Baker

Michael Baker Jr., Inc.
A Unit of Michael Baker Corporation
4301 Dutch Ridge Road
Beaver, PA 15009

724.495.7711
FAX 724.495.4112

January 29, 2013

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

01/29/13 09:36:16 AM
West Virginia Purchasing Division

Attention: Mr. Frank Whittaker

Re: Expression of Interest for Professional Engineering Design Services and Construction Monitoring Services for the Donnie Thorn Highwall
RFQ Number DEP16072

Dear Mr. Whittaker:

Baker is honored to have built a 30-year relationship with the West Virginia Department of Environmental Protection (WVDEP), helping to solve complex mining and environmental challenges. Since 1983, we have worked together on more than 40 projects, and successfully **have received local and national recognition** for our efforts. At Baker, we don't take the past for granted, but rather, look forward to opportunities to enhance the services we offer to WVDEP. To meet your design requirements and respond to this RFQ, Baker has assembled a team of experienced personnel who have performed on previous similar assignments for the WVDEP. Our proposed design team members have also provided engineering services for numerous abandoned mine land reclamation and related projects over the years for a variety of clients as reflected in the attached documents.

In addition to the staff provided for this opportunity and as outlined within, **we are proud to add the technical assistance and guidance provided by Mr. Charles D. Stover**, the former Design Administrator of the WVDEP AML/AMD Department. His long standing history with the AML program will add valuable technical insight to our team and we are excited to offer Charlie as part of our services to WVDEP. Charlie's presence will help Baker be better prepared to address the remediation issues and contribute to a more effective project solution.

Baker's staff is experienced in all aspects of AML/AMD projects. Baker has been providing engineering services for abandoned mine lands since the Federal government first enacted AML legislation. We have provided these services for the West Virginia Department of Environmental Protection, the Pennsylvania Department of Environmental Protection, Ohio Department of Natural Resources, and the U.S. Office of Surface Mining to name a few. This Baker experience combined with Mr. Stover's specific knowledge and expertise, yield an efficient design team. **Furthermore, our team can be 100% committed to AML work and is not working on oil and gas assignments in West Virginia.**

Baker has illustrated our ability to deal with multiple projects without a reduction to the level of quality and service to the Department. Baker is a "One Stop Shop" for any services that may be needed for this project. To supplement our team, exploratory drilling services, if required, will be provided by Test Boring Services Inc., which has a successful history of acting as a sub-consultant for Baker and the WVDEP.

We trust this submittal illustrates our qualifications, experience and desire to assist with this assignment of work arising from this contract. If you have any questions or require additional information concerning our qualifications, experience or approach, please contact me at 724.495.4302,or Bill Neider at 724.495.4225.

Sincerely,

MICHAEL BAKER JR., INC.

William D. Trimbath

William D. Trimbath, P.E.
Vice President

William D. Neider

William D. Neider, P.E.
Project Manager

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

Solicitation

NUMBER	PAGE
DEP16072	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER
304-558-2316

VENDOR
RFQ COPY
TYPE NAME/ADDRESS HERE
Michael Baker Jr., Inc.
4301 Dutch Ridge Road
Beaver, PA 15009

SHIP TO
ENVIRONMENTAL PROTECTION
DEPARTMENT OF
OFFICE OF AML&R
601 57TH STREET SE
CHARLESTON, WV
25304 304-926-0499

DATE PRINTED
12/20/2012

BID OPENING DATE: 01/29/2013 BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	JB		906-29	N/A	
	DONNIE THORN HIGHWALL DESIGN					
	EXPRESSION OF INTEREST					
	THE WEST VIRGINIA PURCHASING DIVISION, FOR THE AGENCY, THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, IS SOLICITING EXPRESSIONS OF INTEREST FOR PROFESSIONAL ENGINEERING DESIGN SERVICES AND CONSTRUCTION MONITORING SERVICES AT THE DONNIE THORN HIGHWALL PROJECT IN PRESTON COUNTY, WEST VIRGINIA, PER THE FOLLOWING BID REQUIREMENTS AND ATTACHED SPECIFICATIONS.						
	****** THIS IS THE END OF RFQ DEP16072 ****** TOTAL:					N/A

SIGNATURE	TELEPHONE	DATE
William D. Trivilo	724.495.4302	January 29, 2013

TITLE	FEIN	
Vice President	25-1228638	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

RFQ No. DEP16072

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

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

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities, "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

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

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

WITNESS THE FOLLOWING SIGNATURE

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

Authorized Signature: William D. Trimble Date: January 29, 2013

State of PA

County of Beaver, To-wit:

Taken, subscribed, and sworn to before me this 29th day of January, 2013

My Commission expires December 18, 2016

AFFIX SEAL HERE NOTARY PUBLIC

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Sandie Egley, Notary Public
Brighton Twp., Beaver County
My Commission Expires Dec. 18, 2016
PENNSYLVANIA ASSOCIATION OF NOTARIES

CERTIFICATION AND SIGNATURE PAGE

By signing below, I certify that I have reviewed this solicitation in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid or proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Michael Baker Jr., Inc.
(Company)

William D. Trimbath
(Authorized Signature)

William D. Trimbath, P.E., Vice President
(Representative Name, Title)

724.495.4302 **724.495.4112**
(Phone Number) (Fax Number)

January 29, 2013
(Date)

ADDENDUM ACKNOWLEDGE FORM
SOLICITATION NO.: DEP16072

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

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

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

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

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

Michael Baker Jr., Inc.
(Company)

William D. Trimble
(Authorized Signature)

January 29, 2013
(Date)

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AML CONSULTANT QUALIFICATION QUESTIONNAIRE

Attachment "B"

PROJECT NAME	DATE (DAY, MONTH, YEAR)	FEIN
Donnie Thorn Highwall Design Preston County, West Virginia DEP16072	January 29, 2013	25-1228638

1. FIRM NAME	2. HOME OFFICE BUSINESS ADDRESS	3. FORMER FIRM NAME
Michael Baker Jr., Inc.	4301 Dutch Ridge Road Beaver, Pennsylvania 15009	

4. HOME OFFICE TELEPHONE	5. ESTABLISHED (YEAR)	6. TYPE OWNERSHIP	6a. WV REGISTERED DBE (Disadvantaged Business Enterprise)
724.495.7711	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. / 4301 Dutch Ridge Road, Beaver, PA 15009 / 724.495.4302 / William D. Trimbath / 25
Russell E. (Rusty) Hall / 7 (Charleston, WV)

8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM	8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS
William D. Trimbath, Vice President – 724.495.4302	Russell E. Hall, P.E., P.S., Assistant Vice President – 304.769.0821

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

227 ADMINISTRATIVE	3 ECOLOGISTS	1 LANDSCAPE ARCHITECTS	35 STRUCTURAL ENGINEERS
11 ARCHITECTS	1 ECONOMISTS	7 MECHANICAL ENGINEERS	17 **SURVEYORS/Technicians**
3 **BIOLOGISTS**	4 ELECTRICAL ENGINEERS	2 **MINING ENGINEERS**	5 TRAFFIC ENGINEERS
60 **CADD OPERATORS/DESIGNERS**	26 ENVIRONMENTALISTS	1 PHOTOGRAMMETRISTS	77 ENGINEERING TECHNICIANS
1 CHEMICAL ENGINEERS	2 ESTIMATORS	6 PLANNERS: URBAN/REGIONAL	33 PROJECT MANAGERS
46 **CIVIL ENGINEERS**	17 **GEOLOGISTS**	3 SANITARY ENGINEERS	38 GIS SPECIALISTS
62 CONSTRUCTION INSPECTORS / Mgrs.	2 HISTORIANS	7 SOILS ENGINEERS	79 OTHER
0 DESIGNERS	10 HYDROLOGISTS	7 SPECIFICATION WRITERS	793 TOTAL PERSONNEL (Beaver and Moon Township, PA and Charleston, WV Offices)
0 DRAFTSMEN			

TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: 25

*** 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		
NAME AND ADDRESS: Test Boring Services Inc. (IF Required) 140 Mong Road Scenery Hill, PA 15360	SPECIALTY: Drilling, Geotechnical Exploration, and Monitoring	WORKED WITH BEFORE __X__ Yes _____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE _____ Yes _____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE _____ Yes _____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE _____ Yes _____ No
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NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE _____ Yes _____ No
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE _____ Yes _____ No
12. RELEVANT EXPERIENCE. Include number of projects per each discipline		

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

A. Are your firm's personnel 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 200 AML/AMD remediation projects ranging from subsidence control, mine sealing, reclamation of mine refuse piles, strip pit and highwall regrading; drainage improvements, revegetation, stream relocation, restoration of streams and wetlands, natural streambed design, landslide correction, and replacement of water supplies affected by abandoned mine lands to abatement of AMD problems. These services are accomplished by providing a "one-stop-shop" of professionals including engineers, geologists, surveyors, and environmental scientists to address essentially any issue that may be encountered on an AML project. These professionals combine diverse experience in:

- Mining
- Geotechnical
- Geology
- Hydraulics & Hydrology
- Groundwater
- Water Treatment
- Water Line Design & Supply
- Grading
- Earthwork Balance
- Stormwater Management
- E&S Control
- Sustainable Design
- Hazardous Waste Remediation
- Surveying
- Mapping
- Field Reconnaissance
- Project Management
- Quality Control

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 have also assisted PADEP with AML reclamation and AMD remediation designs. The "AML and related Project Experience Matrix" table provided at the end of this CCQQ shows our experience on AML related projects for different state agencies and for private clients.

NO

B. Are your firm's personnel experienced in soil analysis?

YES Description and Number of Projects:

Baker has conducted in-house soil analysis for over 60 years. We take pride in our work which starts with a geologic literature review to identify and review available references which characterize the site soils and other factors influencing the development and condition of the soils. The task is followed by a geotechnical reconnaissance which is essentially a site view by a Baker geologist or geotechnical engineer to characterize the site soil conditions. Lastly and as appropriate, a subsurface investigation is conducted to collect and identify site soils and assign appropriate engineering descriptions which are in turn utilized for soil analysis.

In designing AML reclamation projects, generally three types of soil analysis are needed. These analyses may include: a) geotechnical analysis/soil classification, 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) most recent AML projects, Baker was involved in soil analysis for 19 projects. Baker has also prepared reprocessing potential evaluations of coal refuse sites (10 projects) which required evaluation of mine refuse based on laboratory test results. Refuse testing for these projects included refuse float/sink and proximate analysis, with results evaluated by Baker to determine BTU content and reprocessing potential.

NO

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

C. Are your firm's personnel experienced in hydrology and hydraulics?

YES Description and Number of Projects:

Baker's hydrology and hydraulic staff for OSR/AML 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, HYDROFLOW, 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/remediation design. Of the thirty (30) most recent AML projects, twenty six (26) projects needed hydrology/hydraulics expertise of the AML/AMD design group and 100% of this work was conducted in-house.

NO

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, Baker was provided by WVDEP with contour maps developed from aerial photography of the project site. Baker's responsibility was to verify the topographic map by check field surveying.

Baker has a survey and photogrammetric department with a staff of 82. 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; however, Baker always brings the latest technology to the table. Fixed, mobile and aerial LiDAR equipment are "state-of-the-art" tools that Baker can offer to add efficiencies to the field mapping process and enhance quality. During the last five years, Baker has completed more than 50 mapping projects. Some examples are listed as follows:

Updating Boundary/Site Improvements and Utility Survey – 23 LPOEs, North and South US Borders, US-VISIT (Photogrammetric Mapping and Surveying Services)

Rio Grande Valley Border Fence Boundary Surveys, Cameron and Hidalgo Counties, TX, U.S. Army Corps of Engineers, Fort Worth District (Metes and Bounds Surveys and Legal Deed Descriptions)

Land Port of Entry (LPOE) Aerial Mapping Refresh, North and South US Borders , Department of Homeland Security, US-VISIT (Mapping)

Sewer Infrastructure Location/Verification, Allegheny County, PA, 3 Rivers Wet Weather, Inc., (GPS or Conventional Survey Data by Others)

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

Open-End Contract for Surveying and Photogrammetric Mapping Services, Statewide Pennsylvania, Pennsylvania Department of Transportation (Through a series of nine open-end contracts, Baker has been providing surveying and mapping services to PennDOT continuously since 1986. Our current contract E01292 runs through November 2012)

Indefinite Delivery Contract A/E for Multidiscipline & Related Services for Dept. of Homeland Security and other Civil/Military Projects, U.S. Army Corps of Engineers, Fort Worth District (Surveying and Mapping)

Border Fence Project – PF225, Various Locations in TX, AZ, NM CA, U.S. Army Corps of Engineers, Fort Worth District (Aerial Photography, Analytical Aerotriangulation, Stereo Mapping Compilation, Digital Orthophotography, Horizontal and Vertical Control Surveys, Geodetic Surveys)

Land Port of Entry (LPOE) Aerial Mapping Refresh, North and South US Borders, Department of Homeland Security, US-VISIT (Aerial Photography, Stereo Mapping Compilation/Topographic Mapping, Horizontal and Vertical Control Surveys, Geodetic Surveys)

Aerial Photography, Contour Mapping, and Field Surveys are at the core of Baker's business and expertise.

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:
Trimbath, William, D., P.E. Vice President	10	16	7

Brief Explanation of Responsibilities

William D. Trimbath, P.E. is Vice President and Office Principal of Baker's engineering offices in western Pennsylvania. These offices provide civil, mining, municipal, geotechnical, pipelines, mapping and telecommunications services to a variety of clients. More than 100 Baker professional and technical employees serve our clients out of offices in Pittsburgh, Moon Township (Allegheny County) and Brighton Township (Beaver County) under the leadership of Mr. Trimbath. Mr. Trimbath, who has been at Baker for over 20 years, will oversee general civil activities and management of projects and services provided by Baker teams in this location. He has over 34 years' experience in civil, environmental and geotechnical engineering. Most recently he worked for Baker Environmental and managed $100 million in Navy CLEAN activities including over 200 environmental investigation and remediation programs. He also has extensive experience in water and wastewater design and geotechnical construction.

Waitman Barbe Highwall #1. *West Virginia Division of Environmental Protection.* Project Director. Responsible for overall project management and quality control. The project consists of reclamation of approximately 4,600 linear feet of an abandoned strip mine highwall ranging in height from 30 to 45 feet. This includes areas of mine spoil, three areas of exposed coal refuse, an illegal dump site containing non-hazardous construction debris and a suspected 11 mine openings. Baker prepared construction plans, specifications and a stormwater pollution prevention plan services.

