

**Expression of Interest
Professional Mapping and Design Services
for
Bond Forfeited Permit
Greendale Coals Inc., S-75-83
Clay and Nicholas Counties, West Virginia**

RFQ Number DEP16552



06/19/14 11:08:44AM
West Virginia Purchasing Division

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



Submitted by:
Michael Baker Jr., Inc.
Charleston, West Virginia

June 19, 2014

Baker

5088 West Washington Street
Second Floor
Charleston, WV 25313

304.769.0821 Phone

304.769.0822 Fax

June 19, 2014

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

**Re: Expression of Interest for Mapping and Design Services
Bond Forfeited Permit of Greendale Coals, Inc. S-75-83
Clay and Nicholas Counties, West Virginia
RFQ Number: DEP16552**

Dear Mr. Whittaker:

Michael Baker Jr., Inc. (Baker) is pleased to present our response to your EOI related to the mapping and design services for the above referenced project in Clay and Nicholas Counties. 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 **have successfully 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 the WVDEP. Although we have not worked directly for The Office of Special Reclamation, we have assembled a team of experienced personnel who have performed on previous similar assignments. Our proposed team members have also provided similar services for numerous mine reclamation and related projects over the years for a variety of clients as reflected in the enclosed documentation.

We are proud that our team is led by Mr. Charles D. Stover, with responsibility for providing technical assistance and guidance for all reclamation projects. Mr. Stover is the former Acting Chief and Design Administrator for the WVDEP AML/AMD Program, and most recently, the Reclamation Specialist Supervisor for the Charleston Regional Office of the WVDEP Office of Special Reclamation. This long standing history and specific experience in mine reclamation and understanding of the Office of Special Reclamation Mission will prove to be invaluable to the project and the team. Mr. Stover's presence will help Baker be better prepared to address the remediation issues and contribute to more efficient and cost-effective solutions.

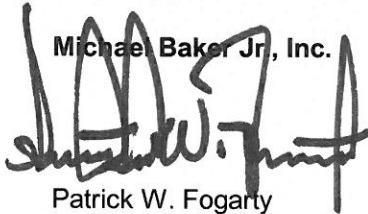
Baker's staff is experienced with all aspects of mine reclamation projects. We have provided similar services to the WVDEP, as well as the Pennsylvania DEP, the Ohio DNR and the U.S. Office of Surface Mining to name a few. We feel that our combination of regional experience, familiarity with the site, close proximity and Mr. Stover's specific knowledge and expertise is unique to Baker and we are confident we can provide efficient, timely, personal, cost effective, and quality solutions for the WVDEP on this assignment.

To demonstrate our commitment to The Office of Special Reclamation and this project, we have field viewed the mine site, obtained and reviewed available mine maps from the West Virginia Geologic Survey and developed a general reclamation approach.

We look forward to a favorable review of our qualifications and the opportunity to personally present our proposed project approach. Should you have any questions or require additional information, please feel free to contact me or Mr. Stover at (304) 769-0821 or by e-mail, Pfogarty@mbakerintl.com or Charles.stover@mbakerintl.com.

Very truly yours,

Michael Baker Jr., Inc.



Patrick W. Fogarty
Project Manager



Charles D. Stover
AML Program Coordinator



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

Solicitation

NUMBER
DEP16552

PAGE
1

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

RFQ COPY

TYPE NAME/ADDRESS HERE

V
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ENVIRONMENTAL PROTECTION
DEPT. OF
OFFICE OF SPECIAL RECLAMATION
601 57TH STREET SE
CHARLESTON, WV
25304 304-926-0499

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DATE PRINTED
05/15/2014

BID OPENING DATE: 06/19/2014

BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	JB		906-29	N/A	N/A
	1 PERMIT		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 MAPPING AND DESIGN SERVICES AT THE BOND FORFEITED PERMIT OF GREENDALE COALS INC, S-75-83 IN CLAY AND NICHOLAS COUNTIES IN WV.			
			PER THE FOLLOWING BID REQUIREMENTS AND ATTACHED SPECIFICATIONS.			
			***** THIS IS THE END OF RFQ DEP16552 ***** TOTAL:			
						N/A

SIGNATURE	TELEPHONE	DATE
<i>James E. Hall</i>	304-769-0821	June 19, 2014
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
Assistant Vice President	25-1228638	

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

RFQ No. DEP16552STATE OF WEST VIRGINIA
Purchasing Division**PURCHASING AFFIDAVIT**

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

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

DEFINITIONS:

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

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

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

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

WITNESS THE FOLLOWING SIGNATURE:Vendor's Name: Michael Baker Jr., Inc.Authorized Signature: [Signature] Date: June 19, 2014State of West VirginiaCounty of Kanawha, to-wit:Taken, subscribed, and sworn to before me this 19th day of June, 2014My Commission expires April 14, 2023**AFFIX SEAL HERE**NOTARY PUBLIC [Signature]

Purchasing Affidavit (Revised 07/01/2012)



ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: DEP16552

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

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

Addendum Numbers Received:

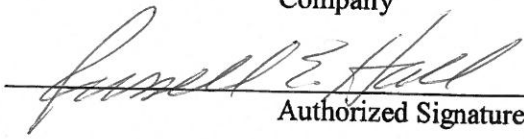
(Check the box next to each addendum received)

- | | |
|---|--|
| ☐ 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



Authorized Signature

June 19, 2014

Date

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

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)

(Authorized Signature)

Russell E. Hall, Assistant Vice President

(Representative Name, Title)

304-769-0821

(Phone Number)

304-769-0822

(Fax Number)

June 19, 2014

(Date)

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
OSR CONSULTANT QUALIFICATION QUESTIONNAIRE**

Attachment "B"

PROJECT NAME Professional Mapping and Design Services at the Bond Forfeited Permit of Greendale Coals, Inc. S-75-83, Clay and Nicholas Counties, WV		DATE (DAY, MONTH, YEAR) June 19, 2014		FEIN 25-1228638	
1. FIRM NAME Michael Baker Jr., Inc.		2. HOME OFFICE BUSINESS ADDRESS 4301 Dutch Ridge Road Beaver, Pennsylvania 15009		3. FORMER FIRM NAME	
4. HOME OFFICE TELEPHONE 304.769.0821	5. ESTABLISHED (YEAR) 1940	6. TYPE OWNERSHIP Individual Partnership <u>Corporation</u> Joint-Venture		6a. WV REGISTERED DBE (Disadvantaged Business Enterprise) YES <u>NO</u>	
7. PRIMARY OSR DESIGN OFFICE: ADDRESS / TELEPHONE / PERSON IN CHARGE / NO. OSR DESIGN PERSONNEL EACH OFFICE Michael Baker Jr., Inc. / 5088 West Washington Street, Charleston, WV 25313 / 304.769.0821 / 7 Christopher A. Ruppen, PG / 25 (Beaver, PA)					
8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM Chad R. Davis, PE, Assistant Vice President – 412.375.3077			8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS Russell E. (Rusty) Hall, PE, PS, Assistant Vice President – 304.769.0821		
9. PERSONNEL BY DISCIPLINE (Bold Lettering Indicates Minimum Design Team Members)					
<u>180</u> ADMINISTRATIVE <u>12</u> ARCHITECTS <u>2</u> BIOLOGISTS <u>46</u> CADD OPERATORS/DESIGNERS <u>0</u> CHEMICAL ENGINEERS <u>42</u> CIVIL ENGINEERS <u>52</u> CONSTRUCTION INSPECTORS / Mgrs. <u>51</u> DESIGNERS <u>3</u> DRAFTSMEN	<u>1</u> ECOLOGISTS <u>0</u> ECONOMISTS <u>4</u> ELECTRICAL ENGINEERS <u>22</u> ENVIRONMENTALISTS <u>1</u> ESTIMATORS <u>17</u> GEOLOGISTS <u>3</u> HISTORIANS <u>0</u> HYDROLOGISTS	<u>2</u> LANDSCAPE ARCHITECTS <u>6</u> MECHANICAL ENGINEERS <u>0</u> MINING ENGINEERS <u>2</u> PHOTOGRAMMETRISTS <u>5</u> PLANNERS: URBAN/REGIONAL <u>3</u> SANITARY ENGINEERS <u>0</u> SOILS ENGINEERS <u>5</u> SPECIFICATION WRITERS	<u>34</u> STRUCTURAL ENGINEERS <u>20</u> SURVEYORS/Technicians <u>15</u> TRAFFIC ENGINEERS <u>42</u> ENGINEERING TECHNICIANS <u>27</u> PROJECT MANAGERS <u>35</u> GIS SPECIALISTS <u>3</u> OTHER <u>635</u> TOTAL PERSONNEL (Beaver and Moon Township, PA and Charleston, WV Offices)		
TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: <u>12</u> * RPEs other than Civil and Mining must provide supporting documentation that qualifies them to supervise and perform this type of work.					
10. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE?					
_YES _NO N/A					

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

NAME AND ADDRESS: NGE, LLC 650 MacCorkle Avenue West St. Albans, WV 25177	SPECIALTY: Drilling, Geotechnical Exploration, and Monitoring	WORKED WITH BEFORE ☒ Yes ☐ No
NAME AND ADDRESS: Bio-Chem Testing, Inc. 5 Weatheridge Drive Hurricane, WV 25526	SPECIALTY: Water Testing	WORKED WITH BEFORE ☒ 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
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
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE ☐ Yes ☐ No

12. RELEVANT EXPERIENCE.

A. Is your firm experienced in Acid Mine Drainage water treatment and remediation?

YES

Description and Number of Projects:

Baker's design experience includes both active and passive treatment systems, which is based on the characterization of the AMD site as well as the flows and chemistry of the AMD. To this end, Baker provides AMD sampling to determine chemical parameters as well as the flow measurements covering high- and low-flow periods that are most important in developing AMD abatement system. To date, Baker has evaluated and designed 14 AMD abatement systems, three of which are passive treatment systems while the other 11 are active treatment facilities that have been constructed and are currently in service. A few examples are listed as follows:

Kempton Refuse and Acid Mine Drainage/Abandoned Mine Lands, Tucker County, West Virginia, West Virginia Department of Environmental Protection, Office of Abandoned Mine Lands, Baker designed conveyance pipes and limestone lined conveyance channels to transfer AMD to a treatment system consisting of an equalization pond, successive alkalinity producing system (SAPS pond), and aerobic wetland. The project was constructed in 2009.

Lancashire Acid Mine Drainage Treatment Plant Design, Permitting and Construction Phase Services, Ebensburg, PA, Pennsylvania Department of Environmental Protection, Baker directed multi-disciplinary team of engineers in the design and permitting of an 11 MGD acid mine drainage treatment plant; subsequently provided construction phase services through commissioning. Treatment plant successfully commissioned in 2011.

Condition Assessment and Operational Audit – Dumans Mine Water Treatment Plant, Barr Township, PA, Pennsylvania Department of Environmental Protection, Baker directed activities of a multi-disciplinary engineering team investigating avenues to reduce acid mine water treatment costs and improve operations at the pumping station, treatment plant, and sludge lagoons (9.4 MGD). Work involved review of records; numerous field measurements, bench-scale treatability studies; consultation with electric company, cost estimating; and preparation of a report summarizing findings and recommendations. The team was charged with finding avenues to materially reduce the annual operation and maintenance cost of this facility while maintaining compliance with applicable effluent limitations.

