
ROBERT E. DICK, PE

Education

B.S. - Civil Engineering, Virginia Polytechnic Institute and State University, 1989

Professional Licenses

Professional Engineer - Virginia and North Carolina

Professional Affiliations

American Society of Civil Engineers
National Society of Professional Engineers
Virginia Waste Industries Association, Past Chapter Chair
Solid Waste Association of North America
Southwest Virginia Solid Waste Management Association

Professional Experience

Mr. Dick joined SCS in 1990 and works on civil and environmental engineering projects related to solid and hazardous waste management and is a Vice President responsible for SCS' operations in the Richmond, Virginia office. He has performed landfill and landfill gas engineering projects (design, permitting, and construction) in more than 15 states and several foreign countries. He has worked on over 25 major landfill multi-task assignments involving new landfill cell construction, vertical and lateral expansion, closure, post-closure care, groundwater monitoring, phasing operations, and financial assurance, and has performed over 150 landfill gas projects involving landfill gas migration control, odor control, emissions control and Clean Air Act compliance, energy recovery/utilization, and carbon credit monetization. Other project assignments have involved work related to material recovery facility permitting and operations, solid waste management planning, air permitting at industrial facilities, stormwater management, storage tanks, brownfields projects, and wetlands. Examples of his project experience include:

Air Quality Permitting & Landfill Gas Engineering

Hanes Mill Road Landfill – Winston-Salem, NC

1997 – Present

City of Winston-Salem / Forsyth County Utilities Commission

Project Director for LFG engineering services under contract with City in support of regulatory compliance with NSPS, Title V Operating Permit, and Subtitle D. Specific tasks include surface emissions monitoring, annual emissions inventories, NSPS Design Plan and Annual Report, Title V permit application, Tier 2 NMOC sampling, LFG migration remediation, and other LFG-related consulting. Also, LFGE engineering services in support of the turbine-generator utilization project. Specific tasks included design of the LFG collection system to interface with vertical and lateral expansions of the active cell, permitting of the wellfield with the NCDENR, design of the condensate handling system and permitting of condensate discharge to the City's sewer system, and preparation of performance specifications for the blower/flare station and the compressor station.

North Wake, East Wake, Feltonville, and South Wake Landfills: 1999 - Present
Wake County, NC Solid Waste Management Division
Wake County, NC Facilities Design & Construction

Project Director for multi-task projects involving landfill redevelopment and end use planning, landfill post-closure planning, landfill gas (LFG) remediation and migration control, landfill gas-to-energy (LFGE), air quality permitting and compliance, greenhouse gas (GHG) emission reductions, erosion and sediment control plans, and implementation of environmental management programs at the closed North Wake, East Wake, and Feltonville landfills, and the active South Wake Landfill. Specific task assignments include:

- Directed efforts pertaining to review of the Post-Closure Land Use Master Plan, design of the subslab methane mitigation system for on-site structures, coordination with the landscape architect, and consultation with Wake County regarding remedial measures and public safety during landfill redevelopment and park construction.
- Responsible for preparation of solid waste permit amendment documents, regulatory compliance and negotiations with NCDENR pertaining to landfill post-closure programs related to environmental monitoring and remediation.
- Directed development of LFG monitoring and remediation plans and prepared documentation for submittal to NCDENR Solid Waste Section to approve LFG monitoring well network and Division of Air Quality regarding LFG system permitting and compliance.
- Responsible for air quality permitting and compliance, including development of air permit applications, participation in NCDENR inspections, compliance reporting, NSPS Design Plan. Prepared the Facility's annual emissions statement and supporting calculations for submittal to NCDENR in accordance with the air permit requirements. Developed the Startup, Shutdown, and Malfunction Plan to correspond with the LFGE project.
- Directed design of proposed LFG collection and control system for the closed and active landfills involving construction drawings and specifications, developed construction cost estimates, provided bid assistance services, and construction administration. Project activities included permit documentation for wastewater industrial discharge permit, solid waste permits, air modeling and permitting, and erosion/sedimentation control plan.
- Directed multiple efforts related to existing and proposed LFGE projects, including feasibility studies, economic analyses, communications with third-party developers and industrial end users, assistance during RFP solicitations and contract negotiations.
- Directed efforts for studies, design, and permitting for proposed LFGE transmission pipeline from South Wake to the Novartis Pharmaceutical Plant.
- Conducted LFG migration control investigation, installed monitoring wells, performed LFG probe decommissioning, and prepared assessment reports.
- Directed construction engineering and construction quality assurance (CQA) services of LFG monitoring probe installation and LFG control system construction, including numerous network modifications and LFG system expansions.

