



**TETRA TECH**

## **EXPRESSION OF INTEREST**

Holly River State Park  
Primary Electric Service Replacement  
DNR214037

Prepared For: Department of Administration, Purchasing Division  
2019 Washington Street East  
P.O. Box 20130  
Charleston, West Virginia 25305-0130

Prepared By: Tetra Tech, Inc.  
Monroeville Office  
400 Penn Center Boulevard, Suite 200  
Pittsburgh, Pennsylvania 15235

November 22, 2013



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Department of Administration, Purchasing Division  
2019 Washington Street East  
P.O. Box 50130  
Charleston, West Virginia 25305-0130

Qualifications and Experience  
Solicitation No. DNR214037

Our electrical engineering department in Tetra Tech Inc. has multiple engineers, electrical designers and technicians that have worked in all areas of the power industry. A high percentage of our professional experience has been in the design of upgrades, replacements and new electrical transmission and distribution systems. It has been and always will be our goal to go above and beyond the expected services required to complete our projects. It is our number one goal to provide all of the services in the safest and most complete way possible for both us and everyone else involved.

The Tetra Tech electrical engineering group bidding on this project has a combined total of over 95 years in the electrical engineering, project management and design industries. This includes work in all areas ranging from electrical drafting to the project management in underground and overhead electrical engineering. Our office has worked on over 100 engineering and design projects involving underground electrical distribution systems.

Our senior electrical engineer and senior electrical designer both have years of experience on underground and overhead electrical distribution projects. This includes a high volume of engineering and design work on new and existing electrical circuits.

Our Tetra Tech office also includes a licensed civil engineer for right-of-ways, permitting and easements. The civil department reviews all projects for any required permitting and/or right-of-ways required to build the electrical systems. Our lead civil engineer has worked with the State of West Virginia on multiple projects for these services.

A licensed structural engineer is also assigned to work with the electrical engineering department for any foundation or structure work required to properly design and construct distribution and transmission circuits. The structural group provides all detailed schematics and engineering services required to properly complete the projects.

Our group of highly experienced engineers, technicians and designers will work hard to provide you with top of line services in the electrical engineering industry. It is a goal to use our experience in the power industry for the clients that we work for. We would like to provide you with a fully engineered service package that exceeds your expectations.

Multiple project descriptions are located on the staff resumes under Project Experience. We are unable to provide the Buyer's project manager name(s) and contact information due to company policy. Details include the type of project and dates that they were performed.



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Re: Goals and Objectives  
Solicitation No. DNR214037

Dear Sir or Madam:

Tetra Tech, Inc. (Tetra Tech) takes a wide open approach to working with clients on all types of projects. It is a goal to cover all aspects of a project and make sure that everything is covered in our engineering and project management services. No project is a complete project until every detail is reviewed and covered from an engineering and design standpoint.

Tetra Tech takes pride in laying out a project outline and checklist to make sure all work is properly performed. A schedule is designed to make sure that all areas in a project are addressed in a designed order. Below is an outline of the main items that are covered in electrical projects handled by Tetra Tech Inc.

1. **Project Kickoff Meeting**

- The purpose of this meeting is to meet everyone that is involved in the project, make a list of who is responsible to provide new and existing information and prepare a preliminary schedule for the project.

2. **Project Site Visit(s)**

- This visit is to visually inspect the location of the project and outline the work that needs to be done in the electrical upgrade project.
- Take measurements and site references to be used in the design layout.
- Locate any type of obstructions or conflicts that need to be addressed in any aspect of engineering to reach project completion.
- All site visits are scheduled with the client.

3. **Schedule Reoccurring Meetings or Conference Calls**

- The meetings are to keep everyone up to date on the status of the project.
- Answer any questions on the project.

4. **Fully Detailed Electrical Design**

- Create a fully scaled electrically engineered design on the electrical upgrade project including conduit/cable routing, conductor scheduling, all transformer/equipment specifications, etc.
- Provide detailed construction specifications on the electrical, civil and structural sections of the project.

5. **Technical Review and Markup**

- Perform a full technical review of the engineering design with the customer and our professional staff.

Tetra Tech, Inc.  
400 Penn Center Boulevard, Suite 200, Pittsburgh PA 15235  
Tel 412.829.3600 Fax 412-829-3620 www.tetrattech.com

- Markup any changes or modifications that need to be made on the electrical and structural designs.

6. **Prepare and Issue Final Package**

- All of the marked up drawings are reviewed internally by Tetra Tech's designers and updated to match all of the requirements.
- The final package is then reviewed and stamped by one of our licensed professional engineers.

Tetra Tech is also fully capable of project and construction management of all scales of construction. Tetra Tech is thankful that you have taken the time to consider us for this project. We strive to provide the best engineering, project management and design work in the industry.

If you have any questions please contact me at 412-829-3611.

Best Regards,



Philip M Arbogast  
Senior Electrical Engineer

PMA/mld  
go-ltr-pma



**PROPOSED STAFFING PLAN**

Mr. Jeffrey S. Cadman, P.E. - Project Manager

Mr. Philip M. Arbogast - Senior Electrical Engineer

Mr. Joseph J. Kuhel - Senior Electrical Designer

Mr. Curt Ward - Electrical Draftsman

Mr. Joseph L. Micikas, P.E. - Senior Structural Engineer

Mr. David P. Zubal, P.E., CPESC - Civil Engineer (Permits/Easements)

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**JEFFREY S. CADMAN, PE**  
**SENIOR DIRECTOR, INDUSTRIAL ENGINEERING**  
**PITTSBURGH, PENNSYLVANIA**

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**EDUCATION:** M.B.A. Point Park University, 2013  
B.S. Electrical Engineering, Chapman University, 1986

