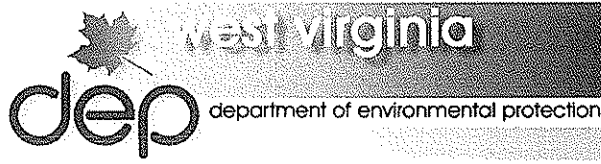


Submitted to:



# Expression of Interest

## Professional Engineering Design Services and Construction Monitoring Services for the Coaldale Mountain Refuse Pile Design

RFQ# DEP14948



Submitted by:



Hatch Mott  
MacDonald

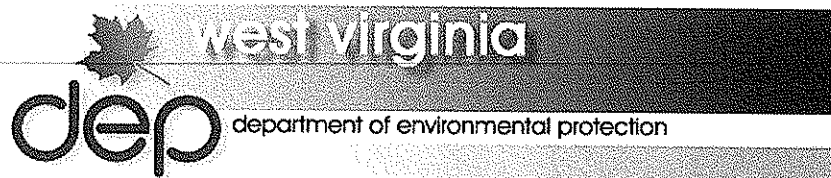
March 18, 2010



Hatch Mott  
MacDonald

**Expression of Interest  
for  
Professional Engineering Design Services and  
Construction Monitoring Services for the  
Coaldale Mountain Refuse Pile Project**

**RFQ # DEP14948**





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

# Request for Quotation

RFQ NUMBER  
 DEP14948

PAGE  
 1

ADDRESS CORRESPONDENCE TO ATTENTION OF  
 CHUCK BOWMAN  
 304-558-2157

VENDOR

RFQ COPY  
 TYPE NAME/ADDRESS HERE

Hatch Mott MacDonald  
 2601 Cranberry Square  
 Morgantown, WV 26508

SHIP TO

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

|                            |               |          |        |               |
|----------------------------|---------------|----------|--------|---------------|
| DATE PRINTED<br>02/10/2010 | TERMS OF SALE | SHIP VIA | F.O.B. | FREIGHT TERMS |
|----------------------------|---------------|----------|--------|---------------|

BID OPENING DATE: 03/18/2010 BID OPENING TIME 01:30PM

| LINE  | QUANTITY | UOP | CAT NO | ITEM NUMBER | UNIT PRICE | AMOUNT |
|---|----------|-----|--------|-------------|------------|--------|
| 0001  | 1        | JB  |        | 906-29      |            |        |
| COALDALE MOUNTAIN REFUSE PILE DESIGN<br><br>EXPRESSION OF INTEREST<br><br>THE WEST VIRGINIA PURCHASING DIVISION, FOR THE AGENCY,<br>THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL<br>PROTECTION, IS SOLICITING EXPRESSIONS OF INTEREST FOR<br>PROFESSIONAL ENGINEERING DESIGN SERVICES AND<br>CONSTRUCTION MONITORING SERVICES AT THE COALDALE MTN.<br>REFUSE PILE PROJECT IN MCDOWELL COUNTY, WEST VIRGINIA<br>PER THE FOLLOWING BID REQUIREMENTS AND ATTACHED<br>SPECIFICATIONS.<br><br>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES<br>FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE<br>CONTRACT NULL AND VOID AND TERMINATE SUCH CONTRACT<br>WITHOUT FURTHER ORDER.<br><br>***** THIS IS THE END OF RFQ DEP14948 ***** TOTAL: |          |     |        |             |            |        |

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

|                                       |                           |                                   |
|---------------------------------------|---------------------------|-----------------------------------|
| SIGNATURE<br><i>Sanithy m. T. Cue</i> | TELEPHONE<br>304-212-4390 | DATE<br>3-10-10                   |
| TITLE<br>Morgantown Office Manager    | FEIN<br>16-1006700        | ADDRESS CHANGES TO BE NOTED ABOVE |

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

STATE OF WEST VIRGINIA  
Purchasing Division

**PURCHASING AFFIDAVIT**

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

**DEFINITIONS:**

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

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

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

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

**WITNESS THE FOLLOWING SIGNATURE**

Vendor's Name: Hatch Mott MacDonald

Authorized Signature: *Jonathan M. Rice* Date: 3-10-10

State of West Virginia

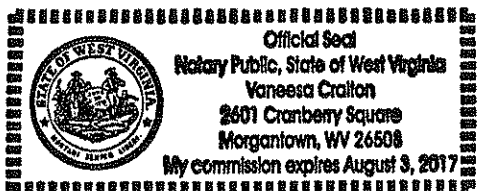
County of Monongalia, to-wit:

Taken, subscribed, and sworn to before me this 10 day of March, 2010.

My Commission expires August 3, 2017.

AFFIX SEAL HERE

NOTARY PUBLIC *Vanessa Crafton*





Cover Letter

Section 1 – Corporate History & Experience

Section 2 – CCQQ – Attachment “B”

Section 3 – RPEM – Attachment “C”



**Hatch Mott  
MacDonald**

2601 Cranberry Square  
Morgantown, WV 26508  
T 304.212.4390 F 304. 594.2814  
[www.hatchmott.com](http://www.hatchmott.com)

March 18, 2010

Mr. Chuck Bowman, Buyer Supervisor  
West Virginia Department of Environmental Protection  
Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130

**RE: RFQ # DEP 14948**  
**Expression of Interest for Professional Engineering Design Services and**  
**Construction Monitoring Services for Coaldale Mountain Refuse Pile Project**  
**McDowell County, WV**

Dear Mr. Bowman:

Hatch Mott MacDonald (HMM) is pleased to submit this proposal to provide design, mapping and construction monitoring services for the West Virginia Abandoned Mine Lands (AML) and Reclamation Program. This project's focus on reclamation design and related services is a principal area of expertise within our firm.

With a lineage stretching back over a century, involvement in the design and construction of ambitious projects and a multi-disciplined staff with comprehensive engineering skills, HMM possesses the practical knowledge and experience needed to meet the technical challenges of any given project. Our approach is strictly client focused with a corporate commitment to engineering excellence. HMM provides services for all aspects of engineering projects, from feasibility studies and surveys through design, to project and program management, construction management and supervision, start-up and operations.

HMM has targeted West Virginia, and specifically the Abandoned Mine Lands discipline as a strategic area of focus for our business. In order to provide an exceptional service and product, we have hired veteran staff with specific experience with the Abandoned Mine Lands Program. Our Morgantown and Charleston offices have several staff members that collectively have more than 100 years of direct design and management experience with AML design projects of all kinds. Our experience includes successful projects with numerous state programs including WVDEP. Many of these staff members have worked together on AML designs and mining related issues continuously for the past 18 years and have collaborated to produce numerous award-winning projects including an Office of Surface Mining national award in 2003.

This Expression of Interest submittal relates specifically to reclamation design, a core competency of HMM. Our management staff and design leaders have worked on various AML

design projects for the WVDEP. These projects include mine fires, mine seals, mine subsidence, stream mitigation, hydraulic studies, AMD treatment, refuse reprocessing, refuse fires, and slope stabilization. At least five different members of our staff have various levels of Natural Stream Channel Design Certification (Levels I-IV). We are presently providing stream remediation and impoundment remediation to our clients.

A variety of project briefs, as well as our AML and Related Project Matrix, have been included in this submittal to demonstrate how HMM has successfully completed projects similar to this project as well as larger and more complex water-related projects.

Having successfully completed projects across a wide range of sizes and complexities has demonstrated that we have the experience to provide the appropriate project management approach for each project. HMM maintains a strong corporate QA/QC philosophy for all our work, illustrated by the fact that we are ISO 9001:2000 certified.

HMM opened our Morgantown, WV office in July 2006 and currently employs a total staff of 44 people. We also opened a Charleston, WV office in the spring of 2009 to better serve WVDEP-AML and southern West Virginia. This office is being managed by Gary Facemyer, P.E., a veteran AML design manager for the past 20 years. The Charleston office is presently providing surveying, design, and drafting services, while operating as a single business unit with our Morgantown office to share our extensive experience and vast resources.

Our in-house capabilities include civil, mechanical, and mining engineers, CAD designers, geologists, environmental scientists, biologists, and other field staff. This office is strategically located to be able to easily service this project. In addition to HMM's highly qualified staff, we have invested significant resources to make state-of-art technology and tools available to our staff. We have over 20 Trimble GPS units that are used by our field staff on a regular basis to support other clients. We have also invested in new large format plotters and scanners to give our staff cutting edge technology to provide the highest quality deliverables possible.

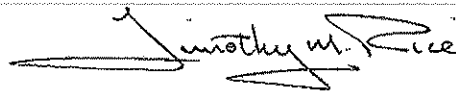
We appreciate the opportunity to submit this Expression of Interest and look forward to establishing a successful working relationship. Please contact myself or another member of our staff with any additional questions you may have.

Very truly yours,

**Hatch Mott MacDonald**



**Richard L. Steinhart, PE**  
**Vice President**  
T 412.497.2910 F 412.497.2940  
[richard.steinhart@hatchmott.com](mailto:richard.steinhart@hatchmott.com)



**Timothy M. Rice**  
**Senior Project Manager**  
T 304.212.4388 F 304.594.2814  
[timothy.rice@hatchomott.com](mailto:timothy.rice@hatchomott.com)

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[corporate history & experience]



## INTRODUCTION

With engineering design experience extending over a century, our involvement in the design and construction of many of the most ambitious infrastructure projects in the world has prepared our multi-disciplined staff with the comprehensive engineering skills needed to meet the challenges of any project. Hatch Mott MacDonald (HMM) possesses the practical knowledge and specific experience needed to meet the technical challenges of any given project. Using our client-focused approach— with a corporate commitment to engineering excellence, HMM provides a full range of services for all aspects of engineering projects. Performing site investigations or feasibility studies, providing surveys or designs, developing project or program management systems, or conducting construction management and supervision, HMM is prepared to reliably and professionally serve its clients to satisfy any role or task required.

## LOCAL OFFICES

HMM is headquartered in Millburn, New Jersey and has many offices throughout North America. Regionally, our offices are located at:

|  |   |   |
|--|---|---|
| 405 Capitol Street<br>Suite 601<br>Charleston, WV 25301<br>T:304.356.3010<br>F: 304.357.9222 | 2601 Cranberry Square<br>Morgantown, WV 26508<br>T 304.212.4390<br>F 304.594.2814 | Gateway View Plaza<br>1600 West Carson Street<br>Pittsburgh, PA 15219<br>T 412.497.2900<br>F 412.497-2901 |
|--|---|---|

## CONSULTING AREAS

The resources of HMM are available through the following consulting areas:

- ◆ Construction Engineering Services
- ◆ Contract Operations
- ◆ Environmental Compliance & Remediation
- ◆ Environmental Site Assessment & Remediation
- ◆ Geographical Information Systems
- ◆ Hazardous Waste Management
- ◆ Hydraulic Infrastructure Evaluation & Rehabilitation
- ◆ Hydrogeological Services
- ◆ Industrial Wastewater Management
- ◆ Information Technology & Management
- ◆ Mining Environmental Services
- ◆ Municipal Engineering and Planning
- ◆ Pipeline Services
- ◆ Rails-To-Trails Projects
- ◆ Recreational Facilities
- ◆ Recycling/Solid Waste Management
- ◆ Site Development Engineering
- ◆ Storage Tank Management
- ◆ Stormwater & Watershed Management
- ◆ Transportation Engineering
- ◆ Wastewater Engineering and Management
- ◆ Water Supply Management

- ◆ Wetland / Ecological Studies
- ◆ Natural Stream Design
- ◆ Stream Mitigation

## STAFFING

Hatch Mott MacDonald was formed as a joint venture between Hatch Associates of Canada, a leading design engineering firm, and Mott MacDonald, headquartered in London, an infrastructure and education consulting engineering firm. The combined resources of Hatch Associates and Mott MacDonald offer a worldwide engineering staff of over 20,000 people. In 2001, HMM acquired the environmental consulting firm of Killam Associates to offer water, wastewater and environmental services throughout North America. Our total US staff is now approximately 1,800 engineers, scientists and technical support personnel.

## MANAGEMENT STRATEGIES

HMM uses the “Project Team” approach to efficiently manage and complete projects on time and within specified budgets. A Project Manager directs the team and interfaces with the client to ensure an uninterrupted flow of information. Capable managers draw upon the versatile personnel at HMM to provide pertinent technical knowledge relative to a particular project.

Hatch Mott MacDonald’s engineering professionals are fully supported by extensive computer resources (CADD, graphics, and an Information Technology staff), and highly trained field crews for surveying and environmental sampling and monitoring.

From the analysis stage to project implementation, the professional staff of HMM provides clients with cost-effective engineering and planning solutions for their environmental problems. HMM’s outstanding reputation is based upon dedicated service to clients and demonstrated technical abilities.

Hatch Mott MacDonald is proud of its established reputation, which is based on efficient project management, technical expertise, and knowledge of regulatory requirements. These features are reflected in HMM’s success at maintaining long-term client relationships. Experienced staff and an organizational approach make HMM extremely competent in meeting a client’s needs, now and in the future.

The Charleston office is currently staffed to provide one design team with the Morgantown office able to provide four to five different design teams simultaneously. These teams generally consist of a Project Engineer and the necessary design drafting and support staff.

## EXPERIENCE AND QUALIFICATIONS

Hatch Mott MacDonald (HMM) is a full-service consulting engineering firm offering both public and private clients a complete range of services from



conceptual, feasibility/ planning studies and environmental assessment through preliminary and detailed design to procurement, construction engineering inspection and project and construction management services, as well as operations and maintenance. Headquartered in New Jersey, HMM has hundreds of staff located in the northeast and Mid-Atlantic regions. More than 1,800 employees in 59 offices throughout the U.S. and Canada will support the local staff. This project will be performed from our Charleston, WV office with some technical support from the Morgantown, WV office if necessary.

