

# PCE CONSTRUCTORS, INC. REPRESENTATIVE PROJECTS

## REFINERY PROJECTS

### Sulphur Recovery Units Montana

Scope included: mechanical – process equipment installation, piping fabrication/installation, and electrical/instrumentation work for two new Sulphur Units. All tie-ins performed during facility outages.

### Hydrogen Generation Unit Montana

EPC project – 40MMSCFD Hydrogen Plant

Work scope included all construction - teamed with alliance engineer. Self perform 90% of on-site work (foundations/underground; structural steel; process equipment – reformer, PSA unit, compressors/pumps; tanks and vessels; piping; and, electrical/instrumentation), procurement of all commodities and selected equipment, and start-up/commissioning support.

### Hydrogen Generation Unit Kansas

EPC project – 17MMSCFD Hydrogen Plant

Work scope included all construction – teamed with alliance engineer. Self perform 90% of on-site work, procurement of all commodities and selected equipment, including piping/equipment modules, and start-up/commissioning support.

### MSAT2 Naphtha Fractionator Wyoming

- EPC project, working with an alliance engineer to design, procure, and construct this 17,500 BPD unit. Scope included: foundations/structural/process equipment installation /piping/thermal insulation/electrical/instrumentation/commissioning/start-up/turnover of the new unit.
- Various projects involving civil/structural, equipment installation, piping, and electrical; preparation for refinery shut down.

### Refinery Expansion Utah

Fast Track EPC Project – PCE is teamed with alliance engineering firm to design, fabricate, and install a major pipe rack connecting units throughout the refinery. Construction work scope included: piling; foundations; fabrication/installation of structural steel; and, minor electrical work.

### Hydrogen Purification/ Isotherming Hydrocracker Kansas

Work scope included: foundations/underground, structural steel, equipment installation including 10,000hp compressor, piping, electrical, instrumentation, and commissioning/start-up support. Work performed during cold weather conditions and within operating units.

**PCE CONSTRUCTORS, INC.**  
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**REFINERY PROJECTS**

Amine/LPG/Merox/Shutdown Projects  
Wyoming

Work scope included: underground/foundations, structural/equipment installation, piping, electrical, instrumentation, commissioning/start-up support, and turn around activities. Process equipment included towers/columns, drums, pumps, compressors, and exchangers. Work performed in adverse weather conditions and inside operating units.

Green Field CCR Unit  
Kansas

Green Field CCR unit (17,000 BPD) adjacent to existing refinery and process unit. Work included foundations, structural steel, mechanical installation including large compressors, piping, electrical and instrumentation. Work also included total refinery recovery work resulting from flood damage.

Heat Recovery Steam Generator  
Texas

Installation of Heat Recovery Steam Generator (HRSG) and associated duct work from gas turbine direct to the burner duct. Work included all rigging, duct installation including 25ft x 25ft hydraulically driven guillotine valves, piping, critical code welding, in-line instrumentation, and specialties. Painting – subcontracted. A follow-up project included HRSG modifications and was performed on an outage basis.

Green Field Diesel Hydro Treater Project  
Tennessee

Green Field Diesel Hydro Treater Project (33,000 BPD). Work Scope included: structural, mechanical, process equipment installation/alignment, piping – including fabrication of small bore, electrical, instrumentation/controls, thermal insulation, heat tracing, and painting.

Green Field (Grass Roots) Project  
Sulfur Recovery Unit  
Kansas

Mechanical, piping, electrical, and instrumentation installation including: receiving, setting and aligning all equipment (vessels, compressors, pumps); scaffolding; furnishing fabricating and installing all piping systems; furnishing and installing heat (steam) trace, power and controls; electrical lighting and grounding; checked all systems for completion; and provided support for commissioning and start-up activities.

Clean Fuel Project  
Mississippi

Supplied supervision and craft labor (pipefitters, welders, riggers, and electricians) for outage and turn-a-rounds in multiple process units; Distillation/RDS; Coker; and, VDU. In addition to standard piping systems, performed installation and welding of the following materials: Inconel (14" XXS), Stainless (up to 14" S/160), 5% and 9% Chrome (up to 14" S/160).