**CERTIFICATIONS/  
REGISTRATIONS:** Professional Engineer, PA, No. PE-054013-E  
Professional Engineer, NJ, No. 24GE04594200  
Certified Vibration Analyst  
Certified QA/QC Inspector  
Certified Microminiature Electronics Repair Technician

**EXPERIENCE SUMMARY:**

Mr. Cadman specializes in engineering, engineering management and project management. His experience includes departmental and organizational management of large multi-disciplinary projects in the industrial and energy markets with engineering expenditures of up to \$30 million. This includes continuous interfacing with existing and prospective clients through business development and marketing efforts in multiple environments including professional trade shows, client facilities and social events. He has engineering specialization in utility and industrial power distribution, commercial and industrial automation, instrumentation, process and control systems design and design management. Mr. Cadman has been responsible for program and project management, government project liaison, engineering, construction management, and regulatory code compliance and interpretation. He additionally has experience in departmental and organizational management including the direction and mentoring of managers of electrical/instrumentation, civil/structural, chemical/process, environmental (including permitting) and mechanical engineering departments including project managers and staff technical personnel.

- ▶ Served as a senior project manager on several projects in the power industry involving transmission and distribution work. Worked in power station engineering in both the nuclear and fossil generation industries. Project and engineering fees for individual projects have been as high as >\$25 million.
- ▶ Department facilitator and project manager in multidiscipline engineering, procurement and construction management activities.
- ▶ Experienced in working with multi-disciplinary and multi-national engineering and construction teams as a team player, facilitator and leader.
- ▶ Directed engineers and designers in technical innovation and QA/QC of their designs.
- ▶ Highly skilled in the architectural and hardware design, installation oversight and testing of automation and digital communications networks.

- ▶ Acted as governmental liaison with the Pennsylvania Department of Environmental Protection (PADEP) in the application for, and oversight of, alternative energy research grants.
- ▶ Developed process control, instrumentation, automation and power distribution design skills and design team leadership and coordination.
- ▶ Wrote and qualified specifications for major electrical distribution equipment in utility and industrial environments from DC up to 138kV.
- ▶ Qualified in the evaluation of grounding systems and in the design of the same for minimization of step and touch shock hazards, effective shunting of lighting and stray static charges, control of power system harmonics and noise, and compliance with regulatory and utility requirements.
- ▶ Extensive experience in the design, installation and commissioning of electrical systems within both Class I and Class II hazardous environments including instrumentation, lighting, control, monitoring and power distribution.
- ▶ As a Code Official of his residential Municipality, Mr. Cadman worked with inspectors and local jurisdictional authorities in pre- and post-construction plan approvals and inspections.

## **PROJECT EXPERIENCE:**

### **Electrical Engineering and Project Management**

Managed a department of up to 70 engineers, designers and CADD personnel on industrial and energy design projects utilizing civil, structural, electrical and instrumentation, mechanical and chemical engineers. Project design included complete balance of plant and structural design for water and waste water treatment, boiler and steam turbine steam piping, fuel system and instrumentation systems, building and concrete design for large industrial and power plant structures and cross country pipeline and substation & distribution design.

### **Oil and Gas**

Managed multiple departments of engineers, specifically Process Engineering and E&I Department that included engineers, designers and CADD personnel. Projects focused on bulk material storage and handling (primarily petroleum products) including truck, rail and ship/barge loading and unloading facilities; complete facility upgrade of automation and communications systems, chemical and food processing, fuel processing and electrical substations. Designed and oversaw construction of the balance of plant equipment for 2 hydrogen fuel cell facilities. One very large (500kW) for power production and one for manufacturing testing (3.9kW). Heavy field construction oversight and inspection of electrical, instrumentation and piping systems. In this position, Mr. Cadman was directly involved with the specification and installation of many large pumping systems including 480vac horizontal and vertical pumps and motors up to 3,000hp, and 4,160vac horizontal and vertical pumps and motors up to 800 hp.

### **Plant Engineering**

Managed the E&I department of an Integrated Engineering Company. Department personnel provided design and commissioning services for boiler and steam instrumentation and control,

robotic machinery automation, chemical process and manufacturing equipment automation, facility power distribution, lighting, grounding and lightning protection.

Chief Electrical Engineer oversaw the design of several electrical motion control systems used in the primary side of steel production. Design included positioning, speed and direction control and was achieved using both ac and dc motors using reduced voltage, across the line and variable speed drive controllers. Oversaw the design of cooling water and oxygen delivery system instrumentation and dense phase pneumatic transport design for use in the treatment of raw iron and production of steel. Extensive PLC and Networking programming work completed. Oversight, commissioning and inspection of facilities construction performed domestically and extensively overseas in Europe, Asia and South America.

### **Other**

Maintenance Manager for large integrated steel maker. Area of responsibility was the chemical recovery area and motor repair shops. While manager of the motor repair facility, Mr. Cadman initiated programs to increase the operational times for very large 4,160 and 13,800vac motors (1,500hp and 3,000hp respectively) that involved a redesign of the end bells and plates of the fabricated frame motors to mitigate resonant vibrations, added tilt pad bearings, and revamped the oil system to include degassing and dehydration to improve the tribology of the lubricant.

Instrumentation Engineer in an integrated engineering and construction firm. Selected and specified flow, pressure, temperature, analysis and safety instrumentation. This included process compatibility of materials and suitable service conditions. Performed field start-up assistance of instrumentation systems. Specified, designed and programmed PLC and HMI equipment.

