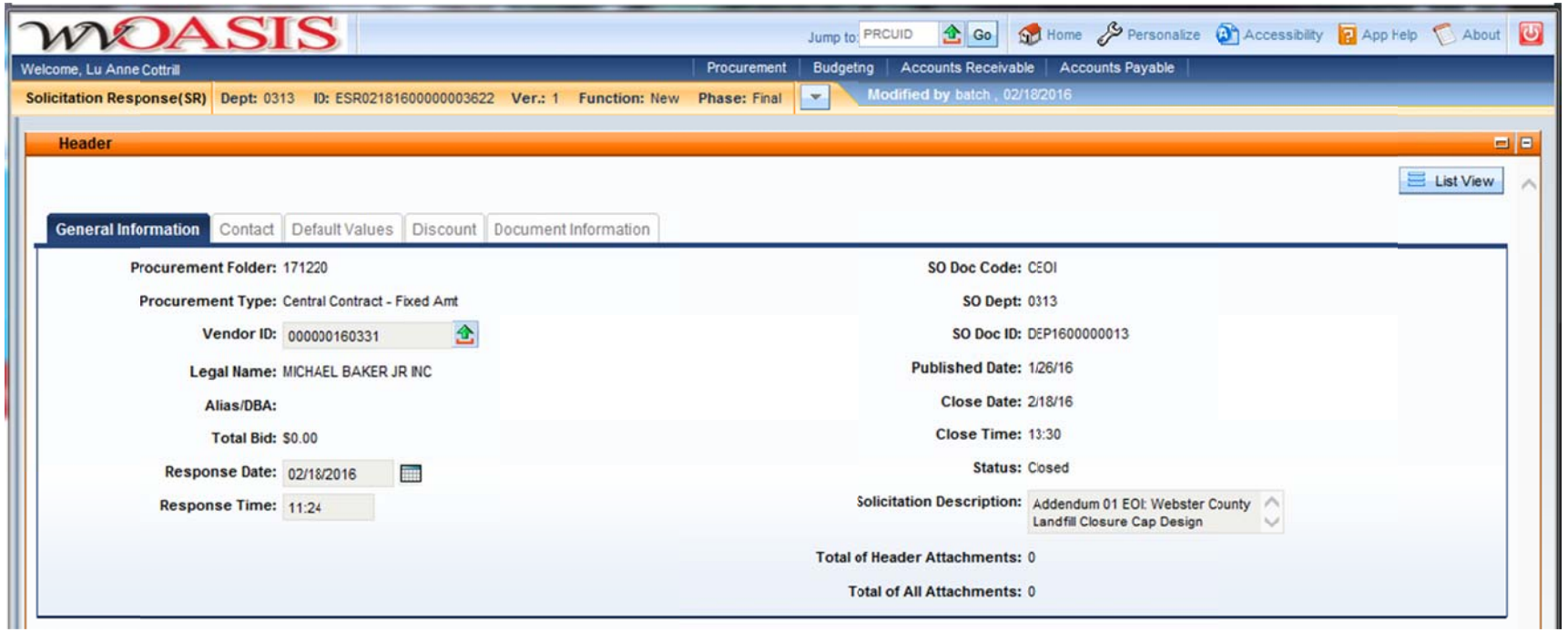
The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.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Solicitation Response(SR) Dept: 0313 ID: ESR02181600000003622 Ver.: 1 Function: New Phase: Final
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Header
List View
General Information
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Document Information
Procurement Folder: 171220
Procurement Type: Central Contract - Fixed Amt
Vendor ID: 000000160331
Legal Name: MICHAEL BAKER JR INC
Alias/DBA:
Total Bid: $0.00
Response Date: 02/18/2016
Response Time: 11:24
SO Doc Code: CEOI
SO Dept: 0313
SO Doc ID: DEP1600000013
Published Date: 1/26/16
Close Date: 2/18/16
Close Time: 13:30
Status: Closed
Solicitation Description: Addendum 01 EOI: Webster County Landfill Closure Cap Design
Total of Header Attachments: 0
Total of All Attachments: 0

Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Solicitation Response

Proc Folder : 171220

Solicitation Description : Addendum 01 EOI: Webster County Landfill Closure Cap Design

Proc Type : Central Contract - Fixed Amt

Date issued	Solicitation Closes	Solicitation No	Version
	2016-02-18 13:30:00	SR 0313 ESR02181600000003622	1

VENDOR

000000160331

MICHAEL BAKER JR INC

FOR INFORMATION CONTACT THE BUYER

Beth Collins

(304) 558-2157
beth.a.collins@wv.gov

Signature X **FEIN #** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Water testing services				$0.00

Comm Code	Manufacturer	Specification	Model #
81100000			

Extended Description : Site Characterization Study, Leachate Management and Closure Cap Design for the Webster County Landfill per the attached specifications, bid requirements, and terms and conditions, incorporated here by reference and made a part hereof.

Michael Baker
INTERNATIONAL

Expression of Interest for

Professional Architect/Engineering Services
Site Characterization Study, Leachate Management & Closure Cap
for

Webster County Landfill

Solicitation Number: CEOI 0313 DEP 1600000013

Submitted to:
State of West Virginia
Department of Administration, Purchasing Division
Charleston, West Virginia

Submitted by:
Michael Baker International, Inc.
100 Airside Drive
Moon Township, Pennsylvania

February 18, 2016

Michael Baker
INTERNATIONAL

We Make a Difference

February 18, 2016

State of West Virginia Department of Administration
Purchasing Division
2019 Washington Street, East
Charleston, West Virginia 25305-0130

Re: Expression of Interest (EOI) for Professional Architect/Engineering
Site Characterization Study, Leachate Management & Closure Cap
For Webster County Landfill (CEOI 0313 DEP1600000013)

Dear Ms. Beth Collins:

Michael Baker International (Michael Baker) is pleased to present our response to your EOI related to the Webster County Landfill. To meet your requirements and respond to the EOI, Michael Baker has assembled a team of personnel that have vast experience will similar projects for a variety of clients as reflected in the enclosed documentation. Personnel in the WVDEP AML/AMD and Office of Special Reclamation Programs can attest to Michael Baker's ability, as we have built a 30-year relationship with the these departments while helping to solve complex mining and environmental challenges. We will deliver this same level of experience, quality and commitment to the Webster County Landfill project.

We are proud that our team is led by Mr. Carl Sarver, who will serve as the Project Manager. Mr. Sarver is a Project Manager in our Civil and Environmental Practice in the Pittsburgh Office. His vast experience in managing site assessment and landfill closure designs for numerous complex projects will prove to be invaluable to the project and the team.

Michael Baker's staff is experienced with all aspects of landfill site characterization, leachate management, and landfill closure design. We have provided similar services for the Department of the Interior, National Parks System and the Pennsylvania DEP, as well as numerous private and public clients. We feel that our combination of in-house experience, familiarity with the issues related to this type of work, close proximity, and Mr. Sarver's specific knowledge and expertise is unique to Michael Baker, and we are confident we can provide efficient, timely, personal, cost effective, and quality solutions for the WVDEP on this assignment.

We look forward to a favorable review of our qualifications and the opportunity to personally present our proposed project approach. Should you have any questions or require additional information, please feel free to contact me at (412) 375-3077 / cdavis@mbakerintl.com; or Mr. Sarver at (412) 269-6143 / csarver@mbakerintl.com.

Very truly yours,
Michael Baker International, Inc.

Chad R. Davis, P.E.
Associate Vice President

Carl Sarver
Project Manager

100 Airside Drive | Moon Township, PA 15108
Office: 412.269.6300 | Fax: 412.375.3995

Michael Baker
INTERNATIONAL

Consultant Qualification Questionnaire

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
CONSULTANT QUALIFICATION QUESTIONNAIRE

PROJECT NAME	DATE (DAY, MONTH, YEAR)	FEIN
Site Characterization Study, Leachate Management & Closure Cap for Webster County Landfill (CEOI 0313 DEP1600000013)	February 18, 2016	25-1228638

1. FIRM NAME	2. HOME OFFICE BUSINESS ADDRESS	3. FORMER FIRM NAME
Michael Baker International, Inc.	100 Airside Drive Moon Township, Pennsylvania 15108	Michael Baker Jr., Inc.

4. HOME OFFICE TELEPHONE	5. ESTABLISHED (YEAR)	6. TYPE OWNERSHIP	6a. WV REGISTERED DBE (Disadvantaged Business Enterprise)
412.269.6300	1940	Individual Corporation Partnership Joint-Venture	YES NO

7. PRIMARY OFFICE: ADDRESS / TELEPHONE / PERSON IN CHARGE / NO. LANDFILL CLOSURE DESIGN PERSONNEL EACH OFFICE

(Primary) 100 Airside Drive, Moon Township, PA 15108 / 412.375.3077 / Chad R. Davis, PE / 40

5088 West Washington Street, Charleston, WV 25313 / 304.769.2154 / Russell E. (Rusty) Hall, PE, PS / 7

8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM	8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS
Chad R. Davis, PE, Associate Vice President, 412.375.3077	Russell E. (Rusty) Hall, PE, PS, Associate Vice President, 304.769.0821

9. PERSONNEL BY DISCIPLINE (Bold Lettering Indicates Minimum Design Team Members)

79 ADMINISTRATIVE	1 ECOLOGISTS	2 LANDSCAPE ARCHITECTS	16 STRUCTURAL ENGINEERS
12 ARCHITECTS	0 ECONOMISTS	6 MECHANICAL ENGINEERS	**18 SURVEYORS/TECHNICIANS**
3 BIOLOGISTS	6 ELECTRICAL ENGINEERS	2 MINING ENGINEERS	6 TRAFFIC ENGINEERS
48 CADD OPERATORS/DESIGNERS	44 ENVIRONMENTALISTS	1 PHOTOGRAMMETRISTS	38 ENGINEERING TECHNICIANS
1 CHEMICAL ENGINEERS	**13 ESTIMATORS**	12 PLANNERS: URBAN/REGIONAL	73 PROJECT MANAGERS
66 CIVIL ENGINEERS	**19 GEOLOGISTS**	0 SANITARY ENGINEERS	34 GIS SPECIALISTS
33 CONSTRUCTION INSPECTORS / MGRS.	7 HISTORIANS	**2 SOILS ENGINEERS**	130 OTHER
56 DESIGNERS	**3 HYDROLOGISTS**	7 SPECIFICATION WRITERS	
3 DRAFTSMEN			**738 TOTAL PERSONNEL** (Moon Township, PA and Charleston, WV Offices)

TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: 18

* RPEs other than Civil must provide supporting documentation that qualifies them to supervise and perform this type of work.

10. If submittal is by joint venture, list participation firms and outline specific areas of responsibility (including administrative, technical and financial) for each firm. Each participating firm must complete a 'Consultant Confidential Qualification Questionnaire".

10a. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE?	_YES _ NO N/A

11. OUTSIDE KEY CONSULTANTS / SUB-CONSULTANTS ANTICIPATED TO BE USED. Attach "AML Consultant Confidential Qualification

NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE
Cascade Drilling, L.P. 1010 Greene Street Marietta, OH 45750	Environmental Drilling	☑ Yes
NAME AND ADDRESS:	**SPECIALTY:**	**WORKED WITH BEFORE**
TestAmerica Pittsburgh 301 Alpha Drive, RIDC Park Pittsburgh, PA 15238-2907	Environmental Laboratory	☑ Yes

12. RELEVANT EXPERIENCE

A. Is your firm's personnel experienced in (Solid Waste Landfill Closure Design)?

YES Description and Number of Projects:

Michael Baker has extensive experience in all aspects of solid waste landfill closure design. This experience includes a wide variety of landfill cover and waste types, for a variety of clients, across many regions of the country. It is conservatively estimated that the professionals included on the organization chart provided in Section 13 have worked on over 30 different landfill sites during their careers at Michael Baker. Please refer to sections 15, and 17 for additional information of past and present landfill closure project experience. These professionals combine diverse experience in the following aspects of landfill closure design:

- Environmental studies
- Regulatory compliance and permitting
- Geotechnical analyses and design
- Grading and site layout
- Waste consolidation and handling
- Cap and liner design
- Leachate collection and treatment
- Landfill gas handling
- Stormwater management
- Preparation of bid packages
- Construction phase services
- Post construction monitoring and maintenance

B. Is your firm experienced in Solid Waste landfill site characterization assessment and evaluation?

YES Description and Number of Projects:

Michael Baker has provided site characterization/assessment and evaluation services at over 25 Solid Waste/Mixed Waste landfills, including, active, interim closed, abandoned/non-operational, and undocumented landfills as well as numerous buried waste disposal areas for both industrial and governmental clients (including long-term service contracts). The waste types within these landfills varied from solid waste, municipal waste, construction debris, industrial waste and RCRA and TSCA hazard wastes. These services have included a broad spectrum of work elements designed to provide direct information used to develop a framework or baseline for understanding the landfill's/waste pile's interaction with site soils, local geology and groundwater/hydrogeologic conditions. Specific characterization activities conducted included determining the presence or absence of impacted media (that can be attributed to the operation of the landfill/waste pile), assessing the need for surface water monitoring, assessing landfill gas/soil gas at and around the buried waste including long-term monitoring, and evaluating groundwater and/or the need for additional groundwater monitoring wells in order to fully characterize surface and subsurface conditions. Careful sample collection, laboratory analysis, and interpretation/assessment of this information were conducted to develop an accurate site conceptual model or statement of current conditions that in turn was used during design of closure remedies that were protective of human and ecological receptors and surrounding environs.

12. RELEVANT EXPERIENCE

Michael Baker has been involved in the evaluation, design and implementation of groundwater and surface water monitoring programs (quality assessments) under the Resource Conservation and Recovery Act (RCRA) programs under various private as well as governmental programs. One example of our governmental program where landfill site characterization services are provided is the Pennsylvania Department of Environmental Protection, General Technical Environmental Assistance Contract (PADEP, GTAC). Over the years, Michael Baker worked closely with PADEP to characterize abandoned solid waste landfills (and other contaminated waste disposal sites) under three consecutive GTAC contracts (from 1999 through 2014). During this time, Michael Baker conducted over 350 contaminated site characterizations and evaluations, including over 12 abandoned landfills/waste piles. Characterization activities under this government assistance contract have included waste identification and delineation; waste sampling and laboratory analysis; soil, groundwater, surface water and sediment sampling and laboratory analyses; methane discharge evaluation; data evaluation; landfill/waste pile closure design and other support services that are further described in Sections 12.E, 12.F, and 19.

Over the years, our experience has included sites containing, but not limited to, municipal solid waste (including general trash, C&D materials, etc.) and industrial wastes (including electric arc furnace (EAF) dust, slag, tar decanter sludge, flyash/bottom ash, waste drums, sludge, unidentified waste, foundry sands, and other waste materials). Michael Baker has utilized numerous intrusive and non-intrusive investigative techniques in landfill characterization to avoid further waste exposure and achieve characterization objectives more quickly and at lower cost. Project specific examples include geophysical survey methods to help guide field investigations in the search for buried drums. Intrusive techniques such as test pits/trenches and various types of drilling programs also have been utilized for the delineation of lateral and vertical extent of waste, delineating impacted soils surrounding the landfill, and in the identification and sampling of multiple groundwater horizons. Some of the techniques employed included use of direct-push sampling, discrete groundwater sampling devices (Geoprobe with a SP15 device), temporary monitoring wells, conventional air rotary and most recently sonic drilling when challenging subsurface conditions prevented the use of conventional drilling methods.

Miscellaneous site evaluation services have played a key role in Michael Baker's landfill characterization efforts and in ultimately developing, or "fine tuning", a specific closure strategy. These have included:

- Historical Investigative Work - historical research to determine if unusual site conditions exist (surface or subsurface) and could be effecting the facility (e.g., extensive coal mine map compilation and subsequent hydrogeologic review to determine if subsidence from an abandoned, underground above-drainage coal mine was controlling groundwater occurrence and altering flow direction in the uppermost aquifer).
- Construction Assessments - used when as-built drawings were not available for a poorly documented landfill (e.g., employing non-destructive site investigation using a camera survey combined with a review of preliminary design drawings, site photographs, aerial images and personnel interviews to determine presence or absence of landfill components such as liner systems and leachate collection systems, confirmation of construction mythology, and waste placement/timing of activities).
- Waste Studies – used when incomplete information and limited chemical data was available (e.g., conducting waste characterization studies and performing waste compatibility studies to ensure the proper geomembrane is utilized for the final cover system).

These approaches were selected to address project/site-specific challenges requiring innovative methods to avoid additional contaminant exposure/migration, reduce schedules, and/or cost-effectively achieve characterization objectives.

C. Is your firm experienced in landfill closure construction inspection?

YES Description and Number of Projects:

Michael Baker has extensive experience in all aspects of landfill closure construction inspection. Michael Baker has performed construction inspection duties at over a dozen landfill sites. This experience includes a wide variety of conventional as well as unconventional landfill cover systems throughout the Appalachian region and at sites around the United States. Michael Baker personnel combine diverse experience in the following aspects of landfill closure inspection.

- Grading activities and backfill placement
- Waste excavation and placement
- Monitoring borrow activities for material type
- Drainage installation/rehabilitation

12. RELEVANT EXPERIENCE

- Erosion and sediment control inspections
- Geosynthetic/soil liner and cap placement
- Quality assurance inspections of geosynthetic and soil cap systems
- Developing field changes to accommodate actual conditions
- Coordination with state agencies during construction
- Daily reporting
- Review and preparation of as-built drawings
- Preparation of Construction Quality Assurance documentation and construction certification reports

D. Is your firm experienced in aerial photography and the Development Contour Mapping?

YES Description and Number of Projects:

Michael Baker has a survey and photogrammetric department with a staff of 96 personnel. Michael Baker routinely performs aerial photography and contour mapping for federal and several state agencies, as well as for private clients. Michael Baker's Survey and Photogrammetric Department is as old as the company itself; however, Michael Baker always brings the latest technology to the table. Most recently, we have completed these services for special reclamation projects for WVDEP (OSR). For example, the LiDAR System combined with AutoCAD Civil 3D Design software are powerful cost saving tools for our abandoned mine land projects since they can evaluate numerous configurations rapidly but are also very effective for other project types that require extensive plan and profile drawings or significant backfilling and grading efforts. Fixed, mobile, and aerial LiDAR equipment are "state-of-the-art" tools that Michael Baker can offer that can provide cost-effective data collection to the field mapping process and enhance overall quality. Michael Baker is a national leader in the development and application of aerial LiDAR. During the last five years, Michael Baker has completed more than 50 mapping projects.

Aerial Photography: Michael Baker uses Global Navigation System Surveying (GNSS) and conventional surveying methods to perform its control surveys. Regardless of the method used, each survey assignment stands on its own with redundant observations. Specific project requirements including order of control, terrain, environment, altitude, site access/restrictions, client needs, etc. are factored into the survey's mission planning and determine which survey method is used for establishing control and meets the client's requirements.

