



***Expression of Interest to Provide
Professional Services for the
WVDEP, Office of AML&R***

Norton Highwall #1

**Randolph County, West Virginia
RFP Number DEP15610**

submitted to:

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street, East
Post Office Box 50130
Charleston, West Virginia 25305-0130

submitted by:

Michael Baker Jr., Inc.
5088 Washington Street West
Charleston, West Virginia 25313

October 27, 2011



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WV PURCHASING
DIVISION

Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation

5088 West Washington Street
Charleston, West Virginia 25313

(304) 769-0821 Phone
(304) 769-0822 Fax

October 27, 2011

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street, East
Charleston, WV 25305-0103

Attention: Mr. Chuck Bowman, Buyer

Re: **Expression of Interest to Provide Professional Services for the
WVDEP, Office of Abandoned Mine Lands & Reclamation
RFP Number DEP15610**

Dear Mr. Bowman:

Michael Baker Jr., Inc. (Baker) is pleased to submit this Expression of Interest to provide professional engineering services for reclamation measures for the **Norton Highwall #1 Project, Randolph County, West Virginia**. To meet your design requirements, Baker has assembled a team of experienced personnel who have performed on previous similar assignments for the West Virginia Department of Environmental Protection, Office of Abandoned Mine Lands and Reclamation.

We have illustrated our ability to deal with multiple projects without degradation to the level and quality of service. We have selected a subcontractor located in West Virginia to assist us in the key areas of drilling, and soils and water testing. We feel this firm, NGE, P.L.L.C., will compliment Baker as we proceed with tasks assigned under this contract

Baker's staff is experienced in all aspects of AML/AMD projects: civil, environmental, mining, geotechnical and reclamation engineering applied to surface and underground coal mining; land restoration; landslide correction; stream and water restoration; land use; and natural resource planning. Baker has been providing engineering services for abandoned mine lands since the Federal government first enacted AML legislation. We have provided these Services for the West Virginia Department of Environmental Protection, the Pennsylvania Department of Environmental Protection, Ohio Department of Natural Resources, and the U.S. Office of Surface Mining to name a few. Our on-going experience since 1983 with WVDEP gives us the confidence to assure you our assignments will be completed on time and within established budgets.

This submittal illustrates our qualifications and experience to deal with any assignments that may arise from this contract. If you have any questions or require additional information concerning our qualifications, experience or approach, please contact the undersigned.

Very truly yours,


MICHAEL BAKER JR., INC.

Patrick W. Fogarty, P. E., P.S.
Civil Services Group Manager

Enclosure

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Corporate History & Experience

A

"A leader in designing, building, and operating infrastructure worldwide through superior project team performance and customer relationships."

Then ...

More than 70 years ago, when Michael Baker Jr. founded the Baker organization, he did it with a vision.

A vision of a company that would someday provide quality engineering services to a vast cross-section of clients throughout the globe.

Founded in 1940 as a Civil engineering and surveying firm, Baker has grown over the years helping to shape the world in which we live; providing engineering, construction and O&M services for projects ranging from airports to bridges; concert halls to communication systems; municipal water supply to wastewater disposal; skyscrapers to stadiums; from turnpike to transmission pipelines; from mining to post mining reclamation; and oil and gas operations and maintenance.

Now ... Michael Baker Corporation (<http://www.mbakercorp.com/>) provides engineering and energy expertise for public and private sector clients worldwide. The firm's primary services include engineering design for the civil infrastructure and transportation markets, environmental services, facilities, architecture, construction management, and operation and maintenance of oil and gas production. Baker has more than 3,000 employees in over 80 offices across the United States and internationally. Baker is ranked among the top 10% of the 500 largest U.S. engineering/construction firms.

Evidence of our experience in surveying, subsurface investigation/geotechnical engineering and design engineering for civil and mining facilities is highlighted below:

Baker Civil

A sampling of civil engineering services includes surveying, planning, mapping, GIS, and engineering design services for a wide variety of projects including: mining facilities, abandoned mine lands reclamation, fiber optic cable routes, pipelines, hydroelectric development, dams and impoundments, marine facilities, airports and highways, and recreational facilities. The group has the ability to take a project from the earliest phases of planning, through engineering to the preparation of plans and specifications, and into construction, where resident engineering and inspection services are provided if required by the client. Typical assignments include:

- Surveying and Mapping
- Abandoned Mine Land Reclamation
- Acid Mine Drainage Abatement and Stream Restoration
- Mine Permitting
- Facilities Planning
- Environmental Evaluations and Assessments
- Land Use and Natural Resources Planning

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AML CONSULTANT CONFIDENTIAL QUALIFICATION QUESTIONNAIRE**

Attachment "B"

PROJECT NAME DEP15610, Randolph County		DATE (DAY, MONTH, YEAR) 10/27/11	FEIN 25-1228638
1. FIRM NAME Michael Baker Jr., Inc.		3. FORMER FIRM NAME	
4. HOME OFFICE TELEPHONE 304-769-0821	5. ESTABLISHED (YEAR) 1940	6. TYPE OWNERSHIP Individual Partnership Corporation Joint-Venture	6a. WV REGISTERED DBE (Disadvantaged Business Enterprise) YES <u>NO</u>
7. PRIMARY AML DESIGN OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. AML DESIGN PERSONNEL EACH OFFICE Michael Baker Jr., Inc./ 5088 West Washington Street, Charleston, WV 25313/ 304-769-0821 / Russell E. Hall / 7 (Charleston, WV), 20 (Beaver, PA)			
8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM Russell E. Hall, Assistant Vice President (304) 769-0821		8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS William D. Trimboth, Assistant Vice President (724) 495-4302	
9. PERSONNEL BY DISCIPLINE (Bold Lettering Indicates Minimum Design Team Members)			
<u>165</u> ADMINISTRATIVE <u>14</u> ARCHITECTS <u>6</u> BIOLOGIST <u>42</u> CADD OPERATORS <u>4</u> CHEMICAL ENGINEERS <u>57</u> CIVIL ENGINEERS <u>16</u> CONSTRUCTION INSPECTORS <u>16</u> DESIGNERS <u>11</u> DRAFTSMEN	<u>6</u> ECOLOGISTS <u>1</u> ECONOMISTS <u>3</u> ELECTRICAL ENGINEERS <u>26</u> ENVIRONMENTALISTS <u>1</u> ESTIMATORS <u>30</u> GEOLOGISTS <u>0</u> HISTORIANS <u>12</u> HYDROLOGISTS	<u>4</u> LANDSCAPE ARCHITECTS <u>5</u> MECHANICAL ENGINEERS <u>5</u> MINING ENGINEERS <u>23</u> PHOTOGRAMMETRISTS <u>7</u> PLANNERS: URBAN/REGIONAL <u>7</u> SANITARY ENGINEERS <u>13</u> SOILS ENGINEERS <u>0</u> SPECIFICATION WRITERS	<u>57</u> STRUCTURAL ENGINEERS <u>18</u> SURVEYORS <u>23</u> TRANSPORTATION ENGINEERS <u>126</u> OTHER 698 TOTAL PERSONNEL (Charleston and Pittsburgh Area Offices)
TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: <u>15</u>			
*RPEs other than Civil and Mining must provide supporting documentation that qualifies them to supervise and perform this type of work.			
10. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE? _ YES _ NO N/A			

12. RELEVANT EXPERIENCE. Include number of projects per each discipline

A. Is your firm experienced in Abandoned Mine Lands Remediation/Mine Reclamation Engineering?

YES

Description and Number of Projects:

Baker has been assisting state and federal agencies with abandoned mine land (AML) restoration and acid mine drainage (AMD) remediation since 1977. Baker's experience began with Operation Scarlift and now includes well over 250 AML/AMD remediation projects ranging from subsidence control, mine sealing, reclamation of mine refuse piles, strip pit and high wall; drainage improvements, revegetation, stream relocation, restoration of streams and wetlands, landslide correction, and replacement of water supplies affected by abandoned mine lands to abatement of AMD problems. Baker has been assisting West Virginia Department of Environmental Protection with Abandoned Mine Lands Remediation/Mine Reclamation Engineering design services ever since WVDEP initiated its AML Reclamation Program in 1983. In addition to WVDEP, we are also currently assisting PADEP and ODNR with AML reclamation and AMD remediation designs. Table 12-1 provided at the end of this Item 12 of the CCQQ highlights thirty (30) of the AML reclamation/AMD remediation projects completed for WVDEP in recent years. This abbreviated project listing highlights the services rendered by Baker to address the various AML/AMD problems that are typical of AML reclamation and similar projects. The "AML and related Project Experience Matrix" table following this CCQQ shows our experience on AML related projects for different state agencies and for private clients.