Our resources in the Appalachian Coal region have grown steadily over the past few years. HMM's focus on mining services has led to a staff of over 50 individuals in this service area. More specifically, the Charleston and Morgantown offices have over 40 staff members dedicated to the mining and energy service area, including engineers, geologists, biologists, scientists, and support staff. This growth is attributed to our corporate commitment to the industry and the values established by HMM. Hatch, one of our parent companies, has been in business for 50 years and focuses on mining services on an international level.

## Mining Environmental Services

HMM offers a full spectrum of mining and mining-related environmental and design engineering services. Successfully completed projects range from reserve analyses, permitting and feasibility studies to complex mining and reclamation plans for surface and underground mining installation, prep plants and refuse handling facilities. Versatility is demonstrated by a proven ability to work with large and small operators. Personnel are accustomed to communicating effectively with both multi-department international companies and sole proprietors.

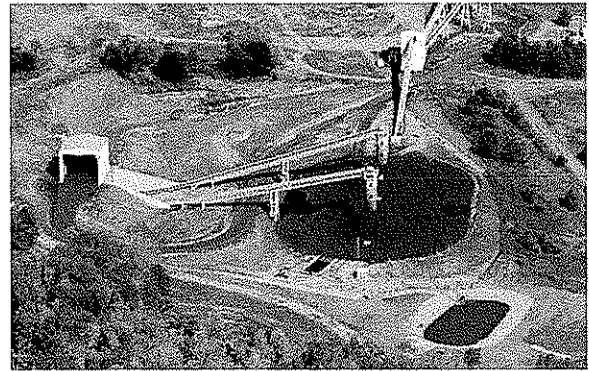


### Mine Planning

- ◆ Geological Exploration
- ◆ Reserve Studies
- ◆ Economic Evaluations
- ◆ Aerial Mapping
- ◆ Drilling
- ◆ Environmental Site Assessment
- ◆ Natural Stream Design
- ◆ Stream Mitigation

### Surface Mining

- ◆ Surface Mining Permits
- ◆ Auger Mining Permits
- ◆ Feasibility Studies
- ◆ Land Reclamation & Remediation
- ◆ Permit Transfers
- ◆ Pre-Blast Surveys
- ◆ Acid Mine Discharge (AMD) Remediation



### Underground Mining

- ◆ Deep Mine Permits
- ◆ Mine Design & Mapping
- ◆ Ventilation Plans
- ◆ Subsidence Plans
- ◆ Surface Support Plans
- ◆ Air Shaft Design & Coordination
- ◆ Incidental Boundary Revisions (IBR)
- ◆ Pre-Subsidence Surveys

### Professional Surveying

- ◆ Underground Coal Mine Surveys
- ◆ Stockpile Volumetric Surveys
- ◆ Construction Surveys
- ◆ Boundary Retracement
- ◆ Topographic Surveys
- ◆ Horizontal & Vertical Control Networks
- ◆ GIS/GPS Surveys

### Support Facilities

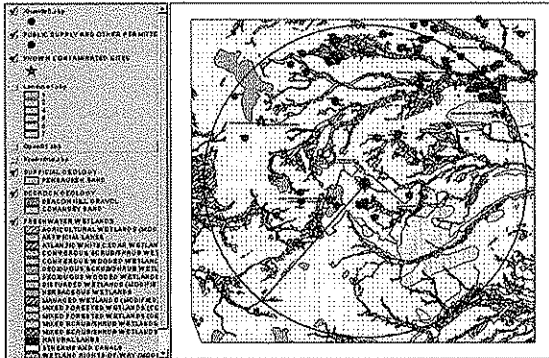
- ◆ Preparation Plant Permits
- ◆ Coal Yard & Loadout Permits
- ◆ Refuse Pile Reprocessing Permits
- ◆ Site Planning
- ◆ Air Quality Permits
- ◆ Coal Refuse/Fly Ash Permits
- ◆ Coal Refuse/Fresh Water Impoundments
- ◆ Portal Facilities Design & Construction Management

### Operations Support

- ◆ Small Operator Assistance Program (SOAP) Preparation
- ◆ Thermal-graphic Equipment Analyses
- ◆ Machine & Equipment Appraisal & Analyses
- ◆ Conveyor System Analyses
- ◆ Electrical System Analyses

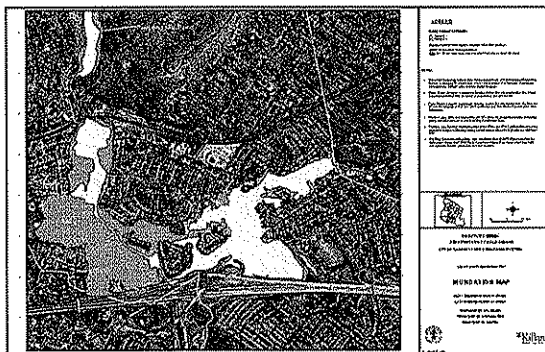
## Geographic Information Systems

Over the last decade, HMM has responded to its clients' growing needs for Geographical Information System (GIS) through investments in software, hardware and employee training. The ability of GIS to integrate central databases with mapping that can be shared throughout an organization, is making this information technology a standard for government agencies, utilities and private companies. HMM provides a full range of GIS services in the areas of: water/wastewater utility, stormwater utility, municipal government, hydrology and hydraulics, and natural resources.



### Software Applications

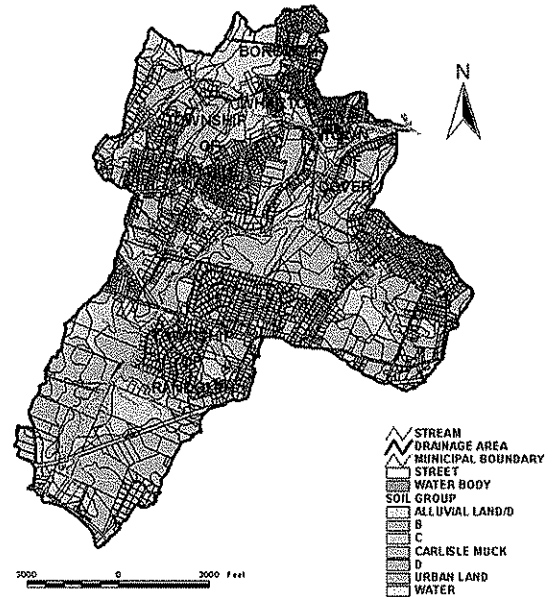
- ◆ ARC/INFO©
- ◆ ArcView©
- ◆ ArcCAD
- ◆ ArcFM
- ◆ AutoCAD/AutoCAD Map
- ◆ Microstation



### Software Capabilities

- ◆ Infrastructure Modeling
- ◆ Document Management
- ◆ Hydrologic/Hydraulic Modeling
- ◆ Groundwater Modeling
- ◆ Coordinate Geometry (COGO)
- ◆ Geographical Positioning Systems (GPS)
- ◆ Digital Elevation/Terrain Modeling
- ◆ Integration of Third Party Modeling Software
- ◆ Internet/Intranet

Major Soil Grouping In Jackson Brook Drainage Area



### Hardware Resources

- ◆ Hewlett-Packard 1055 & 755 Design Jet Plotters
- ◆ Dell Precision Workstation (750 MHz Processors with 256K RAM)
- ◆ Network through a 6300 Dell PowerEdge Server
- ◆ RAID-5 Array for Data Storage
- ◆ XEROX 8830 Scanners & Printers

## Construction Engineering Services

HMM's established reputation in providing construction observation and project management services is based upon the firm's experienced professionals' technical expertise and knowledge of the construction field. Interaction with the firm's various design teams is undertaken so that the latest technologies will be implemented with the highest efficiency. State-of-the-art laser and computerized surveying equipment and techniques are employed for data gathering, processing, reporting and construction control.



### Facilities

- ◆ Wastewater & Water Treatment Facilities
- ◆ Mining Facilities
- ◆ Biosolids Removal Facilities
- ◆ Pumping Stations
- ◆ Dams & Dikes
- ◆ Materials Recycling Facilities
- ◆ Solid Waste Transfer Stations
- ◆ Vehicle Maintenance Facilities
- ◆ Parking Garages
- ◆ Storage Facilities
- ◆ Airport Hangars & Terminals
- ◆ Office & Administration Buildings
- ◆ CSO & SSO Rehabilitation
- ◆ Sanitary Sewers & Water Mains
- ◆ Recreational Facilities

### Project Management

- ◆ CPM Scheduling Review
- ◆ Cost Controls
- ◆ Shop Drawing Review
- ◆ Payment Requests Processing
- ◆ Change Order Management
- ◆ Record Plan Preparation
- ◆ Claims Avoidance/Dispute Resolution
- ◆ Progress Meetings
- ◆ Information Management

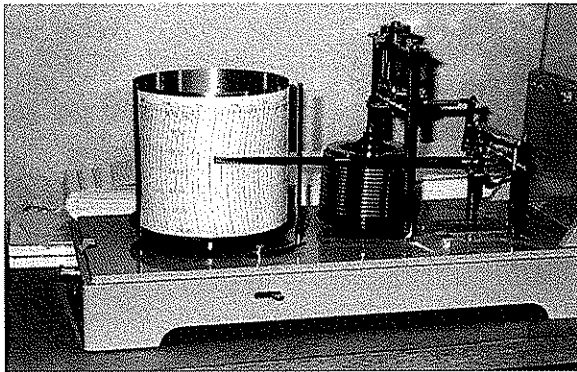


### Resident Engineering

- ◆ Construction Surveys
- ◆ Construction Observation
- ◆ Concrete Testing & Inspection
- ◆ Safety Monitoring

## Hydrogeological Services

HMM's hydrogeological specialists are employed on a wide range of projects, from small urban properties to entire watersheds. The majority of our staff holds advanced degrees and are registered professionals. They evaluate and develop groundwater resources; delineate contamination and predict impacts on human and ecological receptors; provide the technical basis for the design of subsurface wastewater disposal, construction dewatering and aquifer remediation systems; generate hydrogeologic models, frame computer simulations and perform statistical analyses for risk assessments and resource prospecting; provide full technical assistance in permitting in all these areas; provide peer review for the work of outside hydrogeologists; advise legal counsel and provide expert testimony.



### Groundwater Resources

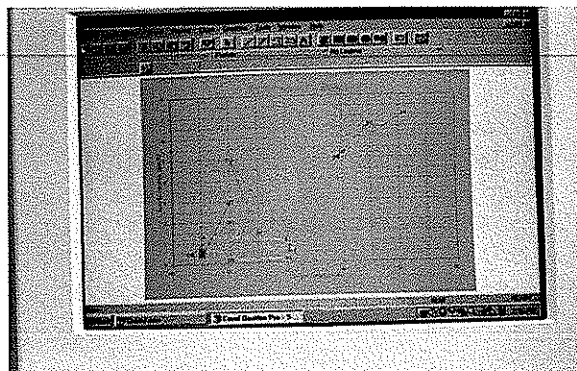
- ◆ Resource Evaluations
- ◆ Water Allocation Permits
- ◆ Well-Head Protection Area Delineation
- ◆ Diversion Impact Assessments

### Dewatering

- ◆ Dewatering System Design
- ◆ Temporary Water Allocation Permits
- ◆ Dewatering Permits-by-Rule

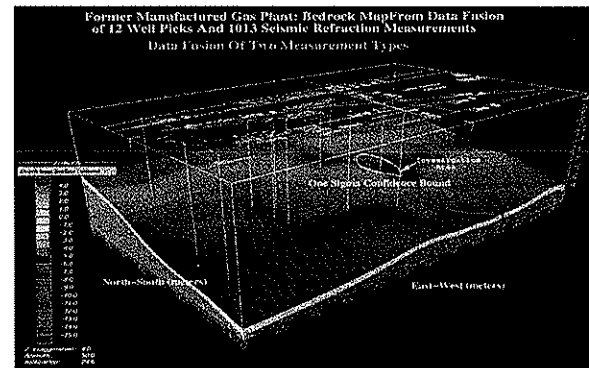
### Discharge to Groundwater

- ◆ Hydraulic Mounding Analysis
- ◆ Discharge to Groundwater Permits
- ◆ Dilution Modeling



### Remedial Design

- ◆ Plume Control
- ◆ Treated Wastewater Disposal System Design
- ◆ Contaminant Fate & Transport Modeling
- ◆ Technical Support for Natural Remediation
- ◆ Aquifer Reclassification
- ◆ Ground Water Chemistry
- ◆ Expert Testimony
- ◆ Peer Review



### Landfill Investigations

- ◆ Leachate Generation & Control Modeling
- ◆ Landfill Gas Venting System Design
- ◆ Aquifer Impact Assessments

### Aquifer Investigations

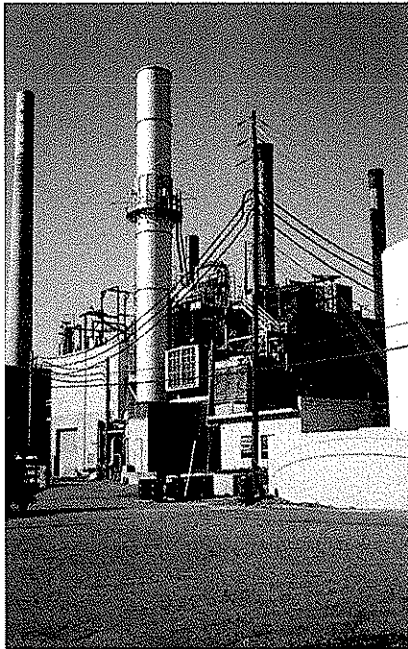
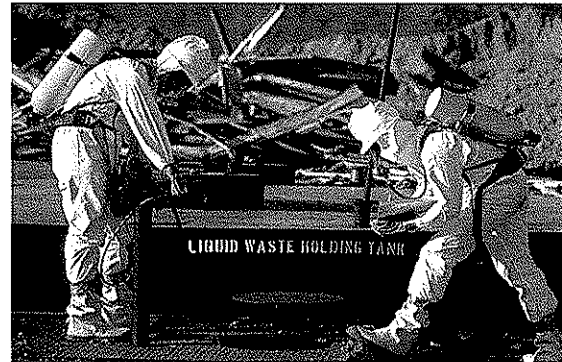
- ◆ Pumping Test Design & Analysis
- ◆ Aquifer Modeling
- ◆ Simulation of Groundwater Flow
- ◆ Aquifer/Surface Water Interaction Analyses

## Environmental Compliance Services

Effective management of ongoing environmental compliance issues is often difficult, especially as many companies continue to cutback on non-production personnel. As a result, many EH&S managers find themselves overloaded with multiple tasks. HMM can be a valuable resource that EH&S managers can use to more effectively and efficiently manage their company's environmental obligations, stay up-to-date with current state and federal regulatory trends, identify areas where cost-effective waste reduction measures can be implemented, and receive an objective third-party review of the company's environmental compliance level and/or liabilities. HMM can add value to the company's bottom line and help the management team to refocus resources on product quality and customer service, while staying abreast of regulatory changes and compliance issues.