PLC Experience - Allen Bradley, Modicon, Siemens, GE FANUC, Mistubishi, Honeywell  
Software Experience - RS Logix, Step 7, Intellution, Wonderware, FactoryTalk, Visual Basic, CenterOne, Lighthouse, SKM, ETAP

MCC and Switchgear Experience, Including Protective Devices - Allen Bradley, Square D, Cutler Hammer, GE, Siemens, ABB, Furnas, Westinghouse, S and C, Mistubishi, Schweitzer Laboratories, Basler

Network Experience - Ethernet, Profibus, Modbus, Foundation Fieldbus, CAN Bus (DeviceNet), ControlNet, ASI Bus, Cisco

Instrument Experience - Honeywell, Rosemount, Bailey, Bristol Babcock, Wobe, Masoneilan, Fisher, SAAB, ABB, Siemens, Endress Hauser, Samson, Mueller, Moore, Leslie Controls

VFD Experience - Toshiba, Mitsubishi, Allen Bradley, Dutch Electric, ABB, Square D, Saftronics, Siemens, Robicon

### **CHRONOLOGICAL WORK HISTORY:**

Tetra Tech, Inc.; Pittsburgh, PA, July 2012 - Present  
GAI Consultants, Inc. - 2009 through Present  
River Consulting, LLC, 1989-1991, 1999-2006, 2008 - 2009  
HydroGen, LLC, 2006-2008  
Vulcan Engineering, 1995-1999  
USX Corporation, Clairton Works, 1991-1995  
United States Marine Corps, 1982-1989

United States Steel, National - Duquesne Works, 1977-1982

**PROFESSIONAL AFFILIATIONS:**

Mon Valley Food Bank, Executive Board Secretary Founding Member - 1982  
Glassport Zoning Officer, 2 Years  
IEEE - Full Member  
ESWP

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**PHILIP M ARBOGAST**  
**SENIOR ELECTRICAL ENGINEER**  
**MONROEVILLE, PA**

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**EDUCATION:** B.S. Electronic Engineering Technology 2002  
WVU Institute of Technology

A.S. Electrical Engineering Technology 2001  
WVU Institute of Technology

**CERTIFICATIONS/  
REGISTRATIONS:** Certified Themographer – 2003  
OSHA 30Hour  
TWIC Certified

**TRAINING:** Siemens Westinghouse E.I.T Training - 01/2003  
ELCID Inspection Training - 10/2002  
Thermography – 03/2003  
IVARA – 09/2009  
SAP – 2007  
NERC Arc Flash – 2011  
OSHA 30Hour - 2007

**EXPERIENCE SUMMARY:**

Mr. Arbogast worked as both a power station and transmission/distribution engineer. His work has been in the electrical, mechanical and civil fields. Mr. Arbogast has experience in electrical engineering work ranging from CAD design to project management. Worked as the coordinator of the design and upgrades to existing and new equipment used in the power industry. Mr. Arbogast worked as a writer of investment reviews for capital and special maintenance projects. He has managed multiple testing and construction projects running in parallel with each other. Coordinated contractors in various projects, repairs and maintenance operations throughout the industry.

While working as an engineer in transmission and distribution designs Mr. Arbogast has performed the field inspection of transmission and distribution power lines and structures. Coordinated the environmental and right-of-way clearances through private, city, state and federal land for modifying existing transmission and distribution power lines or construction of new sections.

As a field engineer worked on performing inspections, testing and repairs on electrical generation systems. Wrote reports on the inspection results and presented them to customers for proposals to repair/replace items in the generation systems.

## PROJECT EXPERIENCE:

### Engineering/Construction

**Project Manager/Electrical Design; U.S. Dept. of Interior; Transmission/Distribution and Upgrade; \$950,000; Coolidge Arizona; January 2006 to September 2006.** This project included the existing electrical transmission/distribution area inspection, surveying, environmental clearance, right-of-way, upgrade design and replacement of a 10 mile section of the power lines. The purpose of this upgrade/replacement was to make the system capable of providing power to new construction in the Gila River Indian reservation and adjacent town. As project manager Mr. Arbogast performed the study of the new system requirements, design of the upgrade and coordinated construction of the new design. Mr. Arbogast also oversaw the environmental and right-of-way clearances for the replacement project.

**Project Manager/Electrical Design; U.S. Dept. of Interior; Underground Power Distribution Upgrade \$500,000; Casa Grande, Arizona; April 2007 to July 2007.** As project manager Mr. Arbogast managed the budgetary estimate and presentation to the customer. Mr. Arbogast managed the approval of the right-of-way required for the new underground entry to the housing sub-division and construction coordination with the customer. As the electrical designer Mr. Arbogast performed the field inspection and design of the replacement conduit/power line distribution system. All equipment, conductor sizing and assembly was calculated and designed by Mr. Arbogast.

**Project Manager/Plant Engineer; FirstEnergy; Switchgear Upgrade; \$300,000; New Eagle, Pennsylvania; September 2010 to December 2010.** As plant engineer Mr. Arbogast investigated and provided options for upgrades to a power station switchgear and two MCC systems. The project objective was to upgrade the system to more reliable equipment and provide a safer work environment due to arc flash conditions. As project manager Mr. Arbogast provided a project proposal, chose upgrade equipment purchased and managed the project budget.

**Project Engineer/Contractor Coordinator; Allegheny Power Generation; Turbine & Generator Disassemble and Inspection/Repairs. \$2,100,000; New Eagle, Pennsylvania; April 2009 to May 2009.** Mr. Arbogast worked as the project specialist and labor coordinator. This included the full disassembly of the unit valves, servos and controls. Mr. Arbogast coordinated a full inspection and repairs to the system if required. This included multiple reports showing the finds and suggested repairs/replacements along with a final unit outage report.

**Project Manager/Construction Coordinator; Allegheny Power Generation; Boiler Air Heater Full Replacement; \$1,650,000; New Eagle, Pennsylvania; May 2010 to December 2010.** As project manager Mr. Arbogast oversaw the project proposal, upgrades, project budget and completed multiple update and the final completion report. Site work included the equipment inspection and evaluation of all items to be replaced and upgraded to improve performance. As Construction Coordinator Mr. Arbogast



coordinated and supervised the contractor labor and equipment to replace all of the components of the air heating system.

