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 7, 2008

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

Attention: Mr. Chuck Bowman, Buyer

Re: Expression of Interest to Provide Architectural/Engineering Services for the WVDEP, Office of Abandoned Mine Lands
RFQ No. DEP14381
Coaldale/Bramwell Hill Waterline Extension

Dear Mr. Bowman:

Michael Baker Jr., Inc. (Baker) is pleased to present this Expression of Interest to provide the Planning, Design, and Inspection services for potable water distribution as a rehabilitation of and extension to the existing Bluewell PSD system in Mercer County. Baker has assembled a local team of experienced personnel who have performed numerous similar assignments throughout the state of West Virginia.

As you are aware, Baker is a global engineering and energy firm with some 5,000 members in 50 office locations. We propose to undertake this assignment from our Charleston office which employs over 40 individuals including engineers, architects, land planners, surveyors, environmental specialists, and technicians.

Baker can perform all necessary services from planning through construction administration, while providing efficient, timely, and personal service, which will ensure a high quality product while controlling cost for the WVDEP, Office of Abandoned Mine Lands.

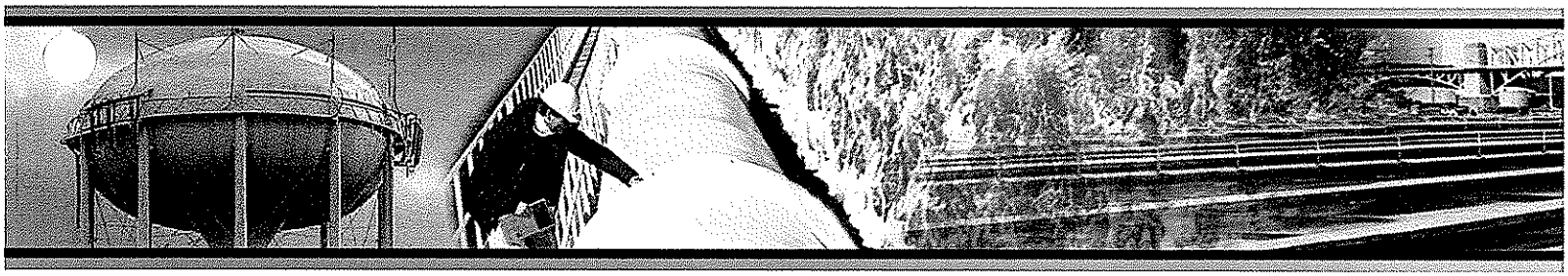
We are extremely interested in providing the required services on the *Coaldale/Bramwell Hill Waterline Extension* project. **Let us put our experience and enthusiasm to work for you!** We look forward to meeting with your selection committee to personally present our approach to this project.

Very truly yours,

MICHAEL BAKER JR., INC.

Patrick W. Fogarty, P.E., P.S.
Project Manager

ChallengeUs.



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Michael Baker Jr., Inc.

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Introduction

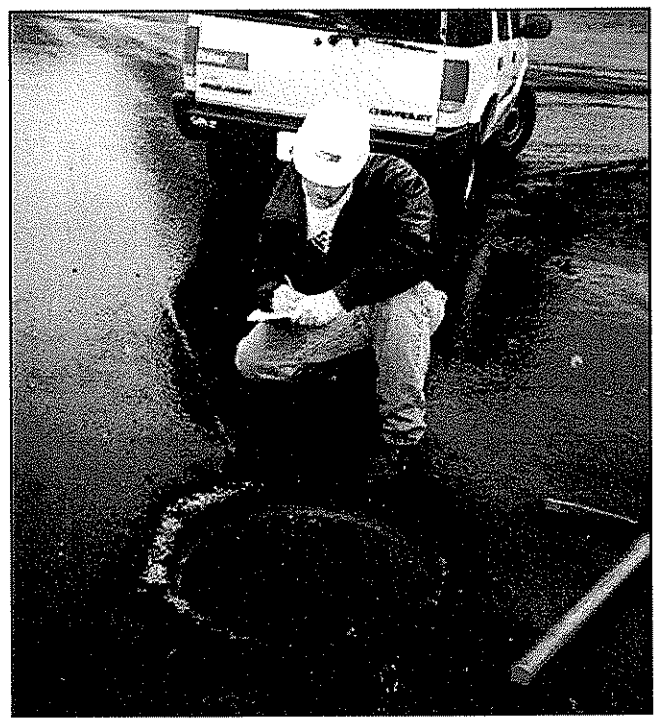
The West Virginia Department of Environmental Protection, Office of Abandoned Mine Lands and Reclamation (DEP) is seeking a highly qualified firm experienced in design and construction administration for potable water distribution improvements. Michael Baker Jr., Inc. (Baker) is a highly qualified firm with extensive experience in providing these services, and we are extremely interested in perpetuating our professional relationship with the DEP as evidenced by this positive response to your Request for Expressions of Interest.

> ***". . . we are extremely interested in perpetuating our professional relationship with the DEP as evidenced by this positive response to your Request for Expressions of Interest."***

Corporate Capabilities

By consistently solving complex problems for its clients, Baker has grown from a small western Pennsylvania engineering firm to a diverse, global corporation with approximately 5,000 employees in 50 offices worldwide.

Baker's Charleston-based West Virginia office opened in 1954 and currently employs 42 people from the local area. This office is committed to using innovative technologies that provide cost-effective solutions to our West Virginia clients in the areas of:



- Water/Wastewater Facilities
- Stormwater Systems Design and Permitting
- Abandoned Mine Land Reclamation
- Roadway and Bridge Planning and Design
- Surface Mine Engineering and Permitting
- Construction Inspection Services

- Cultural and Environmental Analysis and Documentation
- Geographic Information Systems (GIS), Surveying, and Remote Sensing
- NEPA Documentation and Compliance
- Global Positioning System (GPS) and Field Data Collection
- Database Development
- Computer/Web Programming
- Public Outreach

"Baker has evolved into one of the leading engineering and energy services firms by consistently providing targeted solutions for its clients most complex challenges."

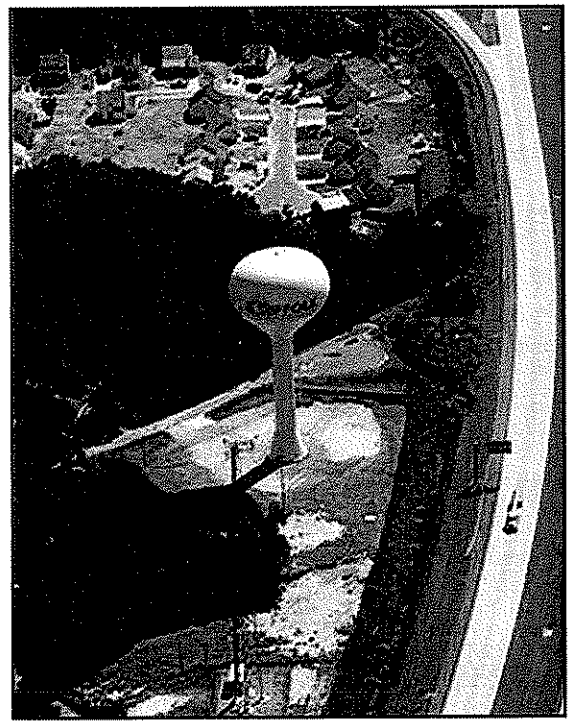
Baker's Charleston office is a *"single-stop resource"* capable of providing comprehensive professional services, from environmental planning, final design, and construction management through operational support. From major new bridge and roadway designs to surface mine permitting and water resource projects, Baker has evolved into one of the leading engineering and energy services firms by consistently providing targeted solutions for its clients most complex challenges.

Baker's clients for water resource projects include, but are not limited to, the Federal Emergency Management Agency (FEMA), U.S. Environmental Protection Agency (EPA), U.S. Army Corps of Engineers (COE), West Virginia Office of Emergency Services (OES), West Virginia Department of Environmental Protection as well as numerous municipal and private sector clients. Baker's geographic location and extensive experience enables us to quickly respond to wide-ranging scopes of service in order to meet client needs.

Qualifications

Baker routinely provides engineering services for the design of water, wastewater, and utility systems, and the associated construction oversight when required. Project assignments have included potable water treatment, storage, and distribution, waste-water collection and treatment as well as all aspects of utility relocations, including adjustments of water and sewer mains ranging in size from 4-inches to 48-inches, bridge crossings, overhead utility support structures, pump stations, private utilities, electrical duct banks, gas mains, fiber optic communication systems, and corrosion control analysis.

- Water Distribution Systems
- Water Treatment Facilities
- Water Storage Facilities
- Wastewater Treatment Plants
- Sanitary Sewer Collection Systems
- Pump Station Design
- Private Utility Connections and Relocations
- Right of Way and Easements
- Construction Inspection Services



Baker's primary objective for this project is to provide quality, cost-effective bid documents; on-time, meeting all of the technical and operational requirements of the DEP and the Bluewell PSD. Baker's approach to all projects is focused on four key characteristics that we feel our team possesses, and which make us specially qualified to meet and exceed the DEP's expectations for this contract. They are: **Knowledge, Capacity, Responsiveness, and Flexibility**.

"Baker's primary objective for this project is to provide quality, cost-effective bid documents; on-time, meeting all of the technical and operational requirements of the DEP and the Upper Kanawha Valley PSD."

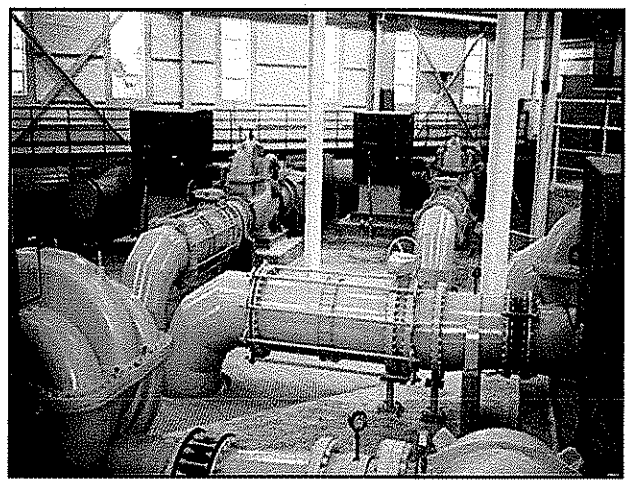
Experience has directed our project-specific teams to be structured with a core group of specialists leading the design efforts. Supporting this core group is a host of experienced engineers and technicians that provide us with the depth of staff to respond immediately to complex issues. Our capacity enables us to ensure that each project receives the attention it deserves.

Our knowledge, experience, and capacity allow us to meet schedule constraint challenges. Our approach allows us to identify problems early and adjust our work effort accordingly, to ensure project schedules are met. We will assertively coordinate with the DEP and the Bluewell PSD, affected owners, utility authorities, and permitting agencies to get them informed and involved with this project. This proactive and self-directed approach guarantees the DEP reliable and responsive service.

"This proactive and self-directed approach guarantees the DEP reliable and responsive service."

Baker's knowledge, capacity, and responsiveness allows for extreme flexibility when providing services for this project. We can provide a wide range of services to the DEP, including quality (peer) review of designed elements, engineering design, and bidding and construction phase services. Baker can provide (in-house) the following pertinent elements for this project:

- Extensive Knowledge of the Project Area
- Water storage facilities; Booster Pumping Stations as Required
- Hydraulic profile analysis
- Pipe and node analysis for static, residual and fire flow conditions.



Technical Expertise

Baker can offer the DEP proven experience in the following Professional Services as normally required for projects of this type:

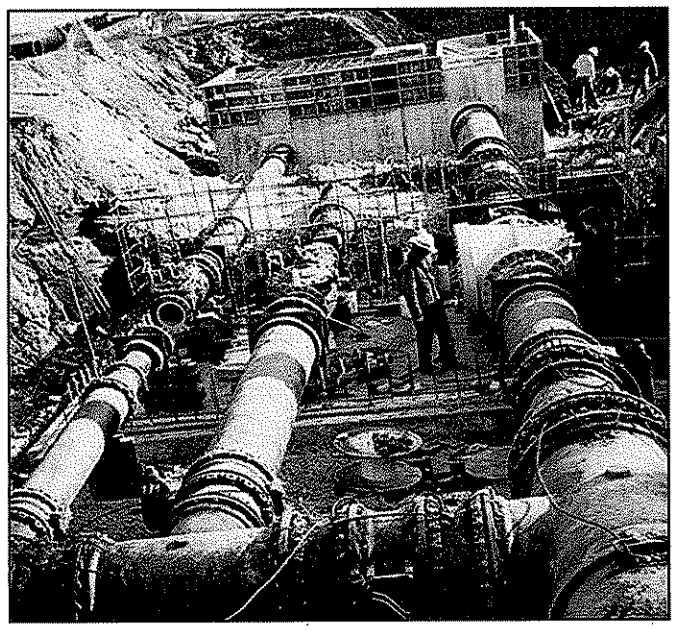
1. Plan and Specification Preparation

Baker has vast experience in the development of construction plans and technical specifications for all types of engineering projects. We have in-house expertise specific to water booster stations, water storage tanks, and water distribution systems.

Baker's integrated construction management services include individuals from the construction industry which were hired specifically to review and scrutinize construction plans and specifications for all types of engineering projects.

Due to the fact that it is desired to extend distribution facilities from existing infrastructure, an effective peer review program is an important requirement. Success is measured not only by timely completion, but most importantly by acknowledged quality. Baker proposes to target the following measurements of the quality of final bid documents:

- **Construction Economy:** Our design review will represent a highly cost-effective approach to construction and should present the respective bidders the opportunity to implement cost-saving measures.
- **Approvability:** Our design review will provide a bid set completed in accordance with accepted standards and methodologies, and drafted and organized so that the entire package can be quickly approved by reviewing agencies.



- **Constructability:** Our design review will result in plans and specifications that are easily understood not only by the client, but also by the prospective bidders. The final bidding and construction documents will reflect a product which is feasible to construct.

2. Construction Permit Acquisition

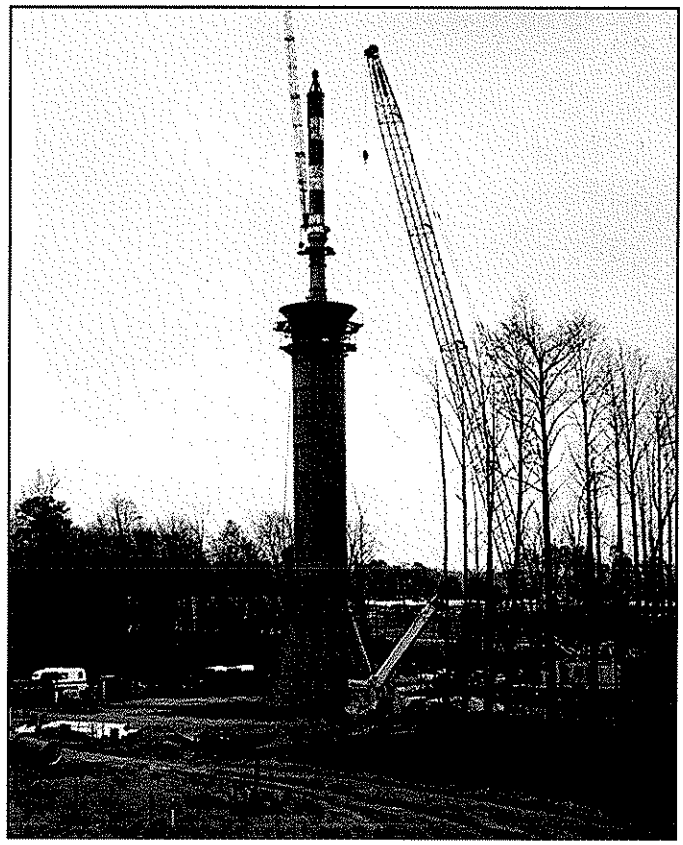
Baker routinely prepares permit applications for public and private clients. We have recently been involved in this process for local Public Service Districts. Typical permits which are normally required for this type of project include:

- The WV Department of Health and Human Resources Permit.
- WV Department of Environmental Protection, NPDES Permit
- U.S. Army Corps of Engineers, Jurisdictional Stream Activity Permit.
- WV DNR Public Land Corporation, Stream Activity Permit.
- WVDOT/Division of Highways, MM-109 Permit

Baker has established relationships with each of these agencies through work on similar projects.

Once we have completed the design package, we will offer to prepare the permit applications and personally present our plans, specifications and reports to the various agencies.

We have found this technique to be very effective in streamlining the permit acquisition process and in fostering our relationships with the respective permit agencies.



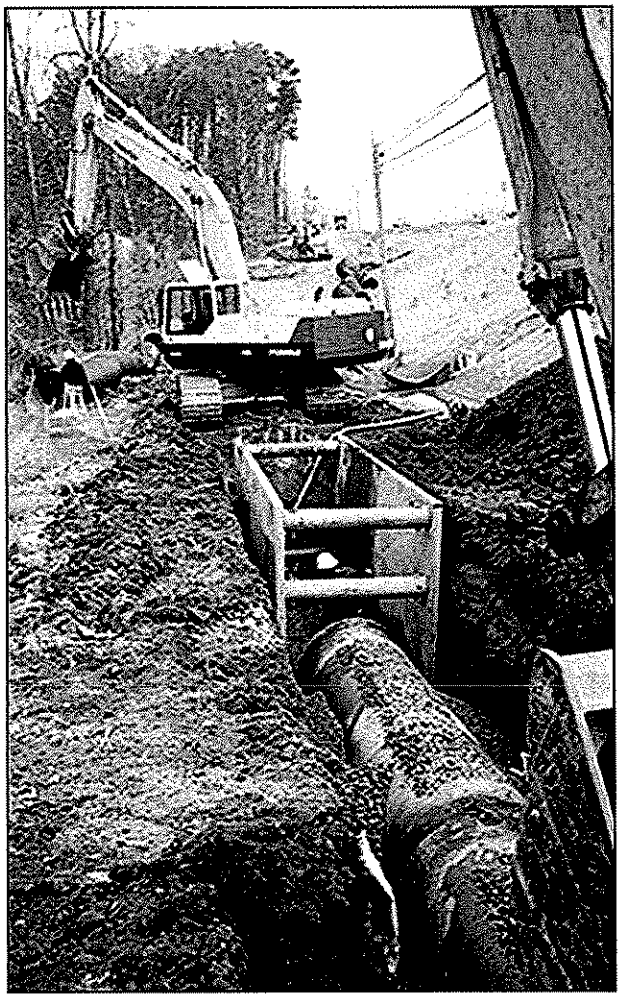
3. Bidding Phase Services

The Baker Project Manager will conduct the Pre-Bid Conference and distribute the minutes thereof.