### Periodic Reporting

- ◆ Annual SARA Reports (312/313)
- ◆ Annual Air Emission Reports
- ◆ Monthly DMR Sampling / Reports
- ◆ POTW Pretreatment Sampling / Reports
- ◆ Hazardous Waste Biennial Reports
- ◆ Residual Waste Biennial Reports
- ◆ Chemical Analysis of Wastes
- ◆ Source Reduction Strategies
- ◆ Storage Tank Registrations / Inspections



### Contingency Planning

- ◆ Environmental Compliance Audits
- ◆ SPCC Plan Preparation / Recertification
- ◆ PPC Plan Preparation / Recertification
- ◆ Environmental Emergency Response Plans
- ◆ Storm Water Pollution Prevention Plans
- ◆ Hazard Communication Plans
- ◆ Risk Management Plans
- ◆ Training

### Wastewater Management

- ◆ NPDES Part I/ Part II Permit Applications
- ◆ POTW Permit Applications
- ◆ Storm Water Runoff Permit Applications
- ◆ Treatment Plant Troubleshooting
- ◆ Toxicity Reduction Evaluations

### Air Quality

- ◆ RFD Applications
- ◆ Plan Approval Applications
- ◆ Title V Permit Applications
- ◆ PSD / Permit Modifications
- ◆ System Testing / Balancing





## Ecological Services

Hatch Mott MacDonald provides a wide range of scientific and environmental expertise needed to successfully address complex environmental problems and to design practical, cost-effective solutions. HMM is committed to assisting its clients by guiding projects through both the regulatory process and the construction phase utilizing cost effective design and engineering while protecting and enhancing the environment. We have provided ecological services to many types of clients including public and private utilities, state and municipal authorities and agencies, commercial site developers, energy companies, residential and other private property owners, municipalities and institutions. Our scientists and field technicians have the necessary technical expertise required to design and execute ecologically-focused surveys and studies and the capability to set a strategic course of action for projects to be successfully licensed and permitted at all regulatory levels.



## Regulatory Compliance

- ◆ Agency Consultation and Coordination
- ◆ Ecological Resources Policy Development
- ◆ Environmental Audits
- ◆ Environmental Compliance Inspection
- ◆ Environmental Impact Statements and Assessments
- ◆ Environmental Monitoring
- ◆ Environmental Risk Assessment
- ◆ Expert Testimony and Litigation Support
- ◆ Federal, State and Local Permitting

## Environmental Technology

- ◆ Bioengineering
- ◆ Bioremediation and Phytoremediation
- ◆ Engineered Wetlands for Water Treatment
- ◆ Ecological Restoration



## Ecological Resource Surveys/Studies

- ◆ Biota and Ecosystem Baseline Surveys
- ◆ Ecological Resource Management
- ◆ Ecological Risk Assessment
- ◆ Habitat Evaluation and Assessment
- ◆ Rare, Threatened and Endangered Species Assessment
- ◆ Soils, Sediments and Water Quality Investigations
- ◆ Wetland Delineation and Assessment
- ◆ Wetland Mitigation, Replication and Monitoring



## Other Related Services

- ◆ Erosion and Sedimentation Control Plans
- ◆ GPS Survey
- ◆ GIS Applications
- ◆ Stormwater Management Plans
- ◆ Vegetation Management Plans
- ◆ Landscape Planting Plans

## Environmental Site Assessment and Remediation

For nearly two decades, HMM has performed Phase I/Phase II environmental site assessments at hundreds of sites. They have consulted with multi-national and local buyers of property, assisting them with their due diligence efforts prior to acquisition of new companies or properties. On properties where contamination is present in excess of acceptable levels, HMM has designed and implemented remediation measures. Such remediation projects have been completed under a variety of environmental programs, including CERCLA (Superfund), RCRA Corrective Action, ISRA, Pennsylvania Act 2 and other state Brownfield programs. Projects have been completed on numerous sites that have soil and/or groundwater contaminated with chlorinated solvents, petroleum from leaking storage tanks, heavy metals, PCBs, and other organic compounds. Our design engineers are specialists in groundwater collection and treatment, waste removal and facility closure design, and our field staff is fully equipped and instrumented, and appropriately trained and medically monitored.



### Environmental Site Assessments

- ◆ Phase I Site Assessments (ASTM)
- ◆ Transaction Screening Assessments
- ◆ Phase II Site Investigations
- ◆ Geophysical Surveys
- ◆ Monitoring Well Installations/Borings
- ◆ Soil, Air & Water Sampling
- ◆ Waste Sampling & Characterization
- ◆ Groundwater Flow Modeling
- ◆ Contaminant Transport Modeling
- ◆ QA/QC Plans



### Remedial Design

- ◆ Feasibility Studies / Alternatives Analysis
- ◆ Physical/Chemical Treatment
- ◆ Biological Treatment
- ◆ Thermal Treatment
- ◆ Recovery Well Designs
- ◆ Soil Vapor Extraction
- ◆ Air Sparging
- ◆ Hydraulic Containment
- ◆ Closure Plans
- ◆ Pilot & Demonstration Programs
- ◆ Cost Estimating
- ◆ Risk Based Corrective Action
- ◆ Natural Remediation Compliance Plans
- ◆ Permitting

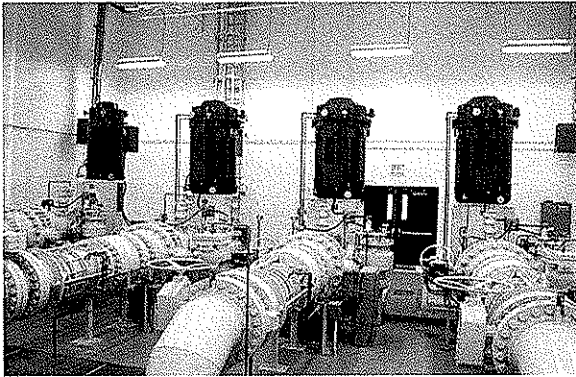


### Site Remediation

- ◆ Contract Administration
- ◆ Construction Oversight Services
- ◆ System Operations & Maintenance
- ◆ Closure Reporting
- ◆ Post-Remediation Monitoring
- ◆ Expert Testimony

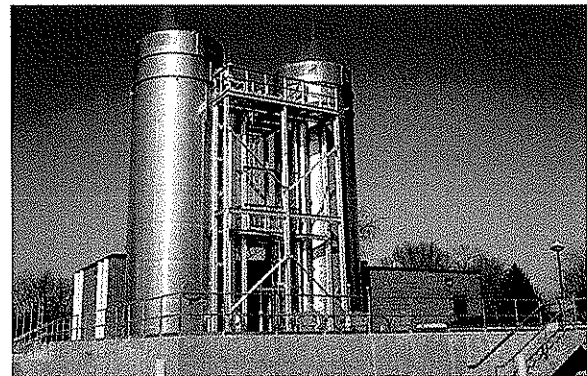
## Water Supply Management

HMM has demonstrated a unique combination of talent and experience in meeting hydraulic and water supply engineering challenges for over 60 years. The firm has demonstrated particular strength and developed broad experience in water system planning, hydraulic analysis, design, rehabilitation and implementation. We can provide a full range of water supply management services including hydraulic analyses, planning and feasibility studies, preliminary and final designs, preparation of contract drawings and specifications, construction cost estimates, time schedule outlines, bid analyses, complete resident engineering services during project construction and development of operation and maintenance manuals, as well as start-up assistance and operator training.



### Investigative Studies

- ◆ Hydraulic Analysis
- ◆ System Pressure & Fire Flow Analysis
- ◆ Water Quality Treatability
- ◆ Rate Studies
- ◆ Feasibility Studies
- ◆ Valuations
- ◆ Expert Testimony



### Planning

- ◆ Master Planning for Water Supply & Treatment
- ◆ Resource Management
- ◆ Resource Inventories
- ◆ Grant & Loan Application Assistance

### Construction Services

- ◆ Field Services
- ◆ Liaison Representation
- ◆ Construction Management
- ◆ Contract Administration



### Design

- ◆ Water Supply
- ◆ Water Treatment
- ◆ Air Stripping
- ◆ Pumping Stations
- ◆ Transmission & Distribution Pipelines
- ◆ Storage Facilities
- ◆ Rehabilitation
- ◆ Treatment Plant Optimization & Management

## Storage Tank Management

HMM provides storage tank management through a highly trained staff of professional geologists and engineers. This staff can investigate, analyze and make recommendations to our clients on tank management plans, tank upgrades and/or new tank designs. All staff are familiar with current state and USEPA rules and regulations and can expertly assist our clients in compliance with current standards. Our design team is experienced in double-walled steel or fiberglass tanks as well as tank upgrades in compliance with the regulations.

### Evaluation of Existing Tank Systems

- ◆ Registration, Permitting & Release Reporting
- ◆ Integrity Testing
- ◆ Abandonment In-Place
- ◆ Removals & Disposals
- ◆ Upgrades & Modifications per Federal Regulations

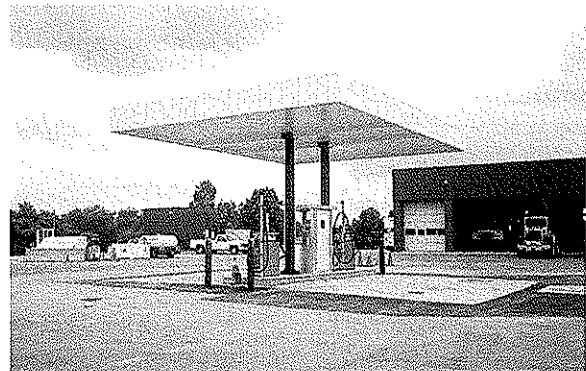


### Tank Management Plans

- ◆ Evaluation of Existing Systems through Data Searches, Interview & Site Surveys
- ◆ Determination of Compliance/Non Compliance with Federal/State Regulations
- ◆ Determination of Future System Needs
- ◆ Determination of Tank Upgradability
- ◆ Scheduling Removals/Abandonment/Replacements
- ◆ Cost Estimating
- ◆ Recommendation of Sequenced Compliance

### Design of New Tank Systems

- ◆ Corrosion Protection Systems
- ◆ Double-Wall Steel to 20,000 Gallons
- ◆ Fiberglass to 6,000 Gallons
- ◆ Vault or Below Ground Installations
- ◆ Above Ground Concrete
- ◆ Dispensing Units for Motor Fuel
- ◆ Multi-fuel Tank Partitioning for Gas & Diesel
- ◆ Instrumented Leak Detection Systems
- ◆ Canopies & Islands
- ◆ Specialized #6 Heating Oil Design
- ◆ Specialized Aviation Gasoline Designs
- ◆ Bid Plans & Specifications
- ◆ State & Local Construction Code Permitting
- ◆ Construction Management
- ◆ System Start-up
- ◆ Fuel & Fleet Management Systems



## Municipal Engineering Services/ Public Works Management

As a result of the practical experience developed during more than six decades of engineering consultation, and through the utilization of the talents of staff experienced in engineering, planning and public works management, HMM can draw upon a vast depth of resources to provide consulting services for its public clients, particularly in the Public Works Area. HMM's multiple office locations, coupled with the diverse capabilities of the firm's experienced staff of certified public works managers, allow HMM to provide the Public Works Management service needed to meet the full range of the day-to-day demands of local government.