**CHRONOLOGICAL WORK HISTORY:**

<b>Tetra Tech, Monroeville, PA Senior Electrical Engineer</b>	<b>01/2013 - Present</b>
<b>FirstEnergy, Courtney, PA Power Station Engineer</b>	<b>11/2007 – 01/2013</b>
<b>US DOI, San Carlos Irrigation Project, Coolidge, AZ Electrical Engineering Design/Construction Coordinator</b>	<b>07/2004 – 11/2007</b>
<b>Siemens Westinghouse, Plum, PA Field Engineer</b>	<b>07/2002 – 11/2003</b>

**PRESENTATIONS:**

Arbogast, P.A. "NERC Required System Operations and Reporting," Presented at Mitchell Power Station, New Eagle, PA, 09-27-2012

**AWARDS:**

**U.S. Patent on Generator Stator Winding Inspection Technique**



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**JOSEPH J. KUHEL**  
**ELECTRICAL DESIGNER/TECHNICIAN IV**  
**PITTSBURGH, PENNSYLVANIA**

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**EDUCATION:** Westmoreland County Community College (two years)  
Triangle Technical School, Greensburg, PA - AutoCAD

**EXPERIENCE SUMMARY:**

Mr. Kuhel has over thirty eight years of design experience in electrical and control systems for construction of civil environmental, industrial, commercial, mining, chemical, petro-chemical, nuclear and coal power industries. Developed construction drawings utilizing AutoCAD Version 2010 2D and Microstation V8 from customer specifications and vendor information. Prepared scopes of work, man-hour estimates and material take-off requisitioning, purchasing for electrical projects and development of electrical design standards.

Electrical background includes low voltage and medium voltage design of power system to include one line and control elementary wiring diagrams, schematics, underground routing, motor hookups, grounding, panel fabrication and pole wiring.

Lighting background includes calculations utilizing Lite Pro software, Visual Basic, design of high bay, low bay, floodlighting, fixture schedules and panel schedules.

Communication background Includes design & integration of Fiber Optic, Ethernet, ControlNet, DeviceNet & Foundation Field Bus Systems.

Instrumentation background includes design of Process Control systems utilizing Programmable Controllers (Allen Bradley, Modicon, Texas Instrument & Gould) Fisher Provox, and uninterrupted power supplies to include I/O elementary diagrams, interconnection diagrams, instrument plans, control loops and installation details.

Raceway background includes design of conduit, cable duct and cable tray systems in the following areas: non-hazardous, hazardous (Class I, II and III locations), underground and seismic (Class 1E...nuclear) installations.

Field experience includes assessments of plant conditions, planning approach to construction, field checkout and start-up and electrical construction management. Through experience in safety training, pre and post commissioning punch lists, start-up, scheduling for contractors, vendors and specialized field technical representatives and have establish a good working rapport with both professionals and skilled labor trades.

**PROJECT EXPERIENCE:**

**Senior Lead Project Designer; Electrical and Control Systems; GAI Consultants, Inc. Cranberry, PA.** Responsible for electrical and control system design and estimating, layout and checking of electrical and control systems for environmental, waste water treatment and power plant applications. Provided project construction management and start-up

**Lead Designer, Electrical Control Systems; River Consulting Inc.** Responsible for design and layout, and checking of electrical and control systems for commercial, industrial, petroleum, steel, chemical and power plant applications. Provided project construction management and start-up. Responsible for the design of several ship, barge, rail, and truck loading and unloading systems that encompassed multipump source and destination manifolding systems that included instruments valves, network control (including variable frequency motor drives at 480 and 4,160vac) and safety systems, and inventory management that could deliver up to 126,000 gpm(181Mgpd).

**Senior Designer, Electrical and Control Systems; Raytheon Engineers & Constructors.** Responsible for chemical plant and bulk mail facilities electrical and control system design and estimating.

**Senior Designer, Control Systems; Trimark Engineers.** Responsible for the design and layout of control systems for chemical, cement, and iron ore reduction facilities.

**Electrical Control Systems Designer; Gluco, Inc.** Designed electrical and control systems for injection, compression and transfer molding machines to include review of specifications and codes.

**Senior Designer, Control Systems; Trimark Engineers.** Completed the design and layout of instrument systems for chemical plants. Performed

**Electrical Field Design Technician; Sargent Electric Company.** Completed the design and layout of seismically qualified installations within the reactor containment and control buildings.

**Electrical Design Technician II; Stearns-Roger Engineering Corporation.** Completed the design and layout of electrical and instrumentation installation for oil refineries and chemical plants.

**Instrumentation and Electrical Draftsman; Elliott Company.** Responsible for the design and layout of compressors, gas turbines, steam turbines and control panels. This includes explosion proof, waterproof and high heat systems.

**Electrical Draftsman; Dravo Corporation.** Completed the design and layout of pelletizing plants, coal storage areas, steel mills, foundries, fuel pump stations, warehouses, and office buildings.

**Mechanical Draftsman; Lehigh Design Company.** Responsible for the drafting and detailing of various parts for atomic reactors and shipping modules.

