

# **QUALIFICATIONS & EXPERIENCE STATEMENT**

## **ENVIRONMENTAL SERVICES**



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## KSG QUALIFICATIONS &amp; EXPERIENCE

## TABLE OF CONTENTS

Section	Page
<b>1.0 INTRODUCTION AND OVERVIEW OF KSG ORGANIZATION</b>	
<b>1.1 Corporate Overview .....</b>	1
<b>1.2 Qualifications - Consulting.....</b>	1
<b>2.0 ENVIRONMENTAL CONSULTING SERVICES</b>	
<b>2.1 Environmental Assessment Services.....</b>	2
<b>2.2 Contamination Assessment Activities .....</b>	2
<b>2.2.1 Soil and Ground Water Contamination Assessments .....</b>	2
<b>2.2.2 RCRA Facility Investigations (RFI) .....</b>	3
<b>2.2.3 Assessment Report Preparation .....</b>	4
<b>2.3 Environmental Assessment Associated With Real Estate Transactions .....</b>	4
<b>2.3.1 Phase I Assessments .....</b>	4
<b>2.3.2 Preparation of Environmental Assessment Reports.....</b>	5
<b>2.4 Geophysical Services .....</b>	5
<b>2.4.1 Geophysical Applications in Construction &amp; Demolition .....</b>	5
<b>2.4.2 Geophysical Applications in Environmental Investigations.....</b>	6
<b>2.5 SPCC and Facility Response Plans.....</b>	7
<b>2.6 Stormwater and Wastewater Permit Preparation .....</b>	8
<b>2.7 Asbestos Inspection &amp; Abatement Services .....</b>	9
<b>2.8 Lead-based Paint Inspection Services.....</b>	10
<b>2.9 Corrective Action Plan Development .....</b>	10
<b>2.9.1 Soil Remediation System Design.....</b>	10
<b>2.9.2 Ground Water Remediation System Design .....</b>	11

## KSG QUALIFICATIONS & EXPERIENCE

### TABLE OF CONTENTS

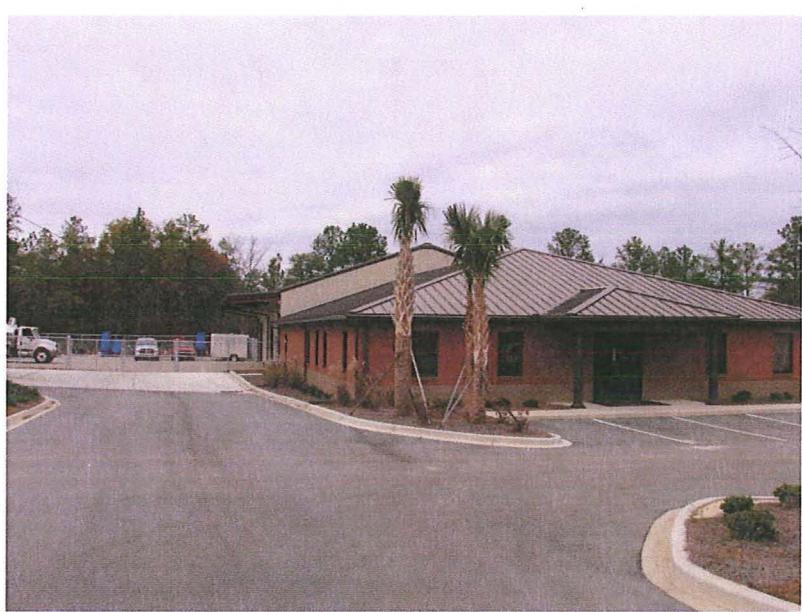
Section	Page
<b>2.10</b> Environmental Remediation Services .....	11
<b>2.10.1</b> Implementation of Soil Remediation Projects.....	11
<b>2.10.2</b> Implementation of Ground Water Remediation Projects .....	12
<b>2.10.3</b> Buried Drum Removal Projects.....	12
<b>3.0</b> KSG HEALTH AND SAFETY CORPORATE POLICIES .....	13
<b>4.0</b> KSG'S ORGANIZATIONAL STRUCTURE.....	14
<b>4.1</b> Organizational Structure.....	14
<b>4.2</b> Project Management .....	15
<b>4.2.1</b> Cost Control .....	15
<b>4.2.2</b> Project Tracking.....	15
<b>4.2.3</b> Corrective Action Procedures .....	16
<b>4.3</b> Subcontractor Management and Control .....	16
<b>4.3.1</b> Subcontractor Standards .....	16
<b>5.0</b> SUMMARY OF REPRESENTATIVE ENVIRONMENTAL ASSESSMENT PROJECTS .....	17
<b>6.0</b> SELECTED COMPLETE RESUMES.....	24

## SECTION 1.0

### OVERVIEW OF THE KLEEN SITES GEOSERVICES ORGANIZATION

#### 1.1 Corporate Overview

Kleen Sites Geoservices, Inc. (KSG) is a multidisciplinary environmental consulting firm located in Lexington, South Carolina. Our primary goal is to provide effective services for the wide spectrum of projects required of today's environmental firms. As a team, we understand the critical need for comprehensive, environmentally sound and economically feasible services that consider all environmental concerns. Compliance with RCRA, CERCLA, and other State and Federal regulations that govern contamination investigation and cleanup projects presents an unprecedented challenge to personnel in the environmental field. KSG's "hands on" approach to each project; as well as, our practical field experience in both soil and ground-water remediation projects provide the tools necessary to design and implement cost-effective solutions to a variety of environmental projects.



KSG headquarters located in Lexington, SC

#### 1.2 Qualifications - Consulting

KSG has successfully completed a wide variety of projects ranging from initial site assessment through contaminant investigation to site remediation. KSG's expertise in the turnkey performance of projects involving the investigation of potential soil and / or ground water contamination and the design of remediation systems required for site cleanup involve the execution of tasks as outlined in the following sections.

## SECTION 2.0

### ENVIRONMENTAL CONSULTING SERVICES

#### 2.1 Environmental Assessment Overview

Efficient implementation of remedial investigations requires a blend of technical expertise, field experience and a strong subcontractor network. The majority of KSG's work is performed in the southeastern United States and we have developed a strong subcontractor support team within the region. KSG's office, located in Lexington, South Carolina, provides an excellent response point during the implementation of remedial investigations throughout the Carolinas. The following sections provide detailed descriptions of our company's experience in performing the wide array of activities that may be required during the assessment stages.

#### 2.2 Contamination Assessment Activities

##### 2.2.1 Soil and Ground Water Contamination Assessments

Soil and ground water investigations often begin as simple checks of soil quality around suspect areas including aboveground / underground storage tanks, waste catchment basins, areas of surficial staining, etc. A stainless-steel hand auger is often utilized along with field screening instruments to check a site for potential contamination.