Collier Sportmans Club Highwalls, Brooke County, West Virginia. *West Virginia Division of Environmental Protection.* Project Director. Responsible for overall project management and quality control. Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

Simpson Creek Highwall, Tipple, & Portals, Barbour County, West Virginia. *West Virginia Division of Environmental Protection.* Project Director. Responsible for overall project management and quality control. Baker was responsible for drilling by sub-consultants, performed research of geological data and mining maps, review of water quality data, preparation of WV Stormwater, USACE, and WVDOH permits. Prepared construction plans and specifications for the project which included erosion and sedimentation control measures, site grading, mine seals, HDPE culverts, a WVDOH box culvert crossing SR 76, grouted rip rap collection channels, soil cover placement, and revegetation.

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

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

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

EDUCATION (Degree, Year, Specialization)
Doctoral Studies, Civil Engineering; M.S., 1978, Civil Engineering; B.S., 1974, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
American Society of Civil Engineers; American Society of Civil Engineers, Pittsburgh Geotechnical Group, Chairman, 1986-1987; Society of American Military Engineers, Environmental Action Committee, Secretary Engineering Society of Western Pennsylvania

REGISTRATION (Type, Year, State)
Professional Engineer, 1978, 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:
Christopher A. Ruppen, P.G. Mining Manager	10	27	2

Brief Explanation of Responsibilities

Mr. Ruppen is committed to client satisfaction and proactive coordination and communication with WVDEP. Based on the long running relationship between the Department and Baker, Mr. Ruppen conveys this approach through Baker's AML Team.

Waitman Barbe Highwall #1. *West Virginia Division of Environmental Protection.* Technical Manager. Participated in site field view, provided input into the subsurface investigation and interpretation and provided quality design reviews. The project consists of reclamation of approximately 4,600 linear feet of an abandoned strip mine highwall ranging in height from 30 to 45 feet. This includes areas of mine spoil, three areas of exposed coal refuse, an illegal dump site containing non-hazardous construction debris and a suspected 11 mine openings. Baker prepared construction plans, specifications and a stormwater pollution prevention plan services.

Collier Sportmans Club Highwalls, Brooke County, West Virginia. *West Virginia Division of Environmental Protection.* Technical Manager. Participated in site field view, provided input into the subsurface investigation and interpretation and provide quality design reviews. Assisted with coordination and resolution of the planned gas line crossing and construction through the site. Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

Simpson Creek Highwall, Tipple, & Portals, Barbour County, West Virginia. *West Virginia Division of Environmental Protection.* Department Manager. Responsible for quality of project managers work on the project. Baker was responsible for drilling by sub-consultants, performed research of geological data and mining maps, review of water quality data, preparation of WV Stormwater, USACE, and WVDOH permits. Prepared construction plans and specifications for the project which included erosion and sedimentation control measures, site grading, mine seals, HDPE culverts, a WVDOH box culvert crossing SR 76, grouted rip rap collection channels, soil cover placement, and revegetation.

Puddledock Sand and Gravel Pit. *Vulcan Materials Company.* Project Manager. Supervised the evaluation of the stability of a sand and gravel surface pit mine to support continued mining expansion of the facility.

Foundation Mine Design/Permitting Shaft & Slope Site, Surface Facilities and Batch Weigh System Site, and RR Spur and Siding. ***Alpha Natural Resources, Inc.*** **Project Manager. Responsibilities included overseeing grading design of access roads, site development, and permitting requirements. Baker was responsible for developing several conceptual layouts for shaft and slope sites and rail spur with rail car loadout arrangements and evaluating them in order to optimize and finalize the locations of various surface facilities relative to the shaft and slope including overland conveyors for raw and clean coal transport with transfer stations, raw and clean coal stockpiles and slot storage and reclamation tunnel for clean coal, coal preparation plant water storage tanks, access roads to surface facilities, and batch weigh loadout for rail cars. Baker was also responsible to design the rail spur, siding and track layout for rail car loading.**

Design and Permitting for Surface Facilities of New Freeport Underground Mine, Clarksville, Pennsylvania. *Alpha Natural Resources, Inc.* Project Manager. Aided in the engineering design of the project. Baker prepared, submitted, and obtained Surface Mining Control and Reclamation Act and National Pollutant Discharge Elimination System permits for the proposed surface facilities associated with the new Freeport Underground Mine. Baker was responsible for the design of the proposed surface facilities, including preparation of the earthwork and grading plan and the design of the foundations for all belt transfer structures, stockpiles, prep plant, clean coal silos, refuse conveyors, clean coal conveyors, and the harbor barge loading facility.

EDUCATION (Degree, Year, Specialization)
Master's Certificate, 2005, Project Management; B.S., 1984, Conservation of Natural Resources; B.S., 1984, Geology, Kent State University

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Society of Highway Engineers (ASHE); Highway Geology Symposium (HGS), National Steering Committee; Pittsburgh Geological Society (PGS), Board of Directors and Past President, Member Transportation Research Board (TRB), Materials, Engineering Geology and Subsurface Investigations	Professional Geologist, Pennsylvania, 1995

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:
Neider, William, D., P.E. Senior Civil Engineer	1	12	10

Brief Explanation of Responsibilities

Mr. Neider will oversee all aspects of the design, construction document preparation and permitting for site civil engineering. He has worked in various areas of the civil engineering practice with his primary area of experience being focused in land development, mining permitting and reclamation projects, local transportation projects, and municipal services. He has managed projects and designed the improvements and infrastructure for commercial development, military/U.S. Government, residential subdivisions, industrial parks and sites, educational facilities, and local streets. In addition to land development experience, he has designed and directed a number of mining facilities infrastructure permitting and reclamation projects including refuse impoundments, coarse refuse piles, erosion and sedimentation control plans, and site reclamation. He has experience in numerous transportation projects varying from interstate routes to local streets including the design of traffic circles and other traffic calming techniques. He also performed municipal engineering designs that included water distributions extensions, sewer modeling/design, drainage studies and flood abatement designs. In all areas of his experience, he has been involved in every aspect of the design and construction document preparation, as well as management of design teams and project management. Mr. Neider has also been involved in the oversight of the construction phase of projects. His experience has been with coordinating the review of project submittals, answering requests for information, and resolving construction related issues to ensure proper conformance to the design intent.

Waitman Barbe Highwall #1, Monongalia County, West Virginia. *West Virginia Division of Environmental Protection.* Project Manager. Responsibilities include project manager duties, a Quality Control review of the project, and design of channels and channel linings at the toe of the backfilled highwall. Also responsible for construction cost estimate, stormwater pollution prevention plan, and technical specifications. The project consists of reclamation of approximately 4,600 linear feet of an abandoned strip mine highwall ranging in height from 30 to 45 feet. This includes areas of mine spoil, three areas of exposed coal refuse, an illegal dump site containing non-hazardous construction debris and a suspected 11 mine openings. Baker prepared construction plans, specifications and a stormwater pollution prevention plan services.

Collier Sportmans Club Highwalls, Brooke County, West Virginia. *West Virginia Division of Environmental Protection.* Project Manager. Responsibilities include project manager duties, a Quality Control review of the project, and design of channels and channel linings at the toe of the backfilled highwall. Also responsible for construction cost estimate, stormwater pollution prevention plan, and technical specifications. Involved with proposed gas line crossing with resolution and coordination between the gas line company and the WVDEP. Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

Emerald No. 3 Revisions. *Emerald Coal Resources, LP.* Senior Engineer. Responsibilities included assisting project manager with addressing DEP and MSHA comments for the Emerald Area 3 project and resubmitting package. Participated in review of comments with client and DEP to ensure Baker take right direction in addressing comments and overseen implementation of changes per comments. Also did technical design of rock drain bypass system, recirculation pump system for internal drains and runoff that don't meet discharge limits and sedimentation pond erosion control sequencing plans.

Freeport Mine - PH I - Preparation of 6 Design Build RFP Packages and 1 Site Design -Bid Build Bid Package. *Freeport Mining.* Senior Engineer. Responsibilities included technical specifications, storm water and erosion control management review and a constructibility review of the project plan set. Assisted project manager in putting bid packages together.

EDUCATION (Degree, Year, Specialization)	
B.S.A.S., 2001, Civil Engineering Technology	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	**REGISTRATION (Type, Year, State)**
--	Professional Engineer, 2013, WV (Pending) Professional Engineer, 2007, 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:
Fogarty, Patrick, W., P.E., P.S. Senior Engineer	17	27	19

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 20 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:

WVDEP14387, Harrison County. *WVDEP - Office of AML&R.* Project Manager. Wet mine seals, the installation of bat gates, open limestone channel design, culvert and structure design, structure removal and reclamation grading at six (6) sites at the Crooked Run #5 Complex in Harrison County near Clarksburg.

WVDEP14176, Kanawha County. *WVDEP - Office of AML&R.* Project Manager. 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.

Morris Creek Watershed Association AMD Treatment, Montgomery. *Capitol Soil Conservation District.* Project Manager. 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.

Norton-Harding-Jimtown PSD Waterline Extensions, Randolph County. *West Virginia Department of Environmental Protection.* Project Manager and Lead Designer. 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.

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.

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.

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

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
American Society of Civil Engineers
International Right of Way Association
American Planning Association

REGISTRATION (Type, Year, State)
Professional Engineer: 1990, WV; 1996, OH; 2000, KY
Professional Surveyor, 1993, WV; 1996, OH; Professional Land Surveyor, 2001, KY
LEED Green Associate, 2012

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:
Zang, Scott D., P.E. Senior Engineer	16	16	0

Brief Explanation of Responsibilities

Mr. Zang is a geotechnical engineer experienced in site investigation and design. His professional experience encompasses reconnaissance, field testing, laboratory testing, project analysis and design, report preparation and construction inspection for roadways, railroads, earth dams, buildings, hazardous waste studies, industrial facilities, airports and coal mines. His design experience also includes abandoned mine land reclamation and innovative AMD abatement design.

Raw Water Pump Station & Transmission Main, Wellsville, Ohio. *Southern Columbiana County Regional Water District.* Assistant Technical Manager. Performed the geotechnical investigation and made design recommendations for construction of a 30 foot deep dry well receiving water from a new intake system placed in the Ohio River. The design included evaluation of buoyancy effects, temporary shoring for the dry well and the intake piping, and remediation of a soft clay layer that would be encountered at the base of the excavation for the dry well.

Coal Refuse Pile Remediation Design Analysis and Plans, West Virginia. *West Virginia Department of Environmental Protection.* Engineer. Performed design analysis and prepared construction plans, specifications and cost estimates for remediation of several abandoned coal refuse piles. Projects included regraded slope stability analysis, retention structure design, subsurface water control and facilities design for surface water control of burning and non-burning refuse piles.

Coal Mine Subsidence Remediation Construction Plans, West Virginia. *West Virginia Department of Environmental Protection.* Engineer. Prepared construction plans, specifications and cost estimates for remediation of areas affected by subsidence of abandoned underground coal mines.

Private Residence Subsidence Evaluations, Western Pennsylvania. U.S. *Department of the Interior, Office of Surface Mining.* Assistant Engineer. Performed subsurface investigations to evaluate subsidence and subsidence-related incidents at several private residences. Project included surface distress cause determination and recommendation of remedial measures.

Manor Mine and Preparation Plant, Greene County, Pennsylvania. *Consolidation Coal Company.* Assistant Engineer. Conducted field testing program for foundations of several support buildings, a preparation plant, and coal storage silos.

Landini Mine Fire Remediation, Elizabeth, Pennsylvania. *U.S. Department of the Interior, Office of Surface Mining.* Assistant Engineer. Performed subsurface investigations and designed remedial measures to control a fire in an abandoned underground coal mine.

Acid Mine Drainage Abatement Project, Barton, Ohio. *Ohio Department of Natural Resources.* Engineer. Conducted water sampling program and field investigation during development of acid mine drainage abatement procedures at an abandoned underground coal mine and coal refuse area. Handled administration and office engineering during implementation of remedial measures.

Groundwater Monitoring Well Construction and Sampling, Pennsylvania and West Virginia. *Various Clients.* Assistant Engineer. Assisted with sampling and constructing groundwater monitoring wells at various locations.

EDUCATION (Degree, Year, Specialization)	
BS, 1980, Geological Engineering	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	**REGISTRATION (Type, Year, State)**
American Society of Civil Engineers	Professional Engineer, 1985, 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:
Martin, Mark R., PG Geologist	12	10	0

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.

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.

Mine Drainage Subsurface Investigation, Clarksburg and Fairmont, West Virginia. *West Virginia Department of Energy.* 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.

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:
Callahan, John A., P.G. Senior Geologist	8	8	5

Brief Explanation of Responsibilities

Mr. Callahan is experienced in conducting geologic and geological engineering preliminary office studies, field reconnaissance, site investigations, and attendant engineering analysis for a wide variety of projects related to resource assessment, industrial waste disposal, environmental compliance, land development, slope stability, utility routing, and foundation design. He has considerable experience in many aspects of residual waste (fly ash) disposal, including performing site screening, site selection, site investigation, and geologic and geological engineering analysis; assisting in pile design, investigation, and evaluation of environmental regulatory compliance requirements; and preparing exhaustive regulatory documentation. In addition, he has expertise in the quality control/quality assurance of geosynthetic installation. Mr. Callahan is also knowledgeable in earthen borrow resource assessment, materials classification, and volume calculations for geologic materials borrow facilities. He is also experienced in slope stability analysis, rockfall analysis, and pavement design.

Barberton & Mount Eaton Subsidence Risk Evaluation, Barberton and, Mount Eaton, Ohio. *Ohio Department of Natural resources.* Geologist. Supervised and inspected field investigation, conducted field reconnaissance, gathered extensive information through interview of local residents, developed methodology for rating subsidence risk by numerical evaluation of factors by integrating new and previous borehole and geophysical data, prepared the final report of investigations. A residential area within the City of Barberton, Summit County, Ohio is known to be undermined by unmapped workings in the Sharon #1 Coal Seam. Baker Geotechnical was engaged to conduct a literature review, compile, and analyze past subsurface investigations, develop and inspect a drilling program intended to confirm suspected workings and inspect borehole camera investigation in the mine openings encountered in drilling to determine mine condition and direction, if possible. Following analysis of these various data, a consistent and justifiable subsidence risk evaluation procedure was developed to render an objective evaluation of the relative subsidence risk for the areas of concern.