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**GAS TREATING / GENERATION**

Helium Extract Facility  
230MM SCFY Capacity  
Colorado

Underground, foundations, structural steel, equipment installation including 7,000 HP compressor, process/utility piping – including delivery/return pipe lines to source, electrical/instrumentation; control building; and, commissioning/start-up support.

Liquid Nitrogen Plant  
250 TPD Capacity  
Texas

Site work, underground (piping/duct banks), foundations – including an elevated foundation for a 560,000 gallon liquid nitrogen storage tank, structural steel/process equipment/piping.

Liquid Handling Facility  
Louisiana

EPC Project – 5,000 BPD condensate stabilization facility. Teamed with alliance engineer. Work scope included constructability reviews with engineer, foundations/ underground, structural steel, process equipment installation - pumps/filters/ compressors/heaters/vessels/coolers/load out systems/2,500BBL slug catcher, piping, electrical, instrumentation, and commissioning/ start-up support.

200MMSCFD Gas Treating Plant  
Completion Project  
Oklahoma

Miscellaneous foundations, process equipment installation, structural steel, piping/fabrication-installation, electrical/instrumentation, thermal insulation, and commissioning/start-up support.

200 MMSCFD Cryogenic NGL Recovery Unit  
Completion Project  
Oklahoma

Miscellaneous foundations, process equipment installation, structural steel, piping/fabrication-installation, electrical/instrumentation, thermal insulation, and commissioning/start-up support.

350MMSCFD Gas Treating/Compressor Facility  
Colorado

Scope included all site work, foundations, and underground piping/electrical installation, receiving/unloading, and storage of process equipment.

Air Reduction Plants (two)  
Arizona

Scope included mechanical and piping installation of two air liquefaction plants including unloading and rigging of Owner furnished equipment: cold boxes; TSA skids, cooling tower modules, miscellaneous electrical gear; fabrication and installation of piping, structural supports, and thermal insulation.

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**GAS TREATING / GENERATION**

Air Liquefaction Plant Relocation from Virginia to Texas  
Virginia & Texas

Work included deconstruction of an existing plant in Virginia and, along with new/refurbished equipment, reinstalled in Texas. Work scope included rigging/loading/unloading, equipment/structural installation, piping, electrical, instrumentation and pre-commissioning/start-up assistance.

Helium Plant Installation  
Wyoming

Scope included all work above foundations, structural/equipment installation, piping, electrical, and instrumentation. Equipment included: modular units, pumps, exchangers, storage facilities, and specialties. Work performed in extremely adverse weather conditions.

Compressor Station Upgrade/Expansion  
Texas

Work scope included: underground installations; foundations; structural/equipment installation; piping (including station manifold replacement); electrical; instrumentation; and, shut-down tie-in work. Equipment included: heaters, modular units, pumps, and exchangers. Except for shut downs, work performed during station operations.

CO<sub>2</sub> Purification Plant (178 TPD)  
Oklahoma

Work Scope: Underground/foundations; structural/mechanical/piping/electrical/ instrumentation and commissioning/start-up support. Process equipment included: CO<sub>2</sub> column, modules, dehydrators, gas scrubbers, heat exchangers, pumps, heaters, compressors, and air cooler.

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**REPRESENTATIVE PROJECTS**

**CHEMICAL / PROCESS PROJECTS**

Biochemical Pilot Plant / Bagasse Processing  
Louisiana

Scope included all mechanical, limited structural/foundation work, piping, and commissioning/start-up support. Boiler licensing under the State of Louisiana rules was also included.

Biofuels Plant  
Mississippi

Foundations/underground construction; structural steel installation; process equipment installation; piping; electrical/instrumentation work; and, start-up/commissioning support.

Succinic Acid Bio-Refinery  
Louisiana

Scope included all MEP work: structural steel fabrication/installation; process equipment installation; pipe fabrication/installation; electrical/instrumentation work; and commissioning/start-up assistance.

