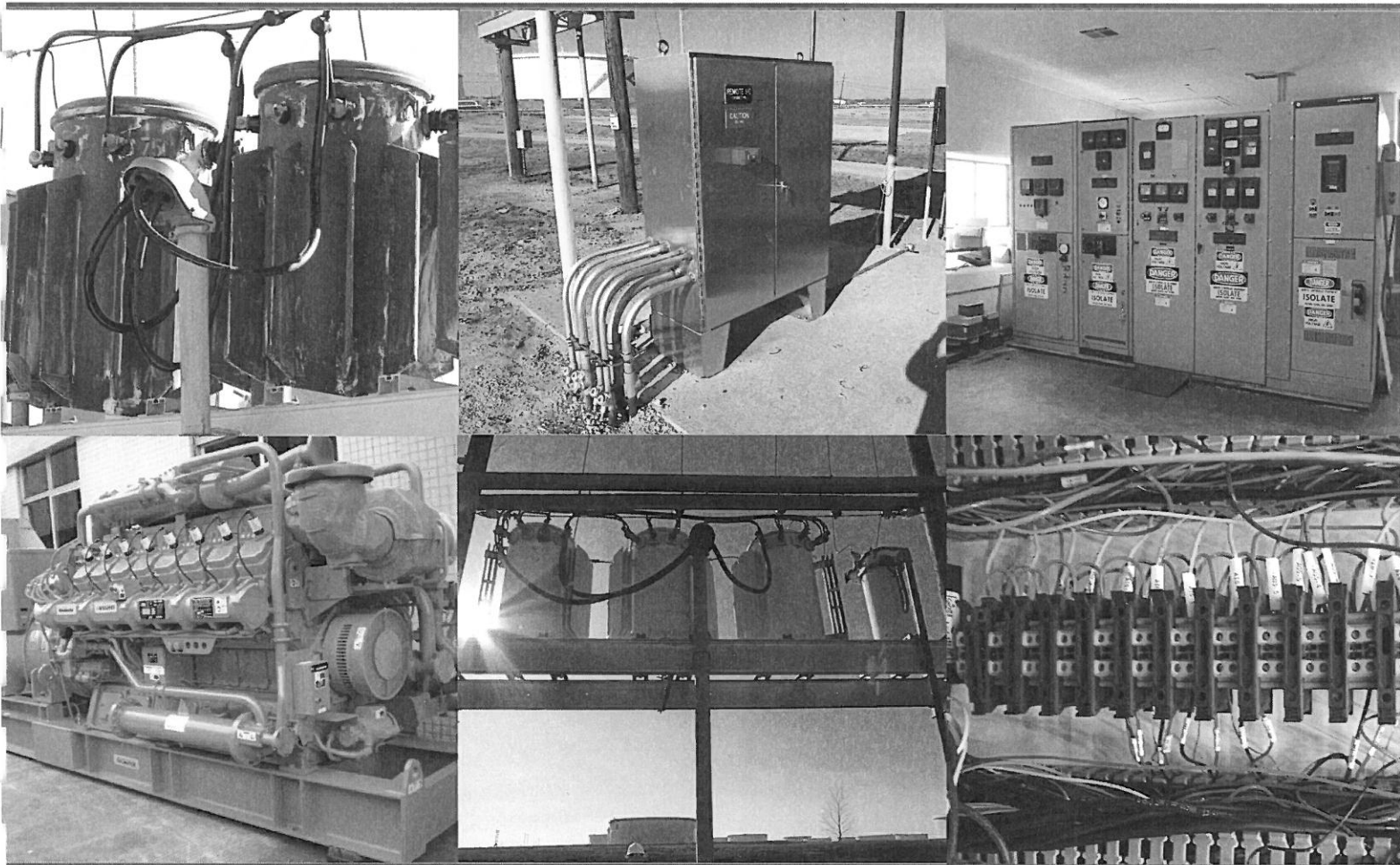


Original

# West Virginia Division of Corrections Huttonsville Correctional Center

Emergency Power Systems and Electrical Issues

Expression of Interest: COR61694



Proposal No. 112PCE6647

June 16, 2014

06/17/14 09:41:29AM  
West Virginia Purchasing Division

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Attachement A - Assigned Staff Resumes

June 16, 2014

State of West Virginia  
Department of Administration  
Purchasing Division  
2019 Washington Street East  
Charleston, West Virginia 25305-0130

Solicitation Number: COR61694  
Emergency Power Systems and Electrical Issues  
Huttonsville Correctional Center  
South Huttonsville, West Virginia  
Tetra Tech, Inc. Proposal No. 112PCE6647

Dear Sir or Madam:

Tetra Tech Inc. (Tetra Tech) would like to present our interest in performing the engineering, design and technical services for the Emergency Power Systems and Electrical Issues Project (Project) located at the Huttonsville Correctional Center. Tetra Tech's electrical engineering department has multiple engineers, electrical designers, and technicians that have worked in all areas of the power industry. It has been, and always will be, our goal to go above and beyond the expected services required to complete our projects. Tetra Tech's number one objective is to provide all of the services in the safest and most complete way possible for both our client and everyone else involved.

