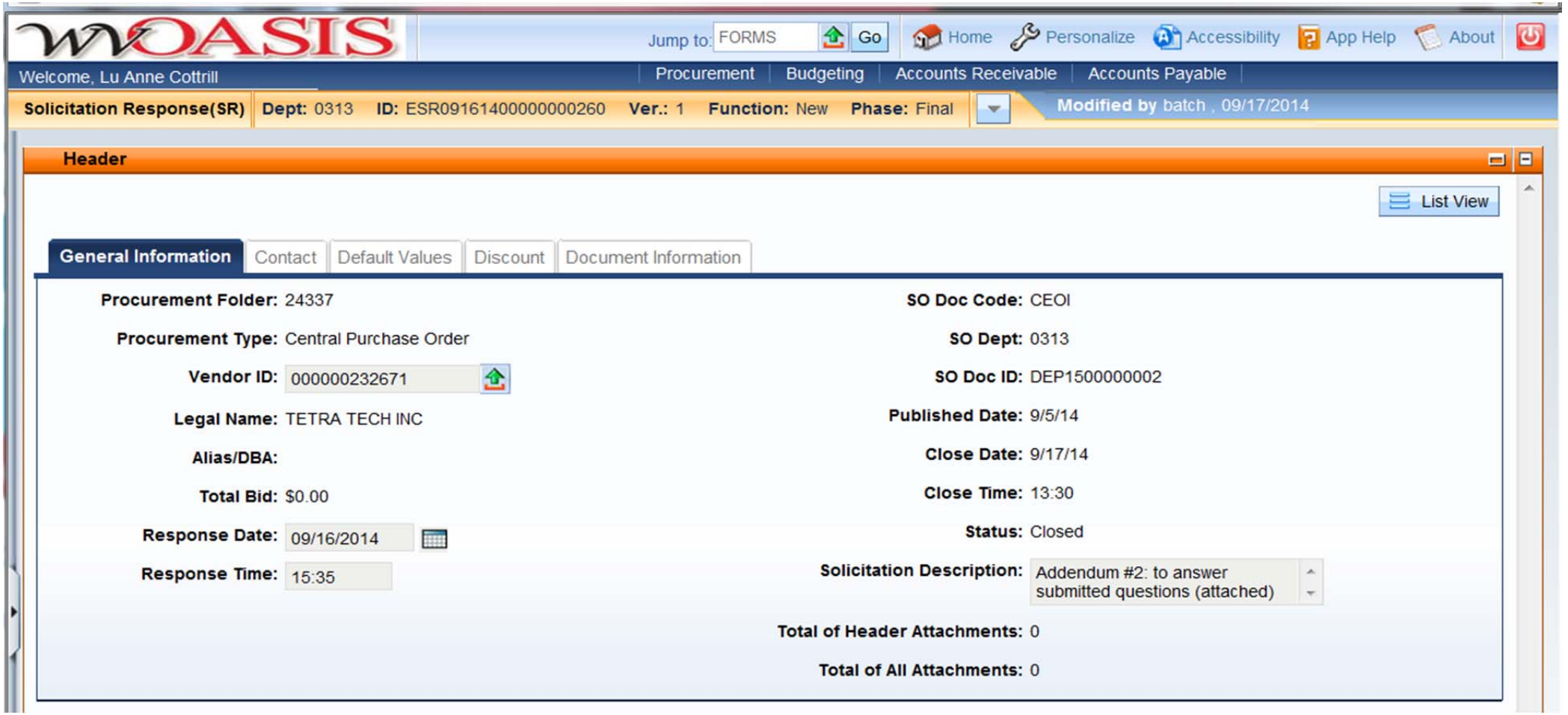
The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.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Procurement Type: Central Purchase Order
Vendor ID: 000000232671
Legal Name: TETRA TECH INC
Alias/DBA:
Total Bid: $0.00
Response Date: 09/16/2014
Response Time: 15:35
SO Doc Code: CEOI
SO Dept: 0313
SO Doc ID: DEP1500000002
Published Date: 9/5/14
Close Date: 9/17/14
Close Time: 13:30
Status: Closed
Solicitation Description: Addendum #2: to answer submitted questions (attached)
Total of Header Attachments: 0
Total of All Attachments: 0

Purchasing Division
2019 Washinton Street East
Post Office Box 50130
Charleston, WV 25305-0130

State Of West Virginia
Solicitation Response

Proc Folder : 24337

Solicitation Description : Addendum #2: to answer submitted questions (attached)

Proc Type : Central Purchase Order

Date issued	Solicitation Closes	Solicitation No	Version
	2014-09-17 13:30:00	SR 0313 ESR09161400000000260	1

VENDOR

000000232671

TETRA TECH INC

FOR INFORMATION CONTACT THE BUYER

Jamie Adkins

(304) 926-0499
jamie.h.adkins@wv.gov

Signature X **FEIN #** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Architectural engineering				$0.00

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description : Mapping of mine permit areas, property owner boundaries, and engineering design services to assist OSR in completing land reclamation and water treatment by compiling a Request for Quotation (RFQ) for the project, per the attached specification and requirements.

WVDEP Office of Special Reclamation

Request for Qualifications: DEP16553
Mapping, Design Services
Maurice Jennings S-61-83 & S-53-78.

TETRA TECH

CERTIFICATION AND SIGNATURE PAGE

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

Tetra Tech, Inc.
(Company)

Mark P. Speranza
(Authorized Signature)

Mark P. Speranza, Operations Manager
(Representative Name, Title)

412-921-8916 412-921-4040
(Phone Number) (Fax Number)

09/16/2014
(Date)

TABLE OF CONTENTS

September 17, 2014

Mr. Robert P. Kilpatrick, Senior Buyer
Department of Administration, Purchasing Division
2019 Washington Street East, Charleston, West Virginia 25305-0130

Dear Mr. Kilpatrick:

Tetra Tech is pleased to submit our qualifications to perform design services in reply to RFQ #DEP16553 for the State of West Virginia. As outlined in our proposal, Tetra Tech and its personnel have completed work on ***thousands of similar projects***. These projects have included items in the Scope of Work such as drainage control, mine seals, blasting designs, highwall elimination, and water treatment design.

This project will be managed out of Tetra Tech's Pittsburgh, Pennsylvania area offices, led by our Fairmont, WV office. Tetra Tech has a total of six design teams (each team consisting of one West Virginia registered engineer and one CAD professional) in these offices as well as a West Virginia registered surveyor and two West Virginia Licensed Remediation Specialists. Tetra Tech also has more than 650 mining and civil engineers, and 170 CAD professionals companywide that are available to support this work if needed.

Our experienced team is led by Mr. Thomas Gray, PE. Mr. Gray has more than 40 years of mining experience and has managed or supported numerous projects for the WVDEP. Mr. Gray is a registered Professional Engineer in the State of West Virginia. He will be joined by Mr. John Casey, PE. Mr. Gregory Hynes will also serve as a project advisor and has managed and supported more than 40 projects for the WVDEP.

As a firm, Tetra Tech also has significant experience working for the WVDEP. Mr. Gray recently managed three projects for the WVDEP – the Fisher Run, Tunnelton, and the Paint Branch Mine Portal Closure Design projects. Tetra Tech is also currently managing the AML&R's Parker Run Design Project and the OSR's Energy Marketing Slurry Impoundment Project. In addition, our Charleston office is currently managing TMDL projects for the WVDEP.

As requested by the RFQ we have submitted our Expression of Interest (EOI) via the wvOASIS procurement website. We appreciate this opportunity to provide this proposal, and look forward to answering any questions you may have. If you should require any additional information, please contact Mr. Gray at (304) 534-4021.

Sincerely,

Thomas A Gray

Mr. Thomas Gray, PE
Project Manager

Tetra Tech Approach

Tetra Tech's approach is to develop a site plan for the two Maurice Jennings Sites, located in Preston County, on County Road 92/11 that will:

1) comply with the requirements of the applicable rules and regulations,
2) define area via topographic mapping,
3) be easily constructed and economical,
4) use the best available technology,
5) maintain sustainable re-vegetation, and,
6) if needed, collect and treat any discharge water with minimal costs.

It is our understanding that the site is generally reclaimed but experiences drainage problems with water encroaching past the boundaries of the permit area, onto adjacent property. There are also some remnants of sedimentation ponds – these were reportedly used as sediment control as opposed to treatment. The record of violations for these permits showed some excursions of iron and pH. There have been some reports of the water migrating off-site, which may require land acquisition in order to remedy.

Our plan is to develop the information needed to prepare and implement a strategy to restore the site. While some items of information are available via the WV DEP records system, some specific information items regarding this site and discharges may not be readily available. As part of the effort, Tetra Tech may have to develop some of that specific data via site characterization work.

Our initial step would be one of reconnaissance to review available mine maps, permit plans, and reclamation plans, site data, and conduct a one-day on site reconnaissance meeting with WVDEP Office of Special Reclamation (OSR) representatives to investigate site conditions in detail and discuss potential mitigation options. A detailed scope of work and engineering cost estimate are expected to be prepared after this field meeting. This scope of work would include the logical phases of a project. These phases include:

- Reconnaissance Phase (Initial site visit),
- Site Characterization/Planning Phase, and
- Design Phase.

These phases will allow Tetra Tech to determine the source and magnitude of the problem, develop methods of resolving the problem, and executing the solution design.

It is expected that due to information gaps, that the plan will involve both field and document investigations. These will likely involve characterization studies of water sources emanating from the two Maurice Jennings Sites as well as characterization of any other materials found on site. The need for geotechnical/environmental investigations and supplementary site surveying would also be assessed at this initial field meeting. While there may be some speculation as to the source of the water generated from the sites, a part of scope of work will include definitively determining it source and volume. The site mapping along with a hand held GPS device would be very useful during site visit to validate and document key site elements. Even though the sites are partially reclaimed, other items to consider during site investigation include limits of backfilling and grading, earthwork balancing, site access for construction, surface and groundwater water control, E&S plan strategies, sources of topsoil

for covering re-graded refuse, disposal requirements and potential scrap value of any existing structures and equipment , potential for coal reprocessing, if available,, , location and availability of utilities.

Following site reconnaissance, Tetra Tech will meet internally with in-house mining reclamation experts and solicit additional input from OSR where appropriate, review existing and information generated from the on-site visit, to develop the detailed scope of work and engineering cost estimate for reclamation design. Tetra Tech has experience with an array of alternative reclamation techniques which could be considered for Maurice Jennings Sites, depending on the results of the original site visit and subsequent investigations. These include, but are not limited to (Note: Not all of the listed techniques will be present on the Maurice Jennings Sites):

- Site definition via topographic mapping
- Re-grading and placement of spoil and refuse below well-drained topsoil cover ('high and dry' segregation of acid producing materials)
- Evaluation or design of concrete and aggregate mine seals
- Design, analysis, and rehabilitation of mine water conveyance systems
- Use of alkaline fly ash back fill and/or soil amendment practice
- Hydraulic mine seal design
- Vertical mine seal design
- Acid mine drainage treatment with passive or active technologies
- Direct seeding coal refuse sites
- Use of biosolids for revegetation
- Mine pool management
- Hydrogeology impacts at mine sites
- Stream modeling
- Landslide design
- Active and passive water treatment systems
- Mine subsidence mitigation
- Mine gas mitigation
- Forest Reclamation Approach (FRA)

Tetra Tech will develop a plan of action based on the above techniques, as well as others. The plan, which will form a scope of work for next phases, as well as a cost estimate for the plan implementation will be documented and submitted to WVDEP OSR for approval.

After acceptance of the detailed scope of work and cost estimate, the site characterization/planning phase will begin. We have prepared a simplified example scope of work for a plan requiring problem definition and resolution via water collection and treatment. (While the water treatment scope is being used as an example, it is understood that other types of reclamation may be selected instead or in addition to based on the characterization results.) Note that the example plan follows the phased approach. Tetra Tech would complete the following items of work for this type of plan:

Characterization/Planning Phase:

1. Perform topographic mapping/survey work, if required, to provide spot elevations of key points, property boundary information, locations of water sources, and additional construction baselines as necessary to facilitate the successful prosecution of the future reclamation work
2. Conduct water characterization studies to determine the source, flow, and level. Provided time is available, enough samples should be collected to assess seasonal variations.
3. Provide geotechnical and environmental site investigation services as required. Geotechnical investigations would be provided to potentially determine soil thicknesses, depths to bedrock, mine water levels, likely points of discharge, soil bearing pressures, and thickness of borrow materials
4. Utility and Regulatory Research: Contact West Virginia utility location service (WV 811) and local utilities in the contract area to locate underground and overhead facilities that may be affected by the construction. Tetra Tech will meet with involved utility companies in the early phases of design and at pre-final plan stage to determine temporary or permanent relocations and construction costs. Review the site and perform a delineation of on-site wetlands, if necessary. Contact local jurisdictional agencies regarding anticipated permit requirements. Prepare the appropriate permit applications for submittal to regulatory agencies. Applicable BMPs and storm water and other permit requirements will be fully integrated into the reclamation design plans and specifications. In addition, Tetra tech would investigate the availability of various utilities of sufficient quantity such as power and sewage.
5. Prepare and submit conceptual level water collection, conveyance, and treatment options (passive and/or active treatment options will be considered) to the WVDEP OSR for review and approval including a brief description of each option's advantages and disadvantages. The conceptual plans will show the process flow diagrams and preliminary treatment facilities arrangements proposed for the site to insure that all parties are in agreement with the design approach prior to detailed design. One option could be selected to go forward to the design phase. If multiple options are still being considered, conceptual cost estimates for each and/or value engineering analysis would be prepared to select the lowest cost option.
6. Concurrent to developing conceptual level approaches, Tetra Tech will identify any land owners who may be impacted by any of the preliminary options. Should any off-site property be considered, it will be identified in the preliminary option.

Design Phase

7. Prepare detailed construction drawings including water handling, balanced grading plans, and erosion and sediment controls in AutoCAD format. Anticipated drawings include: title sheet, existing conditions plan, process drawings (process flow diagrams, piping & instrumentation drawings) general arrangements, structural, civil mechanical, piping, electrical, instrumentation drawings, proposed reclamation and grading plans (including E&S and post construction storm water management), profiles, cross sections, construction details, borehole logs, and a tax map overlay of the reclamation plan.
8. Prepare process sequence of operation.
9. Prepare technical equipment and construction specifications and details for materials and installation of site improvements in conformance with the applicable current standard details and specifications available from the WVDEP Office of Abandoned Mine Lands and Reclamation and as directed by the Office of Special Reclamation.

10. Prepare supporting design calculations including structural, hydrologic and hydraulic calculations as required for water conveyances and structure design.
11. Detailed construction drawings, specifications, and design calculations will be submitted to WVDEP OSR for review and comment.
12. Drawings incorporating WVDEP OSR comments will be submitted as required to obtain applicable site permits, if any.
13. Prepare a bid tabulation sheet and unit estimate of probable construction cost for the proposed site grading.
14. Submit a Requisition for Quote package with supporting final deliverables to WVDEP OSR including :

    a. Complete set of reclamation construction drawings.
    b. Construction specifications in Word format
    c. Process sequence of operation
    d. Estimate of probable cost and bid tabulation sheet
    e. Copies of test results and bore hole logs, as applicable
    f. Copies of survey data and field logs
    g. Permit approvals as applicable

Addressing the Scope of Work

Below is a brief outline of some of Tetra Tech's experience with the various tasks that may become a part of the scope of work under this contract. The inclusion of these tasks will be dependent on the results of the initial Site visit. Tetra Tech has a strong technical knowledge of the services required to complete mine reclamation projects including:

Problem Identification and Solution Development – Tetra Tech prides itself in its ability to identify and assess mine reclamation problems. As a consulting firm, Tetra tech has constantly been focusses on problem solving. In fact, the majority of projects that Tetra Tech begin with the work of identifying the cause of a client's problem. The identification of a problem cause starts with the preparation of a work plan to characterize the area, i.e., present the tasks needed to locate the source, procedures to quantify the impact (analyses, modelling). This is followed developing the hypothesis, its validation, and final identification.

Prepare work areas by clearing and grubbing – Tetra Tech's engineering and support personnel have prepared hundreds of plans, drawings and specifications to be used for construction bids and for on-site support during construction activity. We have prepared many similar plans for the WVDEP AML section and these will be the general template for the Maurice Jennings site reclamation drawings. Construction sequence and E&S narratives included with these plans describe the sequence from initial clearing and grubbing and installing erosion and sediment controls to the final site clean-up and vegetation and mulching.

Install new and refurbish existing drainage controls and erosion protection (sediment ponds, sediment ditches, and diversions) – In 2012, Tetra Tech was named as the #1 engineering firm by the *Engineering News-Record* for water related services for the ninth consecutive year. Many

members of our team have significant experience with design of open channels, culverts, and mine water collection and conveyance systems, as well as erosion protection systems.

Tetra Tech understands the challenge of preparing mine reclamation plans on time and within available budgets. Our numerous civil and mining engineers are well experienced with preparing erosion and sediment control plans and specifying appropriate Best Management Practices (BMP's). Tetra Tech personnel have specific experience preparing and submitting WV stormwater plans. Our engineers will work closely with WVDEP OSR to incorporate proper and economical erosion and sediment control BMP's into the reclamation construction drawings. The anticipated erosion and sediment controls will consider the requirements of the current mine permit and utilize existing structures (ditches, ponds, etc.) where possible.

Locate, protect and/or avoid existing utility lines, poles, gas lines, etc. – Tetra Tech has in-house West Virginia certified land surveyors to complete base mapping of project sites. Topography, utility lines, poles, noted gas lines and other surface features can be surveyed for each project. If needed, Tetra Tech would subcontract aerial photography for the development of more detailed contour maps of larger sites.

In addition, our firm has surveyors with experience in working on a variety of abandoned mine land projects.

Construct new and upgrade existing access roads, and install culverts – Tetra Tech has significant experience in the construction and upgrading of access roads and the installation of culverts for abandoned mine land projects. Recently, Tetra Tech completed an access road required for the Gladden Mine Discharge Passive Treatment System project in association with PADEP.

In addition, our firm is currently performing this type of work for projects for E&P clients operating in the Marcellus Shale on an as needed basis. Tetra Tech coordinates with local government and state entities such as the Department of Transportation for the development of access roads/culverts for project sites. Following the completion of a project, Tetra Tech also can restore the area to its prior condition.

Install mine seals and subsurface drains - Tetra Tech recently completed several projects requiring the closure of abandoned mine openings. For the West Virginia Department of Environmental Protection, Tetra Tech completed designs to install wet mine seals and drainage improvements for the closure of nine portals on private properties in Weston and Tunnelton, West Virginia. Tetra Tech also recently prepared mine seal designs for three shafts for use at an active coal mine during closure for a coal company in Aledonia, Ohio and completed the design of four internal mine bulkheads at the same Ohio coal mine.

Perform blasting designs and pre-blast surveys, if needed for reclamation of site – If required, Tetra Tech conducts these surveys by first attempting to contact each home owner to make an appointment to meet with them and inspect their dwelling. Typically a two-person team will perform these tasks. They will view the inside and outside of each room for existing damage and inspect, photograph, and videotape to document the dwelling's condition prior to any blasting. A report is then assembled and provided to the WVDEP Division of Mining & Reclamation for review and approval.