B. Is your firm experienced in Soil Analysis?

YES

Description and Number of Projects:

In designing AML reclamation projects, generally three types of soil analysis are needed. These analyses may include: a) geotechnical analysis, b) soil analysis for revegetation potential (pH, Acid Base Accounting, Nutrients) and c) soil analysis for hazardous materials. Baker is involved in selecting and collecting the soil samples and analyzing the results of laboratory testing as required for design. Laboratory testing is performed by a subcontractor. Of the thirty (30) projects shown in Table 12-1 at the end of this Item 12 of CCQQ, Baker was involved in soil analysis for 21 projects.

C. Is your firm experienced in hydrology and hydraulics?

YES

Description and Number of Projects:

Baker's hydrology and hydraulic staff for AML/AMD remediation design are experts in the application of hydraulic models that include HEC-1, HEC-2, HEC-RAS, HY8, TR20, TR55, HAESTADS PONDS 2, FLOWMASTER, KYPipe 2, CYBERNET, SEDCAD 4, UNET, and DAMBRK. Baker applies this experience to services such as stormwater management; culvert analysis; hydrologic and hydraulic studies; storm sewer design; floodplain modeling; channel design; watershed planning; energy dissipation; and waterline extension and distribution.

Expertise in hydrology and hydraulics is essential in any AML reclamation/AMD remediation design. Of the thirty (30) projects shown in Table 12-1 at the end of this Item 12 of CCQQ, twenty six (26) projects needed hydrology/hydraulics expertise of the AML/AMD design group.

12. RELEVANT EXPERIENCE. Include number of projects per each discipline

E. Is your firm experienced in domestic waterline design? (Include any experience your firm has in evaluation of aquifer degradation as a result of mining.)

YES

Description and Number of Projects:

To date, Baker has designed eight (8) domestic waterlines for the WVDEP. In general, for each of these projects, Baker performed field surveying of proposed route, subsurface investigation for storage tank site foundation, water distribution system hydraulic modeling and analysis, pipeline design, storage tank sizing, sizing and designing booster pumping station, and electric and telemetric system. For McDowell County Public Water Supply System, Baker also designed a water treatment and filtration plant. Construction plans, specifications, cost estimate and bid schedules were prepared for each project.

Prior to designing each of the waterlines, under separate work directives from WVDEP, Baker performed water resources studies for each project area to determine if the pre-law mining had impacted the aquifer of the area from which the area residents got their water supply. Water resource studies involved evaluation of mining activities in the project area with regard to date and time of mining, and the effect of mining on the local aquifers and groundwater quality based on hydrogeologic data, resident interview, water sampling and testing. To date Baker has performed more than 14 water resources studies that include the projects for which waterlines were designed.

F. Is your firm experienced in Acid Mine Drainage Evaluation and Abatement Design?

YES

Description and Number of Projects:

Baker is well experienced in the evaluation of acid mine drainage and the design of AMD abatement measures. Design experience includes both active and passive treatment systems. Evaluation and design of AMD abatement systems is based on the characterization of the AMD site, as well as the flows and chemistry of the AMD. AMD sampling for chemical parameters, as well as the flow measurements covering high and low flow periods, are most important in developing AMD abatement system. To date Baker has evaluated and designed 20 AMD abatement systems. Three of these 20 projects – one for PADEP (Dumans AMD Treatment), an active system, and the other two for the ODNR (Lindentree AMD Remediation and Mineral Zoar Road AMD Abatement), passive treatment systems, have recently been completed and are to be bid for construction. Two of these projects have been designed and constructed for U.S. Army Corps of Engineers.

Baker has designed nine AMD remediation projects for WVDEP. AMD remediation measures designed included: Open Limestone Channel (OLC), Anaerobic and Aerobic Wetlands and settling ponds, Limestone Sand dumping in the stream, and Alkaline Leach Bed/Anoxic Limestone Drains. Other AMD abatement designs were made for Baltimore and Nashville Districts of the U.S. Army Corps of Engineers.

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Init.) Trimbath, William, D., P.E. Assistant Vice President	YEARS OF AML DESIGN EXPERIENCE: 9	YEARS OF AML RELATED DESIGN EXPERIENCE: 14	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 6
	YEARS OF EXPERIENCE		

Brief Explanation of Responsibilities

Mr. Trimbath is the Regional Office Manager for Michael Baker Jr., Inc.'s, Beaver, Pennsylvania office which provides civil, mining, geotechnical, mapping and telecommunication services to various government agencies and private clients. He has 27 years experience in civil, mining, geotechnical and environmental engineering, primarily in management positions; has served as civil engineer, project manager for environmental assessment and remediation projects; mine subsidence projects, landslides remediations, waterline extension, and drainage improvements; assumes responsibility for overall administration of major contracts, including financial, engineering and construction; experience in estimating, cost control, and scheduling methods designed to meet tight budgets and schedules.

As Assistant Vice President of the civil engineering department in Beaver, PA, Mr. Trimbath was ultimately responsible for more than thirty AML reclamation projects studied and designed for the States of West Virginia, Ohio; and for the Corps of Engineers' Baltimore and Nashville Districts.

Dennison/Route 800 Reclamation Project for the Ohio Department of Natural Resources (ODNR) - Uncontrolled drainage and seepages from coal and clay mines causing metal precipitation in roadside ditch and over flowing onto a major high creating hazardous driving condition. The reclamation plan was developed following test drilling to identify AMD sources. Abatement design included an underdrain to intercept seepage, a sedimentation pond followed by wetland to precipitate iron, improving road-side ditch and the drainage outlet to nearby stream; preparation of construction plans, specifications, and cost estimate are part of this project.

Hardy Coal Company Bond Forfeiture Reclamation Project for the Ohio Department of Natural Resources. The project involved surveying and mapping, reviewing geological data, mine maps; and providing design of the reclamation measures for the site including environmental assessment, regarding, collection ditches, stream relocation, placement of soil cover revegetation; and preparation of construction plans, specifications and cost estimates.

Maple Run Portals and AMD Reclamation for the West Virginia Division of Environmental Protection - Test drilling, site grading, sealing mine openings, drainage design, AMD treatment with limestone beds and aerobic Wetland; preparation of construction plans, specifications, and cost estimate.

Emoryville Mine Complex Reclamation for the West Virginia Division of Environmental Protection - Test drilling, water quality date review and site survey; design of AMD abatement including open limestone channels, SAPS, aerobic wetlands, in-stream AMD treatment with limestone fines, E & S Control, drainage design including diversion and collection ditches and underdrain; site grading and revegetation; construction plans, specifications, and cost estimate.

Feasibility Study for Ecosystem Restoration, Ely and Pucket Creek Subbasins of Powell River, Virginia for the Nashville District, U.S. Army Corps of Engineers - Site evaluation including geotechnical investigation, review of water quality data, determination of AMD sources at four sites, evaluation of AMD abatement alternatives; AMD abatement design including SAPS Cells, open limestone channel, metal precipitation ponds, aerobic wetlands and alkaline soil amendment; site grading, mine seals, diversion and collection ditches, E & S control, stream relocation; and preparation of plans, cost estimate and feasibility report.