Addenda (if required) will be prepared and promptly issued to the DEP no less than ten (10) days prior to the bid date.

Bids will be scrutinized by the Baker Project Manager. Likewise, detailed bid tabulations can be developed to allow the DEP to work with the Project Manager toward the development of Contract award.

4. Construction Administration and Inspection.



Baker is well equipped to provide the administration and inspection of these construction projects. Pre-Construction and regular job-site meetings, as well as shop drawing review, requests for information, pay requests and all other construction-related correspondence will be the responsibility of the Project Manager. Resident inspection services, if required, will be conducted by Baker technicians or staff engineers trained in construction practices and certified, as required, for the particular type of installation (i.e. concrete placement, compaction, process equipment, asphalt, trenching, etc.). Constant communication between field and office is essential and will be achieved via cellular telephone, internet access, and facsimile.

Management and Staffing Capabilities

Baker's Charleston office possesses a large and diverse engineering and environmental planning staff. Baker's team of experienced professionals has demonstrated the ability to deliver quality work products to our clients on-time and within budget.

Each individual on this team has extensive experience in their field of expertise and have demonstrated success on projects of similar size and scope. The following provides a brief discussion of each key team member's experience base relevant to this project. Full resumes are provided in the CCQQ (Attachment B).

Core Project Team (Baker Charleston Office)

Russell E. Hall, P.E., P.S., *Principal-In-Charge.* Mr. Hall is an experienced civil engineer who has been involved in numerous capital improvement projects in West Virginia for over 21 years. He spent the first 13 years of his career at the WVDOH and the last eight years in the consultant industry as an office manager. Throughout his career in both the public and private sectors his project management responsibilities have involved oversight and instruction of engineering and technical staff; coordination with the public and all appropriate federal, state, and local agencies; and client satisfaction and successful project delivery.

Patrick W. Fogarty, P.E., P.S., *Project Manager.* Mr. Fogarty joined Michael Baker Jr., Inc to service clients in the water and wastewater industry. Mr. Fogarty is an asset to the Michael Baker Jr., Inc. team with over 22 years of project design and management experience. He will be responsible for all technical and management aspects of the surveying and design for the project. As Engineer of Record, Mr. Fogarty will prepare the technical specifications and Calculations Brief, and pump selection, and oversee the hydraulic modeling, and plan preparation.

Terry L. Myers, *Assistant Project Manager,* Mr. Myers has over 29 years of diverse experience, primarily in the sanitary engineering field that includes design,

project management, client management, surveying, construction inspection and field testing for numerous assignments with municipalities, private developers and water/sewer districts. Mr. Myers has particular expertise in preliminary and conceptual design and the development of funding packages for potable water and sanitary/storm sewer projects. Mr. Myers served as the General Manager of Lincoln Public Service District, Lincoln County, West Virginia where he successfully acquired funding from various sources toward the development of over $5,000,000 of improvements and expansions for the potable water system in the county. Mr. Myers has a thorough understanding of regulatory and funding agency requirements as well as construction practices which will assure adherence to budget and schedule.

John P. See, P.E., P.S., *Design Engineer.* Mr. See is a Senior Civil Engineer with 43 years of experience in all phases of design and construction. His expertise includes all aspects of potable water, wastewater and storm water systems design. Mr. See will be responsible for the hydraulic modeling and analysis for the project.

Dana W. Moses, E.I., C.F.M. *Water Resources/Mining Engineer.* Mr. Moses has over 4 years of design, and operations experience in water resources systems analysis, hydrologic data collection and analysis, computer model development, watershed evaluation and runoff analysis, and sediment transport. Mr. Moses will assist in the preparation of the hydraulic model and be responsible for sediment and erosion control for the project.

James T. Burnette, S.E.T., *Civil Associate.* Mr. Burnette is an engineering technician with over 40 years experience. Mr. Burnette will be responsible for the plan and detail preparation, alignments, tax parcel mosaic and ownership index for the project. Mr. Burnette has provided design, and construction inspection services for numerous potable water and wastewater assignments in multiple states.

Jason T. Smithson, P.S., *Civil Associate.* Mr. Smithson is a graduate geologist, professional surveyor, and engineering technician with over eight years of diverse experience in civil, environmental, and geotechnical

engineering assignments. Mr. Smithson will be responsible for the surveying and data collection, as well as the disposition of utility easements and right of way coordination for the project.

John W. Dawson, P.E., P.S., *Construction Services Manager.* Mr. Dawson has over 34 years of construction management experience. In his tenure at WVDOH, he has worked as a Construction Engineer, Maintenance Engineer, and District Engineer. In this capacity, Mr. Dawson has been responsible for construction management and inspection of WVDOH projects as well as numerous utility construction contracts throughout the state. Mr. Dawson manages all of Bakers Construction Management and Inspection contracts in West Virginia.

Peer Review Team (Baker Virginia Beach Office)

Beth A. Drylie, P.E., *Civil Engineer.* Ms. Drylie is a Senior Civil Engineer with 19 years of experience. Her expertise includes all aspects of water, wastewater and drainage analysis design. In addition, she has experience in facilities (wastewater pump stations, raw water booster stations, administrative/field offices) project management and construction. Prior to joining Baker, Ms. Drylie was employed by the Norfolk Department of Utilities where she was responsible for the planning, project management, construction administration and financial projections of the Department's Capital Improvements Plan projects. She has been responsible for the design and project management of more than 200 miles of water and wastewater mains ranging in size from 6-inch to 54-inch.

Charles Votava, IV, P.E., *Civil Engineer.* Mr. Votava is a civil engineering project manager with over 12 years of civil and environmental engineering experience. His experience has included work with multiple municipal, private, and Federal clients for water and sanitary sewer systems in the planning, evaluation, and design of water distribution systems, wastewater collection systems, and stormwater systems. In addition, Mr. Votava has conducted utility assessments in conjunction with analysis of rehabilitation alternatives;

environmental compliance assessment and risk analysis; and hazardous waste analysis and remediation.

Joe Ussery, III, P.E., *Civil Engineer I.* Joe Ussery has experience in design, permitting, public bidding, and construction administration of pipelines, storage tanks, and pump stations. Joe's current responsibilities include preparation of preliminary engineering reports, plans, specifications, permit application packages, and cost estimates for projects involving the design of pipelines, pump stations, and other civil engineering projects.

Gary L. Heisler, P.E., *Civil Engineer.* Mr. Heisler is a registered professional engineer with 15 years experience in project management, design and construction administration of municipal water and wastewater systems, including three years of field experience overseeing these types of projects. Mr. Heisler has served as project manager/project engineer on over four dozen water transmission and distribution system projects totaling over 150 miles of water mains, ranging from 6-inches to 48-inches in diameter. He also has served as project manager and project engineer on more than 30 sewer system rehabilitation and replacement projects, I/I studies, and sewer evaluation surveys totaling over 100 miles of sanitary sewer mains.

Project Approach

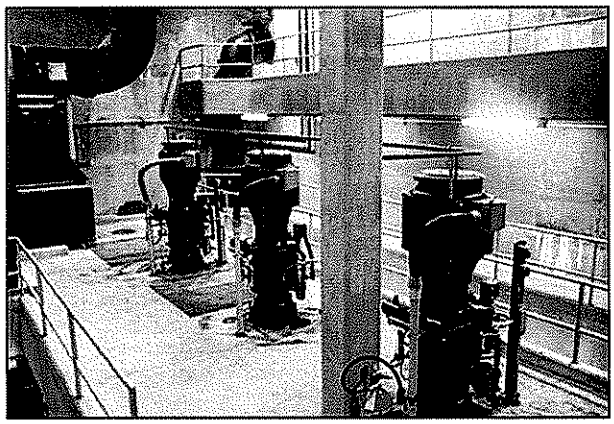
Project Understanding

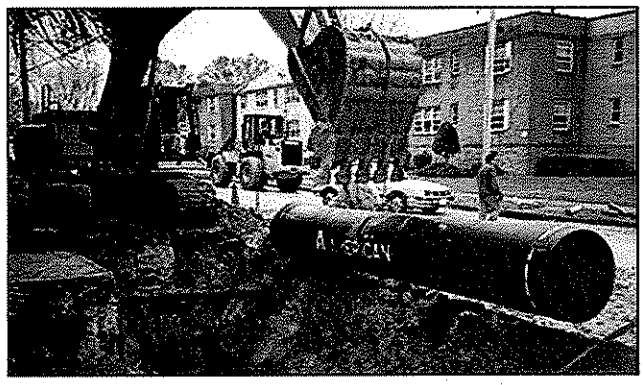
We have carefully reviewed your request for statements of qualifications. It is our understanding that the project would extend the main line from the existing Bluewell PSD system to the project area, including approximately 2,670 LF of 8-inch DIP and 21,420 LF of 8-inch PVC. Additionally, approximately 10,065 LF of 6-inch or 2-inch PVC are to be installed to serve residents within the project area. Other facilities include, 1 booster station, 1 water storage tank (approximately 75,000 gallon capacity), 58 service connections, meter assemblies, fire hydrants and miscellaneous valves and fittings. Based on our knowledge of the project to this point, we see the following as key tasks,

1. Determine pipe size, type, location and pressure at tie-in with the Bluewell PSD system,
2. Analyze existing system back to nearest storage reservoir for pressure drop and pump cavitation potential,
3. Provide mapping for the project area to identify customers and establish line and grade,
4. Prepare design hydraulic calculations and analyze static and fire flow conditions,
5. Based on these nodal calculations, evaluate site criteria for booster station and water storage tank,
6. Provide right-of-way maps and property plats as required,
7. Prepare plans, specifications and calculations brief,
8. Obtain construction permits (if required),
9. Assist with Bluewell PSD approval,
10. Provide bidding services and evaluation of bids submitted (if required),
11. Provide construction inspection and administration (if required),
12. Prepare record drawings (if required)

Related Prior Experience

The following Project Descriptions illustrate Baker's related prior experience. We have included examples of sanitary engineering assignments from various locations regionally and nationally. While we propose to conduct all activities from our West Virginia operation, these diverse project locations are meant to emphasis our ***One Baker*** philosophy. Which simply means that the DEP will have access to the expertise and resources across the entire company should the need arise.





Water Line Extension/Turkey Run

McDowell County Public Service District, Welch, West Virginia

Baker performed preliminary design and final plans, specifications, and construction quantity estimates for this water system, which is located in a rural area with rugged terrain.

This project called for a 5-mile extension of an existing water system: 15,000 l.f. of 8-inch PVC pipe; 4,700 l.f. of 6 inch PVC pipe; and 6,500 l.f. of 2 inch PE spur lines in several separate locations. Additional project features include:

- Evaluation of the existing system condition and capacity using KYPIPE.
- Replacement of inadequate 4-inch pipe.
- Designs for railroad crossings.
- Sizing/selection of booster pump stations and storage facilities.
- Provisions for fire hydrants with 500 gpm flow, where practical.
- Design in accordance with WV Bureau of Public Health and 10-State Standards for water system design.
- Aerial photography and the development of plans, profiles, specifications, and cost estimates.
- Test drilling for water tank sites, and tank foundation design.

Baker worked closely with McDowell County Public Service District to apply for and obtain Public Service Commission approval of the final plans, specifications, and cost estimate.

Client
WVDEP
Division of Land Restoration,
Office of Abandoned Mine Lands
and Reclamation
601 - 57th Street, SE
Charleston, WV 25304

Completion Date
1993

Baker's Role

- Computer Modeling
- Water System Design/Replacement
- Aerial Photography
- Test Drilling
- Completed Plans

Page-Kincaid Waterline Design

Fayette County, West Virginia

Baker performed preliminary design and final plans, specifications, and construction quantity estimates for a 10-mile extension of this water system. The extension included 6-inch PVC water lines and some 2-inch PE spur lines in several separate locations. The project, located in a rural area with very rugged terrain, included the following:

Evaluation of the existing and proposed system using KYPIPE.

- Sizing/Selection of booster pump stations and storage facilities.
- Provisions for the fire hydrants with 500 gpm flow, where practical
- Design in accordance with WV Bureau of Public Health and 10-State Standards for water system design.
- Aerial photography and the development of plans, profiles, specifications, and cost estimates.
- Test drilling for water tank sites, and tank foundation design.

Baker worked closely with Page-Kincaid Public Service District to apply for and obtain Public Service Commission approval for the final plans, specifications, and cost estimates.

Client
WVDEP
Division of Land Restoration,
Office of Abandoned Mine Lands and Reclamation
601 - 57th Street, SE
Charleston, WV 25304

Completion Date
1995

Baker's Role

- Computer modeling
- Sizing/Selection of booster pump stations and storage facilities
- Water system design
- Aerial photography
- Development of plans, profiles, and specifications
- Cost estimates
- Test drilling

Professional Engineering and Surveying Services - Water Distribution Projects

Fairfax, Virginia

Client
Fairfax County Water Authority
8560 Arlington Boulevard
Fairfax, VA 22031

Completion Date
2002

Baker's Role

- Development of Plans and Specifications
- Coordination of Subconsultant's Activities
- Preparation of VDOT Permits, Rail Road Occupancy Agreements, Cost Estimates

Baker provided professional engineering and surveying services in conjunction with the planning, design, and construction of six water distribution projects in the Fairfax Water's service area. The scope included three water main replacement projects and three system gap closure projects totaling approximately 6,800 LF of 6" - 12" water main, including two trenchless crossings, two pressure-reducing valve vaults, and associated appurtenances.

Biscayne Drive Water Main Replacement - The project included installation of approximately 1,200 LF of 8-inch DIP and HDPE water mains along Biscayne Drive, between Huntington Avenue and the southern terminus of Biscayne Drive, including distribution system interconnections and the installation of two pressure-reducing valve (PRV) vaults. Baker's responsibilities included preparation of topographic surveys, plan and profile drawings, VDOT permits, cost estimates, easement plats, and conducting soil borings and test pits. Scope of services also included construction-phase services limited to attendance at pre-construction meeting, shop drawing review, and clarification responses.

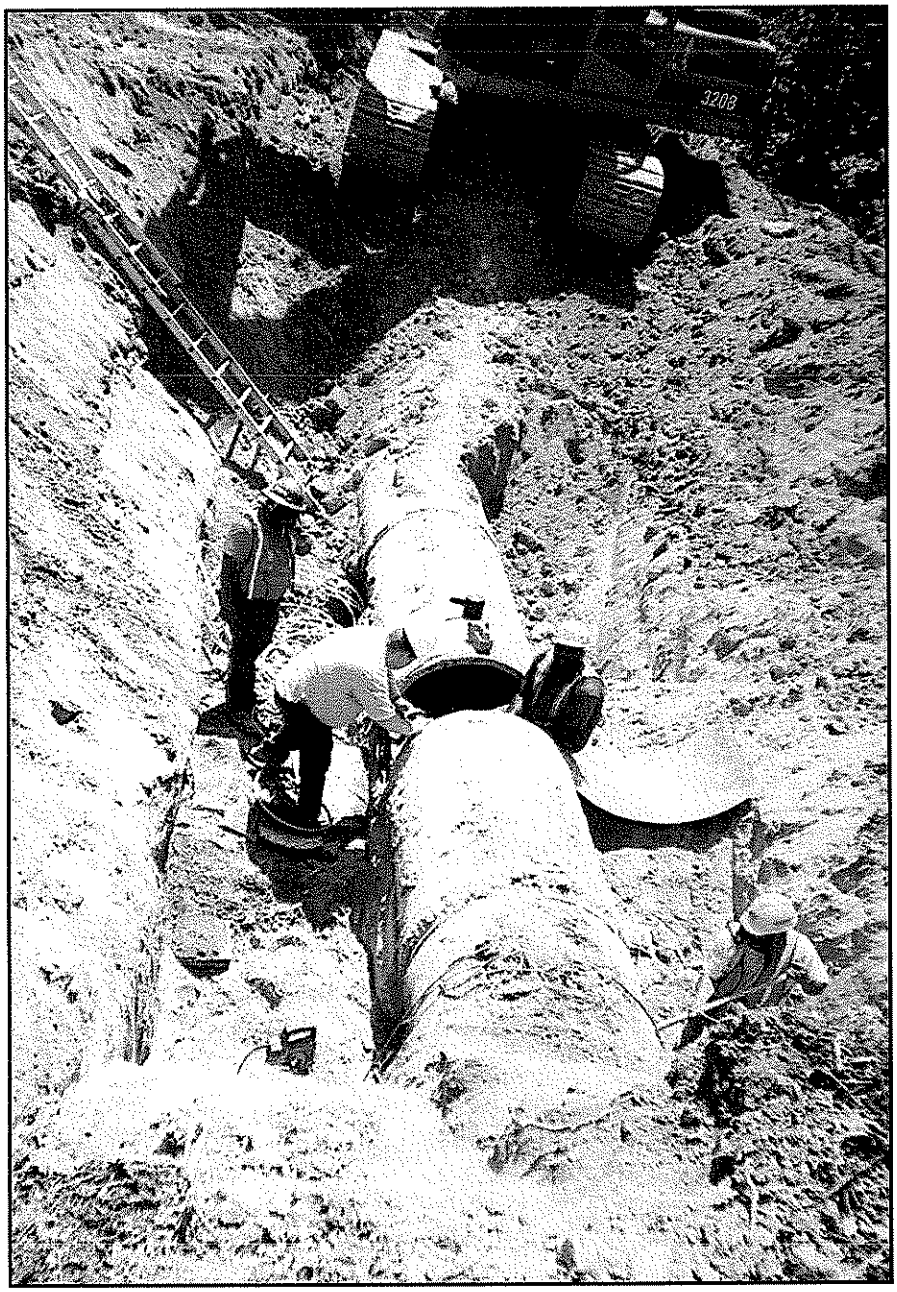
Franklin Road Water Main Replacement - The project included installation of approximately 1,750 LF of 6-inch DIP water mains along Franklin Road, between Herbert Street and Gallows Road. Baker's responsibilities included preparation of topographic surveys, plan and profile drawings, VDOT permits, cost estimates, easement plats, and conducting soil borings and test pits. Scope of services also included construction phase services limited to attendance at pre-construction meeting, shop drawing review, and clarification responses.