Additionally, Baker has designed seven AMD remediation projects for WVDEP alone that included open limestone channel (OLC), anaerobic and aerobic wetlands and settling ponds, limestone sand dumping in the stream, and alkaline leach bed/anoxic limestone drains. Other Baker AMD abatement designs have been designed for USACE's Baltimore and Nashville Districts as well as the Pennsylvania Department of Environmental Protection.

NO

B. Is your firm experienced in soil analysis and coal refuse 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 special 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

12. RELEVANT EXPERIENCE.

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 20 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.

In addition to evaluating coal refuse for reprocessing, Baker has experience in the design of coal refuse facilities through our work in supporting active mining. Baker has conducted the geotechnical analysis related to slope stability and liner/cover soils permeability as well as the analysis to support the staging required to construct the refuse area. Our experience includes coarse refuse piles, fine refuse (slurry) impoundments and combined refuse areas. Baker currently is involved with the final permitting of a refuse facility for which we have conducted all the geotechnical, civil and hydraulic analysis for an approximate 300 acre refuse facility.

NO

C. Is your firm experienced in hydrology and hydraulics for handling mine water discharges on mining sites?

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 special reclamation/remediation design. Of the thirty (30) most recent AML projects, twenty seven (27) projects needed hydrology/hydraulics expertise of the AML/AMD design group and 100% of this work was conducted in-house.

NO

12. RELEVANT EXPERIENCE.

D. Does your firm produce its own aerial photography for development of contour mapping and have your own surveying crew?

YES Description and Number of Projects:

Since 1983 Baker has been designing AML/AMD remediation projects for WVDEP. For all the projects to date, WVDEP provided Baker 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. **Baker is a national leader in the development and application of aerial LiDAR.** 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 U.S. 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 Ports of Entry (LPOEs) Aerial Mapping Refresh, North and South U.S. 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)

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.

Indefinite Delivery Contract A/E for Multidiscipline & Related Services for the Department 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 Ports of Entry (LPOEs) Aerial Mapping Refresh, North and South U.S. 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.

E. Is your firm experienced in design of highwall elimination, grading, and material handling plans for land reclamation:

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 **strip pit and highwall regrading** subsidence control, mine sealing, reclamation of mine refuse piles, 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:

12. RELEVANT EXPERIENCE.

- | | | | |
|--------------------------|------------------------------|-------------------------------|------------------------|
| • Mining | • Water Treatment | • E&S Control | • Mapping |
| • Geotechnical | • Water Line Design & Supply | • Sustainable Design | • Field Reconnaissance |
| • Geology | • Grading | • Hazardous Waste Remediation | • Project Management |
| • Hydraulics & Hydrology | • Earthwork Balance | • Surveying | • Quality Control |
| • Groundwater | • Highwall Elimination | • Material Handling Plans | • |

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. Stormwater Management

NO

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

As depicted within Attachments B and C of this OSR Consultant Questionnaire Form, Baker can support this project with a variety and depth of technical resources as needed to successfully deliver this project. Our team will be led by Mr. Charlie Stover, serving as Baker's Special Reclamation Coordinator. Charlie will be supported by Patrick Fogarty, a Registered West Virginia Professional Engineer, acting as Project Manager. The balance of our committed team includes the type of capabilities required for a typical OSR project, including a senior field investigator to help assess the site and understand the mining conditions, a geologist or civil associate to conduct subsurface investigations, a designer for grading and earthwork balance, a civil associate for stormwater/erosion & sedimentation control and an engineer to assist with the design, plans and specifications. Other technical disciplines are available to assess items like surface water quality, hazardous materials (Past AMD treatment chemicals), cover soils, refuse stability, etc. This team will work together closely for design efficiency and can also handle multiple concurrent projects, tapping other Baker technical resources as needed to ensure project success.

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

NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE	
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:
Stover, Charles D. Technical Consultant	39	39

Brief Explanation of Responsibilities

Mr. Stover's state government career began as a Dept. of Highways Construction Inspector for two years working mostly on bridge projects with the last project being the "Bigley Interchange Project" where three Interstate Highways converge in Charleston, W.Va. (I-77, I-79 & I-64). The next position was an Engineering Technician position with a new section of the WV Dept. of Natural Resources, Planning and Development Section's Coal Refuse and Dam Control Program. This was a "ground floor" position with the group being accumulated to regulate the dams and the coal refuse disposal statewide. He advanced to the Charleston District Engineer while with that group. When the new federal surface mine laws were passed in 1977 (SMCRA) this entire group was dissolved into the Reclamation Division and placed on Permit Review Teams to provide the expertise to each team for reviewing coal refuse disposal plans and dam designs for freshwater and coal slurry disposal facilities. After approximately four years of permit review, Mr. Stover accepted a position with the Abandoned Mine Lands Program (AML) in 1982 as an inspector which he held for about three years. In 1985, he accepted the position of Design Administrator for AML where he developed a process to employ various engineering consultants simultaneously to design AML projects to standards set up by AML. As his career developed he was made the Acting Chief of AML for approximately three years. The last eight years of his career was spent developing an additional office for the Special Reclamation Program to better utilize additional tax revenues that became available from a legislation action.

Ebenezer Run Highwall #9, Brooke County, West Virginia. *West Virginia Division of Environmental Protection.* Quality Control Manager. Responsibilities include quality and technical review of backfill design, channels, erosion control measures, details, technical specifications, bid tab and construction cost estimate. The project consists of reclamation of two sites with approximately 3,660 linear feet of an abandoned strip mine highwall ranging in height from 30 to 40 feet and areas of mine spoil.

Waitman Barbe Highwall #1, Monongalia County, West Virginia. *West Virginia Division of Environmental Protection.* Quality Control Manager. Responsibilities include quality and technical review of backfill design, channels, erosion control measures, details, technical specifications, bid tab and construction cost estimate. 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.

Collier Sportmans Club Highwalls, Brooke County, West Virginia. *West Virginia Division of Environmental Protection.* Quality Control Manager. Responsibilities include quality and technical review of backfill design, channels, erosion control measures, details, technical specifications, bid tab and construction cost estimate.

As Reclamation Specialist Supervisor (2003-2011) in the Dept. of Environmental Protection-Office of Special Reclamation, Mr. Stover was responsible for:

- Setting up a new production unit to catch the program up on a backlog of projects utilizing additional tax revenues created by legislative action.
- Acquiring staffing needs (both clerical as well as technical employees (Reclamation Specialists)) to put this unit into production and begin the "catch up process."
- Responsible for seeing all reclamation designs were completed and submitted to the WV Purchasing Division for proper advertising. Meeting the interested contractors on-site and conducting a Pre-Bid Conference explaining all aspects of the design and show the project as well as answer any questions. Upon obtaining a successful bidder, conducted a Pre-Construction Conference to make sure that the contractor got started correctly and answered any questions that they may have about the design package.
- Made sure all construction on the OSR Projects was monitored and resolved any problems that arised during the construction phase.
- Saw that mine water discharges were monitored and adjusted to be in compliance with the Clean Water Act. This usually required some adjustments to active water treatment sites that have been installed throughout the region as well as "tweaking" some of the passive treatment sites that were built.
- Assured that the project database, as well as the water quality database, was maintained and kept up to date.

Mr. Stover was also a Design Administrator / Acting Chief (1985 – 2003) in the Dept. of Environmental Protection, Abandoned Mine Lands Program

EDUCATION (Degree, Year, Specialization)

AS, 1977, Commerce Accounting

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 OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Ruppen, Christopher A., P.G. Quality Assurance Manager	11	28

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 WVDEP and Baker, Mr. Ruppen conveys this approach through Baker's AML Team.

Ebenezer Run Highwall #9, Brooke County, West Virginia. *West Virginia Division of Environmental Protection.* Mining Service Manager. Responsibilities include assisting the project manager in obtaining the necessary resources to keep the project on schedule and in line with the client's expectations. The project consists of reclamation of two sites with approximately 3,660 linear feet of an abandoned strip mine highwall ranging in height from 30 to 40 feet and areas of mine spoil. Baker prepared construction plans, specifications, stormwater pollution prevention plan services and check survey.

Waitman Barbe Highwall #1, Monongalia 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 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, Tipton, & 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.

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

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

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 OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Neider, William, D., P.E. Project Engineer	3	16
Brief Explanation of Responsibilities Mr. Neider will oversee all aspects of the design, construction document preparation and permitting for site civil engineering projects. He has worked in various areas of the civil engineering practice with his primary area of experience being focused in mining permitting and reclamation projects, oil and gas permitting, land development, 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. Ebenezer Run Highwall #9, Brooke County, West Virginia. <i>West Virginia Division of Environmental Protection.</i> Project Manager. Responsibilities include project manager duties, quality control/quality assurance reviews of the project, and project design. Also responsible for construction cost estimate, stormwater pollution prevention plan, technical specifications, and NPDES permitting. The project consists of reclamation of two sites with approximately 3,660 linear feet of an abandoned strip mine highwall ranging in height from 30 to 40 feet and areas of mine spoil. Baker prepared construction plans, specifications, stormwater pollution prevention plan services and check survey. Waitman Barbe Highwall #1, Monongalia County, West Virginia. <i>West Virginia Division of Environmental Protection.</i> Project Manager. Responsibilities include project manager duties, quality control/quality assurance reviews 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. <i>West Virginia Division of Environmental Protection.</i> Project Manager. Responsibilities include project manager duties, quality control/quality assurance reviews 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. <i>Emerald Coal Resources, LP.</i> 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. <i>Freeport Mining.</i> Senior Engineer. Responsibilities included technical specifications, storm water and erosion control management review and a constructability 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 Professional Engineer, 2007, 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 OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Dharmapuri, Srinivasan, Ph.D., GISP, PMP LiDAR Scientist	0	28

Brief Explanation of Responsibilities

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

- Subject matter expert in Geospatial technologies (LiDAR, Remote Sensing and Photogrammetry for Geospatial Information Technology (GIT) area with a role as a primary Baker corporate point of contact for knowledge sharing and issue resolution for the GIT area.
- Project Manager for the multimillion projects on LiDAR for Elevation. The project involved collecting 8000 square miles LiDAR data and subsequent processing with project sites spread across the county.

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

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

Aerial Mapping of Alaska Highways - Parks/Elliott/Dalton Highways, Alaska. *Confidential Client.* QA/QC. Responsible for various products that were developed for LiDAR data covering various locations along the Parks Highway between mileposts 163 and 305. Performed an accuracy assessment of LiDAR data as compared to the survey control to ensure prescribed tolerances are met. TIN files generated from the topographic data were validated with respect to survey control. Baker provided professional services to acquire aerial mapping along stretches of the Parks, Dalton, and Elliott Highways in Alaska. The state required engineering quality 2-foot topographic contours and triangular irregular network (TIN) datasets. Baker provided LiDAR acquisition with simultaneous GPS base station control; conducted initial quality control (QC), preliminary processing, and accuracy assessment of LiDAR data; generated Triangulated Irregular Network (TIN) files; performed validation to survey control; produced two-foot contour topographic data; and provided final QC and deliverable assembly.