Tetra Tech staff includes mining engineers with experience in blasting. Blasting plans can be reviewed and prepared if needed. If special conditions exist, such as blasting in an isolation trench near a mine fire, Tetra Tech may use a blasting expert as a consultant.

Eliminate existing highwalls by backfilling and regrading with materials available onsite, or designate borrow area sites nearby – Tetra Tech is very experienced in preparing design plans for highwall elimination, borrow areas, treatment ponds, and the necessary grading for final reclamation. Tetra Tech primarily uses AutoCAD Version 2013 and AutoDesk Civil 3D for state-of-the-art site design to prepare a plan based on current site conditions to meet permit specifications and approximate original contour. Tetra Tech reclamation grading plans include balanced earthwork including anticipated shrinkage of engineered and compacted fills. Grading plans also minimize required hauling and re-handling of materials by balancing individual work areas and considering construction sequencing and available work areas.

Repair or eliminate any slip areas on partially backfilled highwalls – Tetra Tech's geotechnical engineers and soil scientists have conducted slope stability analyses for a variety of projects, inspecting the site for slip areas on partially backfilled highwalls. Mr. Gray has performed slope stability analysis in support of restoration plan development numerous times for the Office of Surface Mining and also prepares restoration plans. Tetra Tech's highly experienced geotechnical staff works in close conjunction with hydrogeologists to integrate groundwater control with slope stability. Our reclamation plans generally include compacted fill slopes of 2H:1V or shallower as allowable by site conditions, and other stability measures such as rock toes, key benching, and fill benches where applicable.

Reshape and add lime amendments to any potentially toxic coal refuse piles – Tetra Tech has experience evaluating the requirement for lime amendments for refuse materials and acid-producing overburden. Alternative alkaline products such as steel slag leach beds and fluidized bed combustion (FBC) ash have been evaluated for reclamation projects.

Condition, stabilize, and revegetate disturbed land by the plan view acre, based on post-mine land use from permit files from landowners – Tetra Tech is experienced in developing reclamation plans aimed at meeting specific land use and vegetation conditions. Tetra Tech's professionals understand the ecology of reclaimed areas as well as understanding permit requirements. Reclamation plans are based on experience gained implementing plans at mine sites and monitoring reclamation success.

If long term water treatment is anticipated on the site, prepare and regrade areas to accommodate space for future structures or facilities – Tetra Tech has experience with the preparation of areas to accommodate for the need of water treatment structures or facilities.

Design efficient passive and active water treatment and pumping systems which minimize maintenance and meet NPDES water quality standards – Tetra Tech has experience in the design

of both passive and active treatment plants which include processing water coal facilities as well other minerals. In addition tetra tech has the experience to develop water conveyance systems, either pumped or gravity (if applicable to a sites topography) such that treatment or discharges are minimized. Tetra Tech is also experienced with plant automation which reduces the need for operation and maintenance personnel.

Design appropriate sludge handling facilities on site – Tetra Tech has included sludge handling in its active water treatment plants. These facilities have included sludge dewatering as well as sludge injection wells, depending on the individual site's requirements

Final site cleanup – Tetra Tech will work with contractors for the final cleanup and restoration of sites, including the removal and hauling of all debris, and restoration of sites to prior conditions.

To further demonstrate our experience, we have provided full-page resumes in Section D and project descriptions in Section E.

Section B: Consultant Questionnaire

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
OSR CONSULTANT QUALIFICATION QUESTIONNAIRE Attachment "B"

PROJECT NAME	DATE (DAY, MONTH, YEAR)		FEIN
Maurice Jennings S-61-83 and 53-78	17, September, 2014		95-4148514
1. FIRM NAME Tetra Tech, Inc.	2. HOME OFFICE BUSINESS ADDRESS 661 Andersen Drive Pittsburgh, PA 15220		3. FORMER FIRM NAME Tetra Tech NUS, Inc. NUS Corporation NUS Environmental Corporation
4. HOME OFFICE TELEPHONE (304) 534-4021	5. ESTABLISHED (YEAR) 1966	6. TYPE OWNERSHIP Corporation	6a. WV REGISTERED DBE (Disadvantaged Business Enterprise) No

7. PRIMARY OSR DESIGN OFFICE: ADDRESS/TELEPHONE/PERSON IN CHARGE/ NO. OSR DESIGN PERSONNEL EACH OFFICE

Foster Plaza 7, 661 Andersen Drive, Pittsburgh, PA 15220 / (412) 921-7090 / Mark Speranza, PE / (16 AML design personnel - 6 Design Engineers and 10 CADD Professionals)

8. PRINCIPAL OFFICERS OR MEMBERS OF FIRM	8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS
Mr. Mark Perry, PE – Unit President Mr. Thomas Gray, PE – Project Manager	Mr. Mark Speranza, PE – North Central Regional Manager Ms. Stephanie Warino, PG – Fairmont Operations Manager

9. PERSONNEL BY DISCIPLINE

2012 ADMINISTRATIVE	152 ECOLOGISTS	19 LANDSCAPE ARCHITECTS	98 STRUCTURAL ENGINEERS
130 ARCHITECTS	138 ECONOMISTS	54 MECHANICAL ENGINEERS	**60 SURVEYORS**
300 BIOLOGIST	60 ELECTRICAL ENGINEERS	**70 MINING ENGINEERS**	75 TRAFFIC ENGINEERS
170 CADD OPERATORS	746 ENVIRONMENTALISTS	12 PHOTOGRAMMETRISTS	7855 OTHER
304 CHEMICAL ENGINEERS	271 ESTIMATORS	96 PLANNERS: URBAN/REGIONAL	
588 CIVIL ENGINEERS	**367 GEOLOGISTS**	70 SANITARY ENGINEERS	
61 CONSTRUCTION INSPECTORS	3 HISTORIANS	34 SOILS ENGINEERS	239 TOTAL PERSONNEL (IN PRIMARY OFFICE)
_ DESIGNERS (counted in CADD)	115 HYDROLOGISTS	140 SPECIFICATION WRITERS	
_ DRAFTSMEN (counted in CADD)			14,000+ Personnel company-wide

TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: 6

***RPEs other than Civil and Mining must provide supporting documentation that qualifies them to supervise and perform this type of work.**

10. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE? □ YES □ NO N/A

Below is a list of subcontractors we would likely use, if required

11. OUTSIDE KEY CONSULTANTS/SUB-CONSULTANTS ANTICIPATED TO BE USED. Attach OSR "Consultant Qualification Questionnaire".		
NAME AND ADDRESS: Test Boring Services, Inc. 140 Mong Road Scenery Hill, PA 15360	SPECIALTY: Drilling	WORKED WITH BEFORE __X__ Yes (with individual staff) _____ No
NAME AND ADDRESS: Sturm Environmental Services P.O. Box 650 Bridgeport, WV 26330	SPECIALTY: Laboratory analysis (coal, soil, water)	WORKED WITH BEFORE __X__ Yes (with individual staff) _____ No
NAME AND ADDRESS: Double J Drilling 1207 Williamstown Pike Williamstown, WV 26187	SPECIALTY: Drilling	WORKED WITH BEFORE __X__ Yes _____ No
NAME AND ADDRESS: Blue Mountain Aerial Mapping 11023 Mason-Dixon Highway Burton, WV 26562	SPECIALTY: Aerial mapping	WORKED WITH BEFORE __X__ Yes ___ No
NAME AND ADDRESS: Industrial Lab Analysis 65 36th Street Wheeling, WV 26003	SPECIALTY: Laboratory Analysis (water)	WORKED WITH BEFORE __X__ Yes (with individual staff) _____ No
NAME AND ADDRESS: Test Boring Services, Inc. 140 Mong Road Scenery Hill, PA 15360	SPECIALTY: Drilling	WORKED WITH BEFORE __X__ Yes (with individual staff) ____ No
NAME AND ADDRESS: Terra Testing, Inc. 260 Meadowlands Blvd. Washington, PA 15301	SPECIALTY: Geotechnical drilling	WORKED WITH BEFORE __X__ Yes _____ No
NAME AND ADDRESS: TRIAD Engineering 219 Hartman Run Road Morgantown, WV 26505	SPECIALTY: Surveying, Drilling	WORKED WITH BEFORE __X__ Yes ____ No

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

YES Description and Number of Projects: Tetra Tech has completed more than 100 projects involving acid mine drainage and has experience with both passive and active treatment systems. Our Project Manager has been working on acid mine drainage projects for the past 30 years, with some of his WVDEP projects involving AMD. Tetra Tech is also the No. 1 engineering firm in the U.S. based on the prestigious 2014 Engineering News-Record rankings, which was the ninth year in a row we have received that distinction. Many members of our team have significant experience with the abatement and treatment of acid mine drainage water pollution including our mining engineers and hydrologists.

B. **Is your firm experienced in soil analysis and coal refuse analyses?**

YES Description and Number of Projects: Tetra Tech has conducted **thousands of soil investigations, including coal refuses analyses** worldwide that included sampling and analysis. Along with this site work, we have provided thousands of reports presenting the results of the investigations. We have extensive specialized experience and technical competence in providing soil sampling and analysis services, including **more than 6,000 environmental site characterizations (including at mining sites) and more than 1,000 geotechnical investigations.** We have trained and experienced field sampling crews available to support this project.

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

YES Description and Number of Projects: Tetra Tech has over **three decades of experience** in hydrology and hydraulics having completed **hundreds of projects, including those on mining sites.** Our expertise and knowledge in evaluating hydrologic systems is applied to specific water resource project types including water resource and flood damage assessment, flood control designs (including channels, levees, detention basins and bank protection, hydraulic structure design, erosion and sedimentation studies, stream restoration and wetland design, dam and levee safety evaluations, reservoir operation/optimization studies, flood-control and flood management studies and mapping, development of flood warning systems, dam break flood studies and contingency planning, stormwater drainage design, surface and groundwater supply analysis. The basis of these hydrologic studies is the application of HEC software such as HEC-HMS, GeoHMS, HECFFA, HEC-SSP, HEC-DSSVue, HEC-ResSim, CWMS and legacy software such as HEC-1, HEC-5, HEC-DSS, and COED.

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

YES Description and Number of Projects: Tetra Tech employs 15 GIS and CADD personnel in its Pittsburgh and Fairmont offices and has all necessary software for map development. Our firm hires subcontractors when necessary for aerial photography to develop contour maps. Tetra Tech has completed aerial photography and/or contour mapping for **over 100 projects**.

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

YES Description and Number of Projects:

Tetra Tech has experience in highwall-related projects. Our firm has performed several analyses of highwalls in Pennsylvania and for the Wyoming Department of Environmental Quality, our firm has managed highwall grading and monitoring projects under a statewide contract. Through our five-year contracts with the PADEP Bureau of Abandoned Mine Reclamation and Bureau of Mining Projects, Tetra Tech will manage additional highwall reclamation projects. Our project manager, Gregory Hynes, PE, also has a significant amount of highwall experience having completed **numerous highwall reclamation projects for the WVDEP.** Most recently he managed three highwall projects for the agency in 2012 – **the Waitman-Barbe Highwall, the Colliers Sportsman's Club Highwall, and the Simpson Creek Highwall**. In addition, our project advisor, Thomas Gray, PE, also has significant experience in the elimination and reclamation of highwalls.

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

NAME & TITLE (Last, First, MI)	YEARS OF EXPERIENCE	
Gray, Thomas, A., PE Project Manager / Mining Engineer	YEARS OF OSR DESIGN EXPERIENCE 0	YEARS OF OSR RELATED DESIGN EXPERIENCE 40

Brief explanation of responsibilities

Mr. Gray has more than 39 years of mining engineering experience and has managed numerous AML projects for the West Virginia Department of Environmental Protection. His experience for the agency includes the Paint Branch mine portals design, Tunnelton mine portals design, Fisher Run mine portals design, Omega mine grouting project, Owings Mine reclamation, Majesty Mine reclamation, Godby Branch water supply extension, and Left Hand Fork Refuse fire control. Since 2000, Mr. Gray has participated in more than 50 AMR projects and has managed 30 projects for the OSM. Currently, Mr. Gray oversees two statewide open-end contracts with the Pennsylvania Department of Environmental Protection. He also currently manages projects involving mineral rights for the West Virginia Division of Highways. Mr. Gray co-authored the chapter entitled, 'Mine Closure, Sealing, and Abandonment' in SME's Mining Engineering Handbook.

EDUCATION (Degree, year, specialization)
BS, 1973, Mining Engineering / MBA, 1977, Business Administration

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, year, state)
Society of Mining Engineers - Distinguished Member Society of American Military Engineers Engineering Society of Western Pennsylvania	Professional Engineer, 1988, West Virginia Professional Engineer, 1978, Pennsylvania Professional Engineer, 1980, Virginia Professional Engineer, 2009, Ohio Professional Engineer, 1989, Maryland

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

NAME & TITLE (Last, First, MI)	YEARS OF EXPERIENCE	
Hynes, Gregory, P., PE Project Advisor	YEARS OF OSR DESIGN EXPERIENCE 0	YEARS OF OSR RELATED DESIGN EXPERIENCE 27

Brief explanation of responsibilities

Mr. Hynes has more than 27 years of experience in abandoned mine land reclamation, land restoration, mining permits, and environmental and water resources engineering. He has managed or supported more than 30 AML projects for the WVDEP. Most recently, Mr. Hynes managed three highwall projects for the agency in 2012 – the Waitman-Barbe Highwall, the Colliers Sportsman's Club Highwall, and the Simpson Creek Highwall. He has also managed several projects for other state agencies including PADEP and the Ohio Department of Natural Resources, preparing design calculations, cost estimates, plans, and technical specifications for abandoned mine land reclamation. Mr. Hynes has also prepared permit applications and construction level drawings and specifications for proposed surface mine facilities in West Virginia and Pennsylvania. Projects included permitting and reclamation of various mining related surface facilities.

EDUCATION (Degree, year, specialization)
MS, 1997, Civil Engineering / BE, 1987, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, year, state)
N/A	Professional Engineer, 1998, West Virginia Professional Engineer, 1993, Pennsylvania Professional Engineer, 1998, Ohio

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

NAME & TITLE (Last, First, MI)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE	YEARS OF OSR RELATED DESIGN EXPERIENCE
Casey, John Project Advisor	0	34

Mr. Casey has over 34 years of professional experience in technical and project management, primarily in the area of industrial water/wastewater treatment and recycle systems. Primary industries include metals and acid mine drainage Specifically, Mr. Casey has been involved in the design, procurement, installation, operation and maintenance, and project management of a wide variety of treatment systems that have included, chemical addition, clarification, filtration, cooling, solids dewatering, and softening among other processes. Mr. Casey has managed projects have included feasibility studies, design, design and equipment procurement, design-build and design-build-own-operate utilizing multi-discipline teams.

EDUCATION (Degree, year, specialization)
MS, 1977, Civil Engineering / BS, 1974, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, year, state)
N/A	Professional Engineer, 2002, Maryland Professional Engineer, 1992, Illinois Professional Engineer, 1979, Pennsylvania Professional Engineer, 1981, Ohio

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

NAME & TITLE (Last, First, MI)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE	YEARS OF OSR RELATED DESIGN EXPERIENCE
Trexler, Heather Project Geologist	0	10

Brief explanation of responsibilities

Ms. Trexler has more than nine years of hydrologic, geologic, and mining-related. Project activities for mining development include the preparation of geologic and hydrologic sections of permits to state agencies for longwall expansions, new room and pillar mines, refuse expansions, and associated surface activities. She currently serves as a project geologist on two statewide abandoned mine land reclamation contracts with PADEP. Additional technical projects include the evaluation of current and potential mine pools, reviewing current and potential impacts to water resources, managing mining compliance sampling programs and evaluating large-volume water quality analysis.

EDUCATION (Degree, year, specialization)

MS, 2003, Geology / BS, 2001, Geology

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, year, state)
Society for Mining, Metallurgy & Exploration Pennsylvania Coal Mining Institute of America Marcellus Shale Coalition	Professional Geologist, 2007, Pennsylvania

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

NAME & TITLE (Last, First, MI)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE	YEARS OF OSR RELATED DESIGN EXPERIENCE
Smith, Terence, PE Mining Engineer	0	24

Brief explanation of responsibilities

Mr. Smith has more than 36 years of experience in mining engineering and management, and water and wastewater design engineering and project management. Mr. Smith previously served as a longwall maintenance supervisor and currently serves as a project manager for two statewide mining engineering abandoned mine land reclamation design contracts with PADEP. He recently provided design services for a mine discharge reclamation project for the South Fayette Conservation Group. His mining expertise also includes longwall mining, coal preparation plant and coal refuse disposal supervision, surface mine permitting, mine operations evaluations, compliance evaluations, economic feasibility analysis, cost estimating and project management in the coal mining industry.

EDUCATION (Degree, year, specialization)
BS, 1978, Mining Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, year, state)
Society of Mining, Metallurgy, and Exploration American Society of Civil Engineers Water Environment Federation	Professional Geologist, 1992, Pennsylvania

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

NAME & TITLE (Last, First, MI)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE	YEARS OF OSR RELATED DESIGN EXPERIENCE
Connolly, Timothy, PE Civil Engineer	0	30

Brief explanation of responsibilities

Mr. Connolly has more than 30 years of civil engineering experience. His experience includes work on abandoned mine land reclamation projects and he is currently serving as a project manager on Tetra Tech's abandoned mine land contracts through the Pennsylvania Department of Environmental Protection. He is a registered Professional Engineer in West Virginia and specializes in mine drainage projects, managing several such projects in Pennsylvania over the past two years. Mr. Connolly has also served as a heavy equipment operator performing construction services on various mine-related projects in the Commonwealth of Pennsylvania and is a Certified Construction Instructor certified by the Office of Surface Mining. Mr. Connolly is also familiar with AutoCad and Haestad Methods Hydrology software.

EDUCATION (Degree, year, specialization)

BS, 1983, Transportation Technology
AD, 1980, Highway Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, year, state)
N/A	Professional Engineer, 2013, West Virginia Professional Engineer, 1989, Pennsylvania

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

NAME & TITLE (Last, First, MI)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE	YEARS OF OSR RELATED DESIGN EXPERIENCE
Mertz, Robert, C., PE Civil Engineer	0	30

Brief explanation of responsibilities

Mr. Mertz is a civil engineer with more than 30 years of professional experience in project management, engineering, construction management, and quality assurance/quality control. He is a West Virginia registered Professional Engineer and has supported numerous civil engineering projects throughout his career. He has provided geotechnical and sedimentation and erosion control analyses, provided engineering design, developed sedimentation and erosion control plans, provided specifications, and QA/QC support for numerous projects and has also had coordination with state DEP agencies.