Old Clochester/Furnace Road System Gap Closure - The project included approximately 1,600 LF of 12-inch ductile iron water main, two trenchless crossings, and system interconnections at Old Colchester Road and north of Route I. Baker's responsibilities included boundary survey and control, preparation of plan and profile drawings, VDOT and railroad crossing permits, cost estimates, easement plats, FCWA purchase requisitions, test holes, and geotechnical evaluations for the trenchless crossings.

Route I Water Main Replacement - The project included the installation of approximately 1,700 LF of 12-inch ductile iron water main along Route I (Richmond Highway), between Huntington Avenue and Mount Eagle Drive, which included a stream crossing and interconnections to existing 12-inch cast iron water main at each end. Baker's responsibilities included preparation of topographic surveys, plan and profile drawings, VDOT permits, cost estimates, easement plats, and conducting soil borings and test pits as required. Scope of services also included construction phase services limited to attendance at pre-construction meeting, shop drawing review, and clarification responses.

Meadowlark Gardens System Gap Closure - The project included a 12-inch x 8-inch reverse wet tap interconnection, one trenchless crossing, and approximately 400 LF of 8-inch ductile iron water main to serve Northern Virginia Regional Park and adjacent neighborhoods. Baker's responsibilities included preparation of plan and profile drawings. VDOT permits, cost estimates, easement plats, FCWA purchase requisitions, and test holes as required.

Fairfax Church of Christ System Gap Closure - The project included an 8-inch x 6-inch wet tap interconnection and approximately 110 LF of 6-inch ductile iron water main. Baker's responsibilities included preparation of plan and profile drawings, VDOT permits, cost estimates, easement plats, FXWA purchase requisitions, and test holes as required.



North Zone Elevated Water Storage Tank Design

Anne Arundel County, Maryland

Baker was retained to evaluate sites, prepare design documents, and provide construction services for a two million gallon elevated water storage tank near Baltimore-Washington International Airport. For the site evaluation study, locations were initially selected based upon land availability, elevation, and proximity to the service area. The sites were then reviewed with the Federal Aviation Administration and the Maryland Aviation Administration for interference with airport operations. Based upon current and planned runways at the airport, none of the original sites were acceptable and several alternative sites were evaluated based upon hydraulic and air traffic considerations. A 3-D model was created to illustrate the tank's visibility from the Baltimore-Washington Parkway (MD Rte. 295).

The design services were provided in three phases; schematic design, design development, and final construction documents. The primary design was for a composite tank, but the bid documents included an alternate fluted column tank. Ancillary design requirements included stormwater management plans, sediment and erosion control plans, a forest conservation plan, landscaping plans, and 3,100 linear feet of 16-inch water transmission main. In addition, telemetry and SCADA upgrades were designed to match the existing County systems and coordinate pumping at the Montevideo Booster Pump Station.

Construction services included bidding assistance, pre-construction meetings, shop drawing review, answering requests for information, attending regular monthly meetings with the inspectors and contractors, and providing as-built drawing documentation.

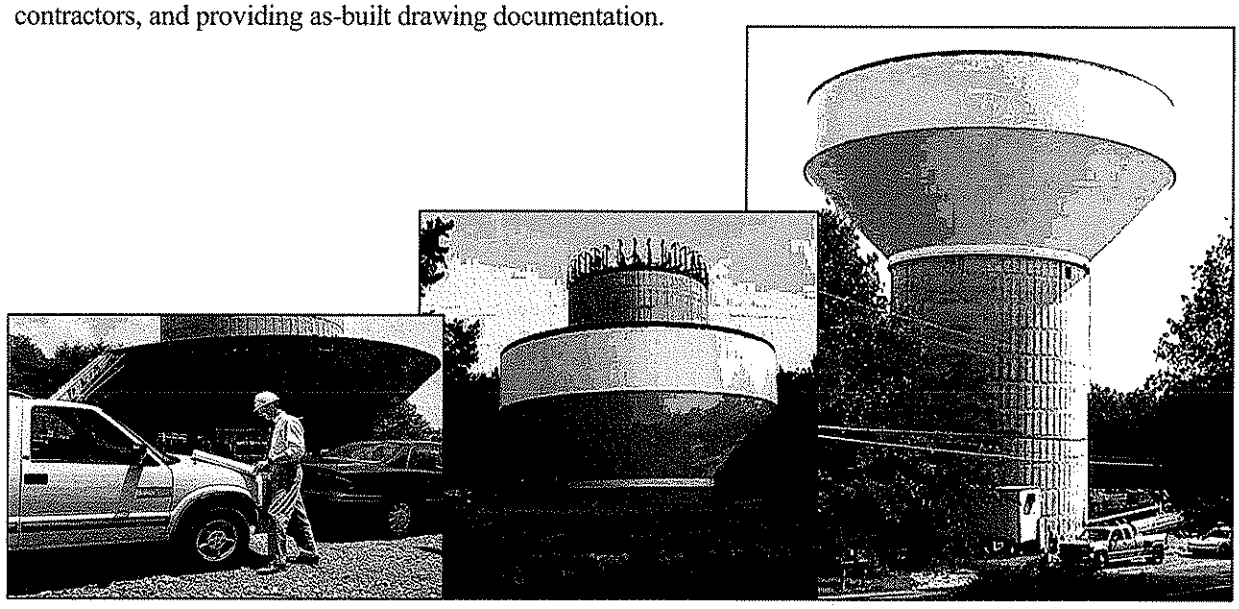
Client
Anne Arundel County Maryland
Heritage Office Complex
P.O. Box 6675/2662 Riva Road
Annapolis, MD 21401

Ken Dinnis
Project Manager
410-222-7559

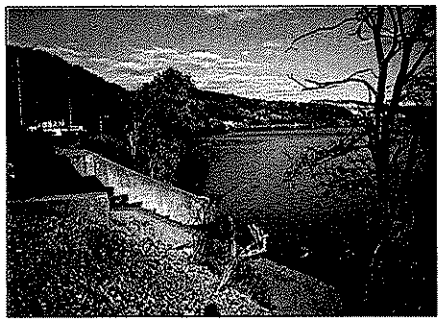
Completion Date
2003

Baker's Role

- Site Evaluations
- Design Documents
- Bidding Assistance
- Construction Phase Services
- As-Built Drawings
- Water Tank Design
- 3-D Model
- Stormwater Management
- Forest Conservation Plans
- Water Transmission Main
- Construction Services



Raw Water Supply
Columbiana County, Wellsville, Ohio



The Buckeye Raw Water Supply project conveys surface water from the Ohio River at the confluence with Little Yellow Creek in Wellsville, Ohio to a water treatment facility located 4.2 miles away in Columbiana County, Ohio. The Buckeye Water District was under an Ohio EPA order to abandon their existing inadequate surface water source and 1920's vintage water treatment plant.

Client
Southern Columbiana Regional Water District
1925 Clark Ave. P. O. Box 15
Wellsville, OH 43968
Alfred DeAngelis

Completion Date
2006

Baker's Role
- Feasibility Study
- Planning
- Design
- Permitting
- Regulatory Agency Coordination
- Bid Phase Assistance
- Construction Phase Assistance

Baker's role included a feasibility study, planning, design, regulatory agency approvals and coordination, bid phase assistance, construction phase assistance, start-up phase assistance, operations and maintenance manual preparation, and training oversight for the raw water supply portion of the project. Baker closely coordinated with the treatment plant engineering firm and the Buckeye Water District Trustees and District Manager.

The raw water pump station has been designed to provide for a delivery capacity of 4 MGD as required by the treatment plant design capacity. Baker has designed a metal frame and clad building with a sloped metal roof. In order to avoid the high costs associated with electrical usage during peak periods, the design flow is to be provided by the raw water pumps within an 8 hour non-peak time period. Estimated electrical costs for peak usage are three times that of non-peak usage. It is for this reason that pumping during non-peak hours was a critical design parameter.

The intake consists of twin submerged intake screens at the end of 24-inch ductile iron pipes to convey water from the Ohio River to the pump station, which is located on the northeast side of Little Yellow Creek adjacent to an American Electric Power substation. The pump station includes four 600 HP horizontally mounted multi-stage centrifugal pumps to lift the water about 600 feet vertically from the river to the treatment plant. The building is a metal building with a dry well containing the pumps and piping, an office, electrical control room, and chemical storage room. Occasional chemical treatment for removal of mussels or other unwanted biological organisms from the raw waterline occurs at regular intervals.

The treatment facility site is 4.2 miles north/northwest of the pump location and approximately 22,000 LF of 36" diameter transmission pipe is required to convey water from the pump station near the Ohio River to the treatment plant site. Water hammer in the transmission pipeline was minimized by pressure relief/surge control valves installed at the pump station and by gradual starting and stopping of pumps.

Applications have been prepared for the USACE dredge permit for the intake pipelines and the Ohio EPA water supply permit.

Baker was responsible for coordination with the following regulatory agencies:

- Corps of Engineers and U.S. Coast Guard
- Ohio Department of Transportation
- Ohio EPA (funding and permitting agency)
- Ohio Department of Commerce
- City of Wellsville
- Conrail
- Yellow Creek Township
- Columbiana County
- USDA (funding agency)

Current cost estimates are $5 million for the intake and pump station, and $6 million for the transmission pipeline.

BFMA Municipal Engineering Services

Beaver Falls, Pennsylvania

Baker is the retained authority engineer for the Beaver Falls Municipal Authority and has maintained a relationship with the Authority since 1950.

The Authority owns and operates a potable water system serving over 18,000 accounts throughout 22 municipalities in Western Pennsylvania. The Authority's water system consists of: 2 surface water treatment plants (10 MGD and 6 MGD), 7 distribution system pumping facilities, 14 water storage tanks, and over 300 miles of distribution / transmission lines.

As Consulting Engineer, Baker performs the following services for the Authority on an annual basis:

- Attendance at Board / Authority meetings, work sessions, committee meetings or other Authority meetings;
- Field surveying;
- Design engineering;
- General inspection of construction;
- On-site inspection services during construction;
- Preparation of bid packages;
- Special studies;
- Permitting;
- Reports;
- Preparation of grant applications;
- Assistance in the preparation of annual reports and budgets for capital improvement,
- Review of developer projects, and;
- Other miscellaneous engineering services required supporting the operation of the Authority.

Client
Beaver Falls Municipal Authority
P.O. Box 400
1425 Eighth Avenue
Beaver Falls, PA 15010

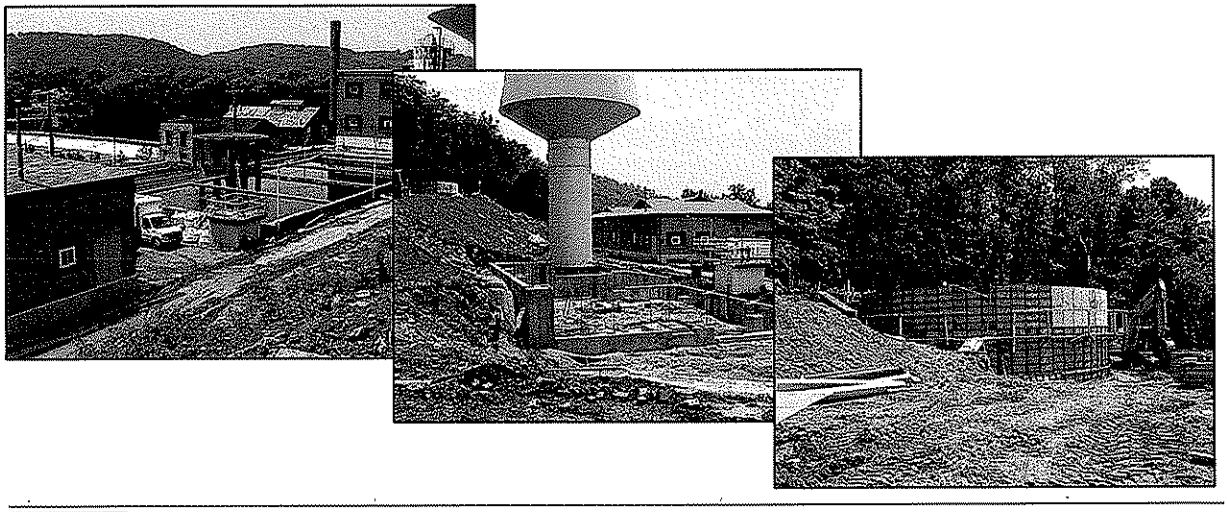
James Riggio
General Manager
724-846-2400

John J. Tress
Chairman
724-846-2400

Completion Date
2007

Baker's Role

- Permitting
- Design Engineering
- User Cost Studies – Capital Charges
- Developer Negotiations
- Public Meeting Representation
- Regulatory Permitting
- Financial Assistance
- Construction Phase Services



Fox Chapel Pump Station and Rising Main

The City of Pittsburgh Water Treatment Plant, Pittsburgh, Pennsylvania

Baker performed preliminary and final design engineering for a new potable water pump station and transmission main to supply 5,500,000 gallons of water per day from the Aspinwall Pump Station to the Fox Chapel Water Authority.

The project began with a preliminary design phase during which an extensive study was performed to determine the most cost-effective way to supply the 5.5 MGD required under the contract. A hydraulic model of the system was developed and a multitude of options were considered to determine how to most efficiently supply the Fox Chapel Water Authority demands, which peaked during the daylight hours, while simultaneously taking advantage of the lower electric rates available for pumping during nighttime hours. Baker presented Pittsburgh Water and Sewer Authority with a number of potential pump station configurations that allowed for efficient, yet flexible pump operation. A concurrent study took place to determine the most feasible route for the transmission main that would take the water from the Aspinwall pump station to the supply point in Fox Chapel.

Client
Pittsburgh Water and Sewer Authority
441 Smithfield Street
Pittsburgh, PA 15222

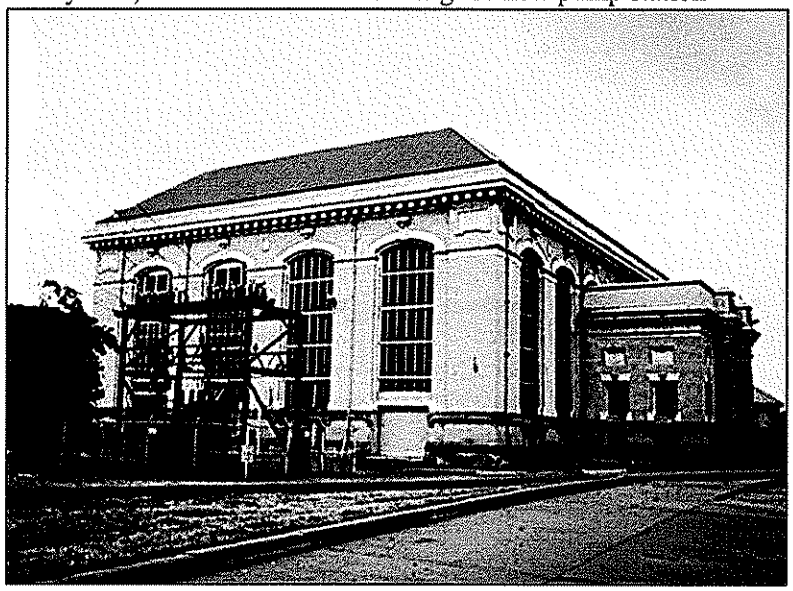
Thomas Gigliotti, P.E.
Project Manager
412-782-7552

Completion Date
2004

Baker's Role

- Transmission Main Route Study
- Hydraulic Modeling & Analysis
- Electrical Demand Analysis
- Pump Station Design
- Transmission Main Design
- Electrical Engineering & SCADA Design
- Permitting & Easement
- Construction Phase Services
- Facility Start-up Services

Following the preliminary design phase, the decision was made to utilize three centrifugal pumps rated at 2400 GPM @ 375 TDH installed in parallel to provide the required 5.5 MGD @ 419 TDH from the primary water supply source. A fourth pump, drawing water from a secondary supply source, would provide up to 1800 GPM @ 588 TDH. Baker proceeded with design of the system, which included retrofitting the new pump station within the lower level of the Aspinwall Pump Station building. An advance contract was prepared that provided for the installation of an access hatch and overhead crane and runway system in the basement so that the massive pumps, motors, valves, and piping could be handled by the pump station contractor. An additional advance contract allowed PWSA to procure the major pump station mechanical and electrical components, many of which required months of manufacturer lead-time.



To power the 300 horsepower pump motors, a new transformer, switchgear, and motor control center was designed and integrated into the existing pump station. Modifications to the SCADA system were designed so that the new pumps could be controlled from the plant's master control center and the water level in the Fox Chapel system tank monitored.

Concurrent with the pump station design, plans and specifications were prepared for the waterline contract that contained 7,000 linear feet of 16 inch diameter ductile iron pipe. A portion of the route was bored under and installed within a busy Conrail right-of-way. The route passed through three communities and tied into the existing Fox Chapel system via a new meter vault constructed at Rockwood Drive. The route was designed to minimize impact to a public park and residential properties in Fox Chapel.

Baker was pleased to be selected for this successful project that enabled PWSA to expand its water distribution system and customer base.