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

S.R. 25 Mobile LiDAR Vertical Accuracy Validation, Jackson, Mississippi. *Mississippi Department of Transportation.* QA/QC. Responsible for overall QA/QC of the LiDAR data. Performed the QA/QC of the final products both qualitatively and quantitatively to meet the requirements of the project.

I-20 LiDAR Data Collection and Mapping, Jackson, Mississippi. *Mississippi Department of Transportation.* QA/QC. Responsible for overall QA/QC of the LiDAR data. Performed the QA/QC of the final products both qualitatively and quantitatively to meet the requirements of the project.

EDUCATION (Degree, Year, Specialization)

Ph.D., 2006, Photogrammetry and Remote Sensing
M. Tech., 1985, Remote Sensing; M.Sc., 1983, Physics

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

American Society for Photogrammetry and Remote Sensing (ASPRS)
Project Management Institute (PMI)

REGISTRATION (Type, Year, State)

Certified GIS Professional: 2009; Certified Photogrammetrist, 2008
Land Survey Photogrammetrist: 2010 VA; 2005 SC
FAA Idle Level 3 Training

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 OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Fogarty, Patrick W., P.E., P.S. Project Manager	18	28
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 28 years of engineering experience and over seventeen years of experience with the WVDEP on planning, mapping and design assignments. Various types of reclamation 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 re-grading 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 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		REGISTRATION (Type, Year, State) Professional Engineer, 1990, WV; 1996, OH; 2000, KY Professional Surveyor, 1993, WV; 1996, OH; 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 Init.)	YEARS OF EXPERIENCE	
Frazer, John S., P.L.S. Surveyor/Survey Party Chief	YEARS OF OSR DESIGN EXPERIENCE: 0	YEARS OF OSR RELATED DESIGN EXPERIENCE: 34
Brief Explanation of Responsibilities		
NiSource Corporation Services MSA (West Virginia, Kentucky, Pennsylvania). Surveyor. Mr. Frazer provides survey support under our existing contract. Baker has provided NiSource with surveying services for many years. Under our existing MSA surveying services have been provided for various locations throughout West Virginia, Kentucky, and Pennsylvania. Open-End Architectural and Engineering Services, West Virginia State University Institute, West Virginia. Surveyor. Mr. Frazer provided survey support when necessary. Baker provided architectural and multi-disciplined engineering services under a one-year open-end agreement to design renovations, alterations, reconstruction, or extensions of facilities. Baker's services included programming, planning, design development, construction documentation, evaluations, feasibility studies, cost estimating, and construction contract administration. Pipeline Surveys, Washington County, Pennsylvania. Surveyor/Party Chief. Mr. Frazer was responsible for performing pipeline surveys. Baker was responsible for 12 pipeline surveys locating obstructions, property evidence, proposed route as indicated by land agents, woodland, utility, road and stream crossings, and tying the resultant mapping into the state plane coordinate system and vertical datum by the use of OPUS. Specific survey tasks consisted of; stake-out surveys including preliminary centerline for property owner review, final staking for construction including right-of-way, and pre-construction re-routes; downloading and processing of data for submittal to central office via email/Internet. Open End Contract – Survey Services, West Virginia and Ohio. Surveyor. Mr. Frazer was responsible for performing boundary and subdivision surveys. Baker performed extensive boundary and subdivision surveys covering several plants for American Electric Power's Ohio and West Virginia locations.		
EDUCATION (Degree, Year, Specialization)		
A.S., 1986, Civil Engineering Technology		
B.S., 1986, Engineering Technology		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS		REGISTRATION (Type, Year, State)
West Virginia Society of Professional Surveyors (WVSPS), Greater Kanawha Valley Chapter		Professional Land Surveyor, 1996 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 Init.)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Jones, Robert L. Technical Specialist	0	24
Brief Explanation of Responsibilities Mr. Jones has worked extensively in all areas of photogrammetric production including: project planning and management, workflow procedure development, aerotriangulation and digital stereo compilation. He has experience in the development of automated and semi-automated quality control methods for adherence to mapping product accuracy, completeness, and standards. Mr. Jones has been responsible for development of software to aid in map production, map quality, and workflow. He is consulted on a regular basis from all members of the team on a wide range of photogrammetry related issues, including assisting in management and adherence to PennDOT standards. Seven Orthophotography Sites, West Virginia. Dominion Transmission, Inc. Photogrammetrist. Responsible for the orientation of 1"=200' aerial image pairs and DEM compilation for seven compressor station sites in West Virginia and Pennsylvania. Stereo model orientations were created using only airborne GPS photo center and IMU data - no ground control was used to orient the models as is typical in the standard photogrammetric approach. Compiled the DEM for each site from the stereo models which were then used by other members of our team in orthophoto production of the sites. The uncontrolled approach to this project was possible because horizontal accuracy for the orthophotos was +/- 10' and typical standards for positioning relative to the ground was not required. Baker was contracted by Dominion Transmission to deliver digital orthophotography of a number of their compressor stations in West Virginia and Pennsylvania. New color imagery was collected for the seven project areas at a flight scale of 1"=200' and scanned at a resolution of 14cm. Airborne GPS data was collected during the flight and processed to support the orthorectification process. Digital Terrain Models (DTM) were generated by photogrammetric methods for each compressor station site. Color digital orthophotography was delivered at a final resolution 0.5' and referenced to the appropriate State Plane Coordinate System. The project was completed ahead of schedule and within budget. Alameda Square Aerial. EVOQ Properties. Photogrammetrist. Responsible for Aerial Triangulation, compilation, and data merging between CAD systems. Given new aerial photography, ground control points, and an AutoCAD file containing ground survey mapping data with both above ground and below ground features. An update of the above ground feature changes was performed using Imagestation/Microstation. The goal was not to corrupt the existing AutoCAD file but make changes within it to reflect the current surface in planimetrics and contours. Since translation to Microstation of the given AutoCAD file was not possible without causing corrupted data when translating back to AutoCAD, the task now required the "surgical removal" of items which no longer existed in the old drawing and the careful addition of new/changed items. The project was delivered with the original AutoCAD file updated and structured so that the client was able to easily see the changes. This project was out of the ordinary in many ways and required the application of many skills in both Microstation and AutoCAD. ERGON - WV PLANT PHASE I. Ergon, Inc. Photogrammetrist. Responsibilities included aerial triangulation of digital images. Performed a combination of Automatic and manual aerial triangulation procedures to create 26 stereo models from 1"=200" color aerial photography for the purpose of updating existing 1"=20' planimetric mapping. Aerial LiDAR Elevation Data Acquisition and Processing, Washington, D.C. FEMA. Technical Specialist. Responsible for writing Visual Basic programs to adjust hydrology. Digitized and adjusted hydrology features via airborne data, stereo models and Visual Basic programs. Baker provided technical support for aerial Light Detection and Ranging (LiDAR) data acquisition and processing for the Risk Mapping, Assessment, and Planning (Risk MAP) Program. Baker's services included project management, quality assurance and quality control of the LiDAR data, and delivery of final products.		
EDUCATION (Degree, Year, Specialization) B.S., 1989, Engineering and Mathematics A.A., 1984, Physics and Math		
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 Init.)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Lasko, John D., P.G. Senior Geologist	7	26

Brief Explanation of Responsibilities

Mr. Lasko's background encompasses a variety of geotechnical projects. His experience includes project task management, test boring layout, drilling inspection, geotechnical interpretation of subsurface geology, construction inspection and related project field work.

Waitman Barbe Highwall #1, Monongalia County, West Virginia. *West Virginia Division of Environmental Protection.* Geologist. Assisted in the field view and determination of mining conditions. 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.* Geologist. Assisted in the subsurface investigation. 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.

Site Design and Permitting for Cumberland Mine Air Shaft Number 10, Greene County, Pennsylvania. *Alpha Natural Resources, Inc.* Senior Staff Consultant. Responsible for site reconnaissance to evaluate landslide susceptibility for project site. Evaluated overall site for landslide potential, groundwater conditions, bedrock and structural geology. Evaluated proposed test boring program and recommended modifications to accommodate investigation of site conditions. Evaluated and modified testing program to accommodate site conditions. Prepared site reconnaissance plan and provided recommendations for final subsurface investigation and testing and site 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.

S.R. 0079, Section A23, Interstate 79 Missing Ramps, Collier and Robinson Townships, Pittsburgh, Pennsylvania. *Pennsylvania Department of Transportation, District 11-0.* Senior Geologist. Responsible for performing field and office coordination for preliminary and final design as geotechnical task manager. Tasks included test boring layout and laboratory testing program development, Level 2 drilling supervision, field data compilation, slope evaluation, rockfall hazard evaluation, mine treatment evaluation, water quality evaluation, and preliminary reports preparation.

Allegheny Valley Train Feasibility Study, Strip District, Pittsburgh to New Kensington, Pennsylvania. *Southwestern Pennsylvania Commission.* Senior Geologist. Responsible for performing site reconnaissance of two-mile section of railway to identify areas of landslide susceptibility and investigate potential for mine subsidence. Developed recommendations memorandum and cost estimate to investigate, evaluate and repair landslides. In addition, an assessment of mine subsidence potential and subgrade evaluation was performed.

Cumberland Mine No. 8 Shaft Site Design and Permitting, Waynesburg, Pennsylvania. *Foundation Coal.* Senior Geologist. Responsible for performance of slope stability analysis for proposed infrastructure related to construction shaft and bleeder sites. Tasks included site reconnaissance, subsurface investigation, slope stability analysis and design drawings assistance. Baker provided site design, permitting, and construction document preparation for the No. 8 shaft and portal facility.

Freeport Mine - PH I - Preparation of 6 Design Build RFP Packages and 1 Site Design -Bid Build Bid Package. *Freeport Mining.* Task Manager. Responsible for preparation of Geotechnical Data Report and geotechnical evaluation and design for earthwork for proposed mining facility.

EDUCATION (Degree, Year, Specialization)

M.S., 1989, Earth Science and Geology, California University of Pennsylvania; B.S., 1985, Geology, Juniata College

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

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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 Init.)	YEARS OF EXPERIENCE	
Barefield, Edward, P.G. Geologist	YEARS OF OSR DESIGN EXPERIENCE: 3	YEARS OF OSR RELATED DESIGN EXPERIENCE: 9
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.		
Simpson Creek Highwall, Tipple, & Portals, Barbour County, West Virginia. <i>West Virginia Department of Environmental Protection.</i> 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. <i>West Virginia Department of Environmental Protection.</i> 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. <i>Alpha Natural Resources, Inc.</i> 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. <i>Confidential Client.</i> 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 Association of Environmental & Engineering Geologists (AEG), Allegheny-Ohio Section, ID# 7038	REGISTRATION (Type, Year, State) Professional Geologist: 2010, PA PENNDOT Drilling Inspector, Level I, 2006, 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 Init.)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Grimm, John R. (JR) Senior Designer	3	27

Brief Explanation of Responsibilities

Mr. Grimm is a designer with a background in pipelines, 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.