EDUCATION (Degree, year, specialization)

ME, 1991, Civil Engineering
BS, 1983, Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, year, state)
N/A	Professional Engineer, 1997, West Virginia Professional Engineer, 1997, Ohio Professional, Engineer, 1990, Pennsylvania

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

NAME & TITLE (Last, First, MI)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE	YEARS OF OSR RELATED DESIGN EXPERIENCE
Wilkes, Samuel, P., PWS Wetland Scientist	0	11

Brief explanation of responsibilities

Mr. Wilkes is an environmental scientist providing technical support to clients, such as the WVDEP and the WVDHHR, US Forest Service, Bureau of Land Management, and the EPA. He also provides technical support to clients pertaining to abandoned mine site investigations, abandoned mine land inventories, contaminant transport in surface waters, environmental contamination, and potentially responsible party searches. Mr. Wilkes has experience in investigating hard rock mines and mill sites for contaminants such as arsenic, copper, cyanide, lead, mercury, uranium, zinc, and organic compounds. He is proficient in contaminant source identification and characterization, site assessments contaminant migration pathways, and customized surface water modeling for abandoned mine sites.

EDUCATION (Degree, year, specialization)

MS, 2003, Environmental Science and Policy / BS, 1996, Earth and Environmental Science

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, year, state)
Society of Wetland Scientists	Professional Wetland Scientist, 2003, US Certified Forest Stand Delineator and Conservation Planner, 2003, MD

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

NAME & TITLE (Last, First, MI)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE	YEARS OF OSR RELATED DESIGN EXPERIENCE
Coffman, James, D. Geophysicist	0	17

Brief explanation of responsibilities

Mr. Coffman has more than 17 years of experience leading, performing, and interpreting results for hundreds of surface and borehole geophysical surveys. His experience in environmental geophysics is comprehensive and he has also performed this work for abandoned mine land projects, targeting mine voids, including work for the Virginia Department of Mines, Minerals, and Energy (DMME). He currently serves as the primary geophysicist on two statewide abandoned mine land reclamation contracts with PADEP. His concentration has been in surveys using electromagnetics (EM), ground penetrating radar (GPR), magnetics, seismic refraction, electrical resistivity, borehole geophysics, and utility location equipment.

EDUCATION (Degree, year, specialization)

MS, Geophysics, 1997 / BS, Geology, 1995

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, year, state)
N/A	N/A

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

NAME & TITLE (Last, First, MI)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE	YEARS OF OSR RELATED DESIGN EXPERIENCE
Hoppe, Ben CAD Designer	0	10

Brief explanation of responsibilities

Mr. Hoppe is a CAD Designer with over 11 years of relevant experience and is Tetra Tech's Pittsburgh office CAD manager. He has significant experience in providing CAD support for abandoned mine land reclamation projects and has supported three such efforts for the West Virginia Department of Environmental Protection and other projects in Pennsylvania. Mr. Hoppe currently serves as a CAD designer on two statewide abandoned mine land reclamation contracts with PADEP. His expertise includes all phases of civil design work including but not limited to, site grading, proposed roadway geometry layout, utility layout and Erosion & Sediment Control BMP Design. Mr. Hoppe is capable of providing accurate earthwork volumes for designs, layout of sewer and storm sewer systems (gravity and low pressure) using 3D models and complex grading designs using 3D civil software ensuring accuracy. Also capable of providing 3D models of piping systems for water and wastewater facilities utilizing a variety of different types of pipes, valves and mechanical equipment.

EDUCATION (Degree, year, specialization)

AAS, 2004, Drafting

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, year, state)
N/A	N/A

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

NAME & TITLE (Last, First, MI)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE	YEARS OF OSR RELATED DESIGN EXPERIENCE
Najeski, Nichole CAD Designer	0	4

Brief explanation of responsibilities

Ms. Najeski has more than four years of experience in Computer Aided Drafting and Design. She has supported numerous abandoned mine land projects and her responsibilities have included creating and modifying elevations, level drawings, base levels, and site plans for wireless infrastructure; performing quality assurance tasks; maintaining cycle times for normal course of business during integration; communicating with area representatives and field technicians to resolve conflicting data; reviewing site data for accuracy; and preparing cross sections, site location maps, surface soil and groundwater sampling maps, and conceptual site model figures.

EDUCATION (Degree, year, specialization)

AS, 2010, Drafting

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, year, state)
N/A	N/A

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

NAME & TITLE (Last, First, MI)	YEARS OF EXPERIENCE	
	YEARS OF OSR DESIGN EXPERIENCE	YEARS OF OSR RELATED DESIGN EXPERIENCE
Moore, Zachary CAD Designer	0	8

Brief explanation of responsibilities

Mr. Moore is a CAD Designer with more than eight years of relevant experience. He has supported numerous abandoned mine land reclamation projects throughout his career. His expertise also includes different phases of civil design work including but not limited to, site grading, proposed roadway geometry layout, bridge design and rehabilitation, maintenance of traffic plans. He has experience with programs such as AutoCAD 2000/2004/2007, AutoCAD Civil 3D, Autodesk Architectural Desktop, Microstation V8, Microstation XM, Microsoft Word, Excel, PowerPoint, Outlook, Adobe Photoshop, and 3D Studio Max.

EDUCATION (Degree, year, specialization)

AAS, 2006, Drafting

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	REGISTRATION (Type, year, state)
N/A	N/A

14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE OSR DESIGN SERVICES
TR-55, STABL5, HEC-HMS, GeoHMS, HECFFA, HEC-SSP, HEC-DSSVue, HEC-ResSim, CWMS and legacy software such as HEC-1, HEC-5, HEC-DSS and COED
Microsoft Office Professional and Microsoft Project
Adobe Photoshop
Adobe Acrobat Version 9.0
AutoCAD Map 3D 2008 / AutoCAD 2008
AutoDesk Civil 3D 2007
ESRI ArcGIS 9.2
ESRI ArcView 3.3
Bentley PondPack (Haestad Methods) Version 9.0
Bentley Flow Master (Haestad Methods)
Bentley HEC-Pack
STABL5M
Hydrologic Evaluation of Landfill Performance (HELP)
Groundwater Vistas Version 3.5 (MODFLOW based 3D finite difference model, including MT3D, RT3D, MODPATH, MODFLOWT, and SWIFT Components
GMS (MODFLOW based 3D finite difference model, including MT3D, RT3D, MODPATH, and 3-D spatial analysis components)
Visual MODFLOW (MODFLOW based 3D finite difference model, including MODPATH)
SWANFLOW (3D finite difference model specializing in 3-phase fluid flow in porous media – water, NAPL, air)
Several analytical-based software packages including BIOCHLOR, BIOSCREEN, and SESOIL

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

PROJECT NAME, TYPE & LOCATION	NAME & ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
WVDEP OSR Coal Slurry Impoundment, Barbour County, WV	WVDEP OSR	Prime Contractor	$116,310	95%
WVDEP AMLR Parker Run Design (WV)	WVDEP Office of Abandoned Mine Lands and Reclamation 105 S. Railroad Street Philippi, WV 26416	Prime Contractor	Unknown	80%
TMDL Development for WV Group E2 Watershed (West Fork River Watershed)	WVDEP DWWM 601-57th Street Charleston, WV 25304-2345	Prime Contractor - TMDL Development Lead	N/A	30%
TMDL Development for WV Group D2 Watersheds (Monongahela River Watershed)	WVDEP DWWM 601-57th Street Charleston, WV 25304-2345	Prime Contractor - TMDL Development Lead	N/A	60%
PADEP East Avoca-Grove Street Drainage Study, Pennsylvania	PADEP Bureau of Abandoned Mine Reclamation 400 Market Street Harrisburg, PA 17105	Management of mine drainage control project	Not yet known	10%
PADEP Palo Alto Drainage Control Project, Pennsylvania	PADEP Bureau of Abandoned Mine Reclamation 400 Market Street Harrisburg, PA 17105	Mine drainage control engineering design	Not yet known	80%
PADEP Statewide Mining Engineering Design Services Contract, Pennsylvania	PADEP Bureau of Abandoned Mine Reclamation 400 Market Street Harrisburg, PA 17105	Program management of five-year statewide mining engineering design contract	Not yet known	20%

TOTAL NUMBER OF PROJECTS: **10 (Tetra Tech is currently conducting thousands of projects nationwide – for the purpose of this EOI, only a sample of our most recent mining projects for state entities are shown)**	TOTAL ESTIMATED CONSTRUCTION COSTS: $0

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

PROJECT NAME, TYPE & LOCATION	NAME & ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
PADEP Statewide Mining Engineering Design Services Contract, Pennsylvania	PADEP Bureau of Mining Programs 400 Market Street Harrisburg, PA 17105	Program management of five-year statewide mining engineering design contract	Not yet known	20%
Wyoming Abandoned Mine Lands Statewide Subsidence Hazards Mitigation Contract, Wyoming	Wyoming Department of Environmental Quality, AML Division 122 W. 25th Street Cheyenne, WY 82002	Statewide program management of subsidence mitigation	Not yet known	40%
ODNR Statewide Coal Mining Permit Review Contract, Ohio	Ohio Dept. of Natural Resources 2045 Morse Road Columbus, OH 43229	Program management of two-year statewide coal mining permit reviews	N/A	80%

TOTAL NUMBER OF PROJECTS: **10 (Tetra Tech is currently conducting thousands of projects nationwide – for the purpose of this EOI, only a sample of our most recent mining projects for state entities are shown)**	TOTAL ESTIMATED CONSTRUCTION COSTS: $0

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

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

Tetra Tech has completed thousands of projects in the past five years. This is only a representative sample of that work.

17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD				
PROJECT NAME, TYPE & LOCATION	NAME & ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
WVDEP Fisher Run (Posey) Mine Reclamation, West Virginia	WVDEP Office of Abandoned Mine Lands and Reclamation 105 S. Railroad Street Philippi, WV 26416	$292,600	2010	Yes
WVDEP Paint Branch Abandoned Mine Land Project, West Virginia	WVDEP Office of Abandoned Mine Lands and Reclamation 105 S. Railroad Street Philippi, WV 26416	$35,000	2010	Yes
WVDEP Tunnelton Mine Portal Closure Design, West Virginia	WVDEP Office of Abandoned Mine Lands and Reclamation 105 S. Railroad Street Philippi, WV 26416	$62,300	2010	Yes
WVDEP TMDL Development for WV Group B2 Watersheds (Upper Kanawha, Elk River, and North Branch Potomac Watersheds)	WVDEP DWWM 601-57th Street Charleston, WV 25304-2346	N/A	2012	N/A
WVDEP TMDL Development for Cheat River Watershed, West Virginia	USEPA Region 3, 1650 Arch Street, Philadelphia, PA 19103; WVDEP DWWM, 601-57th Street, Charleston, WV 25304-2346	N/A	2011	N/A
WVDEP TMDL Development for WV Group C2 Watersheds (Middle Ohio North & South Watersheds)	WVDEP DWWM 601-57th Street Charleston, WV 25304-2345	N/A	2012	N/A
WVDOH Rita to Dabney Specialty Coal Appraisal, West Virginia	West Virginia Division of Highways 1900 Kanawha Blvd. East Charleston, WV 25305	N/A	2011	N/A
WVDHHR Drinking Water Treatment Revolving Fund, West Virginia	WVDHHR, Environmental Engineering Division, Infrastructure and Capacity Development 350 Capitol Street, Room 313 Charleston, WV 25301-3713	N/A	2012	N/A

Tetra Tech has completed thousands of projects in the past five years. This is only a representative sample of that work.

17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD				
PROJECT NAME, TYPE & LOCATION	NAME & ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
Consulting Services for Remining Operations, West Virginia	Dirtcon Excavating RR1 Box 30A Enterprise, WV 26568	N/A	2012	N/A
Marion County Reclaimed Mine Site Investigation, West Virginia	American Bituminous Power Partners, LP RR17 Grant Town, WV 26574	N/A	2012	N/A
Bandy and King Subsidence Project, Virginia	Department of Mines, Minerals & Energy 3405 Mountain Empire Road Big Stone Gap, VA 24219	N/A	2011	N/A
Western Pennsylvania Abandoned Mine Fire, Pennsylvania	Confidential Client	N/A	2011	N/A
Bear Run Acid Mine Drainage Passive Treatment System, Pennsylvania	Indiana County Conservation District in conjunction w/PADEP 1432 Route 286 Hwy. E Indiana, PA 15701	$250,000	2010	Yes
Gladden Mine Site Grading Plan and Acid Mine Drainage Treatment System, Pennsylvania	South Fayette Conservation Group in conjunction w/PADEP 515 Millers Run Road Morgan, PA 15064	$3,600,000	2009	Yes
Water Balance Study, Water Study, Ohio	Confidential Client	N/A	2010	N/A
Casselman Mine AMD Prevention and Response Plan, Maryland	Maryland Energy Resources, LLC 6015 Ferguson Road Indiana, PA 15701	N/A	2010	N/A

17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD				
PROJECT NAME, TYPE & LOCATION	NAME & ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
ODOT Mine Subsidence Mitigation, Ohio	Ohio Department of Transportation 338 Muskingum Drive Marietta, OH 45750	N/A	2010	N/A
Marjol Battery Plant RFI Oversight and Mine Subsidence Investigation, Pennsylvania	EPA Region III 1650 Arch Street Philadelphia, PA 19103	N/A	2009	N/A
Majorsville Mine Subsidence Investigation, Pennsylvania	MarkWest Energy 601 Technology Drive, Suite 130 Canonsburg, PA 15317	N/A	2011	N/A
ALCOSAN Grand View Golf Course Mine Drainage Treatment System, Pennsylvania	ALCOSAN 3300 Preble Avenue Pittsburgh, PA 15233	N/A	2011	N/A
Coal Mine Air Shaft Closure Design, Ohio	Ohio Valley Coal Company 34 Kelley Way, Suite 100 Brilliant, OH 43913	N/A	2009	Yes
Ohio Valley Coal Company Mine Seal Closure Designs, Ohio	Ohio Valley Coal Company 34 Kelley Way, Suite 100 Brilliant, OH 43913	N/A	2009	Yes
Forest City Mine Water Sourcing Study, Pennsylvania	Confidential oil and gas client	N/A	2011	N/A
South Fayette Mine Water Sourcing Study, Pennsylvania	Confidential oil and gas client	N/A	2011	N/A

17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD				
PROJECT NAME, TYPE & LOCATION	NAME & ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
Bird Mine and Strayer Mine Refuse Permitting and Water Treatment Design, Pennsylvania	AMD Industries, Inc. P.O. Box 501 California, PA 15419	N/A	2012	N/A
Kiskiminetas River Watershed Mining-Related Metals TMDL Development and Abandoned Mine Land GIS Services, Pennsylvania	PADEP and EPA Region 3 1650 Arch Street Philadelphia, PA 19103	N/A	2012	N/A
Mine Pool Water Evaluation Management Plan, Pennsylvania	Confidential oil and gas client	N/A	2011	N/A
Inspections for Settling Ponds under Mining Activity Permits, Pennsylvania	AMD Industries, Inc. P.O. Box 501 California, PA 15419	N/A	2010	N/A
Mine Reserves Investigation and Due Diligence Study, Pennsylvania	PBS Coals, Inc. 1576 Stoystown Road Friedens, PA 15541	N/A	2011	N/A
Quecreek Deep Mine Expansion Permitting, Pennsylvania	PBS Coals, Inc. 1576 Stoystown Road Friedens, PA 15541	N/A	2012	N/A
Coal Property Due Diligence Evaluation, Pennsylvania	Confidential client	N/A	2011	N/A
Report on Current Mine Rescue Practices in China, China	Center for Disease Control, NIOSH 1600 Clifton Road Atlanta, GA 30333	N/A	2009	N/A

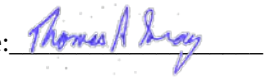
18. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM HAS BEEN A SUB-CONSULTANT TO OTHER FIRMS (INDICATE PHASE OF WORK FOR WHICH YOUR FIRM WAS RESPONSIBLE)

PROJECT NAME, TYPE & LOCATION	NAME & ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST OF YOUR FIRM'S PORTION	YEAR	CONSTRUCTED (YES OR NO)	FIRM ASSOCIATED WITH
Jonathan Run Acid Mine Drainage Treatment Plant Design, Pennsylvania	PennDOT 500 North Street Harrisburg, PA 17120	N/A	2012	N/A	GAI
Cresson Acid Mine Drainage Evaluation Project, Pennsylvania	PADEP Bureau of Abandoned Mine Reclamation 400 Market Street Harrisburg, PA 17105	N/A	2012	N/A	GAI
IHI Mine Fire Investigation, Colorado	Colorado Division of Mining Reclamation and Safety 101 South Third, Suite 301 Grand Junction, CO 81501	N/A	2010	N/A	Zapata Engineering, Inc.
Tetra Tech has been a subcontractor on numerous projects over the past five years. These are our most recent mining-related projects.					

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 Office of Special Reclamation.

Due to the large number of mining projects recently completed by Tetra Tech, only a sample of some recent projects are shown in this attachment. Additional experience can be identified upon request.

20. The foregoing is a statement of facts.

Signature:  Title: Unit Energy and Natural Resources Manager

Date: September 17, 2014

Printed Name: Thomas Gray, PE

Section C: Attachment C

ATTACHMENT C

Over the next several pages, we have included our Attachment C form that lists recent mining projects. The form has been broken down to include several parts including:

- Featured Projects (longer descriptions of each project has been provided in Section E)
- Project Manager's WVDEP projects
- Project Advisor's WVDEP projects
- Additional WVDEP and WVDOT projects completed by our firm
- Additional local projects completed by our firm (West Virginia and neighboring states)

Tetra Tech has additional local mining projects, but for the sake of brevity, we have included only a sampling of recent work. Our firm has completed thousands of mining-related projects nationwide.

OSR and RELATED PROJECT EXPERIENCE MATRIX

PROJECT	Exp. Basis C-Corp. P-Personal *	Additional info provided in Section (s) **	PROJECT EXPERIENCE REQUIREMENTS															Primary staff participation/capacity *** M-Management P-Professional					
			Forfeited Surface Mine Reclamation	Forfeited Deep Mine Reclamation	Portal/Shaft Closure	Hydrologic/Hydraulic Design/ Eval.	Remining Evaluation	Mine/Refuse Fire Abatement	Subsidence Investigation Mitigation	Hazardous Waste Disposal	Project Specifications	Water Quality Evaluation /Mitigation/Replacement	Construction Inspection/Management	Water Treatment	Equipment/Structure Removal	Stream Restoration	Geotechnical/Stability	NPDES/Stormwater preparation	Thomas Gray, PE	Gregory Hynes, PE	Ben Hoppe	Heather Trexler, PG	Other Project Team Personnel	Other Tetra Tech Personnel
TETRA TECH FEATURED PROJECTS (INCLUDED IN SECTION E OF OUR PROPOSAL)																							
WVDEP Parker Run Reclamation Design	C & P	E	X	X		X					X		X		X	X	X	X	P	M			P	P
WVDEP OSR Coal Slurry Impoundment	C & P	E	X			X											X		P	M			P	M
Quecreek Deep Mine #1 Expansion	C & P	E				X						X					X							
Gladden Acid Mine Drainage Mitigation and Stream Sealing	C & P	E												X		X								
Ohio Valley Coal Company Mine Seal and Bulkhead Design	C & P	E			X	X					X						X		M				P	P
Ohio Valley Coal Company Mine Air Shaft Closure Design	C & P	E			X	X					X								M					P
Bird Mine and Strayer Refuse Permitting and Water Treatment System Design	C & P	E				X		X				X		X					M		P	P	P	P
MEPCO Zero Liquid Disxcharge System Technical and Cost Study	C & P	E												X										
Belmont Mine Water Balance Studies	C & P	E			X	X					X						X		M				P	P
Cresson Mine Pool Project	C & P	E										X		X										
* List whether project experience is corporate or personnel based or both.																								
** Use this area to provide specific sections or pages if needed for reference.																								
*** List primary design personnel and their functional capacity for the projects listed.																								