### Master Planning, Design, Budget & Implementation

- ◆ Municipal Improvements
- ◆ Drainage & Flood Control Facilities
- ◆ Wastewater Collection, Pumping & Treatment Facilities
- ◆ Roadway Construction, Resurfacing & Reconstruction
- ◆ Intersection & Signalization Improvements
- ◆ Water Supply Treatment, Storage & Distribution Systems
- ◆ Beach Erosion Control, Marine & Coastal Structures & Flood Zone Management
- ◆ Parks, Golf Courses & other Recreational Facilities
- ◆ Solid Waste Management & Recycling
- ◆ Building Design Services
- ◆ Land Surveying
- ◆ Tax Map Revisions & Street Address Map Revisions
- ◆ Energy Audits



- ◆ Liaison to Financial Institutions
- ◆ Liaison to Legal Division & Expert Testimony
- ◆ Public Participation Programs



### Public Works Consultation

- ◆ Underground Storage Tanks
- ◆ Sewage Collection, Pumping & Treatment Facilities
- ◆ Water Distribution, Supply, Storage, Treatment & Pumping Facilities
- ◆ Streets & Roads
- ◆ Stormwater Collection, Detention & Retention Facilities
- ◆ Solid Waste & Recycling
- ◆ Vehicles & Equipment
- ◆ Snow & Ice Removal
- ◆ Emergency - Crisis Planning
- ◆ Complaint Processing
- ◆ Construction Phase Engineering
- ◆ Survey
- ◆ GPS/GIS Plans

### Advisory Consultation

- ◆ Governing Body
- ◆ Planning Board
- ◆ Board of Adjustment
- ◆ Board of Health
- ◆ Liaison to Municipal Departments, Boards & Commissions
- ◆ Liaison to County, State & Federal Agencies

### Parks & Recreation

- ◆ Capital Inventory
- ◆ Park Maintenance Program
- ◆ Field Utilization Surveys

## Municipal Engineering Services/ Public Works Management (cont.)

### Street Management Program

- ◆ Pavement Management Programs
- ◆ Maintenance & Repair Programs
- ◆ Preparation of Street Cleaning Programs



### Snow Plowing and Ice Control

- ◆ Comprehensive Snow Plowing Plans
- ◆ Ice Control Programs
- ◆ Equipment

### Stormwater System Maintenance

- ◆ Cleaning Programs
- ◆ Routing Maintenance Programs
- ◆ Planning for Managing & Upgrading

### Sanitary Sewer System Maintenance

- ◆ Routine Cleaning Programs
- ◆ TV Inspection
- ◆ Manpower Training

### Fleet Management

- ◆ Planning that Addresses Ownership, Use, Maintenance, Repair & Replacement

### Facility Management Programs

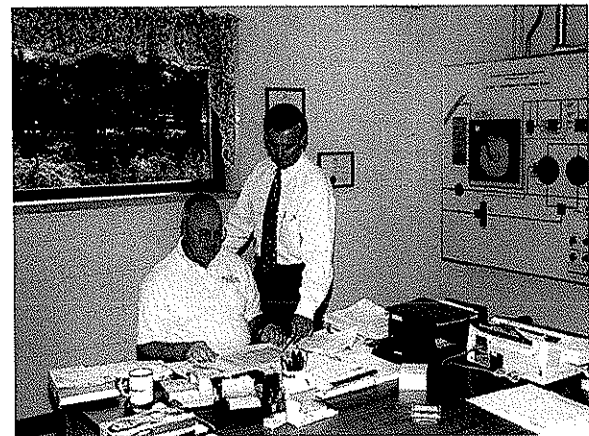
- ◆ Review Staff Capabilities Relative to Facility Maintenance, Upkeep & Cleaning

### Capital Budgeting and Planning

- ◆ Review of Existing Capital Plans
- ◆ Preparation of Single or Multi-Year Capital Budgets
- ◆ Review of Financing Options

### Public Works Management

- ◆ Perform Management Review of Existing Operations
- ◆ Prepare Plans for Staffing & Operational Improvements
- ◆ Budget Review & Recommendations



## Pipeline Services

HMM has demonstrated experience in virtually all aspects of the natural gas transmission pipeline industry from routine operation and maintenance related matters to design and construction. The firm has successfully completed a wide variety of projects ranging from relatively small scopes of work through major multi-state construction projects. It is this understanding and our extensive resources that enable HMM to quickly and effectively respond to clients' needs, regardless of project size or scope. Our unique geographic office locations further enable us to quickly respond to the needs of the interstate natural gas pipeline industry. Our offices are located in the vicinity of many strategic pipeline hubs. HMM is unique in the industry in its ability to provide our clients with a wide variety of services including: surveying, planning, design, construction phase services and environmental compliance. As a result of our experience, we also understand the importance of close communication throughout any project undertaken.

**Project Management**

- ◆ Feasibility Studies
- ◆ Schedule Control
- ◆ Project Organization & Staffing
- ◆ Alignment & Progress Meetings
- ◆ Project Status Reports
- ◆ Scope Change Management

**Pipeline Engineering**

- ◆ Field Engineering
- ◆ Construction Work Space
- ◆ Route Selection & Realignment
- ◆ Horizontal Directional Drilling
- ◆ Road & Highway Crossings
- ◆ Wetland & Waterbody Crossings

**Pipeline Surveying**

- ◆ Preliminary Survey/Alignment
- ◆ Aerial Photography & GPS
- ◆ Topographic Surveys & Profiles
- ◆ Fee Property Surveys
- ◆ Existing Conditions Surveys
- ◆ Construction Re-Stake
- ◆ Record Plan Survey

**Construction Services**

- ◆ Construction Management
- ◆ Construction Engineering/Survey
- ◆ Resident Observation

**Environmental/Cultural Resources**

- ◆ Agency Consultation & Coordination
- ◆ Field Investigations & Surveys
- ◆ Wetland Delineation
- ◆ Endangered & Threatened Species
- ◆ Cultural Resources
- ◆ Erosion & Sediment Control
- ◆ Revegetation & Maintenance
- ◆ Wetland/Water Body Construction Procedures
- ◆ Stormwater Management Plans
- ◆ SPCC & Mitigation Plans
- ◆ Air Quality Monitoring & Permitting
- ◆ Federal, State & Local Permitting
- ◆ FERC Applications & Coordination

**Pipeline Drafting**

- ◆ Alignment Sheets
- ◆ Topographic Maps/Aerial Photographs
- ◆ Permit Application Drawings
- ◆ Land & Condemnation Plats
- ◆ Graphics & Presentation Drawings
- ◆ Record Plans

**Operation and Maintenance Services**

- ◆ Pipeline Location & Staking
- ◆ Anomaly & Dent Location
- ◆ Exposed Pipe Remediation
- ◆ Surveying, Drafting, Design, Engineering, Environmental & Permitting

[CCQQ – Attachment “B”]



WEST VIRGINIA DEPARTMENT ENVIRONMENTAL PROTECTION  
 AML CONSULTANT QUALIFICATION QUESTIONNAIRE

Attachment "1"

|  |                           |   |                           |   |  |
|--|---------------------------|---|---------------------------|---|--|
| PROJECT NAME<br>Coaldale Mountain Refuse Pile Design   |                           | DATE (DAY, MONTH, YEAR)<br>3/18/10  |                           | FEIN<br>16-1006700  |  |
| 1. FIRM NAME<br>Hatch Mott MacDonald LLC   |                           | 2. HOME OFFICE BUSINESS ADDRESS<br>27 Bleeker Street<br>Milburn, NJ 07041 |                           | 3. FORMER FIRM NAME<br>Hatch Associates Consultants, Inc. (Est. 1955)<br>Mott MacDonald Group (Est. 1902) |  |
| 4. HOME OFFICE TELEPHONE<br>973-379-3400   |                           | 5. ESTABLISHED (YEAR)<br>1972   |                           | 6. TYPE OWNERSHIP<br>Individual Corporation<br>Partnership Joint-Venture<br>YES NO                        |  |
| 7. PRIMARY AML DESIGN OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. AML DESIGN PERSONNEL EACH OFFICE   |                           |   |                           |   |  |
| 2601 Cranberry Square, Morgantown, WV 26508, 304-212-4390, Timothy M. Rice, Area Manager/ Morgantown - 44  |                           |   |                           |   |  |
| 8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM  |                           | 8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS                    |                           |   |  |
| Richard L. Steinhart, PE, Senior Vice President  |                           | Timothy M. Rice, Morgantown Office Area Manager (304)212-4390             |                           |   |  |
| 9. PERSONNEL BY DISCIPLINE   |                           |   |                           |   |  |
| — 26 ADMINISTRATIVE  | — 4 ECOLOGISTS            | — 7 LANDSCAPE ARCHITECTS  | — 65 STRUCTURAL ENGINEERS |   |  |
| — 14 ARCHITECTS  | — 0 ECONOMISTS            | — 23 MECHANICAL ENGINEERS   | — 100 SURVEYORS           |   |  |
| — 3 BIOLOGIST  | — 35 ELECTRICAL ENGINEERS | — 2 MINING ENGINEERS  | — 0 TRAFFIC ENGINEERS     |   |  |
| — 273 CADD OPERATORS   | — 17 ENVIRONMENTALISTS    | — 0 PHOTOGRAMMETRISTS   | — 0 OTHER                 |   |  |
| — 8 CHEMICAL ENGINEERS   | — 26 ESTIMATORS           | — 5 PLANNERS: URBAN/REGIONAL  |                           |   |  |
| — 216 CIVIL ENGINEERS  | — 30 GEOLOGISTS           | — 24 SANITARY ENGINEERS   |                           |   |  |
| — 142 CONSTRUCTION INSPECTORS  | — 0 HISTORIANS            | — 0 SOILS ENGINEERS   |                           |   |  |
| — 31 DESIGNERS   | — 1 HYDROLOGISTS          | — 0 SPECIFICATION WRITERS   |                           | 1812 TOTAL PERSONNEL  |  |
| — 0 DRAFTSMEN  |                           |   |                           |   |  |
| TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: 2  |                           |   |                           |   |  |
| *RPES other than Civil and Mining must provide supporting documentation that qualifies them to supervise and perform this type of work.  |                           |   |                           |   |  |
| Rich Steinhart is a WV-PE and is the "Engineer in Charge" for the Morgantown office. James Fetty is also a WV-PE in the Morgantown office. Gary Facemyer is a WV Registered Professional Engineer and is the Charleston, WV office manager. Darryl Brogan and Paul Smith are WV Registered Professional Engineers located in our Pittsburgh office are both WV-PE's and are available to provide the Morgantown office with additional technical and professional support. |                           |   |                           |   |  |
| 10. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A   |                           |   |                           |   |  |

11. LIST 7 KEY CONSULTANTS/SUB-CONSULTANTS ANTICIPATED TO BE USED. Attach "AML Consultant Qualification Questionnaire".

|   |   |   |
|---|---|---|
| <p>NAME AND ADDRESS:<br/>Blue Mountain Aerial Mapping<br/>11023 Mason Dixon Highway<br/>Burton, WV 26562</p>      | <p>SPECIALTY:<br/>Aerial mapping</p>                  | <p>WORKED WITH BEFORE<br/><input checked="" type="checkbox"/> Yes<br/><input type="checkbox"/> No</p> |
| <p>NAME AND ADDRESS:<br/>Triad Engineering<br/>4980 Teays Valley Road<br/>St. Albans, WV 25177</p>                | <p>SPECIALTY:<br/>Geotechnical Drilling/Surveying</p> | <p>WORKED WITH BEFORE<br/><input checked="" type="checkbox"/> Yes<br/><input type="checkbox"/> No</p> |
| <p>NAME AND ADDRESS:<br/>Highland Engineering<br/>1426 Memorial Drive<br/>Oakland, MD 21550</p>                   | <p>SPECIALTY:<br/>Surveying</p>                       | <p>WORKED WITH BEFORE<br/><input checked="" type="checkbox"/> Yes<br/><input type="checkbox"/> No</p> |
| <p>NAME AND ADDRESS<br/>Pennsylvania Drilling Company<br/>281 Route 30<br/>Imperial, PA 15126</p>                 | <p>SPECIALTY:<br/>Geotechnical Drilling</p>           | <p>WORKED WITH BEFORE<br/><input checked="" type="checkbox"/> Yes<br/><input type="checkbox"/> No</p> |
| <p>NAME AND ADDRESS:<br/>Test Boring Services, Inc.<br/>142 Mong Road<br/>Scenery Hill, PA 15360</p>              | <p>SPECIALTY:<br/>Geotechnical Drilling</p>           | <p>WORKED WITH BEFORE<br/><input checked="" type="checkbox"/> Yes<br/><input type="checkbox"/> No</p> |
| <p>NAME AND ADDRESS:<br/>Sturm Environmental Services<br/>P.O. Box 650<br/>Bridgeport, WV 26330-0650</p>          | <p>SPECIALTY:<br/>Laboratory Analysis</p>             | <p>WORKED WITH BEFORE<br/><input checked="" type="checkbox"/> Yes<br/><input type="checkbox"/> No</p> |
| <p>NAME AND ADDRESS:<br/>Industrial Lab Analysis, Inc.<br/>65 - 36<sup>th</sup> Street<br/>Wheeling, WV 26003</p> | <p>SPECIALTY:<br/>Laboratory Analysis</p>             | <p>WORKED WITH BEFORE<br/><input checked="" type="checkbox"/> Yes<br/><input type="checkbox"/> No</p> |
| <p>NAME AND ADDRESS:</p>  | <p>SPECIALTY:</p>                                     | <p>WORKED WITH BEFORE<br/><input type="checkbox"/> Yes<br/><input type="checkbox"/> No</p>            |
| <p>NAME AND ADDRESS:</p>  | <p>SPECIALTY:</p>                                     | <p>WORKED WITH BEFORE<br/><input type="checkbox"/> Yes<br/><input type="checkbox"/> No</p>            |

12. A Are your firm's personnel experienced in Abandoned Mine Lands Remediation/Mine Reclamation Engineering?

**YES** Description and Number of Projects: Several members of the WV office have a combined 100 years of AML design experience. They also have completed over 300 AML design projects.

