ROBERT H. ISENBERG, PE, CPG

Education

M.S. - Geological Engineering, University of Minnesota, 1977

B.S. - Geological Engineering, University of Minnesota, 1973

Professional Licenses

Professional Engineer- VA, MD, SC, PA and MN Certified Professional Geologist (AIPG #7 404)

Professional Affiliations

American Society of Civil Engineers

American Institute of Professional Geologists

Professional Experience

Mr. Isenberg is a Senior Vice President and Senior Geotechnical Engineer (SCS Certified Program), and works in the Reston, Virginia office. He has over 50 years of consulting experience in geotechnical and civil engineering projects involving design, analysis, testing, permitting, construction, remediation and repair of solid waste facilities, slope stability, settlement and subsidence of earthen structures including dams, mine tailing basins, landfills, embankments and reservoirs, buildings including power plants, commercial and residential housing and studies of soil and groundwater contamination.

He has been involved as Chief Geotechnical Engineer, Project Director and Principal in the siting, design, construction quality assurance/control testing of new facilities, remediation of older facilities throughout the US and internationally, and has served as an expert witness on several geotechnical cases. Bob has extensive experience with slope stability, testing and evaluation of bioreactor landfills, papermill sludge facilities, wastewater sludge, and has co-authored and presented technical papers on waste facility slope stability. He also has provided technical training to solid waste regulators in Virginia, Maryland, Pennsylvania and North Carolina, and has taught SWANA's Construction Debris Landfill Operations Course on several occasions. Mr. Isenberg has worked on over 200 solid waste disposal facilities in the US, Chile, Brazil, Israel, Puerto Rico, New Zealand, and Australia. Representative examples of his project experience include the following:

## Solid Waste and Landfill Engineering

**Loma Los Colorados Landfill, Santiago, Chile.** Project Director/Lead Geotechnical Engineer for evaluation of landfill stability, leachate management and biogas collection for this large municipal solid waste facility. The facility accepts 5000 tons of waste per day, including wastewater sludge, and is pursuing an expansion that will overlay existing waste. Slope stability has been a critical issue for several years and is part of SCS's mission was to evaluate waste shear strength and provide recommendations for the expansion slopes. A final evaluation report addressing leachate, gas and stability evaluation findings and recommendations was completed in 2018.

**Possum Point Power Plant-CDD Landfill Slope Stabilization, VA.** Lead geotechnical engineer of record (GER) for stabilization of an old construction debris landfill (built in 1975) on the Potomac River that had failed after a flood event in 2000. After evaluation numerous stabilization

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technologies, performing slope stability modeling and working with regulatory agencies, drilled-in­ place steel reinforced concrete shafts were selected as the optimum approach, along with slope regrading to improve drainage. Construction occurred in 2020-2021 and included over 560, 30-inch diameter shafts ranging in depth from 25 to 50 feet to penetrate the waste and extend into an underlying sand formation.

**Slope Stability Failure Litigation Support, VA.** Served as slope stability/landfill operations expert regarding to a rotational landfill slope failure that occurred in Virginia in 2014 at an active, private, MSW facility. Services include evaluation of the failure, including causes, and providing a statement of professional opinion for anticipated litigation activities. The case recently settled.

**Prince William County Sanitary Landfill, VA.** Project Manager/Project Director for providing CQA and design services for two recent expansions to this existing facility that was designed by SCS. The work involved supervision of the Resident Engineer and technicians, and preparation of final engineering certification. Also involved in development of a Part A Permit Amendment for Facility Boundary Modification to incorporate new property, in developing a schedule for final closure of the landfill phases to meet regulatory requirements and engineering evaluations of improvements to ballfields that are present on an older landfilled area. Also completed a Part B Amendment for the Phase II and Ill expansions.

**Page County, VA, Battle Creek Landfill and Stanley Landfill.** Project Director for engineering, geotechnical and environmental support on all aspects of work related to the active Battle Creek Landfill and the closed Stanley Landfill. Provided consulting services on issues related to landfill construction, permitting, slope stability and settlement monitoring, expansion, operations, groundwater investigation, landfill gas migration, and construction.