- Performed a LFG pump test at the Feltonville Landfill to measure the relationship(s) between LFG flow and adjustments in applied vacuum to select wellheads, and to measure the maximum sustainable methane content and LFG flow.

**NRRA Cloyd's Mountain Landfill – Dublin, VA
New River Resource Authority**

2003 – Present

Project Director for multi-task projects involving landfill gas (LFG) remediation and migration control, air quality permitting and compliance, greenhouse gas (GHG) emission reductions, stormwater permitting and management, and implementation of environmental management programs at the active Cloyd's Mountain Landfill. Specific task assignments include:

- Preparation of construction documents, bid assistance, CQA and construction engineering related to active LFG collection and control system.
- Responsible for preparation of solid waste permit amendment documents, LFG Remediation Plans, regulatory compliance and negotiations with VDEQ pertaining to LFG remediation activities.
- Performed routine operations, maintenance, and monitoring (OM&M) of the active LFG collection and control system.
- Developed air permit application for the utility flare, Title V Air Permit renewal application, compliance reporting, including annual Compliance Certification, Emission Statement, and Monitoring reports.
- Performed NSPS Tier 2 NMOC sampling and analysis and developed updated NMOC emission rates using site-specific NMOC concentration for regulatory applicability.
- Assisted NRRA with evaluation of LFG-to-energy project feasibility, communications with potential industrial end users, and supervised field measurements and recordkeeping related to GHG emission reductions (carbon credits).
- Developed the application for acceptance into the Virginia Environmental Excellence Program and prepared annual reports outlining implementation of the Environmental Management System.
- Developed updated closure and post-closure cost estimates for defining the amount of the financial assurance mechanism.

**Glen Allen Softball Complex – Glen Allen, VA
Henrico County, VA Department of Public Utilities**

2010 – 2012

Project Director for a multi-task project to perform landfill gas (LFG) investigations, which involved multiple rounds of LFG probe installations, surface and subsurface gas monitoring, ambient air and gas probe sampling, test pit excavations, surface water sampling, and a pump test to evaluate potential remediation approaches. SCS performed field investigations, developed LFG control system design, prepared the Erosion & Sediment Control Plans, prepared the Site Plan Permit applications, and provided construction administration, construction engineering, and construction quality assurance (CQA) inspection.

- Landfill Gas Collection and Control System. SCS performed the engineering design to develop construction drawings and specifications, and developed construction cost estimates.
- Construction Administration, Construction Engineering, and Construction Quality Assurance (CQA) Inspection. SCS served as the Owner's representative with respect to administration of the construction contract; provided engineering services during the Construction Phase of the project, and, provided CQA inspection and oversight.

**Blackburn and Newton Landfills - Catawba County, NC
Catawba County, VA Department of Utilities & Engineering**

1997 – 2000

Project Manager for LFG engineering services under contract with County in support of landfill gas-to-energy projects and regulatory compliance with NSPS and Title V Operating Permit. Specific tasks include air permit applications for engine gensets, annual emissions inventories, Title V permit application, Tier 2 NMOC sampling, REPI payment applications, and other LFG-related consulting. Also, LFG engineering services under contract with LFGE developer in support of the utilization projects. Specific tasks included LFG system permit submittals to NCDENR, design of the LFG collection systems, construction engineering and compilation of Record Documents, preparation of LFG production assessments, and LFG sampling and field investigations.

