APPENDIX G

TECHNICAL CAPABILITY

DKL

1849 E. Guadalupe Rd., C1010 PMB52
Tempe, Arizona 85283

DKL Holdings, Inc. (DKL) is a Delaware corporation formed in February 2005 to pursue business ventures in the solid waste management industry. The company is registered in Arizona as a foreign corporation. The company has four shareholders, Larry Henk, David Slager, Kurtis Wahl and Kevin Bass, all of whom are residents of Arizona. These individuals combine to provide DKL with over 80 years of experience in the solid waste industry, both within Arizona and Nationally. These individuals have also worked together for many years operating solid waste companies (both hauling and landfill operations) throughout Arizona. They provide the expertise necessary to develop and operate the Marana Regional Landfill (MRLF). Resumes for the individuals that will be involved in the day to day operation of the MRLF are provided on the following pages.

Larry D. Henk

Larry Henk, age 51, entered the waste industry in 1984, beginning his career as a commercial route driver. After serving in every capacity of the collection company, Mr. Henk gained additional responsibilities when he was named General Manager in 1987.

As General Manager, Mr. Henk, through a series of acquisitions and privatizations, played an intricate role in expanding the single collection company to three collection companies and four landfills. These companies were then sold to Allied Waste Industries in 1992.

In 1992, Mr. Henk joined Allied, as an Officer of its subsidiaries. Mr. Henk was responsible for day-to-day operations of all of the Allied facilities while at the same time performing a lead role in market development activities. These activities involved acquisitions, privatizations, landfill expansions, and most importantly, the successful integration of the assets post acquisition. From the beginning of 1992 through the end of 1993, Allied acquired 33 companies and grew from 7 collection companies, 1 transfer station and 4 landfills with a reported revenue of $35 million to a company with 16 collection companies, 5 transfer stations and 9 landfills, with a reported revenue of $54.4 million.

In 1994, Mr. Henk's accomplishments were acknowledged with a promotion to Vice President of Operations. Over the next 3 years, he continued to direct the company's successful growth, through both organic and acquisition based growth, the successful post-acquisition integrations, as well as maintaining the strong operating performance of the base company. During that period, Allied successfully completed acquisitions of 66 companies. The most significant acquisition of this period was the acquisition of Laidlaw. At the time of acquisition, Laidlaw had 73 collection companies, 31 recycling facilities, and 31 landfills, generating more than $700 million of revenue. From the beginning of 1994 through the end of 1996, Allied went from 26 collection companies, 20 transfer stations, and 15 landfills with a reported revenue of $97.4 million, to a company with 81 collection companies, 43 transfer stations, 21 recycling facilities and 56 landfills with reported revenues of $291 million and a run rate of approximately $750 million.

In 1997, Mr. Henk earned the title of Chief Operating Officer and the additional title of President in 2000. From the beginning of 1997 to November of 2001, Mr. Henk had direct involvement in all of Allied's successes. During that 5-year period, Allied successfully completed acquisitions of 245 companies. The largest single accomplishment of that period was the successful acquisition and integration of Browning Ferris in the fall of 1999. At the time of the acquisition, BFI had 250 collection, 90 transfer stations, 90 recycling facilities, 94 landfills and 25 medical waste facilities, generating approximately $4.2 billion. From 1998 through November of 2001, Allied went from 130 collection companies, 68 transfer stations, 22 recycling facilities and 76 landfills, generating revenues of approximately $1.6 billion to 355 collection companies, 181 transfer stations, 65 recycling facilities and 167 active landfills with revenues of nearly $5.6 billion.

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In 2003 Mr. Henk served as President of Waste Services Inc.. Waste Services Inc. is a publicly traded company with approximately $300 million of revenue. At the time of joining WSI they had operations in Canada only. Mr. Henk led an aggressive acquisition strategy that gave WSI a United States base of operations generating approximately $150 million in revenue.

From 2004 to present Mr. Henk owns and operates several waste operations based in Prescott Valley, Phoenix, Tucson, and Nogales consisting of 3 collection companies, 1 transfer station, and 1 C&D landfill

Kurtis T.Wahl

Kurtis Wahl, age 48, started his career in the waste industry in 1999 as a management trainee with Republic Services in Terre Haute, Indiana. Prior to the career change, Kurtis spent his post college career as a Golf Professional and Country Club General Manager.

After a short stay at Republic, Mr. Wahl took a position with Mr. Larry Henk and Premier Waste Service where he continued training and worked in acquisitions and landfill permitting.

In 2003, Mr. Wahl moved with Mr. Henk to Waste Services Inc., where he worked in various different areas involving permitting, zoning, and acquisitions. During the next couple years he successfully worked on the acquisitions of 7 hauling companies, 1 MSW landfill and 2 Transfer Stations. His most significant projects during his employment with Waste Services involved the purchase, permitting and development of the Seventh Avenue Transfer Station and the Southeast Regional Landfill which, is now owned by Republic Services.

In 2004, Mr. Wahl moved into a partnership with Mr. Dave Slager and Mr. Larry Henk when they acquired the Prescott Valley C&D Landfill and Tucson Recycling & Waste Services. Since that date they have acquired two additional hauling companies and have developed and operate the City of Nogales Transfer Station and MRF.

Mr. Wahl is SWANA Certified in the Management of Landfill Operations (MOLO) and has completed other waste training accreditations.

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David W. Slager

David Slager, age 52, started his career in the waste industry in 1972, as a welder and mechanic, for Calumet Waste Systems, a subsidiary of Waste Management Inc., located in northern Indiana.

In 1974, Mr. Slager joined Illiana Disposal as a commercial route driver. It was with Illiana Disposal, that Mr. Slager served in every capacity of the collection company, gaining a working knowledge of the solid waste collection business.

In 1977, Mr. Slager joined National Scavenger, one of the largest privately owned solid waste collection and transfer companies in Chicago. Mr. Slager started as the Sales Manager, and shortly there after, was promoted to the position of General Manager.

In 1980, Mr. Slager used his knowledge and hands on experience to venture out as an independent owner of his own solid waste collection company, Chicago Disposal. The company rapidly grew into one of the most respected independent collection companies serving Chicago's south side.

In 1984, Mr. Slager expanded his company by forming Arizona Waste Services. Arizona Waste Services provided commercial, industrial and residential collection services in central Arizona. Arizona Waste Services has the distinguishing claim to be the first company in Arizona to implement a residential curbside recycling program.

Over the past 22 years, Mr. Slager has enjoyed numerous successes, including the formation of his northern division known as Environmental Waste Services, consisting of six collection companies and two transfer stations. These companies grew over time to create the largest independent solid waste company in northern Arizona, northwestern New Mexico, and southern Utah.

In addition to his successes in the solid waste business, Mr. Slager also developed successful companies related to the solid waste industry. These companies include D & L Med Waste, a medical waste collection company, Environmental Equipment Services, a solid waste equipment service and sales company, and National Compactor Rentals, a nationwide compactor and baler rental company.

David continues his career with a heightened focus on development in the southern regions of Arizona with Tucson Recycling & Waste Services, Southwest Waste Services, and Prescott Valley C&D Landfill.

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CORNERSTONE

2011 Statement of Qualifications

Cornerstone Environmental Group, LLC

Building lifetime relationships with our clients and employees

Introduction

Cornerstone serves our solid waste, commercial, and industrial clients with integrity, creativity, and expertise

President - **Richard A. Peluso, P.E.**
Senior Vice President - **Dennis G. Fenn, P.E.**
Vice President - **Michael S. Michels, P.E.**
Vice President - **Matt Davies**
Vice President - **Kenneth J. Karl**

Overview

Cornerstone Environmental Group, LLC (Cornerstone), is an engineering firm dedicated to providing services to the solid waste and environmental industries. Our professionals are also well known in commercial and industrial settings, with experience assisting clients in commercial real estate, investment banking, renewable energy, and the pulp and paper industry.

Cornerstone was founded on the principle of providing excellent, client-based services. The firm's strength is built on our management team's combined total of 100 years of service in the solid waste field.

"Cornerstone has built a reputation for outstanding work by going the extra mile for its clients."

- Richard A. Peluso

Building lifetime relationships with our clients and employees.

Our Mission

Cornerstone is a company built on a strong foundation of engineers, scientists, and technicians with years of experience in the solid waste and environmental industries

Cornerstone Environmental Group, LLC is an engineering consulting and field service firm dedicated to providing services to the solid waste industry and commercial and industrial clients throughout the nation. The firm is founded by industry leaders who have helped to develop and shape solid waste, energy, and environmental technology over the past 30 years.

Cornerstone's mission is to:

- *Provide the highest quality of services, from project conception through completion.*
- *Focus on responsiveness and superior client service that exceeds our clients' expectations on every project.*
- *Provide a rewarding and challenging work environment that invites innovation and a strong passion for our work.*

The firm's strength is built on extensive experience with both large and small companies as well as municipalities.

Our services include:

- *Environmental and remediation services*
- *Hydrogeology services*
- *Operations and maintenance*
- *Air quality services*
- *Site and civil design services*
- *Biogas servicess*
- *Landfill engineering and design*
- *Transfer, recycling, and processing facilities*

Cornerstone staff consists of a team with significant expertise in the fields of solid waste management and environmental consulting. Cornerstone staff share a common vision to serve our clients with energy, integrity, and innovation.

Building lifetime relationships with our clients and employees.

Company Values

Our core values reflect our commitment to our clients and our staff

Client Focused

Cornerstone approaches every project with an understanding of our client's needs and ultimate objectives. This deep understanding allows us to focus our consulting services on fully satisfying our client. Our client focus has earned us trust and relationships that have lasted for decades.

Through constant communication among project team members and the client, the entire Cornerstone project team stays in touch and remains focused on the client's ultimate project goals.

Result Oriented

Cornerstone provides cost effective results that serve our clients' long-term needs. We have found that less expensive approaches may initially be attractive, but implementation of a second or third iteration almost always comes with an unattractive and unanticipated price tag.

Technically Sound

Cornerstone's expert staff focuses on the development of approaches based on sound technical principles. Our project teams consist of nationally recognized leaders in the technical disciplines that contribute to each project. We have earned the respect of clients and regulators.

Quality Focused

At Cornerstone, quality is work that is done right, on time, and on budget. Project deliverables are prepared in accordance with Cornerstone's Quality Control Policy, a uniform company-wide policy that incorporates internal reviews and provides company standards for our work.

Safety Oriented

Cornerstone is committed to 360 degree safety, including personal safety of our staff at home, in the office, and in the field, as well as the design of projects for safe implementation and operation.

Innovative

Today's practices must take full advantage of advancements in technology, knowledge of financial markets, competition, and operating practices. To advance the state of practice and provide forward looking sustainable projects, when the benefits are clear, Cornerstone implements new technology and reaches for the next innovation.

Building lifetime relationships with our clients and employees.

Environmental Engineering and Consulting

Concept to Completion

Cornerstone provides a range of specialized services to meet the needs of our clients

Environmental and Remedial Services

- *Site characterization and remedial investigation*
- *Feasibility studies*
- *Remedial design*
- *Remedial action, in-situ and ex-situ*
- *Environmental planning and compliance*
- *Permitting*
- *Agency negotiations*
- *Special waste*

Hydrogeology Services

- *Site investigations*
- *Groundwater modeling*
- *Water supply services*
- *Data management/GIS*
- *Data visualization*
- *Support services*

Air Quality Services

- *Air permitting and permit compliance support*
- *Emission inventories, compliance assessments/ facility audits, and control technology evaluations (BACT/LAER)*
- *Dispersion modeling/emissions testing review and oversight*
- *Air toxics health risk assessments*
- *Ambient air monitoring*
- *Community awareness/public relations support*
- *Pollution prevention planning*
- *Risk management plan development and review*
- *Environmental information management systems*
- *Greenhouse gas (GHG) emission reduction credit evaluations*

Operations and Maintenance

- *Facilities O&M, monitoring, inspections, and reporting*
- *Groundwater, surface water, air and leachate monitoring*
- *Training of site personnel on operations and reporting*
- *Construction management and small construction project capability*
- *Leachate collection system maintenance*
- *LFG/biogas collection and control system O&M*

Site and Civil Design Services

- *Site engineering and design*
- *Surface water management design*
- *Environmental engineering*

Biogas Services

- *Biogas engineering, control system design and phasing plans*
- *Biogas generation and recovery modeling*
- *NSPS Tier I/Tier II/Tier III evaluations*
- *Beneficial-use feasibility studies and design*
- *Air quality and greenhouse gas services*
- *Biogas-to-energy projects*
- *Operations and maintenance of biogas control equipment and systems*
- *Pipeline design*
- *Compressor station design*
- *Electric power station design*

Landfill Design and Engineering

- *Landfill site master planning and permitting*
- *Liner and final cover design/geosynthetics*
- *Hydrogeologic investigations*
- *Geotechnical/site characterization/slope stability*
- *Leachate collection system design/recirculation/bioreactor*
- *Infrastructure design and stormwater controls*
- *Closure financial plan/funding*
- *Landfill reclamation*
- *Construction management, procurement, and construction quality insurance (CQA)*
- *Operations sequencing*

Transfer, Recycling, and Processing Facilities

- *Solid waste management planning*
- *Facility planning*
- *Permitting*
- *Design*
- *Construction services*
- *Existing facility review*

Building lifetime relationships with our clients and employees.

Environmental and Remediation Services

Cost effective solutions that turn environmental liabilities into assets

Cornerstone's environmental services are focused on helping our clients turn what may be considered an environmental liability into an asset. In addition to our years of experience in the solid waste industry, Cornerstone professionals are well known for solving environmental problems in all commercial circles. We have experience with a variety of industries, including solid waste, banking, legal, real estate, pulp and paper, pharmaceuticals, electronic, metals finishing, agricultural, and transportation.

Cornerstone has performed environmental investigations that range from petroleum spills and leaking fuel tanks to evaluation of widespread heavy metals contamination from a mining and smelting operation and suspected releases from large unlined landfills.

Our staff has managed numerous site remediation projects. Our approach balances protection of human health and the environment with the need to control project costs and attain project goals for redevelopment or continued use.

Our experience includes contaminated soil removal and in-situ remediation of small-scale petroleum spills, sediment clean up, asbestos-containing materials at large commercial properties, construction of low permeability caps at landfills and contaminated industrial sites, and contaminated soil removal and groundwater collection and/or in-situ treatment at organic solvent, petroleum, and metal plating waste contaminated sites.