Cumberland Mine Shaft and Portal Facility Services, No. 6 Shaft, Waynesburg, Pennsylvania. *Pennsylvania Services Corporation.* Geologist. Performed preliminary geologic hazard assessment and subsurface investigation at the Cyprus-Cumberland coal mine access road. Baker provided site design, permitting, and construction phase services for development of the Cumberland Mine No. 6 Shaft and Portal facility in Waynesburg, Pennsylvania. Baker developed the site grading plan, designed drainage structures and erosion/sedimentation controls and developed the ultimate site reclamation plan. Site work for this project included: a 1.6 mile access road over hilly terrain; a 1,000-foot-long stream enclosure; a shaft and portal area; a sedimentation pond and other erosion and sedimentation control structures; and a replacement wetland. The following permits were applied for and obtained: PADEP Coal Mining Activity Permit Revision, USACE 404 Permit, PADOT Highway Occupancy Permit, Sewage Treatment plant Permit, and County Land Development Permit for bathhouse construction.

Armstrong New Site Phase II, (near) Reesedale, Pennsylvania. *Allegheny Power System.* Geologist. Performed STABL5 slope stability analysis on several proposed fly ash pile and earthen embankment configurations. Extensively revised the previously authored Pennsylvania Department of Environmental Protection Forms 6R: Geologic Information and 10R: Minerals Information to comply with new regulations. Prepared quality control and quality assurance documents and technical specifications for the proposed Pennsylvania Department of Environmental Protection Class I HDPE liners. Performed veneer stability calculations for the proposed Pennsylvania Department of Environmental Protection Class I HDPE liners. Baker was tasked to investigate potential sites for a new landfill facility near Allegheny Power System: Armstrong Power Station. Site selection studies were undertaken and completed, and then detailed subsurface investigations were conducted to determine foundation conditions and status/extent of undermining. After initial site characterization was complete, full engineering design and permit application was undertaken for a permitted landfill facility under current PADER regulations.

Currie Landfill and Kelly Farm Sludge Lagoon Remediation Design, Millcreek and Fairview Townships, Pennsylvania. *Pennsylvania Department of Environmental Protection.* Geologist. Performed veneer stability calculations, detailed multi-scenario transmissivity analysis of geosynthetic cap, piping design, granular filter design, and preparation of details for the client's permit submission for the Kelly Farm Landfill Cover. Baker is performing a wetland investigation and delineation at the Currie Landfill site, and is developing construction drawings, technical specifications, and permit documents to construct interim remediation measures for the Currie Landfill site and the Kelly Farm sludge lagoon. Baker's services include project management; subconsultant procurement; wetland site survey, delineation, and jurisdictional determination; development of plans, specifications, and cost estimates; and preparation of permit documentation.

EDUCATION (Degree, Year, Specialization)
B.S., 1980, Geological Engineering,

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
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REGISTRATION (Type, Year, State)
Professional Geologist, Pennsylvania, 1995; Missouri, 1996; Mississippi, 1999
Certified CQA Geosynthetic Materials Inspector, 2008

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:
Barefield, Edward, P.G. Geologist	1	8	0

Brief Explanation of Responsibilities

Mr. Barefield is an engineering geologist within the geotechnical civil engineering unit at Baker. His geotechnical experience includes drilling inspection and subcontract administration/coordination, laboratory testing interpretations and subcontract administration/coordination, subsurface geology geotechnical interpretation, detailed soil and rock slope stability analyses, structure foundation bearing capacity and settlement calculations, mine subsidence evaluations, aerial and satellite photograph interpretation, field geology reconnaissance and sampling, geotechnical literature review, drilling and laboratory testing program preparation and execution, and geotechnical report preparation and reviews.

WVDEP - Simpson Creek Highwall, Tipple, & Portals, Barbour County, West Virginia. *West Virginia Department of Environmental Protection.* Geologist. Responsible for test boring and open standpipe piezometer installation inspection with office follow up to provide boring logs for use in design of Acid Mine Drainage remediation.

Wymer Portals and Davidson Highwall Abandoned Mine Complex Reclamation Design, Monongalia County, West Virginia. *West Virginia Department of Environmental Protection.* Geologic Associate. Responsible for on-site geotechnical test boring inspection and oversight. Baker performed site mapping and exploratory drilling and prepared plans and specifications for the reclamation of two large abandoned mine complexes. The proposed remediation designs included the elimination of impounded mine water; installation of wet mine seals; elimination of highwalls through earthwork and site grading, using available on-site refuse and spoil materials; and final site revegetation. The project plans included the addition of numerous required surface water and mine drainage structures, such as ditches, pipes, and underdrains. Bat gates were provided for several mine openings.

Site Design and Permitting for Cumberland Mine Air Shaft Number10, Greene County, Pennsylvania. *Alpha Natural Resources, Inc.* Geologist. Responsible for geotechnical drilling and sampling inspection and laboratory testing sample selection and testing schedule preparation. Responsible for test boring log preparation and geotechnical site reconnaissance and field mapping and field reconnaissance map preparation. Also responsible for interpretation of site geology and preparation of geologic sections for geotechnical design. Baker developed site design and construction documents and cost estimates and provided permitting services for the Number 10 air intake shaft and associated site infrastructure, including a one-mile-long access road, at the Cumberland Mine.

Mine Permit Application Assistance, Confidential Location, West Virginia. *Confidential Client.* Geologic Associate. Responsible for providing field water sampling services which included determining stream discharges in the field, water sample collection, and field chemistry measurements using field measuring apparatus. Performed field study to inventory property parcels and water resources for area to be longwall undermined.

EDUCATION (Degree, Year, Specialization)
M.S., 2004, Engineering Geology, Kent State University
B.S., 2002, Geology, Youngstown State University

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
Association of Environmental & Engineering Geologists (AEG), Allegheny-Ohio Section, ID# 7038	Professional Geologist, 2010, Pennsylvania PENNDOT Drilling Inspector, Level I, Pennsylvania, 2006

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:
LaMont, Michael, J. Technical Specialist	15	15	20

Brief Explanation of Responsibilities

Mr. LaMont is a designer with a background in pipelines, telecommunications, reclamation of abandoned mine lands including acid mine drainage abatement, earthwork, grading plans, stream channel restoration, sealing of mine portals and reclamation of coal refuse piles. While at Baker he has worked on many abandoned mine land reclamation and mine shaft site design and permitting projects. His site / civil qualifications also consist of parking lot layout and design, roadway geometry, right-of-way acquisition, drainage, storm sewer and sanitary sewer design. Additional telecommunications experience include fiber optic cable construction and installation drawings along highways, railroads and cross country routes, as well as stream and road crossing drawings and cross sections, and state, local and environmental permit drawings.

Waitman Barbe Highwall #1, Monongalia County, West Virginia. *West Virginia Division of Environmental Protection.* Technical Specialist. Prepared construction plans, details, and cross-section sheets and earthwork balancing for the project, and highwall backfilling grading. Provided erosion and sedimentation control measures, site regrading, mine seals, and collection and diversion ditch alignments and profiles. Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal, culverts and channel, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

Collier Sportmans Club Highwalls, Brooke County, West Virginia. *West Virginia Division of Environmental Protection.* Technical Specialist. Prepared construction plans, details, and cross-section sheets and earthwork balancing for the project, and highwall backfilling grading. Provided erosion and sedimentation control measures, site regrading, mine seals, and collection and diversion ditch alignments and profiles. Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

Maple Run Portals and Tipple, West Virginia. *West Virginia Division of Environmental Protection.* Prepared construction plan, profile, detail, and cross section sheets and earthwork balancing 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 Division of Environmental Protection.* Prepared construction plan, profile, detail, and cross section sheets and earthwork balancing 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 Division of Environmental Protection.* Prepared construction plan, profile, detail, and cross section sheets and earthwork balancing 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.* Prepared construction plan, profile, detail, and cross section sheets and earthwork balancing for the project which included erosion and sedimentation control measures, site regrading, mine seals, collection and diversion ditches, placement of soil cover, and revegetation.

EDUCATION (Degree, Year, Specialization)	
Certificate, 1986, Computer Aided Drafting and Design	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	**REGISTRATION (Type, Year, State)**
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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:
Grimm, John R. (JR) Senior Designer	1	25	0

Brief Explanation of Responsibilities

Waitman Barbe Highwall #1, Monongalia County, West Virginia. *West Virginia Division of Environmental Protection.* CADD Designer. Responsible for the preparation of construction drawings including the design of the proposed grading required to reclaim the existing high wall and balance the earthwork on site. Design responsibilities also included the layout of several mine seals including bat gates where required. The project consists of reclamation of approximately 4,600 linear feet of an abandoned strip mine highwall ranging in height from 30 to 45 feet. This includes areas of mine spoil, three areas of exposed coal refuse, an illegal dump site containing non-hazardous construction debris and a suspected 11 mine openings. Baker prepared construction plans, specifications and a stormwater pollution prevention plan services.

Collier Sportmans Club Highwalls, Brooke County, West Virginia. *West Virginia Division of Environmental Protection.* CADD Designer. Responsible for the preparation of construction drawings including the design of the proposed grading required to reclaim the existing high wall and balance the earthwork on site. Design responsibilities also included the layout of several mine seals including bat gates where required. Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

Simpson Creek Highwall, Tipple, & Portals, Barbour County, West Virginia. *West Virginia Division of Environmental Protection.* CADD Designer. Responsible for the preparation of construction drawings including the design of the proposed grading required to reclaim the existing high wall, balance the earthwork on site, and provide adequate drainage from the site. Baker was responsible for drilling by sub-consultants, performed research of geological data and mining maps, review of water quality data, preparation of WV Stormwater, USACE, and WVDOH permits. Prepared construction plans and specifications for the project which included erosion and sedimentation control measures, site grading, mine seals, HDPE culverts, a WVDOH box culvert crossing SR 76, grouted rip rap collection channels, soil cover placement, and revegetation.

Site Design and Permitting for Cumberland Mine Air Shaft Number 10, Greene County, Pennsylvania. *Alpha Natural Resources, Inc.* CADD Designer. Aided in the engineering design of the project, including site grading and layout. Baker developed site design and construction documents and cost estimates and provided permitting services for the Number 10 air intake shaft and associated site infrastructure, including a one-mile-long access road, at the Cumberland Mine.

2007-2008 Foundation Mine Design/Permitting Shaft & Slope Site, Surface Facilities and Batch Weigh System Site, and RR Spur and Siding. *Alpha Natural Resources, Inc.* Designer. Responsibilities included grading design of access roads, site development, and permitting requirements. Baker was responsible for developing several conceptual layouts for shaft and slope sites and rail spur with rail car loadout arrangements and evaluating them in order to optimize and finalize the locations of various surface facilities relative to the shaft and slope including overland conveyors for raw and clean coal transport with transfer stations, raw and clean coal stockpiles and slot storage and reclamation tunnel for clean coal, coal preparation plant water storage tanks, access roads to surface facilities, and batch weigh loadout for rail cars. Baker was also responsible to design the rail spur, siding and track layout for rail car loading.

Design and Permitting for Surface Facilities of New Freeport Underground Mine, Clarksville, Pennsylvania. *Alpha Natural Resources, Inc..* CADD Designer. Aided in the engineering design of the project. Baker prepared, submitted, and obtained Surface Mining Control and Reclamation Act and National Pollutant Discharge Elimination System permits for the proposed surface facilities associated with the new Freeport Underground Mine. Baker was responsible for the design of the proposed surface facilities, including preparation of the earthwork and grading plan and the design of the foundations for all belt transfer structures, stockpiles, prep plant, clean coal silos, refuse conveyors, clean coal conveyors, and the harbor barge loading facility.

Mine Permitting Services, Confidential Location, Pennsylvania. *Confidential Client.* CADD Designer. Aided in the engineering design of the project. Baker provided permitting services for the design of a 24,000 gallon-per-day sewage treatment plant (STP) and facility at a mine and supply yard in Pennsylvania. Tasks included revising the existing application for the Pennsylvania Department of Environmental Protection (PADEP) Coal Mining Activity Permit (CMAP) and preparing applications for an NDPES Part I Permit and Part II Permit.

Mine Water Supply Dam Engineering and Permitting Services, Pennsylvania. *Confidential Client.* CADD Designer. Aided in the engineering design of the project. Baker provided all of the engineering and permitting services to construct a 55-meter-tall earthen embankment dam for creation of a 2 million-cubic-meter freshwater reservoir that will be used to supply water for a new mine facility. Tasks included site selection; field investigation; geotechnical, hydraulic, and structural design; cost estimation; construction scheduling; contract document development; permitting; and construction oversight.

EDUCATION (Degree, Year, Specialization)	
A.S., 1984, Mechanical Engineering Technology	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	**REGISTRATION (Type, Year, State)**
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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:
Smithson, Jason T., P.S. Project Manager/Senior Eng. Technician	11	8	2

Brief Explanation of Responsibilities

Since joining the company in 2006, Mr. Smithson has been assigned to the Civil Services Department and is currently a Project Manager. During his career, Mr. Smithson has performed geotechnical analysis, civil design, and environmental assignments and functioned as a survey party chief.

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.

WVDEP14387, Crooked Run #5, Harrison County. As a Senior Engineering Technician, performed research of geological data and mine maps, collected and reviewed water quality data, coordinated drilling activities, and assisted in the design of open limestone channels. Assisted in the development of construction plans and specifications for the project. The Crooked Run #5 project is comprised of six (6) work sites. These sites included numerous abandoned (draining) mine portals, refuse areas, a bench pond, trash dump areas and miscellaneous mine debris and subsidence areas.

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.

West Virginia Department of Environmental Protection, Photogrammetric Control Surveys, Various Locations, West Virginia. Work performed by Mr. Smithson on these projects included establishing horizontal and vertical control surveys for aerial photogrammetry mapping, baseline layout, and referencing control points. This work was performed utilizing GPS and conventional survey methods.

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.

CSX Hotels, Inc., d.b.a. The Greenbrier, White Sulphur Springs, West Virginia. As an 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 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.

USACE West Virginia Ordnance Works, Point Pleasant, WV. Performed as the technical manager for the former West Virginia Ordnance Works (WVOW) NPL Site located in Point Pleasant, WV consisting of over 8,000 acres. This site has two groundwater pump and treat systems that require weekly maintenance along with over 200 monitoring and extraction wells. Associated responsibilities included; preparing scopes of work and budgets, selecting consultants/contractors, overseeing consultant/contractor work, meeting with Region 3 EPA, WVDEP, and WVDNR and distributing work to others within the district when necessary.