Attachment "C"

OSR and RELATED PROJECT EXPERIENCE MATRIX

PROJECT	Exp. Basis C-Corp. P-Personal *	Additional info provided in Section (s) **	PROJECT EXPERIENCE REQUIREMENTS															Primary staff participation/capacity *** M-Management P-Professional					
			Forfeited Surface Mine Reclamation	Forfeited Deep Mine Reclamation	Portal/Shaft Closure	Hydrologic/Hydraulic Design/ Eval.	Remining Evaluation	Mine/Refuse Fire Abatement	Subsidence Investigation Mitigation	Hazardous Waste Disposal	Project Specifications	Water Quality Evaluation /Mitigation/Replacement	Construction Inspection/Management	Water Treatment	Equipment/Structure Removal	Stream Restoration	Geotechnical/Stability	NPDES/Stormwater preparation	Thomas Gray, PE					
PROJECT MANAGER'S (THOMAS GRAY, PE) ADDITIONAL WVDEP EXPERIENCE																								
WVDEP Grout Injection Research Project	P	D							X		X		X						M					
WVDEP Water Supply Extension Project	P	D											X						P					
WVDEP Godby Branch Water Supply Extension	P	D									X	X					X		M					
WVDEP Gauley River Heizer/Manila Water Line	P	D											X						P					
WVDEP Lefthand Fork Burning Refuse	P	D					X	X			X	X					X		M					
WVDEP Owings Mine Grouting Design	P	D			X	X	X				X	X	X	X	X	X	X		M					
WVDEP Majesty Mine Complex Restoration	P	D			X	X	X				X	X		X	X	X	X		M					
WVDEP Refuse Pile and Mine Portal Reclamation Design	P	D									X						X		P					

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PROJECT ADVISOR'S (GREGORY HYNES, PE) ADDITIONAL WVDEP EXPERIENCE																								
WVDEP MacArthur Mine Subsidence	P	D				X			X		X						X		P					
WVDEP Recommendations to Ameliorate Subsidence	P	D							X								X		P					
WVDEP Davidson Highwall	P	D			X	X					X	X		X		X	X		M					
WVDEP Elkins Coal Refuse Reclamation	P	D				X					X						X		P					
WVDEP Tibbs Run Portals & Tipple Reclamation	P	D			X	X					X	X							P					
WVDEP Simpson Creek Highwall Tipple and Portals	P	D				X					X				X			X	M					
WVDEP Wymer Portals and Acid Mine Drainage	P	D			X	X					X	X		X	X	X	X		M					
WVDEP Beech Bottom Refuse Reclamation	P	D			X	X					X				X	X	X		P					
WVDEP Big Hollow Mine Dump Reclamation	P	D				X					X								P					
WVDEP Twilight Burning Refuse Reclamation	P	D						X			X								P					
WVDEP Piney Swamp Run Refuse No. 1 Reclamation	P	D				X					X	X		X					P					
WVDEP Turnhole Branch Reclamation	P	D			X	X					X						X		P					
WVDEP Pageton Mine Refuse Reclamation	P	D			X	X					X						X		P					

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PROJECT ADVISOR'S (GREGORY HYNES, PE) ADDITIONAL WVDEP EXPERIENCE																								
WVDEP Masontown No. 4 Reclamation	P	D			X	X					X	X		X	X	X	X		P					
WVDEP Odd-Moore Mine Reclamation	P	D									X			X			X		P					
WVDEP Watson Portal and Refuse Reclamation	P	D			X	X					X	X		X	X	X	X		P					
WVDEP Point Marion Maintenance	P	D				X					X	X		X					P					
WVDEP Kempton Refuse and AMD	P	D			X						X	X		X		X	X		P					
WVDEP Borgman Refuse & Portals	P	D			X	X					X	X		X					P					
WVDEP Flemington Portals & Drainage No. 2	P	D			X	X					X			X			X		P					
WVDEP Maple Run Portals & AMD	P	D			X	X					X	X		X		X			P					
WVDEP Emoryville Mine Complex AML/AMD	P	D			X	X					X	X		X			X		P					
WVDEP County Route 9 Waterline Extension	P	D				X					X	X					X		P					
WVDEP 9 Conty Roads Water Supply Study	P	D				X						X							P					
WVDEP Cheat Lake Highwall	P	D			X	X					X								P					
WVDEP Recommendations to Ameliorate Subsidence	P	D							X								X		P					

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PROJECT ADVISOR'S (GREGORY HYNES, PE) ADDITIONAL WVDEP EXPERIENCE																								
WVDEP Jed-Havaco Refuse Reclamation	P	D			X						X						X		P					
WVDEP Denver Street Drainage Abatement	P	D			X	X					X								P					
WVDEP Stonewood Reclamation	P	D			X	X					X						X		P					
WVDEP Stark Drainage Abatement	P	D				X					X								P					
WVDEP Beatty Church-Whetsell Road Highwall	P	D			X	X					X						X		P					
WVDEP National Church Hollow Road Waterline	P	D				X						X							P					
WVDEP McDowell County Water Supply System	P	D				X					X			X					P					
WVDEP Kanes Creek Water Line	P	D				X					X								P					
WVDEP Moundsville Water Line	P	D				X					X								P					
WVDEP Page-Kincaid Water Line	P	D				X					X								P					
WVDEP Dogtown Road Water Line	P	D				X					X								P					
WVDEP Turkey Run Water Line	P	D				X					X								P					
WVDEP Berwind, Canebrake, Vallscreek Study	P	D									X	X							P					

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TETRA TECH'S ADDITIONAL WVDEP AND WEST VIRGINIA STATE AGENCY EXPERIENCE																							
WVDEP DWWM TMDL Development D2 Watersheds	C & P					X						X												M
WVDEP TMDL Development Group B2 Watersheds	C & P					X						X												M
WVDEP TMDL Development Cheat River Watershed	C & P					X						X												M
WVDEP TMDL Development Group C2 Watersheds	C & P					X						X												M
WVDEP DWWM TMDL Development E2 Watersheds	C & P					X						X												M
WVDOH Rita to Dabney Specialty Coal Appraisal	C & P																		M		P		P	P
WVDOH Dabney to Stollings Specialty Coal Appraisal	C & P																		M			M		M
WVDOT Corridor H Davis-Bismark Coal Appraisal	C & P																		M					P
WVDOT/OH Valley Midstream Engineering	C & P																							M
WVDOT Specialty Coal Valuation	C & P																		M		P	P	P	P

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TETRA TECH'S ADDITIONAL RECENT LOCAL EXPERIENCE (WEST VIRGINIA AND BORDERING STATES)																								
Bandy and King Home Mine Subsidence Mitigation	C & P								X		X						X		M				P	P
Ohio DNR Mine Permit Review Contract	C & P																		P				M	P
Jonathan Run AMD Treatment Design	C & P					X					X			X					M				P	P
Quecreek Deep Mine Expansion	C & P					X			X			X		X			X		M		P	P	P	P
Forest City Mine Water Sourcing Study	C & P					X						X		X					M				P	P
Brookville Coal Seam 27A Highwall Mining Analysis	C & P																X		M			M	P	P
Mine Pool Water Evaluation Management Plan	C & P					X						X		X			X		M			P	P	P
Gladden AMD Mitigation/Stream Sealing	C & P				X	X					X	X	X		X	X	X		M		P	P	P	P
Casselman AMD Prevention and Response Plan	C & P						X					X		X					M				P	P
Bear Run Alkaline Mine Drainage Passive Treatment	C & P					X					X	X	X	X	X	X			M		P		P	P
Powderly Creek Mine Drainage Feasibility Study	C & P					X					X	X		X		X	X		P					M
ALCOSAN AMD Treatment System and Pipeline	C & P					X						X		X					M		P			P
Casselman Biomonitoring Plan	C & P						X					X						X	M				P	P

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TETRA TECH'S ADDITIONAL RECENT LOCAL EXPERIENCE (WEST VIRGINIA AND BORDERING STATES)																							
South Fayette Mine Water Sourcing Study	C & P					X			X			X		X					M					P
PA Abandoned Mine Fire Remediation/Investigation	C & P				X	X		X	X			X	X	X					M		P		P	P
Beaver County YMCA Subsurface Investigation	C					X						X					X							M
Kiskiminetas TMDL/AML GIS Support	C & P					X						X		X		X								M
Settling Pond Inspections under Mining Activity Permits	C & P					X											X		M					P
PBS Coals Mine Reserves Investigation	C & P										X								M				P	P
MEPCO Mine Discharge Water Treatment Evaluation	C & P					X					X	X		X					M					P
Casselman Mine Biomonitoring Plan	C & P					X						X							M				P	P
Century Mine Water Balance Studies	C & P					X						X							M		P			P
PA Coal Property Due Diligence Evaluation	C & P																		M					P
Boone County Rural Water Line Expansion	C & P					X					X		X											M
Canterbury Coal Floating Pump Station Design	C & P					X								X					M		P		P	P
NEPCO CoGen Plant Fuel Supply and Ash Disposal	C & P									X		X							M		P			P

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TETRA TECH'S ADDITIONAL RECENT LOCAL EXPERIENCE (WEST VIRGINIA AND BORDERING STATES)																							
EPA Citizens Guide to Addressing AMD	C & P											X		X									M
Nelsonville Bypass Mine Subsidence Mitigation	C & P								X													M	P
Majorsville Pipeline & Mine Subsidence Investigation	C & P								X									P			P	P	M
Marjol Battery Plant Mine Fire & Subsidence Evalaution	C & P					X		X	X									P					M
CRA Riverside No. 3 Mine Seal	C & P				X													M					P
AMD Industries Lancashire Treatment Facility O&M	C & P											X		X				M				P	P
Mettiki Coal Refuse Disposal Support/Planning	C & P							X										M				P	P
PA DCNR CCS Report/Study for Coal-Based Power	C & P											X						M				P	P
Dirtcon Mining Reserve Estimates	C & P																	P			M	P	P
PBS Coals Corsa Capital Document Review	C & P																	M					P
Dirtcon Philippi Quarry Permitting	C & P																	M					P
Dirtcon Hoglick Hollow Permitting	C & P																	M				P	P
ODOT Highway 33 Subsidence Mitigation	C & P								X								X						M

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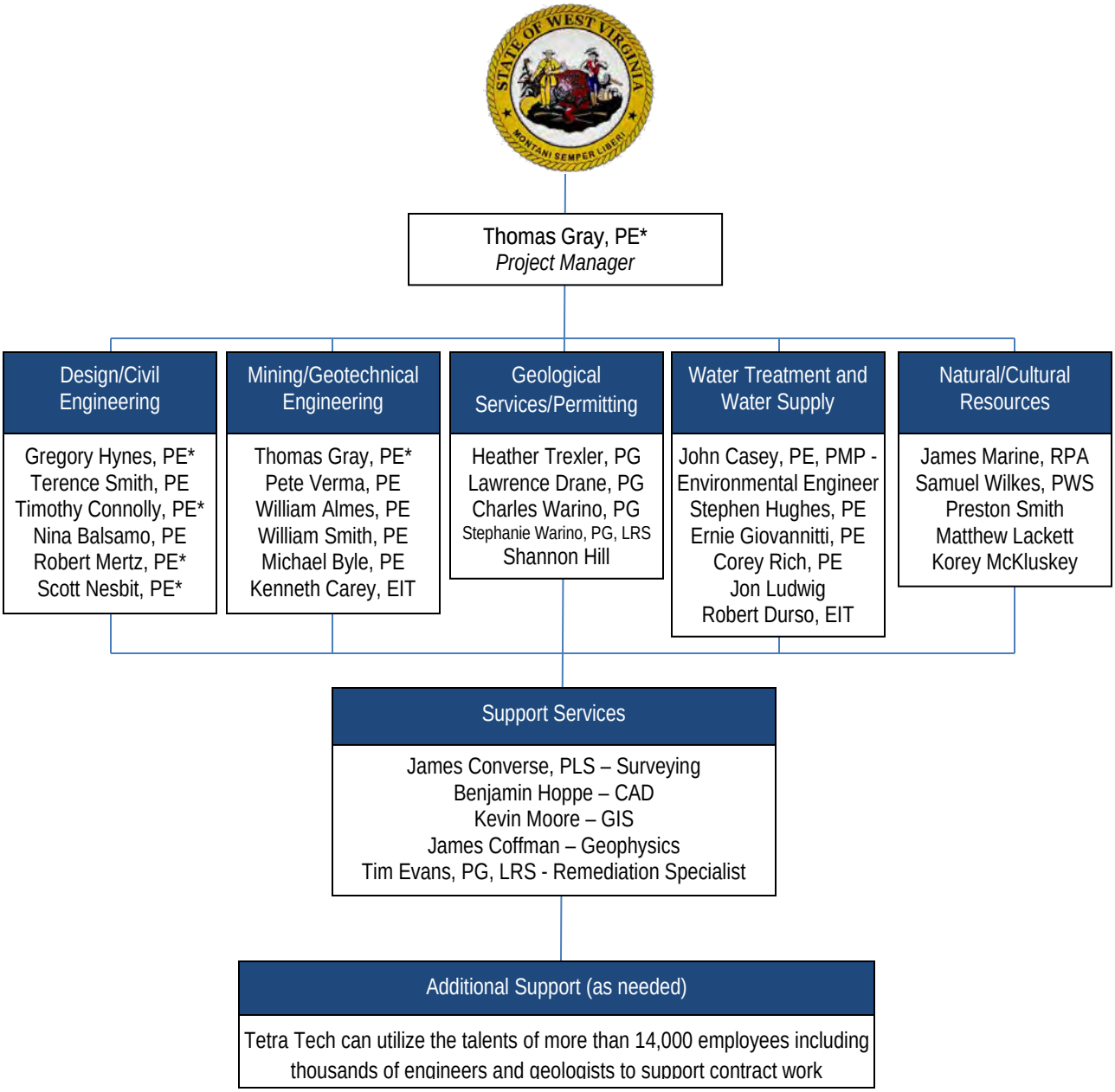
Attachment "C"

Section D: Resumes

Project Team Resumes

Over the next several pages, we have included full-page resumes of our project team's key personnel to supplement our proposal. Our project team is led by Mr. Thomas Gray, PE, a West Virginia-registered Professional Engineer. Mr. Gray has more than 40 years of mining experience and has supported more than 100 mining projects, including many for the WVDEP.

In addition, an organization chart of our mining team professionals has been provided below. All staff members are located in local West Virginia, Pennsylvania, and Ohio offices.



THOMAS GRAY, PE
PROJECT MANAGER

EXPERIENCE SUMMARY

Mr. Gray has more than 40 years of professional experience. He is a technical expert in mining engineering, mine reclamation, coal ash disposal and utilization, watershed and ecosystem restoration, mine subsidence, acid mine drainage remediation, mine stabilization via grouting and abandoned mine fire mitigation. Mr. Gray specializes in active and abandoned mining projects and with infrastructure projects that have mining related concerns. His project management responsibility has included construction, engineering, regulatory compliance, and research and development. He has been responsible for the successful completion of many unique projects.

RELEVANT EXPERIENCE

Project/Contract Manager; 2012 Professional Design Services Contract; Pennsylvania Department of Environmental Protection, Bureau of Abandoned Mine Reclamation and Bureau of Mining Programs; PA. Currently managing these open-end contracts to provide professional design services to remediate problems such as acid mine drainage, contamination of water supplies, degraded stream quality, subsidence, and abandoned refuse and waste piles, strip mines, highwalls, and landslide-prone areas.

Project Engineer; Parker Run Mine Drainage Design; West Virginia Department of Environmental Protection Office of AML&R; Marion County, WV. Supporting this contract, which includes design of drainage conveyances, design installation of mine seals, highwall reclamation, design of refuse reclamation, design of stream bank stabilization, design of structural and trash removal/disposal, and re-vegetation of disturbed areas.

Project Manager; Mine Seal Designs; Ohio Valley Coal Company; Aledonia, OH. Prepared mine seal designs for three shafts for use at an active coal mine during mine closure. The mine seals were designed to withstand the expected water pressure after the maximum mine pool has developed.

Project Manager; Fisher Run and Tunnelton Mine Portal Closures; WVDEP Office of AML and Reclamation; Lewis and Preston Counties, WV. Project Manager for the preparation of construction drawings to install wet mine seals and drainage improvements for the closure of abandoned mine portals

EDUCATION

BS, Mining Engineering, Pennsylvania State University, 1973

MBA, University of Pittsburgh, 1977

AREA OF EXPERTISE

Mining Engineering

REGISTRATIONS/ AFFILIATIONS

Professional Engineer, WV, 1988, 10523

Professional Engineer, PA, 1978, 26978-E

Professional Engineer, MD, 1989, 17048

Professional Engineer, VA, 1980, 11628

Professional Engineer, OH, 2009, 73686

TRAINING/CERTIFICATIONS

N/A

YEARS OF EXPERIENCE

40

on private property in Weston and Tunnelton, WV. Prepared construction specifications and construction cost estimate for the closure of nine mine portals.

Senior Project Consultant; Mine Seal Research; NIOSH; Fayette County, PA. Research project to evaluate a potentially significant improvement to current state-of-the-art practice of constructing mine seals through vertical boreholes when direct access is prohibited. The new technology was tested and proved to be effective in providing barriers to airflow and to impound water and other inert materials.

Project Manager; Mine Seal Evaluation; Duquesne Light Company; Greensboro, PA. Evaluated suitability of a mine seal at the Gray's Landing Lock and Dam being constructed on the Monongahela River by the USACE.

Project Manager; OSM Little River Mining Reclamation Project; Cloudland, GA. This project near Cloudland, Georgia, required regrading an abandoned coal mine strip pit to eliminate a highwall, construction of drainage channels, and revegetation of disturbed areas. The survey was conducted to prepare site topography and cross sections at 50-foot intervals for reclamation and restoration of approximately 2,500 feet of abandoned highwall (as high as 100 feet) from surface mining. A grading plan was prepared that included site drainage features for two drainage channels.

Senior Project Manager; Chartiers Creek/Fishing Run Mine Discharge Investigation; South Fayette Conservation Group in Association with PADEP; South Fayette Township, PA. During an investigation of the deep mine discharges in Chartiers Creek it was found that Fishing Run was being diverted into a deep mine entrance and after becoming polluted coming out at the Gladden discharge, was the largest pollution source in the watershed. Through a grant from PADEP, a reclamation design was prepared and permitted. The design included sealing the mine entrance, reclaiming abandoned highwalls, removing dangerous mine structures and restoring 2,000 feet of stream channel.