Cornerstone's environmental and permitting services include:

Site Characterization

- *Phase I Environmental Site Assessments*
- *Phase II Site Investigations*
- *File searches and record reviews*
- *Environmental sample collection and analysis*
- *Asbestos surveys and indoor air quality*
- *Field analytical services*

Remedial Investigation/Action

- *Underground storage tank closure*
- *RCRA corrective action*
- *Waste characterization/removal and disposal*
- *Construction management and oversight*
- *Brownfields support*

Environmental Planning and Compliance

- *Environmental impact statements*
- *Facility permitting*
- *Storm Water Pollution Prevention (SWPP) Plans*
- *Spill Prevention, Control, and Countermeasures (SPCC) Plans*
- *NPDES permitting*
- *Air quality monitoring and permitting*
- *NSPS/NESHAP compliance services and reporting*
- *Reporting (SARA, TRI, Toxic Use)*
- *Solid Waste Management Plans*
- *Regulatory compliance audits*
- *Environmental management systems*

Building lifetime relationships with our clients and employees.

Hydrogeology Services

Setting the stage for effective site remediation, expansion, or re-use

Cornerstone specializes in providing cost-effective groundwater and other subsurface-related services. Our experience includes both operating and inactive landfills, industrial facilities, abandoned hazardous waste sites, and commercial facilities.

We can address every phase of a project, from initial site characterization through post-remediation compliance monitoring. Cornerstone provides a full spectrum of services tailored to accommodate the size and complexity of any site.

Our services have addressed a wide range of contaminants, including volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), manufactured gas plant (MGP) wastes, and inorganic contamination, as well as both dense and light non-aqueous phase liquids (DNAPLs and LNAPL).

Our hydrogeology services include

- **Site investigations** – Cornerstone conducts thorough yet focused site investigations to attain economically sensible cleanup strategies to improve efficiency and reduce costs.

Examples of techniques used to improve efficiency and reduce costs include Simulprobe samplers for simultaneous collection of soil and groundwater samples with real time groundwater analyses; water FLUTe systems in bedrock well installations to provide cost-effective multi-depth sampling ports in a single open borehole; and development of a real-time data management system in combination with GIS to quickly compare soil data to clean up criteria.

- **Groundwater modeling** – Our nationally recognized hydrogeologists and engineers each have more than 30 years of groundwater modeling experience.

Cornerstone's capabilities range from simple, analytical based programs to fully three-dimensional numerical codes supported by graphics-based pre- and post-processors.

- **Water supply services** – Cornerstone's water supply capabilities cover the entire water supply process.

We have experience in all phases, from the initial hydrogeologic investigation to the design and testing of production wells, to the permitting of both supply wells and treatment systems.

- **Data management/GIS** – Closely aligned with Cornerstone's data collection capabilities is the ability to compile, store and display these data in an efficient way.

Using databases like Microsoft Access and GIS applications such as Arcview, data are easily managed in a variety of innovative ways to support project objectives.

- **Data visualization** – Cornerstone's visualization capabilities include animations with and without voice-overs, web-based interfaces, 3-dimensional displays, and GIS.

Data can be depicted as contours, with or without color-shading, or iso-surfaces. Model results can be displayed in plan view, cross-section, or in three dimensions.

- **Support services** – In addition to the technical services, Cornerstone has extensive experience in agency negotiations, public participation, and litigation support.

Building lifetime relationships with our clients and employees.

Operations & Maintenance

Skilled technicians maximize efficiency, manage routine and emergency needs, and reduce lifecycle costs

Cornerstone offers a wide range of operations and maintenance (O&M) services throughout the United States. Whether it's groundwater monitoring, leachate management, or landfill gas-to-energy (LFGTE) facilities, Cornerstone not only operates and maintains, but continuously improves facilities.

For example, our technicians can properly balance the LFG wellfield to maximize gas production for use in cogeneration facilities, and at one facility increased production from <> to <>.

From overseeing construction to monitoring emissions, to environmental sampling and reporting, to operating facilities, our clients rely on us to ensure efficient, safe and productive operations and to maintain compliance with regulatory requirements.

Our range of skills eliminates the need for an outside contractor for many issues. In addition, Cornerstone also has significant experience in training our clients' own personnel to operate monitoring equipment or balance LFG collection systems.

For remediation systems, our continuous attention to changing conditions permits us to reduce operating costs, for example, by shutting down groundwater extraction wells, adjusting treatment operations, introducing passive treatment options, or reducing monitoring frequency.

Our key O&M services include:

- *Facilities O&M, monitoring, inspections, and reporting*
- *Groundwater, surface water, air, and leachate monitoring*
- *LFG collection and control system O&M*

- *Training of site personnel on operations and reporting*
- *Construction management and small construction project capability*
- *Leachate collection system maintenance*

Building lifetime relationships with our clients and employees.

Air Quality Services

Cost-effective services and solutions that achieve air quality compliance while supporting business operations

Cornerstone provides air quality services to clients in the solid waste, renewable energy, industrial, pharmaceutical, and chemical process industries. Our work focuses on achieving compliance in a cost-effective manner, while supporting our clients' business operations.

The company's air quality services personnel include a diverse mix of mechanical, chemical, civil, and environmental engineers, working alongside environmental scientists with a depth of experience in all areas of air quality services. Many of our staff have worked in industrial plants and have extensive hands-on experience in examining production processes from the perspective of emissions and by-products.

As part of our air quality services, Cornerstone serves carbon trading markets by representing biogas owners selling greenhouse gas (GHG) emission reduction credits produced when methane in the biogas is destroyed or used in a beneficial way. Examples include fueling an electrical generation facility, powering a factory, or heating a greenhouse. Cornerstone serves as a key partner in several collaborative projects between landfills, energy developers, and the carbon emissions trading market. In addition, Cornerstone has developed feasibility studies and evaluation reports to advise clients on selling GHG emission reduction credits.

Recently, Cornerstone expanded its GHG capabilities to assist clients with state GHG reporting requirements and comply with the new future federal mandatory GHG emissions reporting rule.

Cornerstone's air quality services include:

Permitting

- *Air permitting – NSR (state-specific minor source and PSD/NNSR) and Title V*
- *Best Available Control Technology (BACT)/ Lowest Achievable Emission Rate (LAER) evaluations/state-specific BACT/BAT*
- *Atmospheric dispersion modeling (toxics, NSR/PSD, state-specific requirements)*
- *Emission inventories*

Compliance

- *Air toxics health risk assessments*
- *NSPS/NESHAP/permit compliance support*
- *Compliance assessments/facility audits*
- *Source emissions testing review and oversight*
- *Greenhouse gas (GHG) services*

Support Services

- *LFG collection and control system O&M*
- *Ambient air monitoring/monitoring plan development*
- *Community awareness/public relations support*
- *Pollution prevention planning*
- *Risk management plan development and review*
- *Environmental information management systems*

Building lifetime relationships with our clients and employees.

Site and Civil Design Services

Solutions that are integrated with overall facility design and maximize our clients' assets

Cornerstone staff has years of experience providing services for site and civil features at solid waste, commercial, institutional, and industrial facilities. Our design, permitting, operations, and construction management solutions help clients maximize operational and asset efficiency, profit, safety, and durability.

Cornerstone listens to our clients to understand their goals for the facility, and then crafts an integrated design with civil elements to support those goals. The result is always an efficient and aesthetically pleasing facility.

Our specialty is in providing site and civil design solutions that are integrated into the overall design of the facility and are coordinated with all design disciplines involved in a project. We offer innovative ways to maximize the operational flexibility of the facility, while complying with local, state, and national regulatory requirements. We also look for opportunities to incorporate sustainable design features that make efficient use of scarce resources and provide environmental benefits.

Our site/civil design services include:

Surface Water Management Design

- *Hydrologic evaluations and hydraulic design*
- *Drainage/surface water management studies*
- *Clean Water Act Section 404 permitting*
- *Floodplain delineations*
- *Floodway encroachment studies*

Site Design Engineering

- *Preliminary planning and cost estimating*
- *Grading, drainage, and stormwater design and modeling*
- *Site circulation, parking and roadway design*
- *Erosion control planning*
- *Site infrastructure*
- *Land use applications, planning, and regulatory agency assistance/coordination*
- *Procurement, construction management, and construction quality assurance (CQA)*

Environmental Engineering

- *Stormwater Pollution Prevention Plans (SWPPP)*
- *Spill Prevention, Control, and Countermeasures (SPCC) Plans*
- *Due diligence investigations and reporting*
- *Groundwater sampling, compliance and consulting services*
- *Air sampling, compliance and consulting services*
- *Remedial investigations and consulting services*

Building lifetime relationships with our clients and employees.

Biogas Services

We provide a wide range of biogas services to solid waste companies and municipalities

Cornerstone's experience with biogas (including landfill gas) collection, control, and beneficial re-use extends back to the inception of gas management at landfills.

Our staff members specialize in the assessment of the factors that affect biogas generation and recovery, and formulate the most effective plan for incorporating biogas collection and control systems (GCCS) into the facility.

We work with beneficial use developers to mesh the control components into the utilization facilities, so they operate in concert and not as competing entities. Many older facilities were developed on a stand alone basis, and Cornerstone strives to integrate the components into a seamless operation.

We also provide services in the emerging field of GHG emission reduction credit evaluations, including assisting clients with state GHG reporting requirements, as well as federal mandatory GHG emissions reporting rule, which became effective in 2010.

Cornerstone's biogas services are provided in the areas of:

- *Biogas engineering, control system design, and multi-year control system phasing plans*
- *Biogas generation and recovery modeling*
- *NSPS Tier I/Tier II/Tier III evaluations*
- *Beneficial-use feasibility studies and design*
- *Air quality monitoring, permitting, compliance and reporting*
- *GHG emission reduction credit evaluations and reporting*
- *Biogas utilization landfill gas-to-energy projects*
- *Operations and maintenance of biogas control equipment and systems*
- *Landfill closure and post closure*
- *Landfill redevelopment and beneficial reuse of biogas*
- *Pipeline design*
- *Compressor station design*
- *Electric power station design*

Building lifetime relationships with our clients and employees.

Landfill Engineering and Design

From concept to completion, Cornerstone provides the highest standard of landfill engineering and design services

Cornerstone's engineers have been in the forefront of the move towards comprehensive planning for all facilities necessary to operate and support landfills in an efficient and environmentally compliant manner, while accommodating future growth. Our solid waste design experts investigate all possible ways of improving a facility's bottom line, depending upon the landfill's site-specific needs.

Cornerstone's years of landfill experience give us proficiency with all aspects of landfill design and engineering, construction, and operations, including site characterization, facility design and permitting, and construction management. Our background includes design of leachate collection systems, including pumping systems, landfill gas condensate sumps, leachate recirculation pumps and sanitary wastewater pumps, where required. We have significant experience with leachate recirculation/bioreactor landfills, and can help our clients decide if this option is feasible at their site.

Landfill gas collection and control systems (GCCS) have become a primary regulatory focus in recent years, and our engineers provide a consistent, performance-based approach to landfill gas control and utilization. From designing the wellfield and gas collection header layout to flare sizing and development of beneficial-use facilities, our experts have completed extraction and control systems at more than one hundred facilities throughout the United States, Canada and South America.

Cornerstone has a wide geographic base of experience in landfill permitting, including permit applications for the full range of landfill types, from greenfield sites, to large horizontal or vertical expansions, to modifications of existing permits to incorporate operational or design improvements.

Cornerstone has significant experience and expertise with all aspects of landfill stormwater and surface water management, from simple management of on-site flows to regional floodplain management studies.

We also offer construction management and construction quality assurance services on all aspects of landfill construction, including cell construction, installation of clay and geosynthetic liners, gas system construction, and leachate management systems.

Our key services include:

- *Landfill site master planning*
- *Permitting*
- *Liner design and geosynthetics*
- *Geotechnical/site characterization/slope stability*
- *Leachate collection system design*
- *Bioreactor/leachate recirculation*
- *Gas collection and control system design*
- *Infrastructure design (force mains, pumps, water lines)*
- *Stormwater controls*
- *Air emissions evaluation and control*
- *Final cover (traditional and alternative)*
- *Closure financial plan/funding*
- *Landfill reclamation*
- *Construction management and CQA*
- *Construction cost estimation and bid documents*
- *Operations sequencing*

Building lifetime relationships with our clients and employees.

Transfer, Recycling, and Processing Facilities

Our experts have decades of experience in transfer station and materials recovery facility design and operations

Cornerstone's team draws on our wide range of solid waste and site design experience to bring solutions to help clients maximize operational and asset efficiency, profit, safety, and durability for clients that transport and process a wide range of waste types. We offer solutions that reflect regional experience, but also use successful national and international methods, equipment applications, and techniques.

Cornerstone refines transfer station and material recovery facility (MRF) design based on industry innovations, client feedback, and knowledge gained from permitting and construction projects across the nation. These refinements enhance and improve facility operations profitability, regulatory compliance, and energy efficiency.

We help clients select equipment that meets the needs of the waste environment, and we have significant experience developing bid documents and specifications for uniquely optioned and modified industrial equipment. Improving the operations of existing facilities is another one of our key strengths.

Our facility design staff includes licensed professional engineers and also certified LEED APs (Leadership in Energy & Environmental Design accredited professional). Our staff has been working with clients who have a growing interest in ensuring that new facilities are constructed, operated, and maintained in an environmentally responsible manner.

Our services include:

- *Facility siting, application and approval process support*
- *Permitting and design of facility layout, operations, and air control equipment*
- *Preparation of construction plans and bid documents*
- *Construction oversight and certification*
- *Existing facility review*

Building lifetime relationships with our clients and employees.

Management Team

Cornerstone is an organization committed to excellence and growth

Richard A. Peluso, P.E.
President

Legal
Health and Safety
Administration
Marketing

David Damon
Chief Financial Officer

Dennis G. Fenn, P.E.
Senior Vice President

Matthew E. Davies
Vice President
Business Development

Kenneth J. Karl
Vice President
Operations

Michael S. Michels, P.E.
Vice President
Technical

West

Paul Stout, P.E.
Area Manager

Dublin, CA
Oceanside, CA
Long Beach, CA

Garth Bowers, P.E.
Area Manager

Tucson, AZ
Colbert, WA

Central

Mark Torresani, P.E.
Area Manager

Madison, WI
Plymouth, WI

Adam Larky, P.E.
Area Manager

Farmington Hills, MI
Grand Rapids, MI
Bolingbrook, IL
Russell, KY
Shawnee, KS

Bruce Schmucker, P.E.
Area Manager

Cincinnati, OH
Logan, OH
Springfield, IL

East

Gary DiPippo, P.E.
Area Manager

Middletown, NY
Rochester, NY
Greenwich, NY
Exton, PA
Pittsburgh, PA
Reading, MA
East Brunswick, NJ
Lexington, MA

Building lifetime relationships with our clients and employees.