## 1.0 INTRODUCTION TO TETRA TECH

As a premier worldwide engineering and design firm, Tetra Tech provides the experience necessary to successfully deliver design and construction engineering services for the Huttonsville Correctional Facility located in South Huttonsville, West Virginia.

Tetra Tech's 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 generation, distribution, switchgears and controls. Our office has worked on over 100 engineering, design and construction management projects on both generation and electrical distribution systems.

## 2.0 KEY TECHNICAL STAFF

Tetra Tech's services can provide 100% of the preliminary inspections, engineering calculations, designs, contractor/vendor bidding, technical construction assistance and onsite construction management. Our assigned technical staff to the Project will include:

- **Philip Arbogast - Project Manager/Senior Electrical Engineer**  
Mr. Arbogast has extensive experience in the power generation industry including generators, switchgears, motor control centers and electrical distribution systems. His work has involved mainline systems as well as emergency backup equipment. Mr. Arbogast has been trained and worked as a Power

Generation Specialist for multiple years. He has worked on troubleshooting and repairs to a high number of power supply systems. His troubleshooting has included imbalance calculations, short circuit analysis and replacement/upgrade for reliability. Mr. Arbogast provides technical assistance to construction crews in most of his projects.

- **Joseph Kuhel - Senior Electrical Designer**

Mr. Kuhel has over 38 years of experience in the low and mid-voltage design industry. He has extensive experience in both electrical distribution and control system design. His work ranges from preliminary designs to detailed construction drawings. Mr. Kuhel's designs also provide all material lists and connection diagrams. He provides technical assistance in all of his design projects.

- **Curt Ward - Electrical Designer\Draftsman**

Mr. Ward has worked in the designer industry for over 20 years and has experience in all major areas of electrical design work. He has worked on all areas of electrical design and draft work ranging from generation to controls.

- **Anthony Scotto P.E. - Senior Mechanical Engineer**

Mr. Scotto provides mechanical assistance needed for many electrical projects. This work can involve fuel tanks, piping, fuel lines and motor connections to equipment. He has many years of experience managing the mechanical side of projects.

- **Joseph Micikas P.E. - Senior Structural Engineer**

Mr. Micikas has over 35 years of experience in the structural side of engineering and design. He works with the electrical department in designing the foundations and structures required to construct and install any generation, distribution or transmission systems.

- **Roger Strauss P.E. - Electrical Engineer of Record**

Mr. Strauss has over 35 years of experience in the electrical engineering field. He works with the electrical department in design review. He has worked in managing the designs and construction sides of many electrical distribution and generation projects.

### 3.0 PREVIOUS EXPERIENCE PROJECTS

- **Tank Farm Backup Generator System**

Project Manager - Jeff Cadman (412) 829-3601

This job consisted of engineering and designing a backup power generation system to power the fire pump protection system at an oil tank farm. Items included providing the engineering study, full electrical system design, material lists, contractor/vendor bidding and technical assistance for construction. Routine bi-monthly conference calls or meetings were held to update the client on scheduling answer any questions. The project was not considered complete until the system was tested and under operation.

- **Power Distribution Centers and Electrical Supplies**

Project Manager – Dean Shauers (303) 705-9341

The distribution center projects were to engineer, design and coordinate the construction of multiple power distribution centers at a commercial facility. A section of this project was to tie multiple stations together to provide backup power to all locations from a single power source if either of the main electrical supplies were to go offline. Tetra Tech handled all of the bidding processes and provided a letter of recommendation for all stages of the project. Technical assistance was provided during all stages of construction.

- **Backup Generation System Upgrade Study**  
Project Manager – Philip M Arbogast (412) 829-3611  
A full engineering study was performed on providing adequate generation capability for all emergency and critical equipment. A full list of included equipment was created and prioritized to calculate the required electrical load required. Startup requirements were included to provide a proper amperage calculation for the backup source of electricity. It was determined that the existing system was not adequate to supply the required electrical load. A new generator system was outlined and proposed to be installed. A bid package was created and issued out to the required vendors. Upon purchase completion the project was turned over to construction and technical assistance was provided.

## 4.0 APPROACHES TO ENGINEERING AND DESIGN

- Work with WV Dept. of Corrections to gather any existing drawings and specifications on the existing equipment and electrical systems.
- Site visit to view the existing equipment setup and gather specifications required to design the new upgraded backup generation systems. The onsite investigation and designs will include work by an electrical engineer, electrical technician and electrician. With safety being the top priority all safety gear required will be brought onto site and used at all times.
- Perform onsite testing and investigation of the existing equipment to correct the electrical imbalance issues and prevent future equipment damage. Inspect the existing system to perform modifications to get all equipment upgraded to meet the up-to-date NEC standards.
- Update all single line electrical drawings of the existing system to show an accurate display of all electrical equipment on the Huttonsville Correctional Facility property.
- Perform an extensive engineering study on new equipment requirements/specifications to properly complete the upgrades and modifications. This study will be to put together all of the possible routes to take for completing the project.
- Meet with the WVDOC to review all of the possible approaches to upgrade and improve the backup generation systems and update all of the existing equipment to meet NEC standards and provide adequate operations. Review to make sure all technical details and customer requirements are met and/or exceeded.
- Prepare the detailed designs of the replacement and upgraded backup electrical generation units. The designs also include all facility electrical distribution system upgrades to operate properly and up-to-code with both the main power supplies and backup generation systems.
- Put together full bid packages including designs, drawings, specifications, control programming, work scope and materials.
- Bid drawings delivered to bid out the contracting and materials.
- Assist in the bidding process and perform bid reviews for all areas covered in the bid packages. A report of the technical and financial reviews will be provided to the WVDOC director and/or additional staff as required. A letter of recommendation is to be included along with the report.