**MRSWA Mid-County Landfill - Christiansburg, VA
Montgomery Regional Solid Waste Authority**

1998 – 2009

Project Director for multi-task projects involving landfill gas (LFG) remediation and migration control, LFG-to-energy project development, greenhouse gas (GHG) emission reductions, and stormwater compliance at the closed MRSWA Mid-County Landfill. Specific task assignments include:

- Chief design engineer for preparation of construction documents, bid assistance, CQA and construction engineering related to passive and active LFG collection and control system.
- Responsible for preparation of permit amendment documents, LFG Remediation Plans, regulatory compliance and negotiations with VDEQ pertaining to LFG remediation activities.
- Supervised the routine field operations, maintenance, and monitoring (OM&M) performed at the active LFG perimeter migration control system.
- Prepared documentation for assessment of GHG emission reductions (carbon credits) and assisted MRSWA with the sale of vintage and current carbon credits via membership in the Chicago Climate Exchange as well as supervised field measurements and recordkeeping related to landfill methane GHG emission reductions.
- Assisted MRSWA with evaluation of LFG-to-energy project proposals and contract negotiations for implementation of a LFGE project.
- Conducted investigation and regulatory negotiations related to landfill final cap stormwater management system sampling, analysis, compliance, and corrective actions.

**SPSA Regional Landfill – Suffolk, VA:
Southeastern Public Service Authority****1993 – 2007**

- **Clean Air Act.** Project Manager for regulatory compliance associated with mandates including: negotiations with EPA and VDEQ regarding Title V permit, preparation of NSPS Design Plan, exemption for performance test of energy recovery control devices, surface monitoring training session, development of emission summaries, and coordination with LFG project owner. Project Manager for LFG consulting under contract with SPSA to support regulatory compliance for air permitting. Performed Method 25C NMOC sampling from the existing pipelines and prepared the Tier 2 NMOC Emissions Rate Report in accordance with the NSPS.
- **LFG Utilization System.** Project Manager for construction engineering support under contract with LFG developer during installations to supply a 3.2 MW electrical generation plant. Engineering tasks included preparation of construction details, third-party inspections, and coordination with contractor. Also, performed LFG yield estimate for the project's original financing. Prepared Permit amendment documents approved by VDEQ for proposed LFG system modifications including installation and operation of an LFG-fueled leachate evaporator and LFG extraction from 16 existing leachate collection manholes. Prepared design and construction drawings for LFG/leachate manhole system and well field expansion. Performed numerous due diligence studies for various financing efforts, as well as tax credit certification.
- **ZAPCO Gas-To-Energy.** Project Director for construction oversight and CQA engineering services in support of the installation of a 14,000-foot LFG transmission pipeline to transport 1.6 MMcf of LFG to an industrial facility for utilization as boiler fuel. Specific tasks included field inspection, coordination with regulatory agencies, and preparation of construction documentation report.

Landfill Engineering, Closure, and Construction Quality Assurance**Shoosmith Sanitary Landfill – Chester, VA
Shoosmith Bros., Inc.**

Project Director for multiple task order assignments to reconfigure the waste disposal units and subsequent revisions to the permit documents. Duties involved coordination of entire multi-discipline team addressing all aspects of landfill design, construction, operation, and environmental monitoring in order to facilitate a sequence of construction for developing the landfill expansion which improves coordination with current and future quarry operations. Project tasks involved wetlands considerations, airspace calculations and life expectancy, alternate liner configuration, leachate management system modifications, groundwater monitoring program changes. Provided technical support during cell construction, landfill closure, leachate pre-treatment facilities evaluation and implementation, leachate recirculation practices, leachate measurement reporting, landfill planning and development coordination with quarry lessee, airspace volume calculations, transportation study, and general landfill engineering.

**Fluvanna County Landfill – Fork Union, VA
Fluvanna County, VA Department of Public Works**

Project Director for multi-task projects involving landfill design, operations, groundwater monitoring, landfill closure, CQA, and regulatory compliance at the closed Fluvanna County Landfill as well as comprehensive solid waste management program consulting.

Cumberland County, VA, Randolph Landfill
Cumberland County, VA Department of Public Works

Project Manager for landfill and construction engineering services related to the closure of the Randolph Landfill in Cumberland County, Virginia. Specific tasks included evaluation of closure/post-closure plans from a constructability and cost-effectiveness perspective, performance of a field test pit program to determine the waste boundary and thickness of the existing intermediate cover, resident engineering and construction management during closure construction, construction quality assurance (CQA) testing and inspection services, and preparation and submission of the closure certification report.