NO

B. Are your firm's personnel experienced in Soil Analysis?

**YES** Description and Number of Projects: Our experienced staff routinely provides expertise to our mining and municipal projects. We have and continue to provide revegetation and reforestation (ARRI) design on AML, permitting, and municipal projects in West Virginia and surrounding states. HMM also has multiple staff with strong wetland delineation backgrounds and skills.

NO

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

**YES** Description and Number of Projects: Our current projects include the study of hundreds of streams and drainage structures over a 1,400 square mile area in southwestern PA and north central WV. This work includes sampling, flow monitoring, modeling, mitigation, remediation, hydrologic and hydraulic analyses, and mapping

NO

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

**YES** Description and Number of Projects:

**NO-** We subcontract the aerial photography, however in-house we provide GPS, surveying and development of the mapping as needed.

E. Are your firm's personnel experienced in domestic waterline design? (Include any experience in evaluation of aquifer degradation as a result of mining.)

**YES** Description and Number of Projects:  
We have completed numerous waterline design projects and our in-house staff has more than 50 years of combined experience with aquifer degradation. James Fetty, PE, located in our Morgantown office, has over 20 years of waterline design and project management experience. Jim served as the Fairmont City Engineer for over 20 years. Gary Facemyer, Charleston Office Manager, has over 30 years of waterline design and management experience

NO

F. Are your firm's personnel experienced in Acid Mine Drainage Evaluation and Abatement Design?

**YES** Description and Number of Projects: Our staff has personnel experience of over 50 AML projects related to AMD Design and Evaluation. Our staff has performed watershed analysis, doser design, passive system design, and chemical treatment facility planning.

NO

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

| NAME & TITLE (Last, First, Middle Int.)   | YEARS OF AML DESIGN EXPERIENCE: | YEARS OF AML RELATED DESIGN EXPERIENCE: | YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: |
|---|---------------------------------|---|--|
| <b>Rice, Timothy M.<br/>Project Engineer, Project Manager</b>   | 23                              | 32                                      | 27   |
| <p>Brief Explanation of Responsibilities<br/>                     Mr. Rice presently serves as Area Manager for the Hatch Mott MacDonald Morgantown, WV office.</p> <p>Mr. Rice is experienced in project management, coordination and supervision for permitting, design, drafting, surveying and drilling projects. His expertise is in reclamation design; mining permits; design of acid mine drainage abatement plans; water resources studies; pre/post mining surveys; hydraulic and hydrological analysis; pre-blast surveys; slope stability analysis; geotechnical design; Phase I environmental audits; storm water management analysis and design; civil site designs; and commercial and residential inspections.</p> <p>Mr. Rice has also received Levels I – IV of Natural Stream Channel Design Certification. He coordinated mitigation, remediation, and restoration projects for several clients in close proximity to the Morgantown office.</p>  |                                 |   |  |
| <p>EDUCATION (Degree, Year, Specialization)<br/>                     B.S., 1982 Civil Engineering<br/>                     Level I, II, III, and IV Natural Stream Design, 2004</p>   |                                 |   |  |
| <p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS<br/>                     REGISTRATION (Type, Year, State)<br/>                     EIT, West Virginia</p>   |                                 |   |  |
| <p>13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN (Furnish complete data but keep to essentials)</p>  |                                 |   |  |
| NAME & TITLE (Last, First, Middle Int.)   | YEARS OF AML DESIGN EXPERIENCE: | YEARS OF AML RELATED DESIGN EXPERIENCE: | YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: |
| <b>Law, Jeffrey L.<br/>Project Engineer/Project Manager</b>   | 19                              | 27                                      | 21   |
| <p>Brief Explanation of Responsibilities<br/>                     Mr. Law is a Project Engineer/Manager for Hatch Mott MacDonald. His experience includes design of AML reclamation plans, permit for 1,000-acre deep mine, barge loading facility, highway entrance permits, mine subsidence evaluations, impoundments, hydrology studies for refuse sites and public water supplies, and has designed storm water management plans for residential and commercial projects. His expertise is in mine subsidence remediation and design; mine facility layout and design; reclamation design; mining permits; design of acid mine drainage abatement plans; pre/post mining surveys; hydraulic and hydrological analysis; pre-blast surveys; slope stability analysis; geotechnical design; storm water management analysis and design; civil site designs; and commercial and residential inspections. Mr. Law has also conducted floodplain evaluations and construction inspection of commercial properties. Mr. Law has experience in project management, coordination and supervision for construction and design of various mining related projects.</p> |                                 |   |  |
| <p>EDUCATION (Degree, Year, Specialization)<br/>                     B.S., 1983 Mining Engineering<br/>                     A.A., 1980 Mining Engineering</p>   |                                 |   |  |
| <p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS<br/>                     REGISTRATION (Type, Year, State)</p>   |                                 |   |  |

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

|  |                                      |   |  |
|--|--------------------------------------|---|--|
| NAME & TITLE (Last, First, Middle Int.)<br><b>Fetty, James W.<br/>Project Engineer</b> | YEARS OF AML DESIGN EXPERIENCE:<br>2 | YEARS OF AML RELATED DESIGN EXPERIENCE:<br>22 | YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:<br>21 |
|  | YEARS OF EXPERIENCE                  |   |  |

Brief Explanation of Responsibilities  
Mr. Fetty's background is in the Municipal Engineering field. He was the City Engineer for the City of Fairmont, West Virginia for 21 years. He has been a Project Manager for numerous water distribution, storm sewer and sanitary sewer system projects. He has experience in the design, preparation of plans and specifications and construction monitoring for water distribution, storm drainage and sanitary sewer collection system projects.

EDUCATION (Degree, Year, Specialization)  
B.S., 1982 Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS  
National Society of Civil Engineers  
Water Environment Federation

REGISTRATION (Type, Year, State)  
PE, West Virginia & Pennsylvania

|   |                                      |   |   |
|---|--------------------------------------|---|---|
| NAME & TITLE (Last, First, Middle Int.)<br><b>Rogers, Richard M.<br/>Project Engineer</b> | YEARS OF AML DESIGN EXPERIENCE:<br>7 | YEARS OF AML RELATED DESIGN EXPERIENCE:<br>11 | YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:<br>0 |
|   | YEARS OF EXPERIENCE                  |   |   |

Brief Explanation of Responsibilities  
Mr. Rogers has experience in project management, coordination and supervision for construction and design of various mining and geotechnical related projects, including several AML projects. His experience includes management of one hundred plus geotechnical projects, including transportation, commercial development, public schools and a variety of public and private clients. His responsibilities have included schedule and cost control and overall submittal quality. He has managed field drilling activities, field classification of soil, rock, field and laboratory safety procedures, a laboratory testing program and geotechnical evaluations. Engineering evaluations include foundation recommendations, settlement analysis, slope stability analysis, earth pressure coefficients and report preparation. In addition, Mr. Rogers has served as Project Manager for several construction testing projects.

EDUCATION (Degree, Year, Specialization)  
B.S., 1998, Chemical Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS  
REGISTRATION (Type, Year, State)  
EIT, West Virginia

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

| NAME & TITLE (Last, First, Middle Int.)         | YEARS OF AML DESIGN EXPERIENCE: | YEARS OF AML RELATED DESIGN EXPERIENCE: | YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: |
|---|---------------------------------|---|--|
| <b>Peter Vaughan<br/>Senior Project Manager</b> | <b>0</b>                        | <b>32</b>                               | <b>0</b>                                       |

Brief Explanation of Responsibilities  
 Mr. Vaughan is a Senior Project Manager at Hatch Mott MacDonald (HMM). Mr. Vaughan's work has been primarily in the mining area. He has experience in mining design, procurement, engineering, execution, start-up, post audit and compliance, permitting, and mitigation work for many coal mining and energy clients. He has been the Project Manager for several major drainage study, stream monitoring, regulatory compliance, stream mitigation, stream augmentation, and restoration projects. He also performed studies to determine drainage characteristics and develop a flow model for a reclaimed coal refuse area.

EDUCATION (Degree, Year, Specialization)  
 BS Mining Engineer, 1979

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS  
 Board Member and Officer SME- Society for Mining, Metallurgy & Exploration, Inc.  
 Pittsburgh Geological Society

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

| NAME & TITLE (Last, First, Middle Int.)     | YEARS OF AML DESIGN EXPERIENCE: | YEARS OF AML RELATED DESIGN EXPERIENCE: | YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: |
|---|---------------------------------|---|--|
| <b>Chuck Yurchick<br/>Project Geologist</b> | <b>7</b>                        | <b>32</b>                               | <b>0</b>                                       |

Brief Explanation of Responsibilities  
 Mr. Yurchick is experienced in project management, coordination and supervision of coal exploration projects, coal and non-coal surface and deep mine permitting activities, hydrologic studies pertaining to surface and under-ground mine activities, geologic and geo-technical drilling projects, natural and man made slope failure and mine subsidence investigations, site development geo-technical evaluations, deep mining in-seam geologic disruption evaluations, bore hole grouting, under-ground mine grouting plans and drilling, management of field operations for exploration and geo-technical projects and property damage evaluations due to geologic hazards.

EDUCATION (Degree, Year, Specialization)  
 BS, Geo Sciences, The Pennsylvania State University, 1973

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS  
 Society for Mining, Metallurgy and Exploration, SME of the AIME,  
 Founding Registered Member of the Society for Mining, Metallurgy and Exploration,  
 American Institute of Professional Geologists

REGISTRATION (Type, Year, State)  
 Professional Geologist, 1995, PA  
 Certified Professional Geologist-AIPG, CPG-5117

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

|  |   |   |  |
|--|---|---|--|
| <p><b>NAME &amp; TITLE (Last, First, Middle Int.)</b><br/><b>Gary Facemyer, P.E., PS</b></p>   | <p><b>YEARS OF AML DESIGN EXPERIENCE:</b><br/><b>20</b></p> | <p><b>YEARS OF AML RELATED DESIGN EXPERIENCE:</b><br/><b>32</b></p> | <p><b>YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:</b><br/><b>32</b></p> |
| <p><b>Brief Explanation of Responsibilities</b><br/>Mr. Facemyer has been responsible for planning, design, permitting, construction management and construction of numerous abandoned mine land reclamation projects over a 20 year period. Projects included mine portal closures, high wall reduction or elimination, refuse piles, burning seams, landslides, stream restoration, drainage correction, acid mine drainage, water feasibility studies and water system designs.<br/>This work also included Special Reclamation (bond forfeiture) assessment, water testing, and AMD treatment.</p> |   |   |  |
| <p><b>EDUCATION (Degree, Year, Specialization)</b><br/>B. S. Civil Engineering WV Institute of Technology 1975</p>   |   |   |  |
| <p><b>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS</b><br/>American Society of Civil Engineers - Past President WV<br/>American Council of Engineering Companies/WV<br/>WV Society of Professional Surveyors</p>   |   |   |  |

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

|  |  |  |   |
|--|--|--|---|
| <p><b>NAME &amp; TITLE (Last, First, Middle Int.)</b><br/><b>Brian Moore, PE<br/>Project Engineer</b></p>  | <p><b>YEARS OF AML DESIGN EXPERIENCE:</b><br/><b>2</b></p> | <p><b>YEARS OF AML RELATED DESIGN EXPERIENCE:</b><br/><b>8</b></p> | <p><b>YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:</b><br/><b>8</b></p> |
| <p><b>Brief Explanation of Responsibilities</b><br/>Mr. Moore has served as a Project Engineer and Task Manager for various water and wastewater conveyance projects. He has an extensive background in the development and quality control of hydrologic and hydraulic dynamic computer models using various computer programs. He has also generated base maps and plan-profile sheets for various infrastructure projects using automated computer methodologies. Mr. Moore also has site design experience including drainage and parking facilities for several different facilities.</p> |  |  |   |
| <p><b>EDUCATION (Degree, Year, Specialization)</b><br/>B.S., Civil/Environmental Engineering, 1998, Pennsylvania State University</p>  |  |  |   |
| <p><b>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS</b><br/>Professional Engineer, 2003, Ohio</p>   |  |  |   |

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

| NAME & TITLE (Last, First, Middle Int.)  | YEARS OF AML DESIGN EXPERIENCE: | YEARS OF AML RELATED DESIGN EXPERIENCE: | YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: |
|--|---------------------------------|---|--|
| <b>Clayton K. Roderick<br/>Geologist</b> | 3                               | 11                                      | 0  |

Brief Explanation of Responsibilities

Mr. Roderick is experienced in coordination and supervision of coal exploration projects, coal and non-coal surface and deep mine permitting activities, hydrologic studies pertaining to surface and under-ground mine activities, geologic and geo-technical drilling projects, management of field operations for exploration and geo-technical projects and property damage evaluations due to geologic hazards.

EDUCATION (Degree, Year, Specialization)

Earth Sciences, 1997, California University of Pennsylvania

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 AML DESIGN EXPERIENCE: | YEARS OF AML RELATED DESIGN EXPERIENCE: | YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: |
|---|---------------------------------|---|--|
| <b>John Green<br/>Surveyor</b>          |                                 | 32                                      | 0  |

Brief Explanation of Responsibilities

Mr. Green is a Registered Professional Surveyor with over 30 years of experience in the engineering industry in surveying or survey related capacities and as an engineering design technician. He is expertly qualified in most conventional types of surveying with some experience in newer non-conventional types such as GPS surveying. He is also expertly qualified in the right-of-way plan process.