Senior Project Manager; Chartiers Creek Mine Discharge Assessment; Chartiers Nature Conservancy in Association with PADEP; Crafton, PA. Assessed the characteristics of the large deep mine discharges in the Chartiers Creek main stem. Flow and chemical data was collected for nine mine discharges over a 12 month period. Mine maps were obtained and scanned into a GIS database. The conceptual hydrology of the mines was evaluated, including underground drainage basins and pooled conditions. This information was used to develop a restoration plan for the watershed.

Senior Engineer; Colorado Statewide Mine Fire Abatement Contract; Colorado Division of Reclamation, Mining and Safety; CO. The Colorado Inactive Mine Reclamation Program (CIMRP) is charged with abating, to the extent possible, hazards associated with mining activities resulting from mining which occurred prior to August, 1977. Six underground coal mine fires were identified for funding for reclamation design for their abatement and Tetra Tech was retained for this work. Mr. Gray is serving as a lead engineer supporting this work, which includes project development, design, procurement documents, and field management of fire abatement activities. Projects begin with the development of a mine fire abatement strategy and then the development of an abatement design. An Invitation for Bid is then created to find a suitable contractor and Tetra Tech provides construction management and inspection services.

Project Manager; Abandoned Coal Mine Fire Remediation Plan; Confidential Client; PA. During the development of a well pad, a natural gas drilling client operating in the Marcellus Shale experienced

elevated temperatures in excavated materials due to a burning abandoned coal mine. Tetra Tech investigated the subsurface conditions and Mr. Gray managed a Mine Fire Remediation Plan for the client.

Senior Project Manager; Dolph Mine Fire; Office of Surface Mining; Lackawanna County, PA. The Dolph mine fire was burning in coal refuse and two underground abandoned anthracite coal mines. A site investigation was completed to define the limits of fire and to recommend fire control methods. A cut-off trench was selected, plans and specifications were prepared and a contractor was selected. Construction was successfully completed and the fire is under control.

Project Consultant; Percy Mine Fire Control Project; PADER; Fayette County, PA. Provided consultation for this mine fire control project that involved mine grouting to contain an underground mine fire. The fire was successfully controlled.

Senior Project Manager; Cohen Mine Fire; Office of Surface Mining; OSM; Baldwin Borough, PA. Provided surveying and consultation for this small underground abandoned coal mine fire.

Senior Project Manager; Maiolie Mine Fire; Office of Surface Mining; Washington Township, PA. Provided surveying and consultation for this small underground abandoned coal mine fire.

Senior Project Manager; Coal Mine Fire Abatement; Office of Surface Mining; Elk County, PA. Managed the surveying during the abatement of a 1.5 acre coal mine fire. Quantity surveys were initiated within 24 hours of request by OSM.

Project Advisor; World Bank Mine Fire Appraisal; Dhanbad, State of Bihar, India. Assisted in the mine fire appraisal project to assess the fires in 17 coal seams of the 450 sq. km. coalfield for the world's largest complex of above-ground and underground mine fires.

Project Manager; Coal Refuse Pile Reclamation; Maple Coal Company; Colver, PA. Prepared technical specifications for reducing the potential for spontaneous heating at the Colver coal refuse pile.

Project Manager; Blacklick Creek Vinton/Wehrum Mine Drainage Treatment Facility Design; PADEP Bureau of Abandoned Mine Reclamation; Indiana County, PA. Tetra Tech was retained by PADEP for the design of a mine drainage treatment facility. Managing this large, multifaceted project included the design of a mine water conveyance system, design of relief boreholes, assessment of local mines for sludge disposal, coal refuse pile analysis, mine shaft and subsidence assessment, historical and museum commission documentation/clearance, conceptual treatment facility layout, public involvement through the development of a website, and the development of bid documents.

Project Manager; Palo Alto Mine Drainage Study and Design; PADEP Bureau of Abandoned Mine Reclamation; Borough of Palo Alto, PA. Managing this mine drainage study. Mine drainage is appearing at a residence in the Borough of Palo Alto during heavy precipitation events. Previous attempts at remediation by PADEP and the Office of Surface Mining were unsuccessful. Tetra Tech is studying the site and providing preliminary and final designs. The project also includes drilling, water testing, and surveying.

Project Advisor; East Avoca Mine Drainage Study; PADEP Bureau of Abandoned Mine Reclamation; Avoca Borough, PA. Providing oversight for this mine drainage study in Avoca, PA. Several residents

along Grove Street in Avoca have reported incidents of mine water in basements and in their yards during heavy precipitation events. Tetra Tech's investigation will determine the location and depth of abandoned mine workings that may be the source of mine water occasionally noted along Grove Street. Tetra Tech will then propose alternative solutions to abate the drainage problem.

Senior Project Manager; Alkaline Coal Ash Injection to Mitigate Acid Mine Drainage; CTC Foundation in conjunction with PADEP BAMR and Others; Washington, DC. Evaluated the injection of alkaline coal ash into the 537-acre Valley No. 2 mine to mitigate an AMD (500 gpm) pollution to the Conemaugh River and nearby Big Spring Run. Provided technical consultation for the investigation and authored a technical report. The project team included PADEP, Bureau of Abandoned Mine Reclamation, the Kiski-Conemaugh Coalition, Blacklick Creek Watershed Association, Reliant Energy, the Western PA Watershed Protection Project, St. Clair Township, and PA DCNR.

Senior Project Manager; Passive Treatment Techniques for Acid Mine Discharges; MAX Environmental Services; Yukon, PA. Developed plans to use passive treatment techniques to treat most of the effluent from a hazardous waste disposal facility. Water sources included near neutral surface water runoff, acidic mine discharges and alkaline underflows from disposal cells.

Senior Project Manager; South Branch Blacklick Creek Acid Mine Drainage Feasibility Study; USACE Pittsburgh District; Nanty Glo, PA. Completed a feasibility study to determine the most effective passive abatement method for treating acid mine drainage at the abandoned mine and restoring the aquatic environment of the South Branch Blacklick Creek. Project manager for the conceptual design and cost estimate. A general evaluation report for the restoration of the aquatic ecosystem was completed.

Senior Project Manager; Mine Pool Acid Discharge Investigation; LTV Corporation; Greene County, PA. Conducted an investigation of the potential to utilize biological remediation for a large mine pool acid discharge. Responsible for evaluating and developing a field test to utilize sulfate reduction bacteria to mitigate the large Clyde Mine Pool discharge.

Senior Project Manager; Thompson Run Watershed Acid Mine Drainage Assessment and Restoration; Municipality of Monroeville; Monroeville, PA. Prepared a watershed restoration project for Thompson Run, a tributary of Turtle Creek. Responsible for assessing the adverse impacts of acid mine drainage on the 16-square-mile watershed and developing a realistic restoration plan.

Project Manager; Acid Mine Drainage Identification / Mine Pool Water Sourcing Study; Confidential Client; Forest City, PA. Identified large acid mine drainage sources around Forest City to be used as potential sources of water for a Marcellus Shale client's fracing operations in northeast PA. Mr. Gray gathered the historic flow and chemistry data for the discharges. Two discharges were singled out for further consideration, Vandling and Grey Slope. The mine pools were georeferenced onto a map with these discharges. A conceptual passive treatment system was designed for the Vandling Discharge with an associated pipeline to transport the water to a truck loading area.

Project Manager; Casselman Mine Acid Mine Drainage Prevention and Response Plan; Maryland Energy Resources; Garrett County, MD. Prepared a plan for submittal to the state of Maryland which outlined the measures to be taken to prevent impacts to the Casselman River by mine water when an underground coal mine was closed. The plan needed to include provisions that explained the interaction of

the final mine pool with the Casselman River, what measures would be taken to avoid seeps, outflows, and other discharges resulting from the mine pool, how the mine pool would be controlled post-mining, a monitoring and detection plan for acid mine drainage seeps, and a response/mitigation plan should a seep or discharge occur.

Project Manager; Kempton Mine Acid Mine Drainage Study; Mettiki Coal Company; Western MD. Completed a mine drainage study to determine the feasibility of eliminating AMD flowing from the abandoned Kempton mine into the headwaters of the Potomac River by siphoning water from the pool into an adjacent active underground mine. The study evaluated the potential for lowering the mine pool to below the level of the discharge by siphoning water from the pool into Mettiki's active underground mine.

Project Engineer; AMD Treatment; PADEP; Cresson, PA. Supporting this preliminary design evaluation associated with the proposed Cresson AMD Treatment Plant. BAMR has entered into an agreement with the Susquehanna River Basin Commission to provide treated AMD to supplement flow during low flow periods. Project is currently in the field investigation phase to identify the location of the proposed facility and mine water extraction wells.

Project Manager: Bear Run Acid Mine Drainage Passive Treatment System; Indiana County Conservation District in Conjunction with PADEP; Indiana County, PA. Project Manager for the design of a passive AMD mine treatment system, site grading and PADEP / Indiana County Erosion and Sediment Control permit, stream restoration and preparation of a PADEP Government Financed Construction Contract for a third party contractor to remove coal refuse from the site. Prepared construction grading plans, permits and hydraulic analysis of the Bear Run stream for a stream culvert crossing.

Project Manager: Group Gladden Mine Acid Mine Drainage Treatment System; South Fayette Conservation; South Fayette Township, PA. Preparation of a site grading plan and passive AMD treatment system to treat a maximum flow rate of 1,500 gpm of AMD flow from the abandoned Gladden Mine into Millers Run and Chartiers Creek. Preparation of a grading plan, specifications and design calculations to create 3 acres of passive treatment ponds and design of a spray pumping system to deliver 1,000 gpm of AMD through a nozzle system for aeration and evaluation of stream flow losses in areas affected by past mining.

Senior Project Manager; Jandy Coal Refuse Acid Mine Drainage Investigation and Design; Paint Creek Watershed Association in Association with PADEP; Windber, PA. Investigated acid mine drainage on the Jandy coal refuse disposal site. It was determined that the source of the contamination was a reclaimed surface mine spoil and adjacent abandoned deep coal mine. The selected mitigation approach was to reduce the surface infiltration through drainage controls and to reduce the level of the mine pool so that the groundwater levels would be reduced and thus eliminate the discharge. Design plans were prepared as part of this project.

Project Consultant; Owings Mine Complex Site Reclamation Acid Mine Drainage Treatment System Design; WVDEP; Charleston, WV. Reclamation design of an abandoned mine site comprising old mine structures, open mine portals, refuse piles and numerous acid mine drainage producing discharges. Evaluated water quality and designed a passive AMD treatment system design at the Owings Mine Complex site. *Awarded: James E. "Pete" Pitsenbarger AML Award North, West Virginia Reclamation Awards.*

JOHN D.CASEY, P.E., PMP

SENIOR ENGINEER/PROJECT MANAGER – ENVIRONMENTAL ENGINEERING AND SUSTAINABILITY

EXPERIENCE SUMMARY

Mr. Casey has over 34 years of professional experience in technical and project management, primarily in the area of industrial water/wastewater treatment and recycle systems. Primary industries include metals and acid mine drainage Specifically, Mr. Casey has been involved in the design, procurement, installation, operation and maintenance, and project management of a wide variety of treatment systems that have included, chemical addition, clarification, filtration, cooling, solids dewatering, and softening among other processes.

Mr. Casey has managed projects have included feasibility studies, design, design and equipment procurement, design-build and design-build-own-operate utilizing multi-discipline teams.

RELEVANT EXPERIENCE

Project Manager; Acid Mine Drainage Treatment Plant Lancashire Mine; Cambria County. (2007) PA DEP via Michael Baker Project Manager Responsibilities included the coordination of the water treatment engineering and specification. Project involved the treatment of acid mine drainage from the Lancashire Coal Mine. (2006 to 2007)

Process Engineer; CONSOL Energy, Northern WV; AMD Treatment Facility, (2006-2007) Responsible for the development of the acid mine drainage treat process to accommodate both conventional and high density sludge processes. Developed the P&I drawings, process equipment specifications, and mass balances.

Engineer; CONSOL Energy, Northern WV. (2013-2014) Responsible for developing and modifying hydraulic models for cross country pipelines for AMD treatment plant influent and effluent.

Project Manager; Mepco Inc. Greene County, PA, Acid Mine Drainage Treatment Plant,(2013 – 2014) Managed a multi-discipline engineering team to develop the treatment process, construction design, specify and procure process equipment as well as the multi-mile discharge pipeline.

Project Manager/Technical Lead; Mini-Mill Cooling Water Recycle System, Axis, Alabama. IPSCO Steel (Alabama) Inc. (2000 – 2002) Responsibilities included collaboration on the proposal, execution of the design engineering, equipment procurement, construction procurement, construction and startup. Project included the design, furnishing and installation of a complete cooling water system of a mini-mill (contact and noncontact cooling water, mold and laminar cooling as well as blowdown treatment,

EDUCATION

BS; Civil Engineering; 1974; University of Pittsburgh

MS; Civil Engineering; 1977; University of Pittsburgh

AREA OF EXPERTISE

Water/waste water treatment

REGISTRATIONS/ AFFILIATIONS

Professional Engineer – Pennsylvania (PE-028784-E); Ohio (PE 46586); Illinois (062-047838); Maryland (27179)

Project Management Professional (513212)

TRAINING/CERTIFICATIONS

10 hr OSHA Training Course for Construction Projects

OFFICE

Pittsburgh, PA

YEARS OF EXPERIENCE

34

YEARS WITH TETRA TECH

<1

sludge dewatering).

Project Manager; Humphrey's Creek Wastewater Treatment Plant Upgrade, Sparrows Point, Maryland. Bethlehem Steel (ISG). (2002 – 2005) Responsibilities included development of the proposal, execution of the design engineering, equipment procurement, construction procurement and civil and mechanical. Project included the upgrade of an integrated steel mill terminal treatment plant to reduce suspended solids, oil & grease and heavy metals discharging into the Chesapeake Bay with a flow rate varying between 17,000 to 150,000 gpm.

Project Manager/Technical Lead; Mini-mill Cooling Water Recycle System - Engineering, Cofield, North Carolina, Nucor Steel - Hertford County.(1998) Responsibilities included the process design and specification, construction engineering, equipment evaluation and recommendations. Project included all water recycle treatment systems for mini-mill including mold cooling, contact cooling and noncontact cooling, blowdown treatment including sludge dewatering.

Project Manager; Coal Yard Runoff Treatment Plant, Clairton, Pennsylvania. U.S. Steel, Clairton Coke Plant.(2005-2007) Responsible for design and installation of pilot/temporary treatment plant, process and construction engineering of permanent WWTP, procurement of process equipment, construction oversight, and startup. project involved the piloting and operation of temporary WWTP as well as the design and installation of a physical/chemical WWTP involving ballasted clarification to treat runoff of coal storage pile at coke plant.

Project Manager/Process Engineer; Steel Mill Environmental Feasibility Study, Venezuela. SIDOR, Venezuela. (1996-1998) Responsibilities included the coordination of field teams, site investigation, sample plans, treatment alternative development, cost development, and feasibility report preparation. Project involved an integrated DRI steel mill located in Venezuela with multiple wastewater discharge sources.

Project Manager/Wastewater/Water Process Engineer; Integrated Steel Mill Environmental Feasibility Study, Karabuk, Turkey. TDCI,Turkey. (1993-1995) Responsibilities included the coordination of field teams, site investigation, sample plans and collection, treatment alternative development, cost development, and feasibility report preparation. Project involved an integrated steel mill located in Turkey with multiple wastewater discharge sources

Project Manager/Lead Investigator; Water System Evaluation Fontana, CA, California Steel,(2006) Responsibilities included the coordination of field teams, site investigation, sample plans and collection, treatment alternative development, cost development, and feasibility report preparation. (2005)

Project Engineer; Blast Furnace Scrubber Recycle System, Sharon, PA Sharon Steel Corporation. (1980 to 1981) Responsibilities included design, specification, operation manual, and start up of blast furnace recycle water system.

Project/Process Engineer, BOF Scrubber Recycle System, Sharon, PA Sharon Steel Corporation. (1980 to 1981) Responsibilities included design, specification, operation manual, and startup of basic oxygen furnace recycle water system.

Project Manager/ Technical Lead; Gary Works - PM-10 Continuous Compliance Plan, Gary, IN USX, U.S. Steel Division. (1994 to 1995) Project involved the identification of plant PM 10 sources and the development of monitoring procedures for them

Process Engineer; Continuous Bloom Caster Water Systems, USX, USS Division, Fairfield Works. (1981 – 1984) Design and specification of contact and noncontact cooling water systems

Project Manager/Technical Mentor; Steel Dynamics, Inc., (2013-2014) Responsible for developing wastewater mass balance and action plan to reduce overall sulfates.

Project Manager; Cheswick Power Station Scrubber Wastewater Treatment Plant, Cheswick Pennsylvania - RRI Energy (2007 – 2010) - Responsibilities included consortium collaboration on the proposal, execution of the design engineering, equipment procurement, and startup. Project involved the treatment of scrubber blowdown.

Project Manager; Reliant Energy Keystone Station - Water Pretreatment Plant. (2008 – 2010) Managed the process design, equipment procurement and deliver, and plant startup

Project Manager; Paper Mill WWTP Upgrade, Oakfield NY, U.S. Gypsum (USG) (2005 to 2006)- Responsible for coordinating the process design, construction design, process equipment procurement, construction procurement, construction oversight, and startup. The project consisted of the upgrade of a paper mill biological wastewater treatment including the addition of a bio-tower.

Project/Process Engineer; Plant Water Treatment System, Hannibal, OH Consolidated Aluminum Corporation. (1981) Responsibilities included the design, specification and equipment evaluation. Project involved the treatment of Ohio River water

Project Manager; Occidental Chemical, Petrolia, PA (2013-2014) Responsible for managing project and providing technical guidance to evaluate existing chemical waste incinerator scrubber and developing a recirculating scrubber liquor system to decrease odor and particulate.

Process Engineer; Marathon Petroleum Corporation, Detroit Refinery (2011-2012) Responsible for process design, including PFD, P&I Diagrams, functional descriptions, cost development to modify sludge dewatering facility.

Project Manager; Haverhill Chemicals, Haverhill, Ohio (2012-2013) Responsible for developing feasibility study of repairing/replacing three million gallon bio reactor while keeping plant in operations. Project included the development of both temporary and permanent treatment facilities as well as a structural analysis of the existing vessel.

GREGORY HYNES, PE
PROJECT ADVISOR

EXPERIENCE SUMMARY

Mr. Hynes has more than 27 years of experience in abandoned mine land reclamation, land restoration, mining permits, and environmental and water resources engineering. He has managed or supported more than 25 AML projects for the WVDEP. Most recently, Mr. Hynes managed three highwall projects for the agency in 2012 – the Waitman-Barbe Highwall, the Colliers Sportsman's Club Highwall, and the Simpson Creek Highwall. He has also managed several projects for other state agencies including PADEP and the Ohio Department of Natural Resources, preparing design calculations, cost estimates, plans, and technical specifications for abandoned mine land reclamation. Mr. Hynes has also prepared permit applications and construction level drawings and specifications for proposed surface mine facilities in West Virginia and Pennsylvania. Projects included permitting and reclamation of various mining related surface facilities.