**Tel Aviv, Hiriya Landfill Rehabilitation, Israel.** Head of Engineering Planning for engineering modifications to a large, inactive sanitary landfill located near Tel Aviv. The project involved geotechnical investigations and testing, slope stability modeling for slope moderation design, evaluation of biogas quantity and quality, leachate levels and quality, methane migration, and working with an international team of landscape architects to develop a rehabilitation plan. The landfill, which is a prominent landmark in the area, will become the centerpiece of the proposed Ariel Sharon Park. SCS teamed Tahal Engineering, the largest civil firm in Israel.

**Novo Gramacho Landfill, Rio de Janeiro, Brazil.** Project Director for closure design for this 6,000 ton per day landfill that was officially closed in 2013. The work involved coordination with local Brazilian engineering consultants, construction planning, final grading and drainage plans, leachate control and gas control. Since the landfill was founded on soft organic clays, slope stability and settlement were key issues to address. Working with Professor Tacio De Campos, we developed a detailed geotechnical investigation and testing program to refine stability modeling for the final closure design. We estimated waste shear strength, cohesion and density and compressibility. Ultimately, we advised the operator with regard to facility operations, leachate level controls, drainage, final covering and filling plans.

**Sao Joao Landfill, Sao Paulo, Brazil.** Provided slope stability evaluation and technical consultation regarding a large-scale slope failure that occurred after a period of heavy rains. Based on computer modeling, SCS estimated waste shear strength, density, looked at leachate mounding levels, gas pressures and developed slope stability models that were used for future filling plans.

**Henrico County, VA, Springfield Road Landfill.** Project Manager for the design of a 30-acre expansion, including design of a double liner/leachate collection system, operational plans, Part A and Part B permits, wetland assessments and site hydrogeology, and the first permitted "piggyback"

landfill in Virginia under Subtitle D regulations. Involved in closure and post-closure engineering for the expansion area and 67 acres of existing landfill area.

**Hodges Landfill Slope Stabilization, Carroll County, MD.** Provided engineering evaluation of a veneer slope failure of the lined cover system for this closed landfill, and designed a slope stabilization program. The original cover geomembrane was a smooth liner, reinforced with geogrid. However, this cover began sliding in 1994 and continued until 2017. SCS recommended replacement with a dual-textured LLDPE liner that was installed in 2017.

**Millersville Landfill, Cell 9, Anne Arundel County, MD.** Project Director for evaluating design options for the next landfill area at the Millersville site including opportunities to increase airspace and updating the permit design to current standards. Led efforts on subsequent phases including Schematic Design, Detailed Design and Construction Documents efforts for the initial Subcell 9.1. Prepared construction plans, specifications and bidding documents for the new cell, which was completed in 2017.

**Hampton, VA, Big Bethel Landfill.** Project Task Manager for the engineering design of a 238-acre landfill expansion involving design, engineering analyses, phasing plans, and Part B Permit Application submittal to VDEQ. The design was for a "zone of saturation" facility.

**Amelia County, VA, Maplewood Landfill.** Project Manager for the design and preparation of permit documents for a 400-acre sanitary landfill in central Virginia. The work involved Part B state permit application, including design of base grades, double-composite synthetic liner, leachate collection features, phasing, earthwork balance, stormwater controls, gas management, access roads and other necessary operational features.

**NRG Energy (formerly GenOn) Gibbons Road Property, LLC, Prince George's County, MD.** Project Director and Lead Geotechnical Engineer for a non-coal mine reclamation project that will utilize Coal Combustion Byproducts (fly ash) from local coal-fired power plants as the reclamation material. This project is possible under new COMAR regulations that allow such a reclamation project provided that the facility meeting design and operational requirements similar to a sanitary landfill. The facility will include a bottom liner and leachate collection per the regulations.

**Honeygo Run Reclamation Facility, Perry Hall, MD.** Project Director for full-time construction quality assurance (CQA) activities for construction of the Southern Expansion, which included construction of a benched, 1:2 sloping, 25-foot high by 900 foot long mechanically stabilized earthern (MSE) perimeter road retaining wall. Provided guidance on lab and field testing of structural backfill materials to meet design specifications which were provided by Tensar® Corporation.