Initial investigative results at many sites confirm that soil and / or ground water contamination exists but does not provide any information concerning contaminant plume geometry. As a cost effective approach to developing data concerning the general orientation of subsurface contamination, KSG often conducts a direct push technology as the first step in plume delineation. Direct push technology uses a GeoProbe® rig to hydraulically advance hollow, metal rods into the ground to a predetermined depth. Once the ground water table has been encountered, the bottom metal rod is retracted slightly to expose a stainless-steel well screen. Polyethylene tubing is inserted into the hollow metal rods and advanced down into the screened area. A ground water sample is then collected using the polyethylene tubing. Data compiled from numerous sampling points provide a quick and cost effective method of developing general information concerning overall contaminant plume geometry prior to mobilization of more expensive drilling equipment and personnel.

Once preliminary assessments have generated data concerning the presence and rough orientation of subsurface contamination, a drilling rig is often utilized to collect soil and ground water samples for detailed plume delineation. A drilling rig equipped with hollow-stem augers is most commonly used for the drilling and installation of ground water monitor wells through soil and unconsolidated materials that host the uppermost aquifer regime. However, KSG field geologists are also capable of conducting ground water investigative activities within deeper bedrock lithologies. Drilling methodologies that may be required to access ground water samples within bedrock include mud rotary, rock coring or cable tool procedures. The appropriate method selected would be dependent on the nature of bedrock lithologies present, downhole sampling requirements and the ultimate goals of drilling operations.

### 2.2.1 Soil and Ground Water Contamination Assessments (Continued)

KSG personnel coordinate and manage all aspects of subsurface soil and ground water contamination investigations. Through the successful completion of numerous past investigations, KSG has developed a network of qualified drilling subcontractors to provide the field support and equipment necessary during project implementation. Drilling activities that are commonly used during contamination studies include: split-spoon soil sampling, monitor well installation, well development and installation of locking covers surrounding well casings.

Upon installation of ground water monitor wells or piezometers, KSG personnel utilize each location to generate valuable information concerning soil, bedrock and/or ground water characteristics. Ground water samples are collected from each well and submitted for laboratory analysis to develop information concerning dissolved contaminant concentrations. Soil samples may also be submitted from split spoon samples collected during the drilling process to evaluate the vertical and lateral extent of soil contamination. Static water level measurements are also taken to develop models concerning the flow direction and gradient of ground water within the uppermost aquifer regime.

### Leaking Underground Storage Tank Assessments

Changes in State and Federal Underground Storage Tank (UST) regulations over the past several years have dramatically affected the public's awareness of the environmental problems that can arise from uncontrolled releases of petroleum fuels. KSG has extensive experience in working with regulatory personnel on a variety of leaking UST projects. The following activities have been performed during the implementation of these projects: initial site characterization, expanded assessment plan preparation, soil and ground water contamination assessment, assessment report preparation, corrective action plan and engineering report preparation, and implementation of soil and ground water remediation.

### 2.2.2 RCRA Facility Investigations (RFI)

KSG provides sole source responsibility for developing and implementing cost effective remedial action programs. KSG implements RFI projects utilizing its own personnel and subcontractor network, providing turnkey operations with a single point of contact to effectively manage remedial action strategies adapted to each site-specific investigation.

KSG's turnkey approach to remedial investigations streamlines project schedules and ensures lower implementation costs by preparing the engineering design and regulatory agency submittals in close coordination with our Remedial Group. Coordination with this group which implements the remedial action programs provides the most efficient strategies for remedial action adapted to each site-specific situation.

KSG has a thorough understanding of pertinent State and Federal regulations, ensuring development of programs that are quickly ratified. Our in-house ability to interpret these regulations coupled with the extensive experience of company personnel results in the development of solutions that are both environmentally and operationally sound.

### 2.2.2 RCRA Facility Investigations (Continued)

KSG's wide range of experience includes all types of hazardous wastes (organics, inorganics, metals, hydrocarbons, etc.) and a wide variety of site types (spills, lagoons, landfills, manufacturing facilities, storage areas, drummed and tanked wastes, etc.). KSG has had unprecedented growth in remedial assessment projects, completing numerous contamination assessment programs for industrial clients, the State government, and the Military. Summaries of representative projects and site restorations are found in Section 5.0 of this package.

### 2.2.3 Assessment Report Preparation

Data generated during the field investigation must be evaluated and compiled into a final Environmental Assessment Report. KSG personnel involved in this phase of the investigation include the project engineer/geologist, field engineer/geologist, QA/QC officer, draftsman and clerical support. Activities required to evaluate technical field data include:

- Preparation of detailed maps showing the lateral of free phase product;
- Preparation of detailed maps showing the vertical extent of dissolved ground water
- Preparation of detailed maps showing the extent of soil contamination;
- Evaluation of aquifer characterization data;
- Computer modeling of ground water contaminant transport; and
- Computer modeling of aquifer behavior during ground water remediation.

KSG utilizes its in-house resources to prepare the figures and diagrams that are necessary to show the vertical and lateral soil and/or ground water contaminant plume geometry. A computer aided drafting (CADD) system provides the latest technology available in producing accurate, scaled diagrams within each Assessment Report. Our computer database of projects also provides the technical staff with detailed information necessary when preparing assessment reports or remediation plans.

Assessment Reports are written to provide the appropriate information necessary to properly design and implement soil and/or ground water remediation systems. Each report reflects KSG's corporate philosophy of focusing each step within the assessment phase on the goal of implementing corrective action measures in the field at the earliest possible opportunity.

## 2.3 Environmental Assessments Associated With Real Estate Transactions

### 2.3.1 Phase I Environmental Assessments

Lending institutions are placing increasing emphasis on Phase I Environmental Assessments prior to the finalization of real estate transactions. These "site checks" are conducted to provide an initial screening tool for identifying former, existing, or potential future environmental liabilities that may be present on or adjacent to a specified parcel of property. KSG provides personnel trained in procedures necessary to identify potential environmental problems including the presence of underground storage tanks, areas of surficial staining, improper handling or storage of onsite chemicals/materials, etc.

### 2.3.1 Phase I Environmental Assessments (Continued)

The Phase I Environmental Assessment may reveal the presence of potential problems that require the implementation of a more extensive investigation of soil and ground water contamination. The following activities are typically performed during Phase I Assessments:

- Review of historical records and aerial photographs to identify potential areas of environmental concern;
- Site visit to identify any visual environmental problems presently associated with the subject property or immediately adjacent area;
- Interviews with current and past property owners or tenants;
- Check of State and Federal agencies for reports of past environmental problems; and
- Contacts with local officials (fire department, utility companies, etc.) for records of past environmental problems.

### 2.3.2 Preparation of Environmental Assessment Reports

Following the completion of a Phase I Environmental Assessment, an Environmental Assessment Report is prepared by KSG personnel. This report summarizes all investigative activities performed during the environmental assessment. In the event that issues are identified during the assessment process, the client is immediately contacted so that appropriate steps can be taken, if requested, to address environmental concerns. This approach minimizes the time and cost associated with the assessment process and provides a report that allows appropriate financial decisions to be made by the client. In the event that soil and/or ground water contamination is suspected beneath the subject property, recommendations for appropriate site investigative activities will be incorporated into the Assessment Report.