RELEVANT EXPERIENCE

Project Manager; Parker Run Mine Drainage Design; West Virginia Department of Environmental Protection Office of AML&R; Marion County, WV. Managing this contract, which includes design of drainage conveyances, design installation of mine seals, highwall reclamation, design of refuse reclamation, design of stream bank stabilization, design of structural and trash removal/disposal, and re-vegetation of disturbed areas.

Project Engineer; Energy Marketing Slurry Impoundment; West Virginia Department of Environmental Protection OSR; Barbour County, WV. Supporting this project that involves the certification of a coal slurry impoundment for a company (Energy Marketing Company) that had its mine permit revoked. Services included safety certification of the impoundment with MSHA 30 CFR 77.216-4, mapping of the permit area, a dewatering plan to minimize seepage through the existing embankment, and the development of an RFQ for the construction contract to clean the existing sediment control pond and replace the pond outlet drainage structure to control dewatering from the impoundment. The safety assessment includes a review of data and location of piezometers, underdrains, decant pipes, and discharges; a bathymetric survey to document depths, volumes and elevations of the impounded water, sediment, and slurry; and the identification of any deficiencies that may affect the short-term stability of the structure until dewatering and final reclamation are initiated.

Project Engineer; Vienna Mine Seals – Abandoned Mine Lands; ODNR; Vienna, OH. Provided plans, specifications, and cost estimates for sealing two 100-foot-deep mine shafts located at two different sites

EDUCATION

MS, Civil Engineering, Youngstown State University, 1997

BE, Civil Engineering, Youngstown State University, 1987

AREA OF EXPERTISE

Mining Engineering

REGISTRATIONS/ AFFILIATIONS

Professional Engineer, WV, 1998, 013850

Professional Engineer, PA, 1993, PE044310E

Professional Engineer, OH, 1998, 62948

TRAINING/CERTIFICATIONS

N/A

YEARS OF EXPERIENCE

27

and determine the best design for sealing the shafts. Both sites are on wooded lots adjacent to occupied residences.

Project Manager; Simpson Creek Highwall, Tipple, and Portals; WVDEP; Barbour County, WV. Responsible for project management, engineering design, and development of construction plans, specifications, and cost estimates. The project included exploratory drilling, and preparation of reclamation plans and specifications for five sites containing numerous suspected mine entries to a large underground mine complex. Design measures included elimination of impounded mine water, installation of wet mine seals, access roads, collection channels, tipple demolition, minor site grading to provide positive drainage, and final revegetation.

Project Manager; Wymer Portals and Acid Mine Drainage; WVDEP; Monongalia County, WV. Responsible for project management, engineering design, and development of construction plans, specifications, and cost estimates. The project included development of site mapping, exploratory drilling, and preparation of reclamation plans and specifications for a large abandoned mine complex. Design measures included elimination of impounded mine water, installation of wet mine seals, bat gates, and access roads, elimination of highwalls by proposed earthwork and site grading with available on site refuse and spoil materials, and final revegetation. Numerous surface water and mine drainage structures including ditches, pipes, and underdrains were also required.

Project Manager; Davidson Highwall; WVDEP; Monongalia County, WV. Responsible for project management, engineering design, and development of construction plans, specifications, and cost estimates. The project included development of site mapping, exploratory drilling, and preparation of reclamation plans and specifications for a large abandoned mine complex. Design measures included elimination of impounded mine water, installation of wet mine seals, stream channel restoration, elimination of highwalls by proposed earthwork and site grading with available on site refuse and spoil materials, and final revegetation. Numerous surface water and mine drainage structures including ditches, pipes, and underdrains were also required.

Project Engineer; Elkins Coal Refuse Reclamation; WVDEP; Preston County, WV. Performed research of geological data and mining maps, designing reclamation measures, and preparing construction plans and specifications for the project which included erosion and sedimentation control measures, site earthwork and grading, slope stability analysis, mine seals, collection and diversion ditches, soil cover placement, and revegetation.

Project Engineer; Tibbs Run Portals & Tipple Reclamation; WVDEP; Monongalia County, WV. Performed design of reclamation measures, including mine seals, underdrains, and mine water collection channels. Prepared construction plans, specifications, and cost estimates for the project, which included erosion and sedimentation control measures, site regrading, collection and diversion ditches, soil cover placement, and revegetation.

Project Engineer; National Mine Complex Reclamation, WVDEP; Monongalia County, WV. Performed research of geological data and mining maps, designing reclamation measures, and preparing construction plans and specifications for the project which included erosion and sedimentation control measures, site earthwork and regrading, slope stability analysis, mine seals, collection and diversion ditches, soil cover placement, and revegetation.

Project Engineer; MacArthur Mine Subsidence; WVDEP; Raleigh County, WV. Performed drilling inspection, mine map research and interpretation, and parking lot and roadway restoration, and developing specifications, plans, and cost estimates. The project required test drilling in a residential neighborhood in order to estimate grouting requirements to abate its underground mine subsidence problems.

Project Engineer; Beech Bottom Refuse Reclamation Project; WVDEP; Ohio and Brooke Counties, Beech Bottom, WV. Responsibilities included site design and preparation of the project construction plans and specifications. The project included three sites located along the Ohio River containing barren refuse piles ranging in size from 15 to 60 acres. The reclamation plan that was developed provided for the refuse piles to be graded to stable slopes, covered, and vegetated to reduce AMD generation. Refuse piles encroaching on the Ohio River were graded and covered with a mat liner and vegetated for erosion control. Site drainage with collection ditches and storm water piping was also designed to provide positive drainage. A phase I archaeological investigation of a proposed borrow area located in the Ohio River Floodplain was performed as required by the WV SHPO.

Project Engineer; Big Hollow Mine Dump Reclamation; WVDEP; Mullins, WV. Performed research of geological data and mining maps. Prepared construction plans and specifications for the project which included erosion and sedimentation control measures, site regrading, collection and diversion ditches, soil cover placement, and revegetation.

Project Engineer; Twilight Burning Refuse Reclamation; WVDEP; Twilight, WV. Performed research of geological data and mining maps, designing reclamation measures, and preparing construction plans, specifications, and cost estimates for the project which included erosion and sedimentation control measures, site earthwork and grading, mine seals, methods of extinguishing/quenching actively burning refuse, collection and diversion ditches, soil cover placement, and revegetation.

Project Engineer; Piney Swamp Run Refuse No. 1 Reclamation; WVDEP; Keyser, WV. Performed research of geological data and mining maps, review of water quality data, and design of acid mine drainage abatement measures, including wetlands, successive alkalinity producing systems, anoxic limestone drains, metals settling ponds, and open limestone channels. Prepared construction plans, specifications, and cost estimates for the project, which included erosion and sedimentation control measures, site regrading, collection and diversion ditches, soil cover placement, and revegetation.

Project Engineer; Turnhole Branch Reclamation Project; WVDEP; McDowell County, WV. Performed research of geological data and mining maps, designing reclamation measures, and preparing construction plans, specifications, and cost estimates for the project which included erosion and sedimentation control measures, site earthwork and regrading, underdrain, slope stability analysis, mine seals, collection and diversion ditches, soil cover placement, and revegetation.

Project Engineer; Pageton Mine Refuse Reclamation; WVDEP; Pageton, WV. Performed research of geological data and mining maps, designing reclamation measures, and preparing construction plans and specifications for the project which included erosion and sedimentation control measures, site earthwork and regrading, slope stability analysis, mine seals, collection and diversion ditches, soil cover placement, and revegetation

Project Engineer; Masontown No. 4 Reclamation, AMD Abatement; WVDEP; Masontown, WV. Performed research of geological data and mining maps, review of water quality data, and preparation of construction plans, specifications, and cost estimates for the project which included erosion and sedimentation control measures, site earthwork and grading, mine seals (wet and dry), collection and diversion ditches, stream crossings, soil cover placement, and revegetation. The Masontown No. 4 project required the design of measures for the abatement of acid mine drainage (AMD) emanating from abandoned mine entries and refuse piles at four specific sites along two tributaries to the Cheat River.

Project Engineer; Odd-Moore Mine Reclamation; WVDEP; Raleigh County, Odd, WV. Performed research of geological data and mining maps, designing reclamation measures, and preparing construction plans, specifications, and cost estimates for the project which included erosion and sedimentation control measures, site earthwork and regrading, underdrains, limestone ditches, abandoned mining structure removal, soil cover placement, and revegetation. The Odd Moore Refuse Pile abandoned mine land site consisted of two refuse piles covering approximately 12 acres with steep unstable slopes, four abandoned mining impoundments, a concrete foundation and remains of an old tipple, and acid mine drainage (AMD) seepage, all in close proximity to an existing residence.

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

Project Engineer; Cheat Lake Highwall; WVDEP; Monongalia County, WV. Performed research of geological data and mining maps and review of water quality data. Prepared construction plans, specifications, and cost estimates for the project which included erosion and sedimentation control measures, site earthwork and regrading, mine seals (wet and dry), collection and diversion ditches, stream crossings, soil cover placement, and revegetation. The Cheat Lake Highwall abandoned mine land site consisted of a 19-acre refuse pile, numerous abandoned mine openings discharging acid mine drainage (AMD), and a dangerous highwall in close proximity to a residential area.

Project Engineer; Emoryville Mine Complex Reclamation and AMD Remediation; WVDEP; Emoryville, WV. Performed research of geological data and mining maps, review of water quality data, and design of acid mine drainage abatement measures, including open limestone channels, Successive Alkalinity Producing Systems, and aerobic wetlands. Prepared construction plans and specifications for the project which included erosion and sedimentation control measures, site regrading, mine seals, collection and diversion ditches, abandoned barge and coal refuse removal from the North Branch of the Monongahela River, soil cover placement, and revegetation. The Emoryville Mine Complex project required the design of measures for the abatement of acid mine drainage (AMD) emanating from abandoned mine entries and piles at three sites. AMD discharges and coal refuse piles are located along both sides of Emory Creek, a tributary to the North Branch Potomac River.

Project Engineer; Flemington Portals and Drainage; WVDEP; Taylor County, WV. Provided review and oversight of all hydraulic and hydrologic calculating performed on the project, and developing

conceptual plans for review with the client prior to finalization of the design. The design portion of the project included the following: design of reclamation measures for an abandoned highwall area, construction of diversion and collection ditches, replacement of an existing culvert, repair to existing mine seals and ditches, erosion and sedimentation control measures, and site grading to eliminate the existing ponded areas, and revegetation. The work also included preparation of construction plans and specifications including the cost estimate.

Project Engineer; Mine Reclamation for Borgman Refuse and Portals; WVDEP; Preston County, WV. Performed research of geological data and mining maps, designing reclamation measures, and preparing construction plans and specifications for the project which included erosion and sedimentation control measures, site earthwork and regrading, slope stability analysis, mine seals, collection and diversion ditches, soil cover placement, and revegetation. Project responsibilities included site reconnaissance, survey and mapping, subsurface investigation, designing grading, drainage control structures, ditches, passive treatment for AMD, earthwork, and preparation of plans, specifications and costs.

Project Engineer; Kempton Refuse and Acid Mine Drainage; WVDEP; Tucker County, WV. Performed research of geological data and mining maps, review of water quality data, and design of acid mine drainage abatement measures, including open limestone channels, SAPS cells, and aerobic wetlands. Prepared construction plans and specifications for the project, which included site grading, mine seals, collection and diversion ditches, soil cover placement, and revegetation. Work included performance of site reconnaissance and office research, field surveying, test drilling, analysis and design of reclamation measures, preparation of construction plans and specifications, and development of a quantity estimate and construction cost estimate.

Project Engineer; Jed-Havaco Refuse Reclamation; WVDEP; WV. Performed research of geological data and mining maps, designed reclamation measures, and prepared construction plans, specifications, and cost estimates for the project which included erosion and sedimentation control measures, site earthwork and regrading, slope stability analysis, mine seals, collection and diversion ditches, soil cover placement, and revegetation.

Project Engineer; Denver Street Drainage Abatement; WVDEP; WV. Performed research of geological data and mining maps, designed reclamation measures, and prepared construction plans, specifications, and cost estimates for the project which included erosion and sedimentation control measures, mine seals, pond for active treatment of mine water during dewatering of mine pool, water conveyance pipe, collection ditches, and diversion ditches.

Project Engineer; Stonewood Reclamation; WVDEP; WV. Performed research of geological data and mining maps, designed reclamation measures, and prepared construction plans, specifications, and cost estimates for the project.

Project Engineer; Stark Drainage Abatement; WVDEP; WV. Performed research of geological data and mining maps, designed reclamation measures, and prepared construction plans, specifications, and cost estimates. The project included erosion and sedimentation control measures, mine water conveyance pipe in underdrains and horizontally bored into mine workings, a manhole and inlet with West Virginia Department of Transportation, Division of Highways' roadway crossing, placement and piping collection and diversion ditches, and underdrains.

JONATHAN D. SHIMKO

Water/Wastewater Manager

EXPERIENCE SUMMARY

Jonathan Shimko manages Tetra Tech's Water and Wastewater Management Department in the Pittsburgh Area from the Monroeville, Pennsylvania Office. Mr. Shimko specializes in water and wastewater treatment process, design, implementation and operation. He is experienced in environmental permitting including NPDES, Water Quality Management, Waste Management, and Erosion and Sedimentation Control. Mr. Shimko has considerable experience in flow monitoring including sanitary and storm drainage, and streams. He also specializes in water and wastewater sampling and testing.

Mr. Shimko is a Pennsylvania Department of Environmental Protection (PaDEP) Licensed Wastewater Treatment Plant Operator. He has been responsible for operation, maintenance, quality control, collection of wastewater and discharge of wastewaters; preparation and submittal of reports for PaDEP monitoring and approval; responsible for project management of wastewater treatment contracts; and has worked in plant design and construction activities on numerous wastewater treatment systems and technologies. Mr. Shimko is also a PaDEP Licensed Water Treatment Plant Operator, responsible for the operation, maintenance, quality control of potable water treatment facilities and distribution systems. Mr. Shimko has provided project management of water treatment contracts.

RELEVANT EXPERIENCE

Environmental Scientist/Team Leader; Allegheny County Sanitary Authority (ALCOSAN); Combined Sewer Overflow Study Projects; Pittsburgh, Pennsylvania. Provided sanitary sewer flow monitoring services. Performed field investigations to find suitable monitoring sites, installed and maintained monitoring equipment, conduct on-site data quality reviews, and provided data analysis and graphs. Conducted storm flow monitoring on combined sewer overflows. Performed stream flow monitoring and collected flow monitoring and modeling data. Experienced in grab and composite sample collection of wastewater, stream water, storm water and potable water. Assisted with designing and implementing sampling and monitoring plans for combined sewer overflow studies. Team leader for stream and storm sampling activities.

EDUCATION

B.S. Environmental Science, 2003, Slippery Rock University

REGISTRATIONS

Pennsylvania Certified Wastewater Systems Operator, Class C, E, 1, 2, 3, 4; No. 221238, Obtained 2005, Expires 2016

Pennsylvania Certified Water System Operator, Class A, E, 1, 12, 13; No. 221238, Obtained 2006. Expires 2015

TRAINING/CERTIFICATIONS

OSHA Permit Required Confined Space Entry Training

OSHA 40-hour Hazardous Waste Operations and Emergency Response FEMA Incident Command System, ICS-100, ICS-200

MSHA 24-hour New Surface Miner Training

OFFICE

Monroeville, PA

YEARS OF EXPERIENCE

10

YEARS WITH TETRA TECH

2

Senior Environmental Specialist; University of Pittsburgh and Pennsylvania Department of Transportation; Jonathan Run Acid Water Treatment Plant Design; Centre County, Pennsylvania. Assisted with the design of an active treatment system for the project, including design recommendations, calculations, and writing of the specification package.

Senior Environmental Specialist; Koppers, Inc.; Stormwater Quality Remedial Evaluation; $50,000; Florence, South Carolina. Evaluated methods for managing stormwater quality from plant yard areas. Developed an alternatives analysis of remediation options. Prepared and implemented a sampling plan and designed a pilot remediation system to treat stormwater runoff.

Senior Environmental Specialist; Allegheny Energy, Inc.; Hatfield Power Station Sewage Treatment Study; Greene County, Pennsylvania. Evaluation of on-site and off-site sewage treatment alternatives. Completed sewage treatment investigation including the feasibility of alternative sewage treatment methods and associated construction costs. This included consulting local publically owned treatment works and venders.

Senior Environmental Specialist; Pennsylvania Turnpike Commission (PTC); Allegheny Tunnel Wastewater Improvements; Somerset County, Pennsylvania. Assisted with the design of a sanitary sewer system for the maintenance facility at the Allegheny Tunnel.

Senior Environmental Specialist; Pennsylvania Turnpike Commission (PTC); Lawn Service Plaza WWTP Closure Plan; Lawn, Pennsylvania. Developed a closure plan for the wastewater treatment plant at the Lawn Service Plaza for approval by The PaDEP. The plan included sequence of the shut-down operation and a waste management plan.

Senior Project Environmental Specialist; Pennsylvania Turnpike Commission (PTC); Rainwater Use Systems; New Castle, Pennsylvania. Assisted in the design of a non-potable water system to collect and store rainwater for use in PTC multiple maintenance facilities.

Senior Project Environmental Specialist; GenOn Energy, Inc. and Kirkpatrick & Lockhart Preston Gates Ellis LLP; Power Plant Wastewater Engineering and Design; Indiana County, Pennsylvania. Wastewater plant engineering and design at a GenOn Generating Station. Developed preliminary design of a wastewater treatment system for cooling tower blowdown. Coordinated design and treatability work with subconsultants. Prepared Water Quality Management Permit Application and Design Engineer's Report. Prepared modification documents for the Station's NPDES Permit. Assisted in the preparation of technical specifications and bid documents for competitive bidding. Coordinated the completed construction package issued to the winning contractor awarded the job. Provided construction management support and reviewed contractor submittals. Coordinated the development of the final record drawing package and operation and maintenance documents.

Senior Project Environmental Specialist; GenOn Energy, Inc.; Power Station Wastewater Discharge Pipeline; Armstrong County, Pennsylvania. Performed permitting, design, construction monitoring, and construction management of a 15-mile pipeline project. Assisted in the design for a filtration system used in the pipeline pigging process. Design work included calculations, cost estimates, and design drawings.

Senior Project Environmental Specialist; Allegheny Energy Supply Company; Wastewater Feasibility Study; Monongalia County, West Virginia. Conducted a feasibility study and conceptual design of a Containerized Filtration System to remove suspended solids from the Haul Road Stormwater

Management Pond at the Fort Martin Power Station. Provided system review of conceptual design documents prepared by TIGG Corporation, Oakdale, Pennsylvania for the system.

Senior Project Environmental Specialist; Allegheny County Sanitary Authority (ALCOSAN); Dooker Hollow Stream Mitigation Project; Pittsburgh, Pennsylvania. Assisting Sci-Tek, Inc. (Sci-Tek) to develop a design plan for removing the Acid Mine Drainage (AMD) from ALCOSAN's combined sewer system and remediating the AMD for reuse as irrigation water for the golf course. Assisting with development of feasible treatment alternatives, construction specifications, and opinion of probable construction costs, and permit documents.