#### **CHRONOLOGICAL WORK HISTORY:**

Electrical Designer/Technician; Tetra Tech, Inc.; 2012 – Present

Senior Lead Project Designer at GAI Consultants, Inc.; May 1996 - Present

Lead Designer at River Consulting Inc., March 1997 - January 2012

Senior Designer at Raytheon Engineers & Constructors, May 1996 - January 1997

Senior Designer at Trimark Engineers, March 1995 - April 1996

Electrical Control Systems Designer at Gluco, Inc.; August 1993 - February 1994

Senior Designer at Trimark Engineers; October 1988 - January 1993

Electrical Field Design Technician at Sargent Electric Company; April 1982 - June 1987

Electrical Design Technician II at Stearns-Roger Engineering Corporation; October 1979 - November 1981

Instrumentation and Electrical Draftsman at Elliott Company; February 1978 - September 1979

Electrical Draftsman at Dravo Corporation; September 1974 - May 1977

Mechanical Draftsman at Lehigh Design Company; April 1974 - September 1974

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**CURT F. WARD**  
**MID-LEVEL CAD OPERATOR**  
**MONROEVILLE, PENNSYLVANIA**

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**EDUCATION:** High School Diploma, Penn Hills, PA  
Computer Tech, Pittsburgh, PA

**EXPERIENCE SUMMARY:**

Mr. Ward has over 18 years of experience working in the Engineering field as an Electrical/Mechanical Drafter. He has assisted Electrical and Mechanical Lead Designers in general arrangements drawings, panel layouts, I/O diagrams, interconnection diagrams, schematics, conduit arrangements and schedules, detailing of various mechanical parts and assemblies, developing bill of materials.

**PROJECT EXPERIENCE:**

**Oil and Gas**

**Mid-Level Cad Operator; Sunoco Logistics, L.P.; West Texas Expansion, Burnt Orange Project Phase II; December 2012 - Present.** Developed conduit, single line and grounding drawings for Sunoco Logistics at the Permian Express Corsicana Terminal in Texas.

**CHRONOLOGICAL WORK HISTORY:**

**Mid-Level CAD Operator; Tetra Tech, Inc.; Monroeville, Pennsylvania, December 2012 - Present.** Contract Employee hired through Technical Solutions, Inc. to help develop conduit, single line and grounding drawings for Sunoco Logistics at the Permian Express Corsicana Terminal in Texas.

**Cad Drafter; Vulcan International Inc.; Gibsonia, Pennsylvania, February 2010 - December 2012.** Assisted Electrical and Mechanical Lead Designers in general arrangements drawings, panel layouts, I/O diagrams, interconnection diagrams, schematics, conduit arrangements and schedules, detailing of various mechanical parts and assemblies, developing bill of materials. Developed master sketches to scale showing relations of proposed installation to existing facilities and exact specification and dimensions. Internet accessing for parts and specifications. Proficient in AutoCAD, Microsoft Excel /Word and Windows XP. Shop wiring and testing on PLC and VFD panels. Documentation management, operation and maintenance manual preparations. Projects: Hot Metal Desulfurization systems, Automatic Bricking machines, Slag Skimmers, Oxygen Lance Cranes, Temperature and Sample Lances.

**Tile Estimator; Massaro Industries; Oakmont, Pennsylvania, December 2007 - January 2009.** Developed bid packages for customer drawings and specifications. Reviewing General Contractor drawings, digitizing, establishing a material take off list. Incorporating addendums into the final bid proposal. Involved in job startups reviewing work to be done.

**Cad Drafter; Vulcan International Inc.; Gibsonia, Pennsylvania, April 2000 - December 2007.**

**Field Coordinator; Orbital Engineering; Pittsburgh, Pennsylvania, April 1999 - October 1999.** Developed plant routing sketches of instrumentation devices at the Nova Chemical plant in Monaca.

**Cad Drafter; Senior Flexonics; Allison Park, Pennsylvania, June 1998 - February 1999.** Detailed weld shoes for a tube mill for General Motors

**Draftsman; Vulcan Engineering Company; Lawrenceville, Pennsylvania, May 1987 - April 1998.**

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**JOSEPH L. MICIKAS, P.E.**  
**SENIOR STRUCTURAL ENGINEER**  
**MONROEVILLE, PA**

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**EDUCATION:** B.S. Civil Engineering, Pennsylvania State University, 1978

**CERTIFICATIONS/  
REGISTRATIONS:** Professional Engineer, PA. No. PE-040663-E, 1990

**TRAINING:** 30 Hour OSHA Construction Safety and Health  
10 Hour OSHA Construction Safety and Health  
AK Steel – Butler, PA Site specific training  
Ergon West Virginia, Inc. – Newell, WV Site specific training  
Momentive Performance Materials – Sistrerville, WV Site specific training

**SECURITY:** TWIC (Transportation Workers Identification Credentials) - Feb 2009 thru Feb 2014

**EXPERIENCE SUMMARY:**

Mr. Micikas has over 34 years of managerial and technical experience in civil, structural and foundation engineering, and forensic investigations.

His managerial and “hands-on” experience is spread across all phases to include sales and marketing, project development, estimating, scheduling/tracking, engineering/design, contract negotiations, and construction. His experience includes performing and managing preliminary and detailed design, structural design, and cost estimating services for heavy industrial projects.

He is skilled at working with clients, technical and business teams to provide information and solutions to existing and potential issues. He has directed teams, projects, and departments, and is familiar with managerial functions and corporate operations.

Industries served include: oil and gas production and refining, landfill gas to energy, chemical and petrochemical processing plants, steel manufacturing, fossil fuel power generation, pulp and paper processing, building materials manufacturing, activated carbon and field support.

**PROJECT EXPERIENCE:**

**Legal Liability / Expert Witness**

**Vice President/Owner; Numerous forensic engineering investigations; \$500,000 per year; PA, OH and WV; September 2000 to December 2009.** Provided technical services (forensic engineering investigations) to attorneys, insurance companies, independent adjusters, restoration companies, contractors, municipalities, and individuals in the areas of civil engineering design; structural design; structural distress; property

loss/damage claims; personal injury accidents; slip/trip and fall accidents; playground installation and safety; and construction claims.

**Forensic Structural Engineer; Numerous forensic engineering investigations; PA, OH and WV; June 1998 to September 2000.** Provided structural engineering technical services to attorneys, insurance companies, municipalities, and contractors in the areas of civil, construction defects and accidents, civil and structural engineering; structural distress; blasting damage; earthquake damage; property loss/damage claims; personal injury accidents; slip/trip and fall accidents; and construction claims.