## 5.0 CONSTRUCTION MANAGEMENT

- Issue detailed construction drawings in all engineering areas required to complete the project.
- Work with the customer and utility company to coordinate any issues requiring the incoming power to be disconnected.
- Work with the contractors to temporarily install generation systems to supply electricity to the equipment required to be offline during construction.
- Technical construction assistance routinely and at any required time.
- Review all redlined drawings marked up by contractors performing the construction of the project at scheduled intervals during the project to make sure everything is being properly constructed and installed.

- Require that any proposed modifications made to the construction design or work scope by the contractor are fully approved by Tetra Tech and the WVDOC.
- Full onsite construction technical advisor if requested.
- A full set of As Built drawings will be provided after completion of the project.

## 6.0 CONCLUSION

Tetra Tech's group of highly experienced engineers, technicians, and designers are dedicated to providing top-of-the-line services in the electrical engineering industry to our clients. Tetra Tech would like to provide you with a fully-engineered service package and technical construction management that exceeds your expectations.

Resumes of the assigned staff are located in Attachment A.

Please contact me by phone at 412-829-3611 or by email at Philip.Arbogast@tetrattech.com with any questions.

Sincerely,



Philip M. Arbogast  
Senior Electrical Engineer

PMA/mld  
112pce6647-61694-ltr-pma

Attachments

**ATTACHMENT A**  
**ASSIGNED STAFF RESUMES**

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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 a power station engineer in the electrical, mechanical and civil fields. Mr. Arbogast performed the writing of operational and maintenance procedures used in a power station environment. Worked as the coordinator of the design and upgrades to existing and new equipment used in a power station to provide a safer and more efficient environment. Mr. Arbogast performed design assistance and project management for electrical surge and grounding systems. Mr. Arbogast worked as a writer of investment reviews for capital and special maintenance projects. Managed multiple testing and construction projects. Coordinated contractors in various projects, repairs and maintenance operations.

Worked as and engineer in transmission and distribution system designs for electrical power supply. 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:**

**Plant 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.

**Project Manager/Plant Engineer; FirstEnergy; Switchgear Upgrade; \$350,000; New Eagle, Pennsylvania; September 2010 to December 2010.** As plant engineer Mr. Arbogast investigated and provided options for upgrades to two power station switchgears and motor control centers. The project objective was to upgrade the systems to a more reliable and safe equipment. He worked to provide a safer environment by installing proper grounding and arc flash protection. 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>

**PROFESSIONAL AFFILIATIONS:**

N/A

**PRESENTATIONS:**

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

**PUBLICATIONS/ARTICLES:**

N/A

**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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**ANTHONY E. SCOTTO, P.E.**  
**MECHANICAL ENGINEERING MANAGER**  
**MONROEVILLE, PENNSYLVANIA**

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**EDUCATION:** B.S. Mechanical Engineering, Rensselaer Polytechnic Institute, 1978

**CERTIFICATIONS/REGISTRATIONS:** Professional Engineer, PE048505R, Pennsylvania, 1994  
Professional Engineer, 069025-1, New York, 1992

**TRAINING:**

Steel Mill Combustion and Thermal Systems - AIST, 3 days, 2011  
Fracture Mechanics Approach to Life Prediction - ASME, 5 days, 2006  
Alternative Ironmaking Seminar - AIST, 3 days, 2012  
Refractory Technology - ASM International, 5 days, 2005  
Introductory Metallurgy Course - ASM International, 5 days, 2008  
Intro to ANSYS Mechanical - ANSYS, 3 days, 2010  
Continuous Casting Seminar - AIST, 2 days, 2013  
Principles of Polymer Science - Kimberly-Clark, 20 classroom hours, 1985  
Management Training Program - Weirton Steel, 13 weeks (520 hrs), 1978  
OSHA 10 Hour Course, 2010

**EXPERIENCE SUMMARY:**

Over twenty years in responsible charge of industrial design projects including: design and analysis of automated manufacturing lines, electro-mechanical, hydraulic and rotating machinery, thermodynamic and fluid systems, and hot metal handling equipment. Ten years of Technical Management and knowledge of industry standards. Holder of three patents in Continuous Casting.

Served as Engineering Manager and Principal Engineer in a Manufacturing Plant from 2010 to 2013. He provided leadership to a team of 12 engineers and designers in a Manufacturing Plant. Accountable for engineered products and systems used in Steelmaking, Ironmaking, Smelting and Casting processes. Responsibilities included:

- Process R&D, product development, manufacturability, maintainability, cross-functional design reviews.
- Shop testing, root cause analysis of failures, enhancement of product performance, product cost reduction.
- Investigation of plant processes, assessment of operating performance, and troubleshooting of problem areas.
- Scheduling, budgeting and control of engineering workload to suit the requirements of order delivery.

