile equipment and vehicles.

Investigation and Remediation of Former Landfill Site, Long Beach Memorial Medical Center, Long Beach, California. Mr. Sullivan has managed an investigation of potential contaminated

derived from a landfill site adjacent to the Long Beach Memorial Medical Center. The area is the proposed site of an expansion of the hospital and includes oil field wastes and municipal waste disposal. The investigations have included soil and soil vapor analyses and an evaluation of the lateral and vertical extent of waste disposal. The next phase of the project will include excavation and removal of the contaminated material and CEQA support during the development of the hospital expansion.

Water Quality

Groundwater Investigation. Mr. Sullivan has managed a variety of groundwater and Phase II site investigations in an attempt to define the extent and magnitude of surface and subsurface contamination at these sites. Typical tasks completed on these projects included soil and groundwater sampling/analysis, installation/sampling of groundwater wells, data interpretation, report preparation, including recommendations for remedial actions, and regulatory liaison. Clients have included various industrial facilities, landfills, and other solid waste facilities. Mr. Sullivan has provided groundwater assistance for the Geer Road, Fink Road, Highway 59, Ostrom Road, Pacheco Pass, L&D, Neal Road, Otay, Poway, and Fairmead Landfills in California.

Wastewater Quality Issues. Mr. Sullivan has managed and participated in a variety of projects related to wastewater investigations at industrial facilities, design of wastewater pretreatment systems, preparation of NPDES permits for process discharges, pollutant loading and flow rate assessments for wastewater conveyance systems, treatability studies, and related activities. Example projects include: the California Jewelry Mart, International Jewelry Center, KP Jewelry, the Long Beach Naval Complex, and numerous landfill sites.

Treatment System Design. Mr. Sullivan has also provided the conceptual and engineering design, design review, and construction management for industrial wastewater and urban storm water management facilities. These projects have included the design of full-scale treatment facilities, retention/detention basins, sediment fences, erosion control systems, storm water collection systems, and landfill leachate/condensate treatment facilities. Examples projects include: Scholl Canyon Landfill, Western Regional Landfill, Sanitago Canyon Landfill, Geer Road Landfill, L&D Landfill, International Jewelry Center, California Jewelry Mart, Melles Griot, and several others.

Stormwater Management. Mr. Sullivan is the project manager at SCS's California offices for storm water management projects. His experience includes: National Pollutant Discharge Elimination System (NPDES) storm water permitting, preparation of storm water pollution prevention and monitoring plans, implementation of storm water monitoring programs, and training of client personnel in field activities related to storm water. The above projects were conducted for industrial and municipal clients, including local, state, and federal government. Example projects that Mr. Sullivan has participated in include: the Long Beach Naval Complex, International Paper, Koch Materials, Kelly Pipe & Supply, Custom Pipe, Sir-Mix Concrete, B.F. Goodrich, Reliance Steel Co., Kaiser Steel, Central Metals, City of Commerce, City of Oceanside, and many others industrial facilities and landfill sites.

Spill Prevention Planning. Mr. Sullivan is the lead staff personnel and task manager at SCS's California offices for the preparation of Spill Prevention, Control and Countermeasures (SPCC) plans, Oil Pollution Act of 1990 Facility Response Plans, Pollution Prevention Plans, Spill Contingency and Response Plans, and related documentation. Examples projects Mr. Sullivan has participated in include: the Long Beach Naval Complex, Scholl Canyon Landfill, Federal Express, Sanitary Fill Company, Kaiser Steel, and CSX Transportation.

Litigation Support

Litigation Support and Preparation of Expert Report in Defense of a Landfill Company in Pittsburgh, Pennsylvania, 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 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, California. 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, California. Project tasks included a review of documents and preparation of a technical response to U.S. EPA's proposed settlement offer. The case is ongoing.

Litigation Support and Expert Testimony as part of a Toxic Tort Litigation Filed by a Plaintiff Group Against a Large Aerospace Company in Burbank, California. Project tasks included emissions estimation, air dispersion modeling, air toxics risk assessment, and expert testimony before an 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, Arizona. Project tasks included emissions estimation, air dispersion modeling, and air toxics risk assessment. 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 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, California. 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, Massachusetts. 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, California. 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. The cases are ongoing.

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 City-owned Closed Landfill in Modesto, California. Project tasks included a site investigation, risk assessment, groundwater evaluation, and expert testimony in court. The case was settled with minimal damages for our client.

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, California. Project tasks included a site investigation, remediation, risk assessment, and expert testimony (deposition only). The case is ongoing.

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).

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 Solid Waste Association of North America (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 Solid Waste Association of North America (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 Solid Waste Association of North America (SWANA), 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 Solid Waste Association of North America (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 Solid Waste Association of North America (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, American Society of Civil Engineers (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 Solid Waste Association of North America (SWANA) WASTECON Conference in Cincinnati, Ohio, October 2000.
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