Zahle Open Dump Landfill – Zahle, Lebanon
Lebanon Council for Development & Reconstruction

Project Manager for multi-task project involving landfill excavation, reclamation, and closure of the open dump landfill in Zahle, Lebanon. Specific task assignments include preparation of an evaluation of existing conditions, development and implementation of the campaign of analysis (environmental assessment), development of a waste relocation plan, health & safety plan for landfill fire, and preparation of closure drawings.

Fresh Kills Landfill – New York, NY
New York City Department of Sanitation

Comprehensive landfill engineering services for closure of the world's largest landfill (2,000 acre facility receiving over 15,000 tons per day). Specific task assignments included review of environmental laws, regulations, and jurisdiction of various permit agencies, development of stormwater management permit documents, preparation of alternative final grading plans for closure of Section 2/8, and development of a master stormwater management plan.

Lanchester Landfill – Honey Brook, PA
Chester County Solid Waste Authority

Preparation of construction drawings and specifications for Phase 3 closure, including base grading and final grading, stormwater management, final cover system, construction sequencing, soil erosion and sediment control. Assisted in the development of construction specifications and details for LFG management program. Preparation of cost analysis closure construction of Phase 2 and Phase 4 and post-closure maintenance for entire Municipal Site Landfill.

Harrison County Landfill – Harrison County, OH

Development of operational sequencing plans for permitting a 178-acre sanitary landfill. Detailed phasing/grading plans included design of base grades, temporary sedimentation ponds, swales, access roads and diversion berms.

Oaks Landfill – Montgomery County, MD
Montgomery County, MD Department of Public Works

1991 - 1993

Construction Quality Assurance (CQA) and resident engineering services during vertical expansion and closure. Specific tasks included construction inspection duties, shop drawing and

change order review, leachate generation analysis, development of contingency grading plan, and preparation of preliminary MSW Cell 1 closure design and construction documents.

Prudential Parcel "C" Landfill, Whippany, NJ

Preparation of preliminary design, permit documents, and construction drawings and specifications for closure of paper mill landfill. Development of soil erosion and sediment control plan, base and final grading design, and stormwater management design for permit application and subsequent closure construction.

Solid Waste Management Planning and Facilities

Solid Waste Collections and Disposal Options Study **2012**
Town of Chapel Hill, NC Department of Public Works

Project Director for a conduct a comprehensive review of the Town's solid waste collections and disposal systems, and to evaluate and identify options for enhancing and improving these systems to assist the Town's solid waste management planning efforts considering immediate and future regional solid waste management challenges. Project tasks involved review of existing solid waste collections and costs for residential and commercial programs (MSW, yard waste, and recycling), evaluate solid waste collection efficiency improvement options (collections routing and scheduling, automated collection, single-stream recycling, Pay-As-You-Throw, privatization/franchising), evaluate waste disposal options (transfer stations, MRFs, landfills), evaluate Waste-to-Energy/Waste Conversion Technologies, and financial analysis.

AMRF Materials Recovery Facility – Culpeper, VA **2011**
AMRF, Inc.

Project Director for a project involving operations support and permit compliance at a 2,500 ton per day MRF. Developed an updated Operations Manual and updated closure cost estimates for financial assurance. Also, prepared guidance documents related to regulated medical waste for employees conducting unauthorized waste screening inspections.

Shoosmith Materials Recovery Facility – Chester, VA **2010 – 2011**
Shoosmith Bros., Inc.

Project Director for the permitting, design, and construction of a 1,000 ton per day MRF, including development of permit applications, design documents, operations manual, public participation, and financial assurance. Conducted periodic site inspections during construction and coordinated with local agencies regarding fire suppression system and code compliance.