Developed and implemented best practices for tracking and control of Engineering Orders that enabled reliable monitoring of workload and quicker engineering response.



Directed, reviewed and approved all calculations, analysis and design work including mechanical, structural, fluid flow, thermodynamics, heat transfer, FEA, CFD, material selection, component sizing, functional control specifications, assembly procedures, operating manuals, manufacturing drawings, shop test plans, and work of outside consultants and suppliers.

Prior expertise developed around the field of Continuous Casting from 1986 to 2003 with responsibility as Senior Design Engineer, Senior Engineer, and Chief Engineer. Accountable for safety and successful OEM design, manufacture, installation and startup of all Casting projects in the North American market. Direct responsibility included innovative proposals, estimating, complete design execution, and shop support during manufacture. Contributed to sales efforts, and participated in procurement, manufacture, inspection, installation, start-up, and after-market service. Subsequently served from 2003 to 2008 as Engineering Manager to develop a group of 25 engineers and designers in the areas of Materials Handling Systems and Heavy Industry. Was responsible to provide full engineering support for manufacturing facilities at three Nucor Steel plants. Served as Engineering Manager for an OEM Steelmaking and Casting Design group from 2008 to 2010.

### MAJOR ACCOMPLISHMENTS

Had complete responsibility for the following:

- Development of EverStraight(TM) Lance, Oxygen Blowing NexTip(TM), BOF Zero Emissions Hood Plug.
- Laboratory Reactor System for Alternative Ironmaking Process at University of Utah. Project scope \$5.2 million.
- Design of a unique 250 Ton Engineered Lifting System to exchange the Main Slewing Bearing on a Ladle Turret utilizing two separate overhead cranes simultaneously.
- Implementation of ANSYS FEA and CFD.
- Vacuum Tank Degasser Facility for SSAB including both steam ejector and mechanical pumping systems.
- Ladle Turret Capacity Upgrade for Nucor Steel, increasing from 210 tons to 230 tons.
- Reduced Maintenance Slab Straightener for Nucor Steel. Project cost \$2.4 million. Savings \$4 million / year.
- Four Strand Slab Caster Modernization for Weirton Steel. Turnkey scope \$55 million, responsible for design.
- Caster Revamp for Great Lakes Steel.
- Hot Metal Delivery System for Nucor Castrip.
- Sequence Casting System for Washington Steel.
- Beam Blank Caster for SDI.
- Stainless Slab Casters for NAS and Shanghai Steel.
- Over 20 Installations of Integrated Cast Floor Arrangements and Hot Metal Delivery Equipment.

### PROJECT EXPERIENCE:

#### Plant Equipment and Systems Engineering

**Lead Design Engineer; National Steel; Great Lakes Division, Caster Revamp; \$3,000,000; Ecorse, Michigan; 1982-1983.** Designed a replacement ladle turret for an existing continuous caster which handled two 350-ton ladles of steel. Developed the concept, prepared design layouts to interface with existing equipment and surroundings. Completed all mechanical drawings and checked all vendor manufacturing drawings. Performed all engineering

calculations to size the machine elements. Designed a Short Lever Mold Oscillator to replace the existing cam-follower type oscillator. Provide technical support to the customer after startup. Participated in installation of the Turret and Oscillator.

**Lead Design Engineer; USS Fairfield Works; Four-strand Bloom Caster; Fairfield, Alabama; 1984.** Designed a complete twin-arm Ladle Turret to exchange and position Ladles of molten steel over the Caster. Used existing designs as a guide and proportioned all elements to carry the loads and fulfill the motions of the new machine. Sized the main electrical drive motor and emergency drive air motor. Chose the appropriate slewing ring bearing and sized a slip coupling to protect the drive reducer. Designed a high-speed Ladle Lift system using four 200-ton capacity Ball Screw Jacks with 10-inch diameter Ball Screws.

**Design Group Leader; Kimberly-Clark Corporation (Internal Project); Composites I Phase I; Roswell, Georgia; 1984-1985.** Composites I was a capital project which provided the Research Department with an experimental pilot line for production of various nonwoven materials from meltspun polymers. Supervised a group of 3 engineers and 5 draftsmen, providing technical leadership in all aspects of equipment design. During the first phase of the project the basic operating pilot line with support systems was designed.

**Design Group Leader; Kimberly-Clark Corporation (Internal Project); Composites I Phase II; Roswell, Georgia; 1985-1986.** Phase II of the project was funded by a second appropriation and lasted 12 months. Assisted in preparing the appropriation request, outlining design specifications and developing cost estimates. Was then responsible for all aspects of design, fabrication, construction, and start-up of additional modular units, which expanded the capability of the line. A key requirement in all design was the ability to rapidly reconfigure the line to produce a multitude of experimental materials. Worked directly with researchers to determine the machine parameters necessary to produce a desired material combination. Wrote the final equipment specification, directed vendors in complying with it, and then evaluated all bids. Conducted design reviews with successful vendors, and monitored vendor progress throughout the design and manufacture.