## 2.4 Geophysical Services

### 2.4.1 Geophysical Applications in Construction and Demolition

The field of geophysics has direct applications in the area of vibration monitoring. Vibrations can be produced by rock blasting, construction equipment, pile driving, pile extraction, building demolition, and general vehicular traffic. The energy produced by these methods cited is released in the form of seismic energy (energy that travels through the earth) and air borne energy (travels through the air). Both the airborne and the seismic releases of energy can be measured by a portable seismograph.

Seismographs are used to provide data to relate the magnitude of vibrations and air blast (or air overpressure) to surrounding structures. Research by the United States Bureau of Mines has shown that the peak particle velocity (PPV), measured in inches traveled per second (in/sec), is the best indicator of the magnitude of a seismic wave measured at a structure. Wave frequency also plays an important role in the structural response to vibrations. The seismographs utilized by KSG measure the peak particle velocity in inches per second (in/sec), wave frequency in hertz (hz), and air overpressure in decibels (dbls).

#### 2.4.1 Geophysical Applications in Construction and Demolition (Continued)

The magnitude of vibrations are measured at any adjacent structure, such as homes, businesses, tunnels, bridge footings, dams, etc. Data gathered will evaluate regulatory compliance and can be used in court in the event of litigation. Peak particle velocity, frequency, and air overpressure measured at homes and businesses can also be used to correlate human response to vibrations. Seismographs can be installed as 24-hour continuous-monitoring stations, on the exterior or interior of a structure. A weather-proof box is utilized for exterior seismograph installation. Individual blasting events are monitored by a KSG field representative.

To document the condition of a structure prior to construction activities, a pre-construction survey is performed by KSG personnel. During this survey, existing flaws such as cracks, water damage, etc. are documented via notes, diagrams, photographs, and videotape recordings. This information, coupled with vibration monitoring data, is used in the investigation of damage claims.

#### 2.4.2 Geophysical Applications in Exploration and Environmental Investigations

Geophysical methods are often used in exploration and environmental investigations. The data provided by geophysical exploration can stand alone, or can be used to augment drilling or test pit data. In many cases, geophysical data is used to choose the optimum location for monitoring wells, or water wells, reducing costly drilling operations. Geophysical surveys are a cost effective means of providing subsurface information over a large area, with minimal impact to the environment.

The most widely used method of geophysical exploration is seismic refraction. Seismic refraction is accomplished by using an energy source (sledge hammer blows, thumper truck, etc.) to generate seismic energy at the surface of the earth. As the energy travels through the earth, the waves are refracted (or bent) with each contact of different media (soil, partially weathered rock, bedrock) and travel back to the surface. Geophones (or sensors) are placed on the surface to detect the return of the seismic wave. The speed of the return of the wave and the distance from the energy source to the sensor (or geophone), is used to produce a time-distance graph. This time-distance graph is used to accurately calculate the depth to the contacts between different layers of the earth and the velocities (in ft/sec) of the various media.

Using seismic refraction as a subsurface mapping tool has applications in civil and foundation engineering. Subsurface profiles can be generated along proposed utility lines, proposed tunnel traverses, proposed building foundations, proposed landfill sites, etc. Seismic refraction data will aid in the calculation of rock and soil quantities. The velocities of subsurface media can be correlated to the rippability of the subsurface materials. Seismic data is presented as subsurface profile maps, contour maps, and in tabular form. KSG personnel can perform all aspects of seismic refraction surveys.

#### 2.4.2 Geophysical Applications in Exploration and Environmental Investigations (Continued)

Other subsurface features such as voids found in karst topography, archaeological sites, or abandoned mines, can be mapped using electromagnetic (EM) survey methods. Electromagnetics is achieved by magnetically inducing an electric current into the subsurface by a transmitting coil, and measuring the electromagnetic response of the subsurface by a receiver coil. This ratio of electromagnetic fields is directly proportional to terrain conductivity. The results are presented in mhos (Siemens) per meter or, millimhos per meter.

Time-domain EM systems are used for the detection of buried ferrous and non-ferrous metals, such as underground storage tanks (USTs), drums, pipelines, reinforced concrete septic tanks, slag, and scrap metal. A time-domain EM system pulses a primary magnetic field into the earth, which induces eddy currents in subsurface metallic objects. The eddy current decay produces a secondary magnetic field, which is measured by a receiver coil. By taking the measurement at a relatively long time after the start of the decay, the current in the ground has fully dissipated and only the current in the metal is still producing a secondary field. With this method, the effects of surrounding cultural features are minimized. Other time-domain EM applications are mineral exploration and geologic mapping at depth.

Electromagnetic surveys can be applied to soil investigations. EM methods are used to define areas of organic and inorganic soil contamination, map the lateral and vertical distribution of soil types, and locate buried features, such as buried trenches, infilled lagoons, buried river valleys, areas of unstable ground, and sand and gravel deposits. In general utility and construction work, EM surveys can aid in locating concrete and terra cotta pipes, and areas of uncompacted fill.

### 2.5 SPCC and Facility Response Plans

KSG personnel have extensive experience preparing numerous Spill Prevention, Control and Countermeasures (SPCC), and Facility Response Plans for various industries storing large quantities of petroleum-based products. These plans contain detailed information regarding:

- Site location and description;
- Evaluation of the proximity to and the potential impact to environmentally-sensitive areas;
- Petroleum products storage areas;
- Types and quantities of petroleum-based products stored;
- Preventative measures, including scheduled safety meetings; and
- Action plans required for safe and timely cleanup of any spilled materials.

These plans are intended to be used as a guideline for contaminant and cleanup measures for spills of petroleum products. Each plan is prepared under the direct supervision of a registered Professional Engineer.

## **2.6 Stormwater and Wastewater Permit Preparation**

The National Pollutant Discharge Elimination System (NPDES) requires selected industries to prepare Pollution Prevention Plans (PPPs) and Best Management Practices (BMPs) which detail procedures required to minimize point source pollution.

During the preparation of PPPs, KSG meets with the facility management to select a facility pollution prevention team. After the pollution prevention team has been formed, KSG will inspect the facility and note all areas of concern. The PPP will, at a minimum, contain the following:

- Scaled site map;
- Inventory and description of exposed materials;
- List of significant spills and leaks;
- List of non-stormwater discharges; and
- Summary of pollutant sources and risks.