EDUCATION (Degree, Year, Specialization)	
B.S., 1999, Geology	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State) Licensed Professional Surveyor, 2007, 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:
Ciucci, Ronald J., P.E. Senior Engineer	0	9	20

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.

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.

ALCOSAN Service Area Wide Flow Monitoring Program. *Allegheny County Sanitary Authority.* Task Manager. 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. 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.

EDUCATION (Degree, Year, Specialization)
B.S., 1992, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
American Society of Civil Engineers
Society of American Military Engineers

REGISTRATION (Type, Year, State)
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	6	7	37

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 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.

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 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.

EDUCATION (Degree, Year, Specialization)
M.S., Civil and Sanitary Engineering, 1973; B.S., Civil Engineering, 1971

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
American Society of Civil Engineers American Water Works Association
Chi Epsilon Civil Engineering Honorary Fraternity
Pennsylvania Water Environment Association
Water Environment Federation

REGISTRATION (Type, Year, State)
Professional Engineer, WV, 1976
Professional Engineer, PA, 1976
Professional Land Surveyor, PA, 1981

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

NAME & TITLE (Last, First, Middle Int.)	YEARS OF EXPERIENCE		
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Roman, Bradley, P.E. Civil Associate	1	5	<1

Brief Explanation of Responsibilities

Mr. Roman's professional experience includes work on the construction site of a data center, during which he performed many tasks including logging in data into Prolog and keeping track of work to be finalized to complete the overall construction of the center. He was also responsible for organizing subcontractors. Additionally, Mr. Roman has experience reviewing floodplains, which includes reviewing hydraulic models, hydrologic output files, Flood Insurance Rate Maps, and construction detail maps. He has also been involved with the creation and organization of mining permits. He has supported the erosion and sedimentation control, such as designing collection channels, sedimentation ponds, sediment traps, etc. He has also created the necessary Modules necessary for mining permits. He has coordinated with the necessary correspondence, such as utility companies,

Waitman Barbe Highwall #1, Monongalia County, West Virginia. *West Virginia Division of Environmental Protection.* Civil Associate. Assisted in the development of erosion and sediment controls. I also performed surface water sampling. The project consists of reclamation of approximately 4,600 linear feet of an abandoned strip mine highwall ranging in height from 30 to 45 feet. This includes areas of mine spoil, three areas of exposed coal refuse, an illegal dump site containing non-hazardous construction debris and a suspected 11 mine openings. Baker prepared construction plans, specifications and a stormwater pollution prevention plan services.

Collier Sportmans Club Highwalls, Brooke County, West Virginia. *West Virginia Division of Environmental Protection.* Civil Associate. Assisted in the development of erosion and sediment controls. Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

9 County Roads Feasibility Study, Preston County, West Virginia. *West Virginia Department of Environmental Protection.* Civil Associate. Provided assistance for various mapping and AutoCAD tasks. Baker was selected to provide the engineering services necessary to develop a water supply study for the specified area. The object of the study was to investigate the area's current water supply, make a determination as to how it has been affected by past mining, and recommend alternatives for water supply replacement. Baker compiled information and documentation to support an AML & R grant request to OSM for funding to extend and/or install water systems in impacted areas. The work was performed in 2 phases. The purpose of Phase 1 was to determine the potential impact of past mining activities on water supplies within the study area. When a potential impact was established, Phase 2 began, which involved a detailed investigation of mining history, geology, hydrogeology, and water supply sources.

2007-2008 Foundation Mine Design/Permitting Shaft & Slope Site, Surface Facilities and Batch Weigh System Site, and RR Spur and Siding. *Alpha Natural Resources, Inc.* Civil Associate. Provided necessary analysis for Erosion and Sediment Control, channels, ponds, etc. Also assisted in coordinating with correspondence such as utility companies, PMHC, and necessary agencies involved with PNDIs. Organized the creation of the necessary Modules for the permit application. Provided assistance in responding to DEP's comments regarding the permit application. Baker was responsible for developing several conceptual layouts for shaft and slope sites and rail spur with rail car loadout arrangements and evaluating them in order to optimize and finalize the locations of various surface facilities relative to the shaft and slope including overland conveyors for raw and clean coal transport with transfer stations, raw and clean coal stockpiles and slot storage and reclamation tunnel for clean coal, coal preparation plant water storage tanks, access roads to surface facilities, and batch weigh loadout for rail cars. Baker was also responsible to design the rail spur, siding and track layout for rail car loading.

Design and Permitting for Surface Facilities of New Freeport Underground Mine, Clarksville, Pennsylvania. *Alpha Natural Resources, Inc.* Civil Associate. Provided assistance for the Erosion and Sediment Control analysis. Coordinated the response to DEP's comments regarding the E&S Controls. Designed E&S Controls, such as channels, traps, and ponds. I also revised the permit application modules regarding DEP's comments. Baker prepared, submitted, and obtained Surface Mining Control and Reclamation Act and National Pollutant Discharge Elimination System permits for the proposed surface facilities associated with the new Freeport Underground Mine.

EDUCATION (Degree, Year, Specialization)	
B.S., 2007, Civil Engineering, Geneva College	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
--	Professional Engineer, 2012, 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:
Kay, George, P.E. Sr. Consultant - Water Quality Engineering	15	30+	0

Brief Explanation of Responsibilities

Mr. Kay solves problems related to water quality, water and wastewater treatment, and aquatic ecosystem restoration. He has completed projects for the U.S. Coast Guard, Army, National Guard Bureau, Navy, National Park Service, and Department of Energy; twelve State government agencies; sanitary and hydropower authorities; and major representatives of the ferrous and non-ferrous metals, mining, power, petroleum, coal bed methane and shale gas, chemical, rail, air freight, insurance, site remediation, telecommunications, manufactured products, entertainment and construction industries. Areas of practice include Clean Water Act and Safe Drinking Water Act compliance assistance, design and operational troubleshooting of treatment plants, root cause analysis of myriad problems with finished waters (e.g., permit excursions, aquatic toxicity, product defects, treatment costs, corrosion, etc.), aquatic impact assessment, source water evaluations, training of engineers and treatment plant operators, and lake/lagoon management. He has served as Project Manager for systems treating sewage, various industrial wastewaters, acid mine drainage, contaminated groundwater, and potable water, built across ten States and at eight locations overseas, and has served on due diligence teams for numerous corporate acquisitions and divestitures, spill investigations, and routine EHS audits. Compliance assistance, troubleshooting assignments, and watershed investigations completed across 42 States and at locations overseas. Prior to joining Baker, Mr. Kay was Senior Staff Engineer (Water and Wastewater) for a *Fortune 500* steel producer.

Experience

Currie Landfill and Kelly Farm Sludge Lagoon Remediation Design, Millcreek and Fairview Townships, Pennsylvania. *Pennsylvania Department of Environmental Protection.* Environmental Engineer. Responsible for sludge stabilization study and specifications for pore water treatment. Baker is performing a wetland investigation and delineation at the Currie Landfill site, and is developing construction drawings, technical specifications, and permit documents to construct interim remediation measures for the Currie Landfill site and the Kelly Farm sludge lagoon. Baker's services include project management; subconsultant procurement; wetland site survey, delineation, and jurisdictional determination; development of plans, specifications, and cost estimates; and preparation of permit documentation.

Design & Permit Freeport Potable Water & Sewer System. *Emerald Coal Resources, LP.* Environmental Engineer. Responsible for design of water intake and treatment plant for coal preparation plant, submerged Johnson screens, coagulation, DynaSand filters, and chlorination.

GTAC 3 & 4 - Bear Creek Chemical Site, (OVER 20 sites), Butler and Armstrong Counties, Pennsylvania. *Pennsylvania Department of Environmental Protection.* Environmental Manager. Responsible for directing sampling and whole effluent toxicity testing of seep from former organic chemical disposal site. Conducted library research on the toxicity of resorcinol and various sulfonic acids on aquatic life and prepared summary report. Directed bench scale treatability testing to stabilize a tarry chemical sludge; prepared report with results and cost estimates for remedial alternatives. Baker provided diverse environmental, engineering, and general technical assistance to the client for this project, involving up to 20 known or suspected related industrial waste disposal sites in two Pennsylvania counties. A variety of hazardous substances were present at the disposal sites and groundwater had been impacted over a large area affecting the water supply for hundreds of residents.

Design and Permitting for Surface Facilities of New Freeport Underground Mine, Clarksville, Pennsylvania. *Alpha Natural Resources, Inc..* Environmental Engineer. Responsible for preliminary design of river water intake and treatment plant. Baker prepared, submitted, and obtained Surface Mining Control and Reclamation Act and National Pollutant Discharge Elimination System permits for the proposed surface facilities associated with the new Freeport Underground Mine. Baker was responsible for the design of the proposed surface facilities, including preparation of the earthwork and grading plan and the design of the foundations for all belt transfer structures, stockpiles, prep plant, clean coal silos, refuse conveyors, clean coal conveyors, and the harbor barge loading facility.

Lancashire Number 15 Acid Mine Drainage Treatment Facility Design, Barr Township, Pennsylvania. *Pennsylvania Department of Environmental Protection.* Project Manager. Responsible for directing team of chemical, environmental, structural, civil, mechanical, and electrical engineers charged with developing plans, technical specifications, and permit applications for a 11 MGD acid mine drainage treatment plant. Responded to RFIs and review submittals by Construction contractor for new AMD Treatment Plant. Baker designed an 11-million-gallon-per-day acid mine drainage treatment plant consisting of extraction wells; a pre-aeration tank; a neutralization tank; a treatment building with laboratory, office, and controls; a sludge conditioning tank; lime and polymer storage and handling systems; a terminal pond; and a sludge injection system. Baker also prepared plans, specifications, and a construction cost estimate and provided bid and construction phase services.

EDUCATION (Degree, Year, Specialization)
M.S., 1982, Civil Engineering; M.S., 1976, Environmental Health; B.S., 1975, Biological Sciences

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
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REGISTRATION (Type, Year, State)
Professional Engineer, 1986, Pennsylvania; Professional Engineer, 1996, Ohio

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. Senior Surveyor	11	20	6

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. He currently oversees all field surveying activities for the Charleston office.

WVDEP14387, Harrison County. *WVDEP - Office of AML&R.* Wet mine seals, the installation of bat gates, open limestone channel design, culvert and structure design, structure removal and reclamation grading at six (6) sites at the Crooked Run #5 Complex in Harrison County near Clarksburg.

WVDEP14176, Kanawha County. *WVDEP - Office of AML&R.* 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.

EDUCATION (Degree, Year, Specialization)	
A.S., 1989, Computer Aided Drafting	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State) 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:
Saylor, Michael J., E.I.T. Civil Associate	<1	<1	<1

Brief Explanation of Responsibilities

Waitman Barbe Highwall #1, Monongalia County, West Virginia. *West Virginia Division of Environmental Protection.* Civil Associate. Responsibilities included developing the conceptual design, erosion and sediment control plans, and water conveyance structures. The project consists of reclamation of approximately 4,600 linear feet of an abandoned strip mine highwall ranging in height from 30 to 45 feet. This includes areas of mine spoil, three areas of exposed coal refuse, an illegal dump site containing non-hazardous construction debris and a suspected 11 mine openings. Baker prepared construction plans, specifications and a stormwater pollution prevention plan services.

Collier Sportmans Club Highwalls, Brooke County, West Virginia. *West Virginia Division of Environmental Protection.* Civil Associate. Responsibilities included developing the erosion and sediment control plans, helping prepare the specifications and plans of the report, and inspecting the drilling occurring on site. Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.

EDUCATION (Degree, Year, Specialization)	
B.S., 2012, Civil Engineering	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	**REGISTRATION (Type, Year, State)**
American Society of Civil Engineers (ASCE)	Engineer-In-Training, Ohio, 2012

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:
Sarver, Jr., Carl E. Project Manager	<1	20	<1

Brief Explanation of Responsibilities

Mr. Sarver's expertise in mining, geology and chemistry enables him to manage and perform diverse mining as well as environmental related projects. He has personally performed or managed various aspects of mining projects, including designing and/or permitting for underground deep mine expansions and surface support facilities, such as air shafts and portals. Mr. Sarver serves as one of Baker's key personnel in the permitting of underground coal mining and surface operations. In addition to mining related projects, Mr. Sarver has extensive experience in managing and/or performing remediation/construction activities, environmental site investigations/assessments and RCRA facility investigations. His responsibilities have included project and task management, negotiation with local, state, and federal agencies; preparation of plans, work and technical specifications, and investigation work plans; construction management and oversight of subcontractor activities; and preparation of final reports and as built drawings.

MIDC Investigation and Design, Allegheny County, Pennsylvania. *U. S. Steel.* Task and Project Manager. The MIDC project is a high profile coal tar and waste solidification project directed by U.S Steel (primary PRP) under Consent Order administered by Pennsylvania Department of Environmental Protection (PADEP). Selected remedies included capping of a non-hazardous landfill, consolidating the associated waste, and subsequent capping of a hazardous waste surface impoundment located on an unreclaimed strip mine operation. Responsibilities evolved from a task manager conducting/overseeing soil sampling, analytical and geological data review, and report preparation to the ongoing project manager of this complex multi-phased closure project (total contract value well in excess of $1,000,000). Mr. Sarver is responsible for providing project budge/schedule and the oversight/direction of a variety of technical staff/disciplines and specialty subcontractors. Work has included development of a suitable coal tar solidification process, geotechnical (including static load tests) and wetland evaluations, lightweight and conventional landfill cap design (and permitting), and preparation of bid documents and engineers cost estimates. Agency interface and negations included Allegheny County Health Department (ACHD), Allegheny County Conservation District (ACCD), and PADEP.

Longwall Mine Expansions, Northern West Virginia. *CONSOL Energy.* Project and Task Manager. Responsibilities included layout, preparation of permit revisions for underground mine expansion, project budget/schedule, field team oversight, client and WVDEP agency interface. Since 2005, Mr. Sarver has prepared expansion applications and secured permits for expansions at three different CONSOL mine locations (Bailey, Robinson Run, and the Loveridge Mines). These permits encompass more than 30,000 additional underground acres. Work for these projects involved aiding the client with mine expansion layout, mapping preparation, evaluating subsurface conditions (including hydrologic evaluation, subsidence predictions, rock chemistry, etc.) collecting and compiling environmental data, permit application preparation, and coordinating with the West Virginia Department of Environmental Protection (WVDEP).