**Senior Design Engineer; Nucor Steel, Darlington; Two-strand Bloom Caster; Darlington, South Carolina; 1987.** Prepared a complete analysis of the timing sequence for the discharge end of a new caster and used this to determine all required operating speeds for the Torch-cut Machine, Runout Tables, Cross Transfer Table and Pushers, Bloom Weighing Table, and Hot Charging Crane. Designed the Cross Transfer System with Hydraulic Pushers and the Skid-type Cooling Bed. Designed a Weigh Bridge for the Cooling Bed with a hydraulic lift mechanism. Designed a unique Hot Charging Crane that received a bloom from the lifted Weigh Bridge and then carried it up a 20-degree incline above the Cooling Bed to a Roller Table at the far end of the bed. Was responsible for concept, development and final contract design drawings, with supporting calculations. Sized all components and selected the drive.

**Senior Design Engineer; China Steel; Four-strand Bloom Caster; Taiwan; 1988.** Designed a Twin Arm Ladle Turret to exchange and position two 275-ton Ladles of steel over the caster. Calculated loads throughout the machine and sized all components including the slewing ring bearing, drive elements, motors, hydraulic lift cylinders, pin joints and bearings, weldment sections, fasteners, and weighing load cells. Prepared all contract design drawings, stress calculations, and documentation for selection of commercial items. Checked and approved all vendor detail drawings. Designed a Ladle Shroud Manipulator to position and hold a ceramic

shroud on the nozzle of the pouring ladle during casting. Designed a Tundish Temperature and Sampling Device to check the bath of liquid steel in the Tundish.

**Senior Engineer; Weirton Steel; Four-strand Slab Caster Modernization; \$55,000,000; Weirton, West Virginia; 1989-1990.** This was a major revamp of a Caster originally supplied by Concast in the 1960's. The arrangement of the Caster is unique, with two machines assembled back to back and fed from a common Ladle. The central portion of the machine was removed and replaced by equipment designed with the newest available technologies. This included the Tundish Car, Molds, Oscillators, Roller Aprons, Straighteners, and support structure. Participated at various levels in all of the above designs as follows:

- **Tundish Car** - Prepared conceptual layouts for a new car to fit the existing surroundings. Developed technical solutions for Tundish Lifting, Side Adjustment, Weighing, and reuse of existing drive motors and gearboxes. Designed new frames and sized all structural sections and connections. Prepared complete contract design drawings to purchase the equipment. Analyzed the lifting capacity of the existing lift drive motors and selected drive ratios to increase speed to the maximum. Designed a unique Load Cell arrangement for the Weighing System. Designed a side-adjustment mechanism for fine positioning of the 100-ton Tundish over the Mold.
- **Roller Apron** - Used in-house computer programs to develop the Roller Apron Layout. Prepared computer graphs of Roll Stress, Roll Deflection, Bulging of the slab shell between rolls, and Critical Strain in the solidifying shell. Designed a Radial Removal System below the Casting Floor to allow quick replacement of Segments during regular maintenance periods. Designed the main support structure for the roller apron. Calculated weights and reactions on the foundation and structure. Calculated loads due to thermal expansion and determined the best place to fix the frame and where to allow expansion.
- **Dummy Bar Storage** - Prepared proposal drawings and clearance studies for the relocation and modification of the Storage Rack. Designed a new winch drive for the Dummy Bar for the longer travel up to the Mold. Checked all final design drawings for the modification to the Rack. Calculated loads on the supporting structure due to the relocation and determined how to shorten the structure after the relocation to fit the longer Roller Apron. Checked and approved the erector's fabrication details, and supervised installation.
- **Straightener** - All existing equipment was to be stripped down to the existing Straightener Base. This was a heavy steel casting anchored to the foundation. The new equipment was to be installed on top of this base. Designed all connections of new equipment to the base using the original detail drawings of the base. Designed adapter plates for the Straightener Segments and determined proper anchoring and alignment methods for each section.
- **General Assignments** - Wrote a complete procedure for Erection and Alignment of all equipment to be used as part of the contract with the Erector.

**Senior Engineer; Timken Bearings; Phase II Caster Revamp; Canton, Ohio; 1991.** Designed a replacement Ladle Car with lifting capability to exchange and position 225-ton Ladles of steel over the caster within the confines and height limitations of an existing Ladle Car that did not have lift capability. Was responsible for concept, development and complete contract design drawings and specifications. Calculated loads throughout the machine structure and sized all elements in the design.

**Senior Engineer; Nucor Berkeley; CSP Caster; Berkeley, South Carolina; 1994-1995.** Full responsibility for design of Cast Floor Equipment, Casting Tower Structure and Foundations. Supervised the layout of cast floor equipment and determined proper spacing and interaction of various devices and operators. Determined a suitable framing layout for the structural steel with required column locations from which an outside firm designed the casting tower steel. Provided all loading conditions for that design. Supervised the development of foundation outlines with loading for use by an outside firm to complete the detail foundation design. Reviewed and approved the structural and foundation designing done by outside firms. Designed and supervised the design of all cast floor equipment.