Client List

Cornerstone shares a common vision - to serve our clients with energy, integrity, and innovation

- *AIG Highstar Capital*
- *Ameresco*
- *Atlantic County Utilities Authority, NJ*
- *AZO Services, Inc. Aon Risk Services*
- *Bayerische Landesbank*
- *CECO Associates*
- *City Carting*
- *City of Tucson, AZ*
- *Clark Floyd Landfill*
- *County of Maui, HI*
- *Dane County, WI*
- *de maximis, inc.*
- *Deffenbaugh Industries, Inc.*
- *Dewey & LeBoeuf, LLP*
- *DKL*
- *Drinker Biddle & Reath, LLP*
- *Endurant Energy, Inc.*
- *Granger Electric & Energy Companies*
- *Honeywell*
- *IESI-Seneca Meadows, Inc.*
- *IMTT (International Matex Tank Terminals)*
- *Innovative Technical Solutions, Inc. (ITSI)*
- *LEMCOR, Inc.*
- *Lizard Rock Designs*
- *Marathon County Landfill, WI*
- *Ocean County Landfill, NJ*
- *Orange County, NY*
- *Placer County, CA*
- *PurEnergy Operating*
- *Putnam County, NY*
- *Republic Services, Inc.*
- *City of Riverview, MI*
- *Sullivan County, NY*
- *Transtech Industries, Inc.*
- *Veolia Environmental Services*
- *Waste Connections, Inc.*
- *Waste Management, Inc.*
- *William Charles Waste Companies*

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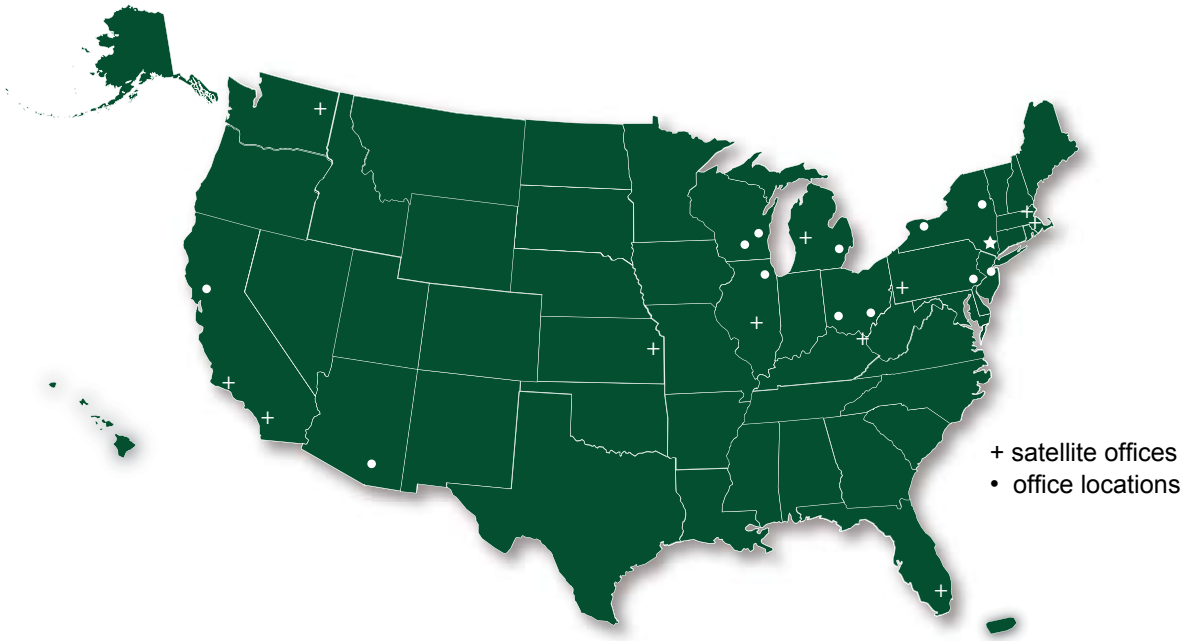

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17 W. Wetmore Rd., Suite 310, Tucson, AZ 85705
Toll Free: (877) 633-5520 • **Fax:** (520) 888-4804

California
7600 Dublin Blvd., Ste. 200, Dublin, CA 94568
Toll Free: (877) 633-5520 • **Fax:** (925) 560-9879

Illinois
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Toll Free: (877) 633-5520 • **Fax:** (630) 378-2640

Michigan
39395 W. Twelve Mile Rd., Ste. 103
Farmington Hills, MI 48331
Toll Free: (877) 633-5520 • **Fax:** (248) 994-5456

New Jersey
53 Edgeboro Rd., East Brunswick, NJ 08816

New York
542 State Rte 29, Greenwich, NY 12834
Toll Free: (877) 294-9070 • **Fax:** (518) 692-9651

New York (Headquarters)
90 Crystal Run Rd., Ste. 201, Middletown, NY 10941
Toll Free: (877) 294-9070 • **Fax:** (845) 692-5894

1200 Scottsville Rd., Bldg. C, Ste. 120, Rochester, NY 14624
Toll Free: (877) 294-9070 • **Fax:** (585) 563-6582

Ohio
10012 International Blvd., Cincinnati, OH 45246
Toll Free: (877) 633-5520 • **Fax:** (513) 870-0610

12888 Grey St., Logan, OH 43138
Toll Free: (877) 633-5520 • **Fax:** (740) 380-6128

Pennsylvania
Marsh Creek Corporate Center
35 East Uwchlan Ave., Ste. 331, Exton, PA 19341
Toll Free: (877) 294-9070 • **Fax:** (845) 692-5894

Wisconsin
6418 Normandy Ln., Ste. 220, Madison, WI 53719
Toll Free: (877) 633-5520 • **Fax:** (608) 271-7284

435 East Mill St., Ste. 3, Plymouth, WI 53073
Toll Free: (877) 294-9070 • **Fax:** (920) 893-9430

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4/3/11

Garth R. Bowers, P.E.
Client Manager

PROFESSIONAL QUALIFICATIONS

Mr. Bowers is a registered Professional Engineer in the States of Arizona, Colorado, and Utah, with a broad range of environmental engineering, hydrology, and geology experience. He has 22 years of professional experience as a consultant in Arizona, with progressive levels of responsibility. Mr. Bowers has extensive experience in solid waste management issues, working on over 350 landfills and solid waste sites throughout Alaska, Arizona, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Kansas, Kentucky, Maryland, Michigan, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, Texas, Utah, Virginia, Washington, Wisconsin, Wyoming, Puerto Rico, Alberta, Ontario, and Saskatchewan. This experience includes existing site assessments; solid waste permitting (Subtitle D and other regulatory programs); landfill design; stormwater management evaluations and design; landfill gas evaluation, design, construction, and operation; closure design; postclosure monitoring and evaluations; and due diligence assessments for facility transfers. His surface water experience includes hydrologic investigations; design of channels, culverts, and hydraulic structures to manage a wide range of on-site and off-site flows in different energy regimes; floodplain and floodway delineation; stormwater quality investigations; permit applications; and Stormwater Pollution Prevention Plans (SWPPPs) and Spill Prevention Control and Countermeasures Plans.

Through his management roles as client manager, district manager, and senior project manager, Mr. Bowers' has experience with a wide range of consulting duties including business management, technical direction of project activities, budgetary management (project, business development, and administrative), interaction with clients and regulatory analysis, oversight of field and staff personnel, and development of final plans and reports. In addition to education and experience typical of an engineer, he is highly qualified in complimentary areas including geology, computer modeling, drafting, and verbal and written communication.

Mr. Bowers also has experience as the Stormwater Design Center Director for a large solid waste engineering consulting organization. The Design Center performed engineering evaluations and designs for larger stormwater hydrology, hydraulics, and water quality projects. This included providing technical direction of project activities, coordination of large multi-disciplinary projects, interaction with clients and regulatory analysis, oversight of field and staff personnel, and development of final plans and reports. In addition, Mr. Bowers also has experience with managing the Stormwater Discipline, which coordinated stormwater-related issues nationwide throughout the company, including regulatory developments, information and resource sharing, development of standard templates and other tools, and quality control reviews.

EDUCATION

Bachelor of Science, Civil Engineering and Geology, Colorado School of Mines, 1988

Additional Training:

40-hour OSHA Hazardous Materials Health and Safety Training

REGISTRATIONS/CERTIFICATIONS

Licensed Professional Engineer in Arizona,Colorado, and Utah

EXPERIENCE AND BACKGROUND

2006 – Present
Client Manager, Cornerstone Environmental Group, LLC, Tucson, Arizona

1996 – 2006
Arizona District Manager/Stormwater Design Center Director, Shaw Environmental, Inc., Tucson, Arizona

1995 – 1996
Project Engineer/Manager, Ajay Environmental Consultants, Inc., Tucson, Arizona

1988 – 1995
Project Engineer, Camp Dresser & McKee Inc., Tucson, Arizona

Landfills/Solid Waste Facilities

- Managing design of a new cell expansion at the Cochise County (Arizona) Western Regional Landfill in Huachuca City, Arizona.
- Managing civil design and solid waste facility evaluations for the development of a new entrance facility and solid waste campus (scalehouse, self-haul convenience center, recycling, household hazardous waste, administration, learning center, and appurtenant facilities) at the Los Reales Landfill in Tucson, Arizona.
- Providing as-needed assistance to the City of Tucson on multiple items at the Los Reales and A-Mountain Landfills, including terrain modeling to develop fill plans and produce airspace utilization and density estimates; design of run-on control facilities; and design of perimeter landscaped border treatments.
- Provided senior and quality control reviews for monthly O&M reports, semi-annual reports, and Gas Collection and Control System (GCCS) designs for eight California landfill facilities.
- Managed development of a master plan, facility expansion design, and permitting documents (Type IV modification to Master Facility Plan Approval) for the City of Tucson's Los Reales Landfill. The master plan concept design for this site includes: collection and control of on-site runoff through a series of swales/berms, downdrains, open channels, and retention/detention basins; diversion of off-site flows around the landfill footprint using a collector channel to collect flows from multiple ephemeral channels, a constructed diversion channel to convey flows around the facility, a dispersion structure to release flows at reduced depths/velocities; and elimination of an existing inter-watershed diversion by construction of a multi-use retention basin. This project also involved coordination with the US Army Corps

of Engineers regarding jurisdictional delineation and 404 permitting issues. Following the development of the ADEQ permit documents, he managed the Planned Area Development (PAD) re-zoning for a major expansion to the landfill (including the proposed entrance facilities north of the existing landfill). This project included coordination of landfill design, surface water design and permitting, operational optimization, and subconsultant (landscape architecture, traffic, endangered species, and land use planning) activities with City of Tucson zoning requirements. Planning for the entrance facilities included layout of multiple discrete facilities (roadways, scalehouse, self-haul convenience center, household hazardous waste (CABOP), recycling, and administrative buildings) within the available site, including conceptual planning of traffic flow, access, and uses for these facilities.

- Managed development of a solid waste facility plan for a Type III change request for the Painted Desert Landfill in Joseph City, Arizona. The tasks involved in this project included update of the former Solid Waste Facility Plan to meet current ADEQ checklist requirements, revision to the stormwater management design, slope stability, alternative final cover demonstrations, and development of new facility design plan drawings. Following ADEQ approval of the SWFP, managed the preparation of construction level drawings for implementation of the surface water management system and maintenance facilities and provided senior/quality control review and certification of construction level drawings for the initial phase of the GCCS at the site.
- Managed development of a solid waste facility plan for a Type IV change request for the Copper Mountain Landfill in Wellton, Arizona. The tasks involved in these projects included update of old Solid Waste Facility Plan and subsequent permit change documents to meet current ADEQ checklist requirements, drainage diversion design (>5,000 cfs), slope stability, leachate collection and recovery system (LCRS) design, alternative final cover demonstrations, and development of new facility design plan drawings.
- Assisted with developing site plans to meet City of Phoenix requirements for support facilities adjacent to the Sky Harbor Transfer Station in Phoenix, Arizona.
- Developed conceptual layouts and permitting assistance for transfer station facilities for a confidential client in central Arizona.
- Provided design, permitting, and rezoning assistance for the expansion of the Prescott Valley Construction Debris Landfill in Prescott Valley, Arizona.
- Managed development of a solid waste facility plan document and landfill redesign in support of a Type IV change request to ADEQ for the Apache Junction Landfill in Apache Junction, Arizona. Project included alternative final cover demonstrations, floodplain delineation, stability analysis, leachate generation estimates, and stormwater design.
- Managed siting, site development/design, and permitting for development of a new (green field) large regional landfill site for the Cactus Landfill in Pinal County, Arizona, including regulatory negotiations with county, state, and federal agencies. Following ADEQ permit approval construction documents were prepared for three cells at the site and construction quality assurance (CQA) services were provided during the construction of these cells. In addition, air quality permitting and reporting services were provided for this site.

- Managed design, evaluation, and construction management services for the City of Phoenix's Skunk Creek Landfill. Services included design of new cell excavations and liner installations, design of landfill capping, drainage evaluations including preparation of requests for Letters of Map Revision (LOMRs), design of Skunk Creek channel improvements, design of North Entrance Facility (including scalehouse, supervisors office, entrance roadway, and reconfiguration of Happy Valley Road), statistical evaluation of groundwater monitoring data, evaluation of airspace consumption, and construction management services for multiple contractors.
- Managed development of an Aquifer Protection Permit and closure design for the Irvington Landfill, Tucson, Arizona, including bank protection and channel design for a major ephemeral wash (Q100 ˜ 1200 cfs), which currently passes immediately adjacent to the waste footprint.
- Managed site investigations, waste characterization, and development of closure recommendations for 113 landfill and open dump sites on the Tohono O'odham Nation, Arizona.
- Managed an evaluation of the economic feasibility of various waste management alternatives including transfer stations and development of a landfill for the Tohono O'odham Nation, Arizona.
- Provided Construction Quality Assurance (CQA) services for liner installation and stormwater facility installation projects at landfill sites in Phoenix, Eloy, Joseph City, Lake Havasu City, Parker, Queen Creek, and Wellton, Arizona.
- Managed the operation and expansion evaluation and design for a groundwater treatment system at the Los Reales Landfill. This system consists of a Programmable Logic Controller (PLC) controlled pump and treat system that allows remote operation of the system and computer control of the system to meet pre-determined conditions.
- Provided technical review and project management for new cell construction designs at landfill sites in Apache Junction, Buckeye, Eloy, and Wellton, Arizona.
- Developed closure plans for five landfill sites in Yavapai County, Arizona, including drainage diversion and retention and detention basin design.
- Developed plans and specifications for expansion of the landfill gas extraction system at the Harrison Landfill, Tucson, Arizona.
- Developed Solid Waste Facility Plans and drainage design for the Lake Havasu City Landfill, Lake Havasu City, Arizona. Developed final drainage design for on-site and off-site drainage management, including USACE Section 404 permitting, channel and energy dissipation (drop structure) design for a 1500 cfs (Q100) wash diversion around the waste footprint, and detention basin design for on-site runoff.
- Developed a closure plan for old solid waste disposal areas on the Florence Military Reservation, Florence, Arizona, including conceptual design of drainage diversions, bank protection, and drop sections for ephemeral washes.