Ebenezer Run Highwall #9, 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 balancing the earthwork on site. The project consists of reclamation of two sites with approximately 3,660 linear feet of an abandoned strip mine highwall ranging in height from 30 to 40 feet and areas of mine spoil. Baker prepared construction plans, specifications, stormwater pollution prevention plan services, NPDES permitting and check survey.

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, Tipton, & 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.

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

EDUCATION (Degree, Year, Specialization)

A.S., 1984, Mechanical Engineering Technology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

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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 Init.)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
LaMont, Michael, J. Technical Specialist	17	29
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. <i>West Virginia Division of Environmental Protection.</i> 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. <i>West Virginia Division of Environmental Protection.</i> 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. <i>West Virginia Division of Environmental Protection.</i> 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. <i>West Virginia Division of Environmental Protection.</i> 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. <i>West Virginia Division of Environmental Protection.</i> 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. <i>Ohio Department of Natural Resources, Division of Mines and Reclamation.</i> 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)	

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

NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE	
Kay, George, P.E. Sr. Consultant - Water Quality Engineering	YEARS OF OSR DESIGN EXPERIENCE: 16	YEARS OF OSR RELATED DESIGN EXPERIENCE: 31
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 <i>Fortune 500</i> steel producer. Currie Landfill and Kelly Farm Sludge Lagoon Remediation Design, Millcreek and Fairview Townships, Pennsylvania. <i>Pennsylvania Department of Environmental Protection.</i> 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. <i>Emerald Coal Resources, LP.</i> 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. <i>Pennsylvania Department of Environmental Protection.</i> 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. <i>Alpha Natural Resources, Inc..</i> 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. <i>Pennsylvania Department of Environmental Protection.</i> 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 RFI's 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 --	REGISTRATION (Type, Year, State) Professional Engineer, 1986, PA; 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 OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Saylor, Michael J., E.I.T. Civil Associate	3	3
Brief Explanation of Responsibilities Mr. Saylor is a civil associate with Michael Baker Jr., Inc. He has supported erosion and sedimentation control plans such as designing collection channels, water conveyance structures, sedimentation ponds, sediment traps, and other control devices. Mr. Saylor also has experience reviewing flood plains, developing hydraulic models, performing stormwater management and conveyance calculations, and assists in NPDES Stormwater permitting. In the field he has performed inspections for drilling, as well as sediment, surface soil, and surface water sampling for Baker. Prior to coming to Baker he served as a laboratory technician testing a variety of soils and aggregates in accordance with AASHTO and ASTM standards. Ebenezer Run Highwall #9, Brooke County, West Virginia. <i>West Virginia Division of Environmental Protection.</i> Civil Associate. Responsibilities included the conceptual design of stormwater channels, sediment basins, and additional erosion and sedimentation controls. Additional responsibilities were for the coordination and inspection of drilling by sub-consultants, collecting water quality samples, and preparation of the WV NPDES Stormwater Permit. The project consists of reclamation of two sites with approximately 3,660 linear feet of an abandoned strip mine highwall ranging in height from 30 to 40 feet and areas of mine spoil. Baker prepared construction plans, specifications, stormwater pollution prevention plan services, NPDES permitting and check survey. Waitman Barbe Highwall #1, Monongalia County, West Virginia. <i>West Virginia Division of Environmental Protection.</i> 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. <i>West Virginia Division of Environmental Protection.</i> 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 American Society of Civil Engineers (ASCE)		REGISTRATION (Type, Year, State) Engineer-In-Training, 2012, 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 Init.)	YEARS OF EXPERIENCE	
Savich, Steven, P.E. Land Development Manager	YEARS OF OSR DESIGN EXPERIENCE: 1	YEARS OF OSR RELATED DESIGN EXPERIENCE: 19
Brief Explanation of Responsibilities Mr. Savich has worked in many areas of the Civil Engineering practice with his primary areas of experience focused in land development, and planning, demolition, municipal services, and local transportation projects. He has also performed civil designs that included water distribution 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. Savich has also been involved in the oversight of the bidding and construction phase of projects. Fixed Dock for Multimodal Facility, Hopewell, Beaver County, Pennsylvania. <i>Beaver County Transit Authority.</i> Project Manager. Provided full supervision of the project deliverables and permitting efforts for the demolition of bridge piers within the Mahoning River. Managed technical staff in the delivery of a full set of project permit and construction documents on an accelerated schedule to facilitate a six-month duration from project inception to final closeout. During construction, provided construction administration services and limited oversight of the demolition effort. Baker provided engineering services for the construction of a 1,000-linear-foot fixed dock at Ohio River Mile 21 to serve the proposed Beaver County Multimodal Facility. Baker's services included the update and development of design plans, preparation of bid documents, bidding-phase support, and construction administration. Freeport Mine - PH I - Preparation of 6 Design Build RFP Packages and 1 Site Design -Bid Build Bid Package. <i>Freeport Mining.</i> Technical Lead. Provided technical oversight of the design team preparing the surface facilities plan and specification documents. He was responsible for design and permitting documentation as well as coordination with all relevant agencies. Railroad Bridge Pier Demolition, Mahoning County, Ohio. <i>First Energy Service Company.</i> Project Manager. Provided full supervision of the project deliverables and permitting efforts for the demolition of bridge piers within the Mahoning River. Managed technical staff in the delivery of a full set of project permit and construction documents on an accelerated schedule to facilitate a six-month duration from project inception to final closeout. During construction, provided construction administration services and limited oversight of the demolition effort. Baker provided engineering services for the design-build removal of an obstruction in the Mahoning River caused by bridge piers that had been part of a railroad crossing at the beginning of the 20th century. Baker's services included design, permitting, and construction administration Camp Geiger East Infantry Training Complex, Marine Corps Base Camp Lejeune, North Carolina. <i>Naval Facilities Engineering Command, Mid-Atlantic.</i> Technical Lead. Responsible for QA/QC review. Baker served as the lead designer for the design-build delivery of a 137,850-square-foot infantry training complex on five acres at Camp Geiger. The project included the construction of a two-story headquarters and academic building, a warehouse, a consolidated issue facility, an armory building, and an emergency weather center, the demolition of five buildings and various electrical distribution upgrades. The project was designed to meet the requirements for LEED® Silver certification. Dental Clinic, Fort Leonard wood, Missouri. <i>U.S. Army Corps of Engineers, Kansas City District.</i> QA/QC Engineer. Provided an independent technical review of the project deliverables at each stage of plan development. Project includes the design-build delivery of an 18,629 square foot, single story facility containing lobby/waiting/reception areas and administrative offices along with typical exam, treatment, X-ray laboratory, lockers, lounge and general building support areas. The project also includes the demolition of nine existing structures totaling 22,500 square feet. Supporting site improvements include new utility services, concrete parking and sidewalks, landscaping, bio-retention pond, staff patio and a troop bus shelter. Baker provided design services related to civil engineering, fire protection engineering and landscape architecture. U.S. Army Reserve Center, Uniontown, Pennsylvania. <i>U.S. Army Corps of Engineers, Louisville District.</i> Technical Lead. Civil Engineering Lead. Managed the design, coordination and detailing of site improvements to the site. The project provided for the demolition of existing facilities and full design of proposed improvements to support the Training Facility, OMS, and Storage buildings. Design of Central Issue Facility, Fort McCoy, Wisconsin. <i>U.S. Army Corps of Engineers, Louisville District.</i> Technical Lead. Responsible for QA/QC review. Baker is the designer of record for the design-bid-build delivery of an approximately 62,553-square-foot large-sized Central Issue Facility (CIF) to expedite the shipping and receiving, distribution, processing, and exchange of soldier equipment. The project includes ancillary site improvements and demolition design for five buildings. Tasks are being performed under an indefinite quantity-indefinite delivery engineering agreement. Baker is designing the CIF to meet LEED® Silver certification. Pine Valley Demolition, Grading and E&S. <i>Leebcor Services, LLC.</i> Project Manager. Responsible for the project oversight, quality control, and financial management. As Project Manager, served as the primary point of contact for contractual items including budgets, change management, and schedule.		
EDUCATION (Degree, Year, Specialization) M.S., 2003, Civil Engineering B.S., 1995, Civil Engineering		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS —	REGISTRATION (Type, Year, State) Professional Engineer: 2000 OH; 2005 PA; 2006 VA; 2007 OK	

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					
Weiss, Jeffrey P. Construction Associate	YEARS OF OSR DESIGN EXPERIENCE: 0	YEARS OF OSR RELATED DESIGN EXPERIENCE: 9				
Brief Explanation of Responsibilities Mr. Weiss is a construction associate within the Construction Services Department of Baker. Since joining Baker, Jeff has been actively involved in preparing cost estimates, construction schedules, and providing construction management services for various clients while utilizing the latest software and industry technologies. Upon graduating from the University of Pittsburgh, with a Bachelor of Science in Civil Engineering and a certificate of Construction Management, Jeff entered the construction industry as a surveyor. He then progressed to a project engineer and superintendent, where he gained valuable knowledge as to how construction projects are phased, scheduled, constructed, and managed. This experience enabled him to successfully transition into a project management role where he worked on numerous projects that have included commercial, religious, industrial, military installations, hospitals, medical institutions, educational, and correctional facilities. Having managed projects for both general contractors and construction managers, while working with both union and open shop contractors, Jeff possesses the unique ability to relate to and work with a client from concept through design and construction to commissioning. His knowledge and experience have carried over to Baker where Jeff draws on this experience to provide the highest quality outcome in all aspects of a project. Environmental and Asbestos Remediation Services, Ashtabula County, Ohio. Ashtabula County Port Authority. Cost Estimator. Provided construction cost estimates and site survey for feasibility of remediation of industrial facility. Baker completed previously initiated investigations and remedial tasks necessary to advance the former First Energy Plant C through the Ohio Environmental Protection Agency (OEPA) Voluntary Action Program (VAP). The plant is being operated as a pumping station for the intake/release of water from Lake Erie for use by local manufacturers. Baker provided environmental program management support, including facility engineering, compliance, permitting, bid specifications, and bid analysis for plumbing, electrical, structural, and remedial actions at the facility. Design and Construction Phase Services for Building 1-C Roof Replacement, Bays 3, 4, and 5, Tobyhanna, Pennsylvania. Tobyhanna Army Depot. Cost Estimator. Responsibilities included providing cost estimates at various levels of design. Baker served as the designer of record for a design-bid-build project to replace the roofing system on Building 1-C, Bays 3, 4, and 5. Work was performed under a three-year indefinite delivery-indefinite quantity contract. Baker developed design and construction documents and construction cost estimates for roof demolition and replacement with an EPDM membrane roofing system. AGC Capital Budget. Allegheny County Airport Authority. Cost Estimator. Responsible for developing a demolition and renovation plan for an airplane hangar and for reviewing various cost options. Design of Central Issue Facility, Fort McCoy, Wisconsin. U.S. Army Corps of Engineers, Louisville District. Construction Associate. Developed cost estimates for specific systems and multiple alternates. Also responsible for calculating maintenance and life cycle costs. Baker is the designer of record for the design-bid-build delivery of an approximately 62,553-square-foot large-sized Central Issue Facility (CIF) to expedite the shipping and receiving, distribution, processing, and exchange of soldier equipment. The project includes ancillary site improvements and demolition design for five buildings. Tasks are being performed under an indefinite quantity-indefinite delivery engineering agreement. Baker is designing the CIF to meet LEED® Silver certification. Baker's services include architecture, surveys, environmental investigation, geotechnical investigation, all site and building engineering, cost estimating, value engineering, and LEED® certification administration.						
<table border="1" style="width: 100%;"> <tr> <td data-bbox="113 1125 1003 1182"> EDUCATION (Degree, Year, Specialization) B.S., 2004, Civil Engineering/Construction Management </td> <td data-bbox="1003 1125 1957 1182"> REGISTRATION (Type, Year, State) Construction Quality Management for Contractors, 2012 </td> </tr> <tr> <td data-bbox="113 1182 1003 1248"> MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers American Water Works Association </td> <td data-bbox="1003 1182 1957 1248"></td> </tr> </table>			EDUCATION (Degree, Year, Specialization) B.S., 2004, Civil Engineering/Construction Management	REGISTRATION (Type, Year, State) Construction Quality Management for Contractors, 2012	MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers American Water Works Association	
EDUCATION (Degree, Year, Specialization) B.S., 2004, Civil Engineering/Construction Management	REGISTRATION (Type, Year, State) Construction Quality Management for Contractors, 2012					
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS American Society of Civil Engineers American Water Works Association						