BMPs describe procedures that prevent toxic and hazardous substances from entering the environment. Baseline BMPs typically are simple, low-cost measures that apply to broad categories of industries or types of substances. Several examples of baseline BMPs are as follows:

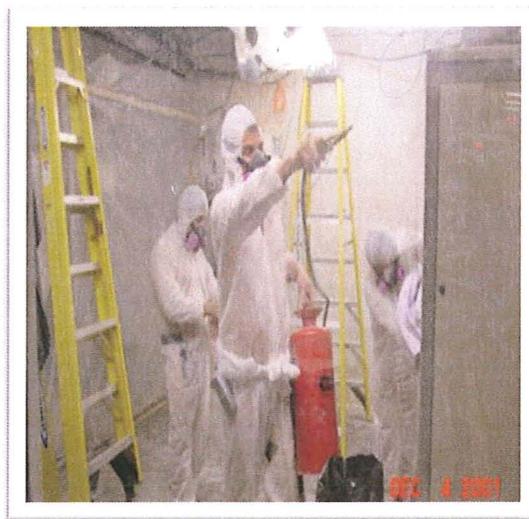
- Good housekeeping;
- Preventative maintenance;
- Visual inspections
- Spill prevention and response; and
- Sediment and erosion control.

## 2.7 Asbestos Inspection & Abatement Services

KSG has noted a significant increase in the number of clients requesting asbestos inspection services for a wide variety of structures ranging from residential dwellings to industrial facilities. This is due in part to the fact that the Occupational Safety and Health Administration (OSHA) has recently revised regulation 29 CFR Part 1926.1101 placing some responsibilities for compliance with the regulation to building owners, in addition to responsibilities of the employer to protect employees from exposure to asbestos hazards. Under this standard, building owners must treat pre-1980 thermal system insulation and surfacing material as "presumed asbestos containing material" (PACM) until they meet specific criteria to rebut this presumption. Pre-1980 flooring material (linoleum, floor tiles, mastic, etc.,) must also be presumed to be asbestos containing material (ACM). To rebut this presumption, a licensed AHERA (Asbestos Hazard Emergency Response Act) building inspector must determine that the material does not contain asbestos using recognized analytical techniques. Also, the inspector must follow AHERA guidelines to determine if the suspect material is releasing asbestos fibers (friable) or how suspect materials could be rendered to a condition where asbestos fibers would be released.

KSG's staff includes licensed AHERA building inspectors that can determine if ACM is present. The National Emission Standard for Hazardous Air Pollutants (NESHAPs) requires that prior to renovation or demolition activity, a licensed AHERA building inspector must determine if ACM is present. The results of the inspection must then be provided to the SCDHEC certifying that no asbestos is present, or provide a workplan for the removal of certain types of ACM prior to commencement of renovation / demolition activities.

KSG can also provide the manpower, equipment and materials necessary to abate ACM, if necessary. KSG's staff includes trained and licensed asbestos abatement supervisors, workers and air monitoring personnel. Our work experience covers a large number of friable and nonfriable projects.



KSG Providing Friable Asbestos Abatement Services  
at the Lexington County Administration Building

## **2.8 Lead-based Paint Inspection Services**

KSG personnel are experienced in standard procedures required to sample and analyze for lead-based paint. KSG uses the following general inspection protocol. During the initial inspection phase, all component surfaces with visible distinct painting histories in every room as well as exterior components are sampled, except those components that are known to the inspector to have been replaced after 1980. Paint chips are collected for analysis according to the procedures found in the "HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing". An inspection report is prepared including the following information: date of inspection; address of structure; date of construction of the structure; name, address and telephone number of the owner of the structure; name and signature of the inspector; information regarding the laboratory conducting the lead analysis; precise locations of all sample locations; a list of all samples found to contain lead-based paint; and any recommendations regarding the need for additional testing or a risk assessment. A risk assessment can be conducted by a risk assessor to determine the potential hazards for personnel working in the areas where lead-based paint has been identified. KSG has an EPA certified lead-based paint inspector and risk assessor on staff (Certification # SC-05-042005-584).

## **2.9 Corrective Action Plan Development**

Remedial strategies at many sites affected by soil and/or ground water contamination result in the implementation of only one cleanup strategy (i.e. pump and treat, soil vacuum extraction, etc.). However, the overall site remediation process can often be accelerated by combining more than one remediation technology. While capital expenditures and system set-up costs may be higher initially, cost savings realized in reducing the overall time to achieve cleanup goals may prove to make the multiphase approach the more cost effective remedial alternative. KSG's technical staff is experienced in evaluating multiple technologies during the corrective action plan development process in order to develop the most effective, site-specific remediation alternative.

### **2.9.1 Soil Remediation System Design**

Remediation of residual soil contamination is often not adequately addressed at sites containing both soil and ground water contamination. KSG personnel are experienced in the design of numerous systems utilized for soil remediation including: soil vacuum extraction (SVE), excavation/removal and bioremediation. The effectiveness of soil remediation projects is greatly dependent on the design engineer's experience in knowing the strengths and limitations of each remediation technology.

### 2.9.2 Ground Water Remediation System Design

As presented in the brief project summaries provided in Section 4.0 of this document, KSG has experience in the design, operation and maintenance of both free product and ground water recovery systems. Remediation alternatives considered during the corrective action plan development process include: pump and treat systems, air sparging, aggressive fluid vapor recovery (AFVR) and bioremediation. KSG's technical staff interacts extensively with our remedial group, experienced in the field installation and operation of various remedial systems, during the development of a ground water corrective action plan to produce a technically-sound and practical solution for each site.

Aquifer characterization data generated during contamination assessment activities is utilized by company project engineers and geologists to determine the appropriate technology to be utilized for ground water remediation. Site-specific aquifer characterization data is utilized to mathematically model ground water movement and contaminant transport within the affected aquifer. Several computer models are utilized by KSG personnel during the aquifer evaluation process.

While the computer modeling effort is a valuable tool in evaluating the feasibility of different ground water remediation scenarios, it must be recognized as simply one of many tools required in developing an overall remediation strategy. During the plan development phase, KSG personnel from both the technical and remedial groups interact to formulate the most environmentally sound and cost effective means of site remediation.

In many situations, the ground water contaminant plume may be captured by the utilization of carefully positioned recovery wells. Computer models, similar to those discussed in the previous paragraph, are utilized to determine the optimal well placement. KSG has also completed several projects where site-specific conditions require that ground water or free product be removed via recovery trench. Recovery trench installation and use can often provide a successful means of influencing ground water flow along a specific property zone or boundary.

## 2.10 Environmental Remediation Services

### 2.10.1 Implementation of Soil Remediation Projects

Contaminated soils require special feasibility / treatability studies by professionals who specialize in both the complex subsurface environment and solid waste treatment. Typically, these projects are diagnosed for *in-situ* (in-place) treatment and compared to on-site and/or off-site treatment for contaminant destruction. KSG personnel maintain active and clear communication with regulatory personnel to provide the most cost effective solution to soil remediation.

KSG has successfully completed numerous soil remediation projects ranging from in-place vacuum extraction and contaminant destruction, to off-site thermal treatment. Innovative, sensible solutions have evolved as professionals with years of sound, practical experience address the complex soil remediation issues. The strategic location of our personnel and equipment in Lexington, South Carolina provides cost-effective mobilization for remediation of contaminated soils at sites throughout the Carolinas.

