

RICHARD D. SOUTHORN, PE, PG

Education

B.S., Geological Engineering, University of Wisconsin-Madison, 2001

Geology/Geophysics, Double Major, University of Wisconsin-Madison, 2001



Professional Licenses

Professional Engineer – Illinois, New York, Pennsylvania, Maryland, Delaware, Alabama, South Carolina, Kansas, Michigan, Indiana, Hawaii, Oregon, Georgia

Professional Geologist – Illinois, Delaware

Specialty Certifications

40-Hour OSHA HAZWOPER and Refreshers

SWANA Groundwater Monitoring

Nuclear Gauge Safety Training Program

SWANA Managing Landfill Gas at MSW Landfills

DOT Hazardous Materials

Professional Experience

Mr. Southorn serves as Project Director and manages coal combustion residual (CCR) and municipal solid waste projects, ranging from construction plan development to full-scale design services. His project management responsibilities include coordination and supervision of the project team consisting of engineers, technicians, geologists, planners, and CAD drafters.

As a Professional Engineer, Mr. Southorn is experienced in developing site layouts and analyzing designs for multiple facilities. This has included infrastructure, landfill base and final cover liner systems, leachate extraction and cleanout systems, landfill gas control systems, and storm water management controls. He oversees geotechnical stability evaluations, storm water modeling, leachate collection system evaluations, landfill gas collection system design, and road design/queuing analyses for these facilities.

As a Professional Geologist, Mr. Southorn has overseen and participated in numerous hydrogeologic investigations that characterize subsurface stratigraphy, hydrology/hydrogeology, and groundwater flow for the purpose of site development.

Mr. Southorn has served as a quality assurance officer in landfill gas system installations, groundwater and leachate well installations, cell development, final cover placement, and storm water management features. He is well versed in hydraulic and hydrologic modeling with SWMM, TR-20/55, and RAS approaches, and has previously served as a Radiation Safety Officer.

General Facility Services

Peoria Disposal Company, Illinois, Household Chemical Materials Facility. Sited and permitted the first privately operated household hazardous waste (HHW) facility in Illinois. The facility is designed to serve the HHW needs of Peoria, Illinois, and the surrounding area. The facility features a Materials Exchange Store, allowing residents to drop off unwanted materials that may be taken by other residents free-of-charge. The facility is designed with multiple storage areas with individual secondary containment systems to prevent mixing of incompatible waste streams.

Green Soils Management, Illinois, Compost Facility Design and Permitting. Designed and permitted the largest landscape waste composting facility in Illinois, providing a sustainable market solution for Chicago's organic waste stream. Secured Planned Use Development Zoning within a quarry to allow best use management of areas not currently being mined. Completed facility layout, design, and throughput analysis. Provided zoning testimony. Secured state and local permitting.

Coal Combustion Residual Impoundment and Landfill Services

Danskammer Energy Center, New York, Premature Closure Design: Closure Turf (Synthetic Cover). Developed a premature closure design for a CCR Landfill that was no longer required after the generating station converted to natural gas. Developed a synthetic Closure-Turf design to accommodate a lack of available low-permeability soils. Developed detailed closure design and associated bid package (engineer's cost estimate, bid documents, CQA Plan, and Specifications). Completed geotechnical and storm water design calculations and demonstrations based on State and local regulatory permitting requirements.

NRG Dunkirk Landfill, New York, Alternate Source Demonstration. Developed and certified an Alternate Source Demonstration (ASD) to demonstrate that a groundwater impact observed was not attributed to the on-site CCR Landfill.

NRG Huntley Landfill, New York, Assessment of Corrective Measures. Provided two separate assessments of corrective measures to assess appropriate corrective measures to address different groundwater impacts that were observed during groundwater sampling. Multiple corrective measures were considered, with the ultimate remedy of a permeable reactive barrier selected due to proximity to the Niagara River.

NRG Indian River, Delaware, Landfill Expansion Permitting and Associated Services. Coordinated a permit application to expand the existing CCR landfill by 28 acres, which will extend the energy center's operating life by approximately 50 years. Design includes leachate collection system, storm water management, geotechnical stability, and liner evaluations. Application and associated plans include updated Operating Plans, Environmental Monitoring Plan, Sediment and Stormwater Management Plan, SWPPP, and Fugitive Dust Plan.

NRG Big Cajun Generating Station, Louisiana, Big Cajun II Ash Landfill Design. Developed leachate collection trench design and wave propagation calculations.