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 OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Jeffreys, Carl P.E., P.G. Project Engineer	0	30

Brief Explanation of Responsibilities

Mr. Jeffreys is a professional engineer with a background in environmental management, engineering design, and construction. In addition to project management, he currently manages staff and serves as Baker's national practice leader for environmental restoration. In this role, he manages and serves as senior technical reviewer on a wide variety of projects involving environmental compliance, assessments, remediation, engineering design, construction, and negotiations for environmental agencies. His work also has included litigation support as an expert witness reviewing third party designs.

Response to DEP Technical Comments on Hatfield's Ferry Power Station CCB Landfill Expansion, Masontown, Pennsylvania. Allegheny Energy Service Corporation. Task Manager. Responsible for developing response to DEP comments, participating with DEP meetings and performing design revisions for specifications, CQA and geotechnical design for this project. Baker was selected by AESC through a competitive bidding process to provide the engineering design and permitting services related to the Phase 3 landfill expansion of the Hatfield's Ferry Power Station CCB Landfill. The landfill permit application was submitted to the Pennsylvania Department of Environmental Protection (PADEP) in February 2006. The landfill design is a Class I residual waste captive landfill with a double liner, including a primary composite liner, leachate detection and collection systems. Major components included the design of a new leachate storage impoundment, access road, drainage, erosion and sedimentation control measures, soil borrow area development, and landfill subgrade preparation, liner staging and landfill development. By letter dated August 25, 2007 the PADEP provided the first set of technical and design review comments on the permit application documents. Baker was contracted by AESC to review the comments, prioritize them in terms of significance to the project (cost and schedule constraints as well as technical issues that could impact the issuance of the permit), prepare preliminary responses, attend meetings with PADEP to clarify and discuss key issues. The formal response to technical comments consisted of two major items: a point by point response to comments; and modification of affected sections of the permit application documents. The response to comments was submitted to PADEP in November 2007. The landfill design changes included slope stability considerations of the final cover system, analysis of potential underground mine subsidence at the surface and its impact on the landfill liner system, modification of the liner system to increase the transmissivity of both the leachate collection and detection layers, and increasing the size of the leachate storage impoundment.

Emerald No. 3 Revisions. Emerald Coal Resources, LP. Engineer. Evaluated liner system options for a coal refuse landfill, developed cost estimates, revised permit modules, and participated in agency meetings.

Testimony Preparation. Black McCuskey Souers & Arbaugh. Expert Witness. Responsible for efforts related to litigation support included providing expert advisement to Counsel on landfill liner system design, preparation of expert reports, and testimony

Sewage Lagoon Evaluation, Confidential Location, Idaho. Confidential Client. Engineer. Performed an evaluation of existing evaporative ponds to determine whether the existing sewage facilities meet new state leakage regulations issued by the Idaho Department of Environmental Quality (IDEQ). Estimated costs were developed to repair, replace, or supplement the existing ponds, as well as to install facilitate stabilization or a packaged treatment plant. Ultimately a new larger (20-acre) pond was designed including an HDPE liner, side slope protection, stilling basin, extension of the existing force main, and permit application preparation. An evaluation of existing evaporative ponds was performed to determine whether the existing sewage facilities meet new state leakage regulations issued by the Idaho Department of Environmental Quality (IDEQ). Estimated costs were developed to repair, replace, or supplement the existing ponds, as well as to install facultative stabilization or a packaged treatment plant. Ultimately a new larger (20-acre) pond was designed including an HDPE liner, side slope protection, stilling basin, extension of the existing force main, and permit application preparation

Environmental Services, Confidential Location, West Virginia. Confidential Client. QA/QC. Responsible for the QA/QC of the RCRA Corrective Action Plan. Also responsible for RFI investigation and preparation of RFI Report. Work included geophysical and soil gas surveys and negotiations with EPA Region III. The project involved the investigation of 21 Solid Waste Management Units (SWMU) and 4 areas of concern or spill areas to determine if any of the sites posed risks to human health or the environment. The project involved negotiating with US EPA Region III regulators, meeting the environmental indicators established for the site, and designing a field approach to provide necessary data to evaluate risk and determine extent of contamination.

EDUCATION (Degree, Year, Specialization)

M.S.C.E., 1986, Civil Engineering
B.S., 1982, Geology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

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REGISTRATION (Type, Year, State)

Professional Engineer, 1990, PA; 1991, OH; 2010, CO
Professional Geologist, 1994, 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 Init.)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Callahan, John A., P.G. Senior Geologist	9	9
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. <i>Ohio Department of Natural Resources.</i> 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. <i>Pennsylvania Services Corporation.</i> 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. <i>Allegheny Power System.</i> 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. <i>Pennsylvania Department of Environmental Protection.</i> 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 —		REGISTRATION (Type, Year, State) Professional Geologist, 1995, PA; 1996, MO; 1999, MS Certified CQA Geosynthetic Materials Inspector, 2008

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NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Kudritz, Joseph Lee, P.E. Civil Engineer	0	6

Brief Explanation of Responsibilities

Mr. Kudritz is a Civil Engineer with experience involving water and wastewater collection including water and wastewater hydraulic studies, sewer and force main alignments, constructing pump station operation and maintenance manuals, and cost estimation. Much of his background involves hydraulic and hydrologic studies and models, creating water elevation profiles, and working with topographic maps.

Simpson Creek Highwall, Tipple, and Portals Reclamation, Barbour County, West Virginia. *West Virginia Department of Environmental Protection.* Civil Associate. Performed hydrologic and hydraulic analysis for several unnamed streams. Tasks on the projects included: sizing the channels, sizing the grouted rock protection, and developing peak flow rates based on the contributing drainage area. Baker provided engineering services for the mine reclamation of the Simpson Creek Highwall, Tipple, and Portals. Baker's services included site reconnaissance; records review; surveying; subsurface investigation; water sampling and laboratory testing; engineering analysis and design; preparation of construction plans, specifications, and cost estimate; permitting; bidding-phase support; and construction monitoring.

Freeport Mine - PH I - Preparation of 6 Design Build RFP Packages and 1 Site Design -Bid Build Bid Package. *Freeport Mining.* Civil Associate. Responsibilities on this project included overseeing the drainage aspects on the entire site. Specific duties included, sizing the collection channels and the required erosion protection lining, sizing the necessary sediment traps, and coordinating the channel designs with those responsible for grading the proposed channels.

E02313 - WO 2 SR 519-138 FD. *Pennsylvania Department of Transportation, Central Office.* Civil Associate. Responsible for preparing the post construction stormwater management report and plans to be submitted with the NPDES Permit. Also responsible for specifying the required BMP stormwater controls and designing the stormwater detention basins at the site.

Open End Agreement, District 12 - General Design Open End. *Pennsylvania Department of Transportation, Central Office.* Civil Associate. Responsible for preparing the post construction stormwater management report and plans to be submitted with the NPDES Permit. Also responsible for specifying the required BMP stormwater controls and designing the stormwater detention basins at the site.

FEMA WR 44 KDKA PGH SWMP. *Kellogg Brown & Root.* Civil Associate. Performed all necessary calculations for the stormwater management controls used for the site. Prepared the stormwater management report for the project.

Engineering Services for Enhancement of the Presidential Emergency Radio Transmission Facilities, Nationwide. *U.S. Army Corps of Engineers, Omaha District.* Civil Associate. Performed all necessary calculations for the stormwater management controls used for the site. Prepared the stormwater management report for the project. Under a design-build relationship with a constructor, Baker conducted site evaluations, designed prototype structures for transmitters and generators, and prepared site designs at 35 locations to upgrade the presidential radio broadcast system. The modular facilities were designed to backup AM and FM transmissions during emergencies and withstand electromagnetic pulses, high winds, and other disasters. Baker's services included mechanical and electrical system design, generator and fuel storage system specifications, preparation of environmental surveys, adapting the prototype designs to individual site conditions, and construction management services during installation.

1971- 2013, Municipal Engineering Services, Koppel, Pennsylvania. *Koppel, Borough of.* Civil Associate. Responsible for determining the size and location of storm drains. From 1971 through 2013, Baker served as the municipal engineer for the borough, providing annual on-call engineering services. Baker's tasks ranged from planning and design through construction inspection to support the daily operations of the borough.