EDUCATION (Degree, Year, Specialization)

Civil Engineering Technology, 1976

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

American Congress on Surveying & Mapping  
West Virginia Society of Professional Surveyors  
National Society of Professional Surveyors  
CGIS/LIS Association

REGISTRATION (Type, Year, State)

Professional Surveyor, 1991, WV - 901



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

NAME & TITLE (Last, First, Middle Int.)

YEARS OF AML DESIGN EXPERIENCE: **7**

YEARS OF AML RELATED DESIGN EXPERIENCE: **11**

YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: **4**

**Brief Explanation of Responsibilities**

Mr. Reese serves as CADD Designer at Hatch Mott MacDonald. His past experience includes AML design projects for the State of West Virginia. He is also knowledgeable with various forms of mine permitting in West Virginia and Pennsylvania. Mr. Reese is familiar with basic surveying techniques, storm water design, hydraulic and hydrologic computations, erosion and sediment control plans, and 3D Modeling using ACADD.

EDUCATION (Degree, Year, Specialization)  
 CADD, 1998, Monongalia County Vocational Center

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 AML DESIGN EXPERIENCE: **9**

YEARS OF AML RELATED DESIGN EXPERIENCE: **37**

YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: **3**

**Brief Explanation of Responsibilities**

Mr. Yanero serves as Designer at Hatch Mott MacDonald. His past experience includes AML design projects for the states of West Virginia, Maryland and Ohio, as well as all aspects of mine permits applications and design for West Virginia. He is also knowledgeable with storm water applications and design related to commercial and residential development, subsidence investigation and pre-blast surveys. Mr. Yanero is also familiar with design, operation and maintenance of AMD facilities, West Virginia Division of Highways entrance permits, Department of Health and Human services permits for sanitation and waterline feasibility studies. Mr. Yanero's expertise is in surveying and AutoCAD 3D.

EDUCATION (Degree, Year, Specialization)

AS, 1974, Engineering Technology, Fairmont State College

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 AML DESIGN EXPERIENCE: | YEARS OF AML RELATED DESIGN EXPERIENCE: | YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: |
| <b>Chambers, Ricardo A.<br/>Engineer</b> | 1                               | 3                                       | 0  |

Brief Explanation of Responsibilities

Mr. Chambers joined Hatch Mott MacDonald in July of 2006 and is now working as an Engineer in the Morgantown office. His experience includes extensive fieldwork in environmental projects, data analysis and report compliances, groundwater monitoring, and hydrologic flow studies. He is proficient in operating numerous pieces of equipment including, but not limited to: a Trimble GeoXT GPS, a Marsh-McBirney Model T2000 Flow Meter and various other groundwater and surface water sampling instrumentation.

EDUCATION (Degree, Year, Specialization)  
 MS, 2006, Environmental Engineering  
 BS, 2004, Civil Engineering  
 AS, 1999, Mathematical Science

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS  
 American Society of Civil Engineers

REGISTRATION (Type, Year, State)  
 EIT, West Virginia

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

|   |                                 |   |  |
|---|---------------------------------|---|--|
| NAME & TITLE (Last, First, Middle Int.) | YEARS OF AML DESIGN EXPERIENCE: | YEARS OF AML RELATED DESIGN EXPERIENCE: | YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: |
| <b>Cline, Jeremiah C.<br/>Engineer</b>  | 2                               | 4                                       | 0  |

Brief Explanation of Responsibilities

Mr. Cline is experienced in ASTM Standard materials testing, construction and environmental inspection services, monitoring the many different physical parameters of streams, and GPS surveying. He is capable of making keen observations with respect to the effects of longwall mining to surface features above ground. At this time he is creating estimates for several large scale stream monitoring projects. Mr. Cline is also managing equipment and people in a dynamic schedule that he created to track all monitoring tasks for each of nearly 30 persons at 5 deep mine sites, on a daily basis. He has had several classes in natural stream design and stream restoration that includes Rosgen Level One – Fluvial Geomorphology for Engineers and other classes hosted by Canaan Valley Institute.

EDUCATION (Degree, Year, Specialization)  
 BS, 2003, Civil Engineering  
 Rosgen Level 1 – Fluvial Geomorphology for Engineers  
 Rosgen Level 2 – River Morphology and Applications  
 Rosgen Level 3 – River Assessment and Monitoring

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS  
 ASCE – WV Northern Branch (President)

REGISTRATION (Type, Year, State)  
 EIT, West Virginia

Natural Stream Design Construction Management Workshop  
 Introduction to Stream Surveying  
 10-Hour OSHA Training Course in Construction Safety & Health

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

| NAME & TITLE (Last, First, Middle Int.) | YEARS OF AML DESIGN EXPERIENCE: | YEARS OF AML RELATED DESIGN EXPERIENCE: | YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: |
|---|---------------------------------|---|--|
| <b>McDermott, David<br/>Geologist</b>   | 2                               | 6                                       | 0  |

Brief Explanation of Responsibilities

Mr. McDermott is a Geologist with a proven track record of success in collecting, analyzing and graphically representing data. He is proficient in operating numerous pieces of equipment including, but not limited to: a Trimble GeoXT GPS, a Marsh-McBirney Model T2000 Flow Meter and various other groundwater and surface water sampling instrumentation.

EDUCATION (Degree, Year, Specialization)  
 BS, 2005, Geology

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 AML DESIGN EXPERIENCE: | YEARS OF AML RELATED DESIGN EXPERIENCE: | YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: |
|--|---------------------------------|---|--|
| <b>J. Beau Downing<br/>Geologist / Geomorphologist</b> | 2                               | 2                                       | 0  |

Brief Explanation of Responsibilities

Mr. Downing serves as Geologist at Hatch Mott MacDonald. His past experience includes AML design projects for the state of West Virginia. His expertise is in stream geomorphology and natural stream design. Mr. Downing is also familiar with surficial geology mapping, digital stream channel surveys, and digital cartography.

EDUCATION (Degree, Year, Specialization)  
 MS Geology, 2008, Geomorphology  
 BA, Geology, 2006

Natural Stream Design  
 Rosgen Level 1 – Fluvial Geomorphology for Engineers  
 Rosgen Level 2 – River Morphology and Applications

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Geological Society of America  
 American Geophysical Union  
 American Institute of Professional Geologists

REGISTRATION (Type, Year, State)

**FIELD EQUIPMENT**

**Sampling Equipment (water/solid)**

- Ponar Dredge (solids underwater)
- Automatic Water Samplers
- Hand Augers (soil)
- EnCoreTM Samplers
- Disposable Field Filters, 0.45 micron
- Bailers (disposable Polyethylene, PVC, Teflon)
- Groundwater Pumps

**Safety Equipment**

- O2, LEL, H2S, CO Meter
- Hazmat Kit/Draeger Tubes
- Tripod Confined Space Entry System
- Personal Protective Equipment (PPE)

**General Equipment**

- Air Compressor (electric powered, 110V)
- Digital Camera
- Electric 110V-220V Generator (gas powered)
- Jar Test Apparatus
- Settling Column
- Field Kits (HACH)
- Metering Pumps (0-500 ml/min)

**Measuring Instruments**

- Marsh McBirney T2000 Flow Meter (open channel)
- Fluorometer (water flow open channel)
- Polysonics Flow Meter (closed pipe)
- Water Level Recorder
- Water Level Indicator (wells, tanks)
- Interface Layer Probe (wells, tanks)
- Recording Rain Gauge
- pH/Conductivity/Temp Meter
- pH/Temp Meter
- ORP Meter
- Specific Conductivity/Temp Meter
- Photoionization Detector

**Surveying Equipment**

- Portable Rangefinder
- Brunton Compass
- Total Station with Data Collector
- GPS Submeter Unit
- GPS RTK (Portable Base + Rover)
- GPS RTK (Complete Unit)**

**General Office**

- Microsoft Word
- Microsoft Excel
- Microsoft PowerPoint
- Microsoft Project
- Microsoft Outlook
- Adobe CS2 Suite

**Design and Modeling**

- AutoCAD 2007
- AutoDesk Land Desktop 2007 (civil/site)
- Autodesk Civil 3D 2007 (civil/site)
- MicroStation V8 2004
- FlowMaster 2005 (flow design)
- InfoWorks CS (hydraulic modeling)
- XP-SWMM (hydraulic modeling)
- InfoSewer (hydraulic analysis)
- HEC-RAS (open channel modeling)
- PENTOXSD for Windows (effluent limits)
- WQM 7.0 (BOD/NH3 wasteload allocation)

**GIS and Database**

- ArcGIS (GIS mapping and database mgmt.)
- SQL Server (database management)
- Oracle (database management)
- Microsoft Access (simple databases)

**OFFICE EQUIPMENT**

- Oce TDS 450 B/W Plotter (high speed, wide format)
- Oce TCS 500 Color Plotter (high speed, wide format)
- Oce Wide Format Color Scanner

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

| PROJECT NAME, TYPE AND LOCATION                                  | NAME AND ADDRESS OF OWNER  | NATURE OF YOUR FIRM'S RESPONSIBILITY   | ESTIMATED DESIGN SERVICES COST      | PERCENT COMPLETE |
|--|--|--|-------------------------------------|------------------|
| <b>Barker Portals &amp; Strip</b><br>Barbour County, WV          | West Virginia Division of Environmental Protection                                       | Reclamation Design, Mine Closures, Highwall Reduction, Regrade/Revegetation                                  | \$149,000                           | 60%              |
| <b>Heather Run No. 2</b><br>Preston County, WV                   | West Virginia Division of Environmental Protection                                       | Reclamation Design, Mine Closures, Highwall Reduction, Channel Design  | \$102,000                           | 90%              |
| <b>Pendleton Creek Strip</b><br>Tucker County, WV                | West Virginia Division of Environmental Protection                                       | Reclamation Design, Natural Stream Channel Design, ARRI Reforestation Plan                                   | \$153,000                           | 98%              |
| <b>Stream Mitigation/Restoration Project</b><br>Southwestern, PA | Confidential Coal Client   | Stream Mitigation and Restoration of approximately 50,000 lineal feet of stream affected by longwall mining. | \$4,000,000                         | 20%              |
| <b>Stream Monitoring</b><br>Southwestern, PA                     | Confidential Coal Client   | Stream monitoring of approximately 25,000 lineal feet of stream affected by longwall mining.                 | \$11,000,000                        | 30%              |
| <b>Chinook Mine</b><br>Brasil, Indiana                           | Ed Greenwald, Jr.<br>Headwaters Energy Services<br>3 Church Street<br>Lawrence, PA 15055 | Mapping and verification of coal waste quantities.   | \$8,600                             | 95%              |
| <b>A &amp; G Coal</b><br>Norton, VA                              | Ed Greenwald, Jr.<br>Headwaters Energy Services<br>3 Church Street<br>Lawrence, PA 15055 | GPS locations, GIS mapping and verifications of coal waste quantities.                                       | \$9,175                             | 95%              |
| <b>Phoenix Mine</b><br>Greenville, KY                            | Ed Greenwald, Jr.<br>Headwaters Energy Services<br>3 Church Street<br>Lawrence, PA 15055 | Mapping and verification of coal quantities  | \$8,500                             | 90%              |
| <b>Mepco Holdings</b><br>Morgantown, WV                          | Russell Bolyard<br>308 Dents Run Road<br>Morgantown, WV 26501                            | Various Mine Permits   | \$700,000<br>Fee                    | 70%              |
| <b>Various Mine Permitting Projects, WV</b>                      | Confidential Coal Client   | Shaft permits, permit modifications and permit renewals  | \$120,000                           | 60%              |
| TOTAL NUMBER OF PROJECTS: 10                                     |  |  | TOTAL ESTIMATED COSTS: \$15,250,275 |                  |