## **DESIGN / PLANT ENGINEERING**

**Manager of Several Civil / Structural Departments; Various Industrial and Landfill Gas to Energy Facilities; United States and Europe; May 2007 to November 2012.** Responsibilities included managing the daily activities of the civil /structural department (engineers and designers), coordinate with other discipline departments and oversight on all civil and structural projects. Met with clients to determine project requirements and develop conceptual civil and structural business solutions. Develop engineering and construction estimates, preparation of proposals for engineering services, and preparation of specifications. Review engineering calculations and construction documents prior to issue. Work with contractors during the construction phase of projects. Provide field observation, and engineering representation as necessary.

**Manager of Civil and Construction Engineering; Various Plate, Strip and Rolling Mills; United States and Taiwan; 1996 – 1998.** Directed the construction engineering activities relating to civil, piping, HVAC and, electrical for Rolling Mill and Process lines produced by the company. Duties included planning, scheduling, development of capital budgets, preparation of estimates and proposals, contracting with outside engineering services, coordination between mechanical suppliers, construction engineering and the client; onsite construction engineering assistance and oversight of work performed by domestic and foreign outside engineering firms.

**Senior Structural Engineer; Heavy Industrial Project Services; Various Locations; 1990 - 1996.** Mr. Micikas served as a senior structural engineer for the design of structural and foundation requirements on numerous heavy industrial projects. He was responsible for preparation of engineering estimates, proposals, and cost estimates, completed preliminary and detailed design of foundations and structural steel structures, was responsible for field inspections of existing structures and facilities, trouble shooting of construction problems and interfaced with clients. Typical projects included gas cleaning facilities, carbon bake facilities, pulverized coal injection, benzene emissions removal at coke facilities, biological wastewater treatment plants, and steel mills.

**Structural Engineer; Heavy Industrial Project Services; Various Locations; 1978 - 1990.** Mr. Micikas served as a structural engineer for the design of required structural and foundation requirements of numerous heavy industrial projects. He was responsible for performing preliminary and detailed design of foundations (buildings, equipment, and tanks) and structural steel structures, was responsible for field inspections of existing structures and facilities, and interfaced with clients. Projects included green site and existing site renovations. Typical projects included:



- Structural renovation of a skip hoist for AK Steel;
- Design of crane runway girder and bridge modifications;
- Investigation into increasing crane runway capacity;
- Foundation and structural steel design for a gas cleaning facility, a carbon bake facility, a pulverized coal injection system, glass plants, paper mills, steel mills, aluminum facilities, and chemical plants;
- Thermal stress analysis of furnace and bath refractory block to determine the thermal effect on surrounding structures, developed heat-up and cool-down procedures, and developed damage curve diagrams;
- Designed two (2) slant leg bridges for the Pennsylvania Turnpike Commission;
- Designed temporary stringer support system to assist in the replacement of floor beams during the renovation of the Highland Park bridge, developed a procedure for replacement of the sidewalk support brackets; and designed new stringers and floor beam splices;
- Performed dynamic testing of air compressors, wheel balancing equipment for a tire manufacturer, and miscellaneous manufacturing equipment;
- Performed analytical calculations on a wide range of mechanical and structural systems utilizing ANSYS Finite Element software, conducted large deflection stress analysis of a sludge disposal tramway cable system, numerous static, dynamic and thermal finite elements analyzes of various mechanical equipment and structures, and performed pressure vessel recertification's for NASA;
- Performed field walk-downs of Class I/II small bore piping systems at Beaver Valley nuclear power Plant to determine if routing interferences existed, performed piping analysis of seismic Class I/II small bore piping systems and designed or redesigned pipe supports for the Class I/II piping;
- Performed foundation / pile cap design for liquid oxygen, nitrogen and natural gas low temperature liquid storage facilities. This included tank design piping flexibility analysis and design, pipe support design, tank thermal analysis, tank volume surveys, and structural design of stairways and towers.
- Conducted numerous structural inspections of damaged/undamaged residential, commercial and industrial structures and foundations;
- Directed the structural inspection of the cantilever arm supporting the Mellon Arena roof structure; and oversaw numerous repair projects for the arena, and designed and oversaw the work for repairing the brine water piping system (system which freezes the ice);
- Acted as field engineer on numerous projects;
- Designed two additions to residential structures – a 2600 s.f. detached building connected to the main structure by an enclosed walkway, and an addition cantilevered out 8'-0" from the rear of a residential structure;
- Installed and inspected dozens of commercial playground structures, pavilions and safety surfacing systems;
- Performed numerous personal injury investigations, slip/trip and fall incidents, property loss/damage investigations and construction injury claims and injuries



**CHRONOLOGICAL WORK HISTORY:**

**Senior Structural Engineer; Tetra Tech, Inc.; Monroeville, PA, November 2012 – Present**

**Manager – Civil / Structural Department; Venture Engineering & Construction; Pittsburgh, PA, June 2010 – November 2012**

**Manager – Civil / Structural Department; Carnegie Strategic Design Engineers, LLC (CSD); Carnegie, PA, April 2008 – March 2010**

**Manager – Civil / Structural Department; Loftus Engineers, LLC; Carnegie, PA, May 2007 - April 2008**

**Founder / Vice President; Keystone Engineering Consultants, Inc.; Venetia, PA, September 2000 – December 2009**

**Founder / President; Keystone Recreational Consultants, LLC (Subsidiary of Keystone Engineering Consultants, Inc.); Venetia, PA, January 2002 – December 2005**