Senior Project Environmental Specialist; The Wilder Companies; Settlers Ridge Site Development; Pittsburgh, Pennsylvania. Assisted in the design and replacement of an anoxic limestone drain treatment system to remediate AMD waters associated with the development of the commercial site. Preformed sampling and agency compliance documentation.

Task Manager; West Virginia Division of Corrections (WVDOC); Wastewater Treatment Plant Improvement Projects; Huttonsville and Anthony, West Virginia. Assisted with design and development of construction documents for the implementation of improvements to the Huttonsville and Anthony Correctional Centers. Provided wastewater treatment plant operator guidance to improve wastewater treatment at the facilities.

Task Manager; GenOn Energy, Inc.; Chem-Mod Pilot Study; Conemaugh Power Station, Indiana County, Pennsylvania. Assisted GenOn with a pilot study to determine the feasibility of applying a coal amendment prior to combustion in order to reduce mercury emissions in the flue gas. Study included the development of mass balance calculations and predictive models to determine air quality impacts and resulting effects on the wastewater effluent from the Flue Gas Desulfurization (FGD) system. Study considered application rates of the amendment, coal feed rates, FGD blowdown scenarios, NPDES effluent limits and air emissions.

Project Manager; Alpha Natural Resources; Cumberland and Emerald Mines Advanced Wastewater Treatment Project; Greene County, Pennsylvania. Performed an evaluation of existing water resources in order to improve efficiency and reduce wastewater that would require expensive treatment to meet NPDES discharge limits. Evaluated wastewater treatment technologies proposed by multiple vendors in order to assist Alpha with selection of proper technologies to achieve proper treatment efficiently. Performed water sampling and water quality characterization study to develop a design basis for an advanced wastewater treatment system.

Project Manager; Dominion Resources Services, Inc.; Pumped Storage Power Station Penstock Drain Tunnels Assessment; Bath County, Virginia. Conducted an alternative evaluation to improve the capacity of the existing Penstock Drain Tunnel (PDT) water system. Assessed system modifications to reduce operations and maintenance costs, maintain regulatory compliance, and increase safety. Developed alternative solutions, prepared engineering, capital and operating costs, and provided a matrix that compared these alternatives and provided recommendations to allow Dominion to make an informed decision on the appropriate course of action.

Project Manager; Dominion Resources Services, Inc.; Pumped Storage Power Station Wastewater Treatment Plant; Bath County, Virginia. Conducted a feasibility study to assess potential modifications to the existing sanitary wastewater treatment plant and full replacement of the system. Assessed facility

modifications and/or replacements in an effort to reduce operations and maintenance costs, maintain regulatory compliance, and increase safety. Developed alternative solutions, prepared engineering, capital and operating costs, and provided a matrix that compares these alternatives and provided recommendations to allow Dominion to make an informed decision on the appropriate course of action.

Project Manager; Dominion Resources Services, Inc.; Bear Garden Treatment Sustainability Project; Buckingham County, Virginia. Addressed operational and maintenance problems resulting in unsatisfactory finished water and additional operating expenses. Developed an alternatives analysis that provided feasible alternatives to address the water woes of the facility, comparative costs and anticipated project schedules.

Project Manager; Swisher International, Inc.; Environmental Services and Flow Monitoring Assistance; Wheeling, West Virginia. Investigated the discrepancies between its monthly metered potable water quantity and the apparent water discharges from the facility. Evaluated site conditions and Swisher's Facility; conducted flow monitoring and evaluated flow monitoring data; and summarized the findings of the conducted studies along with recommendations on how to mitigate issues identified during the studies.

Project Manager – Waste Management National Services – Seward Seep Project Peer Review, Seward Power Station, Indiana County, Pennsylvania. Managed the peer review of the Seward Seep Collection System and Wastewater Treatment System. Tetra Tech provided a technical review of the collection system to evaluate the ability of the pumps to meet the performance specifications for the project. A technical and completeness review was also performed to evaluate the wastewater treatment systems ability to satisfy the performance specifications for the project.

Project Manager – Pinky's Restaurant Wastewater Treatment System – Columbiana County, Ohio. Tetra Tech designed a Small Flow On-Site Sewage Treatment System (SFOSTS) for Pinky's Restaurant. The design included the sizing and layout for a grease trap, septic tanks, a combined equalization and dosing tank and leech field. The system was designed to treat an average daily flow of 850 gallons per day while providing features to limit flow to less than 1,000 gallons per day. The design was developed based upon guidance form the Ohio Department of Health and the Columbiana County Health Department.

TERENCE SMITH, PE
MINING ENGINEER

EXPERIENCE SUMMARY

Mr. Smith has more than 36 years of experience in mining engineering and management, and water and wastewater design engineering and project management. Recently, he has supported Tetra Tech's project for mine seal and bulkhead design for a project at a mine in Ohio. Mr. Smith's other experience includes longwall mining, coal preparation plant and coal refuse disposal supervision, surface mine permitting, mine operations evaluations, compliance evaluations, economic feasibility analysis, cost estimating and project management in the coal mining industry.

EDUCATION

BS, Mining Engineering, University of Pittsburgh, 1978

AREA OF EXPERTISE

Mining Engineering

REGISTRATIONS/ AFFILIATIONS

Professional Engineer, PA, 1992, PE070977

TRAINING/CERTIFICATIONS

N/A

YEARS OF EXPERIENCE

36

RELEVANT EXPERIENCE

Project Manager; 2012 Professional Design Services Contract; Pennsylvania Department of Environmental Protection, Bureau of Abandoned Mine Reclamation and Bureau of Mining Programs; PA. Serving as a project manager for these two five-year $5M mining engineering contracts to provide professional design services to remediate problems such as open mine portals, acid mine drainage, mine fires, highwalls, and subsidence projects.

Project Engineer; Mine Seal and Bulkhead Design; Ohio Valley Coal Company; Alledonia, OH. Tetra Tech designed four hydraulic mine seals at the Ohio Valley #6 Mine near Alledonia, OH and Mr. Smith supported this project with design services. Tetra Tech also performed a detailed study of mine seal and bulkhead successes and failures to assist in the design. The research included an analysis of reasons for failures of mine bulkheads as well as an analysis of the number of approved versus unapproved designs. Individuals at both MSHA and NIOSH were contacted to provide insight into mine bulkhead design. A review of available literature on mine bulkhead design was also performed and summarized as part of the project.

Project Engineer; AMD Treatment; PADEP; Cresson, PA. Preliminary design evaluation associated with the proposed Cresson AMD Treatment Plant. BAMR has entered into an agreement with the Susquehanna River Basin Commission to provide treated AMD to supplement flow during low flow periods. Project is currently in the field investigation phase to identify the location of the proposed facility and mine water extraction wells.

Project Engineer; Mine Discharge Reclamation; South Fayette Conservation Group; PA. Design engineering, permitting and project management for a watershed conservation group. The project objective is to seal a stream bottom in order to prevent water from entering an abandoned underground coal mine.

HEATHER TREXLER, PG

LEAD GEOLOGIST

EXPERIENCE SUMMARY

Ms. Trexler has more than nine years of experience as a project manager and geologist. Her project activities for mining development include the preparation of geologic and hydrologic sections of permits to state agencies in West Virginia for longwall expansions, new room and pillar mines, refuse expansions and associated surface activities. She also reviews current and potential impacts to water resources, managing mining compliance sampling programs and evaluating large-volume water quality analysis.

EDUCATION

MS, Geology, West Virginia University, 2003

BS, Geology, University of Cincinnati, 2001

AREA OF EXPERTISE

Geology

REGISTRATIONS/ AFFILIATIONS

Professional Geologist, PA, 2007, PG-004787

TRAINING/CERTIFICATIONS

PADEP Environmental Permitting and Erosion and Sedimentation Control Training

YEARS OF EXPERIENCE

10

RELEVANT EXPERIENCE

Project Geologist; Blacklick Creek Vinton/Wehrum Mine Drainage Treatment Facility Design; PADEP Bureau of Abandoned Mine Reclamation; Indiana County, PA. Supporting this large, multifaceted project included the design of a mine water conveyance system, design of relief boreholes, assessment of local mines for sludge disposal, coal refuse pile analysis, mine shaft and subsidence assessment, conceptual treatment facility layout, public involvement, and the development of bid documents.

Project Geologist; Palo Alto Mine Drainage Study and Design; PADEP Bureau of Abandoned Mine Reclamation; Borough of Palo Alto, PA. Providing geological support for this mine drainage study. Mine drainage is appearing at a residence in the Borough of Palo Alto during heavy precipitation events. Previous attempts at remediation by PADEP and the OSM were unsuccessful. Tetra Tech will conduct study the site then provide preliminary and final designs. The project will also include drilling, water testing, and surveying.

Project Geologist; East Avoca Mine Drainage Study; PADEP Bureau of Abandoned Mine Reclamation; Avoca Borough, PA. Serving as the lead geologist on this mine drainage study in Avoca, PA. Several residents along Grove Street in Avoca have reported incidents of mine water in basements and in their yards during heavy precipitation events. Tetra Tech's investigation will determine the location and depth of abandoned mine workings that may be the source of mine water occasionally noted along Grove Street. Tetra Tech will then propose alternative solutions to abate the drainage problem.

Project Geologist; 2012 Professional Design Services Contract; Pennsylvania Department of Environmental Protection, Bureau of Abandoned Mine Reclamation; PA. Serving as a geologist for this five-year $5M mining engineering contract to provide professional design services to remediate problems such as open mine portals, acid mine drainage, mine fires, highwalls, and subsidence projects.

Project Manager; Marion County Reclaimed Mine Site Investigation; American Bituminous Power Partners, LP; Marion County, WV. Managed this project, which included a site assessment, sampling, and general recommendations as to the possible sources of elevated levels of aluminum at the site.

BEN HOPPE
CAD DESIGNER

EXPERIENCE SUMMARY

Mr. Hoppe has more than ten years of professional CADD experience. He has conducted work for several abandoned mine land reclamation projects, including those for the West Virginia Department of Environmental Protection's Office of AML, and erosion and sediment control plans. He is a CAD manager for Tetra Tech and has supported more than 30 mining-related projects over the past several years.

EDUCATION

AS, Drafting, Johnson College, 2004

REGISTRATIONS/ AFFILIATIONS

N/A

TRAINING/CERTIFICATIONS

N/A

YEARS OF EXPERIENCE

10

RELEVANT EXPERIENCE

CAD Designer; Bandy/King Mine Subsidence Investigation; Virginia Department of Mines, Minerals, and Energy; Wise County, VA. Provided CAD support for an investigation to characterize suspected mine voids on two residential properties which exhibited evidence consistent with mine subsidence. Work consisted of a property survey, a GPR survey, and generation of mapping and a drilling investigation plan.

CAD Designer; Fisher Run Portal Closure; West Virginia Department of Environmental Protection, Office of Abandoned Mine Lands and Reclamation; Weston WV. Mr. Hoppe's responsibilities included creating existing conditions plans and sections along with mine void information to adequately design structures to seal mine and convey mine water discharge. Also performed design of multiple piping and ditch conveyance systems to allow mine water to discharge to existing streams.

CAD Designer; Tunnelton Mine Portal Closure Design for Acid Mine Drainage; West Virginia Department of Environmental Protection, Office of Abandoned Mine Lands and Reclamation; Tunnelton, WV. Responsibilities included creating existing conditions plans and sections along with mine void information to adequately design structures to seal mine and convey mine water discharge. Also performed design of multiple piping and ditch conveyance systems to allow mine water to discharge to existing streams.

CAD Designer; Paint Branch Mine Project; West Virginia Department of Environmental Protection, Office of Abandoned Mine Lands and Reclamation; Kanawha, WV. Mr. Hoppe performed design services on this project, which included the installation splash pads and metal bat gates on three abandoned mine portals and removal approximately 48 abandoned bridge piers in Paint Branch.

CAD Designer; Gladden Mine Discharge Passive Treatment System (in association with PADEP); South Fayette Conservation Group; South Fayette Township, PA. Design required creation of existing conditions plans and sections along with design of 2 ½ acre pond separated into 3 chambers using earthen berms. Pond required berm with graded access road into pond area and along perimeter. Sections and profiles were created along pond and access road. Access road required horizontal and vertical geometry to be included on plan and profiles.

Section E: Project Descriptions

Relevant Project Experience

Over the next several pages, we have included full-page project descriptions to supplement our proposal. These project examples (all of which have been listed in Attachment C) provide detailed descriptions of some of our recent work performed.

WVDEP PARKER RUN RECLAMATION DESIGN

FEATURES

- Drainage and mine seal design
- Refuse and highwall reclamation
- Stream bank stabilization design

PROJECT DESCRIPTION

Tetra Tech was awarded this contract with the West Virginia Department of Environmental Protection, Office of AML&R. Our firm will design various reclamation features at Parker Run in Marion County.

Tetra Tech's services include:

- Design of drainage conveyances
- Design installation of mine seals
- Highwall reclamation
- Design refuse reclamation
- Design stream bank stabilization
- Design structural and trash removal/disposal
- Re-vegetation of disturbed areas

Tetra Tech will also coordinate with local subcontractors for drilling, if needed.

CLIENT

West Virginia Department of Environmental Protection, AML&R

LOCATION

Marion County, West Virginia

DURATION

2013 – Ongoing

COST

$100,000

REFERENCES

QUECREEK DEEP MINE #1 EXPANSION

CLIENT

PBS Coals, Inc.

LOCATION

Somerset, Pennsylvania

DURATION

2012

COST

REFERENCES

Ms. Kim Betcher
1576 Stoystown Road
Friedens, PA 15541
(814) 443-4668 x293

FEATURES

- Adjacent mine study
- Geologic and hydrogeologic analyses
- PADEP coordination

PROJECT DESCRIPTION

Tetra Tech was contracted by PBS Coals, Inc. of Friedens, PA to perform Pennsylvania Department of Environmental Protection permitting work for the Quecreek #1 Deep Mine Expansion.

A detailed adjacent mine study was performed to determine the location of any adjacent mines and to plan mining operations around those workings. A geologic analysis was also performed utilizing all available information provided by the client. An analysis of water quality and hydrogeologic conditions in the area was performed which included the collection of background water quality data from all homes in the proposed mining area as well as the sampling of piezometers and streams. An analysis was performed on pillar stability which will maintain a safety factor of 1.5 throughout the area and 2.0 underneath structures and roads.

Detailed mapping was performed to display adjacent mine workings, water sample locations, structures, a 30 degree angle of draw from the proposed mining operation, roads, mining projections, and several other important features. Surface and coal ownership research was also performed at the Somerset County courthouse to assist the client in obtaining leases to mine the coal.

GLADDEN ACID MINE DRAINAGE MITIGATION AND STREAM SEALING

FEATURES

- PADEP coordination
- AMD treatment design and stream sealing
- Unstable highwall

PROJECT DESCRIPTION

Tetra Tech was retained by the South Fayette Conservation Group (in coordination with the Pennsylvania Department of Environmental Protection's Bureau of Abandoned Mine Reclamation to design a passive acid mine drainage treatment system for this project.

Millers Run, a warm water fishery, flows into Chartiers Creek, also a warm water fishery. The abandoned mine portal discharges approximately 1,000 gpm of AMD into Millers Run. With the aeration and mixing of the flow, the pH rises and the iron oxide is precipitated out of the flow, resulting in several miles of iron oxide precipitation and low oxygenated water. Tetra Tech surveyed the site and prepared a topographic map, installed monitoring wells to monitor the mine pool elevation, delineated wetlands, and evaluated several alternative site configurations.

One site evaluated had an unstable highwall. Tetra Tech conducted a geotechnical evaluation, performing a hydrologic evaluation of the floodplain, and prepared the site layout and grading plan design. Tetra Tech prepared construction drawings, specifications, construction cost estimates and PADEP permits.

The design consisted of the excavation of a 3-acre basin on private property adjacent to a four-lane highway, railroad right-of-way, and an adjacent property owner. Treatment will consist of a directional bore into the mine to allow gravity flow of the drainage into a limestone bed and into the basin. The basin area will be over-excavated to remove the underlying coal bed and will be constructed at a

CLIENT

S. Fayette Conservation Group

LOCATION

South Fayette, Pennsylvania

DURATION

2009 – Ongoing

COST

$

REFERENCES

Ms. Amy Smith
515 Millers Run Road
Morgan, PA 15064
(412) 257-8126

horizontal distance far enough away from the existing mine to prevent a blowout. Existing discharge will remain behind a small check dam but will be used as an outlet control if the mine pool rises. The basin will consist of three cells to increase holding time and allow for each cell to be isolated for the removal of iron oxide for commercial use. The basin will discharge through a riser structure into man-made wetland areas for additional treatment prior to flowing into Millers Run and Chartiers Creek.

In 2009, the client applied for a PADEP Growing Greener Grant to fund the investigation, design, and construction of a stream flow loss mitigation project. In order to build the project, flow into the mine needed to be reduced because sufficient property could not be acquired. By reducing the flow into the mine the design size could be decreased in size and the acquired property would be enough to install a system to handle the mine discharge. Weirs and continuous water level monitors were installed at the top and bottom of the stream channels. Data collected from the monitors was used to determine stream flows and flow loss. A design is underway to use Fabriform liner and grouting techniques to reduce flow into the mine.

"I would recommend both Tom (Gray) and Tetra Tech to anyone considering undertaking an AMD project."

Amy Smith

OHIO VALLEY COAL COMPANY
MINE SEAL AND BULKHEAD DESIGN

CLIENT

Ohio Valley Coal Company

LOCATION

Alledonia, Ohio

DURATION

2010

FEATURES

- Design of two hydraulic mine seals
- Study of mine seal and bulkheads
- Coordination with MSHA and NIOSH officials

PROJECT DESCRIPTION

Tetra Tech designed four hydraulic mine seals at the Ohio Valley #6 Mine near Alledonia, OH. Tetra Tech also performed a detailed study of mine seal and bulkhead successes and failures to assist in the design. The research included an analysis of reasons for failures of mine bulkheads as well as an analysis of the number of approved versus unapproved designs. Individuals at both MSHA and NIOSH were contacted to provide insight into mine bulkhead design. A review of available literature on mine bulkhead design was also performed and summarized as part of the project. The internal bulkheads were designed for a minimum permanent static head of 90 feet of water and to have a safety factor of 2.0. The seal designs included removing undesirable roof and floor material and keying the seal into the coal ribs. Two boreholes were drilled and geotechnical testing performed to determine the characteristics of the strata above and below the coal seam.

The mine floor and roof that is considered to be incompetent or prone to weathering will be removed by continuous miners. In addition, rib spalling will be removed so that competent coal is exposed. Core drilling of the roofed floor at each seal location will be conducted just prior to seal installation to confirm the rock strata conditions and will be used to determine the excavation limits. An experienced geotechnical engineer or geologist will observe the excavations and will select the excavation limits. Registered professional geotechnical engineers will approve all seal openings prior to the forms being erected. Pressure grouting of the strata surrounding the seal location will follow a pattern of holes which will be drilled perpendicular to the mine roof, floor and ribs. Two water stops surround the perimeter of each entry will be placed for use to grout the interfaces between the cured concrete and the roof, ribs and floor. Forms will then be placed on each side of the concrete seals. While form work is placed, a one inch diameter gas sampling pipe will be placed in each entry. The seal length will be based upon the final width and height of the seal opening. These seals were designed to seal the McMahon Mains mining area after mining of the area is completed. At closure of the mine the seals will be converted to water impounding bulkheads.