KeyCon Conemaugh Landfill, Pennsylvania, Assessment of Corrective Measures. Developed an assessment of corrective measures after a contractor temporarily removed a run-off prevention berm to support a construction project. An unexpected and intense rainstorm during this period led to the release of CCR from the landfill, impacting a nearby stream. Developed a remediation program and sampling and analysis plan to ensure that clean-up activities were protective of public health, welfare, and safety.

KeyCon Conemaugh Generating Station, Pennsylvania, Settling Basin Alternate Source

Demonstration. Developed and certified an Alternate Source Demonstration (ASD) to demonstrate that a groundwater impact observed at a settling basin was attributed to CCR falling from haul trucks rather than from the proximate settling basin. Determination led to operational changes that led to improved groundwater quality.

KeyCon Conemaugh Generating Station, Pennsylvania, Groundwater Monitoring System Evaluation.

Certified that the facility's groundwater monitoring systems have been designed and monitored to satisfy the performance standards mandated by §257.91(a)(1-2) of the CCR Rule.

Gen-On New Castle Generating Station, Pennsylvania, South Settling Pond, Alternate Source

Demonstration. Developed and certified an Alternate Source Demonstration (ASD) to demonstrate that a groundwater impact observed at a settling basin were attributed to historic CCR filling operations located outside of the permitted CCR Unit.

Gen-On New Castle Generating Station, Pennsylvania, South Settling Pond, Closure Certification.

Provided engineering closure observation and certification.

Energy Jeffrey Energy Center, Kansas, Flue Gas Desulfurization (FGD) Landfill Leachate Pond

Redesign. Redesigned a leachate pond that had been designed by others but failed after construction due to hydrostatic uplift. Re-developed the liquid storage method, developed ballast countermeasures, and developed a non-conventional lining system that used stranded geosynthetic assets to minimize construction costs.

Energy Jeffrey Energy Center, Kansas, Out-of Phase Landfill Closure Design and Closure Construction

Oversight. Developed an out-of-phase development plan over constructed and permitted disposal phases to ensure adequate disposal capacity without requiring additional disposal area. Developed out-of-phase design, construction bid documents, and CQA Plan; and provided all construction oversight, reporting, and permitting.

Energy Lawrence Energy Center, Kansas, CCR Landfill Redesign.

Provided a complete landfill re-design of Cells 4-8, which had not received CCR prior to implementation of the CCR Rule. Redesign included modifying the cell layout, providing a uniform herringbone cell configuration, modifying the final cover grades and storm water management approach, revising the base and final cover liner systems to incorporate geosynthetics, complete all leachate collection, slope stability, and storm water evaluations for permit approval.

Energy Lawrence Energy Center, Kansas, CCR Construction Quality Assurance.

Oversaw construction activities for six partial closure construction and one base liner construction. Each project included development of design grades, providing AutoCAD surfaces for construction equipment (dozer) use, bid quantities, specifications, and CQA Plan requirements. Provided all field CQA oversight and developed documentation reports for KDHE permit approval.

Entergy Little Gypsy Ash Landfill, Louisiana.

Developed landfill base and final cover grades and ancillary features, including storm water control features, stockpile areas, perimeter roads, etc. Completed storm water analysis and preliminary geotechnical analyses.

Joplin Gypstack Landfill, Missouri.

Developed toe-trench leachate collection system and storm water conveyance system for a closed gypstack landfill. Developed conceptual design, bid specifications, and construction drawings.

Multiple Facilities, CCR Rule Compliance Evaluations and Documentation. Provided comprehensive facility reviews and developed numerous documents in advance of CCR Rule implementation. Completed applicable geotechnical and storm water analyses and identified appropriate site improvements for implementation. Developed impoundment evaluations, Fugitive Dust Control Plans, Closure Plans, Run-On/Run-Off Control Plans, and Stability Analyses, in accordance with the CCR Rule. Completed for impoundments and landfills at the Lawrence, Tecumseh, and Jeffrey Energy Centers.

Multiple Facilities, Annual Inspections. Completed annual inspections of CCR facilities to ensure compliance with Section §257.84(b) of the CCR Rule. Annual inspection includes review of operating records, and a site walk to identify actual or potential structural weakness within the CCR unit and/or other changes that may affect the stability or operation of the unit. Investigations were completed at the Keystone, Conemaugh, New Castle, Cheswick, and Indian River facilities.