- Modified Aquifer Protection Permit Application to meet current Solid Waste Facility Plan requirements for the Northwest Regional Landfill, Surprise, Arizona. This modification included redesign of final grade plans and conceptual drainage design.
- Managed the Phase II Remedial Action Plan development for the Los Reales Landfill WQARF Study Area in Tucson.
- Performed due diligence audits for acquisition, compliance, and/or asset transfers for multiple solid waste facilities in Arizona, California, Colorado, Utah, and Puerto Rico.
- Provided oversight for CQA monitoring as part of the Antonick Landfill Closure, Tucson, Arizona, including bank protection from a large adjacent ephemeral wash.

Stormwater/Civil Design

- Certifying engineer for site civil design for a multi-story senior housing building development in downtown Tucson, Arizona as a subconsultant to the Lizard Rock Design project team.
- Project manager and certifying engineer for the site civil design for a outpatient medical building for the Southern Arizona VA Health Care System as a subconsultant to the Lizard Rock Design project team.
- Certifying engineer for evaluation and conceptual design of alternative stormwater management facilities for a commercial facility in Tucson, Arizona. Evaluation included water surface delineation under pre-development, existing, and multiple potential future configurations and design of flood walls to protect critical facilities.
- Managing site civil design for the City of Tucson's Los Reales Landfill Entrance Facilities as a subconsultant to the Lizard Rock Designs project team. Services provided on this project include design of grading and drainage, stormwater management facilities, internal roadway circulation, parking, water and sewer layout, and preparation of Development Plans per City of Tucson requirements. Mr. Bowers is also providing assistance to the project team regarding specific design features for efficient operation of a solid waste management facility.
- Managed site civil design for expansion of the Archie Hendricks Skilled Nursing Facility on the Tohono O'odham Nation in southern Arizona. This expansion includes assisted living facilities, staff housing buildings, and associated water, sewer, drainage, and roadway facilities.
- Managed site civil design for the development of a new band shell at the Veterans Memorial Park for the City of Sierra Vista, Arizona as a subconsultant to the Lizard Rock Designs project team.
- Managed development of a reclaimed water plan and evaluation of floodplain development issues for a comfort station at La Madera Park for the City of Tucson as a subconsultant to the Lizard Rock Designs project team.

- Served as senior technical advisor for development of Spill Prevention, Control, and Countermeasures (SPCC) Plans for over 200 sites throughout the nation for a major solid waste management company. This role included development of an SPCC Plan template for the new SPCC regulations at 40 CFR 112, development of standard questionnaires for data collection during site visits, training company management and staff on SPCC requirements, providing advice on unique site conditions, and quality control reviews.
- Managed hydrologic investigation and hydraulic evaluations for the permit-level design of off-site diversion channels with design flowrates up to 5,300 cfs at a site in western Arizona. This effort included watershed characterization, HEC-HMS and HEC-RAS modeling, bank stabilization evaluation, and scour analysis.
- Provided delineation of floodplain for Siphon Draw in Apache Junction, Arizona (>12,000cfs watercourse). This area was previously approximately delineated by FEMA as a Zone A floodplain. A more detailed delineation and water surface profile was sought so a hydrologic and hydraulic analysis, including encroachment analysis, of the watercourse and contributing watershed was conducted using HEC-HMS and HEC-RAS. The results of this evaluation were submitted to and approved by the Local Floodplain Administrator. Construction level plans were developed for a diversion berm to achieve the modeled encroachment and provide flood protection. In addition, Mr. Bowers managed CQA services for construction of this berm as part of a larger construction project at the Apache Junction Landfill.
- Developed design for intersection improvements for the Deep Well Ranch Road/Arizona State Route 79 (SR79) intersection in Eloy, Arizona. This project involved development of a deceleration/right-hand turn lane, extension of a concrete box culvert, signing and marking plans, and preliminary design of future improvements (acceleration lane, left-hand turn lane, and through traffic bypass lane). Plans and supporting documents were submitted to and approved by the Arizona Department of Transportation.
- Developed design for roadway improvements for Phase II of Deep Well Ranch Road in Eloy, Arizona. This project included detailed hydrologic evaluation of the >100 square mile watershed upstream of the roadway, design of culverts and dip crossings to convey surface water across the roadway alignment, horizontal and vertical design of the roadway alignment, paving design, Phase I overlay design, signing and marking plans, and USACE 404 permit coordination. Plans and supporting documents were submitted to and approved by the Pinal County Public Works Department. Following approval by Pinal County, we assisted the project owner with selection of a contractor and managed CQA services during construction.
- Developed construction level design for roadway improvements for Phase I of Deep Well Ranch Road in Eloy, Arizona. This project involved detailed hydrologic evaluation of several contributing watersheds upstream of the roadway, design of culverts and dip crossings to convey surface water across the roadway alignment, horizontal and vertical design of the roadway alignment, and paving design. This project also included construction phase CQA monitoring and coordination of laboratory testing for the selected pavement section (lime stabilized subgrade).

- Developed preliminary design for improvements of 8.5 miles of Deep Well Ranch Road to a paved roadway meeting county standards. Included in these improvements were alternative pavement section design (lime-stabilized subgrade and geosynthetic reinforced subgrade), evaluation of stormwater drainage conditions for a >100 square mile watershed, design of culverts and dip crossings, horizontal realignment of the road to improve roadway safety, and initial design of the intersection with an Arizona state highway.
- Managed design, evaluation, and construction management services for the City of Phoenix's Skunk Creek Landfill. Services include design and construction management for improvements to the Skunk Creek channel; design and construction management of on-site drainage channels, downdrain structures, storm drains, detention/sedimentation basins, and outlet structures; floodplain/floodway delineation investigations including split flow analyses; and preparation of requests for Letters of Map Revision (LOMRs).
- Managed surface water elements of the development of a master plan and permitting documents for a major expansion to the City of Tucson's Los Reales Landfill. The master plan concept design for this site includes: collection and control of on-site runoff through a series of swales/berms, downdrains, open channels, and retention/detention basins; diversion of off-site flows around the landfill footprint using a collector channel to collect flows from multiple ephemeral channels, a constructed diversion channel to convey flows around the facility, and a dispersion structure to release flows at reduced depths/velocities; and elimination of an existing inter-wastershed diversion by construction of a multi-use retention basin. This project also involved coordination with the US Army Corps of Engineers regarding jurisdictional delineation and 404 permitting issues.
- Managed development of a closure design for the Irvington Landfill, Tucson, Arizona, including bank protection and channel design for a major ephemeral wash (Q100 ˜ 1200 cfs), which currently passes immediately adjacent to the waste footprint.
- Evaluated current and proposed drainage conditions for development of a county park along the bank of the Rillito River north of Tucson, Arizona.
- Prepared an individual NPDES Permit Application for discharge of stormwater associated with industrial activity at the American Landfill, Waynesburg, Ohio.
- Identified design alternatives and provided technical review for design of a diversion of additional stormwater flows to an existing permitted sedimentation basin at the American Landfill, Waynesburg, Ohio
- Developed drainage design for the Lake Havasu City Landfill, Lake Havasu City, Arizona. Final drainage design included on-site and off-site drainage management, including USACE Section 404 permitting, channel and energy dissipation (drop structure) design for a 1500 cfs (Q100) wash diversion around the waste footprint, and detention basin design for on-site runoff.
- Developed closure plans for five landfill sites in Yavapai County, Arizona, including drainage diversion and retention and detention basin design.

- Developed a closure plan for old solid waste disposal areas on the Florence Military Reservation, Florence, Arizona, including conceptual design of drainage diversions, bank protection, and drop sections for ephemeral washes.
- Modified Aquifer Protection Permit Application to meet current Solid Waste Facility Plan requirements for the Northwest Regional Landfill, Surprise, Arizona. This modification included redesign of final grade plans and conceptual drainage design.
- Managed site investigations (including on-site and off-site hydrologic and hydraulic considerations), waste characterization, and development of closure recommendations for 113 landfill and open dumpsites on the Tohono O'odham Nation, Arizona.
- Provided oversight for CQA monitoring as part of the Antonick Landfill Closure, Tucson, Arizona, including bank protection from a large adjacent ephemeral wash.
- Developed or provided direct oversight in the development of Spill Prevention, Countermeasures, and Control (SPCC) plans and/or Stormwater Pollution Prevention Plans (SWPPs) for over 100 facilities including landfills, transfer stations, materials recovery facilities, hauling companies, municipal fire stations, water and wastewater treatment plants, municipal service centers, and other industrial facilities. This included sites in Arizona, Colorado, Idaho, Montana, New York, Ohio, Utah, Washington, and Wyoming.
- Assisted in developing a stormwater quality master plan for the City of Tucson's Stormwater Management Study (TSMS) Phase II.
- Compiled data and mapped land use for the City of Chandler, Arizona, Storm Drainage Master Plan Update.
- Provided regulatory negotiation assistance for a stormwater NPDES permit for an aircraft components manufacturer, Tucson, Arizona.
- Analyzed drainage patterns at the Ina Road Water Pollution Control Facility, Tucson, Arizona for preparation of a drainage study and channel design.
- Assisted in the development of municipal stormwater NPDES Permit Applications (Part 1 and Part 2) for the Cities of Tucson and Mesa, Arizona and for the Coachella Valley, Palm Springs, California. This included development and staff training for dry weather field screening programs, wet weather monitoring, management program development, and stormwater quality modeling.

Environmental Management

- Provided technical review and assistance for a service center site in Tucson, Arizona where perched groundwater had been impacted by Light Non-Aqueous Phase Liquid contamination from leaking underground storage tanks.
- Provided oversight for design of modifications to a soil vapor extraction remedial system at a closed service station site in Parker, Arizona.
- Directed multiple phases of a bioventing remedial system for a Leaking Underground Storage Tank (LUST) site at the Tucson Veterans Affairs Medical Center, including pilot

study design and implementation, final system design, construction oversight, start-up testing, operations and maintenance, and performance testing.

- Supervised supplemental site characterization and remedial system performance analysis at a leaking underground storage tank site in Mammoth, Arizona.
- Developed a risk appraisal for potential migration of residual lead at a Tucson firing range.
- Created database of construction and water quality information for over 400 wells in the vicinity of Phoenix Sky Harbor International Airport.
- Investigated current and past tenant activities at the Phoenix Sky Harbor International Airport, including portions of the property acquired in facility expansions throughout the history of the airport, which extends back to 1929.
- Evaluated various commercial properties for Phase I and II environmental assessments throughout the state of Arizona, including office complexes, light manufacturing facilities, shopping centers and malls, and undeveloped parcels.
- Served in varying roles on RI/FS investigations for state and federal Superfund sites including the Sharon Steel Superfund site in Midvale, Utah, the Chemical Sales Company Superfund site in Denver, Colorado, the Taylor Airfield WQARF site in Avra Valley, Arizona, and the Los Reales Landfill WQARF site in Tucson, Arizona.

Water/Wastewater

- Conducted evaluations and provided technical review of an Engineering Evaluation/Cost Analysis report for the permitting and upgrading of a wastewater treatment plant at Camp Navajo Army Depot in Bellemont, Arizona.
- Managed design of a series of four recharge basins to recharge Central Arizona Project (CAP) water along the Lower Santa Cruz River, Marana, Arizona.
- Prepared design plans and permit documents for an Aquifer Protection Permit modification for changes to the operation of the Arizona State Prison complex in Douglas, Arizona.
- Performed evaluations of the feasibility of recharge of stormwater, reclaimed effluent, and/or Central Arizona Project water along a two-mile long reach of the Rillito River in Tucson, Arizona, including in-channel and off-channel alternatives.
- Performed evaluations of the feasibility of recharge of reclaimed effluent at Fort Huachuca, Sierra Vista, Arizona.
- Reviewed drawings, calculated restrained joint lengths, casing thicknesses, and other design requirements for large diameter (42” to 96”) Central Arizona Project water transmission mains. Performed shop drawing review, construction observations, and other construction services for CAP transmission mains.
- Developed design calculations and specifications for reclaimed water pipelines, Tucson, Arizona.

- Conducted route study for a reclaimed water pipeline through an intensely developed area, Tucson, Arizona.
- Prepared preliminary and final designs for a 3-mile sewer line relocation, Tucson, Arizona.
- Modeled mercury contamination of groundwater for an electric utility in eastern Arizona.
- Conducted groundwater modeling for nitrate pollution for the Santa Ana (California) Watershed Protection Authority.

PUBLICATIONS

Bowers, G. R., 2006. Will It Survive the Storm? Energy Management in Stormwater Design. Presented at the Waste Tech Landfill Technology Conference, Phoenix, Arizona, February 28, 2006.

Bowers, G.R., 2002. *It Never Rains in the Desert, Does It? Stormwater Management in the Arid Environment.* Presented at the 5th Annual SWANA Arid Climate Symposium, Grand Junction, Colorado, September 4, 2002.

PROFESSIONAL AFFILIATIONS

Solid Waste Association of North America, Member
Stormwater Technical Advisory Committee, Tucson, Arizona
– Member (1997 – 2001)
– Chairman (1999 – 2001)
– NPDES Subcommittee (1997 – 2001)

Patrick M. Bell, P.E.
Project Manager

PROFESSIONAL QUALIFICATIONS

Mr. Bell is a Project Manager with 6 years of experience as a civil and environmental engineer. Patrick has worked on projects for various sites throughout New York. His experience includes design and permitting for residential properties, commercial properties, land subdivision projects, stormwater controls, utility design, erosion and sediment control plans and stormwater and wetland permitting. His experience also includes project presentations to regulatory agencies including; local planning and zoning boards, New York State Department of Environmental Conservation (NYSDEC), New York State Department of Transportation (NYSDOT) and New York City Environmental Protection (NYCEP). Patrick has prepared construction plans and documents, technical specifications, bid documents and project quantity estimates.