Unmanned Aerial Surveys (UAS). Michael Baker owns and operates a Precision Hawk Lancaster III fixed wing UAS and a Phantom 2 Vision, Phantom 3, and Inspire 1 multirotor systems. This UAS weighs only 3 lbs., can carry another 2.2 lbs. of payload and will fly for approximately 45 minutes. Offering the ability to swap payloads rapidly while in the field makes this UAS much more versatile than many of its competitors. Michael Baker is one of a very select group of companies who have received the required Federal Aviation Administration (FAA) Certificate of Authorization (COA) to fly UASs for commercial purposes. Michael Baker has trained pilots, and combined with the COA, is able to conduct UAV mapping operations immediately if needed and applicable for a Department assignment.

Digital Terrain Modeling. Michael Baker creates digital terrain models (DTMs) by stereo digitizing photo mass points, breaklines, edge of water and all major slope breaks. Index and intermediate contour lines are delineated from the accurate DTM. In addition, with the evolution of LiDAR as a viable means of acquiring low-cost terrain data, Michael Baker has integrated the technology into our production workflows, demonstrating our commitment to continuous improvement of project delivery.

12. RELEVANT EXPERIENCE

E. Is your firm experienced in evaluation ground water contamination, such as may be associated with landfills?

YES Description and Number of Projects:

Michael Baker has conducted the design, implementation, and supervision of numerous hydrogeologic investigations throughout the United States and especially in the local tri-state region to identify and predict the movement of contaminants in the subsurface. Michael Baker has performed literally hundreds (estimated over 800) of contaminated groundwater site characterizations in a variety of bedrock and soil media over the past 30 years including more than 25 sites that were associated with landfills. During this time, Michael Baker has also evaluated existing groundwater monitoring programs for our clients to determine well network effectiveness (i.e., ability to comply with permit requirements and/or standards) during various landfill permit modification applications or as part of a permit renewal.

Our investigative teams have used a variety of qualitative/quantitative analyses and field tests to determine critical hydrogeologic parameters such as flow direction, hydraulic conductivity, flow rate, cones of depression and capture zones (for groundwater remediation). We are experienced with a variety of hydrogeologic tools such as: slug tests - falling head and rising head; pump tests (using a variety of analytical methods - Jacob Time-Drawdown, Theis Recovery Method, Steady State Drawdown Method); tracer tests; packer pump tests to determine hydraulic properties of individual fracture sets; preparation of groundwater contour maps; preparation of geological cross sections; use of borehole geophysical logs for determination of lithologic and hydrologic conditions of boreholes; and oversight of surface geophysical methods for the location of buried drums, utilities, and determination of contaminant distribution in subsurface soils.

Michael Baker routinely evaluates and reports data obtained from sampling activities using a variety of evaluation techniques such as: statistical analyses; comparisons with drinking water standards; tri-linear plots; iso-concentration contour maps; chemical facies maps; and creation of time-trend graphs using a variety of graphical and statistical software. Michael Baker is familiar with a variety of statistical techniques used to analyze groundwater data that have a large number of non-detects or are non-normally distributed, in accordance with USEPA Unified Guidance for RCRA Facilities. We have successfully negotiated reductions in monitoring costs at a variety of sites to control costs, while maintaining an effective monitoring system to protect potential receptors.

F. Is your firm experienced in Landfill Closure cost estimating?

YES Description and Number of Projects:

Michael Baker has been the primary engineer of record for numerous landfill closure designs, dating back decades. This experience includes a wide variety of solid waste landfills and waste disposal sites, involving a variety of waste types, for various clients or agencies, across many regions of the country. Cost estimates were prepared for the majority of these projects; ranging from feasibility studies to detailed construction cost estimates provided to clients as part of final design bid packages. Michael Baker has extensive experience in cost estimating (and preparing constructability reviews) for all aspects of landfill closure and post-closure activities; including surface and groundwater monitoring, leachate handling and treatment, waste handling treatment, grading operations, liner and cap installation, landfill gas management, and surface water drainage systems. In addition to the professionals that actively work on landfill closure designs, Michael Baker has a construction estimating department for a wide variety of large and diverse construction projects. Expertise from this department can be used to supplement and assist the landfill closure design team in developing cost estimates as needed. It is conservatively estimated that Michael Baker has prepared cost estimates for over 30 different landfill closure projects. Please refer to sections 15, 17, and 19 for additional information of past landfill closure project experience.

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

As described in this Consultant Questionnaire Form, Michael Baker can support this project with a variety and depth of technical resources as needed to deliver this project successfully. However, the organization chart shown on the following page identifies our core team that Michael Baker will dedicate to our WVDEP landfill closure design work. This team will be led by Mr. Carl Sarver, serving as Michael Baker's Project Manager.

The balance of our committed team includes personnel with the type of capabilities required for a typical landfill closure design project, including geologists to conduct subsurface investigations, geotechnical engineers to address stability and linear design, designers for grading and earthwork balance, and civil engineers/associates to assist with the design, plans, specifications, and any necessary permitting.

This team will work together closely for design efficiency and can handle multiple concurrent projects, tapping other Michael Baker technical resources, as needed, to ensure project success, including the following subconsultants.

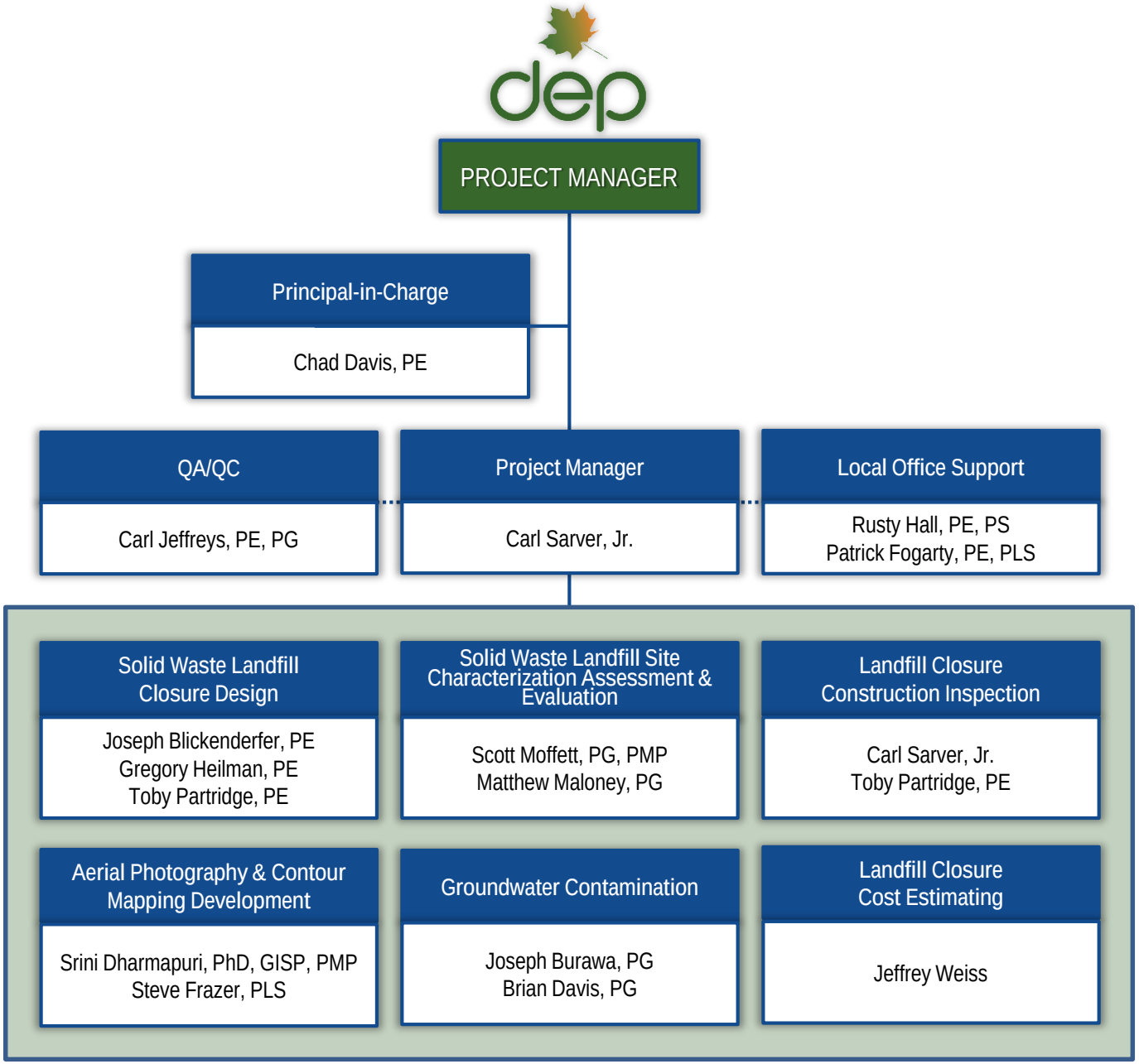
- Cascade Drilling, L.P. (environmental drilling)
- TestAmerica Pittsburgh (environmental laboratory)

Michael Baker recognizes that to serve WVDEP in the best possible manner, we need to make good on our promise to provide WVDEP with exceptional, responsive, and cost-effective engineering and permitting services to support your projects. To that end, the project team members selected for this contract have been carefully screened for their experience and qualifications, as well as their associated labor rates. As a result of this screening, Michael Baker has put together a top-notch project team that enables WVDEP to enjoy the benefits of being provided services that are exceptional, responsive, and cost-efficient.

In addition, should the need arise, WVDEP also can take comfort in knowing that Michael Baker's talent pool is large and that Michael Baker can provide comprehensive engineering and environmental services, as well as a wide range of additional in-house expertise to deal with any as yet unknown issues that may arise during the project. With over 6,000 employees, Michael Baker also has plenty of technical strength and diversity, and a deep, rich pool of talent and expertise available on a wide variety of topics to fully support WVDEP on this project. Resumes to support specific topics can be provided upon request.

Key project members are committed to this project with hundreds of support staff available to assist. Michael Baker is experienced in scaling resources to meet workload demands. The combined available resources of our team provide ample capacity to meet project schedules. At Michael Baker, we only make commitments that we intend to keep. When we pursue a project, it is only after careful consideration of our ability, resources at hand, and our current commitments.

Resumes of key personnel are provided on the following pages.


PROJECT MANAGER
Principal-in-Charge
Chad Davis, PE
QA/QC
Carl Jeffreys, PE, PG
Project Manager
Carl Sarver, Jr.
Local Office Support
Rusty Hall, PE, PS
Patrick Fogarty, PE, PLS
Solid Waste Landfill Closure Design
Joseph Blickenderfer, PE
Gregory Heilman, PE
Toby Partridge, PE
Solid Waste Landfill Site Characterization Assessment & Evaluation
Scott Moffett, PG, PMP
Matthew Maloney, PG
Landfill Closure Construction Inspection
Carl Sarver, Jr.
Toby Partridge, PE
Aerial Photography & Contour Mapping Development
Srini Dharmapuri, PhD, GISP, PMP
Steve Frazer, PLS
Groundwater Contamination
Joseph Burawa, PG
Brian Davis, PG
Landfill Closure Cost Estimating
Jeffrey Weiss

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	YEARS OF LANDFILL CLOSURE DESIGN EXPERIENCE:	YEARS OF LANDFILL CLOSURE-RELATED DESIGN EXPERIENCE:
Davis, Chad R. Principal-in-Charge	15	15

Brief Explanation of Responsibilities

Mr. Davis is a Civil Engineer with expertise in hydrology and hydraulic modeling, design, analysis, overtopping protection, dam rehabilitation, stormwater drainage, channel stabilization/restoration, stormwater management, and utility relocations. He currently is a Vice President leading our civil and environmental group in the Moon Township Office. Mr. Davis has performed a range of civil engineering projects including designing appropriate overtopping protection for dams while incorporating additional features in order to control costs, stream restorations including bank stabilization, as well as drop structures, modeling and development of design options to alleviate system overflows on combined sanitary sewer systems, stream separation from combined sewer systems, and water resources master planning efforts to help communities plan for future improvements in their water supply and stormwater systems.

Rehabilitation of Five Pennsylvania Dams, Various Locations, PA. *Pennsylvania Department of General Services.* Technical Manager. Responsible for Hydrologic and Hydraulic analysis, spillway sizing, inspection of dam and outlet works, development of construction plans and specifications for articulated concrete block embankment overtopping protection, spillway, gate house, and outlet works. Michael Baker is providing engineering services for the rehabilitation of the Kyle Lake, Canonsburg Lake, Dutch Fork Lake, Donegal Lake, and Somerset Lake dams, which are owned by the Pennsylvania Fish and Boat Commission, to ensure compliance with PADEP regulations. Michael Baker's tasks include reviewing drawings and reports; field-inspecting all elements, including spillways and gatehouses; performing hydrologic and hydraulic analyses; performing topographical surveys and geotechnical investigations to evaluate current conditions; identifying and analyzing rehabilitation alternatives; and providing construction management services. Designs included spillway replacements, outlet work modifications, overtopping protection, and post tensioned rock anchors.

Latodami Nature Center Pond Rehabilitation, Wexford, Allegheny County, PA. *Allegheny County Department of Public Works.* Water Resources Engineer. Developed hydrologic/hydraulic models for the site in order to determine peak flows and an appropriate design event. Coordinated with PADEP and U.S. Army Corps of Engineers (USACE) to permit the dredging of the pond and outlet channel reconstruction. Designed and presented to the client and PADEP several options for the spillway replacement. Worked with the client's naturalist to maintain the diversity of the pond's ecosystem while increasing the functionality of the facility. Also prepared engineering reports, plans and specifications, and cost estimates for the project. Michael Baker was tasked with restoring the pond that is the focal point of the North Park Nature Center. Over the years the pond had filled with sediment, the embankment of the dam had been overgrown with trees, and the outlet channel was severely degrading to the point of becoming a safety concern. Michael Baker's restoration design brought the facility into compliance with the current regulations of the Pennsylvania Department of Environmental Protection (PADEP) Division of Dam Safety. Michael Baker assisted the Allegheny County Department of Public Works with: hydrology and hydraulic analysis of the design storm; dam breach analysis; development of outlet modifications and evaluated overtopping scenarios; removal of over 5,500 CY of sediment to restore the pond; rehabilitation of primary intake structure including installation of a new riser, incorporation of a dewatering valve, stoplog system, and a trash rack; and, reconstruction of the emergency spillway system including; the control weir, spillway, and energy dissipation basin.

Deer Lakes Park Dam Improvement Project, Frazer and West Deer Township, PA. *Allegheny County Department of Public Works.* Water Resources Engineer. Developed hydrologic/ hydraulic models and conducted a breach analysis of the dam to determine appropriate design event and downstream water surface elevations for several breach scenarios. Worked with PADEP and client to establish an effective and adequate overtopping revetment design for the dam. Designed a siphon pipe dewatering system to be incorporated with the overtopping protection and to allow for the partial dewatering of the facility for maintenance purposes. Designed outlet channel restoration to eliminate the severe erosion within existing outlet channel. Prepared engineering reports, plans, specifications, and costs estimate for the proposed work. Provided construction services for the client to ensure the project was constructed to the intent of the design and met the PADEP criteria for the Dam Permit. Michael Baker provided alternative investigations, analysis, preliminary/final design, and permitting required for improvements to Lake No. 1 in Deer Lakes Park. Deer Lakes Park, owned by Allegheny County, is a recreational facility whose prominent feature is a series of three man-made lakes and associated dams. Lake No. 1 was constructed before the County purchased the property in 1959 and was reconstructed by the County in the early 1970s.

EDUCATION (Degree, Year, Specialization)
M.S., 2002, Civil Engineering; B.S., 2001, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
Association of State Dam Safety Officials	Professional Engineer, 2011, West Virginia
Waterways Association of Pittsburgh	Professional Engineer, 2006, Pennsylvania
American Society of Civil Engineers	Professional Engineer, 2006, Colorado

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	YEARS OF LANDFILL CLOSURE DESIGN EXPERIENCE:	YEARS OF LANDFILL CLOSURE-RELATED INVESTIAGTION and DESIGN EXPERIENCE:
Sarver, Jr., Carl E. Project Manager	15	20+

Brief Explanation of Responsibilities

Mr. Sarver's expertise in geology and chemistry and construction enables him to perform diverse environmental projects for Michael Baker. He has personally managed various aspects of environmental projects, including environmental site investigations and assessments, remediation/construction activities, RCRA facility investigations, conducting hydrogeological evaluations, and implementing groundwater monitoring and remedial programs. Mr. Sarver's responsibilities have included project management activities on projects ranging from straight forward multi-media site investigations to large complex, turnkey remedial measure projects including landfills. Work elements included preparation of investigation work plans; landfill and disposal area remedial measure evaluations, landfill cap designs; permitting; preparing basis of design reports and engineer's construction cost estimates; bid packages and technical specifications for construction; and oversight of field sampling, specialty subcontractors, and construction projects.

MIDC Hazardous Site Cleanup Act (HSCA) Site, 2002-2013 Field Investigations, Design, and Closure. *Confidential Steel Client.* Project Manager. Michael Baker performed remedial investigations and closure evaluations, permitting, design and construction management for this several hundred-acre site disposal site. A total of 20,000 cubic yards of coal tar was excavated, solidified, and consolidated to clean-close three of five areas of contamination. A 3-acre surface impoundment, containing 40,000 CY of hazardous waste was capped and closed. Following completion of this multi-million dollar project, all but approximately 12 acres of the property were returned to unrestricted industrial land use. Mr. Sarver's primary responsibilities included oversight/direction to technical and field staff during various investigative stages, directing waste compatibility and treatability studies, overseeing the permitting and engineering design, performing cost estimating/bid evaluations and leading the construction phase support activities for the remediation of coal tar, closure of on-site landfills and a hazardous waste surface impoundment.

STEP Landfill Evaluation and Design, Confidential Location, PA. *Confidential Steel Client.* Project Manager. Michael Baker provided comprehensive closure option evaluation, design, and ultimately permitting services for the expansion of a Class 1 Residual Waste Landfill. Responsibilities included oversight of the historic document and permit review process, review and refinement of the site conceptual for groundwater flow; directing survey work and underground coal mine mapping efforts; management of the landfill design, constructability reviews and preparation of construction cost estimates. Michael Baker's multi-phased approach to this landfill expansion project enabled the client to select the most cost-effective waste disposal option to serve its nearby manufacturing facilities. Potential landfill operating scenarios ranged from multiple capping/closure options without expanding the existing residual landfill footprint to constructing a new cell(s) in order to significantly increase the existing landfill capacity. Initial project work included a review of the existing permit documents, site reconnaissance, geologic /hydrologic evaluations, groundwater data/trend analysis, development of conceptual level grading and landfill operational plans, and preparation of associated construction cost estimates.

Landfill Inspections, Confidential Locations, PA and OH. *Confidential Steel Client.* Project Manager. Responsibilities included client interface, project budget and schedule maintenance development, oversight of the technical staff, and preparation and review of quarterly and annual reports for submission to the Pennsylvania DEP and Ohio EPA. Michael Baker has been performed landfill site inspections in accordance approved closure plans for over 15 years at various locations. Michael Baker evaluated site security; instrumentation; slope stability, and condition of ditches, pipes, and the landfill cap. Michael Baker prepared and submitted inspection reports describing current conditions, and noting repairs necessary to insure the integrity of the final cover systems and associated appurtenances.