Deep Creek Water Storage Tank
Chesapeake, Virginia

Baker staff members provided design, construction inspection and administration services for a 6 MG ground water storage tank and a 12 MGD pumping station for the City of Chesapeake. During the design phase of the project, Baker evaluated alternate foundation options for the tank and pump station. This evaluation resulted in the use of deep, dynamic compaction of the existing soil to provide adequate support for these structures at a cost savings of about $1 million. Design considerations included provisions for complete automatic operation of the pumping facility based on pressure at remote locations in the system. We also assisted with site selection, geotechnical investigation, electrical, mechanical, structural and architectural design features, all within a three-month design schedule, dictated by the Owner. Construction phase services included full time inspection and administration of the project with complete authority to direct the contractor on completion of the project. The tight construction time frame of nine months was met and the City of Chesapeake was able to supply water from supplemental sources to customers who would otherwise consume water high in chloride.

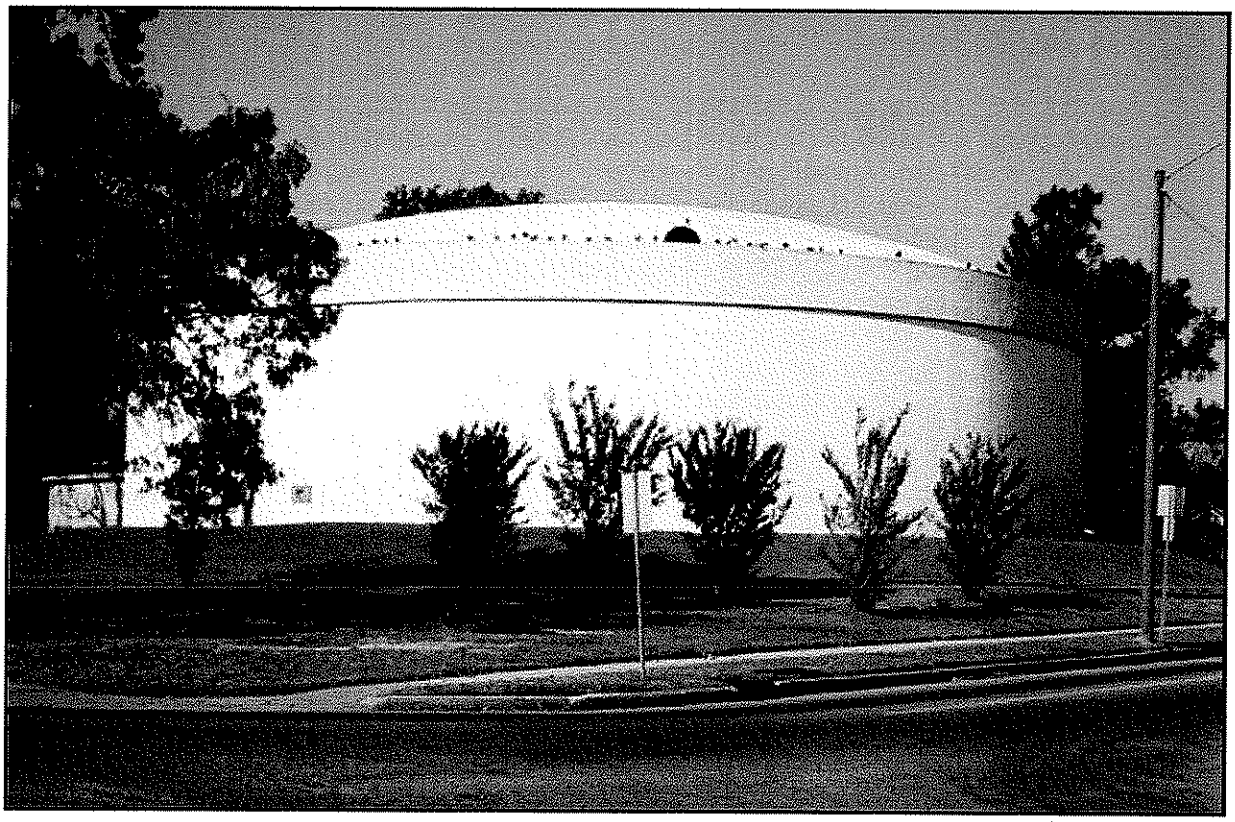
Client
City of Chesapeake, Virginia

Amar Dwarkanath, P.E.
757-547-6368

Completion Date
1987

Project Costs
$1.6 Million

Baker's Role
- Surveying and Mapping
- Hydraulic Modeling
- Site Selection
- Construction Documents
- Permitting
- Resident Inspection



Meadowville Water Storage Facility

Chesterfield County, Virginia

Baker staff provided design, bid and award, construction administration, and resident inspection services for the Meadowville Water Storage Facility. The Meadowville Water Storage Facility is a 2.0 million gallon (MG) elevated water storage tank. The project included site selection, permitting, geotechnical investigations for the tank foundation and the preparation of construction documents for the water tank facility. The tank was specified to be a composite tank. The tank was founded upon a deep pile foundation with 100 ton capacity steel H-piles. Test piles were required to be load tested to 200% of the pile design capacity. A static load test was performed on one of the test piles.

Client
Chesterfield County, VA
Department of Utilities
P.O. Box 608
Chesterfield, VA 23832

David A. Knapp, P.E.
Engineering Supervisor
804-748-1870

Completion Date
2005

The tank is supported on the piles with a reinforced concrete pile cap and a 54-foot diameter pedestal wall. The water tank container is welded steel designed to meet the requirements of AWWA D-100. The cone section and the sidewalls of the tank are planned to be erected and the exterior field coated at grade level. The tank unit will then be hoisted to the top of the tank and set into place. The remainder of the tank will be fabricated and field coated in the air. All tank steel was specified to be shop coated with a zinc-rich primer. Inspections of the shop coatings are planned. The interior coating system is specified to be a three-coat epoxy polyamide system meeting the requirements of NSF-61. The exterior tank will be coated using a three coat polyurethane system. The exterior lower fourteen feet of the concrete pedestal of the tank will be coated with an anti-graffiti clear coat.

Access to the tank is provided through a 12-foot wide overhead truck door and a separate mandoor. The interior piping and valves for the water tank are located in a heated equipment room in the bottom level of the tank pedestal area. In addition, a storage area was provided on a separate floor inside the tank pedestal area. Two one ton capacity hoists were provided in the tank. In the equipment room, a hoist is provided for maintenance of the 24-inch altitude valve. In the storage area, a jib crane and hoist is provided to load and unload materials from a truck inside the tank at grade level.

The project included the design of approximately 600 linear feet of 30" water transmission main to connect to the tank. Other site improvements included security fencing, tank overflow piping outfall, and an all weather access road. In addition, the project included the demolition of an existing 200,000 gallon elevated water tank.

Instrumentation and control for the tank was designed to connect into the County's Water Supervisory Control and Data Acquisition (SCADA) system. This system is a proprietary radio based system that was designed for the County by Transdyn Controls, Inc.

Construction Management and Water Line Replacement

Alexandria and Manassas, Virginia

Client
Virginia American Water Company
2223 Duke Street
P.O. Box 25405
Alexandria, VA 22314

Completion Date
Estimated: 1996
Actual: 1994

Baker's Role
- Preparation of drawings
- Revision of system maps
- Field surveys
- Preparation of site plans
- Utility investigations
- Easement investigations
- Preparation of property plats
- Construction inspections

Under a three-year Indefinite Quantity Contract, Baker provided resident engineer services for the installation of new water mains and laterals, including valves meters and disinfection, and for the reconstruction of a major pumping station. Distribution systems ranged in size from 6 to 42 inches. Work included the preparation of as-built drawings plus revision of the client's overall system maps. Baker performed utility investigations, field surveys, and easement investigations for the right-of-way, and prepared the necessary plats for plan submission to the City of Alexandria and to Prince William County, Virginia. Specific projects included:

Ashdale Pump Station Improvements. Baker provided construction inspection services on chemical feed improvements to the water system in Prince William County, Virginia.

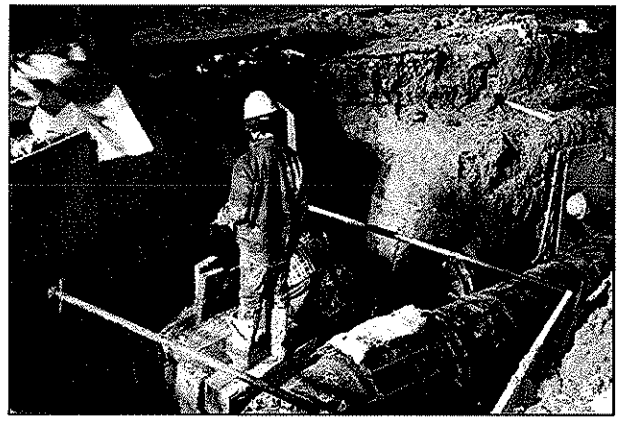
Water Line Installation, Davis Ford Road, Prince William County, Virginia. Responsible for the preparation of construction documents for approximately 20,000 LF of a water line along Davis Ford Road in Prince William County, Virginia.

Water Line Relocations, Mill Road, Alexandria, Virginia. Responsible for the preparation of property plats, site plans, surveys and utility investigations for approximately 10,000 LF a water line relocation study in Alexandria, Virginia. This project was initiated to aid in the abandonment of an existing pumping station.

Water Line Replacement at Three Sites, Alexandria, Virginia. Baker prepared site plans and utility investigations for aid in the replacement of existing water mains at three sites in Alexandria, Virginia. Tasks included engineering investigations of current conditions through surveying field inspections and review of utility system files.

Construction Inspection Services, Ashdale Pump Station Improvements, Prince William County, Virginia. Provided construction inspection services for pump station improvements in Prince William County, Virginia. This project included chemical feed improvements, new altitude valve, new instrumentation and controls and a UST.

Duke Street Pumping Station Improvements, Alexandria, Virginia. Provided construction inspection services on flow control modifications and chemical feed improvements for the station.



FAA permitting for Payne Street Water Storage Tank. Obtained FAA permitting for the Payne Street water storage tank. The water storage tank had been permitted by FAA to have lighting and marking requirements. From Baker's extensive dealing with FAA and thorough understanding of the FAA regulations, Baker was successful in obtaining a permit for the water tank without marking and lighting of the structure, thus reducing expenditures for client.

Stringfellow Road Water Main

Merrifield, Virginia

Baker provided design of approximately 18,000 LF of 24-inch ductile iron water main along two heavy traffic corridors that is needed to provide additional system capacity to the Water Authority's Penderwood storage tanks and the distribution system, and to close a gap in the existing transmission system. Water main design features included 11 trenchless crossings, two stream crossings, corrosion control facilities, multiple gas transmission main crossings, and nine distribution/transmission system interconnections. Design responsibilities included survey, underground utility designation, water main alignment selection, corrosion study, and corrosion control design, geotechnical services, environmental assessments (wetlands delineation) and permitting, archeological investigations, VDOT right-of-way permit, easement acquisition and specifications for alternate pipe materials. Baker also participated in citizen approval meetings and preparation of the County's 2232 Public Hearing Application process.

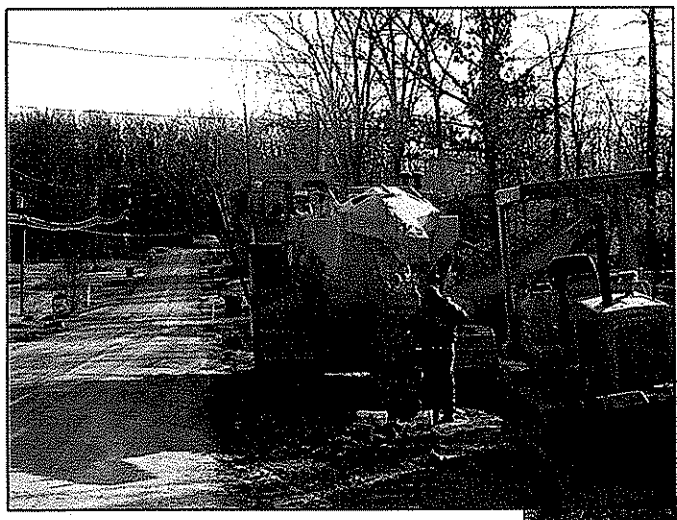
Client
Fairfax County Water Authority
8560 Arlington Boulevard
Fairfax, VA 22031

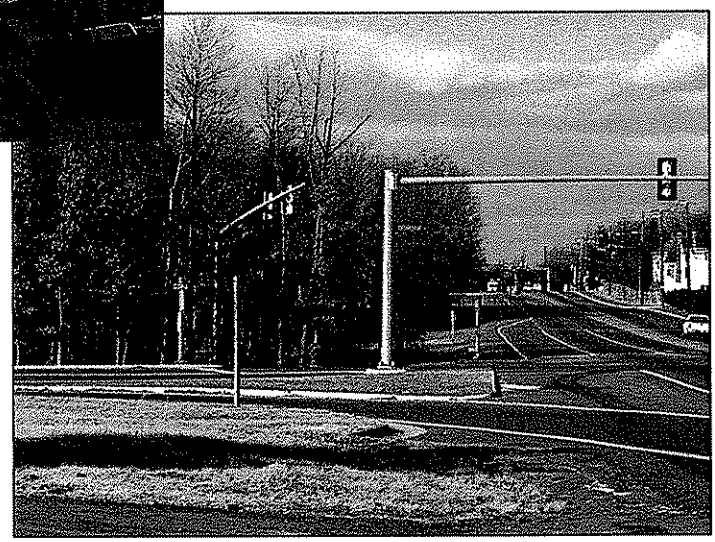
Kathryn Smedley, P.E.
703-289-6378

Completion Date
2003

Baker's Role

- Design - Route Selection, Corrosion Control, Environmental Investigation
- Construction Management/Construction Administration
- 18,000 LF of 24" Water Main - Bidding Alternate Pipe Materials
- 11 Trenchless Crossings (Casing Installations)





Western Branch Ground Water Storage Tank and Pump Station

Chesapeake, Virginia

Baker prepared construction plans and obtained all necessary permits for the design of a 3 MG ground water storage tank and a 6 MGD pumping station with 2,000 linear feet of 16-inch diameter distribution main and an emergency generator. The objective was to provide storage capacity and supply adequate fire flows and system pressures in the Western Branch borough of the City and to the Chesapeake Square Mall between Portsmouth Boulevard and Taylor Road.

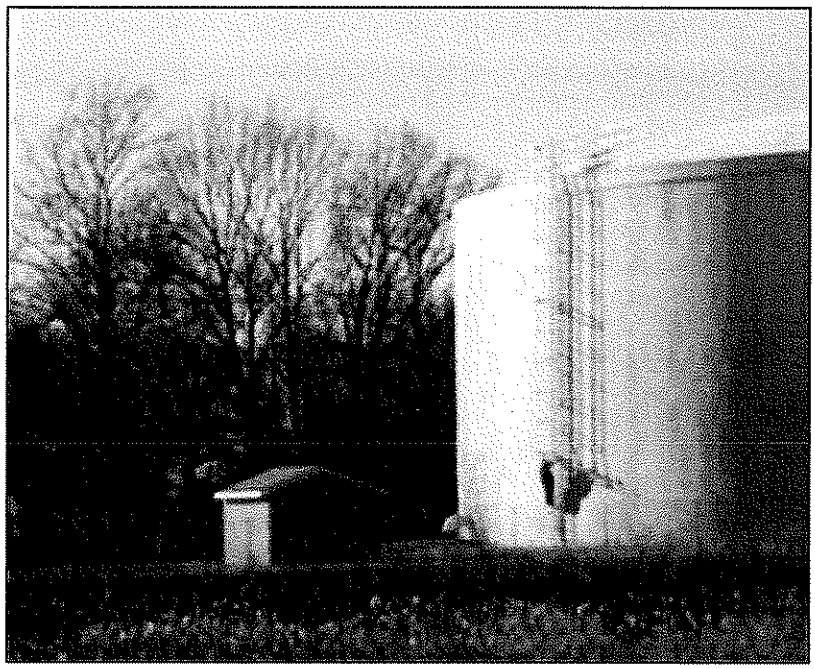
Specific elements of the project included:

- Site evaluation and selection
- Hydraulic analysis and system modeling utilizing KYPIPE
- Special control valving
- Remote telemetry and control system
- Standby power generator
- Geotechnical analysis - pile supported foundation
- Full service site inspection and construction administration.

Client
Chesapeake, Virginia (City of)
Department of Public Utilities
P.O. Box 15225
Chesapeake, VA 23320
Amar Dwarkanath, P.E.
Director
757-382-6401

Baker's Role

- Plans and Permits
- Water Tank
- Pump Station
- Hydraulic Analysis
- Geotechnical Analysis



Waterline Improvements

Borough of Monaca, Monaca, Pennsylvania

Client
Monaca, PA, Borough of
928 Pennsylvania Avenue
Monaca, PA 15061

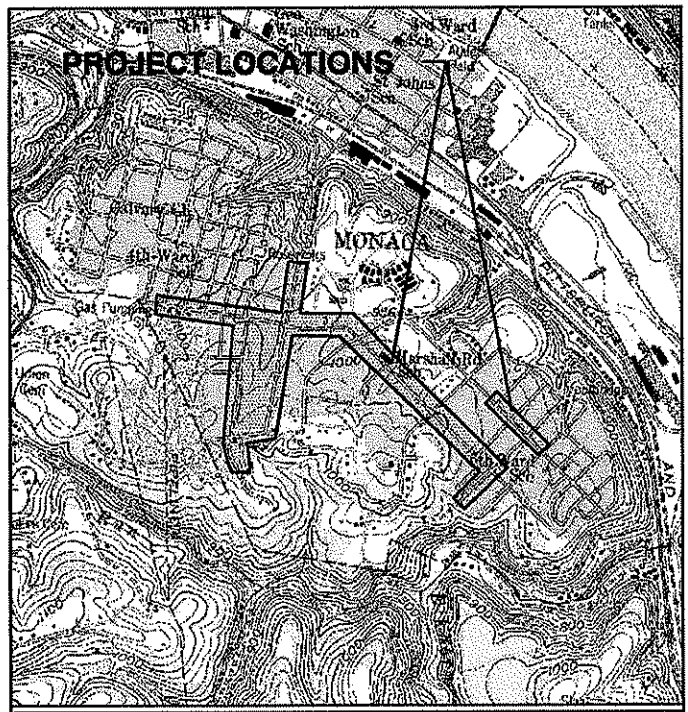
Thomas Ely
President, Borough Council
724-775-9600

Completion Date
2005

Baker's Role

- Design
- Permitting
- PennVest Funding
- Construction Inspection

The goal of the Monaca Water System Capital Improvements project is to improve water pressures and flow rates for Borough residents and for fire flows. The improvements also reduce operation and maintenance costs for the Borough. Baker provided waterline mapping and hydraulic modeling assistance to prioritize the waterline segment in most need of replacement. Baker designed 13,800 linear feet of water line upgrades in five sections near Marshall Road, Monaca. Monaca Borough Council selected waterline segments with an estimated $2,000,000 cost of replacement. Baker assisted in applying for a Pennsylvania Infrastructure Investment Authority (PennVest) loan. The design replaced 4-, 6-, and 8-inch cast iron and transit (asbestos cement) pipe with 8 or 10 inch diameter ductile iron pipe. The design, specifications and contract documents prepared by Baker were advertised for bids during the Spring of 2004. After the PennVest loan closing, construction was scheduled to be performed over two construction seasons, for cash flow purposes, ending later in 2005. The selected contractor started construction in July 2004. The Phase 1 work commenced with over 5,100 linear feet of 10-inch ductile iron pipe in Marshall Road. The line was tied into existing piping at intersections and 1-inch copper service lines to each residence. Phase 1 was completed on schedule and within budget. Work continued at a slower pace through the winter of 2004 – 2005. The contractor gained 4 months on the schedule and completed Phase 2 including 9,100 linear feet of 8-inch pipeline in Ridge Road, Chestnut Street, Eckert Road, and Allaire Avenue. As part of the project, 36 fire hydrants were replaced (some dating back to 1941) and 236 home owners received new 1-inch copper service lines and curb stops. Baker provided construction management services that helped the project come in 4 months ahead of schedule and under budget.