**Solid Waste Association of North America (SWANA) C&D Debris Course Develop and Trainer.** Co­ author and instructor for SWANA's current C&D Debris Management Training Course, a 3-day course covering key aspects of C&D operations, material management, permitting, facility design, monitoring.

**USEPA Draft Technical Guidance For RCRA/CERCLA Final Covers.** Retained by USEPA in 2004 to provide expert peer review of the *Draft Technical Guidance Document for RCRA/CERCLA for Final Covers* (EPA 540-R-04-007). The document addressed all phases of final cover design including cover components, regulatory drivers, slope stability, settlement, infiltration modeling, construction, gas collection, water balance modeling and other key topics.

**Harford County, MD, Abingdon Landfill Cover Improvements and Spencer's Landfill Closure.** Project Director for designing improvements to the existing cover of the 15-acre closed Abingdon Landfill.

Work included: delineation of waste limits and soil cover thickness; landfill gas monitoring; sampling and testing of groundwater, surface water and sediments; evaluation of alternative cover materials, and end-use options for the site. Also served as Project Director for closure of the Spencer's Rubble Fill Landfill, including design of the final cover and preparation of construction plans.

**Negev Desert, Effe Landfill, Central Waste Disposal Facility, Israel.** Project Manager/Lead Designer for developing General Engineering Design for this proposed 5000 ton per day regional landfill facility for TAMAR Regional Council. This work was performed under a teaming agreement with TahaI Consulting Engineers, Tel Aviv. The job is unique in that the landfill is sited within large spoil piles created from nearby phosphate mining activities. Work included geotechnical bearing capacity and stability modeling, design, permitting and construction plans, airspace/volume and lifespan calculations, and leachate generation modeling, design plans and engineering report.

**Loyola University, Maryland - NCAA Tennis Courts on Old Landfill.** Provided geotechnical engineering analysis related to settlement and stability of constructing 8 NCAA regulation tennis courts, plus a 1 story structure and parking on an old, closed CDD landfill near Baltimore, Maryland. To minimize potential settlement, the tennis course footprint was treated with Deep Dynamic Compaction before construction.

**Brown Station Road Landfill.** Project Director for a long-term, multi-discipline engineering contract dealing with design, evaluations, permitting and investigations. Projects have included construction managementjconstruction quality assurance for a new landfill gas to energy plant facility, landfill gas compliance monitoring, operations and maintenance of existing landfill flare systems, design and installation of new dedicated groundwater well sampling devices, groundwater sampling and analysis, design of a new scale and scalehouse facility, design of a new administration building and review of the existing materials recovery facility contract and equipment.

**Brandywine-Lapin Rubble Landfill.** Lead geotechnical engineer/designer to provided technical guidance and preliminary design for a proposed rubble landfill. This included landfill base liner and grading, final cap design, leachate collection, MD permitting. Presented expert testimony at the County special exception hearing for this proposed new rubble landfill.

**Guayama, Puerto Rico, Guayama Landfill Closure.** Project Manager and Lead Geotechnical Engineer for designing a final closure system for this existing facility in southern Puerto Rico. Developed design drawings and details to meet Puerto Rican regulations, which are based on Subtitle D requirements.

**Landfill Gas Pipeline, SC.** Project Director for the design, permitting and construction of a 9-mile long pipeline to carry LFG from the Palmetto Landfill to an automobile manufacturing plant in Spartanburg, SC. The pipeline route was selected so as to stay within existing SC/DOT right-of-way limits. Design elements included several road crossings, two river crossings and preventing disturbance of existing buried utility piping. SCS prepared specifications and contract drawings and monitored construction progress.

**Washington County, MD, Forty West Sanitary Landfill.** Project Manager for the master plan design, Phase Ill permitting, Phase II boundary modification, and construction documents for a new 180-acre landfill. Included design of all landfill infrastructure, citizens drop off facility, final grading, base grading, bottom liner system, final cover system, slope stability and settlement evaluations.

Performed supplemental geotechnical and stability analyses, responded to MDE and public comments, attended public meetings, participated in pre-bid meetings, and provided engineering support during construction.

**Oakland, MD, Garrett County Landfill.** Project Manager for the design of a 20-acre sanitary landfill and 5-acre rubble fill for Maryland Environmental Services. Efforts involved design of base grades, composite synthetic liner utilizing a geosynthetic clay liner, leachate collection and recirculation system, gas management and other site features.