Landfill Design and Permitting, Masontown, PA. *Allegheny Energy Service Corporation.* Task Manager. Responsibilities included addressing agency comments for the residual waste landfill application. Michael Baker developed the design and permit applications for a 100-acre Class 1 Residual landfill in Pennsylvania for coal combustion byproduct materials. Associated work included E&S Control plans, meetings with PADEP, and the design of a one-mile concrete haul road and lined retention basin. Additional Michael Baker responsibilities included surveying, cultural resource investigations, wetland delineation and mitigation design, soil borrow source evaluation for the landfill subbase and cover, technical specifications and Construction Quality Assurance (CQA) Plans.

Landfill Stabilization and Closures, Cleveland Hopkins International Airport (CLE), Cleveland, OH. *City of Cleveland, Department of Port Control.* Task Manager responsible for the development and preparation of plans for the stabilization of landfill wastes, capping of multiple landfills, and agency negotiations. This work included preparation of various environmental media handling and management plans and aiding the development of the project construction specifications for the eventual expansion of a runway.

EDUCATION (Degree, Year, Specialization)	
B.S., 1991, Geology/Chemistry	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	**REGISTRATION (Type, Year, State)**
N/A	N/A

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	**YEARS OF EXPERIENCE**	
	YEARS OF LANDFILL CLOSURE DESIGN EXPERIENCE:	**YEARS OF RELATED EXPERIENCE**
Fogarty, Patrick W. Mapping & Local Office Support	5	25

Brief Explanation of Responsibilities

Mr. Fogarty is an asset to the Michael Baker team with project design, mapping, and management experience. He is responsible for technical and management aspects of civil design and surveying projects within the office. Mr. Fogarty has designed and managed projects in numerous disciplines including civil, structural and transportation engineering, site development, ecosystem restoration, planning and surveying. These projects have included retail/commercial site preparation, airports, streets/highways, bridges, parking lots, buildings, sanitary systems and structures, stream restoration as well as boundary and topographic and photogrammetric surveys. Duties included field surveying, drawings and specification preparation, design, design drafting, construction inspection, quality control testing, shop drawing review, project management, contract administration and report preparation. Management duties include financial planning, management and staff utilization, human resource planning, marketing, and strategic planning.

Drainage Improvements and Reclamation Measure Design for Four Abandoned Mine Sites, Kanawha County, WV. *West Virginia Department of Environmental Protection - Office of AML&R.* Project Manager. Responsible for the management and coordination of all activities. Michael Baker is providing surveying and mapping, field investigation, subsurface investigation, water testing and sampling, and conceptual, preliminary and final design for the reclamation of four abandoned mine sites that are affected by uncontrolled drainage, debris, and hazards from open portals. Michael Baker is also providing bid phase and construction phase support for the remedial measures.

Engineering Design for Remediation of Crooked Run #5, Harrison County, WV. *West Virginia Department of Environmental Protection - Office of AML&R.* Project Manager. Responsible for the management and coordination of all activities. Michael Baker provided engineering services to remediate seven abandoned mine sites along Crooked Run Stream near Clarksburg, West Virginia. Services included field investigation and surveys; core boring and water sampling; conceptual, preliminary, and final design of remediation measures; and bid phase and construction phase support.

Town Of Harman-Water System Improvements, Harmon, WV. *Town of Harman.* Project Manager. Responsible for the management and coordination of all activities. Michael Baker is providing engineering services for the design and construction of improvements to the potable water service. Improvements include approximately 87,000 feet of two-inch through six-inch waterline to extend service to new customers; design of a new raw water well, 100,000-gallon water storage tank, and a booster pump station; and the upgrade of pumps and controls at the water treatment plant.

Big Sandy River Site Screening, Boyd, Greenup, and Lawrence Counties, KY. *Commonwealth of Kentucky.* Project Manager / Engineer-of-Record. Responsible for the engineering design. Michael Baker provided site selection for ecosystem preservation and restoration services in the Big Sandy River Service Area. Michael Baker's services included geographic information system database development, mapping, tool development, and modeling; global positioning system mapping verification; water sampling; visual utility location; and property owner coordination.

Abandoned Mine Lands, Various Locations, WV. *West Virginia Department of Environmental Protection.* As a Project Manager, provided services for civil design for various Abandoned Mine Land (AML) projects throughout West Virginia. Various types of AML projects include landslide correction include retaining wall design and site grading and drainage improvements, acid mine drainage collection and neutralization, water line upgrade and extensions, and various projects requiring site regrading and drainage upgrade. Work on these projects also included establishing horizontal and vertical control surveys for aerial photogrammetry mapping, baseline layout, referencing control points, generating check cross sections and site surveys including all physical and topographic features of each unique site.

EDUCATION (Degree, Year, Specialization)
B.S., 1985, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	**REGISTRATION (Type, Year, State)**
N/A	Professional Engineer, 1990, West Virginia; Professional Surveyor, 1993, West Virginia Professional Engineer, 2000, Kentucky; Professional Surveyor, 2001, Kentucky Professional Engineer, 2002, Virginia Professional Engineer, 2003, Pennsylvania Professional Engineer, 1996, Ohio; Professional Surveyor, 1996, Ohio Professional Surveyor, 2008, North Carolina LEED Green Associate, 2012, West Virginia

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	YEARS OF LANDFILL CLOSURE DESIGN EXPERIENCE:	YEARS OF LANDFILL CLOSURE-RELATED DESIGN EXPERIENCE:
Blickenderfer, Joseph M. Solid Waste Landfill Closure Design	10	12

Brief Explanation of Responsibilities

As Technical/Program Manager of Michael Baker's Oil and Gas group, Mr. Blickenderfer provides overall management of Environmental and Site Design Services for the Oil & Gas practice and market business activities. He provides senior technical and project oversight for the environmental design and permitting on landfill closure projects, Oil & Gas pipeline projects, well pad, impoundment, and other site civil developments. Mr. Blickenderfer has 17 years of site design and permitting experience with a strong background in Federal, State, and Local environmental permitting, engineering design, and construction. His experience includes landfill design, pipeline design, well pad development, impoundment and liner design, erosion and sedimentation control plans, stormwater management, threatened and endangered species consultation, stream and wetland delineation and mitigation, land surveying, construction inspection of structural construction and earthworks, and geological surveys.

Currie Landfill and Kelly Farm Sludge Lagoon Remediation Design, Millcreek and Fairview Townships, PA. *Pennsylvania Department of Environmental Protection.* Task Manager. Responsibilities included site layout design, contour grading plans, erosion and sedimentation control, stormwater management, and construction specifications for an abandoned municipal waste landfill to allow industrial and recreational development ultimately on the property. The Currie Landfill Site project involved work plan and cost estimate development, site surveying and mapping, conceptual site modeling, pre-design investigation activities, and a detailed design (drawings and specifications) of a soil capping system.

Coal Combustion Byproduct Landfill Expansion for Hatfield's Ferry Power Station, Masontown, PA. Allegheny *Energy Service Corporation.* Task Manager. Provided supervision of the design and environmental permitting required to expand a Class I residual waste landfill. Major project components included the design of a new leachate storage impoundment, access roads, drainage, erosion and sedimentation control measures, soil borrow area development, contour grading, leachate collection system, liner staging and landfill development for the 100-acre, 5,000,000 cubic-yard expansion. Michael Baker provided design, permitting, and construction phase services for a Phase 3 landfill expansion to support the operational needs of an electrical power-generating station. Michael Baker evaluated alternatives and prepared landfill staging and development concepts to maximize use of the available site. Following client approval of the overall development plan, Michael Baker implemented design tasks for a double-lined landfill and a one-mile-long, high-load concrete haul road. Additional Michael Baker responsibilities included surveying, cultural resource investigations, wetland delineation and mitigation design, and soil borrow source evaluation for the landfill subbase and cover. During construction, Michael Baker attended weekly contractor meetings and responded to contractor requests for information.

Construction Oversight Phase I Remedial Action, Confidential Location, OH. Confidential Client. Engineer. Responsibilities included project construction inspection, daily contractor contact, design field changes, construction oversight, quality assurance sampling and testing, and review of change orders, contractor invoices, and submittals. Other responsibilities included developing construction plans and details, writing the Construction Certification Report, and directing optimization of sediment solidification reagents, depending on sediment type, consistency, and moisture content. Michael Baker was retained to provide design and construction management services to meet Consent Decree obligations for Phase I Remedial Action.

General Technical Assistance for the Pennsylvania Superfund Program, Statewide, PA. *Pennsylvania Department of Environmental Protection.* Engineer. ADSCO Landfill Focused Feasibility Study - Responsibilities included preparing conceptual grading plans for three cap configurations, comparing each alternative's cost and cap effectiveness, and producing plan and cross-section drawings. Under two consecutive general technical assistance contracts, Michael Baker provided environmental consulting services for sites that had been identified as threats to public health or the environment, but did not qualify for inclusion on the U.S. Environmental Protection Agency's National Priorities list. Michael Baker's services included project management, storage tank management and closures, site characterizations, feasibility studies, engineering design and construction inspection, emergency water provisions, public involvement support, and third-party reviews. Michael Baker completed 92 work assignments under these two contracts.

EDUCATION (Degree, Year, Specialization)
B.S., 1997, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
N/A	Professional Engineer, 2011, West Virginia Professional Engineer, 2010, Pennsylvania

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	YEARS OF LANDFILL CLOSURE DESIGN EXPERIENCE:	YEARS OF LANDFILL CLOSURE-RELATED DESIGN EXPERIENCE:
Heilman, Gregory A. Solid Waste Landfill Closure Design	10	19

Brief Explanation of Responsibilities

Mr. Heilman is a civil engineer with extensive professional experience including landfill design and permitting, mining engineering and permitting, hydrologic and hydraulic analysis, general environmental permitting, solid and hazardous waste management, and construction services.

Buckeye Reclamation Landfill, OH. *Environmental Strategies Corp.* Task Manager. Responsible for overall site design including developing final grading plans; details; construction sequencing; and construction cost estimate. Responsible for designing the erosion and sediment control plan and the surface water management plan. Assisted in the preparation of the final report, technical specifications, operation and maintenance plan, and construction quality assurance plan. This project consisted of the remedial design for the first phase of remediation of a 37-acre CERCLA landfill. As a subconsultant to Environmental Strategies Corporation, Michael Baker was contracted to prepare the final design documents for the closure. Michael Baker prepared construction drawings, specifications, construction quality assurance project plan (QAPP), and appropriate design reports for the solid waste landfill cap, the vegetative soil cap, and for relocation and lining of approximately 5,000 linear feet of a stream adjacent to the landfill. Michael Baker also prepared erosion and sediment control plans for the construction activity that was performed in addition to a construction cost estimate and remedial action schedule.

Groundwater Quality Investigation, Confidential Location. *Confidential Client.* Engineer. Responsible for preparation of a Closure Plan for the 55-acre BOP Disposal Area. Prepared grading plans, specifications, stormwater management design, final cap design, and construction quality assurance plan. Project included using geosynthetic cellular confinement material (geocell) to cover and stabilize steep (1H:1V) slag slopes and innovative seeding/mulching methods to establish vegetation on the slag protective cover material. Michael Baker implemented of a comprehensive groundwater quality investigation (RCRA agreed order) that included oversight; installation of monitoring well networks at several hazardous waste facilities; characterization of soils; collection of soil, sediment, surface water, waste, and ground water samples for geotechnical and analytical testing; coordination of geophysical surveys; supervision of site activities; performance of QA/QC; and analysis of data and presentation for regulatory reporting.

Finalize Closure Design of Basic Oxygen Process Disposal, Confidential Location. *Confidential Client.* Civil Engineer. Responsible for preparation of a Closure Plan for the 55-acre landfill. Prepared grading plans, specifications, stormwater management design, final cap design, and construction quality assurance plan. Michael Baker prepared the final closure design of a basic oxygen process disposal landfill for confidential steel client.

Landfill - Phase II Remedial Design, Confidential Location, OH. *Confidential Client.* Project Manager. Responsible for construction management and inspection during Remedial Action construction. Michael Baker was retained by the client to provide design and construction management services to meet Consent Decree obligations for Phase I Remedial Action at the Reclamation Landfill CERCLA Site.

Coal Refuse Disposal Facility, Confidential Location, PA. *Confidential Client.* Task Manager. Responsible for hydrologic and hydraulic design for a new slurry impoundment. Performed all hydrologic and hydraulic analyses, prepared final design drawings, and prepared Emergency Action Plans. Also responsible for design of the stormwater collection system and preparation of the erosion and sedimentation control plan. Michael Baker prepared an Alternatives Analysis report as required by the Pennsylvania Department of Environmental Protection in order to identify the most desirable site for the proposed coal refuse facility. The report included comparison of engineering, environmental, social, and economic impacts of the proposed facility for five possible sites. The evaluation included numerous inquiries with state agencies regarding the various factors under their jurisdiction. Engineering evaluation included available storage volumes and preliminary layouts of the facility at each alternative location.

EDUCATION (Degree, Year, Specialization)
B.S., 1988, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
N/A	Professional Engineer, 2005, West Virginia Professional Engineer, 1999, Ohio Professional Engineer, 1993, Pennsylvania

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	YEARS OF LANDFILL CLOSURE DESIGN EXPERIENCE:	YEARS OF LANDFILL CLOSURE-RELATED DESIGN EXPERIENCE:
Moffett, Scott K. Solid Waste Landfill Site Characterization Assessment & Evaluation	10	15

Brief Explanation of Responsibilities

Mr. Moffett is a senior geologist and project manager with a broad base of experience in environmental, geological, and hydrogeological investigations under diverse field conditions and subject to a variety of regulatory requirements. His responsibilities include conducting contaminant investigations, remediation of impacted soils and groundwater, free-phase product recovery, supervising underground storage tank closures, and performing environmental site assessments. His extensive technical and managerial experience has resulted in expediting projects for clients through the use of innovative sampling techniques, efficient management procedures, and streamlined field investigations.

Environmental Services, Confidential Location, OH. *Confidential Client.* Project Manager. Responsible for implementing and managing semi-annual groundwater monitoring and landfill inspection services in accordance with a RCRA Corrective Measures Implementation Program. Michael Baker is providing on-call environmental consulting services and environmental support services. Michael Baker assisted with the comprehensive planning, budgeting and implementation of the closure, cleanout and demolition of a manufacturing facility.

Site Characterization, Various Locations, OH. *Columbia Gas Transmission Corporation.* Geologist. Responsible for providing site characterization services at a number of gas compressor stations located in Ohio, Pennsylvania, and West Virginia for a natural gas transmission company. Soil and groundwater samples were collected using direct push technology to minimize costs and investigation derived wastes. Sample information was managed in the field using a computer database system. Michael Baker provided site characterization services at 13 gas compressor stations located in Ohio. The stations varied in size from one-quarter acre to 10 acres. The work included the surface and subsurface sampling of soils and groundwater. The work was reviewed and approved by the U.S. Army Corps of Engineers, and USEPA Region III.

Pre-Design Investigation, Confidential Location, PA. *Confidential Client.* Geologist. Responsible for supervision of drilling, soil sampling, geologic/hydrogeologic characterization, contaminant migration determination, and site investigation report preparation at a facility with subsurface volatile organic compound and petroleum contamination. In addition to laboratory analyses, soil samples were screened with a portable field gas chromatograph. Michael Baker performed a site characterization of the site, including soil and groundwater sampling, well installation, and data interpretation.

Chromium-Containing Soils Remediation, Confidential Location, MT. *Confidential Industrial Client.* Geologist. Responsible for supervision of drilling/groundwater monitoring well installation, soil/groundwater sampling, geologic/hydrogeologic characterization, contaminant migration determination, and site investigation report preparation at a superfund site with chromium contamination. To assist in implementing the removal action of an estimated 20,000 cubic yards of chromium-containing soils, Michael Baker was retained by one of the PRPs to be the prime management contractor, responsible for providing engineering, administrative and management support services for the treatability studies, facility design and construction and remediation. Michael Baker also provided subcontractor oversight and construction inspection during construction of the full-scale treatment plant, and was responsible for all background air monitoring performed during plant construction.

Underground Storage Tank (UST) Closures, Various Locations, PA, WV, OH. *AT&T Corp.* Geologist. Responsible for proposal preparation, project administration, and UST closure activities including UST removal, soil/groundwater sampling, regulatory agency interaction, site geologic/hydrogeologic characterization, data evaluation, and closure assessment report preparation. Michael Baker was retained to supervise and manage the closure of kerosene, diesel fuel, and waste oil underground storage tanks (USTs), and several aboveground storage tanks (ASTs) at 52 telecommunication stations. Michael Baker provided project supervision and documentation and collected closure environmental samples during the UST removals.

EDUCATION (Degree, Year, Specialization)
Masters, 2009, Project Management
B.A., 1990, Geology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
N/A	Professional Geologist, 2000, Pennsylvania Professional Geologist, 2002, North Carolina Professional Geologist, 2006, Virginia Project Management Professional, 2009

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	YEARS OF LANDFILL CLOSURE DESIGN EXPERIENCE:	YEARS OF LANDFILL CLOSURE-RELATED DESIGN EXPERIENCE:
Maloney, Matthew J. Solid Waste Landfill Site Characterization Assessment & Evaluation	15	18

Brief Explanation of Responsibilities

Mr. Maloney is a program manager with technical experience in the solid and hazardous waste environmental field. He has had primary technical and client management responsibility on numerous projects and programs for industrial and government clients. His experience includes solid and hazardous waste investigations, regulatory interpretation, and compliance management; groundwater, soil, and waste remediation; CERCLA-regulated site investigations and restorations; RCRA-regulated site investigations and permit modification/preparation projects; underground storage tank investigations, removals, and replacements; and environmental laboratory analysis. Mr. Maloney served as program manager and provided senior technical oversight during the Pennsylvania Department of Environmental Protection's (PADEP) GTAC-5 contract period. Michael Baker successfully executed over 140 projects during Mr. Maloney's tenure. Mr. Maloney has extensive experience in presenting to, and negotiating with, regulatory agencies; presenting at public meetings; and providing third-party technical/regulatory review of investigation reports and regulatory decisions and notices.

Currie Landfill and Kelly Farm Sludge Lagoon Remediation Design, Millcreek and Fairview Townships, PA. *Pennsylvania Department of Environmental Protection.* Program Manager. Provided technical and overall performance oversight for remedial design and construction oversight for both of these sites. Michael Baker performed a wetland investigation and delineation at the Currie Landfill site, and developed construction drawings, technical specifications, and permit documents to construct interim remediation measures for the Currie Landfill site and the Kelly Farm sludge lagoon. Michael Baker's services included project management; subconsultant procurement; wetland site survey, delineation, and jurisdictional determination; development of plans, specifications, and cost estimates; and preparation of permit documentation.