WATER SYSTEM CAPITAL IMPROVEMENTS PROJECT
LOCATION MAP
BOROUGH OF MONACA

Project Features

- Designed replacement of 13,800 linear feet of waterlines
- Obtained nearly $2,00,000 in PennVest funding
- Inspected construction
- Managed to bring project in on-budget and ahead of schedule

References

Each of the Project Profiles found herein lists Baker's client and contact information for your use as a reference. Additionally, we offer the following diverse list of past or current clients and contact information:

- West Virginia Department of Transportation – Division of Highways
  1900 Kanawha Boulevard East,
  Building 5, Room A-317
  Charleston, WV 25305
  Mr. James E. Sothen, P.E., Deputy State Highway Engineer
  (304) 558-0191
- Town of Mason
  Post Office Box 438
  Mason, WV 25260
  Honorable Mindy Kearns, Mayor
  (304) 773-5200
- Town of West Milford
  Post Office 120
  West Milford, WV 26451-0120
  Honorable Nancy Gall
  (304) 745-4371
- City of Parsons
  341 2nd Street
  Parsons, WV 26287
  Honorable Charles W. Rosenau
  (304) 478-2311
- Branchland-Midkiff Public Service District
  Rt. 2 box 496
  Branchland, WV 25506-9756
  Mr. Alfred Abshire, Board Member
  (304) 778-7006
- Habitat for Humanity
  Post office Box 2526
  Huntington, WV 25726
  Mr. David Michael, Executive Director
  (304) 523-4822

- Central West Virginia Regional Airport Authority - Yeager Airport
  100 Airport Road, Suite 175
  Charleston, WV 25311-1080
  Mr. Richard A. Atkinson, III, Airport Director
  (304) 344-8033
- Fifth Third Bank
  999 4th Avenue
  Huntington, WV 25701
  Mr. John Bauer, Assistant Vice President
  (304) 691-6617
- U.S. Army Corps of Engineers – Huntington District
  502 Eighth Street
  Huntington, WV 25701
  Mr. David Meadows, P.E.
  (304) 399-5243
- Federal Aviation Administration - Beckley Airports District Office
  176 Airport Circle, Room 101
  Beaver, WV 25813-9350
  Mr. Matthew Di Giulian, P.E.
  (304) 252-6216
- West Virginia Department of Environmental Protection
  601 57th Street
  Charleston, WV 25304
  Mr. Charles D. Stover, former Design Administrator
  (304) 926-0499
- City of Suffolk
  Post Office Box 737
  Suffolk, VA 23439
  Ms. Sherry B. Early, P.E., Engineering Manager
  (757) 923-3685
- Fairfax County Water Authority
  8570 Executive Park Avenue
  Merrifield, VA 22116-0815
  Ms. Kathy Smedley, P.E.
  (703) 289-6325

Recent Client Testimonials:

"I have never had Baker late on any of the 30 or so projects we have assigned" ***- Greg Wroniewicz, P.E., Utility Engineer, VDOT Utility Relocation Contract***

"Baker is very thorough and complete in their work with other firms, municipalities, and agencies. They continue to produce a quality product that meets the project and customer needs. . . They go above and beyond the requirements in a very professional manner." ***- Gregg Wroniewicz, P.E., Utility Engineer, VDOT***

"Excellent cooperation with VDOT, all other agencies, consultants, committee members, etc. . . Consultant has maintained excellent attitude with public, civic groups and news reporters. . . The quality of work produced by Baker on this job remains excellent. The Baker employees assigned to this project have done an excellent job. We have been very happy with their work." ***- Jeffrey C. Cutright, VDOT***

"Baker has strived to provide the Department with quality submissions at ever stage of the contract." "Baker has provided the Department with cost effective engineering on this project. Baker has never wasted time or money on this contract." "They have always conducted themselves in the highest professional manner and produced superior quality designs that were dictated by tight schedules." ***- R. Wayne Brooks, Former State Utilities Engineer, VDOT - Utility Adjustment and Relocation Contract***

"We are nearing the end of the third year of Task Orders performed under the BOA. The quality of work reflects this. The workload has been heavy with tight deadlines over this review period. Despite this, the Consultant has continued to provide excellent service and has met schedule demands." "Five bids were received for High Service No. 3 Water Main Replacement, Phase I in February. All bids were below the Engineer's Estimate and within 8% of each other. This is indicative of a good set of plans and specifications." ***-Kathy Smedley, P.E., Fairfax County Water Authority Consultant Evaluation***

". . . I would like to extend the Department of Public Utilities' appreciation to Michael Baker Jr., Inc. for your responsiveness in providing the required site evaluation information. . . Without your firm's assistance, we may have not met our projected schedule." ***- Albert S. Moor II, P.E., City of Suffolk, VA Director of Public Utilities***

"Throughout the performance of each of these design efforts we have found Michael Baker Jr., Inc. to be very efficient and responsive. They offer a wide range of services and consistently complete tasks on time and are very responsive to accelerating design schedules when necessary. . . We have found the Baker team to be a pleasure to work with and look forward to working with them into the future as our City and utility system continues to grow." ***- Sherry B. Earley, P.E., City of Suffolk Engineering Manager***

"Baker offers a wide range of services and has been very responsive. . . Baker's services have met or exceeded the City's expectations. Even when a quick response was required, Baker has met schedule demands." ***- Peter S. Fortin, P.E., City of Norfolk, VA Engineering Manager (retired)***

Corporate History & Experience A

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

Then ...

More than 64 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 4,800 employees in over 40 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

- Groundwater Assessment
- Site Development
- Disposal Site Design and Permitting, including Residual Waste Disposal Facilities
- Municipal Water and Wastewater Treatment
- Water Supply Distribution System Design
- Geotechnical engineering for mining and mine reclamation, landslide correction, highway, disposal, and site development projects, including planning and oversight of subsurface investigations and subsequent foundation design
- Construction Management

Our public sector clients include all levels of government as well as department of defense clients. In the private sector, services are provided to telecommunications, electric, gas, oil, and coal mining companies; developers; and commercial and industrial clients.

The Client Confidential Qualification Questionnaire (CCQQ) and Section C, Corporate Specialized Experience and Demonstrated Abilities, summarizes Baker's experience related to abandoned mine land reclamation and acid mine drainage control. These experience listings clearly illustrate Baker's extensive experience in surveying, subsurface investigation, and design engineering for AML reclamation including waterline extension in AML impacted areas, and AMD remediation. Baker's role in subsurface investigation consists of planning, coordinating, and overseeing the drilling program, as well as preparing required geotechnical designs. A reliable subcontractor we have worked with for more than 10 years performs actual drilling and laboratory testing of soil and water.

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AML CONSULTANT CONFIDENTIAL QUALIFICATION QUESTIONNAIRE

Attachment "B"

PROJECT NAME	DATE (DAY, MONTH, YEAR)	FEIN
DEP14381, Mercer County	**10/07/08**	**25-1228638**

1. FIRM NAME	2. HOME OFFICE BUSINESS ADDRESS	3. FORMER FIRM NAME
Michael Baker Jr., Inc.	**5088 West Washington Street, 2nd Floor** **Charleston, West Virginia 25313**	

4. HOME OFFICE TELEPHONE	5. ESTABLISHED (YEAR)	6. TYPE OWNERSHIP	6a. WV REGISTERED DBE (Disadvantaged Business Enterprise)
304-769-0821	1940	Individual **Corporation** Partnership Joint-Venture	YES **NO**

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	8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS
Russell E. Hall, Assistant Vice President (304) 769-0821	**William D. Trimbath, Assistant Vice President (724) 495-4302**

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

165 ADMINISTRATIVE	6 ECOLOGISTS	4 LANDSCAPE ARCHITECTS	57 STRUCTURAL ENGINEERS
14 ARCHITECTS	1 ECONOMISTS	5 MECHANICAL ENGINEERS	**18 SURVEYORS**
6 BIOLOGIST	3 ELECTRICAL ENGINEERS	**5 MINING ENGINEERS**	23 TRANSPORTATION ENGINEERS
42 CADD OPERATORS	26 ENVIRONMENTALISTS	23 PHOTOGRAMMETRISTS	126 OTHER
4 CHEMICAL ENGINEERS	1 ESTIMATORS	7 PLANNERS: URBAN/REGIONAL	
57 CIVIL ENGINEERS	**30 GEOLOGISTS**	7 SANITARY ENGINEERS	
16 CONSTRUCTION INSPECTORS	0 HISTORIANS	13 SOILS ENGINEERS	
16 DESIGNERS	12 HYDROLOGISTS	0 SPECIFICATION WRITERS	698 TOTAL PERSONNELL (Charleston and Pittsburgh Area Offices)
11 DRAFTSMEN			

TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: 15
***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**

11. OUTSIDE KEY CONSULTANTS/SUB-CONSULTANTS ANTICIPATED TO BE USED. Attach "AML Consultant Confidential Qualification Questionnaire" for each if copy is not on file with AML.

NAME AND ADDRESS: **(If Required)** **Novel Geo-Environmental, P.L.L.C.** **806 B Street** **St. Albans, West Virginia, 25177**	SPECIALTY: **Drilling and Soil & Water Testing**	WORKED WITH BEFORE _X_ Yes (10 years) ____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ____ Yes (10 years) ____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ____ Yes (10 years) ____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ____ Yes (10 years) ____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ____ Yes (10 years) ____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ____ Yes (10 years) ____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ____ Yes (10 years) ____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ____ Yes (10 years) ____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ____ Yes (10 years) ____ No

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.

D. Does your firm produce its own Aerial Photography and Develop Contour Mapping?

YES Description and Number of Projects:

Since 1983 Baker has been designing AML/AMD remediation projects for WVDEP. For all the projects to date, the WVDEP provided Baker with contour maps developed from aerial photography of the project site. Baker's responsibility was to verify the topographic map by field check surveying.

Baker has a survey and photogrammetric department with a staff of 40. Baker routinely performs aerial photography and contour mapping for federal and several state agencies as well as for private clients. Baker's Survey and Photogrammetric Department is as old as the company itself. During the last five years Baker has completed more than 50 mapping projects. Nineteen (19) of those projects completed within the last two years are listed as follows:

Project	Area	Scale / Contour Interval
City of Richmond, VA	63 square miles	1"=100' / 2'
City of Suffolk, VA	430 square miles	1"=100' / 2'
Elkhart County, IN	464 square miles	1"=100' / 2'
Saint Joseph County, IN	457 square miles	1"=100' / 2'
West Virginia DOH-Corridor H, Section 6 & 7 Reroutes	12 linear miles	1"=50' / 2'
Pennsylvania DOT – Missing Ramps I-79/I-279	1000 acres	1"=50' / 1'
New Jersey DOT – Rte. 52 Somers Point – Ocean City	565 acres	1"=30' / 1'
Immigration and Naturalization Services Texas / Mexico Border Mapping	14 linear miles	1"=100' / 2'
Arizona DOT – SR 87	3.3 linear miles	1"=50' / 1'
Iowa Army Ammunition Plant – Omaha District COE	32 square miles	1"=100' / 2 and 1"=30 / 1'
Immigration and Naturalization Services – Mapping of 166 Port of Entry Border Sites	16,600 acres total	1"=50' / 1'
Pennsylvania DOT – Snyder County, SR 0015 – Section 088	8.3 square miles	1"=50' / 1'
Grand Parkway Association – Texas DOT	52 linear miles	1"=50' / 1'
City of Scottsdale, AZ	185 square miles	1"=100' / 2' and 1"=50 / 1'
Maricopa County Flood Control District, AZ - Salt/Gila River Basins	180 square miles	1"=100' / 4'
Pennsylvania DOT – Cambria County S.R. 6219 - Section 021	27.6 square miles	1"=200' / 5'
MAGLEV, Inc. Pittsburgh Area – High Speed MAGLEV Corridor	80 square miles	1:2500 / 2 meter
Louisiana Department of Transportation and Development – North-South Expressway	690 square kilometers	1:4800 / 1.5 meter
Arkansas State Highway and Transportation Department US 71 / I 40 to DeQueen	3000 square kilometers	1:7200 / 3 meter

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 Int.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Chakravorti, N.K. (Hari) **Technical Manager III**	**25**	**15**	**8**

Brief Explanation of Responsibilities

Mr. Chakravorti has extensive knowledge and experience related to mining, geotechnical and material handling projects. His professional experience has encompassed research, project planning and analysis, project management and report preparation for both governmental agencies and private clients. He is responsible for conducting a wide range of technical studies and designs involving reserve analysis and mine planning; abandoned mine land reclamation, acid mine drainage abatement, coal preparation and waste disposal; material transport by overland conveyor, slurry and pneumatic pipelines; refuse reclamation, mine drainage, subsurface investigation and geotechnical analysis for the design of shafts, tunnels, highway pavements, bridge and building foundations; landslide correction; and mine subsidence control. Experience relevant to this project includes:

Abandoned Mine Land Reclamation Projects for the West Virginia Department of Environmental Protection (formerly WVDOE). Project Manager for over 100 of these AML projects. His responsibilities involved project management, development of concept design, and quality control on all phases of abatement design. The projects included reclamation of refuse piles, landslide corrections, designing surface drainage, subsidence stabilization, sealing mine openings, water resources studies and waterline extension design, stream restoration/re-location, and evaluation and design of AMD abatement measures.

Acid Mine Drainage Abatement (AMD) Feasibility Studies for the North Branch Potomac River Watersheds in Maryland and West Virginia, Ely and Puckett Creek watersheds of the Powell River basin in Virginia, and Huff Run watersheds in Ohio. Project Manager. These projects were performed for the Baltimore District and Nashville District Corps of Engineers and the Ohio Department of Natural Resources, respectively. Projects involved evaluation of the sites, AMD flow and characteristics, abatement alternatives, and designing of treatment systems including surface drainage, grading and reclamation of AMD sources, and development of construction costs for the AMD abatement measures. Recently completed projects include the Kempton Refuse and AMD project and projects identified under CCQQ Item 12 in Table 12-1.

Surface and Underground Mine Permitting Projects for various coal mining companies in Pennsylvania. Project Manager. Projects involved site investigations, environmental inventory and sampling, and preparation of surface and underground mining activities permit applications in accordance with the requirements of the regulatory agencies. Projects also included designing and permitting of several shafts and portal facilities, refuse disposal sites and slurry impoundments.

Management of Engineering Services Contracts for over 200 AML Projects in West Virginia, Ohio, Pennsylvania and for the Federal Office of Surface Mining. Principal Investigator and Coordinator. The projects required surveys, mapping, subsurface investigations, plans, specifications, and construction inspection. AML related problems included flood studies, watershed studies, stream restoration, mine subsidence, underground mine fires, mine drainage, vertical shaft filling, gob piles, landslides, refuse fires, grouting programs, and surface mine reclamation. Projects also included water supply extension design for AML problem area communities. Projects designed were over $35 million in construction costs.

Abandoned Mine Drainage Problem in the village of Barton, Ohio, for the Ohio Department of Natural Resources. Principal Investigator. Responsibilities included evaluation of the problems (hillside instability, acid mine discharge, and stream pollution) and recommendation and preliminary designs of abatement measures. Responsibilities also included evaluation of the abandoned gob piles for their stability and the recovery potential of secondary resources from them.

EDUCATION (Degree, Year, Specialization)
MS, 1977, Mining Engineering; MS Studies, 1975–76, Geotechnical Engineering; BS, 1960, Mining Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Institute of Mining, Metallurgical and Petroleum Engineers	**Professional Engineer, 1978, Pennsylvania**

18. 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:
Russell, Charles M., P.E. **Technical Quality Control**	**10**	**5**	**6**

Brief Explanation of Responsibilities

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 new facilities and 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.

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:

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.

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.

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.

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.

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.

EDUCATION (Degree, Year, Specialization)
M.S., 1970, Civil Engineering; M.P.W., 1970, Public Works; B.S., 1959, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	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

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:
Hynes, Gregory P., P.E. **Project Manager**	**14**	**14**	**16**

Brief Explanation of Responsibilities

Mr. Hynes is an engineer with a background in reclamation of abandoned mine lands including acid mine drainage abatement, earthwork and grading plans, hydrologic and hydraulic analysis, and erosion and sediment control structures. He additionally has extensive experience in the design of water distribution systems, hydraulic structures, sanitary collection systems, and permitting of mining facilities. While at Baker he has worked on over thirty abandoned mine land reclamation projects which included reclamation of coal refuse piles, sealing of mine portals, subsidence grouting, passive and active water treatment, evaluation of pre-law mining impacts on drinking water supplies and design of waterline extension, and stream channel restoration. Many of these projects have been for the West Virginia Department of Environmental Protection, Abandoned Mine Lands and Reclamation Office. He has also been project engineer for over 30 water distribution projects located in OH, PA, and WV.