MSW Landfill Design and Permitting

Peoria Disposal Company, Illinois, Hickory Ridge Landfill Horizontal and Vertical Expansion Design and Permitting. Managed the successful siting of a horizontal and vertical expansion, achieving unanimous siting approval. Developed Illinois EPA Permit Application that is currently under review. Design was developed in conjunction with challenging topographic relief and a network of jurisdictional waters and included all geotechnical, storm water, leachate analyses, and development of all operation and construction plans. Oversaw the facility layouts and designs, coordinated sub-consultants, and provided oversight for all field and office activities.

Peoria Disposal Company, Illinois, Peoria City/County Landfill, Site 3 Expansion Design and Permitting. Managed the successful siting and permitting of a 10-million ton landfill expansion that involved extensive community input and feedback from the Heart of Illinois Chapter of the Sierra Club. The project involved complete development of both stand-alone and layover design options. Both options were presented in public meetings on behalf of the City and County of Peoria, the owners of the facility. The stand-alone design was ultimately selected to be included within the Siting Application. Oversaw the facility layouts and designs, coordinated subconsultants, and provided oversight for all field and office activities.

Peoria Disposal Company, Illinois, Indian Creek, Landfill No. 2 Expansion Design and Permitting. Assisted in developing of a local siting application for a landfill expansion of approximately 16.25 million ascy at a municipal landfill. Developed the facility layout and design that emphasized hummocky topography and storm water detention basins that are naturally-occurring in appearance. Wrote the CQA manual and performed all storm water analyses.

GFL Zion Landfill, Illinois, Zion, Site 2 North Expansion Design. Managed the development of a local siting application for horizontal and vertical landfill expansion. Developed the facility layout and design, coordinated subconsultants, and provided oversight for all field and office activities.

GFL Zion Landfill, Illinois, Zion, Site 2 East Expansion Design and Permitting. Managed the development of a local siting application for a vertical and horizontal landfill expansion. Developed the facility layout and design, coordinated subconsultants, and provided oversight for all field and office activities.

Republic Services, Illinois, Environtech Landfill Phase III Expansion Design. Managed the engineering and design aspects of a 14-million ascy landfill expansion. Developed the facility layout and design and and coordinated geotechnical, storm water, and leachate design calculations.

Republic Services, Indiana, Newton County Landfill Expansion Permitting Assistance. Coordinated agency review and approval of a horizontal and vertical expansion permit. The permit application included geotechnical analyses, storm water analyses, pipe crushing analyses, and a landfill development plan.

Waste Management Orchard Hills Landfill, Wisconsin, Landfill Expansion Design. Managed the engineering and design aspects of a 13-million ascy landfill expansion. Developed the facility layout and design and coordinated geotechnical, storm water, and leachate design calculations.

Fox Moraine Landfill, Illinois, Greenfield Landfill Design. Assisted in developing a local siting application for a greenfield landfill of approximately 40 million ascy. Assisted in developing the facility layout, design, and CQA plan. Completed field activities associated with hydrogeologic investigation, including logging soil, overseeing well installations, completing slug and packer tests, and monitoring groundwater levels. Assisted in developing site geologic cross sections, boring logs, and well construction reports.

Pescadito Environmental Resource Center, Texas, Pescadito Landfill Greenfield Development. Coordinated engineering design services for a greenfield landfill development. Developed the facility layout and design and coordinated geotechnical, storm water, and leachate design calculations.

Waste Connections Rochelle Landfill, Illinois, Rochelle Municipal Landfill Expansion. Assisted in developing a local siting application for a 12.60 million ascy landfill expansion. Assisted in developing the facility layout and design (including leachate and gas collection systems, base grades, final cover systems, access roads, storm water detention basins, etc.), calculating construction quantities, and developing presentation material.

Waste Transfer Stations

Republic, Illinois, Northlake Transfer Facility Design and Permitting Assistance. Assisted in the development of a comprehensive siting application for a transfer station. Assisted in the development of the site layout, transfer station building plan, administrative building plan, and building elevations.

Waste Management, Illinois, Virginia Road Transfer Facility Design and Permitting Assistance. Assisted in the development of a comprehensive siting application for a transfer station. Assisted in the development of the site layout, transfer station building plan, administrative building plan, and building elevations.