EDUCATION (Degree, Year, Specialization)

Graduate Studies, Water Resources & Environmental Engineering
B.S., 2007, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Engineers Without Borders (EWB), Pittsburgh Professional Chapter

REGISTRATION (Type, Year, State)

Professional Engineer: 2013, PA
ESRI Certification in ArcGIS 9.2, 2009, PA
AutoCAD Certification, 2008, 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 Init.)	YEARS OF EXPERIENCE	
Widdersheim, Mark R., P.E. Chemical Engineer	YEARS OF OSR DESIGN EXPERIENCE: 0	YEARS OF OSR RELATED DESIGN EXPERIENCE: 25
Brief Explanation of Responsibilities Mr. Widdersheim has been involved in environmental compliance and remediation projects for RCRA, Superfund, state-controlled, and private industrial sites. He has been a key player in the both the groundwater and wastewater treatment arenas (including sanitary systems). His responsibilities also have included engineering analyses/feasibility studies, treatability testing, process design (conceptual and detailed levels), and engineering cost estimating. Mr. Widdersheim has led and supported environmental compliance-related projects involving NPDES permitting, SPCC regulations application, stormwater pollution prevention, and emergency response planning. He is the certifying PE on SPCC and Pennsylvania PPC plans for numerous Baker clients. STEP Pump System Improvement, Confidential Location, Pennsylvania. Confidential Steel Client. Task Manager. Evaluated AMD pumping system limitations at the STEP hazardous waste landfill. Designed a new HDPE force main for acid mine drainage transfer to wastewater treatment plant for pH adjustment. Baker evaluated the STEP Landfill Acid Mine Drainage (AMD) transfer system with respect to its ability to transfer the increased flows that had been experienced since January 2003. The system was found to be limited primarily by friction losses in a heavily-scaled four-inch force main, but otherwise sufficient to handle the increased flow. A replacement six-inch force main was designed and installed and a construction certification report prepared and submitted to PADEP. Dumans Treatment Plant Evaluation, Barr Township, Ebensburg, Pennsylvania. Pennsylvania Department of Environmental Protection. Engineer. Responsible for study of the performance and management of an existing acid mine drainage (AMD) treatment system for PADEP, Bureau of Mines. Performed a comprehensive audit and provided operational troubleshooting for a 9.4-million-gallon-per-day acid mine drainage pumping station and wastewater treatment plant. Baker was charged with finding avenues to reduce the annual operation and maintenance cost materially for this facility, while maintaining compliance with applicable effluent limitations. Dramatic lime usage reduction was warranted to cut operation and maintenance costs. Baker performed a comprehensive audit and provided operational troubleshooting for a 9.4-million-gallon-per-day acid mine drainage pumping station and wastewater treatment plant. The project was performed wholly in-house with a multidisciplinary team of chemical, environmental, hydraulic, mining, and electrical engineers charged with finding avenues to materially reduce the annual operation and maintenance cost of this facility while maintaining compliance with applicable effluent limitations. 2011 IE PTI Drawings, Confidential Location. Confidential Steel Client. Project Manager. Prepared "as-built" process drawing relating to an ion exchange for selenium removal from leachate from a hazardous waste landfill. These were submitted to OEPA to retroactively complete the Permit-to-Install for the operation. Sampling and Sample Tracking, Confidential Location. Confidential Steel Client. Team Member. Responsible for NPDES Part I permit renewal data collection and application completion. Designed a new HDPE force main for acid mine drainage transfer to treatment plant. Document Review Services for Pollution Prevention Plans, Various Locations, United States. Air National Guard CRTC/FMB. Environmental Engineer. Performed third party review and commenting on draft environmental plans for various ANG bases. Baker provided third-party technical reviews of stormwater pollution prevention plans; spill prevention, control, and countermeasure plans; and oil and hazardous substance pollution control plans for 58 client installations to ensure regulatory compliance. STEP 2011 Monument Survey. Confidential Steel Client. Project Manager. Coordinated a triennial monument and gas well survey and prepared revised map to document settlement conditions relating to a hazardous waste landfill cap system. Feasibility Study/Preliminary Design of Coagulation Pits, Confidential Location, West Virginia. Confidential Client. Engineer. Responsible for data collection and remedial alternatives development for coagulation management and closure of existing in-ground pits. The measures were necessary to meet the requirements of the responsible party's RCRA Corrective Action Agreement. Mark's work included the redesign of the resin and latex coagulation pits that were identified as a Solid Waste Management Unit (SWMU). Meeting regulatory standards for groundwater protection, air emissions, solid waste disposal, and wastewater treatment were critical elements in the design. Baker was enlisted by a plastics manufacturer to address interim measures for the client's in-ground coagulation pits, as required by their RCRA Corrective Action agreement. The project encompassed the redesign of the resin and latex coagulation pits identified as Solid Waste Management Units (SWMUs). It was the intent of the client to place an alternative coagulation system into service. Regulatory standards for groundwater protection, MACT air emissions control standards, solid waste disposal and wastewater treatment were the driving factors in the redesign of the pits.		
EDUCATION (Degree, Year, Specialization) B.S., 1989, Chemical Engineering		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS —	REGISTRATION (Type, Year, State) Professional Engineer: 1994, 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 OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Case, Gary R. Environmental Scientist	0	26

Brief Explanation of Responsibilities

Mr. Case is a senior environmental scientist with professional experience in the comprehensive management of asbestos and lead, as well as health and safety, industrial hygiene, risk assessment, and environmental compliance. His work has encompassed environmental site assessments, site characterization, project cost development and data tracking, and traditional industrial hygiene project performance.

Pre-Demolition Environmental Services, Scranton, Pennsylvania. City of Scranton. Project Manager. Responsible for the hazardous materials investigation, consulting, design issues, and project management during this project. Baker assisted the city with its Blight Housing Program to remove abandoned, blighted residential buildings in order to improve property values, enhance the image of the city, and guarantee safety in the neighborhoods. Baker provided hazardous material consulting services and performed asbestos-containing material inspections for 50 unoccupied, private dwellings prior to demolition activities.

Open-End Environmental Consulting Services, Various Locations, Indiana. Confidential Client. Team Member. Responsible for coordination of removal of over 1,000 cubic yards of asbestos waste materials, oversight for disposal of lead-based paint, laboratory chemicals, fume hood decommissioning, PCBs, and mercury. Under an open-end environmental agreement, Baker provided consulting services for demolition and decommissioning projects at industrial sites and pharmaceutical research and development laboratory sites. Baker's tasks include feasibility studies, site characterization, permitting, decontamination and asbestos abatement oversight, demolition design, storage tank management and closure, engineering design and construction inspection, site remediation coordination, regulatory agency coordination, third-party review, and overall project and construction management

Open-End Engineering Support for Abandoned Mine Lands Reclamation Projects, Various Locations, Ohio. Ohio Department of Natural Resources. Senior Environmental Scientist. Responsible for the investigation, consulting, support issues, and project management during this project. Baker provided open-end engineering support to address reclamation needs associated with abandoned mine lands and acid mine drainage. Under this agreement, projects were investigated to solve abandoned mine land issues and to assist the client in addressing safety and environmental issues as a result of historic mining. Baker's tasks included field investigation, surveying, geotechnical analysis, hydraulic and hydrologic analysis, grading design, drainage control design, report development, construction document development, emergency services, public outreach, and construction consultation.

Comprehensive Facility Assessment and Architectural/Engineering Services, National Energy Technology Laboratories, Bruceton, Pennsylvania. U.S. Department of Energy. Team Member. Assisted in an industrial hygiene, health, and safety audit consisting of a detailed compliance inspection of a series of laboratory buildings and pilot plant operations. Baker provided architecture, engineering, and program and construction management under two consecutive five-year open-end contracts for Title I, Title II, and Title III services for the entire 32-building campus. Task orders for 233 projects were completed under these contracts.

AST Remedial Action, Dinosaur National Monument (DINO), Jensen, Utah. National Park Service. Senior Environmental Scientist. Responsible for the AST investigation, consulting, design issues, and project management during this project. Baker conducted an initial phase of a remedial action for diesel-contaminated soil in an area of an above ground storage tank (AST) in the maintenance area. This action included excavation, transportation, and off-site disposal of shallow contaminated soil.

Engineering Services for Citric Acid Production Operations Demolition and Decontamination, Confidential Location, Indiana. Confidential Client. Team Member. Responsible for coordination of removal of over 1,000 cubic yards of asbestos waste materials, oversight for disposal of lead-based paint, laboratory chemicals, fume hood decommissioning, PCBs, and mercury. Baker provided all engineering, permitting, decontamination, asbestos abatement, demolition design, and site remediation services and overall project and construction management for the demolition and removal of a citric acid production complex and related support facilities at a pharmaceutical manufacturing plant. Facility removal involved approximately 200,000 square feet of multistory buildings associated with a food-grade citric acid production packaging and distribution operation, 100,000 square feet of exterior tank farms, 100,000 square feet of paved loading and yard areas, a wastewater treatment plant, and miscellaneous support and maintenance buildings.

EDUCATION (Degree, Year, Specialization)

B.S., 1987, Petroleum Engineering/Natural Gas Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

American Industrial Hygiene Association (AIHA), National Chapter, Pittsburgh Chapter
Society of Petroleum Engineers (SPE)
Steel Structures Painting Council (SSPC)

REGISTRATION (Type, Year, State)

EPA Lead Project Designer and Supervisor, 2012, Washington, DC & Virginia
Lead Risk Assessor License: 2010, DC; 2008 VA

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NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE:	YEARS OF OSR RELATED DESIGN EXPERIENCE:
Sarver, Jr., Carl E. Project Designer	2	23
Brief Explanation of Responsibilities Mr. Sarver's expertise in geology and chemistry enables him to perform diverse mining and environmental projects for our clients. Mr. Sarver serves as one of Baker's key personnel in the permitting of underground coal mining and surface operations. He has personally performed or managed various aspects of mining projects, including designing and/or permitting for underground deep mine expansions, surface support facilities such as air shafts and portals, and pipeline alignment and permitting services. Mine Bleeder Shaft, Confidential Location, West Virginia. Confidential Client. Task Manager. Responsibilities included IBR permit revision for airshaft installation. Also responsible for project budget/schedule, client interface, WVDEP agency interface, and permit preparation. Baker prepared the site design and secured permits for development and operation of a new 10-acre mine bleeder shaft site. Bailey AMD Pipe & 4S BH Permit. Confidential Client. Task Manager. Responsible for managing the final phase, which included design and permitting of AMD sludge injection borehole site and associated pipeline alignment in Pennsylvania and West Virginia. Also responsible for the oversight and preparation of permit documents to the West Virginia DEP. STP NPDES Permitting, Confidential Location, Pennsylvania. Confidential Client. 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 assistance for the design of a 24,000 gallon-per-day sewage treatment plant (STP) to serve the bathhouse and related facilities at a coal mine airshaft and portal facility. Tasks included preparing the Pennsylvania Department of Environmental Protection (PADEP) sewage facilities planning module and NPDES Part I and Part II Permit applications. Best Management Practices (BMP) Plan, Haverhill, Ohio. Aristech Chemicals Corporation. Environmental Scientist. Acting as both Geologist and Field Inspector, responsibilities included construction inspection and oversight of sheet pile installation (stabilization of existing dikes), documentation of all site activities, and assistance in the design, implementation, and oversight of excavation and treatment activities. Related work included preparing a RCRA closure plan, evaluating soil treatment alternatives, and performing periodic progress monitoring and data evaluation. Baker developed a Best Management Practices (BMP) Plan for Aristech Chemical Corporation's Haverhill plant to meet NPDES Permit requirements. The BMP Plan was designed to minimize the discharge of toxic pollutants, oils, and other unauthorized pollutants through the plant's NPDES outfall to the Ohio River through the implementation of specific pollution prevention controls, measures, and procedures. Consol - Hahn Permit Renewal. Confidential Client. Project Manager. Responsibilities include preparation and oversight of a PADEP renewal permit for existing surface support facility for treated acid mine drainage. Hutshinson AMD Plant Permit Renewal. Confidential Client. Project Manager. Responsibilities include preparation and oversight of a PADEP renewal permit for the existing surface support facility for treated acid mine drainage		
EDUCATION (Degree, Year, Specialization)		
B.S., 1991, Geology/Chemistry		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS		REGISTRATION (Type, Year, State)
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14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE AML DESIGN SERVICES

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 for Earthwork, Survey, Quantity, Calculations,
 Terrain Modeling, Coordinate Geometry, Site Grading, etc.