Kempton Refuse and AMD Project, West Virginia. West Virginia Department of Environmental Protection. Performed research of geological data and mine maps, review of water quality data, and design of AMD abatement measures including Open Limestone channels, successive alkalinity producing systems, aerobic wetlands and limestone ponds. Prepared construction plans and specifications for the project, which included site grading, mine seals, highwall elimination, collection and diversion ditches, Natural stream channel design, placement of soils cover, and revegetation.

Maple Run Portals and Tipple, West Virginia. West Virginia Department of Environmental Protection. Performed research of geological data and mining maps, review of water quality data, design of acid mine drainage abatement measures including open limestone channels, and aerobic wetlands. Prepared construction plans and specifications for the project, which included, site grading, mine seals, collection and diversion ditches, placement of soil cover, and revegetation.

Emoryville Mine Complex, West Virginia. West Virginia Department of Environmental Protection. Performed research of geological data and mining maps, review of water quality data, design of acid mine drainage abatement measures including open limestone channels, Successive Alkalinity Producing Systems, and aerobic wetlands. Prepared construction plans and specifications for the project which included erosion and sedimentation control measures, site regrading, mine seals, collection and diversion ditches, removal of abandoned barges and coal refuse from the North Branch of the Monongahela River, placement of soil cover, and revegetation.

Watson Portal and Refuse Reclamation, West Virginia. West Virginia Department of Environmental Protection. Performed research of geological data and mining maps, review of water quality data, design of acid mine drainage abatement measures including anoxic limestone drains, metals settling ponds, and open limestone channels. Prepared construction plans and specifications for the project which included erosion and sedimentation control measures, site regrading, mine seals, collection and diversion ditches, removal of abandoned barges and coal refuse from the North Branch of the Monongahela River, placement of soil cover, and revegetation.

Dennison/Route 800, Ohio. Ohio Department of Natural Resources, Division of Mines and Reclamation. Reviewed geological data, mining maps, and water quality data, provided design of mine drainage abatement measures including a metals precipitation pond and aerobic wetland. Provided environmental assessment documentation, and design of storm sewers for surface water, and conveyance pipes for mine water. Prepared construction plans and specifications for the project, which included erosion and sedimentation control measures, site regrading, mine seals, collection and diversion ditches, placement of soil cover, and revegetation.

Hardy Coal Company Bond Forfeiture, Ohio. Ohio Department of Natural Resources, Division of Mines and Reclamation. Reviewed geological data, mining maps, and provided design of reclamation measures required for the forfeiture site. Also provided environmental assessment documentation, and prepared construction plans and specifications for the project including erosion and sedimentation control measures, site regrading, collection ditches, and revegetation.

EDUCATION (Degree, Year, Specialization)
M.S., 1997, Civil Engineering; B.E., 1987, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
	Professional Engineer, 1998, WV; Professional Engineer, 1993, PA **Professional Engineer, 1998, OH; Professional Engineer, 2001, VA**

13. PERSONNEL 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:
Dziubek, John A., P.E. **Project Manager**	**14**	**12**	**3**

Brief Explanation of Responsibilities

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.

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 project required computer models for determining mineral reserves, stockpile inventories, mining simulation, long range planning, cost studies, mine drainage, mine subsidence, and production monitoring.

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.

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.

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.

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.

EDUCATION (Degree, Year, Specialization)
M.S.C.E., 1966, Civil Engineering; B.S.C.E., 1964, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Society of Civil Engineers **Society of American Military Engineers**	**Professional Engineer, 1969, PA; Professional Engineer, 1990, WV** **Professional Engineer, 1991, OH**

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:
Elious, Matthew W. **Senior Mapping Supervisor**	-	-	-

Brief Explanation of Responsibilities

Mr. Elious is experienced in Photogrammetric Mapping production and systems development. For the past ten years, Mr. Elious has been involved in the management of mapping projects from small scale (i.e. 1:250,000; 1:50,000) to large scale (i.e. 1"=20' to 1"=100') engineering plans. Mr. Elious also has experience in the system engineering and streamlining of Digital Mapping Processes through CADD procedures in the MicroStation, AutoCAD, and TerraModel environments.

Rt. 60 Environmental Assessment, Kanawha County, West Virginia. West Virginia Department of Highways. Sr. Mapping Supervisor. Performed fully analytical aerial triangulation (FAAT) of WVDOH Route 60 environmental assessment project and supervised photogrammetric compilation of planimetric of DTM's at 1"200' map scale.

Township Water Main, Schuylkill Township, Pennsylvania. Philadelphia Suburban Water Co. Project Manager and Production Manager. Managed digital mapping of corridor of water mainline for the Township.

Digital Mapping, New Jersey. New Jersey Department of Transportation. Project Manager and Production Manager for digital mapping of + 10 miles of Jarvis Road and Williamston Road Corridors at metric scale 1:300, 0.25 m contour interval.

Mendham Base Map, Mendham Township, New Jersey. Mendham Township. CADD/Mapping Supervisor and CADD Editor. Base mapping for GIS applications for the Township of Mendham, New Jersey. Mapping scale 1"=100', 2' contour interval.

Brick Township Drainage Project, New Jersey. Brick Township. CADD/Mapping Supervisor and CADD Editor. Mapping of drainage analysis for Brick Township, New Jersey. Mapping scale 1"=50', 1' contour interval.

Fully Analytical Aerial Triangulation (FAAT), Central Pennsylvania. United States Geological Surveys. Sr. Mapping Supervisor. Performed fully analytical aerial triangulation (FAAT) of Central Pennsylvania area comprising 2,154 aerial photographs simultaneously adjusted for USGS Work Order #004 to provide Digital Orthophoto Quarter Quad (DOQQ) products.

Fully Analytical Aerial Triangulation (FAAT), Missouri River. U.S. Army Corps of Engineers, Omaha District. Sr. Mapping Supervisor. Performed fully analytical aerial triangulation (FAAT) utilizing airborne GPS for the Missouri River Reach 3 project comprising 242 aerial photographs. Supervised photogrammetric stereo compilation of 150 Digital Terrain Models (DTM) to be used for Digital Orthophoto differential rectification and production.

Fully Analytical Aerial Triangulation (FAAT) of Bolivar Bridge, Pennsylvania. Pennsylvania Department of Transportation. Sr. Mapping Supervisor. Performed fully analytical aerial triangulation (FAAT) for Penn DOT Bolivar Bridge - S.R. 0259, section 450 project. Also supervised photogrammetric stereo compilation of planimetric and digital terrain models for the purpose of producing topographic maps in metric at 1:500 scale, 0.25m contour interval.

EDUCATION (Degree, Year, Specialization)
MS, 1982, Geodetic Science (Photogrammetry , Geodesy & Cartography); B.S., 1973, Mathematics; Graduate Studies, 1979, Photogrammetric Data Processing Coursework, 1978, Photogrammetry

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)

13. PERSONNEL 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:
Smithson, Jason, T., P.S. **Senior Engineering Technician**	**9**	**10**	**1**

Brief Explanation of Responsibilities

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.

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.

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.

West Virginia Department of Environmental Protection, Photogrametric 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.

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.

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.

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.

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.

EDUCATION (Degree, Year, Specialization)
B.S., 1999, Geology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
Society of American Military Engineers **West Virginia Society of Professional Surveyors**	**Licensed Professional Surveyor, 2007, WV** **Certified Well Driller, 2002, WV** **OSHA 40-Hour HAZWOPER Certification, 1999, WV**

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:
Fogarty, Patrick, W., P.E., P.S. **Project Manager**	**11**	**21**	**16**

Brief Explanation of Responsibilities

Mr. Fogarty is an Engineer and Surveyor responsible for the development of all types of civil, structural, environmental and transportation projects throughout West Virginia and surrounding states. He has more than twenty years of engineering experience and over ten years of experience with the WVDEP on AML planning, mapping and design assignments. Various types of AML projects include landslide correction include retaining wall design, 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 civil design, utility relocations, property transfer, treatment design, and project management. Specific WVDEP/AML projects for which Mr. Fogarty has been personally responsible as Project Manager and Lead Design Engineer include the following:

Norton-Harding-Jimtown PSD Waterline Extensions, Randolph County. The assignment included the coordination of aerial photogrammetric mapping, geotechnical investigation, and the preparation of plans and specifications for planned extensions to three communities (Pumkintown, Mabie, and Green). The project consisted of approximately 30,000 feet of 6-inch and 8-inch PVC SDR 21 water pipe, one new 50 gpm booster pump station, one 100,000 gallon water storage tank, fire protection and other appurtenances.

Water Study, Wyoming, Clay and Nicholas Counties. Coordination, oversight, staffing assignments, report preparation and cost estimating services for a water system studies for the City of Mullens in Wyoming County, and the Communities of Dille/Widen and Mill Creek in Nicholas and Clay Counties in West Virginia. The Phase I Study was conducted to determine the extent of degredation to the water source due to Pre-Law Mining Activity. A Phase II Study was also conducted to provide in-depth, site specific research of past and present mining activity, interviews with area residents, water sampling and testing, and the preparation of a cost estimate of potential waterline installation.

Kilsyth (City of Mount Hope) Drainage Improvements, Fayette County. Drainage improvements to the intake site for the City of Mount Hope raw water pump station. The design of a circular reinforced concrete tank over a deep mine portal, the collection and rerouting of excess mine water and storm drainage. The design included phasing to assure continuous operation of the pump station during construction.

WVU Tech Drainage Improvements, Montgomery. Wet mine seals of various portals, the installation of bat gates, open limestone channel design, culvert and structure design and reclamation grading of various locations near the college campus.

Chief Logan State Park AMD, Logan County. Wet mine seals and open limestone channel design for the treatment acid mine drainage at numerous locations within the State Park.

Morris Creek Watershed Association AMD Treatment, Montgomery. Design of treatment systems for stream contamination due to pre-law mining activity within the Morris Creek Watershed near the City of Montgomery, West Virginia. Contamination sources were initially identified for four (4) particular areas within the watershed. Treatment systems were designed for each of the areas including: Stream Relocation and In-Stream Aeration (Upper Main Stem of Morris Creek), Anaerobic Wetland and Polishing Pond (Lower Main Stem of Morris Creek), Aerobic Wetland and Polishing Pond (Possum Hollow Branch of Morris Creek), and In-Stream Aeration (Black Snake Hollow of Morris Creek). The designs incorporated conventional and unconventional treatment processes for the removal of Iron, Manganese, Aluminum, and acidity. The assignment included the coordination of aerial photogrammetric mapping, geotechnical investigation, water sampling (for quality and flowrate) and the preparation of plans, specifications and individual property plats to include the treatment areas within the corporate boundary of the City of Montgomery.

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.

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

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Society of Civil Engineers **International Right of Way Association** **American Planning Association**	**Professional Engineer, 1990, WV; Professional Surveyor, 1993, WV** **Professional Engineer, 1996, OH; Professional Surveyor, 1996, OH** **Professional Engineer, 2000, KY; Professional Land Surveyor, 2001, KY**

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:
Myers, Terry L. **Assistant Project Manager**	**0**	**10**	**29**

Brief Explanation of Responsibilities

Mr. Myers has over 29 years of diverse experience, primarily in the sanitary engineering field that includes design, project management, client management, surveying, construction inspection and field testing for numerous assignments with municipalities, private developers and water/sewer districts. Mr. Myers has particular expertise in preliminary and conceptual design and the development of funding packages for potable water and sanitary/storm sewer projects. Mr. Myers served as the General Manager of Lincoln Public Service District, Lincoln County, West Virginia where he successfully acquired funding from various sources toward the development of over $5,000,000 of improvements and expansions for the potable water system in the county. Mr. Myers has also served as resident inspector of major construction projects ranging from $1 million to $50 million in total cost. In this role, he has been responsible for field engineering, supervision of inspection teams, coordination of quality control and quality assurance testing and administration of multiple construction contracts. Mr. Myers has a thorough understanding of regulatory and funding agency requirements as well as construction practices which assures adherence to budget and schedule.

Water Distribution System Improvements, Phase I, Mason County, West Virginia. *Town of Mason.* Project Manager. Responsible for the coordination of surveys, design engineering, and construction activities (progress meetings, shop drawing review, and pay estimates) toward the development of a **$1.7 million** water distribution system upgrade for approximately 40% of the existing system. Funding was a 0% loan for 40 years with the WVIJDC.

Water Distribution System Improvements, Webster County, West Virginia. *Town of Camden on Gauley.* Project Manager. Responsible for the coordination of surveys, design engineering, and construction activities (progress meetings, shop drawing review, and pay estimates) toward the development of a **$2 million** water distribution system upgrade and one new water storage tank. Project is pursuing a Small Cities Block Grant.

10- Mile Waterline Extension, Lincoln County, West Virginia. *Branchland-Midkiff Public Service District.* Project Manager. Responsible for the coordination of surveys, design engineering, and construction activities (progress meetings, shop drawing review, and pay estimates) toward the development of a **$2.6 million** water distribution system extension for approximately 154 new customers, including one water storage tank, and one new booster pump station. Project is pursuing a ARC Grant and WVIJDC loan.

Buffalo Creek Waterline Extension, Wayne County, West Virginia. *Wayne County Commission.* Project Manager. Responsible for the coordination of surveys, design engineering, and construction activities (progress meetings, shop drawing review, and pay estimates) toward the development of a **$1.5 million** water distribution system extension for approximately 100 new customers including one new water storage tank and one booster pump station. Project funding was a loan/grant from USDA Rural Development and a grant from the County Commission.

Odd/Westview Waterline Extension, Raleigh County, West Virginia. *Raleigh County Commission.* Project Manager. Responsible for the coordination of surveys, design engineering, and construction activities (progress meetings, shop drawing review, and pay estimates) toward the development of a **$2.5 million** water distribution system extension. The project included 8 miles of 6-inch and 8-inch water lines, one new water storage tank, two PRV structures and one booster pump station.

Norton Harding Jimtown Water Treatment Plant Upgrade, Randolph County, West Virginia, *Norton Harding Jimtown Public Service District.* Assisted the owner in securing a **$1.6 million** loan from the WVIJDC at 0% for 40 years and worked with the design team during the design process. Also assisted the Project Engineer with inspection and handle the monthly board meetings with the District. Project included upgrades to the sand filters, replacing of valves and pumps throughout the plant, drilling an additional well, new preset tank and improvements to the sludge handling process.

EDUCATION (Degree, Year, Specialization)

Coursework, Engineering, Glendale Community College, Glendale, Arizona

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
West Virginia Rural Water Association **West Virginia Municipal League**	**N/A**

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:
Ciucci, Ron J., P.E. **Senior Engineer**	-	-	**10**

Brief Explanation of Responsibilities

Mr. Ciucci is a senior engineer with experience in water and sanitary sewer systems, site development, hydrology and hydraulics, stormwater management, erosion and sedimentation control, and general municipal engineering. He also performed hydraulic/hydrologic analysis for several AML and AMD remediation projects.

ALCOSAN Service Area Wide Flow Monitoring Program. Allegheny County Sanitary Authority. Task Manager (1992-1998). Served as field coordinator and data processor for a flow monitoring program that measured sewage flow from 83 contributing municipalities. Major watersheds include Saw Mill Run; Turtle Creek; Chartiers Creek; Thompson Run; Beck's Run; Streets Run; Lowners Run; Jack's Run; Girty's Run; and Pine Creek. The goal of the program was to quantify sewage flow from ALCOSAN communities and reduce wet weather flows to the treatment plant.

ALCOSAN Deep Tunneling Flow Monitoring. Allegheny County Sanitary Authority. Task Manager (1994-1998). Responsible for site selection and equipment selection for monitoring of the Alcosan tunnel sewers which vary in depth from 40 to 120 feet deep. Monitoring equipment was installed in nine locations along the deep tunnel systems to measure level and flow within the system. This data was used to study storage capacity of the tunnels which is a requirement of the Nine Minimum Controls of CSO's.

Fox Chapel Pump Station and Rising Main, City of Pittsburgh, Pennsylvania. Pittsburgh Water and Sewer Authority. Project Engineer. Prepared pump and system curve data and supporting calculations.

Pittsburgh Water and Sewer Authority Pilot Plant, City of Pittsburgh, Pennsylvania. Pittsburgh Water and Sewer Authority. Project Engineer. Performed pump design/selection and prepared technical specifications.

Campus-wide Water Distribution System Evaluation, University Park, Pennsylvania. The Pennsylvania State University. Senior Engineer. Responsible for review of exiting information relating to the campus water distribution system, verification, calibration and analysis of the University's 1,000 pipe hydraulic model.

Potable Water Distribution System Evaluation, Weirton, West Virginia. Weirton Steel Corporation. Senior Engineer. Supervised modeling of the Weirton plant's water distribution system. The project included a comprehensive review of industrial water usage, existing plant mapping, model construction, model calibration via field testing, model simulations, alternate/upgrade analysis and final recommendations.

Hydraulic Model Calibration and System-wide Fire Flow Analysis, North Sewickley Township, Pennsylvania. The Municipal Authority of North Sewickley Township. Senior Engineer. Supervised model calibration and preparation of a Township-wide fire flow analysis. Baker performed a comprehensive hydrant testing program that included over twenty test locations. The project included recommendations to the Authority to bring their hydrants into compliance with AWWA standards.

Hydraulic Model and Maintenance, Various Locations throughout Beaver County, Pennsylvania. Borough of Baden, Center Township Water Authority, North and New Sewickley Townships, Beaver Falls Municipal Authority. Senior Engineer. Maintain and calibrate existing hydraulic model, some of which over 10,000 pipes in size.