A major portion of the work involved inventorying structures and private water supplies overlying the proposed permit area, as well as monitoring surface water. During the oversight of these activities, Mr. Sarver has developed various QA/QC procedures and streamlined data collection. Several of the proposed permit areas included surface water impoundments; in these cases, additional evaluation was required to obtain Mine Safety and Health Administration (MSHA) approval for undermining the impoundments.

Surface Support Facilities, West Virginia. *Various Clients.* Project and Task Manager. Projects include surface facilities such as airshafts, portals, and borehole installations. Responsible for design oversight, permit preparation, project budget/schedule, and client/WVDEP interface. Baker's role included assisting the client in facility layout/site design, development of grading plans, designing erosion and sedimentation controls, and securing necessary permits (prospecting, IBRs, revisions, etc.).Facilities ranged from simple material handling borehole sites (less than 5 acres) to large complex sites over 40 acres in size. Supporting project work has included wetland and stream delineations, preparing WVDOH HOP permits, and NPDES permitting.

Bailey CRDA No. 5 Permitting. *CONSOL Energy.* Environmental Specialist. Responsibilities included agency interaction and preparation of PENNDOT Highway Occupancy Permits for minimum use driveways and culvert crossings under a state highway. Baker provided permitting services for the design of a coal refuse disposal pit at the Consol Pennsylvania Coal Company's Bailey Central Mine Complex. Project tasks consisted of revising the company's Pennsylvania Department of Environmental Protection (PADEP) Coal Mining Activity Permit (CMAP) and preparing Dam Permit applications.

EDUCATION (Degree, Year, Specialization)	
B.S., 1991, Geology/Chemistry	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	**REGISTRATION (Type, Year, State)**
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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:
Chlebus, Brian, P.E. Civil Engineer	1	9	1

Brief Explanation of Responsibilities

Mr. Chlebus is a Civil Engineer at Baker has over eight years of civil engineering experience. His experience primarily relates to development of oil and gas resources and civil site development with specialized expertise in stormwater management and erosion and sediment pollution control planning. Mr. Chlebus has also had exposure to a variety of other project types including those related to surface mining, government facilities, and linear utilities.

Waitman Barbe Highwall #1, Monongalia County, West Virginia. *West Virginia Division of Environmental Protection.* Civil Engineer. Provided engineering support for design of conveyance channels. The project consists of reclamation of approximately 4,600 linear feet of an abandoned strip mine highwall ranging in height from 30 to 45 feet. This includes areas of mine spoil, three areas of exposed coal refuse, an illegal dump site containing non-hazardous construction debris and a suspected 11 mine openings. Baker prepared construction plans, specifications and a stormwater pollution prevention plan services.

2007-2008 Foundation Mine Design/Permitting Shaft & Slope Site, Surface Facilities and Batch Weigh System Site, and RR Spur and Siding. *Alpha Natural Resources, Inc.* Civil Engineer. Responsible for stormwater management and drainage design. Baker was responsible for developing several conceptual layouts for shaft and slope sites and rail spur with rail car loadout arrangements and evaluating them in order to optimize and finalize the locations of various surface facilities relative to the shaft and slope including overland conveyors for raw and clean coal transport with transfer stations, raw and clean coal stockpiles and slot storage and reclamation tunnel for clean coal, coal preparation plant water storage tanks, access roads to surface facilities, and batch weigh loadout for rail cars. Baker was also responsible to design the rail spur, siding and track layout for rail car loading.

Design and Permitting for Surface Facilities of New Freeport Underground Mine, Clarksville, Pennsylvania. *Alpha Natural Resources, Inc..* Civil Engineer. Provided engineering support. Baker prepared, submitted, and obtained Surface Mining Control and Reclamation Act and National Pollutant Discharge Elimination System permits for the proposed surface facilities associated with the new Freeport Underground Mine. Baker was responsible for the design of the proposed surface facilities, including preparation of the earthwork and grading plan and the design of the foundations for all belt transfer structures, stockpiles, prep plant, clean coal silos, refuse conveyors, clean coal conveyors, and the harbor barge loading facility.

Emerald No. 3 Revisions. *Emerald Coal Resources, LP.* Civil Engineer. Provided engineering support.

Foundation Mine - Alternate Refuse Site Selection & Water Feasibility Study. *Emerald Coal Resources, LP.* Civil Engineer. Responsible for stormwater management and drainage design. Baker's responsibility included: identification of alternate potential refuse disposal sites with a 25-square-mile search area around a proposed coal preparation plant, site reconnaissance collecting reasonable available pertinent environmental data, literature search to supplement limited data available from field observations, and evaluating each site in accordance with PADEP's Technical Guidance Document (TGD Number563-2113-660) on coal refuse disposal site selection process as well as satisfying good engineering practice.

EDUCATION (Degree, Year, Specialization)	
M.S., Civil and Environmental Engineering, 2004 B.E., Civil and Environmental Engineering, 2003	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	**REGISTRATION (Type, Year, State)**
Society of Wetland Scientists	

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:
Bartos, Kimberly A. Project Manager	0	13	0

Brief Explanation of Responsibilities

Ms. Bartos has managed projects specialized in stream and wetlands impacts, conducting comprehensive field investigations of the environmental conditions of aquatic habitats, providing expertise in assessment for ecological impacts, macroinvertebrate surveys, preparation of comprehensive technical environmental applications for permits in accordance with both state and federal requirements.

She has provided environmental services, ranging from identifying aquatic resources and ecological habitats to assisting with the preparation of the required permits. With specialized environmental services associated mainly with aquatic resources, I have focused on the delineation of wetlands and identification of watercourses associated with Environmental Assessments associated with federal and state projects, Land Development and Public and Private Clean Water Act Violations. I have managed projects ranging from permitting wetland and stream impacts, mitigation of resources - design and construction services for wetland and stream restoration and mitigation projects, conducting environmental assessments and macroinvertebrate surveys and conducting Phase I Environmental Assessments.

She can offer clients creative design options of wetland and stream impacts and mitigation based on my knowledge and unique perspective as an experienced regulator and consultant.

Design and Permitting of a Gas Pipeline. *Confidential Client.* Assistant Project Manager. Responsible for assisting with the permitting and design of the proposed pipeline, including avoidance/minimization of aquatic resources.

Design and Permitting of a Well Pad Access Road. *Confidential Client.* Assistant Project Manager. Responsible for assisting with the permitting and design of the proposed access road, including avoidance/minimization of aquatic resources.

North Sewickley Township Water Authority 2012 Retainer and Miscellaneous Services. *North Sewickley Township.* Environmental Permit Coordinator. Coordinated permit requirements for dam removal.

Restoration of the Canonsburg Lake's Aquatic Ecosystem. *Redevelopment Authority of Washington County.* Assistant Project Manager. Assisted with the permitting and design of the proposed lake maintenance project working with both state and federal agencies.

St. Michael Siding Extension. *Norfolk Southern Corporation.* Environmental Permit Coordinator. Responsible for assisting with the permitting and design of the proposed siding extension, including avoidance/minimization of aquatic resources.

EDUCATION (Degree, Year, Specialization)
B.S., 1999, Biology/Applied Ecology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
Society of Wetland Scientists

REGISTRATION (Type, Year, State)
Wetland Certification Training, 2003, Pennsylvania; Wetland Certification Training, 2012,Pennsylvania; Rosgen I, Applied Fluvial Geomorphology, 2004
PA DCNR Wild Plant Management Permit, Pennsylvania, 2012

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:
Schroeder, Kevin S. Environmental Scientist	0	9	0

Brief Explanation of Responsibilities

As a Senior Environmental Scientist, Mr. Schroeder's responsibilities include leading and documenting field studies for various environmental reports as required under the National Environmental Policy Act, Section 404 of the Clean Water Act and FHWA requirements, in addition to local and state regulatory requirements. As an experienced wetland ecologist, Mr. Schroeder applies his aquatic biology background in wetland and stream studies. Mr. Schroeder is proficient in wetland identification, delineation, functional assessment, monitoring, permitting and remote sensing. He 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 Western Pennsylvania.

Proposed Mining Air Shaft and Access Road, Greene County, Pennsylvania. *Cyprus Cumberland Resources Corporation.* Task Leader. Performed wetland delineations and water quality analysis of the project area streams utilizing the EPA's Rapid Bio-assessment Protocols. Submitted necessary permits including state and federal wetland encroachment permits. Author of stream and wetland sections of the Bureau of Deep Mine Safety's Module 14.

Coal Conveyor Belt Right-of-Way, Beckley, West Virginia Area. *Norfolk Southern.* Environmental Specialist. While with another firm, performed wetland delineations and stream surveys for a five-mile coal conveyor belt right-of-way near Beckley, West Virginia, proposed by Norfolk Southern. Advised client on tower placement to minimize wetland impacts and high quality stream encroachments.

Wetland Mitigation Sites, Raccoon Creek Marsh and Taxiway E, Allegheny County, Pennsylvania. *Allegheny Department of Aviation.* Environmental Scientist. Monitored wetland mitigation sites as required by the PADER to evaluate the success of the replacement wetlands. Included with the Wetland Monitoring Report and WET functions and values analysis, and aquatic and wildlife species observation list. Suggested corrective action items for existing and potential problems regarding the success of the mitigation wetlands.

Natural Gas Pipeline Projects, Various Sites: Ohio, Pennsylvania, New York, Virginia and West Virginia. *Columbia Gas Transmission Corporation.* Environmental Specialist. While with another firm, performed wetland determinations for several natural gas pipeline projects. Filed FERC reports and applied for and was granted multiple Nationwide Permits - 12, 14, and 26, as well as state wetland and stream encroachment permits, hydrostatic test water discharge permits and land disturbance permits.

Surface and Groundwater Sampling, Shippingport, Pennsylvania. *Pennsylvania Power Company.* Environmental Specialist. While with another firm, assisted in collecting various surface and groundwater samples at the Bruce Mansfield Power Station. Field sampling included basic water quality measurements and laboratory preparation of samples.

Surface Water Sampling, West Elizabeth Pennsylvania. *Hercules Incorporated.* **Environmental Specialist.** While with another firm, collected surface water samples at various locations within the Hercules chemical plant as required by the NPDES Permit. Sampling included basic water quality measurements and laboratory preparation of samples.

EDUCATION (Degree, Year, Specialization)
B.S., 1986, Environmental Conservation

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
Society of Wetland Scientists	

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:
Heilman, Gregory A., P.E. Senior Engineer	6	20	0

Brief Explanation of Responsibilities

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

Project engineer for the remedial design of the **Buckeye Reclamation Landfill Superfund Site,** located in Belmont County, Ohio. Responsible for overall site design including developing final grading plans; details; construction sequencing and schedule; and construction cost estimate. Responsible for designing the erosion and sediment control plan and the surface water management plan, which included relocating and lining 5,000 feet of an existing stream. Assisted in the preparation of the final report, technical specifications, Operation and Maintenance Plan, and Construction Quality Assurance (CQA) Plan.

Project engineer for the preparation of a solid waste permit application for a 120-acre restricted waste landfill for U.S. Steel Gary Works, Indiana. Primary responsibilities included coordination of site design, preparation of construction drawings, and preparation of a detailed construction cost estimate. Site design work involved development of grading plans, surface water management, leachate collection system, construction details and sequencing, liner and cover installation.

Project engineer for the development of several closure and post-closure plans for **HWT-2 Neutralized Waste Acid Lagoons** for U.S. Steel Gary Works, Indiana. Responsible for all aspects of the permit applications including developing closure concepts; site grading; drainage and erosion control; sludge stabilization; cap and cover design; preparation of drawings and technical specifications; a construction quality assurance plan; and cost estimates. The most recent alternative included groundwater extraction and the design of slurry walls.

Assisted in a feasibility study to evaluate dry disposal alternatives for flue gas desulfurization sludge and fly ash for Pennsylvania Power Company Bruce Mansfield Power Station. The project included comparing the alternatives for preliminary costs, technical feasibility and performance to meet all applicable regulations. Involved extensively in sludge dewatering options, the addition of dry additives, dry disposal operations, cost evaluation and screening and comparing of alternatives.

Site engineer for a **waste removal/site remediation** project in Carnegie, Pennsylvania. Managed removal operations for contaminated soil, conducted soil sampling, wrote inspection reports, inspected site backfill, and provided overall supervision of site activities.

Performed engineering design for the **closure of an existing sludge bed** at a hazardous waste surface impoundment for Armco Advanced Materials Company, Butler Works, Pennsylvania. Design included site grading, sludge settlement investigations, impermeable cover design, and storm water control facilities design.

Project engineer for the preparation of a permit application for the **closure of a solid waste disposal facility** for LTV Steel Hennepin Works, Hennepin, Illinois. Responsible for the development of the closure and post-closure plans including site grading; final cover design; drainage and erosion control; cost estimates; construction quality assurance plan; technical specifications and design drawings. Responsible for developing conceptual designs and cost estimates for various alternatives for the removal and disposal of 21,000 cubic yards of sludge for the closure of an existing sludge lagoon.

EDUCATION (Degree, Year, Specialization)	
B.S., 1988, Civil and Environmental Engineering	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	**REGISTRATION (Type, Year, State)** Professional Engineer, 2007, WV; Professional Engineer, 1992, PA; Professional Engineer, 1998, 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:
Perdue, Matthew CAD Designer/Surveyor	26	26	11

Brief Explanation of Responsibilities

Mr. Perdue is a CAD Technician/Surveyor at Baker and has worked in the WVDEP/AML program for many years with other firms. Some of the specific projects for which he provided site design, surveying, plan and detail preparation include:

Elk Creek Portals, Logan County. This project included wet mine seals, dry mine seals, open channel design, site regrade and revegetation.

Delbarton (Curry) Landslide, Mingo County. This project included extensive site grading and drainage design, and a drilled pile retaining wall with concrete lagging.

Coal Hollow Refuse "A," Putnam County. Wet mine seals, dry mine seals, modified bat gates, open channel design, structure removal, site regrade and revegetation.

WVU Tech Drainage, Fayette County. Deep mine dewatering program, wet mine seals, bat gates, open channel design, site grading and revegetation.