EDUCATION (Degree, Year, Specialization) Doctoral Studies, Civil Engineering; M.S., 1978, Civil Engineering; B.S., 1974, Civil Engineering	REGISTRATION (Type, Year, State) Professional Engineer, 1978, PA
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers American Society of Civil Engineers, Pittsburgh Geotechnical Group, Chairman, 1986-1987 Society of American Military Engineers, Environmental Action Committee, Secretary Engineering Society of Western Pennsylvania	

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Init.)	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<p>Russell, Charles M., P.E. Technical Quality Control</p> <p>Brief Explanation of Responsibilities</p> <p>Mr. Russell has more than 38 years experience in civil engineering, primarily in management positions; has served as civil engineer, project engineer, project manager, manager of public works, department manager of foreign engineering and construction office, general manager of civil engineering office; has served on heavy industrial projects for design and construction of pipe lines, iron ore reduction plants, foundries, ceramic kilns, melt-shops, and industrial furnaces; has been responsible for many feasibility studies, projects for photogrammetric mapping, soils investigation, barge mooring facilities, and port and dock facilities; experienced with projects for modernization and expansion of existing facilities; assumes responsibility for overall administration of major contracts, including financial, engineering and construction; experienced in estimating, cost control, and scheduling methods designed to meet tight budgets and schedules.</p> <p>As Vice President of the civil engineering department in Beaver, PA, Mr. Russell was ultimately responsible until 1997 for more than sixty AML reclamation projects studied and designed for the State of West Virginia, Ohio, Pennsylvania, and for the U.S. Office of Surface Mining. Some of the recent AML projects for the WVDEP are as follows:</p> <p>Twilight Burning Refuse Pile Reclamation Project for the West Virginia Division of Environmental Protection - Test drilling, temperature measurements, site grading design, slope stability, plans, specifications, and cost estimate. The site required regrading and quenching the unstable burning refuse to a stable slope.</p> <p>Jed-Havaco Refuse Dump Reclamation Project for the State of West Virginia, Division of Environmental Protection - Subsurface investigation, temperature measurement, stability analysis, drainage design, relocated stream channel design, grading design, Gabion retaining structure design, construction plans, specifications and cost estimate. The site was a burning refuse area dumped on valley wall blocking a perennial stream creating impoundment at the head of the valley. The site required draining the impoundment, excavating, cooling burning refuse, and backfilling and regrading, reestablishing stream channel, establishing sedimentation ponds, final reclamation, and revegetation. Total area reclaimed is about 35 acres.</p> <p>Neibert-Taplin Water Supply Extension Project for the State of West Virginia, Dept. of Energy, Division of AML & R - Route identification and surveying, designing 8 inch and 6 inch main line and service lines for 6 communities extending over a distance of about 7 miles, subsurface investigation for 212,000 gallons water storage tank foundation over mined out area, design grout stabilization of mine workings; design booster pump station, telemetry, river crossings, railroad and highway crossings. Prepared construction plans, specifications and cost estimate. The groundwater resources (water supply for residents) of six communities in the project area were contaminated by pre-law (August 3, 1977) mining. The project required evaluation of the existing Logan County Public Service District's main waterline at Lyburn with regard to available pressure and quantity, and extending the system to provide water to the entire project area.</p> <p>Fairmont Subsidence Project for the State of West Virginia, Dept. of Energy, Division of AML & R - Surveying, subsurface investigation, evaluation of mine workings, development of grout hole stabilization measures. Prepared construction plans, specifications and cost estimate.</p> <p>Upper Creek Landslide and Mine Drainage Investigation Project for the West Virginia Department of Energy - Subsurface investigation, topographic survey, stability analysis, plans and specifications were developed for a landslide in Kanawha County, West Virginia. Drainage from abandoned mine workings were saturating a steep slope behind a private residence. Baker Engineers designed trench designs and a surface drainage collector system.</p>	11	6	7
<p>EDUCATION (Degree, Year, Specialization) M.S., 1970, Civil Engineering; M.P.W., 1970, Public Works; B.S., 1959, Civil Engineering</p> <p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS</p> <p>REGISTRATION (Type, Year, State) Professional Engineer, 1982, Alabama; Florida, 1979; Illinois, 1983; Indiana, 1983; New York, 1966; North Carolina, 1983; Ohio, 1968; Oklahoma, 1993; Pennsylvania, 1964; Tennessee, 1982; West Virginia, 1969</p>			

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Init.)	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<p>Dziubek, John A., P.E. Project Manager</p> <p>Brief Explanation of Responsibilities</p> <p>Mr. Dziubek has performed and managed engineering and design projects for more than 30 years. The projects range from subsurface investigations; building, industrial, and heavy and highway foundations; and site closures at industrial facilities; to remedial design and remedial action at Superfund sites. He has managed public and private sector projects for the Corps of Engineers, U.S. Navy, State DOT's, and major industrial clients. Larger projects have ranged from \$1 million to \$10 million and have required civil, geotechnical, mining and environmental engineering expertise.</p> <p>Various Reserve Analyses and Mine Planning Projects, Ohio, Pennsylvania, Virginia, Kentucky, West Virginia and North Carolina. Ohio Edison, Veon Coal, Ashland Coal, Virginia Pocahontas, Koppers Company. Project Manager. Managed reserve analysis and mine planning projects for coal mines. These projects required computer models for determining mineral reserves, stockpile inventories, mining simulation, long range planning, cost studies, mine drainage, mine subsidence, and production monitoring.</p> <p>Geotechnical Engineering Services, Ohio, West Virginia and Pennsylvania. U.S. Office of Surface Mining. Project Manager. Managed engineering services contract for more than 40 abandoned mine lands projects for the U.S. Office of Surface Mining. The projects required surveys, mapping, subsurface investigations, plans, specifications, and construction inspection. Mining-related problems included flood studies, mine subsidence, underground mine fires, mine drainage, vertical shaft filling, gob piles, landslides, refuse fires, grouting programs, and surface mine reclamation. Construction costs for project implementation were more than \$12 million.</p> <p>Various Reclamation Projects, Ohio and West Virginia. Ohio Department of Natural Resources and the West Virginia Department of Natural Resources. Project Manager. Managed abandoned mine lands projects for the Ohio Department of Natural Resources and the West Virginia Department of Natural Resources. Projects included mine subsidence, flood studies, landslides, mine drains, mine seals, mine fires, mine stabilization and refuse bank reclamation. Construction costs were over \$5 million.</p> <p>Various Coal Refuse Facilities Geotechnical Design, Ohio, Pennsylvania, West Virginia, Illinois, Virginia and Kentucky. North American Coal, Bethlehem Mines, Diamond Shamrock Coal, Exxon Coal, Sierra Coal. Geotechnical Manager. Supervised the geotechnical design of coal slurry impoundments and coal refuse embankments. Upstream and downstream construction methods were used. Design analyses included slope stability, hydrology and hydraulics, and structural design of primary and emergency spillway systems.</p> <p>Unimin Trailings Dam Expansion, Virginia. Unimin Corporation. Project Manager. Managed design and construction phase of a phased capacity increase of a tailings dam for an industrial glass sand plant and quarry. The main embankment and dike were raised, the spillway redesigned, and the outlet pipe extended. Piezometric instrumentation was installed to monitor the phreatic surface through the main embankment.</p>	<p align="center">15</p>	<p align="center">13</p>	<p align="center">4</p>
<p>EDUCATION (Degree, Year, Specialization) M.S.C.E., 1966, Civil Engineering; B.S.C.E., 1964, Civil Engineering</p> <p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers Society of American Military Engineers</p>			
<p align="right">REGISTRATION (Type, Year, State) Professional Engineer, 1969, PA; Professional Engineer, 1990, WV Professional Engineer, 1991, OH</p>			