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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 and 2014

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

ESRI: 4 – ARC/Info, Version 10.X
 9 – ArcView, Version 10.X (6 are Beaver licenses)
 10 – ArcEditor, Version 10.X (6 are Beaver licenses)
 1 – Spatial Analyst
 1 – 3D Analyst
 1 – ArcCOGO

AutoCAD, Version 2014 and prior versions

1 – Visual Basic, Version 6
 1 – Visual Studio 2013 Architects w/MSDN Premium
 1 – Visual Studio 2013 Developers w/MSDN Premium
 1 – Visual Studio 2013 Pro w/MSDN Premium

ARCInfo and ARCEditor are concurrent licenses
 ARCView concurrent 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

PHOTOGRAMMETRIC EQUIPMENT

Softcopy Stereoplotters

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

Digital Orthophoto

2 – HP Z600 E5640 @ 2.67 GHz Processor X2, 120 GB RAM, 232 GB 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 – MrSID, Geo Express 8.5
 1 – ImageStation Automatic Triangulation (ISAT) 6.2
 7 – IRAS – C, Version 10.1
 1 – Adobe Photo Shop 5, Version 10.0
 1 – ERDAS Imagine, Version 2010
 2 – ImageStation Base Rectifier-ISBR, Version 6.2
 3 – ImageStation DTM Collection-ISDC, Version 6.2
 3 – ImageStation Feature Collection (ISFC) 5.3
 3 – ImageStation Model Setup (SMS) 5.3
 2 – ZI Ortho Pro/Geo Media, Version 6.2
 34 – MicroStation – J & 8, Versions V8 and V8i
 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
Ebenezer Run Highwall #9 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, check survey, erosion and sedimentation controls, backfilling of existing highwalls to stable configurations, site grading, upgrade of existing access roads, reclamation of onsite spoil and coal refuse, 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 drilling by sub-consultants, water quality sampling and the preparation of the WV NPDES Stormwater Permit.	\$101,413 (Fee) \$1,100,000 (Construction)	80%
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)	98%

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
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) \$1,085,000 (Construction)	95%
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)	99%
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.	\$1,300,000 (Fee)	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
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)	92%
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)	75%
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	\$9,800,000 (Fee)	95%
Design & Construction Management Services for the Coney Island Water Pollution Control Plant Upgrade New York	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)	98%
TOTAL NUMBER OF PROJECTS:		TOTAL ESTIMATED CONSTRUCTION COSTS:		
9		\$52,315,717 (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)
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	\$119,000 (Fee)	2013	Yes
Prime No. 1 Mine Fetty Portal Monongalia County, West Virginia	Dana Mining 308 Dents Run Road Morgantown, WV 26501	\$103,000 (Fee)	2013	No
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

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)
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

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
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

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
OSR CONSULTANT QUALIFICATION QUESTIONNAIRE**

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 we have been providing our engineering services in these areas to the West Virginia Department of Environmental Protection (WVDEP) since they initiated its AML Reclamation Program in 1983. Baker's AML/AMD experience has developed the skill set for Special Reclamation projects and we have supplemented this skill set by adding key individuals like Mr. Charlie Stover. Mr. Stover's experience and history with West Virginia's AML Program and specifically The Office of Special Reclamation will be invaluable to this project. We also provide services in this area to 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. Through these experiences, Baker has garnered AML/AMD-specific recognition and developed long-standing business relationships through successful endeavors based on our ability to provide the following services at a level that meets environmental standards while exceeding client expectations:

- ◆ Reclamation of mine refuse piles
- ◆ Mine Sealing
- ◆ Subsidence Control
- ◆ Balanced earthwork and grading
- ◆ Strip pit and high wall reclamation
- ◆ Drainage conveyance and improvements
- ◆ Revegetation of acid bearing ground
- ◆ Stream relocation and natural stream channel design
- ◆ Wetland assessments and inventory
- ◆ Restoration of streams and wetlands
- ◆ Landslide identification, investigation and remediation
- ◆ Replacement of water supplies affected by mining
- ◆ Efficient Passive and active AMD treatment systems



Although the projects presented in the Project Experience Matrix of Attachment "C" of the Consultant Confidential Qualification Questionnaire (CCQQ) clearly show Baker's Special Reclamation 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. This AML/AMD experience directly transfers to the type of services needed for the Special Reclamation Bond Forfeiture projects. Additionally, these types of projects may require some unique technical

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skills beyond a typical AML project. We can bring the full depth of in-house technical services to the project as needed. Based on our observations from field viewing the **Greendale site**, this includes items like Hazard Material Management for inventory abandoned and partially full chemical containers, LiDAR experts for securing mapping of large and altered sites, liner or cover experts for closing a large refuse area, to name a few. The following narrative further describes our experience and provides insight into the special capabilities of Baker.

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 Charleston office and supported by our Pennsylvania 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:

Field Investigation and Design Solutions

Sometimes it is about not reinventing the wheel. Our field investigations start with a literature review of any available mapping, historic mine maps, old aerial photographs, mined out area maps, landslide susceptibility maps, geologic maps, soil conservation service reports, etc. After compiling and review of available existing resources, we perform a field view of the project. Our specialized experience and technical ability has taught us that a typical Special Reclamation project is a puzzle with many pieces. Because of the 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.

Design Systems – Active and Passive

Baker's design experience includes both active and passive treatment systems, which is based on the characterization of the AMD site as well as the flows and chemistry of the AMD. To this end, Baker provides AMD sampling to determine chemical parameters as well as the flow measurements

covering high- and low-flow periods that are most important in developing AMD abatement system. To date, **Baker has evaluated and designed 14 AMD abatement systems**, three of which are passive treatment systems that have been recently constructed and are currently in service.

Additionally, Baker has designed **seven AMD remediation projects for WVDEP** alone that included open limestone channel (OLC), anaerobic and



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aerobic wetlands and settling ponds, limestone sand dumping in the stream, and alkaline leach bed/anoxic limestone drains. Other Baker AMD abatement designs have been designed for USACE's Baltimore and Nashville Districts. The photo to the right shows an area of an AMD discharge at the toe of the Carson One Mining Refuse Pile that was observed during a field view.

Evidence of past chemical treatment was observed during our field visit for this discharge. This may have been a caustic drip or chemical mixing treatment. Should this type of AMD treatment be determined to be the most appropriate treatment means, Baker is prepared to analyze the various chemicals for the optimum application and ratio.

Geotechnical Investigation and Analysis

In designing special reclamation projects, generally three types of soil analysis are needed. These analyses may include:

- ◆ Geotechnical analysis (bearing capacity, friction angle, etc.)
- ◆ Soil analysis for revegetation potential (pH, Acid Base Accounting, Nutrients)
- ◆ Soil analysis for hazardous materials where past dumping may have occurred.

Baker is involved in selecting and collecting the soil samples and analyzing the results of laboratory testing as required for design. Of the 30 most recent AML projects, Baker was involved in soil analysis for 20 projects.



Hydrology and Hydraulic Analysis

Baker has used specialized regional and local hydrologic methods in our 50+ years of combined experience in the program and during our work on local and federal contracts. The team has experts in hydrologic analyses who have experience using a variety of current hydrologic methods, including HEC-1, HEC-2, HEC-RAS, HY8, TR20, TR55, HAESTADS PONDS 2, FLOWMASTER, HDYRDOFLOW, KYPIPE 2, CYBERNET, SEDCAD 4, UNET, and DAMBRK. Baker applies these models 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. The team is also skilled in calibrating the rainfall runoff models in to historical data to justify results. We realize that each watershed is different from the next and that knowledge of local characteristics can be important.

Expertise in hydrology and hydraulics is essential in any AML/AMD remediation design. **Of the 30 most recent AML/AMD projects, 27 projects needed hydrology/hydraulics expertise of the AML/AMD design group.**

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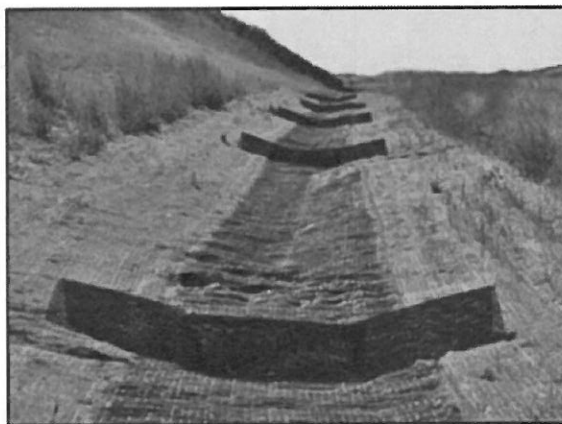
Storm Water Management



Baker applies advancements in sediment control devices to provide an environmentally low impact, cost-effective design for reclamation projects. This approach uses sediment tube traps and wattles in lieu of the conventional sedimentation ponds. These devices filter sediment laden runoff through them while also reducing hydraulic energy. They also provide a higher efficiency of pollutant removal than conventional methods and reduce the project's total disturbed area typically needed when conventional sedimentation basins are utilized. Baker grades the site such that all storm water 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.

Development of Balanced Earthwork and Grading

Baker typically employs AutoCAD Civil 3D for production of grading plans, profiles, details, cross sections, and balancing cut and fill volumes on AML projects. We have presented a team that includes experts in utilizing this tool for grading and evaluating excavation and fill quantities to produce a balanced AML site. AutoCAD Civil 3D is a powerful tool for abandoned mine land projects allowing the rapid evaluation of grading plan alternatives and calculation of bid item quantities. It is especially useful for projects requiring extensive backfilling and grading, such as required for projects with large refuse and gob piles, highwalls, and other abandoned surface disturbances. If required, Baker is also capable of utilizing Bentley MicroStation for development of plans and earthwork balancing.



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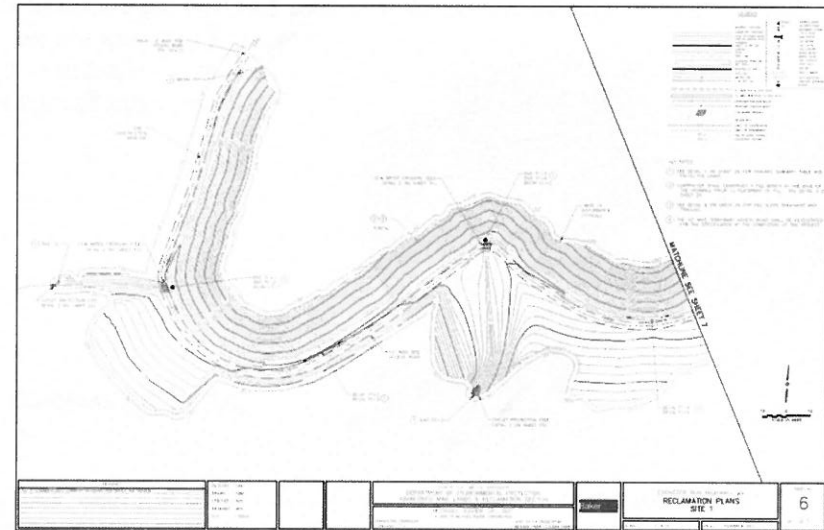
Preliminary Design, Final Design, and Construction Documents

Baker's expert team of licensed professional engineers are experienced in preparing preliminary design reports, construction plans, specifications, bid tabs, and cost estimates for projects including mine subsidence and grouting, portal sealing, highwall backfilling, AMD Treatment and landslide stabilization.