**Baltimore County, MD, Eastern Landfill Closure.** Lead Designer and Geotechnical Engineer for designing closure grades and final capping system for a portion of this landfill. The work included evaluation of different geomembranes; ultimately, PVC was selected as the geomembrane that best met the project requirements. Developed all plans, specifications, and material quantity estimates.

**Dorchester County, MD, Hunting Ridge Construction and Demolition Landfill.** Project Manager for the investigation, design and permitting and construction quality assurance for an expansion. The work involved Phase I, II, and Ill permit documents in accordance with Maryland Department of Environment (MDE) regulations, and including design and monitoring of groundwater monitoring wells; County site plan approval; archaeological permit; and wetland delineation.

**Montgomery County, MD, Oaks Landfill.** Project Manager for a multi-year contract that includes the design of the final closure system for this 130-acre site, and construction engineering/CQA services. The work included: final cap design and grading plans; design of stormwater controls, landfill gas controls, and erosion and sediment features.

**Carrs Mill Landfill, Howard County, MD** Project Director for closure of this sanitary landfill (closed in 1977) including final cover, gas control and groundwater remediation. Work included delineation of waste limits, soil cover thickness, estimated waste depth, estimates of long term settlement, HELP modeling for leachate generation, and landfill gas and groundwater monitoring and testing.

**New Cut Landfill, Howard County, MD.** Project Director for design of landfill closure features including final cap, active LFG control and groundwater remediation using pump and treatment technology for this 40-acre site. The work included delineation of waste limits, soil cover thickness investigations, wetlands mapping, review of historical information and gas and groundwater monitoring and testing. Site investigation work is underway.

**Alpha Ridge Landfill, Howard County, MD.** Project Director for construction quality assurance activities related to closure of this 70-acre facility. The work involved construction of a combination soil and geomembrane cover system, landfill gas collection wells and header piping, landfill gas flare, groundwater pump-and-treatment system and other related features. Also, involved in estimating landfill settlement and in developing landfill specifications for earthwork and geosynthetics.

**Bowie, MD, Sandy Hill Creative Disposal Project.** Program manager for this two-phased project to investigate impacts of landfill gas on groundwater quality. Involved development and implementation of a monitoring plan to sample groundwater, soil, gas and leachate, and establish methods to evaluate the results.

**Cincinnati, OH, Rumpke Sanitary Landfill.** Lead Geotechnical Engineer for evaluating veneer stability and settlement of a proposed expansion to this existing landfill. Involved modeling of various waste slope and depth configuration and preparation of engineering report to support permit application documents.

**Magnesita Refractories Disposal Facility, York, PA.** Provided inspection and slope stability evaluations of an existing industrial waste disposal facility in PA. The work, which is on-going, has included detailed field inspection, review of geotechnical information, veneer and global slope

stability modeling, including consideration of a vertical expansion. The vertical expansion permit has been issued and construction planning will begin in 2017.

**Annapolis Dam and Reservoir, Annapolis, Maryland.** Project Director and lead geotechnical engineer responsible for annual inspection and stability evaluations of this 90-year old water reservoir dam.

This concrete -shell structure is geotechnically stable, but experienced cracking and spalling of the concrete surfaces that required repairs. Design of the repairs occurred in 2014, construction was completed in 2016 and final acceptance is planned for 2017. New features included an automated water level control gate with remote controls, updated spillway, and internal drainage pipes.

**Coal Ash Landfill and Surface lmpoundment Evaluations in North and South Carolina.** Provided geotechnical review and technical guidance to SCS's team involved in the inspection and evaluation of 23 coal ash disposal facilities in NC and SC for an energy company. The work involved stability, drainage and hydraulic evaluations, and preparation of technical reports.

**Coal Combustion Ash Screening Protocol.** Provided expertise in regard to identifying geotechnical and operational issues that impact co-disposing CCR materials (fly ash, bottom ash, FGD sludges) in MSW (Sanitary Landfills). The work is for a private waste company and is on-going.