Currie Landfill Investigation and Remediation Design, Millcreek Township, PA. *Pennsylvania Department of Environmental Protection.* Project Manager. Responsible for preparing project scope descriptions and cost estimates, negotiating terms of the scope and cost with the client, selecting and incorporating staff members into the project, providing oversight of project engineers and scientists, communicating with the client's project manager on a regular basis regarding site activities, budget and schedule compliance, and project issues and recommended solutions. Michael Baker provided environmental and engineering services for the remediation of the Currie Landfill. Michael Baker's services included program management, site investigations; soil, sediment, and groundwater sampling; development of risk assessments and a conceptual site model; site survey and mapping; geotechnical and geologic investigations; hydrologic and hydraulic analyses; environmental assessment and wetland delineation; remediation design; permitting; bidding-phase support; and construction services.

GTAC-Program-wide, Various Locations, PA. *Pennsylvania Department of Environmental Protection.* Mr. Maloney served as program manager and provided senior technical oversight during the GTAC-5 contract period. Michael Baker successfully executed over 140 projects during Mr. Maloney's tenure. Mr. Maloney has extensive experience in presenting to, and negotiating with, regulatory agencies; presenting at public meetings; and providing third-party technical/regulatory review of investigation reports and regulatory decisions and notices. Prior to assuming the Program Manager role, Mr. Maloney served as a project manager on the GTAC program. Mr. Maloney is a licensed professional geologist with years of contaminated site characterization/mitigation experience under various regulatory programs including Pennsylvania's Land Recycling Program (Act 2). As a GTAC project manager, Mr. Maloney lead several contaminated fractured bedrock aquifer assessments where private drinking water supplies were impacted and numerous abandoned waste dumps typically surrounded by residential properties and/or sensitive ecological habitat. Mr. Maloney employed innovative subsurface geophysical sensing techniques/logging to cost effectively identify/delineate buried waste and characterize migration-controlling fracture networks. These and other innovative applications of reliable technologies expedited data collection completion and controlled project duration and costs.

EDUCATION (Degree, Year, Specialization)
M.S., 2004, Information Systems Management
B.S., 1983, Geology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
Engineers' Society of Western Pennsylvania	Professional Geologist, 1994, Pennsylvania

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF LANDFILL CLOSURE DESIGN EXPERIENCE:	YEARS OF LANDFILL CLOSURE INSPECTION EXPERIENCE:	YEARS OF LANDFILL CLOSURE RELATED DESIGN EXPERIENCE:
Partridge, Toby M. Landfill Closure Construction Inspection	5	2	7

Brief Explanation of Responsibilities

Mr. Partridge is a civil engineer within Michael Baker's Civil Engineering Department with a background in engineering design and construction. He is a registered professional engineer with experience involving landfill engineering design, permitting and construction. In addition to being involved extensively in site design of several landfills, he has provided construction oversight, inspection, and certification services on several remediation capping and closure projects, including Kelly Farm, Currie Landfill, and the MIDC site. In the area of landfill design, his experience includes the development of effective Erosion and Sediment Pollution Control measures, on-site stormwater management, leachate system design, site grading and site development through the use of and AutoCAD Civil 3D. He has been involved in the preparation of landfill permits applications to the Pennsylvania Department of Environmental Protection and in the development of construction level drawings. Recently, he served as the onsite project engineer on a landfill remediation project, where he gained valuable construction management experience.

Currie Landfill Site, Erie, PA. *Pennsylvania Department of Environmental Protection.* Michael Baker performed investigations, prepared remediation designs to close the Currie Landfill, enhanced site biological habitat, and provided for sustainable redevelopment of the property. Michael Baker has also developed bid specifications, assisted with contractor bid evaluation, and provided construction oversight during implementation of closure activities. Mr. Partridge was responsible for developing technical and permit documents for the remedial design of the landfill; developing bid documents to aid in the process of selecting a construction contractor; construction inspection/oversight; technical oversight of the project during the construction phase; and completion certification purposes. During the construction phase, Mr. Partridge worked closely with the contractor, the Department and the landowner to resolve issues that arose, ensure the project moved forward and was built according to the approved documents.

Kelly Farm Sludge Lagoon Remediation Design, Fairview Township, PA. *Pennsylvania Department of Environmental Protection.* Michael Baker developed a preliminary and final design for capping the impoundment and covering the cap and surrounding walls to control leaking and erosion, and to eliminate waste exposure. Michael Baker also provided a rehabilitation design for the impoundment embankment. Mr. Partridge was responsible for developing technical and permit documents for the final design and permitting of the cover system and dam embankment rehabilitation. Mr. Partridge also provided construction oversight/inspection and certification services on the project. During the construction phase, Mr. Partridge worked closely with the contractor, the Department and the landowner to resolve issues that arose, ensure the project moved forward and was built according to the approved documents.

Coal Combustion Byproduct (CCB) Landfill Expansion Design and Permitting, Masontown, PA. *Allegheny Energy Service Corporation.* Mr. Partridge was responsible for revising Erosion and Sediment Control Plan for the AESC CCB Landfill Expansion Permit Application to support the operational needs of an electrical power-generating station. Evaluated and designed structures for on-site stormwater management purposes and preliminary road design, including stormwater management, grading, and road alignment. He provided general civil services in response to a Harms Benefit Analysis as required by the Pennsylvania Department of Environmental Protection. Compiled an extensive construction cost estimate for the entire landfill construction process. Extensive work altering site plans via the AutoCAD Land Desktop platform. Michael Baker developed the design and permit applications for the expansion of a Class 1 Residual landfill in Pennsylvania for coal combustion byproduct materials.

Landfill Evaluation, Permitting and Engineering Design, South Taylor Environmental Park, Allegheny County, PA. *Confidential Client.* Mr. Partridge was responsible for evaluating several options for expansion and closure of an existing Class 1 Residual Waste Landfill. Mr. Partridge's responsibilities included evaluating several expansion options and leading the design of the residual waste landfill expansion. The landfill expansion included the design of a double liner, leachate collection and detection systems, stormwater management and erosion and sediment control for two additional landfill cells. Michael Baker prepared design drawings, technical specifications, permit documents, a construction cost estimate and a Construction Quality Assurance program for the expansion of the residual waste landfill.

EDUCATION (Degree, Year, Specialization)
B.S., 2006, Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Society of Civil Engineers	Professional Engineer, 2011, Pennsylvania Professional Engineer, 2014, Ohio

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	**YEARS OF EXPERIENCE**
Dharmapuri, Srinivasan Aerial Photography & Contour Mapping Development	**YEARS OF AERIAL PHOTOGRAPHY & CONTOUR MAPPING DEVELOPMENT EXPERIENCE:** 30

Brief Explanation of Responsibilities

Dr. Dharmapuri has extensive experience in the Geospatial Industry. His experience in Project Management includes Project Management of Photogrammetry/LIDAR projects involving Flight map generation, Plan/Topo Compilation, Ortho generation and final delivery; Project Management of GIS projects involving Cadastral mapping using Best Fit, COGO, and hybrid methods, Zoning, Land use, Soil mapping and pin point addressing; Project setup, production flow, quality control, and client relationship management for all mapping projects; Overseeing development and implementation of various applications used for internal production on projects.

Airport Master Plan and Layout Plan, Upshur County Regional Airport (W22), Buckhannon, WV. *Buckhannon Upshur Airport Authority.* QA/QC. Prepared the flight plan and imagery plan for the project. Michael Baker performed engineering and planning services to create a master plan and airport layout plan (ALP) set for the Upshur County Regional Airport (W22). The overall objective of the plan was to identify improvements necessary to comply with Federal Aviation Administration criteria and to accommodate forecasted aviation demands throughout the 20-year planning period. Michael Baker developed master plan elements including an airport inventory, forecast of aviation activity, facility requirements, airport alternatives, an ALP set, and a capital improvement program. Michael Baker also provided an in-depth review of the airport's runway length, mapping services, and an aeronautical survey of features on and adjacent to the airport property and within the approach paths to each runway end.

Aerial LiDAR Elevation Data Acquisition and Processing, Washington, DC. *FEMA.* Project Manager. Performed the role of project management, QA/QC of the LiDAR data and packaging and delivery of final deliverables. Michael Baker provided technical support for aerial Light Detection and Ranging (LiDAR) data acquisition and processing for the Risk Mapping, Assessment, and Planning (Risk MAP) Program. Michael Baker's services included project management, quality assurance and quality control of the LiDAR data, and delivery of final products.

Professional Mapping and Design Services at the Bond Forfeited Permits of the Maurice Jennings Coal Company S-61-83 & S-53-78, Preston County, WV. *West Virginia Division of Environmental Protection.* Technical Manager. Responsibilities include the QA/QC of the LiDAR data and packaging and delivery of final deliverables.

Professional Mapping and Design Services at the Bond Forfeited Permits of the Masteller Coal Company S-10-85 & S-125-82, Mineral County, WV. *West Virginia Division of Environmental Protection.* Technical Manager. Responsibilities include the QA/QC of the LiDAR data and packaging and delivery of final deliverables.

Professional Mapping and Design Services at the Bond Forfeited Permits of the F&M Coal Company S-1044-87 & S-57-84, Preston County, WV. *West Virginia Division of Environmental Protection.* Technical Manager. Responsibilities include the QA/QC of the LiDAR data and packaging and delivery of final deliverables.

Joint Base General Master Plan, Joint Base-McGuire-Dix-Lakehurst, NJ. *U.S. Air Force, McGuire AFB.* QA/QC. Responsible for QA/QC of LiDAR data at the spatial constrain level to post processed level. Verified the breaklines generated using LiDARGrammetry method. Michael Baker prepared a joint-base general plan and commander's summary and developed a web-based planning system for the installation. Michael Baker's services included project management, mapping, field investigations, land-use analysis, utility analysis, airfield infrastructure analysis, development of geographic information system (GIS) databases and mapping, and the development of a master plan and capital improvement program.

EDUCATION (Degree, Year, Specialization)
PhD., 2006, Photogrammetry and Remote Sensing
M.Tech, 1985, Remote Sensing
MSc, 1983, Physics

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	**REGISTRATION (Type, Year, State)**
American Society for Photogrammetry and Remote Sensing Project management Institute	Certified GIS Professional, 2009 Certified Photogrammetrist, 2008 Project Management Professional, 2010 Land Surveyor Photogrammetrist, 2010, Virginia Land Surveyor Photogrammetrist, 2005, South Carolina

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	**YEARS OF EXPERIENCE**
Frazer, J. Steve Aerial Photography & Contour Mapping Development	**YEARS OF AERIAL PHOTOGRAPHY & CONTOUR MAPPING DEVELOPMENT EXPERIENCE:** 36

Brief Explanation of Responsibilities

Mr. Frazer has years of surveying experience. He is currently the Survey Manager for the Charleston, WV office. Mr. Frazer has been involved with various types of surveying services on projects in Maine, New Hampshire, New York, Pennsylvania, Virginia and throughout Kentucky and West Virginia. Mr. Frazer's experience includes geomatics, topographic surveys, aerial mapping control, research, boundary surveys and retracements, highway right-of-way acquisitions and reacquisitions, construction stakeout, residential and commercial site development surveys, volumetric surveys, industrial forensic surveys, gas transmission line surveys, industrial facilities surveys, technical services, project coordination, and client relationships.

Appalachian Corridor H, WV *West Virginia Department of Transportation, Division of Highways.* Project Surveyor. Responsibilities included technical advice on surveying practices and procedures; project scope and labor cost budget; courthouse research; meeting with Forest Service land agent to discuss forest boundaries, easements, and rights-of-way; field survey locating boundary corner evidence, old power line right-of-way, existing gas line right-of-way, and utility and infrastructure identification; field survey data processing and management; deed plots, composites, and professional opinion as to their field location; and preparation of deed plots for right-of-way plan use.

Alderson SRTS, WV. *West Virginia Department of Transportation, Division of Highways.* Surveyor. Responsibilities included technical advice on surveying practices and procedures, topographic site survey of project area, location and identification of site utilities and infrastructure, processing and managing survey data, and oversight and quality assurance and quality control of existing site mapping for improvements design.

Open-End Architectural and Engineering Services, West Virginia State University, Institute, WV. *West Virginia State University.* Surveyor. Responsibilities included technical advice on surveying practices and procedures, survey crew coordination and scheduling, field survey support, field data processing and management, quality assurance and quality control, and professional supervision and certification. Michael Baker provided architectural and multidisciplined engineering services under a ten-year open-end agreement to design renovations, alterations, reconstruction, or extensions of facilities. Michael Baker's services included programming, planning, design development, construction documentation, evaluations, feasibility studies, cost estimating, and construction contract administration.

Long-Term Stormwater Comprehensive Plan Engineering Services, Charleston, WV. *City of Charleston, WV.* Surveyor. Responsibilities included client relations, meeting with client to determine primary and secondary initiatives, technical advice on surveying practices and procedures, survey crew coordination and scheduling, field location survey and drainage outfall data collection, field data processing and management, quality assurance and quality control, and professional supervision. Michael Baker provided engineering services to support a long-term, comprehensive, stormwater management plan by mapping the city's stormwater infrastructure. Michael Baker's services included project management, research and data collection, data dictionary development, watershed and stream mapping, storm sewer infrastructure surveying and mapping, storm sewer pipe connectivity mapping, stormwater structure mapping, and geodatabase development.

Big Sandy River Site Screening, Boyd, Greenup, and Lawrence Counties, KY. *Commonwealth of Kentucky.* Surveyor. Responsibilities included public relations; owner and residence interviews to aid in land boundary determinations; courthouse research; deed plots, composites, and professional opinion as to their field location; field survey for land boundary retracement; field data management; processing of survey data; field evidence evaluation and land boundary determination; preparation of legal description and report; and oversight of survey plat preparation. Michael Baker provided site selection for ecosystem preservation and restoration services in the Big Sandy River Service Area. Michael Baker's services included geographic information system database development, mapping, tool development, and modeling; global positioning system mapping verification; water sampling; visual utility location; and property owner coordination.

EDUCATION (Degree, Year, Specialization)
B.S., 1986, Engineering Technology
A.S., 1986, Civil Engineering Technology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	**REGISTRATION (Type, Year, State)**
	Professional Land Surveyor, 1996, West Virginia

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	YEARS OF LANDFILL GROUNDWATER CONTAMINATION EXPERIENCE:	YEARS OF LANDFILL GROUNDWATER CONTAMINATION-RELATED EXPERIENCE:
Burawa, Joseph H. Groundwater Contamination	15	15

Brief Explanation of Responsibilities

Mr. Burawa is a professional geologist with experience in geological, hydrogeological, and solid and hazardous waste investigations. He has been responsible for numerous projects including environmental site assessments, voluntary action cleanup programs, underground storage tank compliance, hazardous and solid waste management, and environmental compliance.

Currie Landfill Investigation and Remediation Design, Millcreek Township, PA. *Pennsylvania Department of Environmental Protection.* Geologist. Responsible for developing and implementing work plans to investigate a former unlined disposal area possibly containing hazardous waste drums. The investigation included a surface water and sediment, and groundwater investigation. Responsibilities also included data collection and interpretation, and report preparation. Michael Baker provided environmental and engineering services for the remediation of the Currie Landfill. Michael Baker's services included program management, site investigations; soil, sediment, and groundwater sampling; development of risk assessments and a conceptual site model; site survey and mapping; geotechnical and geologic investigations; hydrologic and hydraulic analyses; environmental assessment and wetland delineation; remediation design; permitting; bidding-phase support; and construction services.

Kuhns Landfill, Darlington, PA. *Pennsylvania Department of Environmental Protection.* Project Manager. Responsible for overall project management, and technical oversight of the remedial investigation. Remedial Investigation included waste delineation, soil sampling, property survey, surface water and sediment sampling, groundwater well installation and sampling, vapor probe installation and sampling, aquifer characterization testing, and reporting.

Landfill Well Replacement, Confidential Location, WV. *Confidential Client.* Geologist. Responsible for conducting Phase I activities. Also responsible for data collection, interpretation, report generation, interacting with the client, tracking budgets, and QA/QC for deliverables. Michael Baker was contracted by the client to abandon one existing groundwater monitoring well and install a new groundwater monitoring well. The well replacement was needed to address a poorly constructed monitoring well in heavily fractured rock. The well replacement was a permit condition of the privately owned landfill operated at the site.

Mazzaro-McKees Rocks Landfill Site, SWRO, Kennedy Township, Allegheny County, PA. *Pennsylvania Department of Environmental Protection.* Project Manager. Responsibilities included client interaction, tracking budgets, and QA/QC of deliverables. Also served as project professional geologist, assisting with monitoring well installations. Responsible for data interpretation, and report generation. Michael Baker performed a Remedial Investigation at a former 70-plus acre landfill in order to characterize the waste, soil, groundwater, sediment, and surface water at the site. A slope failure, which occurred historically and had exposed the waste to the surface, including medical wastes, also was evaluated. Michael Baker performed an aerial photography, test pit, geophysical, drilling, and sampling program to achieve the characterization tasks.

GTAC 3 & 4 - Bear Creek Chemical Site, NWRO, (OVER 20 sites), Butler and Armstrong Counties, PA. *Pennsylvania Department of Environmental Protection.* Geologist. Developed and implemented work plans to characterize 18 individual sites by means of a Modified Phase I investigation. Michael Baker provided diverse environmental, engineering, and general technical assistance to the client for this project, involving up to 20 known or suspected related industrial waste disposal sites in two Pennsylvania counties. A variety of hazardous substances were present at the disposal sites and groundwater had been impacted over a large area affecting the water supply for hundreds of residents. Michael Baker is performing intrusive investigations of several areas of the Bear Creek Area Chemical Site.

EDUCATION (Degree, Year, Specialization)
B.S., 1990, Geology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
N/A	Licensed Remediation Specialist, 2003, West Virginia Professional Geologist, 2001, Pennsylvania Professional Geologist, 1998, Wyoming Professional Geologist, 2003, Texas Professional Geologist, 2004, Arizona Professional Geologist, 2007, North Carolina

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	YEARS OF LANDFILL GROUNDWATER CONTAMINATION EXPERIENCE:	YEARS OF LANDFILL GROUNDWATER CONTAMINATION-RELATED DESIGN EXPERIENCE:
Davis, Brian E. Groundwater Contamination	15	17

Brief Explanation of Responsibilities

Mr. Davis is a project manager with experience in geotechnical, geological/hydrogeological, mining, water resources, solid waste, and environmental investigations. He has been responsible for numerous projects related to geotechnical and water issues, mine permitting, hazardous and solid waste management, CERCLA, RCRA, Installation Restoration Program, environmental site assessments, underground storage tanks, and construction management. He has served as project manager, senior technical representative, task manager, principal investigator, site manager, and/or team leader on many of these projects. He has extensive experience with numerous complex drilling and sampling programs, including drilling and construction inspection, management, and oversight. He has presented and participated at public meetings, provided professional certification, testified under oath, and has worked for and conducted negotiations with USEPA, USDA, USACE, Department of the Air Force, Department of the Navy, Department of Homeland Security, PADEP, FHWWA, NHI, PennDOT, ODOT, OEPA and various other federal, state, and local regulatory agencies. He has managed multi-disciplinary staff in a variety of leadership capacities and roles.