Baker was relied upon to write the manual for PADEP for the Permitting for Surface Facilities related to Coal Mining. A manual in which the guidelines are set for all mine permitting to be used by the Operators. This provides for a consistent and methodical process to permit the facilities and ensures the protection of the environment. This trust in Baker by PADEP to take responsibility for this important document is just a sampling of the trust WVDEP has always placed in Baker. It also demonstrates our knowledge of the mining processes and procedure. That understanding of how mining occurs today and historically yields valuable insight into developing solutions to deal with the resulting special reclamation projects.

Permitting

Every design project must be permitted; however the role of permitting is often overlooked. Baker can prepare the required permitting documentation for special reclamation designs to obtain the required permits and authorizations. Baker has an experienced team of professionals that have a diverse background in environmental and regulatory permitting. Permits are prepared in-house by a team that is intimately involved with the design of the project and has working relationships with regulatory agencies. In many instances, our working relationships with the regulatory community have allowed us to fast-track permits or permit revisions due to unforeseen conditions. This has saved our client valuable time and funding during design and construction. Beyond the application, Baker provides technical representation to support our client's position during the permit negotiations.



Mobile LiDAR Capabilities

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

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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 Civil 3D 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 Civil 3D 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.

Additional Services

Baker also provides the following services for Special Reclamation and water system design projects:

- ◆ Mapping and Aerial Photography
- ◆ Surveying
- ◆ Environmental Evaluations and Assessments
- ◆ Data Acquisition and Interpretation
- ◆ Construction Management

Since we can furnish all of the engineering related services required for abandoned mine lands reclamation projects "in-house", 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.

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

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,

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.

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.

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 capabilities facilities can speed project completion and facilitate tracking of progress. The in-house capabilities 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

- ◆ 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 and technical services listed under item 12 of the CCQQ describe competencies typical of various projects for which we provided our services to WVDEP.



Kempton Refuse and Acid Mine Drainage/Abandoned Mine Lands Project in Tucker County, West Virginia. The West Virginia Department of Environmental Protection was honored by the U.S. Department of the Interior's Office of Surface Mining for its reclamation and restoration efforts on the Kempton Project. To find out more about West Virginia's Abandoned Mine Lands Program go to: <http://www.dep.wv.gov/aml/Pages/default.aspx>

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.

- ◆ 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 Special Reclamation 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.
- ◆ Our Quality Assurance Manager, Mr. Christopher Ruppen and our proposed Project Manager for this assignment, Mr. Patrick Fogarty, both demonstrate the desire and commitment that WVDEP deserves and expects for this assignment.
- ◆ The qualifications and experience of Mr. Charlie Stover speak for themselves. His experience in all aspects of AML work is a true benefit to the project and our team. Charlie's intimate knowledge of the Department's goals and objectives, combined with Baker's technical resources, will yield an unsurpassed team that is quality driven.
- ◆ Our commitment is demonstrated by the fact that all three individuals have conducted comprehensive field views of the Carson One and Gladly Fork sites and been involved with the interpretation of the mining history leading to the current day site conditions.

3. Corporate Specialized Experience and Demonstrated Abilities

- ◆ Baker's specialized experience with special reclamation related problems is summarized in the special reclamation and Related Projects Matrix in Appendix C. Our work has addressed the full spectrum of special reclamation projects.
- ◆ 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 special reclamation problems.
- ◆ Baker applies advancements in sediment control devices to provide an environmentally low impact, cost-effective design for reclamation projects. This approach uses sediment tube traps and wattles in lieu of the conventional sedimentation ponds. These devices filter sediment laden runoff through them while also reducing hydraulic energy. They also provide a higher efficiency of pollutant removal than conventional methods and reduce the project's total disturbed area typically needed when conventional sedimentation basins are utilized. Baker grades the site such that all storm water 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

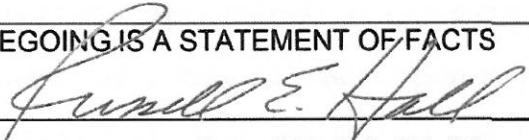
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the erosion control devices to be placed incrementally as construction progresses. Once the site is vegetated, the controls are removed without any further reclamation that typically occurs with traps and ponds. The application of these new technologies also results in lower construction cost and project duration while providing a high efficiency of pollutant removal.

- ◆ Our specialized experience and technical ability has taught us that a typical Special Reclamation 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, and cost-effective design. We take this responsibility very seriously.
- ◆ Baker routinely finds these puzzle pieces and utilizing various tools, piecing various references together to depict a quick preliminary overview of the project. This information becomes a basis for all future work by providing a clear understanding of the history and the current disposition of the site. This tool becomes the foundation for developing a sound and efficient design solution.

This is the type of homework Baker conducts for every AML/AMD project and this is what we will deliver for WVDEP for special reclamation projects.

20. THE FOREGOING IS A STATEMENT OF FACTS

Signature:  Title: Assistant Vice President Date: June 19, 2014

Printed Name: Russell E. Hall, PE, PS

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&P	M&P	P&M	P	P	P	P	P	P	P	P	P	P	P	P	M&P	M&P	P	P	M&P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

BAKER AML and RELATED PROJECT EXPERIENCE MATRIX Attachment "C"

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No. 4 Reclamation Masontown (WVDEP)	C&P		*	*	*	*			*	*		*	*	*	*	*	M & P	Charles Stover - Special Reclamation Program Coord.		
No. 6 Shaft and Dewatering Pipeline (Cumberland Coal Resources LP)	C&P	15			*	*			*	*			*	*	*	*	M & P	Christopher A. Ruppen, P.G. – Mining Service Manager		
Powell River Ecosystem Restoration, Ely & Puckett Creek, Virginia (USACE)	C&P	18	*	*	*	*		*	*	*		*		*	*	*	P & M	William D. Neider, P.E. – Project Manager / Lead Civil		
Ruthbelle Refuse Fire (WVDEP)	C&P		*	*	*	*	*		*	*			*	*	*	*	P	John D. Lasko, P.G. – Geotechnical		
Simpson Creek Tipple and Portals Project (WVDEP)	C&P	17	*		*	*			*	*		*	*	*	*	*	P	Edward H. Barefield, P.G. – Geotechnical		
Turnhole Branch Reclamation (WVDEP)	C&P			*	*	*	*		*	*			*	*	*	*	P	John R. (JR) Grimm – Site Design		
Twilight Burning Refuse (WVDEP)	C&P		*	*	*	*	*		*	*		*	*	*	*	*	P	Michael J. LaMont – Site Design		
US Steel RCRA Closure Plan (USS)	C&P				*	*		*	*	*		*	*	*	*	*	P	Steve Savich, P.E. - Demolition		
Waitman Barbe Highwall #1 (WVDEP)	C&P	15	*	*	*	*			*	*		*	*	*	*	*	P	Michael J. Saylor, E.I.T. – Civil Design		
Watson Portals & Refuse Reclamation (WVDEP)	C&P		*	*	*	*			*	*		*	*	*	*	*	M & P	Jeff Weiss		
Wymer Portals and AMD (WVDEP)	C&P	17	*		*	*			*	*		*	*	*	*	*	M & P	Carl Jeffreys, P.E., P.G. – Liners and Cap Cover		
																	P	John A. Callahan, P.G. – Geotechnical		
																	P	Joseph Kudritz, P.E. – Hydrology & Stormwater		
																	M & P	Mark Widdersheim, P.E. – NPDES & Haz. Management		
																	P	Gary Case – Hazardous Material Management		
																	P	George Kay, P.E. – Water Treatment		
																	M & P	Shirini Dharmapuri – Aerial LIDAR		
																	P & M	Carl E. Sarver, Jr. – Geology / Mining		
																	P	Mark Anderson – Mapping & LIDAR		
																	P & M	Steve Frazer, PLS - Surveying		
																	P	Robert Jones - Mapping		
																	P	Scott Zang, P.E. – Refuse Disposal		
																	P	Patrick Fogarty, P.E. – Civil / AML Design		
																	M	Russell E. (Rusty) Hall, P.E., P.S. – Principal		

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

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																				M & P	M & P	P & M	P	P	P	P	P	P	M & P	P	M & P	P	P	P	P	M								
9 County Roads Water Supply Feasibility Study, Preston County, WV (WVDEP)	C&P	17				*				*	*					*				*					*																			
Beech Bottom Refuse (WVDEP)	C&P	17	*		*	*				*				*	*	*					*				*																			
Borgman Refuse & Portals (WVDEP)	C&P	17	*	*	*	*				*	*		*				*						*																					
Buckeye Reclamation Landfill CERCLA Site (Consol)	C&P	15	*			*				*	*	*	*	*	*	*	*			*				*				*		*									*					
Chalk Mountain Mine (The Feldspar Corp)	C&P	17	*			*				*				*		*			*				*		*					*														
Collier Sportmans Club Highwall (WVDEP)	C&P	15	*		*	*			*								*		*	*	*	*	*	*	*	*					*		*											
Columbia Portland AML Reclamation (ODNR)	C&P		*	*	*	*				*	*					*							*																					
Crooked Run #5 Drainage, Refuse and Portals (WVDEP)	C&P	17	*	*	*	*				*	*		*	*									*				*													*	*			
Davidson Highwall Project (WVDEP)	C&P	17	*		*	*				*	*		*		*	*				*	*																							
Dennison S.R. 800 AML Reclamation (ODNR)	C&P			*	*	*				*	*			*		*							*																					
Ebenezer Run Highwall #9 (WVDEP)	C&P	15	*			*				*	*						*	*	*	*	*	*	*	*	*	*	*	*																

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Powell River Ecosystem Restoration, Ely & Puckett Creek, Virginia (USACE)	C&P	18	*	*	*	*				*	*	*	*		*		*						*	*	*	*	*			*			
Ruthbelle Refuse Fire (WVDEP)	C&P		*		*	*		*			*			*		*								*									
Simpson Creek Tipple and Portals Project (WVDEP)	C&P	17	*		*	*					*	*		*	*	*	*	*	*		*		*										
Turnhole Branch Reclamation (WVDEP)	C&P			*	*	*	*				*	*																					
Twilight Burning Refuse (WVDEP)	C&P		*	*	*	*		*			*	*		*	*	*	*																
US Steel RCRA Closure Plan (USS)	C&P					*				*	*	*		*	*		*	*					*			*							
Waitman Barbe Highwall #1 (WVDEP)	C&P	15	*		*	*					*	*					*	*	*	*	*	*	*		*		*			*			
Watson Portals & Refuse Reclamation (WVDEP)	C&P		*	*	*	*					*	*		*	*	*	*																
Wymer Portals and AMD (WVDEP)	C&P	17	*		*	*					*	*		*	*	*	*	*	*	*	*	*	*		*								

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