**Forensic Structural Engineer; Robson Lapina, Inc.; Cranberry Township, PA June 1998 – September 2000**

**Manager of Civil and Construction Engineering; Danieli United, Pittsburgh, PA 1996 – June 1998**

**Assistant Manager of Civil, Structural and Architectural Department / Senior Structural Engineer; ICF Kaiser Engineers, Inc.; Pittsburgh, PA 1990 – 1996**

**Structural Engineer; Finite Design, Inc.; Washington, PA 1988 – 1990**

**Structural Engineer; Tensor, Inc.; Pittsburgh, PA 1985 – 1988**

**Stress Analyst / Structural Dynamics Test Engineer; O'Donnell and Associates, Inc.; Pittsburgh, PA 1984 – 1985**

**Salesman; Morgan's Computer and Education Center; Pittsburgh, PA 1984 – 1984**

**Stress Analyst / Structural Engineer / Field Engineer; Schneider Consulting Engineers; Bridgeville, PA 1983 – 1984**

**Structural Engineer & Field Engineer; Pittsburgh, PA June 1978 - 1983**

**PROFESSIONAL AFFILIATIONS:**

Chi Epsilon – Civil Engineering Honor Society

American Society of Civil Engineers – National and Pittsburgh Section

American Institute of Steel Construction

Pennsylvania Society of Professional Engineers

**AWARDS:**

Chi Epsilon Award

**PUBLICATIONS:**

None

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**DAVID P. ZUBAL, P.E., CPESC**  
**ASSISTANT CIVIL AND ENVIRONMENTAL ENGINEERING DEPARTMENT MANAGER**  
**PITTSBURGH, PENNSYLVANIA**

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**EDUCATION:** B.S. Civil and Environmental Engineering, University of Pittsburgh, 2006

**CERTIFICATIONS/REGISTRATIONS:** Professional Engineer, Pennsylvania, 2012  
Certified Professional in Erosion and Sediment Control, 2011-Present  
ACI Field Testing Technician, Grade I, 2006-Present  
Erosion and Sediment Control Certification, Maryland, 2006-Present

**TRAINING:** Risk Management Training, GAI Consultants, Inc., May 2012  
24-hour Mine Safety and Health Administration Training, U.S. Department of Labor, January 2012  
Chapter 102 Update Training for the Regulated Community, PaDEP, February 2011  
PennDOT Basic Construction Inspection Part 1, PennDOT, July 2009  
Confined Space Awareness Training, GAI Consultants, Inc., March 2009  
High Performance Management Training, GAI Consultants, Inc., October 2008  
Geosynthetic Best Management Practices for Stormwater Management, ACF Environmental, May 2008  
OSHA 10-hour Safety Training, 2007  
Certificate of Radiological Training, 2006-2014

**EXPERIENCE SUMMARY:**

Mr. Zubal specializes in civil and environmental engineering task management, including overseeing development of erosion and sedimentation control and stormwater site development plans. He has field experience including landfill liner installation, earthwork development monitoring, roadway construction monitoring, material sampling and monitoring, erosion and sedimentation control monitoring and planning, and materials analysis. He is experienced using Global Positioning System (GPS) applications and other field surveying equipment.

**PROJECT EXPERIENCE:**

**OIL AND GAS**

**Project Task Manager; Dominion Transmission, Inc.** Project coordination for Dominion Transmission Inc.'s (DTI) Brush Creek Levee Replacement and Monongahela River MSE Wall design for restoration efforts involved with the Appalachian Gateway Project.

**Project Task Manager; CNX.** Preparation and coordination of multiple ESCGP-1 permits applications for CNX. Development of E&S alignment sheets and Highway Occupancy Permits in West Virginia and Pennsylvania.

**Project Task Manager; Dominion Transmission, Inc.** Erosion and Sedimentation Control Plan (E&SCP) preparation and project coordination for Dominion Transmission, Inc.'s Appalachian Gateway Project. Responsible for permitting 140 miles of new gas pipeline spanning West Virginia and Pennsylvania. Oversaw planning and design of seven Stormwater Pollution Prevention Plans (SWPPP) for compressor stations and associated pipelines including E&SCP, and stormwater management calculations. Assisted with environmental compliance for Federal Energy Regulatory Commission (FERC).

**Project Task Manager; Dominion Transmission, Inc.** Coordination and Technical lead for the Notice of Intent (NOI) preparations for multiple DTI sites associated with the FERC regulated Ellisburg to Craigs Project which included stormwater management and E&S design for compressor stations and pipeline upgrades in New York and Pennsylvania.

**Senior Engineer-In-Training; Dominion Transmission, Inc.** USA Storage Project, PL-1 Retest Sections Project for Dominion Transmission, Inc. Duties included verifying compliance with local and state regulations for E&SCP and construction activities for the project and obtaining the necessary permits to proceed with construction.

**Engineer-In-Training; Equitable Gas.** Equitable Gas Big Sandy Pipeline Project Construction Stakeout Survey. Assisted with construction stakeout using Global Positioning System (GPS) equipment for the Equitrans 68-mile natural gas pipeline project in eastern Kentucky.

**Engineer-In-Training; Dominion Transmission, Inc.** Stream and Wetland Impact Analysis for Dominion Transmission, Inc. Determined locations of impacted streams and wetlands due to pipeline construction. Used Global Positioning System (GPS) to delineate impacted areas.

## **PERMITTING**

**Engineer-In-Training; American Electric Power.** Hydrology and Hydraulics (H&H) analysis for American Electric Power Glen Lyn and Amos landfill sites. Assisted with hydrologic and hydraulic engineering for site drainage design. Also assisted with lifecycle cost analysis of facility.

**Engineer-In-Training; Allegheny Power.** Allegheny Power Doubs-Aqueduct-Dickerson 203 kV Transmission Line Upgrade Project. Assisted with grading plan design and construction permitting associated with new towers and the stringing of new overhead power lines.