STEP Pump System Improvement, Confidential Location, PA. *Confidential Steel Client.* Senior Geologist. Responsible for final walk through and acceptance by client on Michael Baker's behalf including meeting with client and reviewing the installed system. Michael Baker evaluated the STEP Landfill Acid Mine Drainage (AMD) transfer system with respect to its ability to transfer the increased flows that had been experienced since January 2003. The system was found to be limited primarily by friction losses in a heavily-scaled four-inch force main, but otherwise sufficient to handle the increased flow. A replacement six-inch force main was designed and installed and a construction certification report prepared and submitted to PADEP.

Punxsutawney Groundwater Site (CP), Punxsutawney, PA. *Pennsylvania Department of Environmental Protection.* QA/QC. Provided QA/QC reviews for project deliverables. Michael Baker investigated electroplating wastes discovered in shallow soil within a residential neighborhood. Michael Baker identified toxic liquids and vapors migrating into residential buildings, identified historic dumping of wastes in alleyways and through shop floors as the source areas for the contamination, and conducted a risk assessment to characterize the risk associated with the wastes. Wastes were subsequently excavated and removed by PADEP's emergency response contractors.

GTAC - Bishop Tube Site Investigation, Frazer, PA. *Pennsylvania Department of Environmental Protection.* Reviewer. Conducted QA/QC reviews of project deliverables. A Site Characterization Investigation was performed by Michael Baker at the Bishop Tube site on behalf of the PADEP. The purpose of the Site Characterization was to assess the distribution and concentration of fluoride, nitrates, metals, and chlorinated solvents contained in the soils, sediments, surface water, and groundwater media at the site.

Wolf Run Site Investigation, Pottstown, PA. *Pennsylvania Department of Environmental Protection.* Reviewer. Provided senior QA/QC review of project deliverables. Michael Baker performed site investigation activities to determine the extent of Trichloroethylene (TCE) contamination in the groundwater underlying the Wolf Run site, and in private residential and commercial wells in the surrounding vicinity. Michael Baker collected groundwater samples from 265 specific residential and commercial locations within the Wolf Run project area to delineate the TCE plume. Results indicated the presence of three distinct plumes of groundwater contamination with TCE within the project limits, and 86 locations were found to contain elevated concentrations of TCE that exceeded PADEP Residential Statewide Health-based Groundwater Standard. Based on the investigation results, PADEP requested Michael Baker to manage the delivery of bottled water and facilitate installation of whole house carbon filtration units for residences impacted by high levels of TCE.

Morris Run TCE Groundwater Investigation, Lancaster, PA. *Pennsylvania Department of Environmental Protection.* Reviewer. Conducted QA/QC reviews of project deliverables. Michael Baker performed a Groundwater Investigation in a rural area of Bucks County, Pennsylvania to identify the source of trichloroethylene (TCE) impacting the water quality in several private wells. The investigation activities were prompted by the discovery of elevated levels of TCE by the local health department following complaints from the local homeowners. The project was then referred to the PADEP HSCA program for further investigation. Michael Baker worked with the client and conducted background research for developing a cost-effective solution to locate the source of TCE impacting the private residential wells at the site.

EDUCATION (Degree, Year, Specialization)
M.S., 2003Organizational Leadership
B.S., 1984, Geology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
N/A	Professional Geologist, 1994, Pennsylvania Professional Geologist, 2010, Delaware

13a. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE DESIGN (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	YEARS OF LANDFILL CLOSURE COST ESTIMATING EXPERIENCE:	YEARS OF RELATED LANDFILL CLOSURE COST ESTIMATING EXPERIENCE:
Weiss, Jeffrey P. Landfill Closure Cost Estimating	2	9

Brief Explanation of Responsibilities

Mr. Weiss is a construction associate within the Construction Services Department of Michael Baker. Since joining Michael Baker, he has been actively involved in preparing cost estimates, construction schedules, and providing construction management services for various clients while utilizing the latest software and industry technologies. Upon graduating from the University of Pittsburgh, with a Bachelor of Science in Civil Engineering and a certificate of Construction Management, Mr. Weiss entered the construction industry as a surveyor. He then progressed to a project engineer and superintendent, where he gained valuable knowledge as to how construction projects are phased, scheduled, constructed, and managed. This experience enabled him to successfully transition into a project management role where he worked on numerous projects that have included commercial, religious, industrial, military installations, hospitals, medical institutions, educational, and correctional facilities. Having managed projects for both general contractors and construction managers, while working with both union and open shop contractors, Mr. Weiss possesses the unique ability to relate to and work with a client from concept through design and construction to commissioning. His knowledge and experience have carried over to Michael Baker where he draws on this experience to provide the highest quality outcome in all aspects of a project.

Engineering Design for the Coney Island WPCP Plant Up-grade, Brooklyn, NY. *New York City Department of Environmental Protection.* Cost Estimator. Provided construction cost estimates for several options to repair facility plumbing issues. Michael Baker, in joint venture with another firm, has been providing engineering services on a continuous basis since 1979 for the upgrade of the 100-mgd Coney Island Water Pollution Plant. The plant services an area of more than 22 square miles with a population of 690,500 and treats primarily domestic wastewater with some industrial and commercial wastes.

Environmental and Asbestos Remediation Services, Ashtabula County, OH. *Ashtabula County Port Authority.* Cost Estimator. Provided construction cost estimates and site survey for feasibility of remediation of industrial facility. Michael Baker completed previously initiated investigations and remedial tasks necessary to advance the former First Energy Plant C through the Ohio Environmental Protection Agency (OEPA) Voluntary Action Program (VAP). The plant is being operated as a pumping station for the intake/release of water from Lake Erie for use by local manufacturers. Michael Baker provided environmental program management support, including facility engineering, compliance, permitting, bid specifications, and bid analysis for plumbing, electrical, structural, and remedial actions at the facility. Michael Baker led the client's successful effort to obtain a Clean Ohio Revitalization Fund grant for $3 million in 2007 and a Covenant Not to Sue (CNS) for the site from the VAP in December 2012. Michael Baker also performed Phase I and II environmental site assessments, asbestos and hazardous materials surveys, asbestos abatement design and oversight, and soil and fly ash remediation design and oversight.

Transit, Fleet, and Highway Department Equipment Maintenance and Transit Operations Center, Montgomery County, MD. *Montgomery County, Department of Environmental Protection.* Cost Estimator. Responsible for site and civil quantity take-off and collection of vendor quotes. Michael Baker provided architecture and engineering design and public involvement for a new, 481,400-square-foot equipment maintenance and operations center for the county's Transit, Fleet, and Highway Departments. The project consists of two complexes on adjoining sites; the 339,800-square-foot Transit and Fleet Services complex, which accommodates maintenance and operations facilities for 300 buses, 3,000 heavy vehicles, and 600 employees; and the 141,600-square-foot Highway Services complex, which includes offices, a bunk room, kitchen facilities, a warehouse, salt barns, and parking for round-the-clock emergency operations. The center was designed for a LEED® Silver rating, although LEED® Gold certification was awarded in December 2014.

Advanced Training Center Facilities Design Oversight, Harpers Ferry, WV. *U.S. Army Corps of Engineers, Fort Worth District.* Cost Estimator. Responsible for quantity take-off. Michael Baker assisted in the development of construction documents for the Advanced Training Center for the Shower/Locker Room Facility, Dining Facility, Welcome/Security Command Center, and Dormitory/Conference Area. Michael Baker participated in design reviews, provided technical support, created cost estimates during the development of the construction documents, ensured that the drawings and specifications were properly formatted according to client standards, created the construction request for proposals and ready-to-advertise package, and provided support through construction contract award and during construction.

EDUCATION (Degree, Year, Specialization)
B.S., 2004, Civil Engineering/Construction Management

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
Construction Management Association of America	N/A

13b. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR LANDFILL CLOSURE QA/QC (describe project). (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE	
	YEARS OF LANDFILL CLOSURE DESIGN EXPERIENCE:	YEARS OF LANDFILL CLOSURE-RELATED DESIGN EXPERIENCE:
Jeffreys, Carl V. QA/QC	20	20

Brief Explanation of Responsibilities

Mr. Jeffreys is a professional engineer with a background in environmental management, engineering design, and construction. Carl has held several positions of responsibility including project manager, contract manager, section manager, and client manager. As a principal point of contact for clients, Mr. Jeffreys formulates project scopes, manages, and serves as senior technical reviewer on a wide variety of government and private sector projects involving engineering design, construction, environmental management, and negotiations with regulatory agencies.

Landfill Design and Permitting, Masontown, PA. *Allegheny Energy Service Corporation.* Project Manager. Responsible for managing the final design and permitting of a 100-acre double-lined landfill, lined surface impoundment, and an associated haul road. Baker developed the design and permit application modules for a 100-acre Class 1 Residual landfill in Pennsylvania for coal combustion byproduct materials to support the operational needs of an electrical power-generating station. Additional Michael Baker responsibilities included Construction Quality Assurance plans, surveying, cultural resource investigations, wetland delineation and mitigation design, and soil borrow source evaluation for the landfill subbase and cover. During construction, Michael Baker attended weekly contractor meetings and responded to contractor requests for information.

Kelly Farm and Currie Landfill Quality Control Reviews, Butler and Armstrong Counties, PA. *Pennsylvania Department of Environmental Protection – GTAC.* Responsibilities included senior level review of design specifications, construction quality control plans; scoping and review of dike stability evaluations; and cap design reviews. A variety of hazardous substances were present at the disposal sites and groundwater had been impacted affecting the water supply of residents.

Maryland Sand, Gravel and Stone Superfund Site, Cecil County, MD. *Clean Sites Environmental Services, Inc.* Engineer. Responsibilities included providing design support and performing QA/QC reviews to characterize and remediate a contaminated groundwater aquifer located on a National Priority-listed site. Michael Baker characterized and remediated a contaminated groundwater aquifer at the site of a former sand and gravel quarry that has been on the U.S. Environmental Protection Agency (EPA) National Priorities List as eligible for long-term remedial action financed by the federal Superfund program since 1982. Michael Baker's services included field investigation, groundwater sampling/ analysis, groundwater modeling, monitored natural attenuation evaluation, feasibility study, remedial design, construction oversight, and long-term monitoring.

Landfill Design Evaluations, USEPA Technical Assistance Contract, Throughout the United States. Project Manager. This contract involved the technical and compliance review of permits, and landfill designs; development of guidance documents; and participation in meetings with the regulated community as EPA's consultant. Design reviews included landfills, closure covers, surface impoundments and groundwater monitoring plans.

Landfill Stabilization and Closures, Cleveland Hopkins International Airport (CLE), Cleveland, OH. *City of Cleveland, Department of Port Control.* Responsible for managing the stabilization of landfill wastes and capping of multiple landfills. This included landfill cap designs; improvement of foundation wastes and soils within landfill areas with compaction grouting; and negotiations with OEPA.

EDUCATION (Degree, Year, Specialization)
M.S.C.E., 1986, Civil Engineering
B.S., 1982, Geology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
N/A	Professional Engineer, 1990, Pennsylvania Professional Engineer, 1992, Ohio Professional Engineer, 2010, Colorado Professional Geologist, 1994, Pennsylvania

14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE THIS PROJECT (Site Characterization Study, Leachate Management & Closure Cap for Webster County Landfill (CEOI 0313 1600000013)

SURVEY EQUIPMENT

Survey/Global Positioning System (GPS)
Leica System 500 - SR 530 RTK - GPS Receiver
Leica RS500 Geodetic Reference Station (RTK – COR Station)
Pacific Crest ADL Vantage Pro 2-35 Watt UHF – GPS-RTK Trans/Receiver
Airlink Raven CDMA C3210 Wireless Modems – Sprint Service, Public Random IP
Airlink Raven CDMA C3210 Wireless Modems – Verizon Service, Static IP
Leica Disto – Pro (Handheld EDM)
Leica Viva GNSS dual frequency receivers
Leica 1230 GNSS dual frequency receivers
Trimble R8 Model 3 GNSS dual frequency receivers

Pipe/Cable Locators
Radio Detection RD4000 with 3 watt transmitters
Radio Detection RD8000 with 10 watt transmitters
Radio Detection RD7000 with 3 watt transmitter
Optical Ranging Inc. Spar 300 locating system integrated with the Trimble R8 receivers

Total Stations
Wild TC 2000

Tripods
64

Total Stations with Onboard Data Collection
Leica TCRP 1200 total station, fully robotic
Leica TS 15P total station, fully robotic Optical Plummet
Wild ZNL-16 (11164)

Magnetic Locators
Chicago Steel Tape - FT - 60
Schoenstedt
Subsurface Instrument – ML-1

Levels *(Engineering)*
Zeiss Ni 2 automatic level with Nedo folding rod
Wild N-3 with Nedo folding rod
Topcon Dini digital levels with bar code rods
Leica NA2 automatic level with 16 ft rod

GPS Antennas
Leica AT502
Leica AT503 w/Chokering and Ray-Dome
Leica AT504 w/Chokering and Ray-Dome
Leica GS 15
Trimble R8 GNSS

Vehicle / Boats
4 Wheel Drive Suburbans
4 Wheel Drive Jeep
4 Wheel Drive Pickup
8 Wheel Argo – Amphibious ATV
Utility Trailers (10' and 14')
Yamaha- Quad ATV

Fathometer
Innerspace Tech Model 455 – 200 KHz 8° Transducer

Survey Software
Leica GIS Data Pro Version 3.0
Innerspace Technology Version 6.0 Data Logging with Guidance
Leica GeoOffice Version 7.5 and 8.3
Trimble Pathfinder Office Version 4.0
Listech – Liscad 10.0 (COGO)
MicroStation Version V8i and XM
Leica SPIDER CORS Controlling Software Version 2.0
AutoCAD Civil 3D 2011 and 2014

Field Laptops PCs
HP Elite laptop PCs
Panasonic Model CF19 Tough Book

GIS SOFTWARE

Esri
ARC/Info, Version 10.X
ArcView, Version 10.X (6 are Beaver licenses)
ArcEditor, Version 10.X (6 are Beaver licenses)
Spatial Analyst
3D Analyst
ArcCOGO

AutoCAD, Version 2014 and prior versions
Visual Basic, Version 6
Visual Studio 2013 Architects w/MSDN Premium
Visual Studio 2013 Developers w/MSDN Premium
Visual Studio 2013 Pro w/MSDN Premium

ARCInfo and ARCEditor are concurrent licenses
ARCView concurrent licenses

ChemStat

MOBILE LIDAR

Sensor
LYNX Mobile Mapper System with 2 Sensors.

LiDAR Processing WorkStations
HP E5540 2.53 GHz, 18 GB RAM, 1.4 TB of disc space

Servers
HP DL380, 2.1 TB of disc space,
ATMOS R610 DP Server GBE HA TITAN, 120 TB of disc space

Software
Optech ALTM Navigation-Planner
Applanix POS PAC
Optech Dashmap
TerraSolid TerraScan
TerraSolid TerraMatch
TerraSolid TerraModeler
TerraSolid Terraphoto
TerraSolid Terraslave
GeoCue Enterprise Server
GeoCue Client
Geocue LiDAR CuePac
Geocue LYNX MMS CuePac

PHOTOGRAMMETRIC EQUIPMENT

Softcopy Stereoplotters
HP X5670 @ 2.93 GHz Processor X2 (Xeon), 18 GB RAM, 64 BIT Operating System
HP E5645 @ 2.40 GHz Processor X2 (Xeon), 24 GB RAM, 64 BIT Operating System

Digital Orthophoto
HP Z600 E5640 @ 2.67 GHz Processor X2, 120 GB RAM, 232 GB Disc Space

Scanner
Z/I PhotoScan – Variable Resolution Settings from 7 to 256 microns.

Server
Compaq Proliant DL380
Xeon 3 GHz Processor
5.1 GB Memory
1 Terrabyte Disc Storage
1.2 Terrabyte Network Attached Storage

Software
MrSID, Geo Express 8.5
ImageStation Automatic Triangulation (ISAT) 6.2
IRAS – C, Version 10.1
Adobe Photo Shop 5, Version 10.0
ERDAS Imagine, Version 2010
ImageStation Base Rectifier-ISBR, Version 6.2
ImageStation DTM Collection-ISDC, Version 6.2
ImageStation Feature Collection (ISFC) 5.3
ImageStation Model Setup (SMS) 5.3
ZI Ortho Pro/Geo Media, Version 6.2
MicroStation – J & 8, Versions V8 and V81
MRF Mapping Tool Kit for GIS Linework Processing, Version 8.1
Corporate licensed Axiom Productivity Kit including File Fixer and English to Metric Conversion packages

15. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED ENGINEER OF RECORD ASSOCIATED WITH OR RELATING TO LANDFILL CLOSURE OR CONSTRUCTION

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
Site Characterizations and Removal Actions at Landfills and Dump Sites Multiple U.S. National Park Locations	National Park Service (NPS) Intermountain Region Mr. Jay Boisseau NPS-IMSO-DE 12795 West Alameda Parkway Lakewood, Colorado 80228	Since 2002, Michael Baker has provided the National Park Service (NPS) with a broad range of environmental support services that include comprehensive technical services and administrative support to 60 facilities in the Intermountain Region of the NPS. Under this program, a portion of Michael Baker's services included performing site characterizations at over 12 landfills/dump sites, subsequent development of closure plans, and remedy oversight (typical NPS presumptive remedy for these sites is a removal action). Several of these sites have been closed, but remaining sites are currently in various stages of completion ranging from initial site characterization completed to remedy implementation. Remaining work elements potentially include additional site characterization, data assessment, plan development (determine waste quantities and outline techniques for waste excavation, recycling, and sustainable techniques used to support the Green Parks Program), and ultimately remedy implementation, which includes excavation (waste only) with restoration and re-vegetation to natural conditions.	$1,400,000 $450,000 (fee)	Ongoing (60%)
NRG Indian River Station Dagsboro, Delaware	Indian River Power, LLC 29416 Power Plant Road Millsboro, DE 19966	Over the past 30 years, Michael Baker has provided engineering and permit compliance related services to the NRG Indian River Station. Services have included: Initial Phase I Permit development; Engineering Design for Phase I Landfill Height Extension; Annual Hydrogeologic Report Preparation; Leachate Evaluation; Phase II Permit Assistance – Hydrogeology; Annual Report Preparation; Desktop Evaluation and Geoprobe Investigation; and Semi-annual Water Quality Monitoring.	>$1,000,000 (fee)	Ongoing
STEP Residual Waste Landfill West Mifflin, Pennsylvania	Confidential Client	Michael Baker provided comprehensive evaluation, design, and permitting services for the STEP Residual Waste Landfill. Michael Baker's multi-phased approach to this landfill expansion project enabled the client to select the most cost-effective waste disposal option to serve its nearby manufacturing facilities. Potential landfill operating scenarios ranged from multiple capping/closure options without expanding the existing residual landfill footprint to constructing a new cell(s) in order to significantly increase the existing landfill capacity. Michael Baker's tasks included: Historic Document Review, Existing Condition and Environmental Assessments, Hydrogeologic Evaluation,	$500,000 (fee)	98%

15. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED ENGINEER OF RECORD ASSOCIATED WITH OR RELATING TO LANDFILL CLOSURE OR CONSTRUCTION

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
		Survey and Mapping, Wetland/Stream Delineation, Landfill Design and Permitting, Grading Plans, Constructability Reviews, and Construction Cost Estimating.		
Environmental Remediation Services, Maryland Sand, Gravel, and Stone Superfund Site Cecil County, Maryland	Clean Sites Environmental Services, Inc. 46161 Westlake Drive, Suite 230-B Potomac Falls, VA 20165	Michael Baker characterized and remediated a contaminated groundwater aquifer at the site of a former sand and gravel quarry that has been on the U.S, Environmental Protection Agency National Priorities List as eligible for long-term remedial action since 1982. Michael Baker's services included field investigation, groundwater sampling/ analysis, groundwater modeling, monitored natural attenuation evaluation, feasibility study, remedial design, construction oversight, and long-term monitoring.	$6,500,000 (fee)	Ongoing
TOTAL NUMBER OF PROJECTS: 4		**TOTAL ESTIMATED CONSTRUCTION COSTS: $8,000,000 (Michael Baker Fee only)**		

16. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS SERVING AS A SUB-CONSULTANT TO OTHERS RELATING TO LANDFILL CLOSURE OR CONSTRUCTION

PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRMS RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				ENTIRE PROJECT	YOUR FIRM'S RESPONSIBILITY
None					

17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD (LIST 5 TO 7)

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
MIDC Hazardous Site Cleanup Act (HSCA) Site, 2002-2013 Field Investigations, Design, and Closure Elizabeth Borough, Allegheny County, Pennsylvania	Confidential Client *Contact information available upon request due to the confidentiality of the project.*	Confidential	2013	Yes
Kelly Farm Sludge Lagoon Remediation Design Fairview Township, Butler County, Pennsylvania	Pennsylvania Department of Environmental Protection 230 Chestnut Street Meadville, PA 16335	$265,000 (fee)	2014	Yes

17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD (LIST 5 TO 7)

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
Currie Landfill Investigation and Remediation Design Erie, Pennsylvania	Pennsylvania Department of Environmental Protection 230 Chestnut Street Meadville, PA 16335	$1,115,000 (fee)	2014	Yes
GTAC Program-Wide Site Investigations under HSCA Various Locations, Pennsylvania	Pennsylvania Department of Environmental Protection Rachel Carson State Office Building, 400 Market Street Harrisburg, PA 17101	>$30,000,000 (fee)	2015	Yes
Landfill Evaluation, Permitting and Engineering Design, South Taylor Environmental Park West Mifflin, Pennsylvania	Confidential Client *Contact information available upon request due to the confidentiality of the project.*	Confidential	2014	Yes
Coal Combustion Byproduct Landfill Expansion Landfill Design & Permitting Services Hatfield's Ferry Power Station, Masontown, Pennsylvania	Allegheny Energy Service Corporation 800 Cabin Hill Drive Greensburg, PA 15601	$50,000,000 $4,00,000 (fee)	2011	Yes
Chemical Plant Decommissioning and Demolition Services (includes landfill permit modifications) Washington, West Virginia	Saudi Basic Industries Corporation (SABIC) 9226 DuPont Road Washington, WV 26181	$1,800,000 (fee)	2016	Yes

18. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM HAS BEEN A SUB-CONSULTANT TO OTHER FIRMS (INDICATE PHASE OF WORK FOR WHICH YOUR FIRM WAS RESPONSIBLE) LIST 5 TO 7.

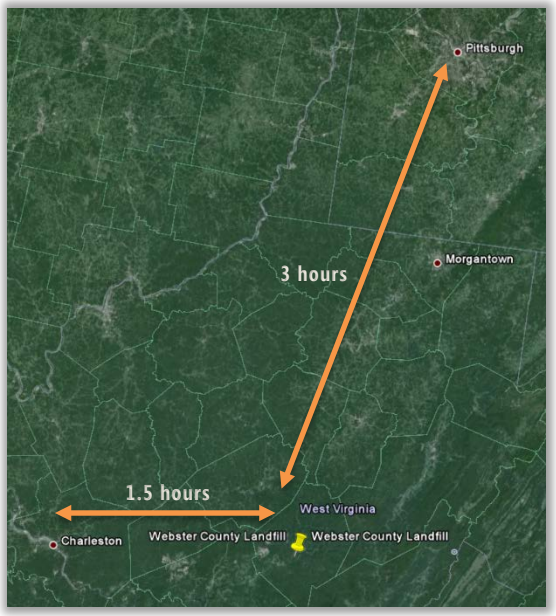
PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST OF YOUR FIRM'S PORTION	YEAR	CONSTRUCTED (YES OR NO)	FIRM ASSOCIATED WITH
None					

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the Site Characterization Study, Leachate Management & Closure Cap For Webster County Landfill

The following information provides additional information regarding Michael Baker International's overall capabilities, relevant experience and expertise (in the form of specific project descriptions) and our proposed project team. Michael Baker has conducted literally hundreds of site characterization studies for environmental, geotechnical and civil engineering (environmental, transportation, surface water and land development related) purposes. We also have performed extensive landfill closure design and buried waste encapsulation/remediation activities as described below in the Team Experience section.

MICHAEL BAKER

Michael Baker International is a leading global provider of engineering and consulting services which include planning, architectural, environmental, construction, program management, and full life cycle support services as well as information technology and communications services and solutions. The company provides its comprehensive range of services and solutions in support of U.S. federal, state, and municipal governments, foreign allied governments, and a wide range of commercial clients. Michael Baker International has more than 6,000 employees in more than 90 locations across the U.S. and internationally.



Local support from our Charleston, West Virginia office will allow Michael Baker to expeditiously provide the full spectrum of services needed for this contract.

Michael Baker provides engineering, design, planning, and construction services for its clients' most complex challenges worldwide. The firm's markets include Airports; Community Revitalization, Smart Cities, Healthy Communities; Education; Energy; Healthcare; Highways, Roadways & Bridges; Master Planned Development; Military Base Development, Operations & Reuse; Oil & Gas; Rail & Metro; Residential, Commercial, Industrial & Institutional Development; Resorts, Entertainment & Hospitality; Security & Intelligence; Sports & Recreation; Sustainable Design & LEED; and Water Supply, Wastewater Treatment, Recycled Water & Desalination Facilities.

Michael Baker performs well in its core markets, with *Engineering News-Record* (ENR) magazine rankings consistently in the top 10 percent of the 500 largest U.S. engineering design firms (currently 33rd). Michael Baker has grown and prospered without losing sight of its primary purpose: *Creating value for our clients by delivering innovative and sustainable solutions for infrastructure and the environment.*

MICHAEL BAKER – THE WEBSTER COUNTY LANDFILL TEAM

The Michael Baker Team provides a solid project approach, with the qualifications and relevant landfill closure design experience that enables WVDEP to benefit from our ability to draw professional staff from different disciplines that have actual working knowledge of the many aspects of the Site Characterization Study, Leachate Management & Closure Cap for the Webster County Landfill. The value that the staff experience brings to the project comes from past and present WVDEP projects; years of working with Municipalities, Authorities, and governmental agencies; and from experience gained on large-scale infrastructure projects in West Virginia and the surrounding areas.

The team proposed for this project is rooted in the community, with a keen interest in advancing the goals of WVDEP. Michael Baker staff is available to work from our Moon Township, PA office, with local support from our Charleston, WV office, in order to assist WVDEP in a responsive and efficient manner. Supporting the Michael Baker Team will be a select number of subconsultants, who have been specifically identified based on their past experience with WVDEP and providing similar services on Michael Baker projects.

For virtually all of the potential project assignments identified under the scope of work provided in the EOI, the Michael Baker Team has presented a unique set of qualifications:

- ☑ Proven track record of successful completion of major WVDEP projects on time and within budget;
- ☑ Consistent Michael Baker staff assignments for management and technical lead roles;
- ☑ Case histories of relevant projects with scopes similar to upcoming WVDEP projects;

- ☑ Diverse array of Michael Baker support staff capabilities such as biologists, CADD operators/designers, designers, geologists, hydrologists, soils engineers, surveyors/technicians, etc.;
- ☑ Dedication to including subconsultants with good working relationships with WVDEP and Michael Baker;
- ☑ Knowledge of WVDEP design standards for all types of projects;
- ☑ Knowledge of WVDEP operations and engineering data;
- ☑ Leading-edge technologies;
- ☑ Good working relationship with WVDEP staff and other WVDEP consultants; and
- ☑ A diverse staff of professionals that WVDEP can draw upon quickly

The project approach and qualifications presented in this proposal give WVDEP some insight into how the Michael Baker Team will utilize our staff and technological resources to handle the project assignments as part of the Site Characterization Study, Leachate Management & Closure Cap for the Webster County Landfill.

MICHAEL BAKER TEAM MEMBERS

Cascade Drilling, L.P. Founded in 1991, Cascade Drilling, L.P. (Cascade) is a privately held corporation headquartered in Woodinville, Washington, with an office in Marietta, Ohio. The firm has grown from a specialized regional drilling provider to a national, full-service company offering innovative solutions for every step of your project from advanced site characterization to drilling to collaborative remedial design and implementation. Today, Cascade is the leading provider of environmental drilling, in-situ remediation applications, and direct sensing technologies in the United States with a strong focus on the high-end, differentiated sonic drilling technology. The firm's diverse portfolio of environmental, investigation and remediation services are evidence of its ability to complete even the most challenging projects on time and on budget. Cascade's high-quality service, reliable crews, and leading safety program make it the first choice in drilling services. Ranked a Top 200 *ENR* Environmental Services firm, Cascade offers the benefits of a national partner with the personal attention of a local contractor.

Cascade has serviced the environmental, water supply, geotechnical, mining and construction markets for decades. Its clients include leading national environmental consulting firms, blue chip industrial companies, contractors, energy and utility providers and government agencies. Cascade services all branches of the U.S. Military, major defense contractors, port facilities and airports. Its personal service, attention to detail, exemplary safety record, and operational excellence result in long-term collaborative relationships with its clients.

Cascade owns and operates one of the largest fleets of environmental drilling, investigation, and advanced site characterization equipment in the United States. Its clients have access to the most advanced technology available on the market today, operated and maintained by experienced professionals.

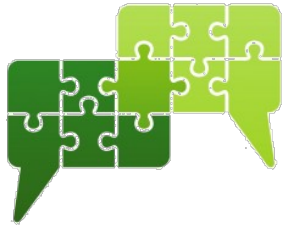
TestAmerica Pittsburgh. TestAmerica is the leading analytical laboratory for environmental testing services in the United States, with over 80 locations nationwide. TestAmerica focuses on delivering analytical services that address current environmental analysis issues and develops new solutions for challenges that the market and our clients anticipate facing in the future. Its comprehensive laboratory service package, innovative technical expertise and superior online data management solutions are among the many reasons TestAmerica is recognized as the industry's leading environmental laboratory.

The Pittsburgh laboratory has extensive experience in serving the needs of numerous landfill clients. The Pittsburgh laboratory offers full-service environmental analyses including organic, inorganic and classical chemistry techniques on a variety of matrices. The 34,000-square-foot facility is staffed with more than 70 scientists and support personnel. The Pittsburgh laboratory is WVDEP-certified. TestAmerica's network of laboratories offers additional capacity through eight additional West Virginia certified laboratories located in Buffalo, NY; Canton, OH; Denver, CO; Knoxville, TN; Nashville, TN; Pensacola, FL; Savannah, GA and St. Louis, MO. It has sufficient capacity to handle a variety of large and complex analytical programs as well as being able to provide results to support projects requiring accelerated schedules.

MANAGEMENT APPROACH

Our management approach is simple and straightforward, built around a solid set of principles that have been proven on projects large and small for the past 75 years. Our strategy emphasizes teamwork and open communication with a goal of understanding WVDEP's needs and concerns early in the process. We strive to create an environment where everyone shares their strengths for the mutual good of the project. Key in this effort is project partnering. Partnering is people working together - a voluntary system of handling normal, everyday surveying, engineering and construction challenges in a mutually agreeable manner before they become major issues. The Michael Baker Team will initiate partnering to understand goals and open communications, which results in a streamlined project delivery/project execution on time and within budget. We understand that it's through teamwork successful projects are delivered.

By taking the time at the beginning of the project to identify goals, clarify client expectations, establish lines of communication, define responsibilities, and confirm a commitment to cooperative problem solving, the stage will be set for a successful project effort and establishing an integrated working relationship with WVDEP. Michael Baker's three key components to project management are:



1. Daily Engagement
2. Effective Communication
3. Responsible Execution

These three aspects are applied in every component of a Michael Baker project. The most frequent causes of project disruption are delayed decisive actions. By applying these three principles to every section of a project, Michael Baker will not only help mitigate issues throughout the three phases of this project, but will facilitate paths to address issues that may arise.

This internal program clearly defines the process by which all projects are managed throughout Michael Baker so the Department will always experience a uniform project delivery. The ultimate objective of our system is to improve project performance. The following are key features of Project Management – "The Michael Baker Way":

- Establish policies and procedures
- Define individual responsibilities and roles
- Establish clear and open lines of communication
- Provide guidelines for decision making
- Establish priorities and action items
- Provide timely and accurate management information on items such as budget and scheduling
- Ensure that the highest level of quality is maintained
- Provide adaptability to change

WVDEP EXPERIENCE

Michael Baker has been providing engineering services to the West Virginia Department of Environmental Protection (WVDEP) since they initiated its AML Reclamation Program in 1983. We also provide services in this area to the WVDEP (OSR), Pennsylvania Department of Environmental Protection (PADEP), Department of Interior (National Park Service), the Ohio Department of Natural Resources (ODNR), and the U.S. Office of Surface Mining (OSM), to name a few. Through these experiences, Michael Baker has garnered recognition and developed long-standing business relationships through successful endeavors based on our ability to provide the following services at a level that meets environmental standards while exceeding client expectations:

- Reclamation of mine refuse piles
- Mine Sealing
- Subsidence Control
- Balanced earthwork and grading
- Strip pit and high wall reclamation
- Drainage conveyance and improvements

- Revegetation of acid bearing ground
- Stream relocation and natural stream channel design
- Wetland assessments and inventory
- Restoration of streams and wetlands
- Landslide identification, investigation and remediation
- Replacement of water supplies affected by mining
- Efficient Passive and active AMD treatment systems

PROJECT TEAM EXPERIENCE

Michael Baker has been providing closure and remediation services for various types of waste landfills and large abandoned, often unpermitted, waste piles for our public and private sector clients for over 30 years. Michael Baker has significant mixed-waste landfill design, permitting, and construction monitoring experience. Project descriptions for several recent projects including landfill expansion design & permitting projects, and landfill closures are presented on the following pages.

MIDC Hazardous Site Cleanup Act (HSCA) Site, 2002-2013 Field Investigations, Design, and Closure

Elizabeth Borough, Allegheny County, Pennsylvania

Michael Baker served as the permitting lead, design engineer, and construction manager responsible for the investigation, waste compatibility and treatability studies, design, cost estimating, construction management, certification report, and project meetings with PADEP Hazardous Sites Cleanup Program (HSCP) personnel for the remediation of coal tar, closure of landfills and coal tar impoundment area throughout a several hundred-acre area. This project required the consolidation of on-site wastes into three discrete areas. Additional work included wetlands delineations, various permits, meetings with Elizabeth Township officials, and conducting weekly project meetings with the client, PADEP, Michael Baker, and a number of specialty subcontractors. Michael Baker continues to actively provide long-term O&M support for the site.

Subsite Clean Closure

Michael Baker provided the design and construction oversight for an innovative floating cap for over 40,000 CY of coal tar utilizing a cellular (foam) concrete, geosynthetics barrier and drainage layers, and a lightweight expanded shale protective cover. For an additional area of waste consolidation, Michael Baker designed multiple grading plans to allow for uncertainty in waste volumes and prevent delays during field implementation. Real-time GPS survey on equipment and carried by project personnel allowed monitoring of grades and development of as-built drawings without a employing a survey subcontractor.

Innovative Cap

Major Accomplishments

- Over 300 acres of land in Allegheny County was returned to industrial use free of contamination.
- To complete the work in one construction season, Michael Baker served as site manager for three construction teams, managed drilling and laboratory subcontractors, and served as the Geosynthetic CQA contractor.
- At times, over $300,000 per week of expenditures were managed and documented on the project.
- Ongoing O&M performed by Michael Baker has documented a lush vegetative cover over disturbed areas and surface water features functioning as designed. Groundwater sampling of clean-closed areas has not revealed groundwater contamination.
- Michael Baker's project approach and innovative remedial design reduced site liabilities from $20 million, which was the estimate to implement remedial actions specified within the enforcement order, to less than half the cost at the completion of the project.

Currie Landfill Investigation and Remediation Design
Erie, Pennsylvania

Currie Landfill was a state-funded cleanup that now makes it possible for the property to transition into productive recreational and commercial use. The $4.4 million project was funded out of the Hazardous Site Cleanup Fund (HSCF). Michael Baker performed investigations, prepared remediation designs to close the Currie Landfill, enhanced site biological habitat, and provided for sustainable redevelopment of the property. Michael Baker has also developed bid specifications, assisted with contractor bid evaluation, and provided construction oversight during implementation of closure activities.

Michael Baker performed a predesign site investigation of the landfill. The two primary objectives of the site investigation were to characterize the nature and extent of the hazardous substances and contaminants on the site, or that may have migrated from the site, and to develop risk assessments and a conceptual site model. The site investigation included eight West Branch Cascade Creek sediment samples, 15 soil and waste test pits, installation and sampling of 10 groundwater monitoring wells and sampling of four existing monitoring wells. The investigation identified four compounds that were above the state's medium specific concentrations in groundwater and that have migrated into the sediments of West Branch Cascade Creek; tetrachloroethylene (PCE), trichloroethene (TCE), total 1,2-dichloroethene (1,2-DCE), and vinyl chloride. Fieldwork was guided by a site health and safety plan.

Michael Baker designed plans and specifications for waste relocation/consolidation, vegetated soil cover placement, adjacent stream cleanup and re-construction, installation of riparian buffer components along the site reach, wetlands reconstruction, surface water runoff controls, and sensitive habitat enhancement. Michael Baker prepared a 60 percent design for site closure, which included consolidation of the waste and capping the landfill and building two stormwater detention ponds to mitigate discharges during construction. Michael Baker prepared the final remediation design for the Currie Landfill site, consisting of consolidation of waste from Parcel A into Parcel B to facilitate commercial development of Parcel A; elimination of exposed waste along West Branch Cascade Creek, and grading of the remaining consolidated waste surface to accommodate construction of a two-foot-thick vegetated soil cover. Approximately 122,000 cubic yards of waste and impacted soil were excavated and relocated for cover. Michael Baker designed the cover grade to properly manage stormwater while allowing the site to be used as community athletic/recreational fields. Design considerations included slope protection, embankments, and shallow foundations. Michael Baker incorporated the use of geosynthetics in the design of gravel roads.