Norton-Harding-Jimtown PSD Waterline Extensions, Randolph County. *West Virginia Department of Environmental Protection.* 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.

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.

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.

WVDEP 14387, Harrison County. Wet mine seals, Dry mine seals, the installation of bat gates, open channel design, culvert design, sediment control design, structure removal and reclamation, grading and revegetation.

WVDEP 14439, McDowell County. Wet mine seals, open channel design,, culvert design, underdrains, sediment control design, reclamation grading and revegetation.

WVDEP14800, Marion County. Drilling program development and the preparation of construction plans and specifications for the abatement of mine subsidence at four (4) sites in or near the City of Fairmont. The project "Fairmont Five Subsidence," included grout injection as well as surface depression regarding and minor drainage improvements.

EDUCATION (Degree, Year, Specialization)	
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)

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, P.E., P.H., C.F.M. Mining/Hydraulic Engineer	4	13	0

Brief Explanation of Responsibilities

Mr. Moses is a Registered Professional Engineer 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 Floodplain 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. *WVDEP - Office of AML&R.* 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.

WVDEP14387, Harrison County. *WVDEP - Office of AML&R.* Wet mine seals, the installation of bat gates, open limestone channel design, culvert and structure design, structure removal and reclamation grading at six (6) sites at the Crooked Run #5 Complex in Harrison County near Clarksburg.

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, Civil Engineering
M.B.A., 2004, Marshall University

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Society of Civil Engineers American Society of Military Engineers	Professional Engineer, 2008, WV Professional Hydrologist, 2010 Certified Floodplain Manager, 2007

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:
McCrady, Charles, E.I.T. Mining Engineer	8	8	5

Brief Explanation of Responsibilities

Mr. McCrady is an Engineer-In-Training and Task Manager at Baker with a background in geotechnical and mining engineering. His experience includes subsurface investigations, foundation design, mine permitting, hydrogeology, coal refuse disposal alternatives analysis, water line feasibility studies, reclamation of abandoned mine lands, including , earthwork, channel design, subsidence investigations and reclamation of coal refuse piles. He also has an extensive knowledge of both the Clean Water Act and NEPA and is responsible for these components of coal mine permitting and compliance at Baker.

WVDEP, Various Counties. Phase I Water Supply Feasibility. *WVDEP - Office of AML&R.* Conducted a feasibility study which included: on-site interviews with residents, local agencies, and government officials, research using public and private sources, and collecting water samples within project area to determine impacts past mining activities imposed on private water supplies. Provided alternatives and recommendations to identify the most cost-effective remedial measures that could be made.

WVDEP14387, Harrison County. *WVDEP - Office of AML&R.* Wet mine seals, the installation of bat gates, open limestone channel design, culvert and structure design, structure removal and reclamation grading at six (6) sites at the Crooked Run #5 Complex in Harrison County near Clarksburg.

WVDEP14800, Marion County. *WVDEP - Office of AML&R.* Drilling program development and the preparation of construction plans and specifications for the abatement of mine subsidence at four (4) sites in or near the City of Fairmont. The project "Fairmont Five Subsidence," included grout injection as well as surface depression regarding and minor drainage improvements.

WVDEP, Miller Mountain Waterline Feasibility Study. *WVDEP - Office of AML&R.* Performed research of geological data and mining maps, evaluated impacts of past mining activities on groundwater within the study area, and evaluated existing water distribution systems. Project included performing field research and sampling of surface and groundwater, plotting laboratory test results on Piper Trilinear Diagrams, identifying possible solutions to water quality problems, and providing preliminary construction cost estimates for recommended alternatives. The Miller Mountain Waterline Feasibility Study included detailed research of the local hydrology, hydrogeology, geology, and past mining activities, as well as collection and analysis of representative water samples and interviewing residents. Conclusions regarding the impact of that past mining activities have had upon local hydrogeology conditions as well as on water quality and quantity were formulated based upon information collected as part of the investigation. Finally, the report presented recommendations regarding remedial actions including extension of the Miller Mountain water distribution system and upgrades to the existing treatment facility.

WVDEP, Preston County. 9 County Roads Feasibility Study. *WVDEP - Office of AML&R.* Performed research of geological data and mining maps, evaluated impacts of past mining activities on groundwater within the study area, and evaluated existing water distribution systems. Baker was selected to provide the engineering services necessary to develop a water supply study for the specified area. The object of the study was to investigate the area's current water supply, make a determination as to how it has been affected by past mining, and recommend alternatives for water supply replacement. Baker compiled information and documentation to support an AML & R grant request to OSM for funding to extend and/or install water systems in impacted areas. The work was performed in 2 phases. The purpose of Phase 1 was to determine the potential impact of past mining activities on water supplies within the study area. When a potential impact was established, Phase 2 began, which involved a detailed investigation of mining history, geology, hydrogeology, and water supply sources.

Foundation Mining, L.P., Design/Permitting for Shaft and Slope Site, Surface Facilities, Batch Weight System and RR Spur and Siding. Assisted in preparation of permit for Foundation Mine Surface Facilities. Prepared PA DEP permit applications for the slope, shaft, railroad, and surface facilities. Assisted in design of all sites, provided E&S design for all sites, constructed pre- and post- hydrologic and hydraulic models on streams to analyze potential flooding, conducted resident interviews, and collected ground and surface water samples. Responsible for E&S design and floodplain analysis using HEC-RAS.

EDUCATION (Degree, Year, Specialization)
B.S., 1986, Environmental Conservation

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, Year, State)
American Society of Civil Engineers	Engineer-In-Training, 2006, 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:
Hall, Russell E. (Rusty) P.E., P.S. Civil Engineer (Assistant Vice President)	7	7	7

Brief Explanation of Responsibilities

Mr. Hall currently serves an Assistant Vice President of Michael Baker Jr., Inc., as well as Office Manager of our Charleston, WV office. He is an experienced transportation engineer who has been involved in numerous bridge and highway design projects in West Virginia for over 22 years. His project management responsibilities involve overseeing staff from project inception through completion, and ensuring that the clients' needs and requirements are met. He also has over nine years of office management experience. His office management responsibilities include financial oversight and accountability for a staff of over 40 engineers, scientists, and administrative personnel for Baker's Charleston office. His major strengths include organizing and managing a project team, quality control and quality assurance, and problem resolution. He provides overall direction and maintains direct communications with all clients. Mr. Hall is very proud of the fact that he has been able to spend his entire career in West Virginia working to address West Virginia's transportation needs.

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

Engineering Design for Remediation of Crooked Run #5, Harrison County, West Virginia. *WVDEP - Office of AML&R.* Principal-In-Charge. Responsible for oversight of Project Management. Baker provided engineering services to remediate seven abandoned mine sites along Crooked Run Stream near Clarksburg, West Virginia. Services included field investigation and surveys; core boring and water sampling; conceptual, preliminary, and final design of remediation measures; and bid phase and construction phase support.

Engineering Services to Remediate Landslide Caused by Abandoned Mine Activity, McDowell County, West Virginia. *WVDEP - Office of AML&R.* Principal-In-Charge. Responsible for oversight of Project Management. Baker provided field investigation, engineering services, and construction support to remediate a landslide on private property caused by drainage from abandoned mine portals. Baker provided conceptual, preliminary, and final design documents for remedial drainage measures and provided support during construction.

Spruce Mine No. 1 Mountaintop Mining EIS, Logan County, West Virginia. *Arch Coal, Inc.* Principal-In-Charge. Responsible for oversight of Project Management. Spruce Mine No. 1 is the first mountaintop-mining project requiring an Environmental Impact Statement (EIS) by the U.S. Army Corps of Engineers (USACE). Baker was responsible for all aspects of the project, including agency and public scoping, and the production of the Draft EIS. Baker analyzed and assessed data and studies that were completed for and included in the SMCRA mine permit application.

Surface Mine Project Baseline Data Collection, Confidential Location, West Virginia. *Confidential Client.* Principal-In-Charge. Responsible for oversight of Project Management. Baker was responsible for conducting baseline data collection and reporting of a Phase I archeological survey, and historic resources view shed analysis. The project produced an approximate five-mile section of line and rough grading, as part of the post-mine land use. This initiative was of tremendous value as an innovative partnership that produces significant savings to the taxpaying public. Typical grade/drain projects in southern West Virginia cost as much as $25 million per mile, and it was anticipated that this initiative would save as much as $110 million in the cost to construct embankments for future highway construction.

EDUCATION (Degree, Year, Specialization)
B.S., 1985, Civil Engineering, West Virginia University Institute of Technology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

REGISTRATION (Type, Year, State)
Professional Engineer, 1990, West Virginia
Professional Surveyor, 1996, West Virginia

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

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HYDROLOGY

SEDCAD4 – Storm Routing through Detention Structures, Channel Design and Riprap Sizing.
TR20 – Project Formulation – Hydrology by SCS
TR55 – 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
Hydroflow Hydrographs – Storm Routing Model

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.
Hydroflow Express – Culverts, Channels, Inlets, and Weir Hydraulics

PIPELINE HYDRAULICS

WATERCAD – Water Distribution System Modeling
KYPIPE2 – Water Distribution System Modeling
CYBERNET – Water Distribution System Modeling
Hydroflow Storm Sewer – Stormwater Conveyance System Modeling

GEOTECHNICAL

Log Draft 5
gINT V8.3
FB-Multi-Pier Version 4.16
Slope/W 2007
Seep/W 2007
UTexas 4
GRL WEAP
L-Pile Versions 4, 5 or 6
COM 624P Version 2
GSTABL7 and STEDwin

GEOTECHNICAL (continued)

FIT Version 8.2
UniSettle, Version 3
DARwin 3.1
Midas GTS
GROUP Version 6
FE Flow 5.3
EMBANK
SPW 911
ProSheet
CRSP
DRIVEN
PASTABL6
RSS
HELP
SURFER
SlopeInc
PCASE 2.09.01
CPET-IT
FOSSA
MSEW

DRAFTING AND SITE DESIGN

AutoCAD – Civil 3D 2011 Desktop for Earthwork, Survey, Quantity, Calculations, Terrain Modeling, Coordinate Geometry, Site Grading, etc

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

SURVEY EQUIPMENT

Survey/Global Positioning System (GPS)

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

Pipe/Cable Locators

3 – Radio Detection RD4000 with 3 watt transmitters
5 – Radio Detection RD8000 with 10 watt transmitters
1 – Radio Detection RD7000 with 3 watt transmitter
5 – Optical Ranging Inc. Spar 300 locating system integrated with the Trimble R8 receivers

Total Stations

1 – Wild TC 2000

Tripods

64

Total Stations with Onboard Data Collection

1 – Leica TCRP 1200 total station, fully robotic
15 – Leica TS 15P total station, fully robotic
Optical Plummet
1 – Wild ZNL-16 (11164)

Magnetic Locators

2 – Chicago Steel Tape - FT - 60
1 – Schoenstedt
6 – Subsurface Instrument – ML-1

Levels *(Engineering)*

9 – Zeiss Ni 2 automatic level with Nedo folding rod
1 –Wild N-3 with Nedo folding rod
2 – Topcon Dini digital levels with bar code rods
6 – Leica NA2 automatic level with 16 ft rod

GPS Antennas

12 – Leica AT502
1 – Leica AT503 w/Chokering and Ray-Dome
1 – Leica AT504 w/Chokering and Ray-Dome
32 – Leica GS 15
5 – Trimble R8 GNSS

Vehicle / Boats

12 – 4 Wheel Drive Suburbans
2 – 4 Wheel Drive Jeep
1 – 4 Wheel Drive Pickup
1 – 8 Wheel Argo – Amphibious ATV
3 – Utility Trailers (10' and 14')
2 – Yamaha- Quad ATV

Fathometer

1 – Innerspace Tech Model 455 – 200 KHz 8° Transducer

Survey Software

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

Field Laptops PCs

30 – HP Elite laptop PCs
1 Panasonic Model CF19 Tough Book

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

GIS SOFTWARE

3 – Intergraph – MGE/MGA, Version 8 suite of products (obsolete)
1 – MRF Mapping Tool Kit, Version 8.0 (obsolete)
ESRI: 4 – ARC/Info, Version 9.X
9 – ArcView, Version 9.X (6 are Beaver licenses)
10 – ArcEditor, Version 9.X (6 are Beaver licenses)
1 – Spatial Analyst
1 – 3D Analyst
1 – ArcCOGO

1 – AutoCAD, Version 2010
1 – Visual Studio, Version 6
2 – Visual Studio, Version .NET
1 – Visual Basic, Version 6
1 – Visual Studio 2008 Architects w/MSDN Premium
1 – Visual Studio 2008 Developers w/MSDN Premium
1 – Visual Studio 2008 Test w/MSDN Premium
1 – Visual Studio Pro w/MSDN Premium

ARCInfo and ARCEditor are concurrent licenses
ARCView licenses are stand alone licenses

The suite of products provided by our Intergraph Synergy license includes:

- GeoMedia – 6 licenses
- GeoMedia Professional – 6 licenses
- GeoMedia WebMap – 4 licenses
- GeoMedia WebMap Professional – 4 licenses
- GeoMedia Grid – 2 licenses
- GeoMedia Terrain – 6 licenses
- GeoMedia Image – 2 licenses
- GeoMedia Fusion – 2 licenses
- GeoMedia Transaction Manager – 6 licenses
- GeoMedia Parcel Manager – 6 licenses
- GeoMedia Public Works Manager – 6 licenses
- GeoMedia Transportation Manager – 6 licenses
- GeoMedia Transportation Analyst – 6 licenses
- GeoMedia Objects – 6 licenses
- GeoMedia Map Publisher – 2 licenses
- G/Administrator – 2 licenses
- G/Designer - 2 licenses
- G/NetPlot Server – 1 license
- G/NetViewer - 5 licenses
- G/Mobile Viewer – 1 license
- G/Analyst – 2 licenses

MOBILE LIDAR

Sensor
1 – LYNX Mobile Mapper System with 2 Sensors.