**Senior Engineer; Washington Steel; Sequence Casting Revamp; \$1,025,000; Washington, Pennsylvania; 1993-1994.** Utilized the existing stationary stand arrangement with a structural extension to accept a second ladle. This allowed design of a simple shuttle car with limited lift to move the ladles from one position to the other and integration with the crane operation. Participated in final revisions to "as-sold" specification and received full responsibility for design leadership of the project. Supervised installation and startup. Was fully responsible for the overall arrangement and interfacing of the Sequencing equipment, General Arrangement of the Sequencing Operation, integration into the existing operation, Foundation analysis and upgrade, Slag Handling equipment, changes to the Ladle Shroud Manipulator and all other modifications to structure and operating platforms.

**Principal Engineer; Steel Dynamics; Three-strand Bloom-Beam Blank Caster; Columbia City, Indiana; 1998.** This was a three-strand caster with foundations and support systems for the future addition of a fourth strand. Had complete responsibility for overall General Arrangements of the entire machine, foundation, structural steel and all equipment for the Cast Floor, Runout and Product Handling areas. A primary goal of the design was to allow a rapid and cost-effective expansion to the fourth strand. Was responsible to develop solutions for the expansion of all elements of the caster.

**Senior Engineer; Nucor Crawfordsville; Castrip Cast Floor Equipment; \$1,300,000; Crawfordsville, Indiana; 1996.** Worked with the Nucor R&D personnel and adapted standard cast floor equipment to this revolutionary process. The challenges were many including a Tundish Car running at a speed three times the industry norm with positioning accuracy 1/10 the industry norm. This was a very competitive project requiring cost effective designs. Developed a fully functional Ladle Turret with lifting that sold for under \$1 million. Developed the complete arrangement of Cast Floor equipment including location of Tundish Preheaters and slag handling devices, supporting structure for the Tundish Car and Powertracks, and Foundation for the Ladle Turret. Supervised, guided and checked all elements of the Ladle Turret and Tundish Car designs.

**Chief Engineer; North American Stainless Slab Caster; Kentucky; \$20,000,000; 1999-2001.** Had full responsibility for overall machine layout including Cast Floor, Casting Tower, Spray Chamber, Foundations, Runout equipment and Slab Handling. Designed the Tundish Service area and all fume removal systems. Designed a Torch Fume Exhaust System built into the foundation alongside the machine. This was a special feature of the machine with sequencing louvers that followed the traveling torch, thus focusing the draw at the source and minimizing the overall system size. Had full responsibility for design of this system and participated in procurement, bid evaluations, inspections, review of construction engineering, startup and troubleshooting.

**Chief Engineer; Shanghai Steel; Three Slab Machines; China; 2002.** Based on the design of the North American Stainless (NAS) plant, three machines were sold to BAO Steel, Shanghai Works. Had full responsibility for design leadership in areas similar to NAS. Traveled to Germany and to China to conduct design reviews with the Customer.

**Engineering Manager; Nucor Steel; Ladle Turret Capacity Upgrade; \$600,000; Hickman, Arkansas; 2005-2006.** Investigated overall design and analyzed key elements for load carrying capability. Identified weak areas and prepared proposals and pricing to strengthen or replace. Redesigned the 4 meter diameter main bearing to increase capacity by 15% while maintaining interchangeability with the original bearing and gear drive. Increased strength of deficient frames with prefabricated sections to be welded on at site. Upgraded main lifting joint pin materials and led the design of pin extracting and replacement equipment. Developed concept for and supervised design of a Bearing Exchange Rig used to lift the 150 ton Turret off the main bearing utilizing two cranes simultaneously. Participated in site modifications of the main lifting frames.

**Engineering Manager; Nucor Steel; Bending Unit Upgrade; \$300,000; Crawfordsville, Indiana; 2004.** Redesigned foundations of the first strand caster to accept the more robust second strand design of the Bending Unit. This required precision cutting of the concrete and removal of significant material with installation of a new prefabricated base. Had complete responsibility for engineering of field modifications to foundation and water cooling system. Was responsible for correct evaluation of the resulting foundation to handle the new loads of the heavier Bending Unit.

**Engineering Manager; Allegheny Ludlum; Ladle Shroud Manipulator; \$100,000; Brackenridge, Pennsylvania; 2003.** Designed a robust Ladle Shroud Manipulator for the Caster at Allegheny Ludlum, Brackenridge to handle the high blowback force of a special shroud. This design handled four times the normal connect force of a standard shroud. Had complete responsibility for the concept, analysis and supervision of detail design.

**Engineering Manager; SDI, Columbia City Addition of 4<sup>th</sup> Strand Bloom; Columbia City, Indiana; 2008-2009.** Expansion of earlier project. Supervised design group executing detail design per original plans.

**Engineering Manager; SSAB Vacuum Tank Degasser; 2008.** Supervised group providing detail design of vacuum tank and car, structure, foundations, support systems, interconnecting mechanical systems and installation engineering.