OHIO VALLEY COAL COMPANY
MINE AIR SHAFT CLOSURE DESIGN

CLIENT
Ohio Valley Coal Company
LOCATION
Eastern Ohio
DURATION
2010

FEATURES

- Design of seals for three coal mine air intake shafts
- Concrete cap assembly allows for easier installation and visual checks for performance during the seal's life

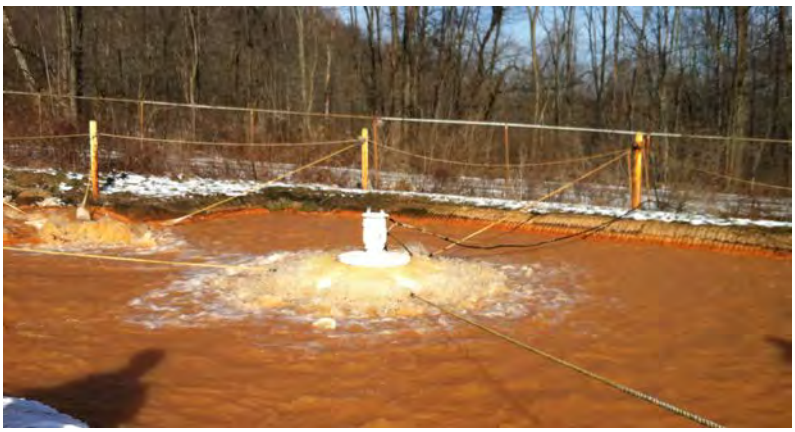
PROJECT DESCRIPTION

Three air intake shafts remain on the surface at a closed coal mine in eastern Ohio. To prepare for mine closure, the coal mining company retained Tetra Tech to design seals for the three intake structures.

Tetra Tech's design consisted of structural concrete mine opening seals to resist the uplift pressure of the hydraulic gradient. These structures consist of steel deck plating to span the opening and steel reinforcement to increase the weight of the seal and to tie the structures together. A commercial air release valve assembly was designed into this system to release escaping air and intake air as the mine water surface elevation fluctuates over time. This air release valve releases pressure on the concrete seal cap. The vent for the air release valve was set at 15 feet above the surface of the cap to eliminate the potential of concentrated methane gas at the surface. An initial investigation determined that an internal horizontal mine shaft plug would be more costly and less reliable for long term maintenance.

This concrete cap assembly will allow easier installation and visual checks of performance during the life of the seal.

BIRD MINE AND STRAYER REFUSE PERMITTING AND WATER TREATMENT SYSTEM DESIGN



CLIENT

AMD Industries, Inc.

LOCATION

Tire Hill, Pennsylvania

DURATION

2012 – Ongoing

FEATURES

- Water treatment design
- PADEP permitting
- Refuse pile quantification and quality analysis

PROJECT DESCRIPTION

Tetra Tech was retained by AMD Industries to complete Pennsylvania Department of Environmental Protection (PADEP) permitting, water treatment design, and refuse pile quantification and quality analysis at the Bird Mine located in Tire Hill, PA. Tetra Tech was tasked with completing two different PADEP mining activity permit renewals – one for the Strayer Refuse Site and one for the Bird Mine Treatment Facility.

In addition, Tetra Tech planned for and conducted exploratory testing of the Strayer Refuse Site to determine the volume and quality of the refuse for possible removal. Our firm continues to provide mining-related support to this site.

MEPCO ZERO LIQUID DISCHARGE SYSTEM TECHNICAL AND COST STUDY

FEATURES

- Conceptual design of zero liquid discharge treatment systems including RO and deep well injection
- Mass balance and cost estimate for four mine discharge treatment options

PROJECT DESCRIPTION

MEPCO, LLC retained Tetra Tech to evaluate water treatment options for two mine discharges near Davistown, Pennsylvania. The need for this study was based upon newly proposed Total Dissolved Solids (TDS) regulations by the Pennsylvania DEP.

In 2009, Tetra Tech evaluated four different treatment scenarios of various levels of flow and combinations of treatment technologies. The treatment technology included use of softener solids contact clarifiers, reverse osmosis (RO), zero liquid discharge systems (evaporator/crystallizer), and deep well injection of RO reject. Tetra Tech sized each treatment system and performed mass balance evaluations for each treatment scenario. Capital and annual operating costs were estimated and preliminary scheduling for construction was completed.

CLIENT

MEPCO, LLC

LOCATION

Greene County, Pennsylvania

DURATION

2009

COST

$

REFERENCES

Mr. Brian Osborn
308 Dents Run
Morgantown, WV 26501
(304) 296-4501

BELMONT MINE WATER BALANCE STUDIES

FEATURES

- 5-year modeling of water needs utilizing historic data
- Conceptual design of 230mg freshwater impoundment

PROJECT DESCRIPTION

Murray Energy Corporation retained Tetra Tech in 2011 to evaluate existing and future water usage and disposal needs at their Century and Number 6 coal mines. The goal of the project was to conceptually design a dam to create a freshwater impoundment in an adjacent valley to control the current and anticipated water uses of the site by means of a single discharge while staying within the discharge limits for total dissolved solids (TDS).

CLIENT

Murray Energy

LOCATION

Belmont, Ohio

DURATION

2011

COST

$

REFERENCES

Ms. Katherine Wood-Pugh
153 Highway 7 South
Powhatan Point, OH 43942
(740) 926-1351

Work consisted of identifying all current and future water uses and discharge points for two mines which contained a total of two longwalls, a proposed third longwall, two prep plants, a proposed third prep plant, a slurry impoundment, and multiple surface sedimentation ponds. Drainage and stream flow data from the previous five years were modeled with the needs of the mining complex to determine the required capacity of the impoundment to allow ample storage for dry months while conforming to TDS discharge requirements. Multiple dam scenarios were modeled utilizing Carlson Software to minimize the surface disturbance and stream impacts while achieving the desired fresh water storage volume in the impoundment. A dam capacity of 230 million gallons (MG) was chosen. The study proved the feasibility of the eliminating the need for a pipeline estimated to cost $15M-20M.

CRESSON MINE POOL PROJECT

FEATURES

- Treatment of mine pool water discharge
- Modeling

PROJECT DESCRIPTION

Tetra Tech was subcontracted by GAI to perform Abandoned Mine Land remediation for PADEP's Bureau of Abandoned Mine Reclamation project located in Cresson, PA. The project involves the treatment of mine pool water and subsequent discharge into Clearfield Creek for use in agricultural purposes within the watershed. The facility will provide 5.7 million gallons per day of water to users in this river basin to mitigate for agricultural consumptive use during low-flow conditions and to restore water quality in Clearfield Creek.

Our evaluation determined that the combining and treating the water from the Cresson 9, Gallitzin Shaft, and Argyle/Stone Bridge mines could produce slightly less than the needed 5.7 mgd and that additional flow could be obtained by managing the pools. These pools can be treated at one location by collecting and routing discharges to a single treatment plant from the multiple mine pools. Several locations for sludge injection boreholes (expected to be successful and work for a long time period) were found by our engineers that had previous experience in in-mine sludge disposal. The necessary ingredients for successful sludge disposal include available property rights, open mining voids to accommodate the volume of sludge generated, and locating each borehole a sufficient distance from the withdrawal location to limit recycling. Tetra Tech reviewed mine maps and selected three boreholes for sludge disposal.

Tetra Tech is also developing a load duration curve approach coupled with geochemical simulation using the MINTEQA2 model to evaluate the existing and expected water quality conditions of Clearfield Creek and Sugar Run. The load duration curve approach is a simplified statistical approach for determining pollutant loading capacity by analyzing water quality concentrations and stream flow regimes. It will be used to establish the in-stream and end-of-pipe loading capacities of the water quality components under various pollutant loading conditions.

CLIENT

PADEP, Bureau of Abandoned Mine Reclamation

LOCATION

Cresson, Pennsylvania

DURATION

2011 – Ongoing

COST

$ 600,000.00

REFERENCES

Mr. Eric Cavazza
PADEP BAMR
Cambria District Office
286 Industrial Park Road
Ebensburg, PA 15931
(814) 472-1900

WVDEP OSR COAL SLURRY IMPOUNDMENT

CLIENT
West Virginia Department of Environmental Protection, OSR
LOCATION
Barbour County, West Virginia
DURATION
2013 – Ongoing

FEATURES

- Safety certification in accordance with MSHA regulations
- Dewatering plan
- Construction RFQ development

PROJECT DESCRIPTION

Tetra Tech was awarded this project from the West Virginia Department of Environmental Protection's OSR division in 2013. The project involves the certification of a coal slurry impoundment for a company (Energy Marketing Company) that had its mine permit revoked.

Tetra Tech's services include:

- Safety certification of the slurry impoundment in accordance with MSHA 30 CFR 77.216-4 (Water, sediment or slurry impoundments and impounding structures; reporting requirements; certification)
- Mapping of the entire permit area
- Development of an initial dewatering plan to minimize seepage through the existing embankment, and for preparation of the long-term reclamation of the impoundment
- Development of an RFQ for the construction contract to clean the existing sediment control pond and replace the pond outlet drainage structure to control dewatering from the impoundment

The safety assessment includes a review of data and location of piezometers, underdrains, decant pipes, and discharges; a bathymetric survey to document depths, volumes and elevations of the impounded water, sediment, and slurry; and the identification of any deficiencies that may affect the short-term stability of the structure until dewatering and final reclamation are initiated.

SOLICITATION NUMBER: CEOI 0313 DEP1500000002
Addendum Number: 1

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[ ] Modify bid opening date and time

[ ] Modify specifications of product or service being sought

[ ] Attachment of vendor questions and responses

[ ] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[✓] Other

Description of Modification to Solicitation:

Addendum #1 issued to clarify how to submit responses, specifically in regards to using the WVOasis to respond online. See Attachment A.

NO OTHER CHANGES

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: DEP1500000002

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

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

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

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

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

Tetra Tech
Company

Mark P Speranza
Authorized Signature

09/12/2014
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

SOLICITATION NUMBER: CEOI 0313 DEP1500000002
Addendum Number: 2

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[ ] Modify bid opening date and time

[ ] Modify specifications of product or service being sought

[✓] Attachment of vendor questions and responses

[ ] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[ ] Other

Description of Modification to Solicitation:

Addendum #2 issued to provide answers to submitted Technical Questions. See Attachment A.

NO OTHER CHANGES

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

Addendum #2
For DEP16553
Maurice Jennings
Permits S-61-83 and 53-78

Q1. Have the limits of the project been determined and are they shown on mapping of the site such as a USGS quad sheet? If so, would it be possible to obtain a copy of that map.

A1. No project limits have been determined at this time.

Q2. Has any realty, right of way, or right of entry work been performed by the DEP and if so how many property owners are involved.

A2. No realty work has been performed at this time.

Q3. Has any topographic mapping of the site been developed?

A3. The site has not been surveyed at this time.

Q4. Have water quality studies been performed at this site or for this watershed?

A4. No formal water studies, just initial investigation.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: DEP1500000002

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

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

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

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

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

Tetra Tech
Company

Mark P Speranza
Authorized Signature

09/12/2014
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.
Revised 6/8/2012

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 24337

Doc Description: Expression of Interest (DEP16553): Mapping/Engineering Svcs

Proc Type: Central Contract - Fixed Amt

Date Issued	Solicitation Closes	Solicitation No	Version
2014-08-12	2014-09-17 13:30:00	CEOI 0313 DEP1500000002	1

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

Tetra Tech
1000 Green River Drive
Fairmont, WV 26554
(304)534-4021

FOR INFORMATION CONTACT THE BUYER

Robert Kilpatrick
(304) 558-0067
robert.p.kilpatrick@wv.gov

Signature X Mark P Speranza **FEIN #** 954148514 **DATE** 09/12/2014

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue
1	Architectural engineering		

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :

Mapping of mine permit areas, property owner boundaries, and engineering design services to assist OSR in completing land reclamation and water treatment by compiling a Request for Quotation (RFQ) for the project, per the attached specification and requirements.

ADDITIONAL TERMS AND CONDITIONS
(Architectural and Engineering Contracts Only)

1. **PLAN AND DRAWING DISTRIBUTION:** All plans and drawings must be completed and available for distribution at least five business days prior to a scheduled pre-bid meeting for the construction or other work related to the plans and drawings.

2. **PROJECT ADDENDA REQUIREMENTS:** The Architect/Engineer and/or Agency shall be required to abide by the following schedule in issuing construction project addenda:

a. The Architect/Engineer shall prepare any addendum materials for which it is responsible, and a list of all vendors that have obtained drawings and specifications for the project. The Architect/Engineer shall then send a cop y of the addendum materials and the list of vendors to the State Agency for which the contract is issued to allow the Agency to make any necessary modifications. The addendum and list shall then be forwarded to the Purchasing Division buyer by the Agency. The Purchasing Division buyer shall send the addendum to all interested vendors and, if necessary, extend the bid opening date. Any addendum should be received by the Purchasing Division at least fourteen (14) days prior to the bid opening date.

3. **PRE-BID MEETING RESPONSIBILITIES:** The Architect/Engineer shall be available to attend any pre-bid meeting for the construction or other work resulting from the plans, drawings, or specifications prepared by the Architect/Engineer.

4. **AIA DOCUMENTS:** Contracts for architectural and engineering services will be governed by the AIA document B101-2007, as amended by the Supplementary Conditions for the State of West Virginia, in addition to the terms and conditions contained herein when procured under Chapter 5G of the West Virginia Code.

5. **GREEN BUILDINGS MINIMUM ENERGY STANDARDS:** In accordance with West Virginia Code § 22-29-4, all new building construction projects of public agencies that have not entered the schematic design phase prior to July 1, 2012, or an y building construction project receiving state grant funds and appropriations, including public schools, that have not entered the schematic design phase prior to July 1, 2012, shall be designed and constructed complying with the ICC International Energy Conservation Code, adopted by the State Fire Commission, and the ANSI/ASHRAE/IESNA Standard 90.1-2007: Provided, That if any construction project has a commitment of federal funds to pay for a portion of such project, this provision shall only apply to the extent such standards are consistent with the federal standards.

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 24337

Doc Description: Addendum #1: to clarify methods of response, per attached

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2014-08-14	2014-09-17 13:30:00	CEOI 0313 DEP1500000002	2

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

Tetra Tech
1000 Green River Drive
Fairmont, WV 26554
(304)534-4021

FOR INFORMATION CONTACT THE BUYER

Robert Kilpatrick
(304) 558-0067
robert.p.kilpatrick@wv.gov

Signature X Mark P Speranza **FEIN #** 954148514 **DATE** 09/12/2014

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue
1	Architectural engineering		

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :

Mapping of mine permit areas, property owner boundaries, and engineering design services to assist OSR in completing land reclamation and water treatment by compiling a Request for Quotation (RFQ) for the project, per the attached specification and requirements.

ADDITIONAL TERMS AND CONDITIONS
(Architectural and Engineering Contracts Only)

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ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

Purchasing Divison
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Centralized Expression of Interest
02 — Architect/Engr

Proc Folder: 24337

Doc Description: Addendum #2: to answer submitted questions (attached)

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2014-09-05	2014-09-17 13:30:00	CEOI 0313 DEP1500000002	3

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Name, Address and Telephone Number:

Tetra Tech
1000 Green River Drive
Fairmont, WV 26554
(304)534-4021

FOR INFORMATION CONTACT THE BUYER

Jamie Adkins
(304) 926-0499
jamie.h.adkins@wv.gov

Signature X Mark P Speranza **FEIN #** 954148514 **DATE** 09/12/2014

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue
1	Architectural engineering		

Comm Code	Manufacturer	Specification	Model #
81101508			

Extended Description :

Mapping of mine permit areas, property owner boundaries, and engineering design services to assist OSR in completing land reclamation and water treatment by compiling a Request for Quotation (RFQ) for the project, per the attached specification and requirements.

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(Architectural and Engineering Contracts Only)

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ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

RFQ No. DEP1500000002

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

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

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

DEFINITIONS:

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

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

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

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

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Tetra Tech

Authorized Signature: Mark P. Spencer Date: 9/12/2014

Commonwealth ~~State~~ of Pennsylvania

County of Allegheny, to-wit:

Taken, subscribed, and sworn to before me this 12 day of September, 2014.

My Commission expires August 8, 2017

AFFIX SEAL HERE

NOTARY PUBLIC Cynthia K. Haluszczak

Purchasing Affidavit (Revised 07/01/2012)

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Cynthia K. Haluszczak, Notary Public
Green Tree Boro, Allegheny County
My Commission Expires Aug. 8, 2017
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

ADDITIONAL TERMS AND CONDITIONS (Construction Contracts Only)

1. **CONTRACTOR'S LICENSE:** West Virginia Code § 21-11-2 requires that all persons desiring to perform contracting work in this state be licensed. The West Virginia Contractors Licensing Board is empowered to issue the contractor's license. Applications for a contractor's license may be made by contacting the West Virginia Division of Labor. West Virginia Code § 21-11-11 requires any prospective Vendor to include the contractor's license number on its bid. Failure to include a contractor's license number on the bid shall result in Vendor's bid being disqualified. Vendors should include a contractor's license number in the space provided below.

   Contractor's Name: Scott Nesbit, P.E.

   Contractor's License No. WV049647

   The apparent successful Vendor must furnish a copy of its contractor's license prior to the issuance of a Award Document.

2. **DRUG-FREE WORKPLACE AFFIDAVIT:** W. Va. Code § 21-1D-5 provides that any solicitation for a public improvement contract requires each Vendor that submits a bid for the work to submit at the same time an affidavit that the Vendor has a written plan for a drug-free workplace policy. To comply with this law, Vendor must either complete the enclosed drug-free workplace affidavit and submit the same with its bid or complete a similar affidavit that fulfills all of the requirements of the applicable code. Failure to submit the signed and notarized drug-free workplace affidavit or a similar affidavit that fully complies with the requirements of the applicable code, with the bid shall result in disqualification of Vendor's bid. Pursuant to W. Va. Code 21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is $100,000 or less or temporary or emergency repairs.

   2.1. **DRUG-FREE WORKPLACE POLICY:** Pursuant to W. Va. Code § 21-1D-4, Vendor and its subcontractors must implement and maintain a written drug-free workplace policy that complies with said article. The awarding public authority shall cancel this contract if: (1) Vendor fails to implement and maintain a written drug-free workplace policy described in the preceding paragraph, (2) Vendor fails to provide information regarding implementation of its drug-free workplace policy at the request of the public authority; or (3) Vendor provides to the public authority false information regarding the contractor's drug-free workplace policy. Pursuant to W. Va. Code 21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is $100,000 or less or temporary or emergency repairs.

3. **DRUG FREE WORKPLACE REPORT:** Pursuant to W. Va. Code § 21-1D-7b, no less than once per year, or upon completion of the project, every contractor shall provide a certified report to the public authority which let the contract. For contracts over $25,000, the