NAME & TITLE (Last, First, Middle Init.)	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<p>Smithson, Jason, T., P.S. Senior Engineering Technician</p> <p>Brief Explanation of Responsibilities</p> <p>Since joining the company in 2006, Mr. Smithson has been assigned to the surveying division and presently supervises field crews, the processing and calculating data for various projects, and the analysis of data obtained from field surveys to be applied to many aspects of civil engineering. Prior to coming to Baker, Mr. Smithson performed geotechnical analysis, civil design, environmental assignments and functioned as a survey party chief.</p> <p>Abandoned Mine Lands, Statewide Contract, Various Locations, West Virginia. As a Project Surveyor, Mr. Smithson provided services for topographic mapping for various Abandoned Mine Land (AML) projects throughout West Virginia. During these projects he provided topographic mapping and coordinated aerial photogrammetry. This data was incorporated in the design of landslide correction, retaining wall design, site grading, drainage improvements, acid mine drainage collection and neutralization, water line upgrade and extensions. 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.</p> <p>WVDEP14176, Kanawha County. Wet mine seals, the installation of bat gates, open limestone channel design, culvert and structure design, structure removal and reclamation grading at four sites (Marmet (Wells Drive), Cabin Creek (Stapler), East Bank (Garten), and the Mill Hollow Complex) in eastern Kanawha County.</p> <p>West Virginia Department of Environmental Protection, Photogrammetric Control Surveys, Various Locations, West Virginia. Work performed by Mr. Smithson on these projects included establishing horizontal and vertical control surveys for aerial photogrammetry mapping, baseline layout, and referencing control points. This work was performed utilizing GPS and conventional survey methods.</p> <p>Mine Safety and Health Administration - Martin County Coal, Slurry Impoundment Failure Investigation, Martin County, Kentucky. As a Project Geologist, Mr. Smithson's duties included the coordination of drilling activities with multiple drilling crews supported by a team of engineers and geologists. He supervised and participated in the subsurface investigation logging activities, the creation of bedrock contour maps, report preparation, and analytical testing on samples extracted from the drilling efforts.</p> <p>Appalachian Electric Power Company - John Amos Power Plant, Winfield, West Virginia. As a Project Surveyor, Mr. Smithson was responsible for establishing horizontal and vertical control for construction layout activities which he also performed for the construction of the flue gas desulfurization (FGD) stacks.</p> <p>Dominion Resources, Hastings, West Virginia. As a Project Environmental/Geotechnical Geologist, Mr. Smithson assisted the Licensed Remediation Specialist, and was responsible for subsurface investigation activities, in an alluvium/aquifer type, to determine overburden and bedrock descriptions and groundwater flow analysis. He was directly responsible for the coordination of drilling and sampling activities associated with this project. Activities included delineation of contamination by subsurface drilling, soil sampling, groundwater sampling, sediment sampling, and surface water sampling.</p> <p>CSX Hotels, Inc., d.b.a. The Greenbrier, White Sulphur Springs, West Virginia. As a project Environmental/Geotechnical Geologist, Mr. Smithson was responsible for subsurface investigation activities, in an alluvium/karst aquifer type to determine overburden and bedrock descriptions and groundwater flow analysis, along with the supervision of multiple environmental delineation crews. As a Project Geologist, assisted the Licensed Remediation Specialist in performing site characterization investigations at the four parcels entered into the West Virginia Voluntary Remediation Program. Work tasks included performing Geoprobe® direct-push investigations, groundwater sampling, landfill gas monitoring, and surface water and sediment sampling.</p>	11	12	2
<p>EDUCATION (Degree, Year, Specialization) B.S., 1999, Geology</p> <p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS Society of American Military Engineers West Virginia Society of Professional Surveyors</p>			
<p>REGISTRATION (Type, Year, State) Licensed Professional Surveyor, 2007, WV Certified Well Driller, 2002, WV OSHA 40-Hour HAZWOPER Certification, 1999, WV</p>			

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Init.)	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<p>Zang, Scott D., P.E. Senior Engineer</p>	11	11	-
<p>Brief Explanation of Responsibilities</p>			
<p>Mr. Zang is a geotechnical engineer experienced in site investigation and design. His professional experience encompasses reconnaissance, field testing, laboratory testing, project analysis and design, report preparation and construction inspection for roadways, railroads, earth dams, buildings, hazardous waste studies, industrial facilities, airports and coal mines. His design experience also includes abandoned mine land reclamation and innovative AMD abatement design.</p>			
<p>Itman Refuse Pile Remediation, Itman, West Virginia. West Virginia Department of Environmental Protection. Engineer. Prepared construction specifications for remediation of a burning coal refuse pile.</p>			
<p>Coal Refuse Pile Remediation Design Analysis and Plans, West Virginia. West Virginia Department of Environmental Protection. Engineer. Performed design analysis and prepared construction plans, specifications and cost estimates for remediation of several abandoned coal refuse piles. Projects included regraded slope stability analysis, retention structure design, subsurface water control and facilities design for surface water control of burning and non-burning refuse piles.</p>			
<p>Coal Mine Subsidence Remediation Construction Plans, West Virginia. West Virginia Department of Environmental Protection. Engineer. Prepared construction plans, specifications and cost estimates for remediation of areas affected by subsidence of abandoned underground coal mines.</p>			
<p>Private Residence Subsidence Evaluations, Western Pennsylvania. U.S. Department of the Interior, Office of Surface Mining. Assistant Engineer. Performed subsurface investigations to evaluate subsidence and subsidence-related incidents at several private residences. Project included surface distress cause determination and recommendation of remedial measures.</p>			
<p>Manor Mine and Preparation Plant, Greene County, Pennsylvania. Consolidation Coal Company. Assistant Engineer. Conducted field testing program for foundations of several support buildings, a preparation plant, and coal storage silos.</p>			
<p>Landini Mine Fire Remediation, Elizabeth, Pennsylvania. U.S. Department of the Interior, Office of Surface Mining. Assistant Engineer. Performed subsurface investigations and designed remedial measures to control a fire in an abandoned underground coal mine.</p>			
<p>Acid Mine Drainage Abatement Project, Barton, Ohio. Ohio Department of Natural Resources. Engineer. Conducted water sampling program and field investigation during development of acid mine drainage abatement procedures at an abandoned underground coal mine and coal refuse area. Handled administration and office engineering during implementation of remedial measures.</p>			
<p>Groundwater Monitoring Well Construction and Sampling, Pennsylvania and West Virginia. Various Clients. Assistant Engineer. Assisted with sampling and constructing groundwater monitoring wells at various locations.</p>			
<p>EDUCATION (Degree, Year, Specialization) BS, 1980, Geological Engineering</p> <p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers</p>			
<p>REGISTRATION (Type, Year, State) Professional Engineer, 1985, PA</p>			

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Culler, James A., P.E., P.L.S. Engineering Manager	2	3	32

Brief Explanation of Responsibilities

Mr. Culler is a civil and environmental engineer with more than 25 years of experience in project planning, design, construction, operation and maintenance engineering services. His background includes municipal engineering representation, site engineering for industrial and commercial parks; municipal infrastructure design (roads, storm drainage, water and sewer); industrial and recreational facilities; wastewater and water planning and feasibility studies; and municipal and sanitary engineering designs (water and wastewater treatment, pumping, water storage and distribution, and wastewater collection and conveyance). He is also experienced in preparation of construction drawings and contract specifications; construction cost estimating; preparation of regulatory applications and supporting data; financial planning studies; user rate studies; and construction inspection services.

Water Treatment Plant Design, Berwind, West Virginia. West Virginia Division of Environmental Protection. Technical Review Manager. Performed technical reviews for preparation of construction documents for a 300 gallons per minute potable ground water treatment facility. Treatment scheme included well pumping, air stripping tower, pre and postchlorination, sedimentation, filtration and sludge dewatering lagoons.