**Senior Engineer-In-Training; Allegheny County.** North Park Lake Aquatic Ecosystem Restoration Project in Pennsylvania's Allegheny County is a habitat restoration and mitigation design project. Involved with stormwater and erosion control permitting for a landfill area associated with lake dredging to remove sediment.

**Senior Project Engineer-In-Training; Duquesne Light Company.** Multiple on-site Erosion and Sedimentation Control Plan (E&SCP) for the Duquesne Light Company in the Pittsburgh area. The projects involved removal and replacement of underground electric conduits and lines. E&SCPs were prepared for on-site use to comply with local and state regulations.

### CONSTRUCTION QA/QC

**Lead Engineer-In-Training; Ralph A. Falbo, Inc.** Responsible for engineering support for site development associated with the new Kane Regional Center building. Foundation placement was of particular concern to have a uniform material that footers were placed on. Other duties included verification of testing reports from a third party testing firm.

**Engineer-In-Training; Dominion Cove Point, LNG.** Dominion Cove Point Expansion Project Field Monitoring. Conducted field monitoring of erosion and sedimentation control construction and maintenance of a Phase III archeological site located in Waldorf, Maryland.

**Engineer-In-Training; Dominion Cove Point, LNG.** Construction Quality Assurance Plan for Dominion Sedimentation Pond Construction. Performed soil sampling of materials used during construction of sedimentation pond and identified materials unsuitable for construction. Tested density and moisture content of compacted materials with the Troxler moisture/density gauge and observed pond construction to assure the quality of the final product.

**Senior Engineer-In-Training; Allegheny Energy.** Allegheny Energy Hatfield's Ferry Station. Construction monitoring of a landfill, sedimentation pond, and haul road to comply with environmental regulations for a new scrubber system that was installed at the power plant. Duties included Quality Assurance monitoring for all phases of the project.

**Engineer-In-Training; Reliant Energy.** Low Permeability Cementitious (LPC) Material Grouting for Reliant Energy at the Cheswick Power Station, Scrubber Project. Performed tests to determine content and consistency of mix and transported samples.

**Senior Engineer-In-Training; Reliant Energy.** Concrete Field Testing at Reliant Energy Keystone Power Station for the Flue Gas Desulphurization (FGD) Systems Project. Performed concrete testing on mass pours (1,000 to 2,700 cubic yards) for the project, and field testing on mass pours for Shaw, Stone, and Webster. Tests performed included slump, air-content, unit weight, and temperature in accordance with ASTM C94 and molding 6-inch by 12-inch cylindrical specimens in accordance with ASTM C31.

### PERMITTING AND CONSTRUCTION

**Senior Engineer-In-Training; Allegheny Power.** Spill Prevention Control and Countermeasure Retrofit for Allegheny Power Substations in West Virginia, Pennsylvania and Maryland. Involved with design and construction from start to finish for 61 substation projects.

### SAMPLING

**Engineer-In-Training; West View Water Authority.** Sludge Sampling and Analysis for West View Water Authority. Conducted sludge sampling for Bankson Engineers, Inc. by digging boreholes and collecting jar samples to determine moisture content and transport to the laboratory for chemical analysis.

**Engineer-In-Training; Urban Redevelopment Authority of Pittsburgh.** Soil Analysis for the Urban Redevelopment Authority of Pittsburgh at Nine Mile Run. Augered holes at and collected samples to ensure ample clean soil coverage over the slag material. Also, sampled materials from various topsoil stockpiles from locations throughout the Pittsburgh area.

**Engineer-In-Training; US Airways.** Airplane Water Sample Collection. Collected water samples, checked temperature and tested samples for the amount of chlorine residual in pre- and post-disinfection processes. Received security clearance to be in restricted airport locations for July 19, 2007 until July 19, 2008.

**OTHER**

**Engineering, Scientific and Technical Intern; Pennsylvania Department of Transportation, District 9-0.** Responsible for running surveying equipment in the field and importing field data into computer programs for analysis and reports. Exposed to construction sites and safety factors, and worked with inspectors and independent consultants.

**CHRONOLOGICAL WORK HISTORY:**

Assistant Civil and Environmental Engineering Department Manager; Tetra Tech, NUS, Inc. Pittsburgh, Pennsylvania August 2012-Present

Senior Project Engineer, GAI Consultants, Inc., Homestead, Pennsylvania, June 2006-August 2012

Engineering, Scientific and Technical Intern; Pennsylvania Department of Transportation, District 9-0, 2003-2005 (Part-time)

**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)

*Philip M. Arbogast*

\_\_\_\_\_  
(Authorized Signature)

Philip M. Arbogast, Senior Electrical Engineer

\_\_\_\_\_  
(Representative Name, Title)

412-829-3611

\_\_\_\_\_  
(Phone Number)

412-829-3620

\_\_\_\_\_  
(Fax Number)

\_\_\_\_\_  
(Date)

**ADDENDUM ACKNOWLEDGEMENT FORM**

**SOLICITATION NO.:** DNR214037

**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)

- |   |  |
|---|--|
| <input type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6  |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7  |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> 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, Inc.

\_\_\_\_\_  
Company

*[Handwritten Signature]*

\_\_\_\_\_  
Authorized Signature

November 22, 2013

\_\_\_\_\_  
Date

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



RFQ No. DNR214037

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 exceeds five percent of the total contract amount.

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

**WITNESS THE FOLLOWING SIGNATURE:**

Vendor's Name: Tetra Tech Inc.

Authorized Signature: [Signature] Date: 11-22-13

State of Pennsylvania

County of Allegheny, to-wit:

Taken, subscribed, and sworn to before me this 22 day of November, 2013.

My Commission expires January 3, 2015.

AFFIX SEAL HERE

NOTARY PUBLIC Erin M. Machajewski

Purchasing Affidavit (Revised 07/01/2012)