**Engineering Manager; Severstal NA; Ladle Turret Bearing Exchange; Dearborn, Michigan; 2010.** Design of a unique 250 Ton Engineered Lifting System to exchange the Main Slewing Bearing on a Ladle Turret utilizing two separate overhead cranes simultaneously. Developed concept, designed equipment, guided fabrication, and supervised installation of new bearing. Completed in a total of 3 weeks under emergency shutdown conditions.

**Engineering Manager and Principal Engineer; University of Utah; Novel Ironmaking Process; Salt Lake City, Utah; 2010-2013.** Laboratory Reactor System for Alternative Ironmaking Process at University of Utah including conceptualization, development, workscope definition, creation of budget, schedule and contract price, complete design of equipment and systems, analysis and specification of equipment, manufacturing engineering and turnkey

installation engineering. Project scope \$5.2 million. Equipment built, installation in progress. Project is currently in the second phase under DOE funding.

**CHRONOLOGICAL WORK HISTORY:**

Mechanical Engineering Manager, Tetra Tech, Inc., Pittsburgh, PA, 2014-Present  
Principal Engineer, Berry Metal Company, Harmony, PA - Steelmaking Components, 2010-2013  
Engineering Manager, Siemens Industry Inc., Canonsburg, PA - Metals Technology, 2008-2010  
Engineering Manager, Clayton H. Landis Co, Souderton, PA - Industrial Repairs, 2003-2008  
Chief Engineer, Sms Demag Inc., Pittsburgh, PA - Steelmaking & Casting Projects, 1986-2003  
Design Engineer, Kimberly Clark Corp, Alpharetta, GA - Nonwovens Engineering, 1984-1986  
Design Engineer, Concast Incorporated, Montvale, NJ - Continuous Casting Design, 1980-1984  
Design Engineer, Weirton Steel Corp, Weirton, WV - Plant Engineering, 1978-1980

**PROFESSIONAL AFFILIATIONS:**

American Society of Mechanical Engineers, Member since 1978  
Association for Iron & Steel Technologies, Member since 1986  
ASM International, Member since 2009

**PRESENTATIONS**

- 2013 Scotto, A. E. "Oxygen Steelmaking - The Oxygen Blowing Lance," presented at the University of Pittsburgh, Pittsburgh, Pennsylvania.
- 2006 Scotto, A. E. "Nucor-Hickman, AR: Ladle Turret Capacity Upgrade" presented at AIST Philadelphia Chapter monthly meeting, Quakertown, PA, November 2006.
- 2002 Scotto, A. E. "Steelmaking, Continuous Casting and the Ladle Turret," presented at Carnegie Mellon University, Pittsburgh, Pennsylvania.

**PATENTS:**

United States 5,928,122, Split Roll for Continuous Casting  
United States 6,065,527, Synchronized Oscillator for Continuous Casting Apparatus  
United States 6,640,691, Continuous Casting Ladle Lift Bearing System

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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  
Inspec – Petrolia, Site specific safety training  
AK Steel – Butler, PA Site specific safety training  
Ergon West Virginia, Inc. – Newell, WV Site specific safety training  
Momentive Performance Materials – Sistersville, WV Site specific training

**SECURITY:** TWIC (Transportation Workers Identification Credentials) - Expired

**EXPERIENCE SUMMARY:**

Mr. Micikas has over 36 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, project management 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; Industrial Project Services and Oil & Gas Services; 2012 – Present.** Mr. Micikas has served as senior structural engineer and as Project Manager on the following projects:

- Sunoco PEX Phase 1B – Responsible for the design of pipe supports, pump and other equipment foundations, electrical storage racks, miscellaneous foundations and the preparation of specifications for electrical control rooms for the Corsicana and Ringgold Pumping Terminals.
- Eastman Chemical – Prepared specifications for a Pre-Engineered building; obtained contractor quotations for the fabrication and erection of the Pre-Engineered building as well as for the foundation work; designed the foundations for the Pre-Engineered building; two (2) storage tanks, a mezzanine and various pieces of process equipment; designed a mezzanine which supported air filtering equipment; designed a pipe bridge and pipe supports and was provided assistance to the contractors during construction.
- Indspec – Responsible for the modification of an existing masonry control room to resist blast pressure damage. This involved the design and installation of steel tube sections (acting as reinforcing members) being strategically placed and attached to the exterior of the control room walls.



- Momentive Performance Materials – Worked with MPM personnel on numerous projects involving structural inspections of existing foundations and steel structures; design of new equipment and structure foundations; design modifications to existing structures; analyzed existing structures for new loading criteria; designed new fall protection systems for existing vessels; designed new unloading platforms; assisted with constructed cost estimates; and assisted in the demolition of existing equipment and support structures.
- Valspar – Determined the load capacity of existing storage rack systems and designed a fall restraint system for elevated working platforms.
- Seneca Resources – Designed foundations for blown-down stacks and assisted in the investigation of foundation settlement issues.
- Chevron – Designed foundations for compressors, flare stacks and pipe towers; and design pipe support bents and anchor towers.
- Miscellaneous Energy Clients – designed foundations for compressors and skid mounted equipment.