**Watertown, NY, Development Authority of the North Country Landfill.** Lead geotechnical engineer responsible for evaluating slope stability of this existing facility to assist in design of a planned expansion. Involved slope modeling, laboratory of geomembranes for interfacial friction and preparation of final recommendations for permit design submittal.

**Niagara Falls, NY, Model City Hazardous Waste Site and Fort Wayne, Indiana, Adams Center Secure Landfill.** For these two hazardous waste facilities, provided geotechnical-engineering evaluations of interior and perimeter earth berms, internal drainage systems, and final cover design. Performed slope stability analyses for filling configurations, evaluated internal geosynthetic drainage system and geotechnical properties of soil borrow.

## Construction Quality Assurance

**Landfill CQA Services in Virginia, Maryland, Pennsylvania.** For over 40 years, Mr. Isenberg has been involved with construction quality assurance testing of soil, geosynthetics, concrete and plastic piping for landfill closures, new composite bottom liner systems, and related structures in the northeast US. Provided CQA documentation and professional engineering certification services for the Tullytown, GROWS and Modern Landfills in Pennsylvania; Corral Farm, Battle Creek, Prince William County, Fairfax County 195 Shoosmith Bros., King and Queen County Landfill in Virginia; Oaks, Alpha Ridge, New Cut and Carrs **Mill** Landfills in Maryland.

**Town of Chapel Hill, NC, Orange Regional Landfill.** Provided CQA and geotechnical services during construction of a new cell. The work involved supervision of SCS' Resident Engineer, reviewing CQA reports and testing, and advising the contractor on use of bentonite to reduce soil permeability.

**Greenville, SC, Palmetto Landfill and Hilton Head, South Carolina, Hickory Hill Landfill.** Project Manager and certifying engineer in for the CQA of two lined facilities for Waste Management Inc. Involved project management, technical reviews, field and laboratory testing, staffing and scheduling, report reviews, site inspections, preparation of final documentation report and professional engineering certification.

**Oakland, MD, Garrett County Landfill.** Provided technical support and guidance to the Maryland Environmental Service during construction of this new facility. The efforts included review of construction documentation, site visits, response to contractor questions and design clarifications.

**Hibbing, MN, Hibbing Taconite Mine.** Provided full-time field-testing and observation during construction of a 50-foot-high, clay core, earthen dam to retain mine tailings. Performed density and moisture testing of soils, monitored pneumatic pore pressure devices and settlement plates, and observed earthmoving and compaction operations.

**Tullytown Resource Recovery Facility, Philadelphia, PA.** Provided project management, certification engineering, and geotechnical overview of construction quality control and testing for over 3 years including 12 cells or about 150 acres of this above-grade, synthetic double-lined facility. Personnel management, scheduling, cost control, and certification of construction as-builts. Involved as project manager and certifying engineer for activities related to closure capping of filled cells.

**GROWS Landfill, Philadelphia, PA.** Project Manager for construction quality assurance activities related to closure of this 62-acre, 200-foot high facility with an earthen cover. The work involved monitoring of field activities, quality assurance testing, supervising resident engineering personnel, and developing a final documentation/certification report for closure. Construction was accomplished over a two-year period using the owner's forces.

# Groundwater Investigation and Remediation

**Sheffield, IL, Hazardous Waste Site.** Task Manager for design and analysis of a low-permeability cut­ off wall to isolate groundwater, along with a leachate extraction system. Elements included evaluation of several technologies to install the cut-off wall for removal of contaminated soils.

**Ironton, OH, Goldcamp Disposal Area.** Under EPA's ARCS contract, provided technical review of the Remedial Action/Remedial Design plans and specifications prepared for Allied Signal. This involved deep soil-bentonite perimeter cutoff wall design and pumping well system to contain NAPL's (Non­ Aqueous Phase Liquids).

**Paynesville, MN, Paynesville Landfill.** Evaluated hydrogeologic conditions for proposed expansion and site improvements. Worked with state and federal regulatory agencies to secure necessary permits, and developed a site investigation program for the expansion and long-term monitoring plan.

**Elk River, MN, Elk River Landfill.** Evaluated site geology and hydrogeology for a proposed landfill expansion onto a synthetically lined site. Developed a monitoring program for investigating the location and movement of volatile organic compounds encountered in groundwater samples

**Beltsville, MD and Deepwater, New Jersey, Dewatering System Evaluation.** Provided technical review and consultation to RUST Remedial Services for well point dewatering systems at the BARC Site (Maryland) and at the Dupont Site (New Jersey) for remediation efforts.