Plant Expansion – Bromine Based Fire Retardant Products  
Arkansas

Scope included: demolition of selected components and structures within operating units; underground piping/electrical duct banks; foundations; structural steel/process equipment installations; pipe fabrication/installation; electrical/instrumentation; and, commission/start-up assistance.

UAN Fertilizer Plant Expansion  
Nebraska and Kansas

Scope included: deconstruction of a Nitric Acid Plant in Nebraska; clean-up of the NE site; relocation of equipment/facilities to refurbishment shops; installing the refurbished plant along with a UREA plant expansion. Scope included refurbishment of selected structures/buildings/equipment; underground/foundation/concrete structures; structural/process equipment installation; and, pipe fabrication/installation.

Green Field Ethanol Plant  
Nebraska

Green Field Ethanol Plant (275,000,000 GPY) with additional grain processing and storage facilities. Work scope included foundations – 50,000 CY, structural steel installation, equipment installation, piping installation, and electrical work for selected plant units. Owner served as the engineer and general contractor.

Fertilizer Plant  
Oklahoma

Expansion of existing Fertilizer Plant- Work scope included structural steel, miscellaneous work, and instrumentation.

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**CHEMICAL / PROCESS PROJECTS**

Green Field Calcium Chloride Plant  
Arkansas

Work scope included underground installation, foundations, structural steel, fabrication/erection of piping, process equipment installation, electrical, instrumentation and start-up/commissioning support.

Ammonia Plant  
Mississippi

Relocate Existing Ammonia Plant (3300 Tons of equipment & materials) – Work Scope included: marking for reinstallation in Australia, deconstruct, preparation/packaging for export and ocean transport, and shipping to the Port of Mobile, Alabama a complete 500TPD Ammonia Plant.

Air Pollution Control System  
Louisiana

Air Pollution Control System – Furnish, fabricate, and install piping systems (carbon and stainless steel up to 30 inch), furnish and install electrical and instrument systems, install Owner furnished equipment including pumps, blowers, clarifiers, tankage, plate work (duct), filtering modules and two hundred foot stainless steel stack (13 ft - Ø).

Carbon Black Plant  
Louisiana

Carbon Black Process Unit - Work included procurement, fabrication, painting and erection of pipe, pipe support systems, and process equipment installation for new unit. Pipe size range ½"Ø - 108"Ø - carbon and stainless steel.

# **PCE CONSTRUCTORS, INC. REPRESENTATIVE PROJECTS**

## **POWER PROJECTS**

### **Steam Power Project Texas**

Installation of a site erected waste gas fired 160,000 LB/HR steam boiler (Hangzhou Boiler Group), foundations/concrete, drilled piers (730 EA - 24 IN/30 IN DIA), structural steel fabrication/erection, process equipment installation (fans/pumps/tanks/MCC building), piping fabrication/installation, insulation/refractory, and, electrical/instrumentation work. Work included approximately 2 miles of 16 IN/6 IN steam/condensate pipe lines to an adjacent refinery.

### **Power Project Mississippi**

Completion of Power Project (765 MW) – performed equipment installation, piping, critical code welding, electrical, and mechanical work items to complete the plant installation (Westinghouse 501G). Testing and boiler certification were also in the work scope. Provided instrument technicians to conform/confirm all control circuitry and instrument calibration. Assisted in commissioning and start-up activities.

### **Power Plant Expansion Utah**

Power Plant Expansion (100 MW) – Existing simple cycle utilizing two (2) CGT/G units expanded to include HRSG and steam turbine-generator. Work scope included: site work, foundations, underground installation, structural, mechanical, equipment erection/installation/ alignment, site buildings, all piping systems, thermal insulation, electrical, instrumentation, and painting.

### **Power Project Arkansas**

Completion of Power Project (760 MW) – performed various piping, critical welding, and mechanical work items to complete the plant installation (Westinghouse 501G). Provided up to fifteen (15) instrument technicians to conform/confirm all control circuitry and instrument calibration. Assisted in commissioning and start-up activities.

### **Plant Relocation Oklahoma**

Performed equipment relocation from Delaware, civil and foundations, mechanical and piping work scopes for 18MW power generation unit.