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

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

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

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

PHOTOGRAMMETRIC EQUIPMENT

Softcopy Stereoplotters
1 – Z/I ImageStation SSK, HP SB XW8600 X5260 4 GB RAM, 500 GB Disc Space
3 – Z/I ImageStation SSK, Xeon GXI 2000, 2-450 MHz
1 – Z/I ImageStation ZIII, Xeon GXI 2000, 2-450 MHz

Digital Orthophoto
4 – HP SB XW8600 5405 Dual Processors, 4 GB RAM, 3.6 TB Disc Space

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

Server
1 – Compaq Proliant DL380
Xeon 3 GHz Processor
5.1 GB Memory
1 Terrabyte Disc Storage

1.2 Terrabyte Network Attached Storage

Software
1 – BINGO – AERIAL, Version 5.0
1 – MrSID, Geo Express 7
1 – ImageStation Automatic Triangulation (ISAT) 5.3
3 – ABC32, Version 1.3
7 – IRAS – C, Version 10.0
1 – Adobe Photo Shop 5, Version 5.05
4 – CADDMAPP/DGN, Version 5.8.3
1 – ERDAS Imagine, Version 2010
2 – ImageStation Digital Mensuration-ISDM, Version 5.3
2 – ImageStation Base Rectifier-ISBR, Version 5.3
3 – ImageStation DTM Collection-ISDC, Version 5.3
3 – ImageStation Feature Collection (ISFC) 5.3
1 – ImageStation Model Setup (SMS) 5.3
2 – ZI Ortho Pro/Geo Media, Version 5.3
34 – MicroStation – J & 8, Versions
1 – MRF Mapping Tool Kit for GIS Linework Processing, Version 8.1
1 – Corporate licensed Axiom Productivity Kit including File Fixer and English to Metric Conversion packages

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

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
Collier Sportsman's Club Highwall Brooke County, West Virginia	West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of mine seals with bat gate at suspected mine entry, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, culverts and channel design, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.	$139,821 (Fee) $2,500,000 (Construction)	90%
Waitman Barbe Highwall #1 Monongalia County, West Virginia	West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	Baker's responsibilities included research of existing geological data and mining maps, review of water quality data, erosion and sedimentation controls, design of wet and buried mine seals with bat gates at suspected mine entries, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal, culverts and channel, removal of non-hazardous trash and waste from the site, and revegetation of all disturbed areas. Additional responsibilities were for coordination of the check survey and drilling by sub-consultants and the preparation of the WV NPDES Stormwater Permit.	$117,007 (Fee)	90%

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
Simpson Highwall Project, Barbour County, West Virginia	West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	Responsible for drilling by sub-consultants, performed research of geological data and mining maps, review of water quality data, preparation of WV Stormwater, USACE, and WVDOH permits. Prepared construction plans and specifications for the project which included erosion and sedimentation control measures, site grading, mine seals, HDPE culverts, a WVDOH box culvert crossing SR 76, grouted rip rap collection channels, soil cover placement, and revegetation.	$119,000 (Fee) $750,000 (Construction)	99%
Emerald Refuse Area No. 3 Waynesburg, Pennsylvania	Emerald Coal Resources, LP 158 Portal Road, PO Box 1020 Waynesburg, Pa 15370	Prepare permit submission and construction plans for a coal refuse disposal site and slurry impoundment including E&S control, diversion and collection ditches, spillways, staging, and stability analyses.	$778,279 (Fee)	98%
Municipal Industrial Disposal Company (MIDC) Site – Investigation, Design and Construction Support Services Allegheny County, Pennsylvania	Confidential Client Pittsburgh, Pennsylvania	Responsible for investigation, reporting, design, and construction implementation for a PADEP HSCA program site located within a former abandoned strip mine property where hazardous and non-hazardous wastes were disposed. Selected remedy included a combination of off-site disposal, waste consolidation and stabilization, and construction of on-site landfill style cover systems, including an innovative lightweight landfill cap. Services include remedial and geotechnical site investigations, remedial feasibility studies, remedial design and permitting, wetland delineation, construction inspection/quality assurance, preparation of bid documents & construction cost estimates, and Health & Safety.	$>1,000,000 (Fee) $>6,500,000 (Construction)	99%

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
Currie Landfill and Kelly Farm Sludge Lagoon Remediation Design Millcreek and Fairview Townships, Pennsylvania	Pennsylvania Department of Environmental Protection Rachel Carson State Office Building P.O. Box 8471 400 Market Street Harrisburg, PA 17101	Located within an abandoned strip mine bench, Baker is performing a wetland investigation and delineation at the Currie Landfill site, and is developing construction drawings, technical specifications, and permit documents to construct interim remediation measures for the Currie Landfill site and the Kelly Farm sludge lagoon. Baker's services include project management; subconsultant procurement; wetland site survey, delineation, and jurisdictional determination; development of plans, specifications, and cost estimates; and preparation of permit documentation.	$1,289,661 (Fee)	90%
Phase II Environmental Site Assessment of the Bear Creek Area Chemical Sites Butler and Armstrong Counties, Pennsylvania	Pennsylvania Department of Environmental Protection Rachel Carson State Office Building P.O. Box 8471 400 Market Street Harrisburg, PA 17101	Baker is performing Phase II environmental site assessments (ESA) of several areas of the Bear Creek Area Chemical Site situated within an abandoned strip mine site. Baker's services include project management; mobilization and demobilization of personnel and equipment; site survey and utility coordination; field investigation; test pit excavation and soil sampling; stream, sediment, and seep water sampling; groundwater sampling; investigative-derived waste management; laboratory analysis coordination; data evaluation and validation; and report preparation.	$806,695 (Fee)	89%
National Pipeline Mapping System GIS Database Repository Services and Digital Data and Map Distribution Nationwide	U.S. Department of Transportation's Research and Special Programs Administration and Office of Pipeline Safety, Washington, D.C.	Baker is maintaining the national geospatial data repository for the National Pipeline Mapping System (NPMS)	$8,665,361 (Fee)	70%

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
General Environmental Consulting Services and Technical Support Contract Various Sites in Pennsylvania	Pennsylvania Department of Environmental Resources Harrisburg, Pennsylvania	Services include risk assessments, site investigations, remedial feasibility studies, remedial action design, construction inspection, Health & Safety, storage tank management, and industrial hygiene services	$24,000,000 (Fee)	90%
Design & Construction Management Services for the Coney Island Water Pollution Control Plant Upgrade	City of New York Dept. of Environmental Protection Elmhurst, New York	Baker, in joint venture with another firm, has been providing design, construction management and resident engineering services on a continuous basis since 1979 to upgrade the Coney Island Water Pollution Control Plant. The plant services an area of more than 22 square miles with a population of 690,500 and treats primarily domestic wastewater with some industrial and commercial wastes.	$30,607,141 (Fee)	97%

TOTAL NUMBER OF PROJECTS:	TOTAL ESTIMATED CONSTRUCTION COSTS:
10	$567,552,965 (Fee)

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 FIRM'S RESPONSIBILITY
None					

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)**
Prime No. 1 Mine Fetty Portal Monongalia County, West Virginia	Dana Mining 308 Dents Run Road Morgantown, WV 26501	$103,000 (Fee)	2012	On-going
Davidson Highwall Project, Preston County, West Virginia	West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	$107,000 (Fee)	2010	Yes
Fairmont Five Subsidence Marion County, West Virginia	West Virginia Department of Environmental Protection Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	$65,659 (Fee)	2010	Yes
Maybeury (Oakley) Landslide McDowell County, West Virginia	West Virginia Department of Environmental Protection Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	$54,683 (Fee)	2010	Yes
Wymer Portals Project, Preston County, West Virginia	West Virginia Department of Environmental Protection (WVDEP) Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	$123,000 (Fee)	2010	Yes
9 County Roads, **Waterline Feasibility Study** Preston County, West Virginia	West Virginia Department of Environmental Protection Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	$46,361 (Fee)	2009	NA (Study)
Crooked Run #5 Drainage, Refuse and Portals Harrison County, West Virginia	West Virginia Department of Environmental Protection Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	$82,939 (Fee)	2009	Yes
Fort Gordon Mine Closure Sites, Fort Gordon, Augusta, Georgia	USACE, New Orleans District P.O. Box 60267 New Orleans, LA 70160-0267	$110,000 (Fee)	2009	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)**
Chalk Mountain Mine Permit Renewal and Pit Mine Modification/Expansion, Spruce Pine, North Carolina	The Feldspar Corporation 530 Altapass Road Spruce Pine, North Carolina 28777	$46,000 (Fee)	2008	Yes
Marmet, East Bank, Cabin Creek, and Mill Hollow Complex Drainage and Portals Kanawha County, West Virginia	West Virginia Department of Environmental Protection Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	$121,524 (Fee)	2008	Yes
Miller Mountain Waterline Feasibility Study Preston County, West Virginia	West Virginia Department of Environmental Protection Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	$46,361 (Fee)	2008	NA (Study)
Mine Dump Site Number Four Spruce Pine, North Carolina	The Feldspar Corporation 530 Altapass Road Spruce Pine, North Carolina 28777	$75,000 (Fee)	2008	Yes
Development of a Long-Term Control Plan for Combined Sewer Overflow Abatement Pittsburgh, Pennsylvania	City of Pittsburgh Department of Engineering and Construction Pittsburgh Water and Sewer Authority Pittsburgh, PA 15219	$7,500,000 (Fee)	2008	Yes
Borgman Refuse & Portals – AML Reclamation Preston County, West Virginia	West Virginia Department of Environmental Protection Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	$107,500 (Fee)	2007	Yes
Kempton Refuse and AMD Tucker County, West Virginia	West Virginia Department of Environmental Protection Office of Abandoned Mine Lands & Reclamation 601 57th Street, SE Charleston, WV 25304	$213,384 (Fee)	2007	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
Powell River Ecosystem Restoration-Ely and Puckett Creek-Site 1, 3, and 4 Additions Lee County, Virginia	US Army Corps of Engineers, Nashville District	$49,500 (Fee)	2007	Constructed	David Miller & Associates Vienna, Virginia
General Investigation Feasibility Study, Powell River Basin Lee County, Virginia	US Army Corps of Engineers, Nashville District	$79,071 (Fee)	2011	N/A (Study)	David Miller & Associates Vienna, Virginia

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

Michael Baker Jr., Inc. (Baker) has been providing abandoned mine lands (AML) reclamation and acid mine drainage (AMD) remediation since the federal government first enacted legislation. Our work experience in AML/AMD 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. 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 the Project Experience Matrix of Attachment "C" of the Consultant Confidential Qualification Questionnaire (CCQQ) clearly show Baker's AML/AMD design, water system design, and related experience, they only hint at the extensive human and material resources which especially qualify our firm for this project. The following narrative further describes our experience and provides insight into the special capabilities of Baker.

Comprehensive Services

The civil, mining, surveying, mapping, environmental, and geotechnical services of Michael Baker Jr., Inc. are available to immediately respond to the needs of WVDEP. Working from our Beaver, Pennsylvania office and as supported by our Charleston, West Virginia office, Baker can expeditiously provide the full spectrum of services needed in water distribution system design as well as 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 Acquisitioned Interpretation
- Geotechnical Engineering
- Engineering Design
- Plan/Specifications Preparation
- Construction 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 mapping systems and AutoCAD compatible design software to perform computer-assisted mapping, design and drafting.

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

Baker's aerial light detection and ranging (LiDAR) service provides an efficient and affordable high-definition solution to digital terrain model surface creation and planimetric feature collection. Baker owns and operates the latest in aerial LiDAR and positioning technology for outstanding productivity and survey efficiency. From a single aerial collection session, our aerial LiDAR system offers the ability to accurately capture and classify features that are important to you and the requirements of your project. With up to four range measurements, including first, second, third, and last return-point capture, you can be assured that all project data is accurately captured and available for classification

Baker LiDAR provides the ability to accurately and effectively capture point-cloud terrain data for orthophoto rectification and planimetric or topographic map compilation. Products can be delivered as bare-earth DEM files, with the option of upgrading to digital terrain models for contour generation.

Some of the functions applicable to design projects for which Baker routinely employs the LiDAR System and AutoCAD LAND DEVELOPMENT Desktop include:

- Contour Mapping of the Surface And Subsurface
- Facilities Layout and Site Design
- Earthwork Volume Computations and Cost Estimates
- Drafting of Plans Profiles and Cross Sections

The LiDAR System and AutoCAD LAND DEVELOP-MENT Desktop Civil Design software are powerful cost saving tools for abandoned mine land projects since they can evaluate numerous configurations rapidly. They are especially useful for projects requiring extensive waterline plan and profile drawings and can interface with hydraulic models such as WaterCAD for analysis and design. They are also useful for projects requiring extensive backfilling and grading, such as may be required for water tank and pump station sites, and for the grading of refuse banks and gob piles, elimination of highwalls, and reclamation of other abandoned surface disturbances.

The experience of the key project personnel includes abandoned and active mine operations. Since we continually serve many of the Country's largest coal and mineral producers as well as industrial clients and state environmental agencies, several personnel listed under Item 13 of the CCQQ also 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 and reclamation projects (and WVDEP assignments in particular) 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:

- Consolidation Coal Company
- Alpha Natural Resources
- Westmoreland Coal Company
- U.S. Steel Mining Co., Inc.
- Emerald Coal Resources LP
- Cumberland Coal Resources LP
- Exxon Research and Engineering Company

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

To further demonstrate Baker's full service capabilities and experience, a national award-winning AML project description is provided as follows:

- ***State Funded Mine Reclamation and Pollution Abatement Projects – Kempton Refuse & AMD, West Virginia***

Michael Baker Jr., Inc. was retained by the West Virginia Department of Environmental Protection to prepare detailed design plans, and technical specifications for the Kempton Refuse & AMD project in Tucker County. The constructed project won a reclamation award and is described in a video on the WVDEP website.

The primary purpose of the Kempton Refuse & AMD project is to reclaim the remains of the pre-law underground and surface mines in the project area and divert AMD through a passive treatment system before discharging to existing streams in order to rehabilitate the watershed, and in turn the North Branch of the Potomac River.

The project involved the reclamation of over 60 acres of exposed refuse and mine spoil, re-establishment of 4,400 LF of stream, and conveyance and treatment of numerous AMD discharges. Site reconnaissance was performed to identify mine seepage points and AMD sources, subsidence features, and potential soil borrow areas. A wetland delineation and stream assessment were performed to determine design parameters and mitigation requirements for regulatory compliance. A series of bore holes were drilled to determine underground conditions including characteristics of refuse, soil, and rock, and to determine the elevation of critical mine entries.

Plans and specifications were prepared for the reestablishment of the unnamed tributary, grading of spoil and refuse to provide positive drainage, collection of acidic seepage, sealing of mine entries, AMD conveyance and treatment, and soil covering and revegetation of refuse materials.