EDUCATION

Bachelor of Science, Mechanical Engineering, Alfred University, 2004
Master of Science, Environmental Engineering, Manhattan College, 2011

Additional Training and Seminars

40-Hour OSHA HAZWOPER, 29 CFR 1910.120 Training

REGISTRATIONS/CERTIFICATIONS

Registered Professional Engineer in the state of New York.

EXPERIENCE AND BACKGROUND

2011 - Present
Project Manager, Cornerstone Environmental Group, LLC, Middletown, New York

2005-2011
Project Engineer, Cronin Engineering P.E., P.C., Cortlandt Manor, New York

Residential Site Design
Commercial Site Design

- Provided design and permitting efforts for a site plan approval of a 4,500 sq. ft. commercial building in Cortlandt Manor, New York. Project efforts included site plan preparation, Onsite Wastewater Treatment System permit approval, and NYSDOT ingress and egress access plan approval.
- Provided design and permitting efforts for the site plan approval of a 1,500 sq. ft. addition to an existing Veterinary Hospital in Cortlandt Manor, New York. Project efforts included site plan preparation, permit approval from NYSDOT for ingress and egress access, a sidewalk enhancement plan, and obtaining project approvals from local planning and zoning boards.
- Provided design and permitting efforts for the site plan approval of a five building, seventeen (17) unit condominium complex in Greenburgh, New York. Project efforts included site plan preparation, grading plan, stormwater control design, sanitary sewer design, and water distribution system design.

Residential Site Design

- Provided design and permitting efforts for the site plan approval of a single family residential structure in Putnam Valley, New York. Project efforts included site plan preparation, grading plan, OWTS design, and preparation and approval of NYSDEC stormwater permit for surface discharge into a 303d Impaired Watershed .
- Provided design and permitting efforts for the site plan approval for the redevelopment of a single family residential property in Croton, New York. Project efforts included site plan preparation, grading plan, construction sequencing plan for the removal of the existing structure, and construction of new residential structure.

Residential Subdivision Design

- Provided design and permitting efforts for a residential subdivision in Cortlandt Manor, New York. Project efforts included subdivision plan preparation, obtaining approvals from local regulatory agencies, and obtaining stormwater and wetlands permits from the NYSDEC.
- Provided design and permitting efforts for a residential subdivision in Irvington, New York. Project efforts included subdivision plan preparation, design of low pressure sewer system to serve project, and obtaining approvals from local regulatory agencies.

Utility Design

- Provided design and permitting efforts for a water main extension in Cortlandt Manor, New York. Project efforts included utility plan preparation and obtaining approvals from local regulatory agencies.
- Provided design and permitting efforts for a low pressure sewer system to serve existing residential properties in Peekskill, New York. Project efforts included utility plan preparation and obtaining approvals from local regulatory agencies.

Carl Bueter, P.E.
Project Manager

PROFESSIONAL QUALIFICATIONS

Mr. Bueter has over twelve years of experience as a Civil Engineer. His experience covers landfill design and development, land development projects, subdivisions, commercial projects, as well as city and county projects. Mr. Bueter also has experience working on highway improvements for Department of Transportation projects and street improvements for the city and county.

EDUCATION

Bachelor of Science Degree, Civil Engineering, University of Arizona, December, 1998

REGISTRATIONS/CERTIFICATIONS

Professional Engineer Registration: Arizona No. 52080, 2011

Additional Training

40-Hour OSHA Hazardous Waste Operations and Emergency Response; 2010

EXPERIENCE AND BACKGROUND

June 2008 – Present
Engineer, Cornerstone Environmental Group, LLC, Tucson, Arizona

July 2006 – March 2008
Project Engineer/Project Manager, Urban Engineering, Arizona

August 2003 – July 2006
Designer/Project Engineer Land Development, Rick Engineering, Arizona

August 2001 – August 2003
Designer/Project Engineer, Castro Engineering, Arizona

May 1999 – August 2001
Designer, AMEC Engineering, Arizona

Land Development:

- Prepared Civil plans for the New Armory building in downtown Tucson. This project included paving and grading, utility and drainage design for a six-story senior apartment building.
- Prepared Civil plans for the Los Reales Landfill Entrance Facility. This project involved grading and roadway plans for a network of roads and buildings, drainage solutions, and sewer and water system extensions.
- Prepared preliminary plans for a 3-mile extension of public sewer line.
- Prepared reclaimed water plan for La Madera Park, Tucson, AZ. This project involved converting the comfort station from potable water to reclaimed water for flushing.

- Prepared Site Pan for an addition to an assisted living center on the Tohono O'odham reservation. This project included new roadways and extensions of the water and sewer systems.

- Project Engineer for Desert Links, Villas at Dos Hombres, Casa de Kino IV subdivisions in Tucson, AZ. Designed and produced grading and drainage plans, and paving plans per City of Tucson standards, water plans per Tucson Water standards, and sewer plans per Pima County standards.
- Developed Water System Plans for Tucson Water, Vail Water Company, and Community Water Company of Green Valley following guidelines and standards for each Water Company.
- Designed and developed Sewer Plans for various residential subdivisions in the Tucson/Pima County area per Pima County Wastewater Management standards. Researched existing sewer facilities in the vicinity for capacity and suitability, determined location and method of connection.
- Developed Stormwater Pollution Prevention Plans for Arizona Department of Environmental Quality.
- Provided civil design of a residential subdivision in Cochise County, including Final Plat and Improvement Plans. These plans included a major diversion channel to divert massive sheet-flow around the site.
- Produced grading plan, development plan, and site plans for an industrial subdivision in Tucson, AZ. This project included design of a cul-de-sac which would become a City of Tucson public street. Also included in this project was an underground stormwater storage (retention) system.

Roadway Development:

- Prepared numerous Public Improvement Agreement Plans for the City of Tucson Transportation Department for streets which would become public.
- Performed CQA services for a 7-mile road paving project for Pinal County, AZ. This roadway was designed with many dip crossings. My involvement included monitoring the placement of subgrade and installation of culverts, as well as the placement of concrete ford walls, asphalt, and asphalt overlay. An additional component of this project was the intersection with a state highway, including coordination with ADOT for signing and striping.
- Assisted in developing construction plans for improvements to La Cholla Blvd. from Magee to River Road for the City of Tucson and Pima County. La Cholla Blvd. was widened into a 6-lane roadway. This project involved many drainage concerns as well as access/driveway modifications.
- Assisted in developing construction plans for improvements to River Road from Campbell to Alvernon Way for the City of Tucson. This project involved major horizontal realignment of River Road.

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- Assisted in developing construction plans for state highway improvement projects on State Routes 80 and 191. Projects involved vertical and horizontal realignments, road widening as well as drainage improvements, including box culvert extensions.

Solid Waste:

- Performed CQA services for an extension of a monofill asbestos trench at the Painted Desert Landfill in Joseph City, Arizona. This project included site visits and monitoring of excavation, testing and placing Geosynthetic Clay Liner, and developing a CQA report.
- Provide GCCS compliance services for the Western Regional Landfill in Placer County, CA, serving as the primary author for the bi-weekly status reports, monthly operations reports, and quarterly reports under the requirements of the Placer County Air Pollution District.
- Prepared civil plans for the Los Reales Landfill Entrance Facility. This project involved grading and roadway plans for a network of roads and buildings, drainage solutions, and sewer and water system extensions.
- Prepared a Border Landscape/Erosion Protection Plan for the Los Reales East Basin which included a 3-level drop structure energy dissipater.
- Project Engineer for Cell 3B design, Western Regional Landfill, Cochise County, AZ. Project included excavation, drainage design, liner, and leachate systems.

Water and Sewer:

- Prepared preliminary plans for a 3-mile extension of public sewer line.
- Prepared reclaimed water plan for La Madera Park, Tucson, AZ. This project involved converting the comfort station from potable water to reclaimed water for flushing.
- Developed Water System Plans for Tucson Water, Vail Water Company, and Community Water Company of Green Valley, following guidelines and standards for each Water Company.
- Designed and developed Sewer Plans for various residential subdivisions in the Tucson/Pima County area per Pima County Wastewater Management standards. Researched existing sewer facilities in the vicinity for capacity and suitability, and determined the location and method of connection.
- Developed Stormwater Pollution Prevention Plans for Arizona Department of Environmental Quality.

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Kenneth J. Karl
Vice President

PROFESSIONAL QUALIFICATIONS

Mr. Karl has 28 years of experience in the solid waste industry that includes office and region management, client management, project management, transfer station siting, permitting and development, landfill design and construction plans, and the preparation of engineering and environmental plans. His responsibilities have included business and client development, managing staff, managing budgets, cost control, billing, payment and management of subcontract services. His experience also has included management of various engineering and graphic-related projects such as transfer station facility design, county planning presentations, exhibits and handouts, transfer station facility siting and permitting applications, and public hearing presentations.

In addition to project work, Mr. Karl is responsible for company operations, providing input to strategic plans, business plans and budgets, recruiting and performance evaluations, assigning and scheduling project teams, providing support to resolve managerial issues, projecting staffing needs and assisting with securing necessary resources. His primary focus is to provide direction and leadership to project teams, and ensure client satisfaction for project performance.

EDUCATION

Bachelor of Science, Industrial Design and Drafting, Northern Illinois University, 1983

Additional Training

Planning and Design of Transfer Stations, University of Wisconsin - Madison, Madison, Wisconsin, 1995.
Design and Implementing Material Recovery Facilities, University of Wisconsin,1992.
Continuous Improvement Process Program trainer for EMCON/OWT's North Area, 1997.

EXPERIENCE AND BACKGROUND

2006 – Present
Vice President, Cornerstone Environmental Group, LLC, Bolingbrook, Illinois
2001 - 2005
2001 - 2006
Region Vice President, IT Corp/Shaw Environmental, Inc., Bolingbrook, Illinois

1997 -2001
Branch Manager, EMCON/OWT, Naperville, Illinois

1994 -1997
Project Manager, EMCON, Naperville, Illinois

1989 -1994
Graphics Manager, Wehran EnviroTech, Lisle, Illinois

1988 -1989
Senior Engineering Technician, Waste Management, Oak Brook, Illinois

1984 -1988
Designer, Eldredge Engineering, Naperville, Illinois

Transfer Station Permitting and Design

- Managed the design and preparation of a successful permit application for a new organic waste recycling operation within the permitted boundary of the existing Calumet Transfer Station located in Chicago, Illinois. The proposed organic waste recycling operation included two distinct operations – one for landscape waste and one for food waste. The new facility will include working pads, staging areas, maturation areas, pre-compost areas, and the associated stormwater management system.
- Managed and prepared a successful application for operating permit for a transfer and recycling facility located in Coles County, Illinois. The project entailed development and preparation of the application including as-built and design modification drawings, construction progress photos, and a narrative description of the facility development.
- Managed and prepared a successful application for supplemental permit for a municipal solid waste transfer and C&D processing facility located in Chicago, Illinois. The scope of work included application development and preparation, modification drawings, and narrative description to expand C&D recycling operations at the facility.
- Managed and prepared a successful application for development and operating permit for a transfer and recycling facility at a former incinerator site in Robbins, Illinois. The scope of work included application development and preparation, operations plans for solidification and allowable special waste management, site layout and design, and project scheduling and budget control. The application included detailed information related to the location, design and operation of the facility, as well as all the required regulatory information.
- Managed the preparation of a successful permit application for a new solid waste processing facility in Kokomo, Indiana. The scope of work included site layout and design to retrofit an existing warehouse building into a transfer station and recycling facility, application report writing, development of all engineering plans, and subcontractor management. Responsibilities also included project scheduling, client interface and budget control.
- Managed the preparation of a successful major modification permit application for a transfer and recycling facility in Crown Point, Indiana. The scope of work included site layout and design, report writing, subcontractor management, and development of all engineering plans. Responsibilities also included project scheduling, client interface, and budget control.
- Managed and prepared a successful application for development permit for a municipal solid waste and allowable special waste transfer station in Coles County, Illinois. Mr. Karl had previously managed and prepared the main engineering components (location, design, plan of operation) of the successful application for local siting approval for this facility. Responsibilities included data collection and organization, site layout and design, and report writing, which included preparation of the plan of operations, contingency plan, and load checking plan. Also provided expert witness testimony at the public hearing.
- Managed and prepared a successful application for development permit for a transfer and

recycling facility in Urbana, Illinois. The scope of work included application development and preparation, site layout and design, subcontractor management, and project scheduling, and budget control. The application included detailed information related to the location, design, and operation of the facility, as well as all the required regulatory information.

- Managed and prepared a successful application for supplemental permit for a transfer station in Sullivan, Illinois. The application specifically addressed revisions to the building and site layout features. The revisions included improvements to the facility building, site grading, paving, and stormwater management.
- Managed and prepared a successful application for local siting approval for a transfer and recycling facility in Urbana, Illinois. Responsibilities included overall application development, report writing, site layout and design, subcontractor management, project scheduling, and budget control. Also responsible for developing and coordinating presentation slide show and handout materials for public hearing, as well as providing expert witness testimony.
- Managed and prepared a successful application for developmental permit and supplemental permit for a transfer and recycling facility in Crestwood, Illinois. The application included an operating plan, design drawings, and the required regulatory information.
- Managed and prepared successful applications for supplemental permit, operating permit, and an application for permit transfer for a transfer station in Melrose Park, Illinois. The supplemental permit application specifically addressed the revisions to the permitted facility design. The operating permit application included a narrative description of the facility development, as well as construction drawings and progress photos. Each application included the required regulatory information.
- Managed the budget, coordinated subcontractors, and was the client contact for a transfer station project in Melrose Park, Illinois. The project required engineering and architectural services for final design, and also included the preparation of contract documents. Responsibilities included completing monthly financial management reports which provided clear overview of progress and expenditures on each task and subtask identified in the project approach.
- Managed and prepared a successful application for local siting of a transfer and recycling facility in Crestwood, Illinois. The scope of work included data collection and organization, report writing, subcontractor management, and conceptual design. Also provided expert witness testimony at the public hearing.
- Prepared a successful permit application for the South Central Solid Waste Transfer and Recycling Facility in Las Cruces, New Mexico. Responsibilities included report writing, site layout and design, subcontractor management, and development of all engineering and graphic plans and exhibits.
- Assisted with the design and prepared engineering plans for the Harker Heights Transfer Station and Recycling Facility for Waste Management of Texas and a transfer station and convenience center in Alamogordo, New Mexico.
- Provided design and engineering services for a transfer station in Herrin, Illinois, for Rolling Kleen Disposal.