### 2.10.2 Implementation of Ground Water Remediation Projects

Ground water treatment can be achieved using a variety of different technologies including inground enhancement (biological, chemical), treatment of extracted waters for discharge to public treatment facilities, or discharge to the environment. With constantly changing regulatory standards, each solution must be carefully evaluated with regard to long term costs and liabilities.

Our remedial staff are experienced in the installation and operation of a variety of ground water remediation systems including the following:

- air sparging systems
- air stripping systems
- oil / water separators
- activated carbon treatment units
- bioremediation systems
- aggressive fluid vapor recovery (AFVR)

KSG personnel have extensive experience in the construction, shakedown and operation of systems designed to treat contaminated ground water. As described within Section 4.0 of this proposal, KSG was responsible for the construction of ground water remediation systems at sites throughout South Carolina. Each system involved treatment of petroleum hydrocarbons released from UST systems. The successful completion of our projects is the best evidence that KSG can provide to demonstrate our competence in designing and constructing ground water remediation systems and our ability to negotiate through the regulatory approval process in a timely fashion.

### 2.10.3 Buried Drum Removal Projects

Investigation and remediation activities at buried drum sites are perhaps the most technically challenging and potentially dangerous tasks that could be performed during site mitigation projects. The technical difficulty is often in locating small containers or 55-gallon drums using historical information and/or geophysical techniques to define underground anomalies. Once an area of investigation is delineated, the process of unearthing buried cylinders, containers, drums, etc. requires skilled field personnel following strict health and safety protocols.

KSG personnel have been involved in numerous buried drum investigative / removal projects, including sites listed on the South Carolina State Priority List. Our organization's performance during these projects has demonstrated our field personnel's ability to operate construction equipment and perform activities required to identify, unearth and sample buried containers while wearing Level B and Level C personnel protective equipment. Our combination of experienced technical and field personnel, company-owned heavy construction equipment and strategic office locations provide clients throughout the Carolinas with a complete resource package to address potential buried drum sites.

## SECTION 3.0

### KSG HEALTH & SAFETY CORPORATE POLICIES

KSG has developed strong capabilities in the areas of health and safety. Because of our extensive involvement in contaminant investigations at both hazardous and nonhazardous waste sites, health and safety for all workers commands the highest priority. KSG's Corporate Health & Safety Officer is responsible for establishing corporate safety policies and supervising the implementation of corporate safety programs.

KSG has adopted a corporate health and safety training program which is implemented by the Corporate Health and Safety Officer. The training program incorporates standards set forth by OSHA (29 CFR 1910, subpart 2). The training program covers contaminant identification / evaluation, site entry procedures and air monitoring protocols. This program also involves an extensive annual physical examination and documentation for accidents and injury. Changes and modifications to the Health & Safety procedures will occur in response to changes in federal regulations, as necessary.

At a minimum, KSG's Health & Safety Program includes the following:

- Ensures that workers involved in remedial activities are in good health;
- Documents that the site workers are physically capable of using respiratory protection equipment and performing the necessary tasks;
- Establishes medical baseline data for the purpose of historical comparison (i.e., to establish a "Start Point" against which future medical testing may refer to detect increases or decreases in the parameters examined); and
- Provides Haz Comm Right to Know - 29 CFR 1926.59 training.

## SECTION 4.0

### KSG'S ORGANIZATIONAL STRUCTURE

#### 4.1      **Organizational Structure**

KSG adopts a matrix management concept when implementing each project. This management structure has been specifically developed to effectively execute and control multi-phased activities which allows the optimal utilization of project personnel and equipment.

The highest level of KSG's organization, Project Directors, are responsible for the performance of the company. Project Directors are the principals within the company charged with the direct management of various components of the corporation. In addition to organization management, Project Directors are directly responsible for overall project performance on each contract to insure each client's needs are satisfied.

All project personnel and equipment are chosen on a task-specific basis. This is accomplished through the careful planning of both the client staff and KSG's Project Director. Commitments of all project personnel, subcontractors and appropriate equipment are assured within the KSG planning matrix.

The KSG management matrix allows for a turnkey approach identifying the project's critical path from initial assessment through project remediation. This unique approach results in the timely completion of each project thus providing potential cost savings to the client.

KSG project organization provides a strong, responsive, centralized management structure composed of dedicated team personnel that are supported by extensive multi-disciplinary resources. Our approach was developed to meet the following objectives:

- rapid response to designated assignments,
- effective communications to Project Managers and Directors,
- timely updates,
- effective control of schedules and costs
- compilation of project information and data into a comprehensive final report, and
- effective control of subcontractor schedules and costs

The Project Team combines the inter-disciplinary strengths of KSG and the selected proposed subcontractors. Personnel from each of these organizations will report directly to Project Managers, who in turn will report directly to the Project Director. The Project Director, who is responsible for overall project performance, provides a direct line of communication for each site. The Project Director and Project Managers are supported by a separate advisory group, the Technical Support Group, which is composed of personnel with specific applicable expertise. Health and Safety and Quality Assurance functions will be provided from the Quality Assurance/Quality Control Management Group.

## **4.2 Project Management**

KSG recognizes that successful project management requires proven procedures and techniques for effective planning, budgeting, scheduling, and controlling all of the work efforts. Effective communication between the client and the KSG team is considered a critical requirement of this project. While it is not possible to fully describe all management procedures that are utilized by KSG during project implementation, it is appropriate to provide an overview of key management components.

### **4.2.1 Cost Control**

KSG utilizes a rigorous procedure to control and monitor the financial aspects of our projects. Costs are monitored for each individual project through a project management system. Individual projects are assigned distinct job numbers, and charges to a given job are further separated by task. All charges to an individual job or task, whether personnel or non-labor, are reported to the Project Director on a weekly and monthly basis.

Using this internal system, KSG's Project Director has up to date information on the funds expended on a particular project. This information combined with the monitoring of progress of the technical work, and projecting of costs, allows the Project Director to firmly control job costs.

Schedule control is of the utmost importance to the success of a project. Intrinsic to a successful project is the development and implementation of effective schedule controls. Upon receipt of each job assignment, the KSG Project Director, Project Manager, and appropriate technical personnel develop Work Plans that are designed to accomplish the specified project tasks in a cost effective and timely manner.

Effective communications is a critical aspect of schedule control. KSG utilizes several management techniques to assure proper project communication. Subsequent to the initial, internal job opening meeting discussed previously, KSG conducts meetings with the client, as necessary, to discuss topics such as: lines of communication, cost control, reporting formats and administrative matters.

### **4.2.2 Project Tracking**

KSG utilizes an electronic computerized project tracking and management system consisting of cost accounting, schedule controls, field logs, internal reports, and proper communication. Daily field logs are considered the building block upon which all KSG project tracking information is based. Completion of a detailed, site-specific field log describing manpower, equipment, materials and tasks utilized / completed on a daily basis provides the most accurate and up to date information to KSG Project Managers on overall job progress. Compilation of daily field logs provides an excellent means of effective control of the overall project schedule and financial status. This information is discussed at weekly project meetings to ensure that each project task is being completed within the timeframe and cost limitations initially established.