### **Power Project Nebraska**

Performed new construction of the following: (1) A complete GE Glegg water treatment system; (2) A complete Trane refrigeration system; (3) Above and underground piping to cooling towers; and (4) Provided equipment and installed a complete fuel oil system for 3 GE LM6000 turbines. This work included calibration, furnish, install and alignment of equipment and commissioning.

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**POWER PROJECTS**

Power Project  
Texas

Mechanical, Piping, Electrical, and Instrumentation installation including: furnishing and installing heat trace power and controls; electrical lighting and grounding. Plant wide systems completion involving all aspects of Mechanical, piping, E&I work, and multiple CGT rebuilds, Start-Up, and Commissioning of 4 ABB single shaft (250MW/EA) gas/steam turbine/generators.

Power Plant Mechanical Erection  
Florida

Total mechanical erection for this (520 MW) combined cycle power plant. Scope included two (2) General Electric 7FA CGT, one (1) General Electric Steam Turbine, and two (2) Vogt-NEM HRSG Units with all interconnecting and BOP aboveground piping fabrication/installation; pipe racks/structural steel, insulation, and painting.

Power Project  
Missouri

Scope included furnishing and installing all foundations (23,500cy) and underground piping systems – firewater, storm drains, water and process lines, fuel gas, sanitary sewers, and circulating water. All site electrical grounding and duct banks also included. Site developed for a Siemens V84.3A Combustion TG set – single shaft: one HP/LP Steam turbine; and associated equipment for a 250MW Power Generating Station. Equipment installation and erection including: A SIEMENS V84.3A Combustion TG Set-Single Shaft; one HP/LP steam turbine; clutch, condenser; and, auxiliary equipment to support turbine.

HRSG Erection  
Texas

HRSG Erection – Installation of four (4) ABB – CE Model ICS KA-24 Heat Recovery Steam Generators, all systems piping, access steel, stack, and ammonia injection system equipment and piping.

Mechanical Erection  
Kentucky

Mechanical erection for a Siemens Westinghouse V84.3A CGT, with hydrogen cooled generator, simple cycle plant.

HRSG Erection  
Texas

HRSG Erection – Installation of two (2) ABB – CE Model ICS KA-24 Heat Recovery Steam Generators, all systems piping, access steel, stack, and ammonia injection system equipment and piping.



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**POWER PROJECTS**

Power Project  
Oklahoma

Green Field (Grass Roots) Project – 520 MW Power Generating Station -Equipment installation and erection included: two (2) Siemens V84.3A Combustion TG; one (1) HP/LP Steam Turbine and Generator, Condenser; auxiliary equipment; all steam, condensate, and service piping systems and supports/pipe racks, and all electrical and instrumentation.

Underground Installation – Scope included furnishing and installing underground piping systems – firewater, storm drains, water and process lines, fuel gas, sanitary sewers, and circulating water. All site electrical grounding and duct banks were also included. Site developed for a combined cycle power plant utilizing SIEMENS combustion gas (2)/steam (1) turbines.

Power Project  
Louisiana

Mechanical, electrical, and instrumentation installation for repowering a 500MW unit. Project included all piping from three (3) new HRSG's. Scope of Work included furnishing and installation of all piping, hangers, valves, ammonia system, electrical, and instrumentation.

Power Project  
Missouri

Green Field (Grass Roots) Project – 250MW Power Generating Station –Equipment installation and erection included: A SIEMENS V84.3A Combustion TG Set-Single Shaft; one HP/LP steam turbine; clutch, generator, and condenser; auxiliary equipment to support turbine; all steam, condensate, and service piping systems and supports/pipe racks; and, all electrical and instrumentation.

Engineering, procurement and fabrication services for critical piping systems including main steam, reheat, feedwater, and condensate. Detail piping design included wall thickness, pressure drop, warm-up/cool down calculations, steam hammer, flexibility and thermal stress analysis and hanger/support requirements.

Power Project  
Alabama

Two (2) V84.2A SIEMENS 120 MW combustion turbine-generator units and associated plant equipment. Project scope included all underground systems, mechanical, rigging, pipe fabrication/installation, electrical and instrumentation work.