Project Management/Coordination

- Managed and coordinated pre-acquisition due diligence reviews at 35 medical waste facilities in 23 states as well as Phase I Environmental Site Assessments at 17 additional medical waste facilities in 13 states. The scope of work included state agency contact regarding permit transfer requirements and related disclosures, site specific permit transfers, evaluation of the facilities, computerized data searches, and report compilation. Responsibilities included project scheduling and staffing, budgeting, client correspondence, and overall coordination of staff from over 20 offices in 15 states.
- Managed and coordinated pre-acquisition due diligence reviews at 70 non-hazardous waste management facilities located throughout the United States. The facilities included landfills, transfer stations, material recovery facilities, and hauling operations. Responsibilities included project scheduling, budgeting, report compilation, client correspondence and overall coordination of staff from over 20 offices in as many states.

PROFESSIONAL AFFILIATIONS

Solid Waste Association of North America

PRESENTATIONS

Kenneth J. Karl, Stefan J. Bukojemsky, EMCON/OWT, Inc., What Makes a Good Transfer Station: Siting and Operation Guidelines, Waste Expo, New Orleans, LA, 2003.

Jason A. Polakow, P.E.
Project Manager

PROFESSIONAL QUALIFICATIONS

Mr. Polakow has 10 years of experience in civil and environmental engineering and land development. Mr. Polakow is a member of Cornerstone Environmental Group, LLC and is responsible for engineering design and project management support for the Midwest and across the country. He is extremely proficient at managing projects through the entire life cycle from design to turnover including on-site construction and contractual negotiations. His skills include value engineering, site design and development, hydrological and hydraulic modeling, regulatory compliance, and technical analysis.

EDUCATION

Master of Science, Agricultural Engineering, University of Illinois at Urbana-Champaign, 2001
Bachelor of Science, Agricultural Engineering, University of Illinois at Urbana-Champaign, 1999

REGISTRATIONS/CERTIFICATIONS

Licensed Professional Engineer in the State of Illinois
OSHA 40-hour Hazardous Waste Operations and Emergency Response Certified

EXPERIENCE AND BACKGROUND

2009 – Present
Project Manager, Cornerstone Environmental Group, LLC, Bolingbrook, Illinois

2004 – 2008
Land Development Manager, Pulte Home Corporation, Schaumburg, Illinois

2001 – 2004
Assistant Project Engineer, STS Consultants, LTD., Vernon Hills, Illinois

Storm Water Management Design

- Performed a hydrologic analysis (HEC-RAS) for a wash realignment and proposed channel through the project property to maximize land for client development of a landfill in Arizona. Calculations were performed to determine the new 100-year floodplain elevations for inclusion in a FEMA LOMR request.
- Designed Storm Water Management Plan using HydroCAD for a landscape and organic waste recycling facility located in Chicago, Illinois. Prepared application for a developmental and operating permit for the facility. Application included designing a grading plan for the facility to handle both the 10-year and 100-year, 24-hour storm events and providing permit applications and supporting information to fulfill the requiremtns of the Illinois EPA.
- Utilized HEC-RAS to perform hydraulic modeling and analysis for two bridge crossings of local creek. Prepared Local, State, and County permit applications in accordance with the County and State regulations for floodplain construction. Dealt with local Park District and

regulatory agencies on a daily basis to incorporate best management practices (BMPs) for the avoidance and minimization of wetland impacts.

- Engineered limited open-area sites to avoid wetland and flood-plain impacts and to maximize land for client development. Evaluated flood–prone areas and created flood-control options for development. Prepared local, state and federal permit applications for flood-plain construction.
- Performed hydrologic and hydraulic analysis and design of an in-stream aquatic garden within a residential boulevard. Conducted feasibility studies to assist local municipalities in residential project funding assessment.
- Performed hydroperiod analysis to develop enhanced wetland mitigation for impacted jurisdictional wetlands within municipal golf course. Dealt extensively with U.S. Army Corps of Engineers including a pre-application meeting to discuss concerns. Generated Section 404/401 permit application discussing avoidance and minimization options. Created contractor specifications for areas of seeding, planting, and performance standards. Established five-year maintenance and monitoring plan in accordance with the U.S. Army Corps of Engineers regulations.
- Directed on-site construction managers to review construction schedules and verify that completed fieldwork was in accordance with final engineering design and municipal and regulatory compliance.

Site Design and Land Development

- Managed development of a landfill gas treatment and utilization system and facility for sulfur removal located in southwestern Michigan. Design engineer for on-site transmission pipeline and distribution system from the processing facility to on-site electric power client. Provided construction management services to client during construction phase of project.
- Prepared Facility Construction Certification Report for solid waste client in Indiana documenting the construction of a landfill gas transmission pipeline from the client's landfill to a certified end-user. The approximately 3,400 lineal feet of 12-inch HDPE pipeline is used to transport compressed and dehydrated landfill gas (LFG) from an active gas collection system operating at the landfill to the end-user, where it is used to fuel their process dryer.
- Orchestrated planning and management of $100 million project portfolio to completion, overseeing all aspect of engineering design, budget analysis, contractual negotiations, project scheduling, on-site construction, client relations, and project turnover.
- Refined infrastructure plans and specifications for residential developments including grading, runoff management, water supply, sanitary sewer, roadways and electric/gas/phone coordination.
- Coordinated with consulting engineers, municipalities, regulatory agencies and internal management teams to ensure project completion as per stipulated goals.
- Structured, reviewed and negotiated contracts valued at $100,000 to $10 million with subcontractors for work, such as: mass earthwork; underground installation, including, but

not limited to, sanitary sewers, water mains and storm sewers; curb and gutter installation; and pavement installation.

- Synchronized efforts between municipalities and contractors to finalize development work and reduced outstanding municipal letters of credit/bonds in excess of $80 million during four year period.

SPCC and SWPPP

- Supervised projects creating SPCC reports and SWPPP plans for various solid waste clients for their landfills, transfer stations, hauling companies, and material recovery facilities in Illinois, Indiana, and Michigan. Performed site visits, and trained two employees to perform the site visits and write the plans. Performed the final review of the SPCC reports and SWPPP plans. Reviewed both the state and federal storm water and spill regulations for each state.

Due Diligence

- Developed an Operation and Maintenance (O&M) Manual for a landfill gas transmission pipeline for a solid waste client in Indiana in conformance with the Pipeline Safety Regulations in 49 Code of Federal Regulation (CFR) Parts 191 and 192. Prepared presentation and conducted pipeline safety and O&M training for client's employees in charge of operating transmission pipeline.
- Performed environmental site assessments for solid waste client, in Illinois, for two vacant properties the client was looking to purchase. Performed site visits, reviewed regulatory information concerning the sites, performed site interviews, and wrote reports.
- Conducted Phase I site assessment for solid waste client on a three acre industrial property the client was looking to purchase in Illinois. Performed site visits, reviewed regulatory information concerning the sites, performed site interviews, and wrote reports.

PROFESSIONAL AFFILIATIONS

National Solid Wastes Management Association (NSWMA)

PUBLICATIONS

Polakow, J.A. 2001. Gravity liquid-solid separation with continuous solids removal system. Masters thesis. University of Illinois at Urbana-Champaign.

William G. Soukup
Senior Project Manager

PROFESSIONAL QUALIFICATIONS

Mr. William Soukup has over 33 years of professional experience in groundwater hydrogeology and related areas of contaminant transport evaluation. Mr. Soukup has specialized expertise in groundwater flow and transport modeling and in the definition of groundwater remedial alternatives in complex hydrogeologic settings. His technical experience includes numerous hazardous waste site investigations, complete RI/FS programs, and negotiations with various regulatory agencies on behalf of clients and PRP groups. Mr. Soukup has been responsible for the construction of numerous groundwater flow models at sites ranging from the Coastal Plain sediments of New Jersey to fractured bedrock flow systems in Belgium. These models have simulated virtually every type of groundwater remedial technology including pump and treat, cutoff walls, capping, permeable reactive walls, air sparging, etc. In many of these cases, the modeling results formed the basis of remedial engineering designs, which were subsequently implemented. Actual performance of these systems has been very close to the model predictions. As Cornerstone's groundwater modeling team leader, Mr. Soukup is currently responsible for maintaining state-of-the-art groundwater modeling capabilities including the technical quality of all groundwater modeling projects and related training activities.

EDUCATION

Master of Science, Geology, Ohio University, 1978
Bachelor of Science, Geology, S.U.N.Y at Oneonta, 1976

REGISTRATION/CERTIFICATIONS

Professional Geologist – Pennsylvania
Registered Professional Geologist - Arizona
Certified Ground Water Professional (NGWA)

EXPERIENCE AND BACKGROUND

2009 - Present

Senior Project Manager, Cornerstone Environmental Group, LLC, Middletown, New York

2003 - 2009

Associate, Hydroqual, Inc., Mahwah, New Jersey

1998 - 2003

Senior Project Manager/ Associate, Brown & Caldwell, Allendale, New Jersey

1987 - 1998

Project Manager, Wehran Engineering, Middletown, New York

1978 - 1982

Chief Hydrogeologist, U.S. Geological Survey, Grand Rapids, Minnesota

Brownfields / Redevelopment

- Residential Development, Confidential Client, Jersey City, NJ: *Project Manager* responsible for the assessment of groundwater issues related to a large multi-use development on the Hackensack River in Jersey City, NJ. A three-dimensional groundwater flow model was used to simulate various remedial designs including the construction of a soil containment area to be used as an "open space" park in the development. Modeling consisted of the siumlation of various cap and wall permeabilities, intragradient conditions across the walls, and vertical flow across the underlying peat layer. Despite the presence of multiple subsurface utilities, an excelent calibration to measured water levels was achieved. The model was used to assess alternative recharge scenarios in which cap drainage is preferentially directed to aid in the establishment of intragradient conditions.

- Former Agricultural Research Facility, Confidential Client, Princeton, NJ: *Project Manager* responsible for the identification and delineation of specialty pesticide compounds in soil, groundwater, surface water, and sediments. Through an exhaustive records search, identified over 200 specialty pesticide compounds and developed a database of CAS numbers, toxicity and persistence data, product application rates and test plat area locations. Used this information to develop a focused sampling plan including the identification of specialized laboratory methods of analysis. Results were used to close an ISRA case and obtain a No Further Actions determination by NJDEP. The site has since been sold to a large retail developer.

- Remedial Action Oversight, Former Chemical Manufacturing Facility, Princeton Jucntion, New Jersey. Project manager for this brownfields site located on US Route 1 near Princeton, New Jersey. This was a former pharmaceutical manufacturing facility that dates back to the mid-1940's. Remedial activities consisted of the excavation and off-site disposal of over 20,000 cubic yards of VOC contaminated soil, and further delineation of PAH's in the shallow soils (most notably benzo-a-pyrene) using a GeoProbe sampler. Oversight also included air monitoring, health and safety monitoring, truck staging and weighing, and post-excavation sampling. The successful remediation and delineation efforts formed the basis of a no further action (NFA) determination for site soils by NJDEP in September 2006. This brownfields site is currently being developed with an energy-efficient multi-story office building and parking facilities. In consideration of the historical presence of VOCs in soil and groundwater, NJDEP requested that an indoor air quality assessment be conducted. Cornerstone staff developed a vapor intrusion study work plan for the site that included an innovative means of sampling soil vapors within the building's sub-slab gravel layer. The vapor intrusion work plan was approved by NJDEP and implemented in December, 2008. The results indicated no impact from the underlying groundwater to vapors beneath the building slab.

Hydrogeology

- Groundwater Modeling, Study Area 7 Site, Confidential Client, Jersey City, NJ: *Project Manager* responsible for the construction of a three-dimensional groundwater flow model of a large chromite ore processing residue (COPR) site on the Hackensack River. The MODFLOW code was used to simulate the complex lacustrine deposits and bedrock flow systems in the vicinity of the site, and assess the impact of the tidal marsh deposits, dredging of the navigational channel in the river, and other manmade features such as local storm sewers, bulkheads, caps, etc. Groundwater plume containment options were also simulated and the model used to optimize the location, pumping rate, and capture zone of the remedy. The proposed remedy consisted of a 62 gpm combined bedrock-overburden pumping system that was approved by the regulatory agencies and installed in December 2008. Actual performance of the system is very close to predictions and has been successfully containing the chromium plume since startup.
- Groundwater Extraction System Design, GEMS Landfill Superfund Site PRP Group, Camden County, NJ: *Project Manager* responsible for the development of the conceptual model of groundwater flow and the evaluation and design of a groundwater extraction remedy at the GEMS Superfund site. A three-dimensional groundwater model was used to evaluate the hydrogeologic characteristics of numerous remedial options including groundwater extraction, landfill capping, French Drain installation, and groundwater re-injection. Successfully negotiated modifications in the number and pumping rate of the extraction wells to address USEPA's concern regarding adjacent endangered species.
- New York State Part 360 Investigations, Waste Management Inc., Upstate New York: *Project Manager* responsible for the hydrogeologic investigations of several solid waste landfills in New York State for Waste Management Incorporated (WMI). Investigations focused on the identification of the sites' hydrogeologic conditions and impact of these factors on the proposed expansion design. Also developed a computer modeling approach to evaluate the efficiency of leachate liner design and the impact of liner installation on the level of saturation in glacial tills.

Hazardous Waste Remediation

- Diamond Alkali Superfund Site, Confidential Client, Newark, NJ: *Project Manager* responsible for the hydrogeologic assessment and modeling of the groundwater flow system at this Superfund site in Newark, New Jersey. A three-dimensional groundwater flow model was developed and used to assess the development of an on-site landfill, landfill cap, and circumferential cutoff wall adjacent to the Passaic River. Work included negotiation with USEPA Region II regarding performance monitoring criteria and flow rates. Subsequent work included the oversight of remedy construction and on-going performance monitoring.
- Chromite Ore Residue Sites, Confidential Client, Kearny, NJ: *Project Manager* responsible for the Remedial Investigation of 40 chromite ore processing residue (COPR) sites in Kearny, NJ. Work included the on-site and off-site delineation of chromium concentrations to support the development of site-specific alternative remediation standards (ARS) for hexavalent chromium in soil and groundwater. Efforts also included coordination with design engineers to develop, implement and monitor

Interim Remedial Measures (IRMs), and final remedial actions ranging from paving to on-site excavation, treatment, and disposal. Work to date has resulted in sixteen sites receiving no further action (NFA) status from NJDEP and the approval of numerous groundwater Classification Exception Areas (CEAs).