Water System Design Engineering, Aliquippa, Midland and Beaver Falls, Pennsylvania. Various Pennsylvania Municipalities. Project Engineer and Project Manager. Provided design engineering and construction services for water system extension projects.

Water Storage Tank Design Engineering, Beaver Falls, Aliquippa and Midland, Pennsylvania. Various Pennsylvania Municipalities. Project Engineer and Project Manager. Provided design engineering and construction services for new construction of finished water storage tanks.

Water System Hydraulic Analysis and Modeling, Beaver Falls, New Sewickley, Meadville, Baden and Koppel, Pennsylvania. Various Pennsylvania Municipalities. Technical Review Manager. Performed hydraulic analysis and modeling of various water distribution systems.

Spring Alley and Mercer Road Water Pumping Stations, New Brighton Borough and Daugherty Township, Pennsylvania. Beaver Falls Municipal Authority. Project Manager. Performed design engineering evaluations, permitting and preparation of equipment purchasing bidding documents for the two (2) water pumping stations. Spring Alley Station consists of two 455 gallons per minute at 305 feet TDH pumps upgradable to 575 gallons per minute at 330 feet TDH. Mercer Road Station consists of three pumps with two at 300 gallons per minute at 128 feet TDH and one at 400 gallons per minute at 147 feet TDH upgradable to two at 350 gallons per minute at 135 feet TDH and one at 500 gallons per minute at 165 feet TDH.

EDUCATION (Degree, Year, Specialization) M.S., Civil and Sanitary Engineering, 1973; B.S., Civil Engineering, 1971	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers American Water Works Association Chi Epsilon Civil Engineering Honorary Fraternity Pennsylvania Water Environment Association Water Environment Federation	REGISTRATION (Type, Year, State) Professional Engineer, PA, 1976; Professional Land Surveyor, PA, 1981

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<p>Martin, Mark R., PG Assistant Geologist I</p> <p>Brief Explanation of Responsibilities</p> <p>Mr. Martin is a geologist with experience in conducting and reporting results of geotechnical investigations including geologic research, site reconnaissance, preparing test drilling contracts, test boring inspection, and geotechnical laboratory testing.</p> <p>Mine Drainage Subsurface Investigation, Clarksburg and Fairmont, West Virginia. West Virginia Department of Environmental Protection. Project Geologist. Conducted site reconnaissance, monitored test borings to identify mine voids and installed standpipe piezometers to evaluate presence of mine pools for mine drainage investigation.</p> <p>Mine Subsurface Subsurface Investigation, MacArthur, West Virginia. West Virginia Department of Environmental Protection. Project Geologist. Logged soil and rock core to identify mine voids and produced final test boring records to produce mine stabilization program.</p> <p>Abandoned Mine Lands Project, Cheat Lake, West Virginia. West Virginia Department of Environmental Protection. Project Geologist. Oversaw test drilling activities to determine amount and location of coal mine spoil/refuse, collected acid mine drainage samples for testing, installed piezometers and produced final test boring records.</p> <p>Abandoned Mine Lands Project, Masontown, West Virginia. West Virginia Department of Environmental Protection. Project Geologist. Conducted a site reconnaissance at four areas within the project location. Oversaw test drilling activities (i.e., logging soil and rock core) to determine amount/extent of coal mine spoil/refuse within the four designated areas, collected water samples from acid mine drainage locations, and produced final test boring records.</p> <p>Abandoned Mine Lands Project, Ely and Puckett Creeks, Virginia. Virginia Department of Mines, Minerals and Energy. Project Geologist. Conducted a site reconnaissance for four sites in southwestern Virginia. Oversaw test drilling activities including logging soil and rock core, conducted bore hole permeability tests, and conducted a survey of local residence for a Hazardous, Toxic, and Radiological Waste Investigation Report.</p> <p>North Fork of Yellow Creek AMD Abatement, Jefferson County, Ohio. Nashville District, U.S. Army Corps of Engineers. Project Geologist. Duties included: Coordinating with the drilling firm; locating borings; inspecting test borings, including logging soil from auger cuttings and standard penetration tests and logging rock core from NX or NQ coring to determine coal refuse thickness, overburden thickness over mine portals and delineating mine voids; installing standpipe piezometers in mine voids to monitor water levels; performing field permeability tests in boreholes; selecting samples for laboratory testing, including classifications, nutrient analysis, compaction testing, and permeability testing; preparing typed boring logs from field originals using LogDraft program; coordinating with the Project Manager during field activities.</p> <p>Waterline Feasibility/Extension Project, Berwind, West Virginia. West Virginia Department of Environmental Protection. Project Geologist. Conducted a site reconnaissance, logged soil and rock core along the proposed alignment, collected water samples, and produced final testing boring records.</p>	10	8	-
<p>EDUCATION (Degree, Year, Specialization) B.S., 1988, Geology</p> <p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS REGISTRATION (Type, Year, State) Professional Geologist, 1995, PA</p>			

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<p>McCrary, Charles, E.I.T. Mining Engineer</p> <p>Brief Explanation of Responsibilities</p> <p>Mr. McCrary is an Engineer-In-Training and Task Manager at Baker with a background in geotechnical and mining engineering. His experience includes subsurface investigations, foundation design, mine permitting, hydrogeology, coal refuse disposal alternatives analysis, water line feasibility studies, reclamation of abandoned mine lands, including , earthwork, channel design, subsidence investigations and reclamation of coal refuse piles. He also has an extensive knowledge of both the Clean Water Act and NEPA and is responsible for these components of coal mine permitting and compliance at Baker.</p> <p>WVDEP, Various Counties. Phase I Water Supply Feasibility. Conducted a feasibility study which included: on-site interviews with residents, local agencies, and government officials, research using public and private sources, and collecting water samples within project area to determine impacts past mining activities imposed on private water supplies. Provided alternatives and recommendations to identify the most cost-effective remedial measures that could be made.</p> <p>WVDEP14387, Harrison County. Wet mine seals, the installation of bat gates, open limestone channel design, culvert and structure design, structure removal and reclamation grading at six (6) sites at the Crooked Run #5 Complex in Harrison County near Clarksburg.</p> <p>WVDEP14800, Marion County. Drilling program development and the preparation of construction plans and specifications for the abatement of mine subsidence at four (4) sites in or near the City of Fairmont. The project "Fairmont Five Subsidence," included grout injection as well as surface depression regarding and minor drainage improvements.</p> <p>WVDEP, Miller Mountain Waterline Feasibility Study. Performed research of geological data and mining maps, evaluated impacts of past mining activities on groundwater within the study area, and evaluated existing water distribution systems. Project included performing field research and sampling of surface and groundwater, plotting laboratory test results on Piper Trilinear Diagrams, identifying possible solutions to water quality problems, and providing preliminary construction cost estimates for recommended alternatives. The Miller Mountain Waterline Feasibility Study included detailed research of the local hydrology, hydrogeology, geology, and past mining activities, as well as collection and analysis of representative water samples and interviewing residents. Conclusions regarding the impact of that past mining activities have had upon local hydrogeology conditions as well as on water quality and quantity were formulated based upon information collected as part of the investigation. Finally, the report presented recommendations regarding remedial actions including extension of the Miller Mountain water distribution system and upgrades to the existing treatment facility.</p> <p>WVDEP, Preston County. 9 County Roads Feasibility Study. Performed research of geological data and mining maps, evaluated impacts of past mining activities on groundwater within the study area, and evaluated existing water distribution systems. Baker was selected to provide the engineering services necessary to develop a water supply study for the specified area. The object of the study was to investigate the area's current water supply, make a determination as to how it has been affected by past mining, and recommend alternatives for water supply replacement. Baker compiled information and documentation to support an AML & R grant request to OSM for funding to extend and/or install water systems in impacted areas. The work was performed in 2 phases. The purpose of Phase 1 was to determine the potential impact of past mining activities on water supplies within the study area. When a potential impact was established, Phase 2 began, which involved a detailed investigation of mining history, geology, hydrogeology, and water supply sources.</p> <p>Foundation Mining, L.P., Design/Permitting for Shaft and Slope Site, Surface Facilities, Batch Weight System and RR Spur and Siding. Assisted in preparation of permit for Foundation Mine Surface Facilities. Prepared PA DEP permit applications for the slope, shaft, railroad, and surface facilities. Assisted in design of all sites, provided E&S design for all sites, constructed pre- and post-hydrologic and hydraulic models on streams to analyze potential flooding, conducted resident interviews, and collected ground and surface water samples. Responsible for E&S design and floodplain analysis using HEC-RAS.</p>	5	5	4
<p>EDUCATION (Degree, Year, Specialization) B.S., 2005, Civil Engineering</p> <p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers</p> <p>REGISTRATION (Type, Year, State) Engineer-In-Training, 2006, WV</p>			