#### 4.2.3 Corrective Action Procedures

If potential problems are foreseen in meeting budgets or schedules, corrective action will be taken. Computerized tracking and management provides a method for early detection of potential problems.

On a weekly / monthly basis, Project Managers brief the Project Director on the status of each project and identify any potential problems. Our in-house attempt to resolve any problems includes inter-disciplinary discussions with the senior staff. The Project Director provides the key interface in resolving any major technical problems with all organizations/personnel involved.

### 4.3 Subcontractor Management and Control

KSG utilizes subcontractor services for analytical services, waste disposal, and drilling. Standard policies utilized by KSG personnel to monitor the progress and efficiency of subcontracted work is provided as follows.

#### 4.3.1 Subcontractor Standards

In order to ensure effective control of the subcontractor and assigned subcontract personnel, procedures have been established for management of all subcontractors. These will be monitored by the Project Manager and Contract Administrator. These standards and procedures include, but are not limited to, the following activities:

- Review subcontractor technical performance records through past projects conducted for KSG and other business associates,
- Review subcontractor costs,
- Review for updates; subcontractor certifications and licenses, when appropriate,
- Determine subcontractor's knowledge of KSG's needs, as well as localized operating conditions,
- Negotiate and agree on budget, scope of work, deliverables, schedule and personnel availability,
- Review subcontractor qualifications with the client,
- Execute legally binding subcontract agreements,
- Certify adequate insurance coverage, and
- Verify all invoices against daily records and logs prior to approving payment.

## **SECTION 5.0**

### **SUMMARY OF REPRESENTATIVE ENVIRONMENTAL PROJECTS**

KSG personnel have extensive experience in the wide spectrum of activities required of today's environmental service companies. In the event that environmental investigations are required to evaluate the potential for contamination, our personnel are experienced in the investigation and conceptualization of the three dimensional geometry of contaminant plumes. KSG's field experience in remedial action projects allows cost-effective planning to begin during the earliest stages of site investigation.

Many services offered by KSG personnel are necessary to bring industrial or governmental clients into compliance with existing environmental regulations. As demonstrated in the project descriptions provided herein, our technical staff are experienced in environmental permitting issues including stormwater, asbestos and SPCC projects.

A brief summary of environmental projects completed by KSG is provided as follows. These projects have been selected to demonstrate the extent and diversity of KSG's experience in the wide spectrum of environmental issues facing today's society.

**Project Title:** Buried Drum Investigation & Removal

**Client:** South Carolina Department of Transportation

**Location:** Gaffney, South Carolina

KSG provided consulting services necessary to prepare and implement a Subsurface Investigation Work Plan for a SC DOT maintenance facility located in Gaffney, South Carolina. Investigative activities were focused around an area where 55-gallon drums were allegedly buried during past onsite operations. Various solvents and lead were the primary potential contaminants of concern during this investigation. All project activities were performed under a Consent Order Agreement between the client and the South Carolina Department of Health and Environmental Control.

Initial field investigative activities involved geophysical studies and exploratory trenching to determine whether drums were actually buried on the property as reported. An electromagnetic survey was conducted by KSG personnel to identify magnetic anomalies present in the area of concern. Following the completion of the survey, a tracked excavator was mobilized to the site to perform exploratory trenching within each anomaly. A total of 37 drums of F003 wastes were located, excavated and removed during the trenching activity.

An extensive soil sampling program was implemented to define the limits of contamination present. A report presenting all findings from the investigation and removal effort was prepared and submitted for regulatory review and comment. Clean closure of the site was granted by regulatory personnel.



Buried Drum Investigation using a Geonics EM61 Unit

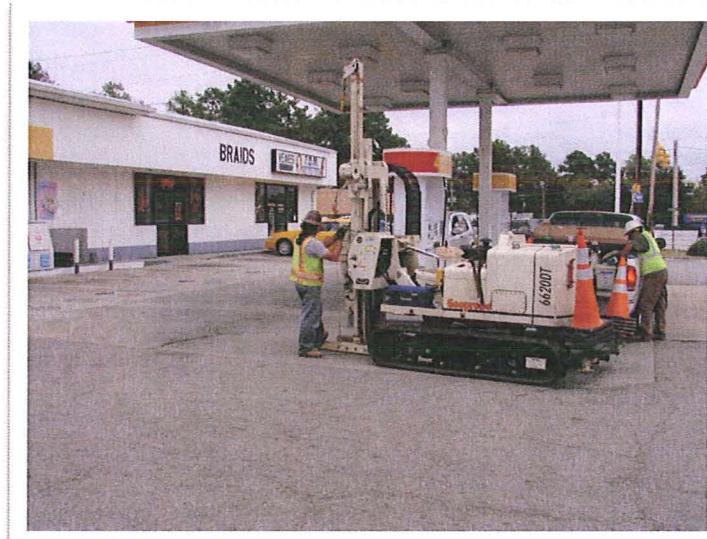
**Project Title:** Indefinite Delivery Contract to Provide Consulting Services at Leaking Underground Storage Tank Sites

**Client:** South Carolina Army National Guard

**Location:** Multiple Sites Throughout South Carolina

KSG provided the South Carolina Army National Guard with environmental services necessary for the investigation and cleanup of soil and ground water contamination at several armory facilities located throughout South Carolina. Contamination is the result of leakage of petroleum fuels from onsite underground storage tanks. Project responsibilities include the following activities:

- Preparation of Contamination Assessment Plans for review and approval by regulatory personnel;
- Implementation of assessment activities required to define the vertical and lateral extent of soil and/or ground water contamination including soil borings, monitor well installation, and ground water sampling;
- Preparation of Contamination Assessment Reports; and
- Preparation of Corrective Action Plans and Engineering Reports.



Environmental site assessment involving the use of a Geoprobe rig to obtain ground water samples.

**Project Title:** Environmental Assessment & Ground Water Remediation

**Client:** RaceTrac Petroleum

**Location:** Decatur, Georgia

KSG provided field and consulting services necessary for the investigation and cleanup of an uncontrolled release of an unknown quantity of gasoline into the environment at a service station facility located in Decatur, Georgia. KSG was responsible for the investigation of soil and ground water contamination plumes resulting from the fuel release. At the completion of assessment activities, a Corrective Action Plan was developed and a remediation system designed. Due to the fact that ground water remediation is required beneath two adjacent restaurants, KSG designed two horizontal ground water recovery well systems. Following approval of the treatment system design, men and equipment were mobilized to the site to install the recovery wells, piping and treatment system equipment.

The following is a list of services that KSG was retained to provide on this project included the following:

- Installation of a air sparging pilot study system;
- Permanent ground water monitor well and recovery well installation, development and sampling;
- Aquifer characterization;
- Corrective Action Plan preparation;
- Engineering Report preparation; and
- Construction of a ground water treatment system.