Water Supply

- Groundwater Resource Investigations, U.S. Geological Survey, Western Minnesota: *Project Chief* with the United States Geological Survey for multi-county groundwater availability study in southwestern Minnesota. Project included the installation of over 150 monitoring wells, several aquifer tests, groundwater sampling, and long-term water level monitoring. The effects of continued irrigation on regional water resource availability were evaluated using both large and small-scale groundwater models. Presentation of approach and results at numerous public meetings.
- Shallow Groundwater Supply Investigation, Wickham Water District, Town of Warwick, NY: *Project Manager* for a groundwater supply investigation to supplement the available water supply resources of the Wickham Water District in the Town of Warwick, NY. The existing well field is consists of numerous bedrock wells that have limited yield and pose turbidity issues for treatment. Based on the results, a production well was installed that provided a short term yield of over 400 gpm. A 72-hour aquifer testing was then conducted that was used to permit the well for a safe yield of 250 gpm. A groundwater model was also developed to determine the well-head protection area for the well.
- Groundwater Availability Modeling, Wyeth Pharmaceuticals Facility, Guayama, Puerto Rico: *Project Manager* responsible for an assessment of the available safe yield of a portion of the South Regional Aquifer in the Guayama region of Puerto Rico. A three-dimensional groundwater flow model was constructed and used to simulate the potential impacts of increasing the yield of existing projection wells at the facility for a planned expansion of operations. The impact of the proposed pumping was assessed relative to three factors: 1) the need for additional wells, 2) the potential to divert the groundwater contaminant plume from the adjacent superfund site, and 3) the potential to induce saltwater intrusion near the cost. The results indicated that the additional pumping could be accomplished without undue negative impacts.

PROFESSIONAL AFFILIATIONS

National Groundwater Association
American Water Works Association

PUBLICATIONS

Available upon request.

Mark A. Swyka, P.E.
Senior Project Manager

PROFESSIONAL QUALIFICATIONS

Mr. Swyka has more than 25 years of experience in solid waste management, and the design, permitting, and construction of municipal waste, industrial waste and hazardous waste landfills. His experience includes the design, construction, and certification of landfill baseliners, leachate management systems, landfill gas management systems, and final cover systems. Mr. Swyka has contributed to the design of more than several dozen landfill facilities across the United States as project engineer, project manager, or certifying engineer. He is routinely called upon for expert project review and evaluation as well as preparation for testimony. Mr. Swyka has participated actively in multiple landfill gas to energy (LFGTE) project procure projects for municipalities.

Mr. Swyka specializes in the areas of geosynthetics and alternate construction materials with a broad range of experience with performance based evaluation of equivalency of geosynthetic and alternative materials to traditional earthen materials. He has been active in the development of geosynthetic standards and geosynthetic application through past participation as a sponsor representative to the Geosynthetic Institute (GSI), and formerly as a member of the National Sanitation Foundation Joint Committee on Flexible Membrane Liners, Standard 54. Mr. Swyka's experience also includes participation in several research projects associated with liner performance and seaming. He frequently makes technical presentations at conferences and publishes articles in industry publications.

EDUCATION

Bachelor of Science, Mechanical Engineering, Fairleigh Dickinson University, 1981

REGISTRATIONS/CERTIFICATIONS

Licensed Professional Engineer in the following states: Connecticut, Delaware, Massachusetts, New Jersey, New York, Mississippi, Pennsylvania, Puerto Rico, Virginia, ans Vermont.

EXPERIENCE AND BACKGROUND

Landfill Gas

- Prepared the design of a landfill gas collection and control system (GCCS) performed a landfill gas to energy (LFGTE) feasibility study (FS), and supported the LFGTE procurement of a 1.6 MW power project and a 1.9 MW power system upgrade for Atlantic County Utilities Authority.
- Designed and permitted the landfill gas system design for the Warren County District Landfill, Oxford, Warren County, New Jersey.
- Supported energy developer solicitation and negotiations for 8 MW power project for the Burlington County Landfill, Burlington County, New Jersey.

- Assisted with landfill gas management, landfill gas beneficial re-use and energy project for Cape May County Municipal Utilities Authority, Cape May County, New Jersey.
- Managed the procurement of a 3.6 MW Landfill Gas to Energy (LFGTE) system for the Warren County District Landfill, Oxford, Warren County, New Jersey. Initially, prepared a Feasibility Study (FS) to determine the viability of a LFGTE project at the landfill facility. The LFGTEFS indicated that the site would generate adequate landfill gas to support an energy project. Mark then prepared a request for proposals that was distributed to potential LFGTE developers. After developer selection support was provided to Warren County through the contract negotiation process.
- Managed design and installation of landfill gas collection system upgrades to provide additional landfill gas to fuel 3.2 MW LFGTE system at the Sussex County Landfill in Lafayette, New Jersey. System included vertical and horizontal collection wells, header and lateral piping as well as pneumatic dewatering pumps, condensate force main and upgrade of condensate knock-out sump/pump station.
- Performed an evaluation of landfill gas migration from an existing landfill into newly constructed landfill structures at the Shelton Landfill in Shelton, Connecticut. The evaluation indicated that a significant explosion hazard was present in the landfill structures as a result of the configuration of the construction. The findings of the evaluation resulted in the implementation of active landfill gas control systems and full time combustible gas monitoring within the structures.
- Evaluated the off-site migration of landfill gas at the MAC Landfill in Deptford, New Jersey. The evaluation included the routine monitoring of soil gas concentrations to determine landfill gas migration potential. Routine monitoring resulted in the preparation and implementation of a corrective action plan for the site including the installation of supplemental passive gas venting wells. The implementation of the corrective action plan resulted in the decrease in off-site landfill gas migration and the receipt of NJDEP approval to decrease the landfill gas migration monitoring frequency.
- Evaluated the off-site migration of landfill gas from the Kinsley's Landfill in Deptford, New Jersey. The result of the migration monitoring was the preparation of a corrective action plan which included the implementation of a supplemental passive gas venting system which will subsequently be incorporated into the existing landfill gas recovery and flaring system. Successful implementation of the landfill gas corrective action plan resulted in a reduction in off-site migration of landfill gas and receipt of approval from NJDEP to reduce the frequency of landfill gas migration monitoring.

Landfill Cost Estimation, Cost Cap, and Claim Evaluation

- In association with a broader team, Mr. Swyka has participated in the development several cost-cap proposals including the Warren County District Landfill, Warren County, New Jersey; Stafford Township Landfill, Ocean County, New Jersey; Pinelands Park Landfill, Atlantic County, New Jersey; and the South Side Landfill, Indianapolis, Indiana.
- Mr. Swyka has worked extensively on the development of landfill closure and post-closure cost estimates to satisfy state imposed financial surety requirements. Additionally

his work has included the review of construction activities for construction certification and construction cost review and certification.

- Mr. Swyka's experience with landfill construction also includes the detailed evaluation of contractor claims and negotiation of contractor claim settlements. Evaluations include: manpower utilization, schedule compliance, equipment allocation, material quantity calculations, and specification conformance.

Expert Report and Negotiation

- Mr. Swyka has worked with a number of clients and law firms providing expert review, evaluation, and preparation for testimony. Of note, he has supported a regional landfill company in a law suit with the Internal Revenue Service which included engineering cost estimates, substantiating anticipated landfill closure construction costs and post-closure monitoring and maintenance costs for three major regional landfill sites. Participated in negotiations with client and Department of Justice. Mark successfully demonstrated the need for funding the closure and post-closure activities and succeeded in supporting the necessary dollar value of these requirements. The financial aspect of the lawsuit was settled in favor of the client without the need of trial.

Landfill Design, Permitting, and Construction

- Managed the engineering design of the Cell 6 expansion of the Town of Brookhaven Landfill, Suffolk County, New York. The landfill expansion included the construction of 67 acres of double composite landfill baseliner and 53 acres of double liner over existing inactive landfill areas. Managed the engineering design for the preparation of construction plans and technical specifications for Phases 1 and 2 of Cell 6 of the Town of Brookhaven Landfill, Suffolk County, New York. This landfill baseliner included double composite baseliner and double overliner, incorporating geosynthetic clay liners and geosynthetic drainage materials to minimize baseliner cross-section, reduce overall construction cost, reduce construction time, and maximize landfill capacity.

- Managed the Part 360 Permit Application package for the Cell 6 expansion of the Sullivan County Landfill. The Cell 6 expansion includes approximately 4 acres of double composite landfill baseliner adjacent to the existing landfill cell. This application includes a waiver from groundwater separation as well as a variance for elimination of the structural fill layer of the primary lining system. The application also includes the incorporation of a geosynthetic clay liner in the primary lining system and a geocomposite drain in the secondary collection zone.

- Managed the engineering design for the preparation of construction plans and technical specifications for Phases 8 and 9 of Cell 5 of the Town of Brookhaven Landfill, Suffolk County, New York. This landfill baseliner includes 12 acres of double composite baseliner, who incorporates geosynthetic barrier and drainage materials to minimize baseliner cross-section, reduce overall construction cost, reduce construction time, and maximize landfill capacity.

- Managed the preparation of the engineering design for the Peñuelas Valley Commercial Landfill, Peñuelas, Puerto Rico, a new lined landfill designed for the disposal of commercial wastes. Significant topographic relief coupled with steep slopes and

significant design storm events required a design that could handle large quantities of stormwater over very short periods. The final design will maximize the available disposal capacity by taking advantage of the existing valleys and excavating as much material as possible.

- Prepared the Permit Modification Application for the redesign of the landfill baseliner system for the Warren County District Landfill, in Warren County, New Jersey. The landfill baseliner modification included a state of the art all-synthetic, double-composite landfill baseliner system resulting in reduced construction cost and increased air-space volume. Also included in the design was a subgrade stabilization layer to control perched groundwater and facilitate the establishment of a working platform for baseliner construction.
- Managed the preparation of the New York State Part 360 Permit Application for Central Hudson Gas & Electric Corporation, Danskammer Point, New York Generating Station Solid Waste Management Facility Phase III Ash Landfill. The project included the design of an expansion to an existing coal ash landfill. This expansion incorporated an 8-acre double baseliner system with primary and secondary leachate collection systems, and a 1-acre double geomembrane overliner as the existing Phase I landfill. Responsibilities for this project included preparation of all design, permit, and construction documents.
- Managed the preparation of permit documents for the reconfiguration of the Cape May County Municipal Landfill in Cape May, New Jersey. The permit documents were prepared for the purpose of adding 3 new landfill baseliner areas and increasing the slope of the final cover to provide the County with an additional 10 million cubic yards of disposal capacity. The new lined landfill cells incorporated a double composite liner system consisting of 2 layers of Geosynthetic Clay Liner (GCL) and HDPE Flexible Membrane Liner (FML). Following permit approval, Mark managed the design of the construction documents for each of the three newly permitted cells.

Landfill Closure

- Senior technical review for the Town of Hyde Park Landfill closure. Project included the design of final cover, stormwater, landfill gas, and leachate controls. Groundwater modeling was performed to demonstrate surface water/leachate contact reduction post final cover installation. Project included Environmental Quality Bond Act financing.
- Managed the closure design and oversight of of the closure construction of the Town of Carmel Landfill. Landfill closure included the construction of final cover over 2.5H:1V landfill sideslopes and the construction of a geogrid reinforced earth berm. Design elements included final cover, stormwater, landfill gas controls, and the installation of new groundwater monitoring well network. The landfill, located in the New York City watershed was under the observation of both NYSDEC and NYCDEP requiring heightened attention to stormwater control throughout construction. The project inclued Environmental Quality Bond Act financing.
- Prepared New York State Part 360 closure of two industrial waste landfills for a confidential industrial client. The landfill closures included the preparation of a closure investigation report, engineering design report, engineering design plans, and technical specifications. The two landfill closures required final cover with a landfill gas control

system, a textured flexible membrane liner, and innovative drainage controls to assure final cover stability on slopes as steep as 2 horizontal to 1 vertical.

- Engineering manager for the Stafford Township Business Park project, Stafford Township, Ocean County, New Jersey. The Stafford Township Business Park project (SBP) included the remediation and closure of two inactive solid waste landfills. The planned project includes the full excavation of one of the on-site landfills with beneficial re-use of the excavated materials to regrade the other landfill in preparation of the construction of an impermeable final cover. The applications have been submitted to NJDEP and have been determined to be administratively complete. The construction work associated with this project is planned to begin in 2006 and is expected to require two years to complete.
- Managed the construction quality assurance and construction contract administration activities associated with the closure of the Jockey Hill Landfill in Kingston, New York. Closure of the Jockey Hill facility consisted of construction of a Part 360 final cover system and replacement of the leachate collection system and lined leachate storage lagoon at this closed 7-acre municipal landfill facility. Closure incorporated several variances from New York State regulations to reduce closure construction cost. Construction of the final cover was performed during 1998 and is now complete. The project included Environmental Quality Bond Act financing.
- Provided engineering review and technical support for the Phase IC Closure and Temporary Phase IA/IB Closure of the Cape May County Landfill, Cape May, New Jersey. Closure of Phase IC was performed using a geomembrane final cover in conformance with New Jersey Solid Waste Regulations, NJAC 7:26. Phases IA and IB will receive additional waste in the future as the waste in surrounding cells is filled to the same elevations as the existing top of these cells. Temporary closure of the Phase IA/IB areas was performed to limit infiltration during this period of temporary inactivity. The construction of both the temporary and final covers was completed in 2000.

Remediation

- Managed the engineering evaluation of an inactive industrial site in Livingston Manor, New York. The evaluation included the review of prior debris disposal activities at the site in anticipation of design of an appropriate closure/end use plan for the facility. The evaluation included a feasibility study to access the impact of existing on-site debris and the preparation of conception plans to address both regulatory and aesthetic considerations. The recommended alternative included the removal of surficial debris, regrading, and re-vegetation.
- Designed the remedial closure design of the Village of Mamaroneck, New York Taylor's Lane, a 7-acre inactive hazardous waste compost site. The closure of the site included design of final cover in accordance with New York State Part 360 requirements. The final cover consisted of landfill gas control system, a 40-mil VLDPE flexible membrane liner and cover soils. In addition to the final cover, the closure action required the installation of six new groundwater monitoring wells. The project included Environmental Quality Bond Act financing.