16. CUK T ACTIVITIES ON WHICH YOUR FIRM IS SERVING AS A

-CONSULTANT TO OTHERS

| PROJECT NAME, TYPE AND LOCATION  | NATURE OF FIRMS RESPONSIBILITY  | NAME AND ADDRESS OF OWNER   | ESTIMATED COMPLETION DATE | ESTIMATED CONSTRUCTION COST |                           |
|--|---|---|---------------------------|-----------------------------|---------------------------|
|  |   |   |                           | ENTIRE PROJECT              | YOUR FIRMS RESPONSIBILITY |
| <b>East Side Access, New York, NY</b>                                  | Program Management. Design review and expert advise on the tunnel design and construction including ventilation systems and other fire/life safety issues. LIRR service into Grand Central Terminal. The new line will utilize the partially completed 63rd Street tunnel and construct approximately 5,000 feet of new tunnel into Grand Central Terminal. | Long Island Rail Road<br>469 7th Ave., 11th Floor<br>New York, New York<br>10018  | 2009                      | \$4,300,000                 | \$17,000                  |
| <b>Market Street Elevated Reconstruction Project, Philadelphia, PA</b> | The aerial structure on the west side of SEPTA's Blue Line is being rebuilt where the at-grade track begins. The project spans over two miles and will be accomplished while SEPTA continues to operate service on the line.  | Southeastern Pennsylvania Transportation Authority (SEPTA)<br>1234 Market Street, 11th Floor<br>Philadelphia, Pennsylvania<br>19107 | 2008                      | \$200,000 (fee)             | \$200                     |
| <b>Dulles Airport People Mover Tunnels, Virginia/Washington DC</b>     | Design of the people mover, baggage and tug tunnel, including mechanical and electrical systems, ventilation systems and fire/life safety for all tunnels on the project. Involves 50,000 ft of tunnels ranging from 18-ft diameter to 40-ft diameter constructed by NATM and TBM, running beneath the airport operating area.                              | Metropolitan Washington Airports Authority<br>1 Aviation Circle<br>Washington, D.C. 20001-6000                                      | 2007                      | \$900,000                   | 25,800                    |
|  |   |   |                           |                             |                           |
|  |   |   |                           |                             |                           |
|  |   |   |                           |                             |                           |

| 17. C | LETTED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM AS THE DESIGNATED ENGINEER OF RECORD | PROJECT NAME, TYPE AND LOCATION   | NAME AND ADDRESS OF OWNER   | ESTIMATED CONSTRUCTION COST | YEAR | CONSTRUCTED (YES OR NO) |
|-------|---|---|---|-----------------------------|------|-------------------------|
|       |   | <b>Stream Mitigation/Restoration Project</b><br>Southwestern, PA<br>Stream mitigation and restoration of approximately 21,000 lineal feet of stream affected by longwall mining.  | Confidential Coal Client  | \$5,000,000                 | 2007 | Yes                     |
|       |   | <b>Stream Monitoring</b><br>Southwestern, PA<br>Stream monitoring of approximately 13,000 lineal feet of stream affected by longwall mining.  | Confidential Coal Client  | \$4,600,000                 | 2007 | N/A                     |
|       |   | <b>Pond Restoration and Sealing Project</b><br>Mannington, WV<br>Restoration and liner installation on pond affected by longwall mining.  | Confidential Coal Client  | \$30,730                    | 2007 | Yes                     |
|       |   | <b>Program Management Services</b><br>Providing overall program management of the water distribution system including planning, engineering design and engineering design management services, Master Plan and Operations review and update in support of DCWASA's on-going capital improvement program in excess of \$500m.<br>Washington DC                       | District of Columbia Water & Sewer<br>5000 Overlook Avenue, SW, 5 <sup>th</sup> Floor<br>Washington DC 20032-5397 | \$9,500,000                 | 2006 | N/A                     |
|       |   | <b>Crow's Nest Wash Plant</b><br>Hatch Mott MacDonald (HMM) was retained by the client to develop a permit for the re-processing of coal waste products at a site in Westmoreland County, Pennsylvania. The site was part of an abandoned surface mine and coal waste pile.   | Donald F. Dargie<br>Palmer Management Group<br>13 Elm Street, Suite 300<br>Cohasset, MA 02025                     | \$300,000                   | 2006 | Yes                     |
|       |   | <b>Tampa Bay Seawater Desalination Facility Modifications</b><br>Serving as the Engineer of Record for the project. Responsible for structural, architectural, electrical, mechanical and site related design and review of process design for the planned modifications. Also providing construction engineering services<br>Appollo Beach, FL                     | American Water Pridesa, LLC<br>13041 Wyandotte Road<br>Gobsonston, FL 33534                                       | \$24,000,000                | 2007 | Yes                     |
|       |   | <b>Lost Creek Flood Study</b><br>Project involved performing a FEMA flood study to revise the floodplain boundaries along Lost Creek. Services included creation of a hydraulic model based on new survey data and completion of all necessary FEMA documentation to support the floodplain revision<br>Lost Creek, WV  | Harrison County Planning<br>Commission<br>301 West Main Street<br>Clarksburg, WV 26301                            | \$60,000 (fee)              | 2005 | No                      |
|       |   | <b>Harrison County Trail (McWhorter to Clarksburg)</b><br>Preparation of design plans, specifications, and bid documents for the conversion of an abandoned 14-mile CSX Railroad grade to a hiking/biking trail. Services included stormwater drainage design; trail surface design; wetland delineation; and bridge decking/rehabilitation.<br>Harrison County, WV | Harrison County Planning<br>Commission<br>301 West Main Street<br>Clarksburg, WV 26301                            | \$655,000                   | 2006 | 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) |
|---|--|-----------------------------|-----------------|-------------------------|
| <p><b>Storm Drainage &amp; Flood Control Improvements</b><br/>Storm sewers, stream improvements, an earth dike &amp; a pump station and installation of streamflow and rainfall gauging station equipment on the East and West Branches of the Rahway River. Services also included: Field Surveys, Wetlands Assessment, Hydrologic / Hydraulic Investigations, Cost Estimates, Cost Benefit Analysis, Flood Warning System, Flood Preparedness Plan.<br/>Essex County, NJ</p>  | <p>Millburn Township<br/>375 Millburn Avenue<br/>Millburn, NJ 07041</p>                          | <p>\$2,000</p>              | <p>On-going</p> | <p>Yes</p>              |
| <p><b>Norfolk Southern Heartland Corridor Project, Various Locations</b><br/>Inspection and evaluation of clearances, condition, and geotechnical characteristics for 30 railroad tunnels. Laser car measurements, geotechnical borings, liner samples, and visual inspections were used to establish the existing baseline conditions and to evaluate the potential for tunnel modifications to provide additional clearances.</p>   | <p>Norfolk Southern<br/>James N. Carter<br/>404.529.1408</p>                                     | <p>\$180,000,000</p>        | <p>2005</p>     | <p>N/A</p>              |
| <p><b>Emergency Services Contract for Route 70 Bridge Over Friendship Creek</b><br/>HMM provided emergency design and construction consultation services for the replacement of a collapsed bridge on NJ Rt. 70 due to scour. Developed diversionary road alignment and profile and foundation design for a 130' temporary Acrow Bridge maintaining all lanes of traffic, which was opened to traffic in five days after the collapse. Ultra fast-tracked the design and developed detailed design sketches in advance of full design drawings for use by contractor and fabricators in accordance with the NJDOT Procedures Manual, NJDOT Roadway &amp; Bridge Manuals and AASHTO Standard Specifications for the permanent replacement structure.</p> | <p>New Jersey DOT<br/>1035 Parkway Avenue<br/>Trenton, NJ<br/>Brian Strizki<br/>609.530.6363</p> | <p>\$3,000,000</p>          | <p>2004</p>     | <p>Yes</p>              |
|   |  |                             |                 |                         |
|   |  |                             |                 |                         |
|   |  |                             |                 |                         |



18. LETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS RESPONSIBLE

AS BEEN A SUB-CONSULTANT TO OTHER FIRMS (INDICATE)

HASE

| 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  |
|--|--|--|------|-------------------------|-----------------------|
| <b>Columbus Crossover Taxiway, Port Columbus International Airport, Columbus, OH:</b><br>Preliminary structural design engineering for the taxiway bridge(s) including an investigation of bridge types, structural systems, de-icing systems, costing and development of structural design considerations for final design.   | Columbus Airport Authority<br>4600 International Gateway<br>Columbus, OH 43219                                   | \$30.87 M<br>(Construction)                        | 2006 | Yes                     | RWA Associates        |
| <b>Westport Railroad Station, Westport, CT</b><br>As part of an ADA compliance upgrade, a pedestrian tunnel had to be constructed under four live Metro-North Railroad tracks, which also carry the East Coast Main Line service between Boston and New York. HMM completed a feasibility study and subsequently designed and provided on site supervision for the construction of a 75 ft long jacked tunnel.   | Connecticut Department of Transportation<br>2800 Berlin Turnpike,<br>P.O. Box 317546<br>Newington, CT 06131-7546 | \$2.5 M<br>(Construction)                          | 2003 | Yes                     | TAMS Consultants      |
| <b>Easterly Advanced Facilities Plan, Cleveland, OH</b><br>QA/QC of geotechnical data collection and reporting, feasibility and selection of tunnel and shaft excavation and lining systems. 30% design of tunnel linings and construction cost estimates for all tunnel construction contracts. This project involved 16-mi of CSO tunnels, from 20 to 27-ft in finished diameter and as deep as 200 feet traversing primarily through Chagrin Shale. | Northeast Ohio Regional Sewer District<br>3826 Euclid Ave.<br>Cleveland, OH 44115-2504                           | \$166,000<br>Fee                                   | 2003 | Yes                     | Haley & Aldrich, Inc. |

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.

Hatch Mott MacDonald's talented staff and years of experience in meeting deadlines and delivering a quality product has made us a leader in mining/ mining related field. ENR's April 2009 Top 500 Design Firm List has Hatch Mott MacDonald (HMM) listed as 51, up from 59 in 2008 (and 63 in 2007) the previous year. Additionally our current staff has over 100 years of AML experience in six different states and gives us the knowledge and understanding of project management and cost control to complete this project on time and within budget. We recently expanded with the opening of our Charleston, WV office to better serve WVDEP-AML and southern West Virginia.

20. The foregoing is a statement of facts.



Signature: \_\_\_\_\_

Printed Name: Timothy M. Rice

Title: Area Manager

Date: March 16, 2010

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[RPEM – Attachment “C”]

**Location**

Tucker County, Thomas,  
WV

**Client**

West Virginia Department  
of Environmental  
Protection

**Services**

- Surveying
- Geotechnical Investigations
- Mapping
- Reclamation Plan
- Natural Stream Design
- ARRI Reforestation
- Construction Plans and Details
- Construction Specifications
- Engineering Cost Estimate

**Project Description**

Hatch Mott MacDonald (HMM) was retained by the client to provide engineering design documents for the reclamation of an abandoned surface mine in Tucker County, WV. Pre-law mining activities intercepted Pendleton Creek and has forced the stream flow to be directed into an abandoned deep mine complex that lies under the community of Thomas, WV. The introduction of this flow is causing deterioration of the coal pillars that support the mine roof and is also generating AMD on the waters of the Blackwater River

HMM's work included all design documents necessary for construction and the project specific Corps of Engineers permits. Portions of the highwall were reclaimed to provide positive drainage of surface waters. Two separate streams were designed utilizing natural stream design techniques and bentonite liners to control losses and maintain stability. All disturbed areas were revegetated using ARRI reforestation procedures and native species.



## Location

Westmoreland, PA

## Client

Crow's Nest Synfuels,  
L.P.

## Services

- PADEP Permit
- MSHA Permit
- Erosion and Sediment Control Plan
- Mapping
- Surveying
- Surface and Groundwater Monitoring
- Annual Certification
- Reclamation Plan
- Closure Permits
- Construction Monitoring
- Channel Design
- Construction Inspection

## Project Description

Hatch Mott MacDonald (HMM) was retained by the client to develop a permit for the re-processing of coal waste products at a site in Westmoreland County, Pennsylvania. The site was part of an abandoned surface mine and coal waste pile.

Work included all design and permitting associated with the initial opening of this facility. HMM was also retained to monitor the operations and perform quarterly certifications. Annual renewals, modifications and compliance was also part of HMM's duties. The project was successfully followed through the reclamation and bond release stages of all state and federal regulatory agencies.



**Location**  
Somerset County, PA

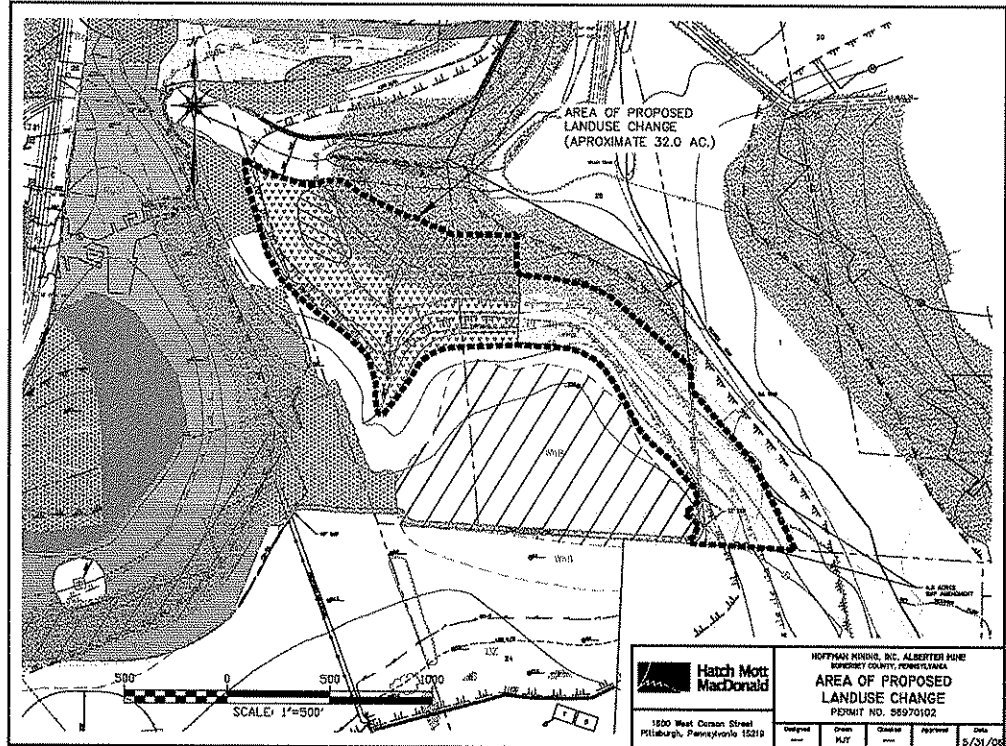
**Client**  
Hoffman Mining  
Company

- Services**
- PADEP Permit
  - Erosion and Sediment Control Plan
  - Mapping
  - Surveying
  - Surface and Groundwater Monitoring
  - Annual Certifications
  - Reclamation Plan
  - Closure Permits
  - Construction Monitoring
  - Channel Design
  - Construction Inspection
  - Bond Release

## Project Description

Hatch Mott MacDonald (HMM) was retained by the client to develop a surface mine permit for a site in Somerset County, Pennsylvania. The site included several land use changes.

Work included all design and permitting associated with the initial opening of this surface mine. HMM was also retained to monitor the operations, perform quarterly certifications, annual renewals, modifications, and compliance. The project was successfully followed through the reclamation and bond release stages of all state and federal regulatory agencies.