# Geotechnical Engineering/Expert Consultation

**Confidential Client, Army Barracks Construction Litigation Support.** Served as geotechnical expert for litigation involving earthwork at a US Army Barracks construction project in Missouri. Reviewed pre­ design, design and construction records and prepared statement of opinion regarding earthwork.

The course was settled out of court.

**PASCO Drum Disposal Facility, Pasco, WA.** Retained as a geotechnical expert by an environmental engineer to evaluate settlement of a final cover due to collapse/deformation of over 30,000 - 55 gallon buried drums. Evaluations involved developing a settlement monitoring program that has been on-going for 7 years, estimating tensile strain in the geomembrane liner and providing future predictions of strain.

**Minorca Taconite Tailing Basin, Virginia, MN.** Provided preliminary design evaluations for a new tailing basin including starter dam configuration, cell layout, slope stability modeling and overall construction scheduling.

**Geotechnical Expert Consultations in Ohio-Building Construction Project and Water Reservoir Liner Installation.** Retained as a geotechnical expert for two separate projects in Ohio. One involved review and technical opinions regarding earthwork and testing services for (1) a high rise structure in the City of Columbus. For this job, Mr. Isenberg project an expert report of opinion, attended depositions, provided deposition testimony, and testified in open court in Ohio. For the reservoir project, provided review of the original design, evaluated liner "whales" that formed during installation and advised the construction contractor on way to manage the construction.

**Third Party Independent Opinions:** Retained as an independent, third party expert for several projects in Virginia and Maryland regarding earthwork and geomembrane testing requirements and general construction. Specific projects have included, but not limited to, Rockingham County, Loudoun County, Shenandoah and Page County, and City of Baltimore (Quarantine Road Landfill).

**Condensate Sump Uplift Evaluation.** Evaluated geotechnical, design and construction factors related to the hydrostatic uplift of a deep HOPE sump installation project in the Midwest. Identified design flaws that led to the situation.

**Hamilton, New Zealand, Horotiu Landfill Expansion Testimony.** As part of the City's plan to expand this landfill, Mr. Isenberg provided expert testimony in public hearings held by Environment Waikato (in the City of Hamilton) on the application of geosynthetic clay liners (GCLs) in landfill bottom liner systems. Also, at the City's request, reviewed permit application drawings for the landfill expansion and provided technical comments to the design engineer on the bottom liner system design and other elements.

**Minneapolis/St. Paul Metropolitan Areas, MN, Earthwork Observation/Testing.** Involved in over 200 development projects including foundation engineering evaluations, retaining wall design and construction, subsurface investigations, groundwater studies, construction observation and lab testing, Designed shallow and deep foundation systems, installed monitoring wells, performed slope stability, developed earthwork quality control specifications, and performed forensic studies of foundation distress.

**Staten Island, NY, Power Authority of the State of New York.** Geotechnical engineering design and supervision of exploration program for fossil power plant site situated on fly ash, including layout, depths and sampling techniques for drill holes into soil and rock, as well as laboratory tests.

**Los Angeles, CA, Sheldon-Arletta Landfill Re-development.** Geotechnical engineering support for re­ development on an old, deep sanitary landfill into baseball fields. The landfill is over 150 deep in places, and has over 25 feet of soil cover in place. Settlement has been measured at up to 5 feet in a 6 year period.

**Sherburne County, MN, Fossil-Fuel Generating Plant.** Performed feasibility study using a wide-range of flexible polymeric membranes (PVC, EPDM, CPE, CSPE, PE, and rubber products) to control seepage through ash basins and possible filter designs to direct seepage.

**Kouts, IN, Rollin M. Schaffer, Units 14 and 15.** Development, supervision, and performance of field tests to measure permeability of a thin, beam-injected, cement-bentonite slurry wall used to control seepage through settling basin dikes. This was the first application of this technology in the United States.

## Publications/Presentations

"Extreme Weather vs. Solid Waste Facilities," Joint VRA/SWANA Solid Waste and Recycling Conference (Virtual), August 13, 2020.