- Designed remedial closure for Colesville Landfill, a 33-acre hazardous waste site in Broome County, New York, which required final cover and groundwater collection and treatment to mitigate identified groundwater contamination. The remedial activities included final cover design, landfill gas control, groundwater and surface water seep collections and treatment, and the development of on-site borrow for cover soil materials.
- Prepared the remedial design for the collection of contaminated groundwater in the vicinity of an industrial site in Syracuse, New York. The design consisted of groundwater collection trench and pump station. Contaminated groundwater was collected and pumped to an on-site treatment system for stripping and filtering in preparation for discharge to an adjacent stream. Construction was performed during the winter of 1997 to 1998. The resultant discharge from this system is tested routinely with effluent quality well below the permit limitations for the facility.

Hazardous Waste

- Mr. Swyka's experience includes working with owners of hazardous waste landfills to provide design, permitting, and construction support. He has provided support to both of the active hazardous waste landfill sites in New York State.
- Prepared New York State Part 373 Permit Modification Application for a confidential industrial client. The permit application included engineering design plans, engineering design report, technical specifications, quality assurance and quality control plan, operation and maintenance plan, contingency plan, and closure plan for a 15-acre double composite lined hazardous waste landfill cell.
- Managed the preparation of a NYSDEC Part 373 vertical expansion of a hazardous waste landfill for a confidential industrial client. The vertical expansion incorporated the design of a composite final cover and an increase to the steepness of the final cover slopes resulting in an increase in available air space. The composite final cover consisted of a GCL and HDPE FML. This configuration reduced the total thickness of the final cover by 3.5 feet.
- Managed the preparation of the feasibility study assessment for the closure of an inactive hazardous waste landfill for a confidential industrial client. No closure requirements exist for this particular landfill, which has received a temporary geomembrane cover. The object of the feasibility study was to assess the appropriate action to replace a 10-year-old geomembrane cover. The selected alternative was a 60-mil HDPE geomembrane. Landfill cover replacement was completed in 2000.
- Prepared New York State Part 373 Permit Modification Application for CWM Chemical Services Model City Landfill. The permit modification included a substitution of a geosynthetic clay liner for the compacted low permeability soil layer within the final cover system for the landfill.. The modification reduced the required final cover thickness by over 3 feet, reduced construction time and overall construction cost.

PROFESSIONAL AFFILIATIONS

Solid Waste Association of North America
Professional Engineer Continuing Education Program Administrator and

Board of Directors – New York State Chapter
New York State Association for Solid Waste Management

RECENT PUBLICATIONS

The Negative Effect of Delayed Landfill Closure. Gary DiPippo & Mark Swyka. Presented at the Federation of New York Solid Waste Associations Solid Waste/Recycling Conference & Trade Show, Bolton Landing, New York, May 2010.

Putnam County Solid Waste Management Plan. Mary Rice, Richard Calogero, Kristen Thordahl & Mark Swyka. Presented at the Federation of New York Solid Waste Associations Solid Waste/Recycling Conference & Trade Show, Bolton Landing, New York, May 2010.

Landfill Closure and Re-Development Success Story. Presented by Mark Swyka at the Federation of New York Solid Waste Associations Solid Waste/Recycling Conference & Trade Show, Bolton Landing, New York, May 2009.

Diary of a Defect. Presented Bradford Smith and Mark Swyka at the Federation of New York Solid Waste Associations Solid Waste/Recycling Conference & Trade Show, Bolton Landing, New York, May 2008.

Landfill Post-Closure, What is the Real Future Cost? Presented by Tony Gregory at the Federation of New York Solid Waste Associations Solid Waste/Recycling Conference & Trade Show, Bolton Landing, New York, May 2008 (with Tony Gregory and Daryl O'Dell).

Steep Slope Landfill Closures. Presented at the Federation of New York Solid Waste Associations Solid Waste/Recycling Conference & Trade Show, Bolton Landing, New York, May 2007.

Stable Slopes Today and Tomorrow, Interface Challenges in a World that is not Flat. Presented at Waste Tech 06, Phoenix, Arizona, February 2006 (with Eric Cifaldi, Nagesh Koragappa, and Curtis Taylor).

Inflation – When Construction Costs Go Through the Roof. Presented by Curtis Taylor at Waste Tech 06, Phoenix, Arizona, February 2006 (with Curtis Taylor and Joseph Gurda).

It Rained on My GCL! How Premature Hydration During Construction Affects GCL Properties. Presented by Don Hullings at Waste Tech 06, Phoenix Arizona, February 2006 (with Don Hullings and Keith Howard).

LFGTE in Atlantic City – A Sure Bet. Presented at WASTECON, Austin, Texas, September 2005 (with Jim Rutala, Mike Michels, Sarah Simon & Angie Krueger).

Temporary Landfill Covers – A good Idea for a While. Presented at the Federation of New York Solid Waste Associations Solid Waste/Recycling Conference & Trade Show, Bolton Landing, New York, May 2005.

In-Situ Permeability Testing of 16 Year Old Landfill Final Cover. Presented at Waste Tech 04, Dallas, Texas, May 2004 (with Andy Cheung).

Geosynthetics Design and Application in Waste Containment Applications. Presented as a component of Shaw-EMCON/OWT's Continuing Education Program, Mahwah, New Jersey, February 18, 2004.

Design and Construction Considerations of All Geosynthetic, Double Composite Landfill Baseliners. Presented at the SWANA Landfill Symposium and Solid Waste Managers Trends & Challenges Conference, Atlantic City, New Jersey, June 2003 (with Melody Adams).

PROFESSIONAL QUALIFICATIONS

Mr. Young is a professional engineer over 13 years of experience as an environmental engineer and two years experience as an environmental chemist. Since joining Cornerstone, he has worked on numerous projects in the, Soil and Water Remediation, Regulatory, Solid Waste, Air Quality, and engineering design fields for various clients including private companies, and municipalities. He has performed Alternative Final Cover Demonstrations for six landfills in the State of Arizona using the UNSAT-H and HELP models. He has performed site characterization evaluations, spill prevention, control and countermeasure (SPCC) plans, storm water pollution prevention plans (SWPPP), remediation reporting, phase 1 & 2 reporting, and air quality permit evaluations. He has working experience with federal, state and local regulations concerning solid waste disposal, site remediation, and air quality permitting. He has worked on over 200 solid waste sites throughout the western United States. Mr. Young has experience managing SPCC and SWPPP projects, Phase 1, alternative final cover demonstrations, soil and groundwater remediation projects. He has assisted in the permitting of a major landfill expansion project, the development of two new Greenfield landfill project, and designing the expansion of two smaller landfills. His field experience has included site surveying, air monitoring, soil and groundwater sampling, borehole and well drilling activities, backhoe excavations, air permitting surveys, and construction quality assurance.

EDUCATION

Master of Science, Environmental Engineering, University of Arizona, Tucson, Arizona, 1997
Bachelor of Science, Chemistry, Washington State University, Pullman, Washington, 1993
Bachelor of Science, Mathematics, Washington State University, Pullman, Washington, 1993

Additional Training

40-Hour OSHA Health and Safety Training; 1998
8 Hour OSHA Refresher; 1999 through 2010

REGISTRATIONS/CERTIFICATIONS

State of Arizona Professional Engineer (Environmental) registration number 37912
State of Idaho Professional Engineer (Environmental) registration number 14104

EXPERIENCE AND BACKGROUND

August 2006 – Present
Project Manager, Cornerstone Environmental Group, Tucson, Arizona

July 1999 – August 2006
Environmental Engineer, Project Manager, EMCON / The IT Group / Shaw EMCON/OWT Inc., Tucson, Arizona

February 1998 – June 1999
Environmental Engineer, Enviro Engineering Inc., Tucson, Arizona

Groundwater Monitoring

- Oversaw the installation of groundwater monitor wells at the Marana Landfill including taking of soil samples, well logging using a Gamma logger, and installing of pressure transducers.
- Created a groundwater monitoring plan for the Copper Mountain Landfill in Arizona to be included in the Solid Waste Facility Plan.
- Managed and supervised the replacement of three groundwater pumps at the Cactus Landfill with new electrical submersible pumps. Obtained groundwater samples from the wells after the installation of the new pumps, two months after installation, and four months after installation. Performed semi-annual groundwater sampling of the wells from 2004 through 2009.
- Evaluated the groundwater contamination at a confidential landfill site in New Jersey to determine if the contamination is coming from an on-site or an off-site source. Evaluated the costs for multiple treatment systems for remediation of the contaminated groundwater including the use of Activated Carbon treatment of extracted groundwater and in-situ bioremediation by multiple methods.
- Performed groundwater sampling and reporting for various sites. Prepared various reports for groundwater sampling events and obtained closure of one of the sites. Designed three groundwater remediation systems. Supervised the installation of over 10 groundwater wells at the sites. Performed groundwater sampling, air sparging pilot study, and permitting of the wells.
- Performed passive soil gas surveys for two landfills in Tucson, Arizona. Evaluated the results of the surveys and wrote the reports. Evaluated potential groundwater treatment technologies, performed a cost analysis of potential remediation techniques, and designed a groundwater remediation system for one of the landfills.

Environmental

- Managed and performed the hydraulic lift removal and site investigation for a leaking hydraulic lift at the Green Acres Mortuary and Cemetery in Scottsdale, Arizona. Supervised the pumping out of the hydraulic lift, location of underground utilities, and the lift removed by excavation. After removal of the lift, obtained soil samples from the excavation to determine the extent of soil contamination.

Due Diligence

- Performed environmental site assessments for sixteen sites for Allied Waste in Arizona, California, Colorado, Idaho, and Utah. Sites included landfills, hauling companies, transfer stations, and vacant property. Performed site visits, reviewed regulatory information

concerning the sites, performed site interviews, wrote reports, and at one of the sites obtained soil samples. Performed an extensive environmental site assessment of a site in Chandler Arizona, including historical background search, soil sampling, soil remediation activities, and reporting.

- Performed Phase I site assessments for multiple clients of various buildings. Responsibility included performing an extensive phase 1 survey of a former manufactured gas and electrical generating facility.

SPCC and SWPPP

- Managed projects involving creating SPCC and SWPPP plans for over fifty Republic/Allied Waste sites including landfills, transfer stations, hauling companies, and material recovery facilities in Arizona, Colorado, Idaho, Montana, Utah, and Wyoming. Performed site visits for twenty of the sites and trained two employees to perform the site visits and write the plans. Performed the final review of the SPCC plans. Reviewed both the state and federal storm water and spill regulations for each state. Created a standardized site visit checklist for performing site visits and templates for all future SPCC and SWPPP plans.

- Managed the California and Arizona regions for a nationwide SPCC project for Republic Waste. Wrote or reviewed eighteen SPCC plans. Managed four employees who performed the site visits or who wrote the plans. Performed the site visit for the site in Tucson Arizona. Oversaw the writing of the Transfer Station report which summarized the Republic Transfer Stations within the State of California.

- Wrote three SPCC plans for various clients for sites in Tucson Arizona, Phoenix Arizona, and Las Vegas Nevada.

Air Permitting

- Performed air monitoring activities including sampling and maintenance of a Partisol Plus 2025 PM-10 air monitor. Oversaw the training of and managed other employees in performing the sampling and maintenance for the air monitor. Performed quality assurance of the samples.

- Performed an air emissions inventory review for the University of Arizona's 1998, 1999, 2000, and 2001 air emissions inventory report to the Pima County Department of Environmental Quality. Analyzed the previous year's inventory to determine which building accounted for 90% of the overall emissions. Resurveyed each of these buildings, updated the equipment and chemical database, performed the database analysis, and wrote the emissions inventory report. Assisted with the 1998 report, performed the majority of the 1999 inventory project, assisted with the 2000 report, and performed the entire 2001 inventory.

- Performed air emissions inventories for various clients including three telecommunication sites, two microprocessor facilities, a heavy mechanical service center, a landfill, a sand

and gravel quarry, and a large manufacturing facility. Assisted in or wrote the air permit applications for these sites in Pima and Maricopa Counties, Arizona and Cook County Nevada. Wrote the Air Emissions Inventory, NMOC, and Compliance Certification Reports for the Cactus Landfill.

Landfill and Landfill Gas

- Assisted with the design for a landfill gas to compressed natural gas system. Designed a condensate sump system to contain and dispose of liquid condensate from the system.

- Performed alternative final cover demonstrations for the solid waste facility plan submittals for four landfills in Arizona for multiple clients. Modeled potential soils using the UNSAT-H and HELP programs. Performed UNSAT-H modeling of actual soils at one of the landfills to demonstrate that the onsite soils would meet the alternative final cover requirements.

- Assisted in the preparation of a Solid Waste Facility Plans (SWFP) for two new greenfield landfills in Arizona and for the expansion of two landfills in Arizona for multiple clients. Project included permitting of the landfill with the local town and the State of Arizona. Assisted in writing the proposals, obtaining information for the plans, presenting at public meetings concerning the landfill, supervising other employees working on the projects, and wrote various sections of the SWFPs.

- Managed the expansion design project for the Pima County Ina Road and Tangerine Road Landfills. Designed the vertical expansion of the landfills and the relocation of stormwater drainage channels at the Ina Road Landfill and relocation of a utility corridor to increase the site's capacity. Designed two design scenarios based on relocating or leaving in place the bisecting stormwater channel for the Ina Road Landfill and the utility corridor for the Tangerine Road Landfill. Managed conceptual photograph project to show how the landfills would conceivably appear at final closure if they were expanded.

- Co-wrote the closure and post-closure report for 113 open dumpsites in the Tohono O'odham Nation in Pima County, Arizona. Performed the site visits, oversaw the subsurface investigations, performed cost estimation for cleanup of all of the sites, created AutoCAD drawings of numerous sites, and determined cleanup recommendations. Obtained geotechnical and environmental soil samples, designed the final cover, and storm water drainage for five of the sites. Designed the final closure specifications for the open dumpsites. Performed numerous hydrological evaluation models of potential on-site soils as potential cover material for the dumpsites. Wrote construction specifications and the closure report. Evaluated the feasibility of the Tohono O'odham Nation building a transfer station to transport Nation Solid Waste from a central location to a regional landfill. Including evaluating possible transfer station designs, costs, savings, and locations for the transfer station.