EDUCATION (Degree, Year, Specialization)	
B.S., 1992, Civil Engineering	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Society of Civil Engineers **Society of American Military Engineers**	**Professional Engineer, 1998, Virginia** **Professional Engineer, 1998, Maryland** **Professional Engineer, 1997, West Virginia** **Professional Engineer, 1997, Ohio** **Professional Engineer, 1997, 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 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**	**1**	**2**	**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	REGISTRATION (Type, Year, State)
American Society of Civil Engineers American Water Works Association **Chi Epsilon Civil Engineering Honorary Fraternity** **Pennsylvania Water Environment Association** **Water Environment Federation**	**Professional Engineer, PA, 1976Professional Engineer, WV, 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 EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
See, John P., P.E., P.S. **Senior Design Engineer**	**12**	**43**	**20**

Brief Explanation of Responsibilities

Mr. See is a Senior Design Engineer at Baker. His specific project responsibilities have included project planning, management, subcontract administration and coordination, engineering analysis, design, report preparation, and supervision and inspection of construction activities. Mr. See has a significant amount of experience in the areas of abandoned mine land reclamation, surface and underground mine planning, and all types of civil/sanitary engineering projects. Mr. See also spent several years in the heavy construction industry. In addition, Mr. See was Adjunct Instructor for West Virginia University Institute of Technology Civil Engineering Technology program from 1997 to 2003 and Associate Professor of Mining Engineering Technology, West Virginia Institute of Technology from 1978 to 1979. During this time his university academic work experience included: Mine Laws and Management, Mine Production Management, Surface Mine Design, Deep Mine Design, Water Treatment Plant Design, Strength of Materials, Statics, and Coal Preparation.

Mr. See is experienced with all types of design software and modeling software that are required for this assignment. Throughout his career, he has been in responsible charge of a wide variety of projects including numerous waterline extensions.

EDUCATION (Degree, Year, Specialization)

BS, 1967, Civil Engineering
MS, 1971, Structural Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Society of Civil Engineers	**Professional Engineer, 1972, WV** **Professional Engineer, 1975, KY** **Professional Surveyor, 1995, WV**

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		
Martin, Mark R., PG **Assistant Geologist I**	YEARS OF AML DESIGN EXPERIENCE: **9**	YEARS OF AML RELATED DESIGN EXPERIENCE: **7**	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: **1**

Brief Explanation of Responsibilities

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.

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.

Mine Subsidence 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.

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.

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.

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.

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.

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.

EDUCATION (Degree, Year, Specialization)
B.S., 1988, Geology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State) **Professional Geologist, 1995, PA**

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:
Crowder, Joseph L., P.S. **Surveyor**	**5**	**12**	**3**

Brief Explanation of Responsibilities

Since joining Baker, Mr. Crowder has been responsible for performing various duties including field surveying for the reclamation of abandoned mine lands and natural stream design, mine permitting, water feasibility studies, and municipal services.

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.

Water Well Sampling, DuPont, near Washington Works Plant, Wood County, WV. Assisted in gathering data from residents, locating potential sample points, such as old drilled water wells, cisterns, and springs. Assisted in actual water sampling using various methods - bailers, air pumps, etc.

Winfield ACF Site, ACF/U.S. Army Corps of Engineers, Winfield, WV. Work included Boundary, Topographic, Construction Layout, and Sample Point Layout of 15 acres along the Kanawha River. This project had over 12,000 sample points laid out on a 3' grid.

Poor Charlie, Riverside Site, Glasgow, WV; Poor Charlie, Sattes Site, Nitro, WV; Poor Charlie, Cramer Metals Site, Parkersburg, WV. Work included Boundary, Topographic, Location and Boring Stakeout of various VERA sites and adjoining properties.

Elkem Metals Disposal Facility, Elkem Metals, Alloy, WV. Work included Control Network, Boundary, Topographic Surveys, and yearly volume reports.

Solutia, Nitro, WV. Work included Boundary, Topographic and Location Surveys for various projects, disposal facility caps, charcoal filtering systems, and monitoring well control network throughout the site and adjoining properties.

Landfill Surveys, Various Locations, West Virginia. Work included Control Network, Boundary and Topographic Surveys for expansion of cells and yearly volume reports, Construction Layout and baseline stakeout for landfill closure. Locations included:

Nicholas County Landfill, Summersville, WV
Pocahontas County Landfill, Pocahontas County, WV
Fleming Landfill, WVDEP, Sissonville, WV
Cunard Landfill, WVDEP, Fayetteville, WV
Mingo County Landfill, Mingo County, WV
Mercer County Landfill, Mercer County, WV

Cogentrix Energy, Cogentrix, Marshall County, WV. Work included GPS control survey of project area, boundary survey of 292 acres, topographic survey of 177 acres for site construction, courthouse research. Survey Supervisor.

Big Sandy Peaker Plant, Constellation Power, Cabell County, WV. Work included GPS control survey of project area, boundary and topographic of 42 acres, boundary and route survey for 1 mile of transmission lines, construction stakeout. Crew Chief/Survey Supervisor.

Paintsville Power Plant, Energy Services, Paintsville, Ky. Work included control and topographic survey of an 180-acre site for proposed power plant, construction stakeout. Survey Supervisor.

Greenbrier Pipeline, Dominion, West Virginia, Virginia, and North Carolina. Work included control and preliminary route survey of a 264-mile pipeline running from Corton, West Virginia to Raleigh, North Carolina. Survey Supervisor.

EDUCATION (Degree, Year, Specialization)
A.S., 1989, Computer Aided Drafting

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
West Virginia Society of Professional Surveyors	**Professional Surveyor, 2000, WV**

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:
Burnette, James C., S.E.T. **Senior Engineering Technician**	**0**	**34**	**34**

Brief Explanation of Responsibilities

Mr. Burnette is a Senior Engineering Technician and Task Manager at Baker with over 34 years of civil design experience that includes 17 year of project level design and personnel management. In addition, 11 years of hands-on experience in construction management, which includes project representation and construction supervision for consultants, the West Virginia Department of Transportation, the Federal Aviation Administration, the Cities of Wichita, Houston and Dallas and heavy construction contractors.

East Water Purification Plant Expansion, Design of a 150 MGD Surface Water Treatment Facility. *City of Houston, Texas.* Civil/Structural Project Technician. Responsible for design of a separate 150 MGD surface water treatment plant. Responsible for all civil site design including roadways, railroad facilities, building location, structural steel overhead walkways and chlorine contact building structural design. Maintenance of computer hardware and software.

Mandolin Water Treatment Facility, Ground Water Treatment and Pumping Facility, Houston, Texas. *City of Houston, Texas.* Project Technician. Responsible for all design and production of construction documents for this water production facility. Designed structures, sized and selected pumps and product storage containers, secured EPA and construction permits, estimated quantities and produced construction drawings.

East Water Purification Plant Expansion, Construction of 150 MGD Surface Water Treatment Facility, Houston, Texas. *City of Houston, Texas.* Senior Civil/Structural Site Representative. Responsible for the supervision of up to 12 field representatives. Also, inspection of ongoing construction activities, design and implementation of quality assurance programs, specification application, material and method tracking and reporting. Served as liaison between contractor and owner. Filled in for Resident Engineer in his absence.

24 Inch Transmission Pipeline, Coastal Inland Waterway Authority, *League City, Texas.* Project Technician. Responsible for the design, implementation and construction management of five miles of 24 inch concrete lined steel water transmission line. Designed horizontal and vertical alignments, cathodic protection system, locations of air and vacuum release valves and access taps. Designed and detailed a steel lined tunnel for crossing beneath an existing railroad, with provisions for future parallel trackage. Produced permitting and easement documentation, project specifications and CPM timeline.

16 Inch Service Pipeline, City of Baytown, *Baytown Texas.* Project Superintendent. Responsible for the construction and installation of eight miles of 16 inch water line and associated service connections. Pipeline was installed both below ground and above ground with one aerial crossing over water 500 feet in length. Field determined locations for air and vacuum release valves, advised Consulting Engineer when revisions to plan were required. Prepared estimates for payment, budget and manhour reports, material certifications and test results.

Water Distribution System, City of Deer Park, *Deer Park New York.* Project Designer. Responsible for the design of a new water distribution system for an existing subdivision. Performed capacity and pressure demand calculations, determined route location of new system, located hydrants to meet new city criteria and sized trunk lines. Established construction sequencing and methodology to avoid service interruptions and conflicts with existing water and sanitary sewer lines. Authored project and material specifications, construction plans, obtained required permits and landowner easements.

EDUCATION (Degree, Year, Specialization)	
Diploma, 1969, Structural Engineering, I.C.S. **M.S., 2006, Environmental Geology/Hydrogeology**	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State) **Engineer In Training, 1975, Kansas** **Certified Engineering Technician, 1975, NICET** **Senior Engineering Technician, 1982, NICET**

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:
Moses, Dana W., E.I.T. **Mining Engineer**	-	5	-

Brief Explanation of Responsibilities

Mr. Moses is an Engineer-in-Training (EIT) and a Civil Associate at Baker. Mr. Moses has an extensive knowledge of all aspects of surface and underground mining. His experience includes design of ponds, roads, and other structures associated with mining projects, as well as completion of permit applications for mining operations (SMA, NPDES, etc.). Mr. Moses is also a Certified Floodplane Manager with extensive experience in hydraulics/hydrology, SWORA analysis, and natural stream design. Some of the specific projects he was involved in include:

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.

Numerous Mine Projects, West Virginia. Civil Associate. Provided engineering and permitting services needed for development of the site grading, surface water management, erosion/sedimentation control, and ultimate site reclamation. Permitting activities include SMA, 401, 402/NPDES, 404, and PLC permit application completion, including engineering design and environmental regulation compliance, and oversight through approval. Responsible for all phases of the project.

EDUCATION (Degree, Year, Specialization)
B.S., 2002, Mechanical Engineering
M.B.A., 2004, Marshall University

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Society of Mechanical Engineers	**Engineer-in-Training, 2002, WV** **Underground Coal Miner Certificate, WV**

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:
Dawson, John W., P.E., P.S. **Construction Engineer**	**0**	**35**	**35**

Brief Explanation of Responsibilities

Mr. Dawson's responsibilities include construction administration and quality assurance for transportation and water resources projects. Mr. Dawson is a registered professional civil engineer and licensed professional surveyor with over 35 years experience in all types of construction projects. Mr. Dawson's areas of expertise include highway, bridge, utility relocations, sedimentation engineering, erosion control, and stormwater management. His experience covers waterline and sewer line extensions/relocations throughout West Virginia and Virginia.

Prior to coming to Baker, Mr. Dawson spent his career with the WVDOT/DOH in various capacities as follows:

1970 to 1978, District 4 Area Construction Engineer. Responsible for projects in a portion of the District. Over sight of several projects for conflict/problem resolution. Establish an effective and safe working relationship with contractors, suppliers, consultants, utility companies, government agencies, municipalities, property owners, employees, and the general public by letter, telephone, or personal appearance. Act as a liaison between the above and the District One Construction Office. Review plans and proposals and recommend changes and corrections.

1978 to 1980, Assistant Regional Engineer. Assisted a Regional Construction Engineer with administering construction projects at the state level (over several Districts). This position was essentially a training assignment for future advancement. This position required coordination with the FHWA, Contractors, other state agencies and various divisions within Highways to resolve issues on construction contracts.

1980 to 1995, District 1 Construction Engineer. Responsible for the management and administrative duties for all construction contracts within the District. The construction section was comprised of Project Inspectors/ Engineers, Utilities Inspectors, Survey Parties and Materials Testing Technicians for a total of approx. 120 employees.

1995 to 2003, District 1 District Engineer. Responsible for the engineering and administrative duties of directing, organizing and coordinating the work of District One which consists of Construction, Bridge, Design, Traffic, Maintenance, Personnel, Equipment, Right-of-Way, Comptroller and Permits Sections. District One is comprised of five Counties containing over 4000 miles of roadways and over 1200 Bridges with 500 Employees.

Mr. Dawson has managed the construction administration services (including multiple utility extensions/relocations) for large-scale projects including:

Appalachian Corridor H (numerous sections)
Appalachian Corridor D (numerous sections)
Appalachian Corridor G (numerous sections)
WV Route 9

EDUCATION (Degree, Year, Specialization)
B.E., 1970, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Society of Civil Engineers	**Professional Engineer, West Virginia** **Professional Engineer, Virginia** **Professional Surveyor, West Virginia**

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:
Rogers, Alison M., M.S. **Senior Environmental Scientist**	-	5	-

Brief Explanation of Responsibilities

Ms. Rogers is a senior environmental specialist with over 10 years experience conducting natural resource assessments for a variety of transportation and resource extraction projects. She is a versatile professional with experience ranging from jurisdictional wetland and stream delineations to aquatic and terrestrial ecological surveys. In addition to her technical experience, Ms. Rogers has participated in the development and writing of EAs and EISs, ESA Section 7 biological assessments and formal consultation packages, and Clean Water Act Section 404/401 permit packages. As an experienced wetland ecologist, Ms. Rogers applies her aquatic biology background in wetland and stream studies. Ms. Rogers is proficient in wetland identification, delineation, functional assessment, monitoring, permitting and remote sensing. She is emerging in the creation and restoration arena for both wetlands and streams. Mr. Schroeder has already applied Level I Rosgen Training - Applied Fluvial Geomorphology in West Virginia.

Kempton Refuse and AMD Project CWA Section 404 Permit Application, Tucker County, West Virginia. West Virginia Department of Environmental Protection, Division of Land Restoration, Abandoned Mine Lands and Reclamation. Environmental Specialist. Conducted wetland and stream delineations, assisted with writing and production of wetland findings report and stream restoration and enhancement plan to support a Clean Water Act Section 404 Permit for an abandoned surface coal mine/refuse area reclamation project.

Shawnee Parkway CWA Section 404 Permit Application, Mercer and Raleigh Counties, West Virginia. West Virginia Department of Transportation, Division of Highways. Project Manager. Managed the post-ROD surface water delineation and assessment activities within an 18-mile, 300-foot project corridor; the development of a preliminary alignment to prepare an Individual Clean Water Act Section 404 Permit; and the development of a compensatory stream and wetland mitigation plan. Surface water resource data was warehoused in a geo-database that was used to develop the alignment, prepare the Clean Water Act Section 404 (b)(1) analysis, and to identify compensatory stream and wetland mitigation plan for inclusion in the Individual Clean Water Act Section 404 permit application for the project.

Surface Mine 44 Compensatory Stream Mitigation Plan, Boone and Lincoln Counties, West Virginia. Hobet Mining Company. Environmental Specialist. Conducted various existing stream condition assessments, stream-dwelling salamander surveys, functional assessments, and riparian habitat assessments on potentially impacted and proposed mitigation streams for a compensatory stream mitigation plan to support a Clean Water Act Section 404 permit for a large surface bituminous coal mine. Assisted with data analysis and preparation of compensatory mitigation plan.

Spring Branch Deep Mine CWA Section 404 Permit Application, Mingo County, West Virginia. Consolidation Coal Company/Laurel Run Mining Company. Environmental Specialist. Conducted and coordinated fieldwork including stream delineations, stream jurisdictional determinations, ephemeral/intermittent point determinations, habitat assessment evaluations, and benthic macroinvertebrate sampling of streams potentially impacted by a proposed deep bituminous coal mine. Prepared technical reports in support of Clean Water Act Section 401 and 404 permits for a deep bituminous coal mine.

Compensatory Stream Mitigation Plan, Hardy County, West Virginia. Town of Moorefield. Task Manager and Environmental Specialist. Identified potential stream mitigation sites, and assisted the client with agency meetings and correspondence. Prepared a Section 404(b)(1) analysis to document the mitigation site selection process, as well as the compensatory stream mitigation plan. The stream mitigation plan included an existing condition assessment of two degraded streams located in the South Branch of the Potomac River watershed and construction plans for the restoration of each stream. Assisted the contractor during mitigation project construction.