## Location

Bayard, WV

## Client

Confidential Mining  
Client

## Project Type

Hydraulic Analysis

## Services

Hydraulic Analysis Study

## Duration

September 2004 –  
February 2005

## Project Description

The client had an inactive mine site where they were operating a treatment plant to treat acid mine drainage. During large storm events, the steep slopes of the site caused rapid increases in the flow conveyed through the onsite drainage network. These increases in flow resulted in sudden spikes in the flow rates entering the treatment plant. This project was conducted to provide an evaluation of alternatives for reducing the peak flow rates during storm events that would allow the treatment plant to maintain operation within a preferred flow range during.



## HMM Role

HMM was tasked with performing a hydraulic and hydrologic study of the site and providing specific alternatives for reducing peak flows at the treatment plant. These alternatives included additional detention basins and the application of real time controls to better utilize storage available within the existing drainage network. HMM also provided supplementary services including collecting the necessary flow monitoring and rainfall data to calibrate the hydraulic model. In addition, HMM provided survey services of the various drainage paths throughout the site that forms the basis of the hydraulic model.

## Highlights

- Performed GPS surveying of open drainage channels and various culverts throughout the site
- Collected flow monitoring data using both weirs (open channel) and area-velocity meters (culverts) in an aggressive chemical environment.
- Utilized the calibrated hydraulic model to evaluate various alternatives to reduce peak flows entering the treatment plant in addition to reducing the overall operational costs of the plant.





## Location

Washington and Greene  
Counties, PA

## Client

Confidential Mining Client

## Project Type

Market/Discipline area

## Services

- Stream Data Collection and Management
- GIS and GPS Data Collection
- Landowner Contacts
- Area Logistics
- Project Scheduling
- Secure Information Exchange
- Integrated Web-based Project

## Duration

2003-present

## Construction Cost

\$4,000,000 annually

## Project Description

This confidential coal mining client is among the nation's top energy companies. They mine more high-Btu bituminous coal than any other producer in the United States, and is the nation's leader in underground coal mining. The client has operations located throughout major US coal-producing regions. They are the largest producer of coal bed methane in the US. For 140 years, the client and its predecessor companies have been industry leaders in production, profitability, safety, and environmental stewardship. Hatch Mott MacDonald (HMM) is currently assisting this client in managing, and developing an extensive study of the streams that overlie longwall coal mines. The study involves studying and documenting the streams' flow; geomorphology, hydrology and noting any changes in streams or the surrounding ecosystem. The accurate and consistent collection of the data is critical to the integrity and quality of the study. The end result is a significant amount of field data that accurately portrays the streams and watersheds of the mining surface areas.

## HMM Role

Hatch Mott MacDonald (HMM) is currently assisting the client in managing, and developing an extensive study of the streams that overlie longwall coal mines. The study involves studying and documenting the streams' flow; geomorphology, hydrology and noting any changes in streams or the surrounding ecosystem. The accurate and consistent collection of the data is critical to the integrity and quality of the study. The end result is a significant amount of field data that accurately portrays the streams and watersheds of the mining surface areas.

## Project Highlights

- ♦ **Project Development** – The project development was undertaken by client and HMM teams. The data collection and entry as well as data management are critical to the success of the study. Additional areas of development include
  - Stream data collection techniques and equipment evaluation
  - GIS and GPS data collection and organization
  - Landowner contacts and area logistics
  - Project Scheduling and Information Exchange
  - Web based access to data
- ♦ **Data Collection** – Work included setting up flow monitoring stations along designated sections of streams within the study areas being long-wall mined. Over 600 different flow-monitoring stations and more than 144 miles per month of stream morphology are uploaded into Trimble Geo XH sub-foot GPS units and traversed every month. These units were then used to navigate to each individual site of study. Once sites were located, stream flow measurements, water samples and digital photos were taken. Any changes along the length of stream in the geologic rock structures, stream channel conditions or stream flow were documented photographed, and filmed and entered into the GPS. The stream flow measurements were taken using a Marsh-McBirney Flo-mate 2000. All flow-monitoring sites are monitored monthly at a minimum and daily on a maximum basis. All field data collected is entered into a large data base where the data can be queried and printed for the clients at any given time for regulatory agencies, historical record, or research for expansion in new permit areas.
- ♦ **Landowner Contacts and Logistics** – Managing the landowner contacts, issues, and incidents is essential to the continuity and success of the project. HMM coordinated this activity with the client's land agents and many other consultants being used by the client.
- ♦ **Project Scheduling and Information Exchange** – All HMM field teams and other field teams are scheduled using an open web based system developed by HMM called File Share. Mapping, documents and data can be shared and exchanged using the File Share system.
- ♦ **Web Based Access to Data** –HMM assisted the Client in developing an extensive web based data access system.

**Location**

Greene and Washington  
Counties, PA

**Client**

Confidential Coal Client

**Services**

- Augmentation Work Plans
- Grout Injection Work Plans
- Subsurface Investigation Plans
- Stream Surveying
- Flow Monitoring
- Surface and Groundwater Monitoring
- GIS Mapping
- Hydrologic Modeling
- Channel Design
- Report Preparation
- Construction Inspection

**Project Description**

Hatch Mott MacDonald was retained by a private coal client to assist in the mitigation and remediation of over 50,000 lineal feet of streams that have been affected by longwall mining.

Work included surface and groundwater monitoring, hydrologic modeling, and subsurface investigations to determine minimum base flows for development of augmentation plans. Geologic conditions were then used to prepare a mitigation plan and develop a grout injection design for remediating the loss segments of the affected streams. This grout injection design consisted of a shallow, low-pressure injection of portland and bentonite to seal fractures and reduce water loss. Stream surveying of the remediation sites and control streams were used to establish a stable stream geometry that would effectively carry bankfull flows. Trimble GPS units and GIS software was used to develop maps showing the flow advancement downstream as construction progressed.

HMM performed the construction inspection and construction management of the project. This work included full-time inspection, evaluation of contractor performance and work product, and approval of contractor quantities.





**Location**

Wetzel County, WV

**Client**

Confidential Coal Client

**Services**

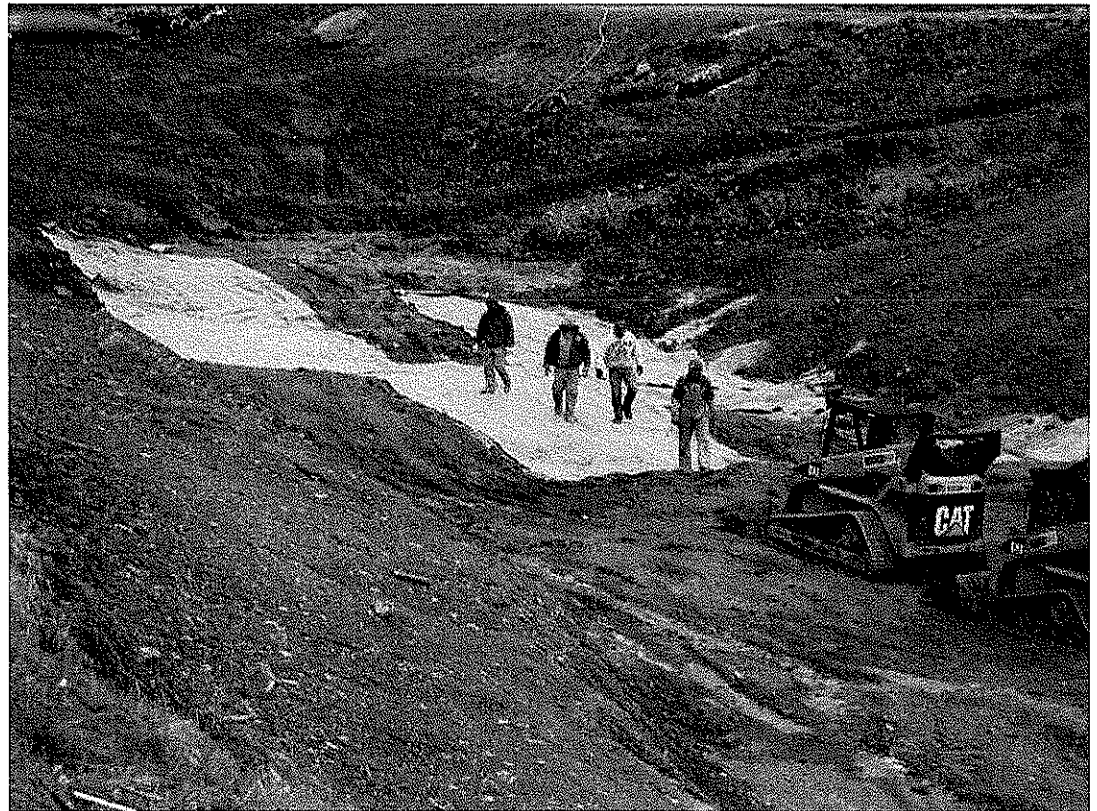
- Grout Injection Work Plans
- Subsurface Investigation
- Surveying
- Utility camera survey
- GIS Mapping
- Liner Design
- Cost Analysis
- Construction Inspection

**Project Description**

Hatch Mott MacDonald was retained by a private coal client to assist in the mitigation and remediation of an existing private impoundment that had been affected by longwall mining.

Work included investigation of subsurface data, groundwater monitoring, hydrologic modeling, and flow loss analysis. Hatch Mott MacDonald developed a combination grout injection plan and geosynthetic liner design. This grout injection plan consisted of a shallow, low-pressure injection of a mixture of Portland cement and bentonite to seal fractures and reduce water loss. The geosynthetic liner design utilized an impermeable bentonite mat at select locations within the pond bottom. A utility camera was used to observe infiltration and leakage of the pipe principal spillway.

HMM performed the construction inspection and construction management of the project. This work included full-time inspection, evaluation of contractor performance and work product, and approval of contractor quantities.



**Location**  
Harrison County, WV

**Client**  
Harrison County  
Commission, WV

**Project Type**  
Flood Modeling/Mapping

**Services**  
Site Characterization  
Hydrologic/Hydraulic  
Evaluations

**Duration**  
July 2004 - March 2005

## Project Description

The Lost Creek Floodplain Investigation provided the Harrison County Commission with detailed floodplain information for Lost Creek between the Town of Lost Creek corporate limit and Lost Creek's downstream confluence with the West Fork River. Prior to this investigation, Lost Creek was characterized as approximate Zone A on the Harrison County, WV (Unincorporated Areas) Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs). A final report was prepared for the Harrison County Planning Commission with all necessary documentation and analysis to support a revision to the Flood Insurance Rate Map for the Town of Lost Creek, WV.

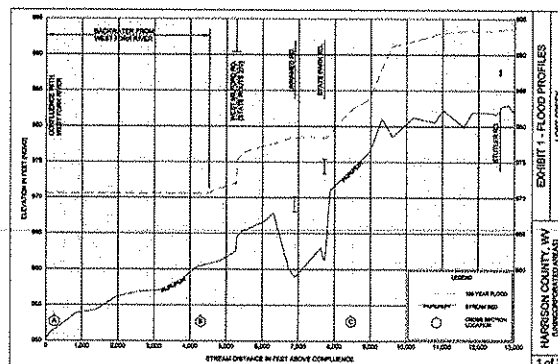
## HMM Role

**Site Characterization** - HMM prepared the detailed flood hazard mapping for Lost Creek by conducting field investigations and performing detailed hydraulic evaluations within the project study area. A combination of traditional land surveying and GPS surveying were used to identify cross sections of Lost Creek at set intervals. HMM combined the new cross section survey data with USGS DEM data to create a new Triangular Irregular Network (TIN) in ArcView. Cross sections were automatically extracted from the GIS TIN using HEC-GeoRAS and imported into HEC-RAS for performing the hydrologic and hydraulic evaluations.

**Hydrologic/Hydraulic Evaluations** - HMM used HEC-RAS to establish the peak flow for the 100-year storm using current US Geological Survey (USGS) regression equations for rural watersheds. The resulting floodplain and floodway boundaries for the 100-year storm event were mapped on digital topographic maps overlaid with color aerial photographs. A water surface profile was established for the 100-year storm for the establishment of Base Flow Elevations along Lost Creek.

## Project Highlights

- ◆ Development of hydrologic/hydraulic models
- ◆ Site characterization and delineation of Waterway flood elevation
- ◆ Deterioration of floodway boundaries and development of Flood Insurance Rate Map updates.



# Harrison County Trail – McWhorter to Clarksburg Trail

**Location**  
Harrison County, WV

**Client**  
Harrison County

**Services**

- Stormwater Drainage Design
- Trail Head/Parking Layout
- Precast Arch Culvert Design
- Bridge Rehabilitation
- Construction Contract Administration
- Construction Inspection

**Reference**

Terry Schulte, Executive  
Director  
304-624-8690

**Project Description**

Hatch Mott MacDonald was retained by the Harrison County Commissioners to prepare design plans, specifications, and bid documents for the conversion of the abandoned 14-mile CSX Railroad grade to a hiking/biking trail.

Work included digitizing existing railroad right-of-way maps into AutoCAD format; evaluation of existing drainage structures; design of drainage rehabilitation; design of new drainage structures; trail surface design; preparation of clearing, grubbing, and tree pruning specifications; design of trail entrances, gates and fencing; design of access barriers (to prevent unauthorized motor vehicles from gaining entry to the trail); wetland delineation; and bridge decking/rehabilitation.

HMM will also perform the construction inspection and construction management of the project. This work will include full-time inspection; evaluation of contractor performance and work product, and approval of contractor invoices. The project was completed in the Fall of 2003.