"Legends Within the Industry," Panel Discussion at 2019 Quad State SWANA Conference, Asheville, North Carolina, August 29, 2019.

"How Extreme Weather Can Impact Your Landfill," 2019 Landfill and Solid Waste Seminar, April-May 2019, Richmond, Virginia and Baltimore, Maryland.

"Dry Tomb Landfills: Past, Present and Future," MSW Management Magazine, Feb 2016, with Darrin Dillah, PhD.

"Landfill Settlement: The Benefits of Knowing What's Going on Inside, Outside and What's Leaving Your Landfill," SWANA's 20th Annual Landfill Symposium, Charleston, SC, April, 2016.

"Coal Combustion Residuals: How They Could Affect MSW Landfills," SCS Annual Landfill Seminar, Charlotte, North Carolina, October 9, 2015.

"Settlement as a Second Language," SWANA (Beaver Chapter) Annual Conference, Portland, Oregon, April 2015 and SWANA (Quad States Chapter), Pigeon Forge, Tennessee, October 2015.

"Effects of Liquid Levels to Interim Slope Stability during Sustainable Landfill Practice." Global Waste Management Symposium sponsored by National Waste & Recycling Association and Environmental Research and Education Foundation, Orlando, FL, June 22-25, 2014 with Law, James, Isenberg, Robert, and Reed, Jeffrey.

"Deep Foundations for Redevelopment of Brownfield (Former Waste) Sites," Annual Pile Driving Contractors Association Conference, Charleston, South Carolina, March 29, 2012.

"Three Key Elements of Redeveloping Old Landfills: Foundations, Gas and Regulations," SWANA 12th Annual Symposium and Planning Management Conference, San Diego, CA, June 26, 2007 and at WasteTech 2007, Miami, FL, March 13, 2007

"Stability Evaluation and Moisture Content Issues," Landfill/Bioreactor/Leachate Recirculation Design and Operations Training Sessions, SWANA/New York State Chapter, Albany, NY, November 8, 2006

"Redevelopment of Landfills: Design Considerations," Maryland Recycling Coalition and SWANA Joint Seminar, Towson, MD, June 8, 2005.

"From Landfill to Leisure-Closure and rehabilitation of the Hiriya Landfill," with E. Peterson and D.

Sternberg, Waste Management World, Sept/Oct. 2004

"Bioreactor Landfill Stability: Key Considerations," with Bachus, Houlihan, Kavazanjian and Beech,

MSW Management, Sept/Oct. 2004

"Landfill and Waste Geotechnical Stability," USEPA Workshop on Bioreactor Landfills, Arlington,

Virginia, February 27-28, 2003

"Geotechnical Aspects of Landfill Bioreactor Design: Is Stability a Fatal Flaw?", 6th Annual Landfill Symposium, Solid Waste Association of North America, June 18, 2001, San Diego, California

"Construction Quality Assurance for Landfills Under Subtitle D," ASCE Geotechnical Committee Meeting, Falls Church, VA, March 17, 1999

"Evaluation of Alternative Landfill Bottom Liner and Landfill Cap Systems," with Mandeville, P., Thomas, R., and Tomlin, E., Nineteenth International Waste Conference. Madison, WI. September 25- 26, 1996

"Impact of Landfill Slope Geometry and Slope Stability," with Law, J. and Leung, C. Nineteenth International Waste Conference. Madison, WI. September 25-26, 1996

"Construction Quality Assurance for Soils." Twenty-Third Annual Missouri Waste Management Conference. Columbia, MO. July 1995

"Engineering Services During Construction/Liner Construction Quality Assurance Under Subtitle D," with Curtis, R. and Strickland, P. Sixth Annual SWANA Southeast Regional Symposium. Mobile, AL.

April 1995

"Construction Quality Assurance/Quality Control." Midwest Landfill Seminar. Kansas City, MO.

November 1994

"Geotechnical Engineering Aspects of Landfill Design." Thirty-Fifth Annual Conference of Soil Mechanics and Foundation Engineering. University of MN, Minneapolis, MN, 1987

"Engineering Uses of the Soil Survey." Minnesota Association of Professional Soil Classifiers, Minneapolis, MN, June 1978