Waste Disposal Alternatives Evaluation **2004**
Fluvanna County, VA Department of Public Works

Project Director for multi-task projects involving evaluation of privatization of waste disposal and transportation services, design, construction, and operation of citizen convenience centers, and presentations to the County Board of Supervisors. Specific task assignments include:

- Evaluation of the proposals submitted to the County by private-sector waste management companies in response to a Request for Proposals for Waste Disposal Services that involved operation of a convenience center, transportation, and waste disposal.

- Participation during interviews and technical support to the County during contract negotiations with private-sector waste management companies.
- Preparation of design plans, technical specifications, cost estimate, and construction documents for a citizen's convenience drop-off and recycling facility.
- Preparation of Landfill closure construction documents and CQA Certification.

Leachate Collection and Treatment

South Wake Landfill – Apex, NC

Wake County Environmental Services; Facilities, Design & Construction

Project Director for multi-task projects involving landfill wastewater (LFG condensate and leachate) permitting and design of wastewater storage tanks, pump stations, piping, controls, and connection to leachate pre-treatment facilities involving biological aeration.

Groundwater Monitoring and Reporting

County-owned Landfills – Cumberland County, VA

Project Manager for post-closure semi-annual groundwater monitoring at three different closed landfills within the County. Specific tasks included sampling and laboratory analysis for VSWMR Appendix 5.5 compounds, statistical analysis, and preparation of the annual reports for submittal to the VDEQ.

Charles City County Landfill – Charles City County, VA

Chambers Development

Performed a groundwater study and analysis of the impact of subdrains on monitoring wells in conjunction with an analysis and review of the sump box and associated pump design for the leachate collection system. Design of an access road for hauling refuse to the active face.

Honeywell Plant – Hopewell, VA

2009 - 2011

Honeywell Performance Polymers, Inc.

Project Director for groundwater monitoring and sampling activities related to the Early Release Detection (ERD) program to comply with the Groundwater Characterization Study and GCS monitoring well requirements for facilities maintaining an aggregate aboveground storage capacity of petroleum product greater than one million gallons. Activities included monthly water level monitoring, quarterly vapor monitoring, and annual groundwater sampling and reporting for a network of four groundwater monitoring wells and five piezometers, which are located within the secondary containment berm of the primary bulk storage tank.

Stormwater Management

Glen Allen Softball Complex – Henrico, VA

2011

Henrico County, VA Department of Public Utilities

Project Director for development of Erosion and Sediment Control (E&SC) Plan, Site Plan Permit application, and stormwater sampling. Specific activities involved development of stormwater management drawings and calculations, discussions of approach and proposed practices for controlling soil erosion and sediment deposition during construction, and

Engineering Plan Review and the Environmental Plan Review processes. Field work involved sampling of surfacewater to evaluate potential impacts of metals and volatile organic compounds (VOCs) commonly found in landfill leachate in adjacent streams of the facility

South Wake Landfill – Apex, NC

2010

Wake County, NC Department of Facilities Design and Construction

Project Director for development of Erosion and Sediment Control (E&SC) Plan and Site Plan Permit application. Specific activities involved development of stormwater management drawings and calculations, discussions of approach and proposed practices for controlling soil erosion and sediment deposition during construction, and vegetative plan.

Colony Construction Asphalt Plant – Powhatan, VA

2006 – 2010

Colony Construction Asphalt, LLC

Project Director for development of Stormwater Pollution Prevention Plan (SWPPP), development of Virginia Pollution Discharge Elimination System (VPDES) Stormwater Permit application, field activities related to stormwater sampling and analysis, preparation of routine compliance reports, and negotiations with VDEQ regarding stormwater discharge limits.

NRRA Cloyd's Mountain Landfill – Dublin, VA

2006 – 2010

New River Resource Authority

Project Director for development of Stormwater Pollution Prevention Plan (SWPPP), development of Virginia Pollution Discharge Elimination System (VPDES) Stormwater Permit application, review of stormwater analytical data, preparation of routine compliance reports, and negotiations with VDEQ regarding stormwater discharge limits.

MRSWA Mid-County Landfill – Christiansburg, VA

2008

Montgomery Regional Solid Waste Authority

Project Director for investigation and regulatory negotiations related to landfill final cap stormwater management system sampling, analysis, compliance, and corrective actions at the closed MRSWA Mid-County Landfill.