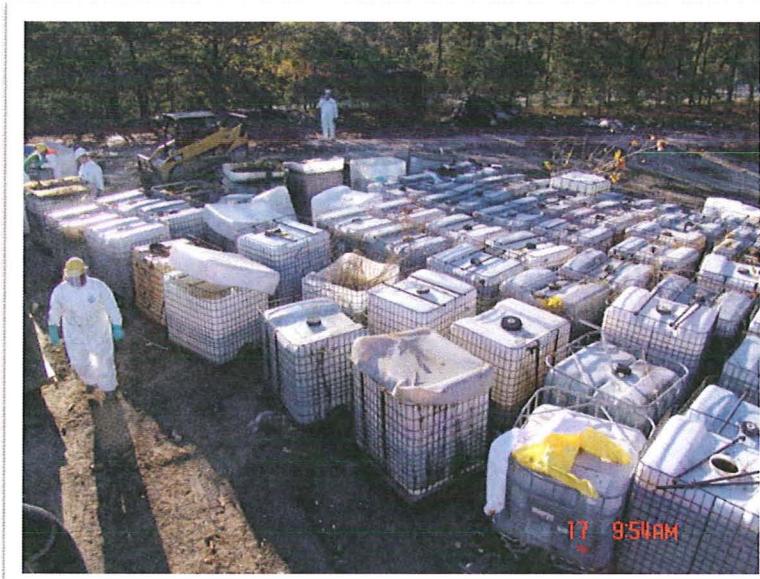
**Project Title:** Waste Characterization, Transportation & Disposal Services

**Client:** Confidential

**Location:** Liberty, South Carolina

KSG, NuWay Industrial Services, Inc. and Vopak Logistics Services USA provided environmental services required to characterize, transport and dispose of unknown wastes stored in approximately 22,900 intermediate bulk containers (IBCs) that were abandoned at a site in Liberty, South Carolina. Project activities were performed over a two year timeframe and included the following activities:

- Preparation of a Work Plan and Site Specific Health and Safety Plan;
- Waste characterization of approximately 22,900 IBCs;
- Consolidation of nonhazardous liquid and solid wastes following waste characterization process;
- Transportation and offsite disposal of empty IBCs;
- Transportation and offsite disposal of nonhazardous solid and liquid wastes;
- Collection of surficial soil samples to document contamination, if present; and
- Preparation of a Final IBC Removal Action Report.



**Project Title:** Asbestos Tile Abatement

**Client:** City of Columbia

**Location:** Columbia, South Carolina

KSG provided all labor, equipment and materials required to abate approximately 60,000 square feet of asbestos-containing floor tile at the City of Columbia Public Works Building. The floor tile was abated in a non-friable manner.

**Project Title:** Asbestos Inspection & Abatement

**Client:** City Club, LLC

**Location:** Columbia, South Carolina

KSG provided all labor, equipment and materials required to inspect and abate asbestos-containing materials (ACMs) at the City Club project located in Columbia, South Carolina. This project involved the renovation of existing government buildings into townhouses and condominiums. Friable and non-friable abatement activities were required on this project.

**Project Title:** Asbestos Abatement at Asphalt Plant

**Client:** Owens Corning

**Location:** Savannah, Georgia

KSG provided all labor, equipment and materials (including a manlift) required to abate asbestos-containing materials (ACMs) at a closed asphalt plant located in Savannah, Georgia (see photo below). Abatement activities were performed in a friable manner. KSG was also responsible for the preparation of a Site-Specific Health & Safety Plan, air monitoring and providing a project design.



**Project Title:** Ground Penetrating Radar Survey

**Client:** Geo Technologies, Inc.

**Location:** North Wilkesboro, North Carolina

KSG was contracted to perform a Ground Penetrating Radar Survey (GPR) on a site in North Wilkesboro, North Carolina. Sink holes, caused by subsurface voids, had been developing on the site in a portion of an asphalt parking lot. The GPR survey was performed to determine the extent of the problem and potential for future failures.

A KSG geophysical team mobilized to the site and established the GPR survey grid. The area to be surveyed was 310 feet by 150 feet. Data was collected continuously on 5-foot centered traverses. The KSG geophysicist chose a GSSI Sir System-3 with a 500 MHz antenna for the investigation. Maximum depth of investigation was 12 feet below land surface.

The GPR survey revealed numerous possible void areas at shallow, intermediate, and deeper levels below the asphalt parking lot. Five days after the GPR survey was completed, one of the potential void areas failed. Using this failure as a geophysical site specific model, the KSG geophysicist was able to identify other areas that represented the greatest potential for future failure.

Other subsurface features such as utilities and rock or boulders were identified by the GPR survey. The surface features of the asphalt parking lot were also mapped as part of the GPR field work. Surface features such as depressions and cracking in the asphalt coincided with possible subsurface voids.



Underground utility survey using a ground penetrating radar (GPR) unit

**SECTION 6.0**  
**SELECTED COMPLETE RESUMES**

**William (Bill) Dunnagan, Jr., P.G.**

**Experience Summary:**

Twenty-three years of experience in the investigation and remediation of both hazardous and nonhazardous waste sites. Extensive experience in the management of indefinite delivery contracts designed to provide clients with a wide array of environmental services. Diversified knowledge of federal regulations, subsurface soil and ground water contamination investigations, and remediation procedures concerning leaking underground storage tanks. Involved in the design, installation and operation of ground water treatment systems utilized during the remediation of petroleum hydrocarbons and volatile organic compounds. Experienced in providing expert testimony in cases involving alleged property damage as a result of offsite soil and/or ground water contamination.

**Credentials:**

1986 M.S. - Geology, University of Georgia  
1981 B.S. - Chemistry, North Carolina State University

Registered Professional Geologist - State of Tennessee (Registration # TN1166)  
State of Georgia (Registration # 748)  
State of South Carolina (Registration # 937)  
State of Florida (Registration # 0001334)  
State of North Carolina (Registration # 1384)

SCDHEC Asbestos Supervisor (License # SA-00340)

**Employment History:**

1997 - Present CEO - Kleen Sites Geoservices, Inc.  
1993 - 1997 President - Kleen Sites Geoservices, Inc.  
1989 - 1993 Vice President - Nu-Way Environmental, Inc.  
1986 - 1989 Project Geologist - Roy F. Weston, Inc.  
1981 - 1983 Project Chemist - Eastman Kodak Company

**Key Projects:**

Principle-In-Charge of all environmental consulting activities performed by Kleen Sites Geoservices. Responsibilities include final technical review of all geological and hydrogeological studies performed by the organization. Duties also include responsibility for the overall company management including profitability of the organization and developing future marketing strategies.

**William B. Dunnagan, Jr., P.G.**  
**Page 2 of 2**

**Key Projects:**

Project Director responsible for all phases of work at over 75 sites participating within the South Carolina Petroleum Environmental Response Bank (SUPERB) Fund. Site activities at leaking underground storage tank sites include the following: initial field investigations, development of site-specific remediation strategies, and implementation of corrective action measures. Subsurface investigative activities included onsite drilling operations, ground water sampling and analysis, contaminant plume delineation and aquifer characterization.