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN. (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
<p>See, John, P., P.E., P.S. Mining Engineer</p>	<p>2</p>	<p>30</p>	<p>20</p>
<p>Brief Explanation of Responsibilities</p>			
<p>Mr. See's responsibilities include technical oversight, and quality control for transportation and mining related projects throughout the state. Mr. See is a registered professional civil engineer and a registered professional surveyor. His experience covers numerous projects for mine development studies and mine production as well as refuse disposal and coal transportation. Work has included permitting for surface and underground mines as well as refuse disposal and preparation plant facilities. Duties ranged from reserve investigation and feasibility evaluation to mine development and subsequent daily mine production operations.</p>			
<p>Work experience has included railroad, bridge and highway design. Duties ranged from horizontal and vertical alignments, drainage computations, supervised drafting of construction plans, developed construction specifications, and estimated contract quantities for highway and railroad design.</p>			
<p>Work experience includes Associate Professor of Mining Engineering Technology, at West Virginia Institute of Technology in late 1970 and early 1980. During this engagement, Mr. See developed and presented course lesson plans and problem analysis sessions as well as assisted in the development of laboratory experiments and student advising.</p>			
<p>WVDEP 14387, Harrison County. Wet mine seals, the installation of bat gates, open channel design, culvert design, sediment control design, structure removal and reclamation, grading and revegetation.</p>			
<p>WVDEP 14439, McDowell County. Wet mine seals, open channel design,, culvert design, underdrains, sediment control design, reclamation grading and revegetation.</p>			
<p>WVDEP14800, Marion County. Drilling program development and the preparation of construction plans and specifications for the abatement of mine subsidence at four (4) sites in or near the City of Fairmont. The project "Fairmont Five Subsidence," included grout injection as well as surface depression regarding and minor drainage improvements.</p> <p>Assisted in the preparation of the Buffalo Mountain Surface Mine Permit application in Mingo County, Hill Fork Surface Mine Permit Application in Boone County and the Bragg Fork Refuse impoundment in Boone County.</p>			
<p>EDUCATION (Degree, Year, Specialization) B.S.C.E., 1967, Civil Engineering M.S.C.E., 1971, Civil Engineering</p> <p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers</p>			
<p>REGISTRATION (Type, Year, State) Professional Engineer, WV, 1972 Professional Surveyor, WV, 1995</p>			

14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE AML DESIGN SERVICES

Various computer software and equipment (surveying and mapping) used by Michael Baker Jr., Inc. for ongoing projects in the Charleston, WV and Pittsburgh, PA area offices are as follows:

HYDROLOGY

SEDCAD4 – Storm Routing through Detention Structures, Channel Design and Riprap Sizing.
 TR20 – Project Formulation – Hydrology by SCS
 RT55 – Urban Hydrology for Small Watersheds by SCS
 HAESTADS POND2 – Storm Routing through Detention Structures
 HEC1 – Flood Hydrograph Package by U.S.A.C.O.E.
 HAESTADS QTRSS – Urban Hydrology for Watersheds

HYDRAULICS – OPEN CHANNEL AND CULVERT

HEC RAS/ - River Analysis System/Flood Plain Analysis/Water Surface Profile
 HEC2 – Water Surface Profiles by U.S.A.C.O.E.
 HY8 – Culvert Analysis by FHWA
 FLOWMASTER – Channel and Pipeline Hydraulics by HAESTAD, Inc.

PIPELINE HYDRAULICS

KYPIPE2 – Water Distribution System Modeling
 CYBERNET – Water Distribution System Modeling

GEOTECHNICAL

STABL5M – Slope Stability
 REAME – Slope Stability
 SAMM – Loads on Concrete Pipe

DRAFTING AND SITE DESIGN

AutoCAD – LANDDEVELOPMENT 2000 Desktop for Earthwork, Survey, Quantity, Calculations,
 Terrain Modeling, Coordinate Geometry, Site Grading, etc

SURVEYING AND MAPPING

SURVEY EQUIPMENT AND SOFTWARE
 Survey/Global Positioning System (GPS)
 Leica System 500 - SR 530 RTK - GPS Receiver
 Leica GS50 C/A Code Receiver with Rascal Correction Service
 Trimble Pathfinder Pro XRS - with Omnistar Correction Service
 Trimble 4000SSE - Dual Frequency Receivers
 Trimble 4400 - RTK - Dual Frequency Receivers

Pipe/Cable Locators
 Metrotech Model 9890
 CAT & Jenny Locators
 Metrotech Model 810

Total Stations with Onboard Data Collection
 Leica TCRV 1103 – Motorized w/Reflectorless EDM
 Leica TCA 1103 - Robotic w/Auto-Target Recognition (ATR)
 High Precision Wild T3

Data Collectors
 Wild GRE 4
 PENTAX SC5
 Leitz SDR33
 Topcon FC1

Magnetic Locators
 Chicago Steel Tape - FT - 60
 Schoenstedt

Fathometer
 1 – Innerspace Tech Model 456 – 200 KHz 8° Transducer

Survey Software
 Leica Ski-Pro, Version 2.0
 Leica GIS Data Pro Version 1.20
 Innerspace Technology Version 6.0 Data Logging with Guidance
 Leica Survey Office Version 1.33
 Trimble GPSurvey Version 2.35
 Trimble Pathfinder Office Version 2.11
 Leica – Liscad 6.00
 Wild Soft Version 1.65
 MicroStation Version SE or J
 Eagle Point Version 99Q3

PHOTOGRAMMETRIC EQUIPMENT AND SOFTWARE

First Order Stereoplotters
 Wild AvioIyt BC2 Analytical Stereoplotter
 Leica SD 2000 Analytical Stereoplotter (Jackson, Mississippi office)
 Wild PUG-4 Point Transfer Devices

Softcopy Stereoplotters

Z/I ImageStation SSK, Xeon GXI 2000, 2-450 MHz (Mexico City, Mexico office)
 Z/I ImageStation ZIII, Xeon GXI 2000, 2-450 MHz
 Sun ULTRA 60 360 MHz Ultra Sparc with SOCRET Set Suite of Software
 Z/I ImageStation SSK, PIII Xeon, 2-1.0 GHz
 Z/I ImageStation SSK, Intel® Xeon™ Processor, 1.80GHz, 512K Cache

15. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED ENGINEER OF RECORD

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
Kempton Refuse and AMD Project Tucker County, West Virginia	West Virginia Department of Environmental Protection (DEP) Office of Abandoned Mine Lands & Reclamation 601 57 th Street, SE Charleston, WV 25304	Site reconnaissance, survey and mapping, subsurface investigation, designing grading, drainage control structures, ditches, passive treatment for AMD, earthwork, preparation of plans, specifications and costs.	\$189,414 (Fee)	90%
Borgman Refuse & Portals – AML Reclamation Preston County, West Virginia	West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands & Reclamation 10 McJunkin Road Nitro, West Virginia 25143	Site reconnaissance, surveying, subsurface investigation, designing grading, drainage control structures, ditches, passive treatment for AMD, earthwork, preparation of plans, specifications and costs.	\$107,500 (Fee)	75% (On Hold per WVDEP)
Mineral Zoar Road AMD Remediation Project Tuscarawas County, Ohio	ODNR-Division of Mineral Resources Management 1855 Fountain Square Court, Bldg H-2 Columbus, OH 43224	Site reconnaissance, aerial photography & mapping, identifying AMD sources and sampling, channel restoration and AMD remediation design (passive system), drainage control design, preparation of plans, specifications and cost estimates.	\$78,500 (Fee)	95%
Huff Run 42 – AMD Remediation Study Carroll County, Ohio	ODNR-Division of Mineral Resources Management 1855 Fountain Square Court, Bldg H-2 Columbus, OH 43224	Site reconnaissance, subsurface investigation, AMD source identification, sampling, AMD treatment alternatives design, surface drainage design, cost estimating for alternatives, providing recommendations and report.	\$58,600 (Fee)	90%
Harsha South AMD Preliminary Investigation Project Carroll County, Ohio	ODNR-Division of Mineral Resources Management 1855 Fountain Square Court, Bldg H-2 Columbus, OH 43224	Detailed site reconnaissance, subsurface investigations to identify AMD source(s), evaluation and characterization of AMD source(s), conceptual design and evaluation of possible AMD abatement alternatives, preparation of report and recommendation and preliminary design.	\$61,604 (Fee)	55%

16. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS SERVING AS A SUB-CONSULTANT TO OTHERS

PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRMS RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				ENTIRE PROJECT	YOUR FIRMS RESPONSIBILITY
N/A					

17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
36-Inch Raw Water Mains Norfolk, VA	City of Norfolk Department of Public Works Norfolk, VA 23501	\$1,100,000	2005	Yes
Mineral Zoar Road – AMD Remediation Project Tuscarawas County, OH	ODNR – Division of Mineral Resources Management 1855 Fountain Square Court, Bldg. H-2 Columbus, OH 43224	\$69,626 (Fee)	2005	Yes
Municipal Engineering Services Monaca, Beaver County, PA	Borough of Monaca 928 Pennsylvania Avenue Monaca, PA 15061	\$132,749	2005	Yes
Beech Bottom Refuse – AML Reclamation Ohio and Brook Counties, West Virginia	West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands & Reclamation 601 57 th Street, SE Charleston, WV 25304	\$98,000 (Fee)	2004	Yes
Terra-Alta Water Works Waterline Feasibility Study Preston County, WV	West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands & Reclamation 601 57 th Street, SE Charleston, WV 25304	\$40,829	2004	Completed
Water Replacement Projects 2003 Virginia	Virginia American Water Company 2223 Duke Street Box 25405 Alexandria, VA 232314	\$55,299 (Fee)	2004	Yes
Huff Run 42 – AMD Remediation Study Carroll County, OH	ODNR – Division of Mineral Resources Management 1855 Fountain Square Court, Bldg. H-2 Columbus, OH 43224	\$58,600 (Fee)	2004	Completed
Mt. Eaton Subsidence Evaluation Wayne County, OH	ODNR – Division of Mineral Resources Management 1855 Fountain Square Court, Bldg. H-2 Columbus, OH 43224	\$24,400 (Fee)	2004	Completed
Fox Chapel Pump Station and Rising Main Pittsburgh, PA	Pittsburgh Water & Sewer Authority 441 Smithfield Street Pittsburgh, PA 15222	\$295,000 (Fee)	2003	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)						
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	
North Fork Yellow Creek, Ecosystem Restoration Project Hammondsville, Ohio	US Army Corps of Engineers, Pittsburgh District	\$56,000 (Fee)	2002	Project Completed	David Miller & Associates Vienna, Virginia	
Feasibility Study for Ecosystem Restoration for Jones, Straight, Reeds and Cox Creek Sub-basins Lee County, Virginia	David Miller & Associates Vienna, Virginia	\$93,873 (Fee)	2004	Project Completed	David Miller & Associates Vienna, Virginia	

ACID MINE DRAINAGE REMEDIATION, ABANDONED MINE LANDS RESTORATION, AND EXISTING MINES EXPERIENCE

The projects described under Item 12 of the CCQQ and the attached list of AML projects concern primarily abandoned mine land reclamation and acid mine drainage remediation. However, the experience of the key project personnel is not limited to abandoned mine operations, since we continually serve many of the country's largest coal and mineral producers as well as industrial clients. Those personnel listed under Item 13 of the CCQQ have experience in all phases of mining services, from survey, mapping, exploration and reserve analysis through mine planning, permitting, design, construction management, and final closure and reclamation. Since mining projects comprise a large segment of our business, we work to assure that the mining services provided meet the needs and expectations of our clients and any regulatory agencies involved. Some of the many coal producers we have served are listed below:

- U.S. Steel Mining Co., Inc. - Jim Walter Resources, Inc. - Magnum Coal Company
- Westmoreland Coal Company - Ashland Coal, Inc. - CONSOL Energy
- RAG Emerald Resources Corp. - Sierra Coal Company - Massey Energy
- AMAX Coal Company - Exxon Research and - Coal River Energy, Inc.
- Consolidation Coal Company - Engineering Co - Mid Vol Coal Sales, Inc.
- RAG Cumberland Resources Corp. - Arch Coal, Inc. - West Virginia Coal Association

Since it is not possible to describe all of the work done for these mining clients and numerous governmental agencies, only six detailed project descriptions will be provided. These key projects, due to their magnitude and/or requirements, further demonstrate the full service capabilities of Michael Baker Jr., Inc. These projects are listed under the type of work performed.

- **State Funded Mine Reclamation and Pollution Abatement – Ohio**

The Village of Barton was plagued by mine drainage and slope instability (creating landslides) problems resulting from abandoned underground mines with acid mine drainage discharges and a gob pile. Baker was retained to investigate these problems and prepare preliminary and final engineering plans for their abatement. The sources of mine drainage were identified through a water quality sampling program, field reconnaissance, and a test boring program. Infrared aerial photography was utilized to identify acid mine drainage seepage zones. A test boring program was conducted to determine the depth and dip of the mined out coal seam, the mine pool level and its piezometric head, and the lithologies of the overburden.

A second test boring program was conducted in the gob pile to determine pile thickness and to obtain gob and soil samples for soil mechanics testing and evaluation for use as construction material and coal recovery. Stability analyses were conducted on cross sections of the pile.

A third element of the investigation was a flood study of Steep Run. Two problems were evaluated: alteration of the hydrologic characteristics of the watershed through mining activity, and reduced channel capacity resulting from erosion of refuse piles and unstabilized mined areas. Hydrological frequency curves were estimated for pre and post mining conditions using the SCS Method (Technical Release No. 55). Stream siltation was observed in the field, upstream and downstream on the mined area.

A preliminary engineering report was prepared, addressing the following items.

- evaluation of alternative AMD abatement measures, including practicability of mine seals and drainage of the mine void
- geotechnical investigation and stability analysis for saturated hillside slope
- feasibility of re-grading and reclaiming the gob pile
- corrective measures for the hillside slope failure (landslide)
- feasibility of reprocessing refuse material for secondary recovery of coal of sufficient heating value
- suitability of refuse from the gob pile for use as construction material
- cost estimates for all technically feasible alternatives for AMD abatement, hillside slope stability and gob pile reclamation or use, and
- preparation of final construction drawings, specifications and cost estimate for this project.

- **Waterline Extension Feasibility Study and Design for 9 County Route Roads in Areas of Preston County impacted by AML Problems – West Virginia**

The project was assigned to Baker by WVDEP Office of AML & R as two separate projects. The first project was to perform waterline extension feasibility study, the object of which was to investigate the areas' water supply, determine whether and how the water supply has been impacted by pre-law mining, and to compile and document the investigation findings to support an AML&R grant request to OSM for funding to extend and/or install potable water supply systems in the impacted areas. The second project was to perform design of the water supply system extension to the impacted areas. The object of this water supply extension was to provide potable water to residents in areas with ground-water supply that was found to be contaminated by pre-law mining activities.