Construction Oversight and Associated Design

Multiple Sites, Construction Drawing Development. Developed/oversaw construction drawings for multiple landfill construction projects.

Various, CCR and MSW Landfill Construction Quality Assurance Projects. Responsibilities included developing project management and coordination, construction contracts, writing reports, creating construction and as-built drawings, calculating post closure care costs and construction quantities, reviewing specifications, completing all data reviews (including material certifications and field data), coordinating schedule, and field work.

- New Cell Development
 - Westar Lawrence Energy Center, Lawrence, Kansas
 - Winnebago Landfill, Rockford, Illinois
 - Environtech Landfill, Morris, Illinois
- Final Closure Caps:
 - Cell 1-3 Final Cover and Stability Berm, Westar Lawrence Energy Center, Lawrence, Kansas
 - Phase 2 of South Unit, Winnebago Landfill, Rockford, Illinois
 - Phase I South Recompacked Final Cover, Environtech Landfill, Morris, Illinois
 - Phase II West Composite Final Cover, Environtech Landfill, Morris, Illinois
 - Final Cover Cap Completion, Deercroft Landfill, Indiana
 - Composite Final Covers, Dauphin Meadows Landfill, Pennsylvania
 - Final Cap Construction, Congress Landfill, Hillside, Illinois

Various, Multiple Monitoring Well Installations at Various Greenfields and Existing Landfills. Logged over one mile of soil associated with landfill siting projects and installed over 50 groundwater monitoring wells.

Congress Landfill, Illinois, Miscellaneous Construction Activities. Provided oversight of landfill gas wells installation, leachate wells, pipe gallery installation, storm water modifications, final cover, and landfill gas system.

Deercroft Landfill, Indiana, Perimeter Ditch Drainage Improvements. Assisted in design and provided construction documentation for the installation of drop boxes below downchutes in order to minimize scour. The drop-box design was selected to reduce the amount of rip-rap required to slow surface water flow.

Republic Environtech Landfill, Illinois, Gas Migration Well Installation. Supervised well installation, logged boreholes, and surveyed locations for nine gas migration wells.

Republic Environtech Landfill, Illinois, Downchute Installation and Terrace Regrading. Revised the design of landfill benches to increase gradient and facilitate flow. Reviewed material specifications, coordinated construction, and provided oversight and documentation for the installation of six downchutes, including soil shaping, geocomposite placement, and rip-rap placement.

Confidential Landfill, Illinois, Waste and Gas Piping Relocation Field Support. Provided construction oversight for the relocation of waste and associated gas piping that had been placed beyond the waste boundary in a closed cell.

Environmental Monitoring

Confidential Landfill, Illinois, Sub-Surface Oxidation Evaluation. Completed field monitoring activities associated with a sub-surface oxidation, including gas quality, vacuum levels, and down-hole well temperatures. Provided oversight activities for the replacement of gas wells and header lines.

Brownsfield Soil and Groundwater Sampling. Completed soil and groundwater collection activities for environmental assessment, including logging boreholes, collecting soil samples, supervising groundwater well installation, surveying well locations, and collecting groundwater samples. Completed associated CAD work.

- Former Service Station, Princeton, Illinois
- Former Service Station, Chicago, Illinois
- Abandoned Lot, Chicago, Illinois
- Former CTA Property, Chicago, Illinois
- Former Warehouse, Harvey, Illinois
- Former Service Station #1, Rossville, Illinois
- Former Service Station #2, Rossville, Illinois

Republic Livingston Landfill, Illinois, Environmental Monitoring and Reporting. Collected samples, completed data evaluation, wrote reports/transmittals, performed project coordination, developed CAD drawings, and wrote SOPs to train field staff for all standard landfill sampling activities. Project included all gas, groundwater, and leachate sampling for the site. Gas sampling includes migration (perimeter) wells, entire active field, and NSPS. Groundwater sampling includes all wells, NPDES, and sampling residential wells in area. Leachate sampling includes vaults, vertical wells, and horizontal wells.

City of Princeton, Illinois, Princeton Landfill Environmental Monitoring and Reporting. Collected groundwater and leachate samples, monitored landfill gas, completed data compilation and evaluation, and developed CAD drawings.

Various, Soil and Groundwater Sampling. Oversaw soil and groundwater collection activities for environmental assessment, including logging boreholes, collecting soil samples, supervising groundwater well installation, surveying well locations, and collecting groundwater samples. Completed associated CAD work.