After the preliminary identification of potential wetland areas was completed, the study area was field surveyed for wetlands. Two wetland areas were identified, delineated and classified according to the United States Fish and Wildlife Service's (USFWS) *Classification of Wetlands and Deepwater Habitats in the United States* (Cowardin et.al. 1979) and the U.S. Army Corps of Engineers' Manual for Identifying and Delineating Jurisdictional Wetlands (1987) as amended.

The final remedial design required the relocation and stabilization of West Branch Cascade Creek in accordance with Pennsylvania Chapter 105-USACE joint permit regulations. This included completion of the necessary application forms, the Joint Permit and General Information Form, and notifications, which included Acts 14, 67, 68, and 127 letters, cultural resource notice and Pennsylvania Natural Heritage Program notice. Michael Baker completed hydrology and hydraulics calculations using the USACE's HEC-RAS software to ensure that the project would have no impact on local flooding; managed the wetland investigation, jurisdictional determination, and the project's environmental assessment; and prepared other items that were required to complete the permit application.

Michael Baker prepared a National Pollution Discharge Elimination System (NPDES) Individual Permit for Construction Activities to support the final remedial design that included the design of storm water best management practices (BMP) that are required to mitigate the project's effect on site drainage discharges during and after construction to meet NPDES requirements. An erosion and sedimentation control plan was also prepared and submitted it to the Erie County Conservation District for review and approval. Michael Baker also prepared a post-construction site drainage plan to mitigate the project's post-construction effects on the site's groundwater and downstream surface waters. Storm water quality controls included constructed wetlands, vegetated swales, and a riparian buffer along the restored West Branch Cascade Creek bank. Michael Baker selected plantings for each based on their ability to enhance water quality and their long-term survivability.

Michael Baker also prepared a Post Construction Stormwater Management Plan (PCSM) to mitigate the project's post-construction effects on the site's groundwater and downstream surface waters. Stormwater quantity controls were designed to ensure stormwater discharges leaving the site were not greater than discharge release rates described in the local township ordinances (70% of pre-construction rates). Stormwater quality controls included constructed wetlands, vegetated swales, and a riparian buffer along the restored West Branch Cascade Creek bank. Plantings were selected for each based on their ability to enhance water quality and their long-term survivability.

Major Accomplishments
The landfill closure was designed to maximize the resulting level-area for greatest re-use potential. Storm water runoff will be directed to a constructed wetland where suspended and dissolved solids (i.e. oil, grit, fertilizers, etc.) will be removed protecting the stream quality. A riparian buffer will be established along a nearby stream to stabilize its banks and reduce erosion. Together, the constructed wetland and riparian buffer will enhance the habitat of the area wildlife while reducing pollution within runoff from entering the stream.

Kelly Farm Sludge Lagoon Remediation Design
Fairview Township, Butler County, Pennsylvania

The site had been both deep and surface/strip mined that remained as an open hole until being partially filled with industrial/chemical waste until the 1970's. The resulting impoundment contained a tarry, waste exposed at the surface with sinkholes, and the surrounding walls crumbling and leaking from years of exposure and erosion. Michael Baker developed a preliminary design for capping the impoundment and covering the cap and surrounding walls to control leaking and erosion, and eliminate waste exposure. Michael Baker's design also addressed fortifying the existing retaining wall/unpermitted dam at the impoundment's end to improve waste containment and better control natural discharge. The wastes included calcium sulfate, disodium benzene disulfonate, meta-benzene disulfonic acid, benzene sulfonic acid, meta- and para-phenol sulfonic acid, resorcinol, aluminum hydroxide, calcium petronate, barium petronate, and waste white oils. The objectives of the interim remedial design were to eliminate waste exposure, reduce surface-water infiltration, reduce seepage into adjacent surface waters, reduce containment wall erosion and migration of waste, provide waste cover via synthetic and natural materials (vegetative soil layer), and fortify the end embankment to reduce the potential for slope/wall failure.

Wetland Site Surveys. Prior to preparing the design, Michael Baker reviewed available aerial photography to identify areas that were suspected of containing wetlands. Michael Baker performed detailed field investigations to identify and delineate wetlands in accordance with the USACE Wetland Delineation Manual, by reviewing the vegetation, soil conditions, and hydrologic conditions. Michael Baker surveyed the wetland boundaries using mapping-grade differential global positioning system (GPS) technology, and entered the data into a geographic information system (GIS) database. Michael Baker also used data forms and photographs to document wetland boundaries, and flagged and numbered wetland limits.

Michael Baker prepared and submitted a letter report requesting jurisdictional determination and boundary verification to the USACE Pittsburgh District, and requested client and USACE staff to schedule a field visit. During the field visit, Michael Baker documented in detail suggestions and recommendations from the resource agencies, and prepared minutes and forwarded them to all participants. Michael Baker also submitted the wetland boundary information to the U.S. Environmental Protection Agency (EPA) for review. Following the regulatory agency review, Michael Baker performed GPS surveys of areas to be adjusted, and revised the wetland boundary maps to incorporate agency comments.

Design Plans and Specifications. The interim closure design for the Kelly Farm impoundment included draining standing water from the lagoon, constructing an impermeable cap, establishing a vegetated soil cover with positive drainage, and constructing perimeter diversion channels to prevent stormwater from flowing over the cap and dam greatly reducing erosion. Michael Baker's cap design included placement of a geotextile and geogrid layer over the surface; placement of a soil layer over the geogrid to provide positive drainage; installation of an impermeable, high-density polyethylene geomembrane and a geocomposite drainage layer to reduce infiltration into the underlying waste material; and construction of a two-foot, vegetated, soil cover to protect the synthetic cap components and minimize erosion.

Permit Documentation. Michael Baker prepared an individual NPDES permit for the Kelly Farm impoundment. The permit requires erosion and sediment pollution control plans, post-construction storm water management plans, cultural resource notice forms, and detailed project description narratives. Michael Baker prepared dam safety permit documentation for the Kelly Farm sludge lagoon project, including construction drawings, stability analysis, project description narrative, color photographs and maps, a hydrologic and hydraulic analysis, environmental and human-health risk assessments, an emergency action plan, an instrument monitoring plan, information regarding the chemical content of the lagoon, copies of inspection reports, and an operations and maintenance manual detailing routine maintenance plans, including regular inspections and repairs, as needed.

Design Submissions. Michael Baker prepared drawings, plans, specifications, and cost estimates at the 60 percent and 90 percent design levels, and final bid documents. The design submission for the Kelly Farm sludge lagoon remediation included a construction quality assurance plan.

Construction Support and Final Report Preparation and Certification. As the design engineer, Michael Baker conducted regular inspections of the design implementation/ construction activities. Michael Baker provided the Department with direction on impoundment cover installation, implementation of erosion control measures on the surrounding slopes and dam reconstruction with drainage controls. Michael Baker also prepared the final construction inspection report/documentation in accordance with Department permit requirements.

Major Accomplishments
The use of in-place engineered waste controls eliminated the need for costly, time-consuming removal/disposal actions while protecting the surrounding environment, sensitive habitats and residents/site users from exposure to hazardous materials.

GTAC Program-Wide Site Investigations under HSCA
Various Locations in Pennsylvania

Michael Baker was selected as a contractor by the Pennsylvania Department of Environmental Protection under their General Technical Assistance Contract (GTAC) program. Through this contract, Michael Baker primarily conducted site characterizations of various magnitudes ranging from simpler site history/operation and regulatory compliance reviews, to multi-phase investigations including media sampling, computer modeling, and remedial design.

The projects conducted to date have involved a variety of site settings and contaminated media. Michael Baker's work has included investigations and engineering studies at former industrial facilities, former landfills/ dumps, suspected spill areas, plating shops, manufactured gas plants, salvage yards, former train yards, and former gas stations. Most of the studies have evolved around groundwater and soil contamination (solvents being the primary constituent). However, surface water, sediment, soil gas and even indoor air were addressed at project sites. Contaminants at the sites included chlorinated solvents, BTEX, MTBE, PAHs, heavy metals, PCBs, creosote constituents, phenolic compounds, MEK, and proprietary chemicals (resorcinol).

Project sites have ranged in size from very small tank sites (less than a quarter acre) to regional areas encompassing several square miles. Some studies included the investigation of groundwater in highly residential and commercial areas where the source of contamination was unknown. Other projects involved sampling sanitary and storm sewers in order to trace the source of indoor vapors.

Major Accomplishments
- Expediting the site assessment at the Delps Road site prevented an innocent public entity from costly mitigation activities and allowed an abandoned property to be developed into a community park.
- The client completed several of Michael Baker's client satisfaction surveys for this contract. Michael Bakers' aggregate rating is 4.2 on a 5.0 scale with 4.0 being "Well Done" and 5.0 being "Superior"; and Michael Baker has never been rated less than adequate under this contract by the client.

Landfill Evaluation, Permitting and Engineering Design, South Taylor Environmental Park
West Mifflin, Pennsylvania

Michael Baker provided comprehensive evaluation, design, and permitting services for the expansion of a Residual Waste Landfill (RWL) located in West Mifflin, Pennsylvania. Michael Baker's multi-phased approach to this landfill expansion project enabled the client to select the most cost-effective waste disposal option to serve its manufacturing facilities.

The South Taylor Environmental Park facility is a landfill site that is owned and operated by the client that occupies about 240 acres (total) and has been utilized for disposal of iron and steel making byproducts since the 1940s. The property consists of various inactive and closed waste disposal areas. Michael Baker worked closely with the client to help determine the appropriate course of action by evaluating the feasibility of expanding (redesigning) one of the existing landfills verses closing the landfill and utilizing off-site disposal alternatives.

Following approval of the overall project development plan, Michael Baker conducted a pre-permit application meeting with representatives of PADEP to present the preferred landfill expansion alternative. The proposed expansion included the design and permitting of two additional landfill cells for the Class I residual waste landfill. Michael Baker's final design work included the design of the sub-base, a double liner system (primary composite liner and secondary liner), an upgraded leachate collection system (which included design of a 900,000 gallon leachate tank) and the leachate detection system. Due to limited leachate storage space on-site, the proposed landfill configuration and operation plan was designed to minimize the volume of leachate generated without creating excessive operational constraints on the client. Michael Baker's design also included the associated drainage systems, erosion and sedimentation controls, landfill cap and final cover. Updated HELP model analyses were performed to support the design of the leachate collection and detection system and leachate storage tank.

The initial phase of this project included preparation of an alternative analysis and comprehensive cost evaluation. Michael Baker's analysis included an existing condition assessment (reviewing the landfill's interim closure configuration), development of potential landfill operating/expansion scenarios, and a review and analysis of various final closure alternatives. Potential landfill operating scenarios ranged from final capping/closure without expanding the existing Class 1 Residual Waste landfill to constructing a new cell(s) in order to significantly increase the landfill capacity (the objective was to provide in excess of ten years additional disposal capacity). Key evaluation factors included airspace volume, material/soil balance, construction feasibility, O&M costs, and associated permitting requirements.

Project work included a review of the existing permit documents, site reconnaissance, geologic /hydrologic evaluations, groundwater data/trend analysis, development of conceptual level grading and landfill operational plans, and preparation of associated construction cost estimates. On-site borrow sources (a key project cost element) were closely evaluated during this project phase to determine if any on-site borrow soil remained on-site or if previous construction activities had utilized the readily available on-site soils.

STEP Landfill existing conditions prior to landfill expansion

During the alternative screening analysis, Michael Baker identified constructability issues and/or disproportionate construction costs relative to the facility life cycle for several of the initial alternatives. As a result, several additional landfill expansion alternatives were evaluated. Based upon the results, the client selected an environmentally preferred alternative that provided cost effective long-term disposal capacity (approximately 15 years capacity) that balanced construction costs against optimizing fill space on the project property while avoiding sensitive wetland areas and historic abandoned coal mining features that were located on the project property.

In addition to providing the final design, Michael Baker also provided complete permitting services necessary for modification of the existing RWL permit. Michael Baker was responsible for the preparation of all PADEP required forms, narratives, and calculations, completion of an updated environmental assessment, preparation of soils information, developing a vegetation plan and erosion and sedimentation control plan, updating the existing waste classification and analysis plan, preparation of waiver requests, and development of a closure and post-closure land use plans.

Additional tasks included preparing technical specifications, a construction quality control plan, a contingency plan for emergency procedures, updating bonding forms, and a construction cost estimate based upon the final design.

Coal Combustion Byproduct (CCB) Landfill Expansion Landfill Design & Permitting Services

Hatfield's Ferry Power Station, Masontown, Pennsylvania

Michael Baker provided design and permitting services for the expansion of a coal ash landfill serving the Hatfield's Ferry Power Station on the Monongahela River. Michael Baker's services enabled the client to meet capacity needs and comply with environmental regulations.

Michael Baker designed the landfill sub-base, liner, leachate piping and final contour, leachate storage impoundment, drainage system, erosion and sedimentation controls, and the final cover. HELP model analyses were performed to support the design of the leachate collection and detection system and the final cover. Michael Baker also designed an access road. Additional tasks included preparing technical specifications, a construction quality control plan, and a contingency plan for emergency procedures, bonding forms, and a construction cost estimate. Michael Baker also completed or assembled all required project documentation, including narratives, forms and other attachments, calculations, and materials addressing soils, re-vegetation, mineral deposits, waste characteristics, leachate management, closure, and post-closure.

Michael Baker conducted on-site investigations that involved test pit excavation and soil sampling to evaluate the quantities and suitability of soil borrow sources. Michael Baker also evaluated the condition of the strip mine backfill, which was located within the proposed limits of the landfill and could impact settlement under the proposed liner system. Geotechnical investigation to support the proposed liner design included conducting analyses of underground mine subsidence, settlement, and slope stability.

During construction, Michael Baker provided construction phase engineering support by attending weekly construction manager meetings, performing construction-phase design modifications, reviewing contractor submissions, and responding to contractor requests for information. Michael Baker also evaluated the use of flow meters to monitor and document the quantities of landfill-generated leachate and provided recommendations to plant personnel.

The client acquired additional property on which to expand disposal operations. The proposed Phase 3 CCB landfill expansion is a Class I residual waste captive landfill for the Hatfield Station. The design included a double liner, a primary composite liner, and leachate detection and collection system and was designed to be constructed on top of and adjacent to the existing landfill. The design life of the proposed Phase 3 expansion landfill is approximately 15 years, based on a 324,000-cubic-yard-per-year disposal rate.

Michael Baker's responsibilities for the landfill expansion included performing surveying, cultural resource investigations, soil borrow source evaluations for the landfill sub-base and cover, wetland delineation and mitigation design, and civil and geotechnical design. Michael Baker also prepared applications for a residual waste landfill permit, NPDES discharge permit, and a Chapter 105–Section 404 joint permit. Major scope tasks included the design of a new leachate storage impoundment, stormwater management, and erosion and sedimentation control measures; development of a soil borrow area; preparation of landfill subgrade; coordination of liner staging and landfill development; and design of an access road.

The initial task involved evaluating and preparing alternative landfill staging and development concepts to maximize use of the available site. Michael Baker prepared alternative landfill layouts to accommodate the client's requests, which included evaluating options for the disposal of flue gas desulfurization waste material. Michael Baker also prepared harm-benefit analysis and alternatives assessment reports to demonstrate that the selected site meets the Pennsylvania Department of Environmental Protection's (PADEP) exclusionary criteria and that the overall benefits of the project to the public clearly outweigh potential harm.

Once the client approved the overall project development plan, Michael Baker began permitting and data collection tasks. Michael Baker conducted a pre-permit application meeting with representatives of PADEP (waste management, soils and waterways, air quality, and water divisions). Subsequent environmental tasks included conducting Phase 1 and preliminary Phase 2 cultural resource surveys and identifying and delineating on-site wetlands. Wetland evaluation entailed performing functions and values assessments and preparing a preliminary mitigation plan to address impacts to existing wetlands.

Chemical Plant Decommissioning and Demolition Services
Washington, West Virginia

Michael Baker provided comprehensive planning, budgeting, implementation, and engineering support services for the phased decommissioning and demolition of SABIC's 63-acre thermoplastic resins production complex in Washington, West Virginia. The plant had been in operation since the late 1950s. Principle raw materials (monomers) used in the chemical manufacturing process included acrylonitrile, butadiene, styrene, methyl methacrylate, butyl acrylate, and alpha-methylstyrene.

Decommissioning and demolition efforts were conducted in accordance with WVDEP's Industrial Facility Closure Guidance and involved approximately 255,000 square feet of multistory buildings associated with production, packaging, and distribution operations; approximately 560 storage tanks, process vessels, and silos; a wastewater treatment plant; and numerous maintenance and support structures.

Major work tasks included asbestos and hazardous materials surveys; regulatory management/permitting; decommissioning planning, scheduling, and tracking; demolition design (phased based on the plant electrical and communications networks); health and safety planning; development of various decommissioning task and demolition bid specifications; asbestos abatement third-party oversight; WWTP shut-down planning; and decommissioning-demolition coordination.

Michael Baker also worked with the WVDEP to modify specific provisions of the landfill permit to support the facility decommissioning and demolition, including:
- Construction and operation of a leachate treatment system and to discharge treated leachate through a new outlet (Outlet No. 006) into the waters of an unnamed tributary to the Ohio River.
- Revision of effluent limitations at Outlet No. 006 and to allow the installation of a landfill cap system.
- Allow disposal of on-site generated construction/demolition wastes and dewatered sludge into the on-site landfill

Other support activities included removal/dewatering of 9,600 tons of sludge from an out-of-service equalization basin and an in-service neutralization basin associated with the facility's WWTP; abandonment of 57 monitoring wells, eight (8) industrial process wells, and three (3) gas wells; investigation of a skeet range; investigation/remediation of a small arms firing range; and landfill management support.

Major Accomplishments
- Successfully completed the phased decommissioning of manufacturing operations while allowing operating portions of the plant to maintain production targets until final shutdown.
- Coordinated the work of multiple contractors and managed an aggressive schedule to complete decommissioning and demolition of the facility by SABIC's contractual date established with the new owner.
- 63 acres of land were made available for industrial redevelopment.

Department of the Interior / National Park Service - Intermountain Region
Multiple Park Locations

Michael Baker has performed Site Characterizations and/or Removal Actions at several landfills/dump sites for the Intermountain Region of the National Park Service (NPS). The primary materials in the landfills/dump sites are municipal trash from picnic areas, campgrounds, administrative offices and park residences. Parks have not used landfills/dump sites generally since the late 1980's, and currently use local disposal companies for waste/trash removal. The NPS has directed that landfills/dump sites on park properties are not in the best interest of the parks and the NPS mission of preserving the natural beauty of public lands. The NPS wants to remove landfills/dump sites as they pose a potential future risk to the health and safety to personnel and visitors. Examples of landfills/dump site projects are presented below.