19. ADDITIONAL INFORMATION OR DESCRIPTIVE RESOURCES SUPPORTING BAKER'S ABILITIES TO PERFORM WORK FOR THE WEST VIRGINIA ABANDONED MINE LANDS PROGRAM.

- Alkaline Leach Beds, basic steel slag leach beds
- SAP cells, reverse alkaline producing systems (RAPS) cells
- Open limestone channels
- Anoxic limestone trenches
- Aerobic and anaerobic wetlands
- Soil amendment

These technologies were variously incorporated into such projects as:

- Kempton Refuse & AMD Project for WYDEP
- Mineral-Zoar Road AMD Reclamation Project for ODNR-DMRM
- Lindentree Reclamation project for ODNR-DMRM
- Mineral City Park Reclamation project for ODNR-DMRM
- Powell River Ecosystem Restoration and Ely and Puckett Creek Subbasins for the Nashville District, U.S. Army Corps of Engineers
- The Emoryville Mine Complex and Piney7 Swamp Run for the WYDEP
- North Branch Potomac River for the Baltimore District, U.S. Army Corps of Engineers
- State Route 800 / Dennison Reclamation Project for the ODNR

- Reclamation Practices for Enhanced Wildlife Values

This study was undertaken to define the best technologies available to protect and enhance wildlife values in surface mining and reclamation. The Baker project team examined both surface mining techniques and mined land restoration procedures.

After developing a preliminary list of management practices through literature review and contact with technical specialists, the applicability of those practices to surface mines in Northern Appalachia was evaluated. Many of the 100 management practices deemed potentially feasible were observed in the field, resulting in the identification of 60 - 70 viable management practices. Field investigations of reclamation techniques were undertaken at mines in eastern and central Kentucky, northwestern Tennessee, southwestern Virginia, West Virginia and Pennsylvania.

Findings of the study were assembled into a user's manual for use by coal operators, agency personnel, wildlife biologists, and others involved in the reclamation of mined lands. Each wildlife protection and enhancement technology is described in the user's manual, and procedures for implementation are given. Information on costs and performance of each management practice under various conditions is also provided.

Following completion of that study, the U.S. Fish and Wildlife Service awarded Baker a second contract to investigate mine related stream alterations. This study has as its objectives the definition of the best methods of performing stream channel relocations while protecting and enhancing aquatic habitat. Following an exhaustive literature review and contact with technical specialists, field studies of channel relocations in the eastern, central and western coal provinces were conducted. Field studies focused on the effectiveness of habitat improvement structures and their relationship to hydraulic capacity.

A handbook describing aquatic habitat protection and improvement methods; their applications and costs was completed by the Baker project team.

- Powell River Ecosystem Restoration - Ely and Puckett Creek Sub-basins, Virginia

As a sub-consultant to David Miller and Associates, Inc. working for the Nashville District, U.S. Army Corps of Engineers, Baker completed a feasibility study and design to restore the ecosystem of Ely and Puckett Creeks by providing passive AMD treatment systems which would improve the water quality of the creeks to sustain aquatic lives and habitat. The project included four abandoned mine sites with AMD discharging mine entries and very poorly vegetated steep coal refuse piles. The AMD discharges from these sites severely impacted the receiving streams (Ely and Puckett creeks).

The reclamation plans developed by Baker provided for the refuse piles to be regraded and covered with soil amendment to reduce AMD generation. The reclamation plans also provided for off-site runoff to be diverted around the sites and construction of mine seals and limestone collection ditches for controlling the AMD seepage. Restoration and relocation of existing tributary streams was required at three of the sites. The proposed treatment systems at each site generally consisted of a mine water collection systems discharging into settling ponds, followed by Successive Alkalinity Producing Systems (SAPS cells) and aerobic wetlands as needed to fully neutralize AMD from each site at design flows prior to discharging the treated water into the stream.

Baker's services for this project included:

19. ADDITIONAL INFORMATION OR DESCRIPTIVE RESOURCES SUPPORTING BAKER'S ABILITIES TO PERFORM WORK FOR THE WEST VIRGINIA ABANDONED MINE LANDS PROGRAM.

As a large, diverse engineering firm, Michael Baker Jr., Inc. has facilities available to properly conduct abandoned mine land reclamation and AMD remediation projects. The use of in-house facilities can speed project completion and facilitate tracking of progress. The in-house facilities include:

- Data Processing
- Interactive Graphics and AutoCAD
- Word Processing
- Printing and Reproduction

SUMMARY

To summarize Baker's qualifications to provide engineering services for abandoned mine land projects, we offer the following response to the evaluation factors:

1. **Baker's Experience** in all aspects of surveying and mapping, subsurface investigation, and design engineering.
 - Extensive experience in each area. Items 17 and 18 of the CCQQ describe various projects for which we provided these services during the last 5 years. Projects listed under item 12 of the CCQQ describes typical of various AML projects for which we provided our services to WVDEP.
 - Strong capabilities in each area. Item 13 of the CCQQ lists our personnel by discipline. Our large multi-disciplinary staff is experienced in all aspects of AML reclamation and AMD remediation; civil, environmental, mining, geotechnical and reclamation engineering applied to surface and underground coal mining; land restoration; stream and water restoration; and land use and natural resources planning. The "AML and Related Project Experience Matrix" following this CCQQ shows various AML and hazardous waste disposal projects performed for various state agencies and industrial clients and also show primary participants responsible for these projects.
2. **Qualification of Personnel** with respect to background, general experience, and experience relative to the requirements of the Norton Highway #1 project.
 - Baker's key personnel are registered professional engineers experienced in a broad variety of AML and similar projects, as indicated item 13 of the CCQQ.
 - Our Project Manager and Project Engineers are veterans of many AML projects, including assignments from WVDEP since 1983.
3. **Corporate Specialized Experience and Demonstrated Abilities** with AML problems and similar projects.
 - Baker's specialized experience with AML problems is summarized for 30 typical projects (see "Table 12-1 in Item 12 of the CCQQ"). Our work has addressed the full spectrum of AML problems for clients such as WVDEP, PADEP and ODNR.
 - The firm has a wealth of experience on similar projects, as evidenced by projects performed for mining and mineral companies. Moreover, Baker's transportation, site development, and water resource projects in the tri-state area typically address AML problems.
4. **Management Plan and Location of Facilities.**

Baker's Management Plan provides for:

 - Project Management and Organization – Leadership by an experienced Project Manager, Project Engineers, and Technical Quality Control staff; organization capable of performing multiple projects simultaneously.
 - Technical Approach – Knowledge of the sequencing and scheduling for typical tasks performed for AML projects.
 - Contract Administration and Control – Computerized budgeting and scheduling; regular progress reporting; total quality management.
 - Location of Facilities – Design work performed in Baker's Charleston, WV office with assistance from our Beaver, PA office. Baker has a long list of successfully completed AML assignments for WVDEP from our locations in Pennsylvania since WVDEP initiated the AML reclamation program. We feel that the recent addition of AML experienced staff in our Charleston facility will only enhance our ability to serve the WVDEP.

RFQ No. DEP15610

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: 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 the debt owned is an amount greater than one thousand dollars in the aggregate

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.

"Debtor" means any individual, corporation, partnership, association, Limited Liability Company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentally established by a county or municipality; any separate corporation or instrumentally established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "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 exceeds five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this 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.

Under penalty of law for false swearing (*West Virginia Code §61-5-3*), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: Michael Baker Jr., Inc.

Authorized Signature: [Signature] Date: October 27, 2011

State of West Virginia

County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 27th day of October 2011

My Commission expires April 14, 2013

AFFIX SEAL HERE

NOTARY PUBLIC [Signature]