**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

### **Landfill Gas Installation**

Design of buildings (pre-engineered and masonry) and building foundations, equipment foundations, structural steel design for steel structures required on the projects, pipe supports/racks structural steel design and pipe support/racks foundations, electrical cable tray support, construction specifications, pre-engineered building specifications, architectural details, fencing, and roadway/parking lot layout on several landfill gas to energy projects while at Venture Engineering.

Assisted the mechanical department with layout/GA for such projects.

### **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

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**ROGER STRAUSS, PE**  
**SENIOR ELECTRICAL ENGINEER**  
**PITTSBURGH, PENNSYLVANIA**

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**EDUCATION:** BS, Electrical Engineering; Carnegie Institute of Technology  
BS, Administration and Management Science; Carnegie Mellon University  
MBA, University of Pittsburgh

**CERTIFICATIONS/  
REGISTRATIONS:**

Registered Professional Engineer (Electrical); PA/PE-008969, Year  
Obtained-1963, Expires: 2015  
Registered Professional Engineer (Electrical); KT/PE-25943, Year  
Obtained-2008  
Registered Professional Engineer (Electrical); NY/PE-088075-1,  
Year Obtained-2010, Expires 2015  
Registered Professional Engineer (Electrical); TX/PE-114000, Year  
Obtained-2013, Expires 2014

**EXPERIENCE SUMMARY:**

Mr. Strauss has over 32 years of professional experience in the steel making industry. His experience includes electrical design and management; construction management; and, facilities planning. Mr. Strauss has developed a thorough knowledge of rules and regulations throughout his career and maintains excellent relationships with local and state agencies. His expertise is utilized in an advisory capacity within Tetra Tech. Mr. Strauss also provides total project implementation, including start-up, commissioning and training services.

**PROJECT EXPERIENCE:**

**Numerous Industrial Plant Projects, Pennsylvania.** *J & L Steel.* Area Engineer—Provided project oversight for a new substation, BOF shell replacement, billet caster improvements and a water treatment facility.

**Project Management Services for Electric Furnace Installations, Southwestern Pennsylvania.** *Crucible Steel.* Sr. Project Engineer—Provided project oversight for the installation of a billet straightener, VAR furnace and ancillary equipment for new electric furnaces.

**Numerous Industrial Plant Start-Ups; Various Locations, Southwestern Pennsylvania.** *Various Clients.* Project Manager/Sr. Electrical Engineer—Development and implementation of plant start-ups, commissioning and training,

**Industrial Facility Equipment Design and Controls; Southwestern Pennsylvania.** *Lukens Steel.* Project Engineer—Provided design for slab caster mold and tundish level control.

**Custom Industrial Equipment; Multiple Metal Industrial Facilities; Various Locations, Southwestern Pennsylvania.** *Various Clients.* Project Manager/Sr. Electrical Engineer—Perform profit and loss services related to design, quoting fabrication and installation of custom industrial equipment for the metals industry.

**Industrial Rehabilitation and Improvements Projects; Southwestern Pennsylvania.** *Phoenix Steel.* Manager of Engineering—Provided project oversight for installation of a reversing plate reheat furnace, slab caster and electric furnace improvements. Managed the company capital expenditure program.

**Pneumatic Powder Conveying Systems; Various Industrial Facilities; Various Locations, Southwestern Pennsylvania.** *Various Clients.* Project Manager/Sr. Electrical Engineer—Coordinated final design and testing of pneumatic powder conveying systems used for ladle injection of liquid steel.

**Industrial Facility Rehabilitation and Feasibility Study; Plant Primary Steel Area; Pennsylvania.** *Republic Engineered Steels.* Engineering Manager—Provided oversight for various projects including: billet caster, electric furnace, teeming and product flow improvements and a feasibility study. Feasibility study ultimately resulted in the replacement of a major portion of the primary area.

**Installations, Steel Reheating Facilities; Various Industrial Facilities; Various Locations, Southwestern, Pennsylvania.** *Various Clients.* Project Manager/Sr. Electrical Engineer—Provide installation of steel reheating facilities including soaking pits; and, plate, bar and rod furnaces.

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

**Consultant, Senior Electrical Engineer; Tetra Tech NUS, Inc.; Pittsburgh, Pennsylvania; April 2008 to Present.**

**Consultant, Senior Electrical Engineer; Quattro Associates Inc.; Bridgeville, Pennsylvania; 1999 to March 2008.** Providing design, calculations, estimating, and drafting supervision for installation of various steel and chemical facilities.

**Senior Electrical Engineer; Chemtech Engineering; Bridgeville, Pennsylvania; 1996 to 1999.**

Providing design, drafting supervision, and cost estimating for electrical power distribution and controls at various industrial facilities.

#### **PROFESSIONAL AFFILIATIONS:**

Association of Iron and Steel Engineers (AISE)  
Iron and Steel Society

#### **PUBLICATIONS:**

None

**ADDENDUM ACKNOWLEDGEMENT FORM**  
**SOLICITATION NO.: COR61694**

**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:**

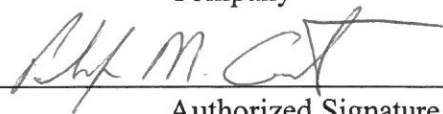
(Check the box next to each addendum received)

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



Authorized Signature

6-16-14

Date

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