Project Geologist responsible for the preparation of Corrective Action Plans detailing soil and ground water remediation procedures in South Carolina, Georgia, and Florida. Activities included computer modeling of petroleum hydrocarbon contaminant transport through confined and unconfined aquifers systems.

Project Manager responsible for the development, negotiation and implementation of an onsite closure plan for closure of two former electroplating impoundments containing F006 sludges and contaminated surface water. Waste containment was achieved using a double synthetic liner and leachate collection system.

Site Manager on UST removal projects and subsequent soil/ground water investigations at manufacturing facilities in Ohio, Louisiana, Texas, Kentucky and Indiana. Responsibilities included onsite coordination of all personnel, equipment and subcontractors. Activities involved initial tank cleaning; as well as, excavation, removal and disposal of the USTs.

Environmental Auditor responsible for conducting environmental property assessments at numerous locations throughout the southeastern US for real estate acquisition purposes. Each assessment was performed to identify potential liabilities associated with the use of the property, the physical condition of the site and present operational practices.

Site Geologist responsible for implementation of a subsurface soil sampling and analysis program at a large manufacturing facility in Ohio. This investigation involved the use of a trailer-mounted drill rig to collect subsurface soil samples from beneath the main manufacturing building foundation to assess both lateral and vertical extent of soil contamination.

Site Health and Safety Officer during the closure of four surface impoundments at an Ohio manufacturing facility. Field operations involved the treatment of over 9 million gallons of wastewater, solidification of sludge using cement kiln dust and removal of all solidified wastes.

Organic Chemist within a large-scale development group concerned with the synthesis of a variety of organic compounds for Eastman Kodak in Rochester, New York.

**David N. Dunnagan, P.E., REPA**

**Experience Summary:**

Experience in environmental site assessments, asbestos and lead-based paint sampling and surveys, the development and implementation of Spill Prevention, Control and Countermeasures Plans, Storm Water Permitting & Pollution Prevention Plans, NPDES Permitting & Best Management Practices Plans, mine permitting, and Facility Response Plans. Experienced in air permitting, including Title V Permit applications, and air dispersion modeling. Management experience in the design of ground water remediation systems required for removal of petroleum hydrocarbon and volatile organic solvent constituents. Experienced in projects involving the statistical analysis of soil and ground water laboratory data.

**Credentials:**

1991 MBA - University of Tennessee Knoxville

1986 B.S. - Engineering, University of Florida

Registered Professional

Engineer - State of South Carolina (Registration # 16065)  
State of Tennessee (Registration # 100612)  
State of North Carolina (Registration # 20797)  
State of Georgia (Registration # 21998)

Registered Environmental Property Assessor (NREP) (# 5934)

SCDHEC Asbestos Consultant / Building Inspector (License # 22342)

SCDHEC Asbestos Consultant / Project Designer (License # 23222)

SCDHEC Asbestos Air Sampler (License # 00146)

SCDHEC Asbestos Supervisor (License # 47260)

Certified Environmental Inspector (Environmental Assessment Association)

EPA Lead Risk Assessor (Certification # SC-R-7355-1)

ASQ Certified Quality Engineer (# 29403)

**Employment History:**

1994-Present Kleen Sites Geoservices, Inc.  
(President / Principal Engineer 2/97 – present, Vice President 3/94 – 2/97)

1993-1994 Lasalle Rolling Mills

1990-1993 Aluminum Company of America

**David N. Dunnagan, P.E., REPA**  
**Page 2 of 3**

**Key Projects:**

Lead Inspector for over 50 asbestos inspections in SC and NC. These inspections have included hotels, manufacturing facilities and office buildings. Project Manager and inspector responsible for Comprehensive Asbestos Survey and Phase I Environmental Site Assessment of a motel located in Charlotte, North Carolina. The motel was 136 rooms requiring 150 bulk asbestos samples. This survey resulted in an estimated abatement cost of \$250,000.00.

Asbestos Project designer for various buildings including manufacturing facilities, office buildings and churches. Project Manager and inspector responsible for Comprehensive Asbestos Survey and Lead-Based Paint Inspection of an abandoned restaurant in Augusta, Georgia. A total of 52 bulk asbestos samples and 16 lead-based paint samples were taken.

Project Engineer for SPCC Plan preparation for approximately 50 facilities throughout the State of South Carolina. Responsibilities involved the coordination of site visits by KSG personnel at each location, evaluation of site-specific data, final engineering certification of each plan and interface with site personnel to implement all procedures defined within the SPCC Plan.

Project Manager for Storm Water Pollution Prevention Plan (SWP3) preparation for approximately 85 facilities in lower South Carolina. Responsibilities involved the coordination of site visits by KSG personnel at each location, evaluation of site-specific data, resolution of issues concerning the NPDES General Permit for Storm Water Discharges Associated with Industrial Activity (except construction activity), permit no. SCR000000, and interface with site personnel to implement all procedures defined within the SWP3 including training.

Project Engineer for air permit activities, including Title V Application, for two stone quarry operations located in South Carolina. Project responsibilities include the collection and compilation of all site-specific data, oversight of data analysis and preparation of final Title V Permit application.

Project Engineer responsible for the design of ground water remediation system required for removal of petroleum hydrocarbon and acetone constituents at a vehicle maintenance facility located in Gaffney, South Carolina. Fully automated system is designed to remove contaminated water from the ground using several submersible ground water pumps, process the water through an air stripping system and discharge the water to the local sanitary sewer system. Project responsibilities involved initial system design, oversight of system construction, and supervision of system shakedown and operation.

Project Engineer responsible for the design of ground water remediation system required for removal of petroleum hydrocarbon and chlorinated solvent constituents at a vehicle maintenance facility located in Bennettsville, South Carolina. Fully automated system is designed to remove contaminated water from the ground using several submersible ground water pumps, process the water through two air stripping systems situated in series, and discharge the water to the storm sewer system. Project responsibilities involved initial system design, and negotiation of NPDES Permit with SCDHEC representatives.

**David N. Dunnagan, P.E., REPA**  
**Page 3 of 3**

Qualified Environmental Professional for 136 ASTM Phase I Environmental Site Assessments over the past 12 years. These Environmental Site Assessments were performed in SC, NC, GA, and FL.

EPA - licensed lead inspector / risk assessor for 62 assessments (EPA / HUD). These assessments and inspections were performed over the past seven years.

Lead Asbestos Supervisor for abatement projects in SC and NC over the past six years. Removal activities were performed at various facilities including churches, manufacturing facilities, offices, commercial buildings, and houses.

Air Sampler for various abatement projects. Background, area, and clearance samples performed.

Performed asbestos inspections, project design, and abatement for a complex of seven commercial buildings in downtown Columbia, SC. KSG was responsible for all permitting, abatement, and disposal of abated asbestos-containing materials from the buildings. The project budget was approximately \$250,000 and lasted about ten weeks.