EDUCATION (Degree, Year, Specialization)

B.S., 1994, Biology
M.S., 1999, Biological Sciences

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
Society for the Study of Amphibians and Reptiles (SSAR) **American Society of Mammalogists (ASM)** **Society of Wetland Scientists (SWS)**	**FHWA NEPA Training, 2006** **Rosgen Stream Cert-Applied Fluvial Geomorphology/L-1, 2002** **Rosgen Stream Cert-River Morphology & Applications/L-2, 2005** **Rosgen Stream Cert-River Assessment & Monitoring/L-3, 2006** **Rosgen Stream Cert-River Restoration & Natural Channel Design/L-4, 2006**

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 Racal 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
Topcon GTS 3B
Nikon DTM A5LG
Wild TC 2000

Total Stations with Onboard Data Collection
Leica TCRM 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

Levels (Engineering)
Zeiss Ni 2
Leica NA 2002 Digital Level w/2 rods
Wild N-3
Zeiss Ni 1

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 Aviolyt 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 SOCET 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

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

Digital Orthophoto
Dell PIII Xeon, 2-1.0 GHz
Intergraph TDZ425
Intergraph 6887 ImageStation (Stereo Softcopy Capability)

Scanner
Z/I PhotoScan-TD (TDZ 310) Resolution setting of: 7, 14, 21, 28, 56, 112 and 224 microns

DVD Writer
Pioneer - Model #DVR-S201-DVD-R Drive with Pioneer Crosswriter Version 2.0 and Prassi DVD REP Version 2.0 Software

CD Writer
Hewlett Packard HP Sure Store CD Writer 6020es
Software: Easy CD Pro 95 Version 1.0 and Easy CD Pro Win 3.1 Version 3.0

Server
Compaq Proliant 5500
Pentium II Processor Xeon
400 MHz
1.7 GB Memory
106 GB Disc Storage

External 40/80 Compaq DLT Drives

1.2 Terrabyte Network Attached Storage

Software
BINGO – AERIAL, version 4.0
MrSID, version 1.3
j f k RABATS/BRATS, June 1997
ABC32, version 1.3
IRAS – C, version 8.0
Adobe Photo Shop 5, version 5.05
CADDMAPP/DGN, version 5.8.3
ERDAS Imagine, version 8.5
ImageStation Digital Mensuration-ISDM, version 4.0
ImageStation Base Rectifier-ISBR, version 4.0
ImageStation DTM Collection-ISDC, version 3.2
ZI Ortho Pro/Geo Media, version 3.1
MicroStation – J & SE versions

EDIT/DIGITIZING EQUIPMENT AND SOFTWARE
Workstations – Windows NT or Windows 2000
Pentium 4, 2 GHz
Pentium 2, 333 MHz
Pentium 2, 300 MHz
Pentium 2, 266 MHz
TDZ425
TD260MT

Scanners
ANA Tech Eagle 4050 – 500 dpi scanner
Hewlett Packard ScanJet 5100C

Plotters
JDL 3000 E
JDL 3500 E
Hewlett Packard 1055 CM
Hewlett Packard Design Jet 2500 CP-600 dpi

GIS Software
Intergraph – MGE/MGA, version 8 suite of products
MRF Mapping Tool Kit, version 8.0
ESRI: ARC/Info, version 8
ArcView, version 3.2
Arc View, version 3.1
AutoCAD, version 2000i
Oracle
Visual Basic, version 6
Visual Basic, version .NET

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 57th 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%

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
Program Management/General Engineering Consultant Pennsylvania Turnpike Commission (34 consecutive years) Throughout Pennsylvania	Pennsylvania Turnpike Commission Harrisburg, Pennsylvania	Annual Inspection and reports on Turnpike conditions, recommendations on maintenance and improvements to system, review of Design work by Commission's engineering staff and assistance to Commission staff in review of proposals from outside design consultants	$4,000,000 (2004 Contract)	Ongoing
Buckeye Reclamation Landfill CERCLA Site, Remediation Design and Construction Management Belmont County, Ohio	CONSOL Energy, Inc. 1800 Washington Road Pittsburgh, PA 15241	Site reconnaissance, Phase I Remedial Action design involving regrading over 85 acres, construction of a solid waste landfill cap, installation of groundwater/leachate collection system, relocation and lining (geosynthetic clay liner underlying fabricform) of over 1 mile of an existing stream and impoundment elimination by solidifying over 35000 cubic yards of sediments. Baker prepared final construction drawings, specifications and quality assurance plans. Baker also provided construction management services.	$1,400,000 (Fee)	97%
TOTAL NUMBER OF PROJECTS: **7**		TOTAL ESTIMATED CONSTRUCTION COSTS: **$5,895,618**		

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)
Water System Modeling Beaver Falls, PA	Beaver Falls Municipal Authority 1425 Eighth Avenue Beaver Falls, PA 15010	$48,234 (Fee)	2007	Completed
Veteran's Bridge Water Line Crossing Beaver County, PA	Beaver Falls Municipal Authority 1425 Eighth Avenue Beaver Falls, PA 15010	$600,000	2007	Yes
Whetstone Road Water Line Crossing Fairfax, VA	Fairfax Water 8560 Arlington Boulevard Fairfax, Virginia 22031	$28,712 (Fee)	2006	Yes
Sprucedale Drive Water Main Replacement Fairfax, VA	Fairfax Water 8560 Arlington Boulevard Fairfax, Virginia 22031	$9,531 (Fee)	2006	Yes
Terry Lynn Court Water Main Replacement Fairfax, VA	Fairfax Water 8560 Arlington Boulevard Fairfax, Virginia 22031	$9,531 (Fee)	2006	Yes
Eastvale Water Treatment Plant – Clearwell Beaver Falls, VA	Beaver Falls Municipal Authority 1425 Eighth Avenue Beaver Falls, PA 15010	$87,375 (Fee)	2006	Yes
TCCP Potable Water System Improvements New Sewickley, PA	New Sewickley Township Municipal Authority 233 Miller Road Rochester, PA 25074-2759	$800,000	2006	Yes
Lower Campus City Water Distribution System Slippery Rock, PA	Slippery Rock University Maintenance Center Slippery Rock, PA 16057	$66,612 (Fee)	2005	Yes

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	Burough 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 57th 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 57th 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

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)
Water Main Design & Relocation Engineering Services Virginia	Virginia American Water Company 2223 Duke Street Box 25405 Alexandria, VA 232314	$102,920 (Fee)	2002	Yes
Flemington Portals and Drainage No. 2 – AML, Reclamation Taylor County, WV	West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands & Reclamation 10 McJunkin Road Nitro, West Virginia 25143	$42,000 (Fee)	2002	Yes
National Mine Complex – AML Reclamation Monongalia County, WV	West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands & Reclamation 10 McJunkin Road Nitro, West Virginia 25143	$72,800 (Fee)	2002	Yes
Mineral City Park AMD Remediation Project Tuscarawas County, OH	ODNR-Division of Mineral Resources Management 1855 Fountain Square Court, Bldg H-2 Columbus, OH 43224	$73,000 (Fee)	2002	Yes
Columbia Portland AML Reclamation Project Muskingum County, OH	ODNR-Division of Mineral Resources Management 1855 Fountain Square Court, Bldg H-2 Columbus, OH 43224	$66,000 (Fee)	2002	Yes
Lindentree Acid Mine Drainage Remediation Project Carroll County, OH	ODNR-Division of Mineral Resources Management 1855 Fountain Square Court, Bldg H-2 Columbus, OH 43224	$68,000 (Fee)	2002	Yes
Barberton Subsidence Evaluation Summit County, OH	ODNR-Division of Mineral Resources Management 1855 Fountain Square Court, Bldg H-2 Columbus, OH 43224	$37,000 (Fee)	2002	Completed
HARSHA Aerial Mapping – AMD Remediation Carroll County, OH	ODNR-Division of Mineral Resources Management 1855 Fountain Square Court, Bldg H-2 Columbus, OH 43224	$14,000 (Fee)	2002	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, Straigt, 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

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

Baker has been providing engineering services for abandoned mine lands (AML) reclamation and acid mine drainage (AMD) remediation since the federal government first enacted legislation. Our work experience in these areas started with Operation Scarlift in the 1970's, and since 1983, we have been providing our engineering services in these areas to the West Virginia Department of Environmental Protection (WVDEP), Pennsylvania Department of Environmental Protection (PADEP), Ohio Department of Natural Resources (ODNR), and U.S. Office of Surface Mining (OSM), to name a few. To date, we have completed over 250 AML projects ranging from subsidence control, mine sealing, AMD/AML site drainage/grading improvements, refuse reclamation, landslide correction, waterline extension for areas affected by AML problems to mitigation of acid mine drainage problems and watershed stream restoration. Our recent experience on numerous AML reclamation and AMD remediation projects for the WVDEP, ODNR, PADEP and Nashville District of the U.S. Army Corps of Engineers, illustrates our track record for the completion of assignments on time and within budget.

Although the projects presented in Item 12 (Table 12-1) of the Consultant Confidential Qualification Questionnaire (CCQQ) and the "AML and Related Project Experience Matrix" following this CCQQ clearly shows Baker's surveying and mapping, subsurface investigation, hazardous waste disposal, landslide correction, waterline extension feasibility design and construction phase services, as well as abandoned mine lands reclamation and AMD pollution abatement experience, they only hint at the extensive human and material resources which especially qualify our firm for abandoned mine lands reclamation projects. The following narrative discussions and detailed project descriptions further describe our experience and provide an insight into the special capabilities of Michael Baker Jr., Inc.

COMPREHENSIVE SERVICES

The civil and mining engineering, surveying and mapping, environmental, and geotechnical services of Michael Baker Jr., Inc. are available to immediately respond to the mining reclamation needs of WVDEP. Working from our Charleston, West Virginia office, with support from our Pennsylvania offices, Baker can provide the full spectrum of services needed in mine reclamation and mine drainage abatement operations. Some of the more important services our firm can provide to WVDEP include:

- Mapping and Aerial Photography
- Surveying
- Environmental Evaluations And Assessments
- Data Acquisition And Interpretation
- Hydrology and Hydraulics Studies
- Geotechnical Engineering
- Natural Stream Restoration
- Engineering Design
- Plan/Specifications Preparation
- Construction Phase Services (Oversight and Management)

Since we can furnish all of the engineering related services required for abandoned mine lands reclamation projects, we can work very efficiently and meet the strictest of schedules. Our efficiency is further heightened by the use of interactive graphics and AutoCAD compatible design software to perform computer–assisted mapping, design and drafting. Baker is a pioneer in mining applications of interactive graphics and is one of only a few firms capable of digitizing mapping directly from aerial photography using photogrammetric stereoplotters. When mapping already exists, we can manually digitize the information into the computer system. Some of the functions applicable to abandoned mine land design studies for which Baker routinely employs the Interactive Graphics System and AutoCAD LAND DEVELOPMENT DESKTOP civil design software include:

- Contour Mapping of the Surface And Subsurface
- Generation of Geologic Cross Sections and Fence Diagrams
- Facilities Layout and Site Design
- Rail And Roadway Design
- Water Distribution System Design
- Earthwork Volume Computations and Cost Estimates
- Drafting Of Plans, Profiles, and Cross Sections

The Interactive Graphics System and AutoCAD LAND DEVELOPMENT DESKTOP Civil Design software are powerful cost saving tools for abandoned mine land and acid mine drainage abatement projects since they can evaluate numerous configurations rapidly. They are especially useful for projects requiring bench backfilling and grading, the regrading of refuse banks and gob piles, elimination of highwalls, and reclamation of other abandoned surface disturbances.

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

Baker's services for the waterline extension feasibility study included:

- Site reconnaissance noting existing conditions and identifying problem areas.
- Reviewing regional and local geology and groundwater hydrology of the primary river basin and its tributaries.
- Field tests of residents' supplies and surface water for pH, iron, specific conductivity, temperature and flow to determine the areas with the worst water quality, and preliminary interviews with a representative sample of residents using private sources.
- Review of mining within the study area to determine the extent and age of past and current mining.
- Preparation of a preliminary report discussing whether or not to proceed with a compilation of supporting information and documentation.
- Extensive interviews with local, state, and federal officials regarding water quality and with residents and local businesses.
- Laboratory testing for several parameters which can be used to determine if mining has affected the water.
- Complete mining history study of the area to determine the sources of water quality problems, and comparison of pre-law and post-law mining history. In depth geologic and hydrologic studies were also performed.
- Use information gathered to determine the relationship of Abandoned Mine Lands to the water quality, then examine and present possible solutions and cost estimates.
- Extension of an existing public water system was determined to be the best alternative; therefore an estimated layout and cost estimate were developed.
- Prepare the final report which includes the following: a write-up of all information gathered, conclusions drawn and recommendations; maps showing the study area, where samples and interviews were taken, regional groundwater flow, and mined out areas (both pre-law and post-law); typical geologic formation cross-sections showing existing water sources and AML-affected coal seams; typical cross-sections of the groundwater model; and photographic documentation of the water quality problem source(s) and effects.

The second project involving design of waterline extension consisted of extension of two separate water supply distribution systems both of which are owned and operated by Preston County PSD No. 2. In order to serve the impacted areas it was necessary to increase the capacity of the existing systems. The final system was designed to provide 500 gpm fire flow at 20 psi residual at all points in the system during normal system conditions. Mainline and service line pressure reducing valves were required due to elevation variations of over 500 feet within the project area.

The proposed upgrade of the existing systems included interconnection of the two existing systems, replacement of key sections of undersized 4" PVC, and the replacement of three inefficient underground pump stations with a single new above ground pump station. The proposed pump station will supply water to the entire system and will fill three water standpipes at two remote locations. The lower intermediate tank being controlled by an altitude valve and the higher more remote tank controlling pump operation via telemetry. Waterline extensions totaling 90,000 LF of 8", 6", 4", and 2" PVC and ductile iron pipe, a new 50 HP pump station, 120 new service connections and meters, and all related appurtenances.

Baker's services for this project included:

- Exploratory drilling and inspection to determine extent of rock excavation
- Hydraulic design and modeling utilizing KYPIPE
- Layout of waterline plan and profile
- Pump sizing and station selection
- Evaluate mainline and service line pressure reducing valve requirements
- Preparation of construction plans and technical specifications
- Obtain permit approval from WV Office of Environmental Health Services
- Obtain permit approval from the WV Public Land Corporation
- Obtain verbal permit approval from the WV Dept. of Highways
- Obtain Nationwide permit from the US Army Corps of Engineers
- Provide submittals to WV Public Service Commission
- Provide submittals to Small Cities Block Grant Foundation
- Construction cost and quantity estimate
- Representation at prebid and preconstruction meetings
- Construction monitoring on request

- ***Passive Treatment of Acid Mine Drainage***

Baker designed the WVDEP's first passive treatment system in conjunction with the Webster Refuse Reclamation Project in 1984. Since then we have designed several passive treatment systems, including:

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

These technologies were variously incorporated into such projects as:

- Kempton Refuse & AMD Project for WVDEP
- Mineral-Zoar Road AMD Reclamation Project for ODNR-DMRM
- Lindentree Reclamation project for ODNR-DMRM
- Mineral City Park Reclamation project for ODNR-DMRM
- Powel 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 WVDEP
- 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, northcentral 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:

- field review for site characterization and identifying AMD sources
- review of mining and site histories and existing AMD flow data and chemistry
- evaluation of AMD abatement alternatives
- submittal of conceptual plan
- exploratory drilling and inspection
- soil and refuse testing
- hazardous, toxic, and radiological waste (HTRW) investigations
- review additional AMD sampling and test data
- stream channel restoration design
- hydraulic design of culverts, collection and diversion ditches
- open limestone channel design for passive AMD treatment
- SAPS cell design for passive AMD treatment
- aerobic wetland design for passive AMD treatment
- site grading layout and revegetation plan
- preparation of feasibility level design plans and details
- preparation of construction specifications & bid documents
- detailed cost and quantity estimate with MCACES software

- ***Full Range of Mining Services for a Coal Preparation Plant***

This design and permitting project for Sierra Coal Company's Kentucky Skyline Preparation Plant demonstrates the full range of services provided by Michael Baker Jr., Inc. Concurrently with engineering and geotechnical feasibility studies, Baker environmental personnel conducted vegetation, land use, surface water, groundwater and noise investigations. Following site selection, Baker provided all surveying, geotechnical, environmental and civil engineering services for design, permitting and construction for a one million tons per year coal preparation plant and related facilities in Breathitt County, Kentucky. The development consisted of the following facilities:

- preparation plant and appurtenant structures (conveyors, dump bins, thickener, etc.)
- coarse coal refuse disposal area
- fine refuse slurry impoundment
- hollow fill for disposal of excess cut material
- topsoil storage areas
- access and haul roads
- sedimentation ponds and surface drainage controls (diversion ditches, collection channels, etc.)

A geotechnical drilling and testing program was undertaken to provide data for foundation analyses; stability of haul roads and cut and fill slopes; and stability of embankments, the hollow fill, and coarse refuse pile. Civil engineering services included all hydrologic analyses and hydraulic design and earthwork and grading. Hydrologic and hydraulic analyses were conducted to size drainage control structures and for design of the slurry impoundment. The design effort included temporary revegetation plans, as well as reclamation plans for regrading the site to approximate original contour and revegetation plans for returning the site to forest land while enhancing wildlife.

The design effort was followed by detailed drawings and specifications for construction. Baker also provided construction inspection services. A team of two civil engineers and a geotechnical engineer was assigned to the site for the duration of construction (approximately 18 months). These individuals monitored the contractor's adherence to specifications for foundation preparation (structures and embankments), construction materials, excavation and grading, compaction, and soil erosion and sedimentation control (including revegetation plans). Based on our construction inspection, as-built plans were prepared to accompany the permit application prepared under Kentucky's Permanent Regulatory Program.

IN-HOUSE FACILITIES AND RESOURCES

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 **Coaldale/Bramwell Hill Waterline Extension** 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.

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

5. **Continuous Improvement (CI)**

Baker has a highly effective, corporate-wide Continuous Improvement (CI) program. The ultimate beneficiaries of CI are Baker's clients, such as the WVDEP. Benefits include improved client satisfaction, a reliable product/service, reduced costs, improved communications and added value.

Client satisfaction; service, reliability, and value will be the overriding responsibility of the project's technical quality manager, and the goal of the entire project team. A variety of formal and informal techniques will be used throughout the project life to monitor our success. These techniques will range from visits and phone calls to status meetings and quality audits. If any deficiencies are identified, corrective actions will be implemented by the management team.

Based on Baker's extensive AML experience, our veteran staff, our familiarity with WVDEP AML assignments, and the strength and location of our facilities, we believe that Baker is best qualified to assist WVDEP in improving its abandoned mine lands.

20. THE FOREGOING IS A STATEMENT OF FACTS

Signature: Russell E. Hall

Printed Name: Russell E. Hall, P.E.

Title: Assistant Vice President

Date: October 7, 2008

NOTE: THIS DOCUMENT WILL BECOME VOID AFTER DECEMBER 31 IN CALENDAR YEAR OF DATE HEREON.

RFQ No. DEP14381

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

VENDOR OWING A DEBT TO THE STATE:
West Virginia Code §5A-3-10a provides that: 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 owed is an amount greater than one thousand dollars in the aggregate.

PUBLIC IMPROVEMENT CONTRACTS & DRUG-FREE WORKPLACE ACT:
West Virginia Code §21-1D-5 provides that: Any solicitation for a public improvement construction contract shall require each vendor that submits a bid for the work to submit at the same time an affidavit that the vendor has a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the West Virginia Code. A public improvement construction contract may not be awarded to a vendor who does not have a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the West Virginia Code and who has not submitted that plan to the appropriate contracting authority in timely fashion. For a vendor who is a subcontractor, compliance with Section 5, Article 1D, Chapter 21 of the West Virginia Code may take place before their work on the public improvement is begun.

ANTITRUST:
In submitting a bid to any agency for the state of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the state of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the state of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the state of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership or person or entity submitting a bid for the same materials, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

LICENSING:
Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agencies or political subdivision. Furthermore, the vendor must provide all necessary releases to obtain information to enable the Director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

CONFIDENTIALITY:
The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendors should visit **www.state.wv.us/admin/purchase/privacy** for the Notice of Agency Confidentiality Policies.

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

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

Authorized Signature: _____ Date: October 7, 2008