Landfills/dump sites are initially characterized for Target Compound List (TCL) organics (i.e., volatiles, semivolatiles, pesticides and PCBs) and Target Analyte List (TAL) metals to determine potential contamination. The excavation of test pits and trenches provides direct information on the type, depth and horizontal extent of waste. Based on site contaminants and concentrations, and a review of local geologic and hydrogeologic information, the need for groundwater monitoring wells is evaluated. Based on an evaluation of the results of the soil analyses, specific plans for the removal of the waste are prepared. These plans estimate waste quantities and outline techniques for waste excavation, storage, transportation, and disposal, as well as conducting a site survey (using Global Positioning System

[GPS] equipment). Summary reports for the characterization and removal actions are submitted to NPS which present site activities, analytical results, conclusions/recommendations (as appropriate), figures of site features before and after the removal action and sampling locations, documentation of disposal, and project photographs.

Example Projects

Canyonlands National Park – Moab, Utah (November 2004 – November 2010-complete). The Needles Dump Site was used by the Park to dispose of large quantities of solid wastes generated by the Park as well as hazardous substances/hazardous wastes between 1966 and 1988. The area was covered with soil when the use of the dump was discontinued. Depth of waste was determined to be 10 feet; however, waste was encountered as separate layers down to that depth. Following initial removal activities, soil screening was used to reduce the amount of soil mixed with waste that was sent to the area landfill for disposal. This screening reduced the volume of soil from approximately 80% to 10–20%. Removal actions have been completed and the site regraded, revegetated and returned to natural conditions.

Glen Canyon National Recreation Area – Page, Arizona (May 2004 – November 2008- ongoing). The Chains Area on the east side of the Glen Canyon dam is a day area used for swimming and picnicking. During dam construction, the area was used as an equipment and materials storage area. Following completion of the dam, the remaining materials were buried. In recent years metal debris and a black coal-tar substance have been exposed. GLCA has performed limited removal actions in the area to provide a safe area for visitors. This site was investigated with the excavation of 37 test pits which exhibited scrap lumber, rubber hose, insulation and a variety of metal debris. A debris removal action at this site was conducted in 2006. Most of the material removed from the site was recyclable metals. A removal action for the coal-tar material was performed in 2008. This material required special handling as analytical results indicated that it may be hazardous.

Mesa Verde National Park – Mesa Verde, Colorado (August 2005, October 2010 and December 2013-ongoing). The dump site at MEVE is at the South Chapin Helibase (see above photograph), which was used as a base of operations by the Fire Management Group. The dump site was used from approximately the 1930s through the 1960s, and possibly into the 1970s. Information indicates disposal of lead-based paint, asbestos (transite pipe), mercury-containing lamps, old refrigerators (with coolant), possible municipal waste, and possible creosote from maintenance operations. A Preliminary Assessment was performed at the site to assess the surface soil for potential contaminants and risk to site workers. Recommendations included further investigation of soil (surface and subsurface) and groundwater to more fully characterize the site; medical screening/monitoring to establish a current baseline for workers and to monitor future health conditions of site workers in relation to heavy metals; performance of an ecological risk study to determine potential risks to wildlife and surface water bodies (i.e., creeks, streams, lakes, etc.); and development of a Proposed Remedial Action Plan (PRAP) with an associated cost estimate. A Focused Site Inspection (FSI) was conducted in 2010 and a Phase II FSI in 2013 to better define potential contamination at the site.

Grand Canyon National Park – Grand Canyon, Arizona (June 2004-ongoing). The Tuweep Dump Site is on the North Rim of the Grand Canyon in an extremely remote location. A Preliminary Assessment/Site Inspection (PA/SI) was conducted with the collection of surface and subsurface soil samples for analysis. Solid waste was observed at the site including drums of scrap metal, pallets of scrap items, and various metal, glass, wood and burnt wood debris. Materials at the surface have been exposed due to wind and water erosion of the soil. Recommendations include test trenching to determine more specifically what types of debris are present and to estimate how much debris is at the site; collection and laboratory analysis of soil samples, determination of soil contamination; and collection of background surface and subsurface soil samples for comparison to site metals analytical results from the PA/SI.

Lyndon B. Johnson National Historical Park – Johnson City, Texas (February 2006 and 2008 on-going). Heavy rains in late 2004/early 2005 exposed five-gallon containers of tar-like material in a drainage ditch/culvert located near the visitor's gate to the LBJ Birthplace. These containers were removed in early 2005 in an emergency removal action. In February 2006, a removal action of soil from the ditch was performed to reduce any future liability associated with possible soil contamination. Confirmatory samples were collected from locations within the ditch and background samples were collected from locations upgradient from the ditch. Soils from the ditch were disposed of as non-hazardous. Following more heavy rains in 2007, additional containers of tar-like material were exposed farther up gradient within the ditch from the 2006 site removal action. Soil was again excavated from the ditch, containerized and disposed of as non-hazardous.

Additional Sites

Site characterizations/assessments for dump sites/disposal areas have also been conducted at Chaco Culture National Historical Park (South Gap), Lyndon B. Johnson National Historical Park (Bone Yard), Casa Grande Ruins National Monument (Former BLM Storage Area), Glacier National Park (St. Mary's and Many Glacier), Yellowstone National Park (Grebe Lake), Coronado National Memorial (Montezuma Ranch), Grand Teton National Park (Colter Bay and Kelly), and Bryce Canyon National Park (Mixing Circle).

Environmental Remediation Services, Maryland Sand, Gravel, and Stone Superfund Site
Cecil County, Maryland

The Maryland Sand, Gravel, and Stone Superfund Site is a complex, highly-contaminated site being addressed by a PRP Group in accordance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). This Superfund site is a former sand and gravel quarry that had also been operated for the disposal of waste-processing water, sludge still bottoms, and about 90 drums of solid and semisolid waste. Three pits had been used as surface impoundments for disposal of about 700,000 gallons of liquid wastes. Drums and sludges were buried on site in excavated pits. A PRP Group is under a Consent Decree with EPA Region 3 and the Maryland Department of Environmental (MDE).

Surface soils and surface waters were contaminated with volatile organic compounds (VOC), including benzene, chlorobenzene, 1,4-dioxane, 1,1,1- trichloroethane, and vinyl chloride. Soil and wastes were contaminated with VOCs, semi-volatile organic compounds (SVOC), pesticides, polychlorinated biphenyls (PCBs), and heavy metals. In addition, shallow groundwater, designated the "Upper Sand," was contaminated with organic compounds, and was emanating from the site via surface seeps. A lower groundwater aquifer, designated the "Middle Sand," was suspected to be affected by the contamination. The site was divided into three Operable Units (OUs): OU1 consisted of groundwater in the Upper Sand, OU2 consisted of groundwater in the Middle Sand, and OU3 consisted of waste material on site.

Two multiple-phase RIs were conducted, one in each of the Upper Sand and the Middle Sand aquifers. Michael Baker's services included work plan, health and safety plan, and field sampling/quality assurance project plan preparation; hydrological, sediment, and soil studies, including soil sampling/analysis; surface water/sediment sampling/analysis; installation of shallow and deep monitoring wells, groundwater sampling/analysis, slug tests, pumping tests, and percolation tests to determine groundwater yields and permeability of substrates at the site and to assess the potential for recycling treated groundwater back to the upper aquifer; geotechnical investigations to determine the depth and thickness of the confining clay layer; and management of hazardous and nonhazardous investigation-derived waste (IDW).

Installation of biopolymer slurry groundwater extraction

Since the two OUs were focused on groundwater, the FSs and TSs evaluated onsite groundwater treatment methods and alternatives to remediate the groundwater contamination. Michael Baker developed a RD for the collection and treatment of groundwater from the Upper Sand. The design included all treatment system equipment, a building to house the system, and a programmable logic controller system to control the trench well pumps and permit remote monitoring of the system. The design included detailed drawings and specifications for all disciplines. Michael Baker provided construction support services, including review of shop drawings, construction oversight, and preparation of as-built drawings, development of an operations and maintenance manual, assistance with start-up operations, and development of the remedial action report. Throughout the project, Michael Baker attended and participated in periodic public meetings, and supported the client in preparing oral and written presentation materials. In addition, Michael Baker participated in meetings with EPA, MDE, and contractors to discuss alternatives, design, and selection of most appropriate remedial action.

Major Accomplishments

- As the result of Michael Baker's RI/FS work, the client was able to obtain EPA-approved Records of Decision (ROD) documents. The ROD for OU1 was approved by EPA and included installation of three extraction trenches to capture groundwater, installation of a slurry wall to prevent offsite migration, construction of a treatment building to house an air stripper and associated treatment equipment, and discharge to surface water on site.
- The ROD for OU2 was also approved by EPA Region 3 and included long-term monitoring. The series of collection trenches has effectively captured shallow groundwater migrating from the disposal areas, and the treatment system is effectively removing the contaminants of concern from the groundwater and has consistently met discharge criteria.

Environmental and Hazardous Waste Services for Hastings Superfund Site
Hastings, Nebraska

This project represents an example of optimizing an existing groundwater treatment and soil remediation system, saving the client hundreds of thousands of dollars while complying with the action levels established in the ROD. The client hired Michael Baker because of our past working relationship and satisfaction.

The Colorado Avenue Subsite is one of six subsites at a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Superfund site in Hastings, Nebraska. Contamination at the site includes soil and groundwater contamination of the Ogallala Aquifer, with a groundwater contamination plume extending several miles within this important aquifer. Contaminants of concern at the site

include TCE, PCE, TCA, DCE, and DCA. A soil-vapor extraction system (SVE) is in operation as a remedy for soil source areas (OU-9). For groundwater (OU-1), an in-well aeration (IWA) system is currently operating. Michael Baker has been managing and performing site operations and maintenance and satisfying investigative data gaps at the Colorado Avenue Subsite of the Hastings Superfund Site since March 2004.

Michael Baker's services have included management of ongoing operation and maintenance of soil and groundwater remedial systems, modifying remediation system design, expert testimony, negotiations with the USEPA, groundwater investigation efforts and reporting, program cost estimating, and data management. A Feasibility Study (FS) for a final groundwater remedy has begun. The strategy of the feasibility study is to use sentinel wells, source area remediation (near completed soil SVE), and monitored natural attenuation to demonstrate that an interim groundwater remedy (required to stabilize the plume) is sufficient to achieve a final groundwater remedy of drinking water standards. This action will return the aquifer to unrestricted use without unending monitoring and O&M. While pursuing the final remedy strategy, Michael Baker has successfully petitioned the EPA and NDEQ for early shutdown of SVE extraction points and IWA locations.

SVE skid with vacuum pump, condensate tank, and panelboxes

Currently operating remedial action systems include soil-vapor extraction (SVE) in overburden soils (which consist of silt and clay loess) and in-well aeration (IWA) in the groundwater. Michael Baker developed the work plans and provided construction oversight during installation of the second phase of the SVE system installed in the shallow soils in 2007. The soil vapor extraction system includes a network of 20 vertical extraction wells and one horizontal extraction well, all networked to one vacuum/treatment shed. The IWA systems have been installed in two phases and include seven treatment wells networked to four treatment sheds. Other long-term operation (LTO) and long-term monitoring (LTM) activities that Michael Baker provides for these systems include sampling of influent and effluent vapor at the IWA treatment sheds, monitoring probe sampling of soil vapor, annual groundwater sampling and reporting to determine effectiveness of the IWA systems, and required carbon change outs. Michael Baker routinely monitors carbon consumption, arranges for transportation as a hazardous waste, and recycles the carbon at a licensed hazardous waste recycling facility.

To further define the plume, Michael Baker prepared a Work Plan, Field Sampling and Analysis Plan, Quality Assurance Project Plan, and a Health and Safety Plan, and conducted a multi-phase groundwater investigation using direct-push (GeoProbe®) technology and onsite mobile laboratory to achieve groundwater sampling to depths of 220 feet below ground surface (BGS) within the Ogallala Aquifer. Using this approach, the plume was delineated over a three-mile by one-half mile area in just 18 days. With the plume definition derived from this study, Michael Baker concluded that existing extraction wells installed by others to treat unrelated groundwater contamination are effectively capturing the plume originating from the Colorado Avenue Subsite and, therefore, no additional extraction wells are required.

However, as part of the FS, Michael Baker has also recommended installation of nested sentinel wells down gradient of the existing pumping wells to capture the plume adequately in the future. These wells will supplement the well network previously installed by Michael Baker. Michael Baker had previously installed several sets of nested wells to depths of 250 feet BGS using sonic and mud rotary methods. Michael Baker managed investigation derived waste (IDW) which involved collecting, characterizing, and transporting for disposal all solid and liquid wastes generated during the well installation process.

Michael Baker assigned and maintained a qualified Project Manager throughout this project who maintained consistency and project team performance. The Project Manager was the single point of contact for the client. He prepared monthly progress reports as required and communicated daily to keep the client abreast of progress and developments. He coordinated all internal Michael Baker resources, including the project supervisor, professional geologists and hydrogeologists, professional engineers, regulatory specialists, risk assessors, and subcontractors for fieldwork, and directed staff in the production of project technical reports. The Michael Baker Project Manager and team are experienced with operating and optimizing groundwater remediation systems. The Project Manager is also experienced with negotiating with regulatory agencies on behalf of the client, due to many years' experience on RCRA and CERCLA projects.

Major Accomplishments

- Successfully operated and maintained a SVE system and an in-well aeration system, successfully closed several elements of both systems, and modified the extraction locations and blower design of the SVE system for optimization, all under the approval of EPA and NDEQ
- Performed fate and transport modeling to guide the completion of the Remedial Investigation to determine the extent of groundwater contamination and to serve as a basis for MNA of portions of the groundwater contamination plume.
- Developed a strategy to use the interim measure systems, combined with groundwater modeling and established FS criteria to demonstrate that the interim remedy can serve as a final remedy when combined with MNA and sentinel wells
- Provided expert testimony during legal actions by adversarial PRP groups related to relative contributions by individual operable units.

20. THE FOREGOING IS A STATEMENT OF FACTS

Signature:  Title: Associate Vice President Date: February 18, 2016

Printed Name: Chad R. Davis, P.E.

Michael Baker
INTERNATIONAL

Required Forms

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 171220

Doc Description: EOI: Webster County Landfill Closure Cap Design

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2015-12-22	2016-01-28 13:30:00	CEOI 0313 DEP1600000013	1

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

Michael Baker International, Inc.
100 Airside Drive
Moon Township, PA 15108
412.375.3077

FOR INFORMATION CONTACT THE BUYER

Beth Collins
(304) 558-2157
beth.a.collins@wv.gov

Signature X Chad R. Davis, PE **FEIN #** 25-1228638 **DATE** February 18, 2016

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION:

The West Virginia Purchasing Division, for the Agency, the West Virginia Department of Environmental Protection, is soliciting Expressions of Interest for professional mapping and design services for the Webster County Landfill Closure Cap Design project located in Webster County, West Virginia, per the attached bid requirements and specifications.

INVOICE TO	SHIP TO
ENVIRONMENTAL PROTECTION OFFICE OF ENVIRONMENTAL REMEDIATION 601 57TH ST SE CHARLESTON WV 25304 US	ENVIRONMENTAL PROTECTION 601 57TH ST CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue
1	Water testing services		

Comm Code	Manufacturer	Specification	Model #
81100000			

Extended Description :

Site Characterization Study, Leachate Management and Closure Cap Design for the Webster County Landfill per the attached specifications, bid requirements, and terms and conditions, incorporated here by reference and made a part hereof.

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Tech Question Submittal Deadline at 5:00 PM EST	2015-01-08

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 171220

Doc Description: Addendum 01 EOI: Webster County Landfill Closure Cap Design

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2016-01-26	2016-02-18 13:30:00	CEOI 0313 DEP1600000013	2

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

Michael Baker International, Inc.
100 Airside Drive
Moon Township, PA 15108
412.375.3077

FOR INFORMATION CONTACT THE BUYER

Beth Collins
(304) 558-2157
beth.a.collins@wv.gov

Signature X Chad R. Davis, PE **FEIN #** 25-1228638 **DATE** February 18, 2016

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION:

Addendum No. 01
This addendum is issued to modify the solicitation per the attached documentation and the following:
1. To publish answers to vendor submitted questions.
2. To modify the bid opening date to February 18, 2016 at 1:30 PM, EST.
No other changes.

The West Virginia Purchasing Division, for the Agency, the West Virginia Department of Environmental Protection, is soliciting Expressions of Interest for professional mapping and design services for the Webster County Landfill Closure Cap Design project located in Webster County, West Virginia, per the attached bid requirements and specifications.

INVOICE TO	SHIP TO
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1	Water testing services		

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81100000			

Extended Description :

Site Characterization Study, Leachate Management and Closure Cap Design for the Webster County Landfill per the attached specifications, bid requirements, and terms and conditions, incorporated here by reference and made a part hereof.

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Tech Question Submittal Deadline at 5:00 PM EST	2015-01-08

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CEOI 0313 DEP1600000013

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[X]	Addendum No. 1	[ ]	Addendum No. 6
[ ]	Addendum No. 2	[ ]	Addendum No. 7
[ ]	Addendum No. 3	[ ]	Addendum No. 8
[ ]	Addendum No. 4	[ ]	Addendum No. 9
[ ]	Addendum No. 5	[ ]	Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Michael Baker International, Inc.
Company

Chad R. Davis, PE
Authorized Signature

February 18, 2016
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

RFQ No. DEP1600000013

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Michael Baker International, Inc.

Authorized Signature: CRD Date: February 16, 2016

State of Pennsylvania

County of Allegheny, to-wit:

Taken, subscribed, and sworn to before me this 16 day of February, 2016

My Commission expires Oct. 21, 2016.

AFFIX SEAL HERE

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Jacque McWilliams, Notary Public
Moon Twp., Allegheny County
My Commission Expires Oct. 21, 2019
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

NOTARY PUBLIC Jacque McWilliams

Rev. 04/14

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with ***West Virginia Code***, §5A-3-37. (Does not apply to construction contracts). ***West Virginia Code***, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the ***West Virginia Code***. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

1. Application is made for 2.5% vendor preference for the reason checked:

____ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

____ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

____ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. Application is made for 2.5% vendor preference for the reason checked:

____ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. Application is made for 2.5% vendor preference for the reason checked:

____ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

4. Application is made for 5% vendor preference for the reason checked:

____ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. Application is made for 3.5% vendor preference who is a veteran for the reason checked:

____ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. Application is made for 3.5% vendor preference who is a veteran for the reason checked:

____ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules.*

____ Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

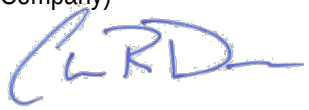
Bidder: Michael Baker International, Inc. **Signed:** 

Date: February 18, 2016 **Title:** Chad R. Davis, PE, Associate Vice President

CERTIFICATION AND SIGNATURE PAGE

By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Michael Baker International, Inc.
(Company)



Chad R. Davis, P.E., Associate Vice President
(Authorized Signature) (Representative Name, Title)

412-375-3077 | 412-375-2997 | February 18, 2016
Phone Number | Fax Number | Date