Specifications for revegetation and reforestation of selected areas included soil amendments, seed mixtures, tree plantings, and mulching. Stream restoration designs required to reconstruct two unnamed tributaries in the Potomac watershed employed natural design techniques including a serpentine layout with pools and riffles.

The site included numerous mine seals and collection points to abate the AMD seepage. Mine seals consisting of clay seals, aggregate material, and PVC outlet pipes were proposed, with modified entries required to meet site specific artesian conditions. Conveyance pipes and limestone lined conveyance channels were provided to transfer AMD to a treatment system consisting of an equalization pond, successive alkalinity producing system (SAPS pond), and aerobic wetland. Project construction was completed in 2009.

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

Summary

As a large, diverse engineering firm, Baker has facilities available to properly conduct water distribution extension, 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

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

1. **Bidder 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 five years. Projects listed under item 12 of the CCQQ describes typical of various 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 water distribution and AML reclamation; 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 attached "Project Experience Matrix" show various projects performed for various 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 project.

   - Baker's key personnel are registered professional engineers experienced in a broad variety of water distribution and similar projects, as indicated item 13 of the CCQQ.

   - Our Project Professionals are veterans of many similar projects including past WVDEP projects.

   - The qualifications and experience of Mr. Charlie D. Stover speak to themselves. His experience in all aspects of AML work will be a true benefit to the project and our team. The combination of Charlie's intimate knowledge of the Department's goals and objectives, combined with Baker's technical resources, will yield a quality driven Baker team.

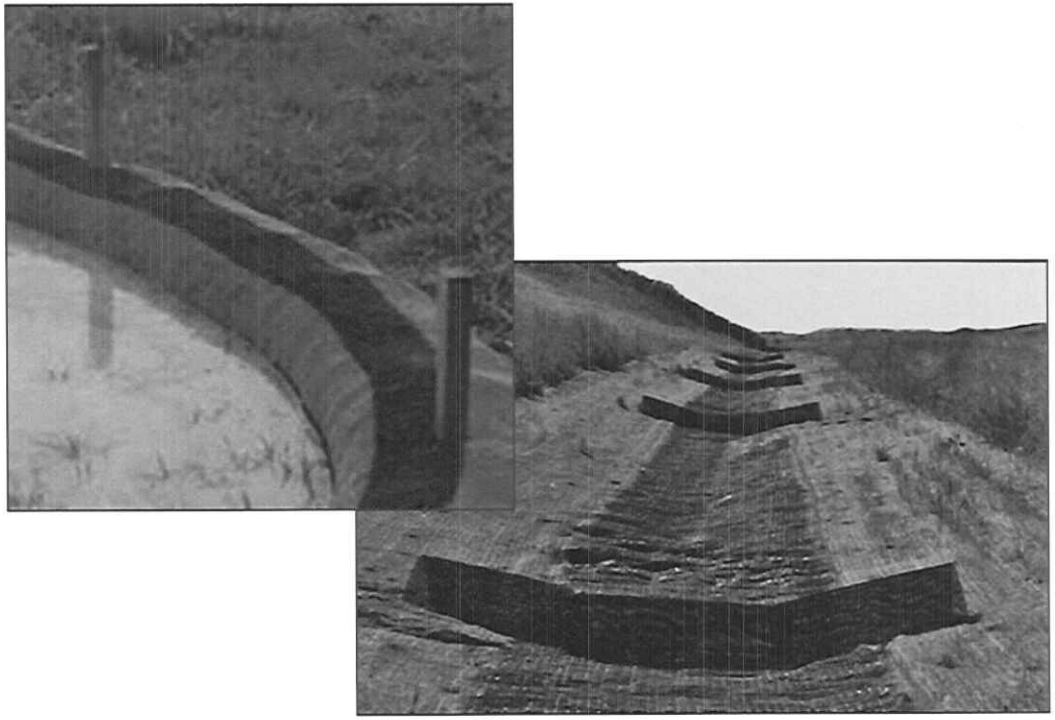
19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

3. Corporate Specialized Experience and Demonstrated Abilities

- Baker's specialized experience with AML related problems is summarized in the AML and Related Projects Matrix in Appendix C. Our work has addressed the full spectrum of AML problems including water projects for clients such as WVDEP, PADEP and others.

- 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 often address AML problems.

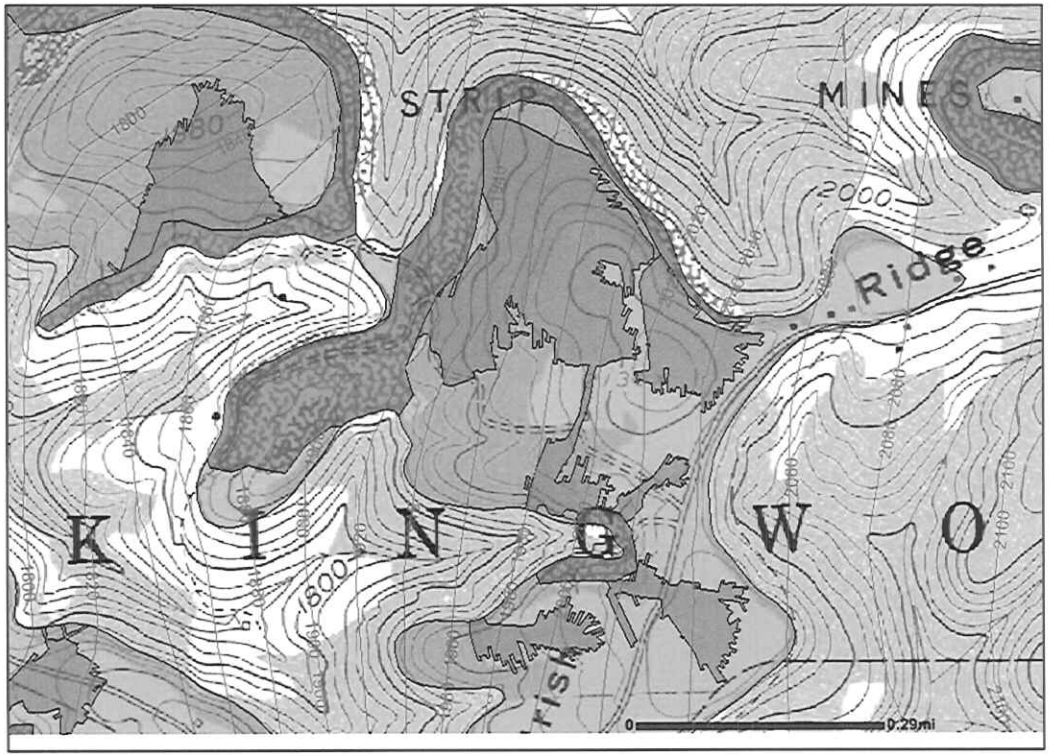
- Baker applies advancements in sediment control devices to provide an environmentally low impact, cost-effective design for highwall reclamation projects. This approach uses sediment tubes and wattles in lieu of the conventional sedimentation traps and ponds. These devices filter sediment laden runoff through them while also reducing hydraulic energy. They also provide a higher efficiency of pollutant removal then conventional methods. Baker grades the site such that all stormwater runoff is directed towards a channel at the toe of the backfilled highwall which doesn't allow any runoff exiting the site without the benefit of treatment. This keeps all runoff within the limits of disturbance and allows for the erosion control devices to be placed incrementally as construction progresses. Once the site is vegetated, the controls are removed without any further reclamation that typically occurs with traps and ponds. The application of these new technologies also results in lower construction cost and project duration while providing a high efficiency of pollutant removal.



Green Erosion & Sedimentation Control Solutions

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

- Our specialized experience and technical ability has taught us that a typical AML project is a puzzle with many pieces. Because of the past history of the site, often pieces of the puzzle no longer exist. Baker's responsibility is to uncover and connect the various puzzle pieces and utilize this information to develop an efficient, constructible, cost-effective design. We take this responsibility very seriously. An example of a puzzle piece is this structure contour map of the Upper Freeport Seam in the vicinity of the Donnie Thorn site. The structure contours quickly identify the fact that the mine floor is dipping to the west through the project area. This essentially places the western portals "down dip" and suggests that wet seals, AMD or treatment may come into play to reclaim this end of the project. This becomes one piece of a puzzle that Baker pieces together with information from mine maps, site visits, or subsurface investigations in order to develop an appropriate reclamation solution.



Upper Freeport Coal Mined Out Areas and Structure Contour Map – Donnie Thorn

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

A recent field view of the Donnie Thorn Highwall, conducted as part of development of our qualifications, confirms this puzzle piece. This site view did identify flowing mine drainage (Photos A and B) from the western highwall in a number of locations.

Photo A – Donnie Thorn AMD

Photo B – Donnie Thorn AMD above Refuse Pile

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

The site visit also previewed numerous highwalls (Photos C and D), a refuse pile (Photo E), and remnants of a potential old mine building (Photo F).

Photos C and D - Highwalls

Photo E – Refuse Pile

Photo F –Potential Old Mine Building

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

The image to the right begins to combine various puzzle pieces for Donnie Thorn including the structure contours, mine maps, AMD sources, the refuse pile and portal locations. This information becomes a basis for developing a sound and efficient design solution.

Donnie Thorn Portals and Highwall Site

20. THE FOREGOING IS A STATEMENT OF FACTS

Signature: William D. Trimbath Title: Vice President Date: January 29, 2013

Printed Name: William D. Trimbath, P.E.

BAKER AML and RELATED PROJECT EXPERIENCE MATRIX
Attachment "C"

Projects	* Exp. Basis C = Corp P = Personal	** Additional Info provided In Sections (s)	Project Experience Requirements																Primary Staff Participation / Capacity *** M = Management P = Professional																								
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																			M	M & P	P & M	M & P	P	P	P	P	P	P	P	P & M	P	P	P	P	P	P	P & M	P	P	P	P & M	P	P	P	M
9 County Roads Water Supply Feasibility Study, Preston County, WV (WVDEP)	C&P	17				x					x	x					x		x					x			x			x		x											x	
Beech Bottom Refuse (WVDEP)	C&P	17	x		x	x					x				x	x	x		x					x	x		x																	
Borgman Refuse & Portals (WVDEP)	C&P	17	x	x	x	x					x	x		x					x					x			x																	
Buckeye Reclamation Landfill CERCLA Site (Consol)	C&P	15	x			x				x	x	x	x	x		x	x	x	x				x																		x			
Chalk Mountain Mine (The Feldspar Corp)	C&P	17	x			x					x				x		x		x	x				x			x																	
Collier Sportmans Club Highwall (WVDEP)	C&P	15	x		x	x			x		x							x	x	x	x			x			x	x				x			x									
Columbia Portland AML Reclamation (ODNR)	C&P		x	x	x	x					x	x					x		x					x			x			x														
Crooked Run #5 Drainage, Refuse and Portals (WVDEP)	C&P	17	x	x	x	x					x	x		x	x							x							x					x							x	x	x	x
Davidson Highwall Project (WVDEP)	C&P	17	x		x	x					x	x		x		x	x		x							x																		
Dennison S.R. 800 AML Reclamation (ODNR)	C&P			x	x	x					x	x			x		x							x			x																

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Emoryville Mine Complex AML/AMD (WVDEP)	C&P		x	x	x	x					x	x		x			x							x			x																	
Fairmont Five Subsidence (WVDEP)	C&P	17				x			x		x			x								x											x							x	x		x
Flemington Portals & Drainage No. 2 AML/AMD (WVDEP)	C&P	17	x	x	x	x					x			x			x		x					x	x		x			x													
Fort Gordon, Georgia (USACE)	C&P	17	x			x					x				x				x	x																							
Hardy Coal Bond Forfeiture (ODNR)	C&P	17	x			x					x				x												x																
Jed-Havaco Reclamation (WVDEP)	C&P		x			x		x			x				x	x	x						x																x			
Kempton Refuse & AMD (WVDEP)	C&P	17	x		x	x					x	x		x		x	x		x					x			x																
Lindentree AMD Remediation (ODNR)	C&P		x		x	x					x	x		x					x					x			x																
Maybeury (Oakley) Landslide (WVDEP)	C&P	17	x	x	x	x					x	x		x	x							x							x					x							x	x		x
Maple Run Portals & AMD (WVDEP)	C&P		x	x	x	x				x	x	x		x		x								x			x																
Marmet, East Bank, Cabin Creek, Mill Hollow Complex Portals & Drainage (WVDEP)	C&P	17	x	x	x	x					x	x		x	x							x							x					x								x	x	x

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McArthur Subsidence (WVDEP)	C&P			x		x			x		x						x							x		x	x																	
Mineral-Zoar Road AMD Reclamation (ODNR)	C&P	17		x	x	x				x	x	x		x		x	x		x					x			x														x			
Mount Eaton Subsidence Stabilization (ODNR)	C&P	17				x			x		x						x		x	x			x		x		x																	
No. 4 Reclamation Masontown (WVDEP)	C&P		x	x	x	x					x	x		x	x	x	x							x	x		x																	
No. 6 Shaft and Dewatering Pipeline (Cumberland Coal Resources LP)	C&P	15			x	x					x	x							x	x			x		x	x		x																
Powell River Ecosystem Restoration, Ely & Puckett Creek, Virginia (USACE)	C&P	18	x	x	x	x				x	x	x		x		x	x		x				x	x	x		x			x														
Ruthbelle Refuse Fire (WVDEP)	C&P		x		x	x		x			x				x		x		x						x																			
Simpson Creek Tipple and Portals Project (WVDEP)	C&P	15	x		x	x					x	x		x	x	x	x	x	x		x					x		x																
Turnhole Branch Reclamation (WVDEP)	C&P			x	x	x	x				x	x																															
Twilight Burning Refuse (WVDEP)	C&P		x	x	x	x		x			x	x		x	x	x	x							x																				

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US Steel RCRA Closure Plan (USS)	C&P					x				x	x	x		x	x		x	x	x																	x				x				
Waitman Barbe Highwall #1 (WVDEP)	C&P	15																	x	x	x			x			x	x				x			x								
Watson Portals & Refuse Reclamation (WVDEP)	C&P		x	x	x	x					x	x		x	x	x	x		x					x			x																
Wymer Portals and AMD (WVDEP)	C&P	17	x		x	x					x	x		x	x	x	x	x	x							x																	

* List whether project experience is corporate or personnel based or both.

** Use this area to provide specific sections or pages if needed for reference.

*** List Primary Design personnel and their functional capacity for the projects listed.

Attachment "C"