Compressor and Pump Stations Experience

1. Compressor Stations Experience (Most recent, Last 5 years and Older)

Most Recent

Dominion – Marts Compressor Station and Kincheloe Meter Station
UPI provided FEED and detailed engineering services for a grassroots compressor station consisting of four gas turbine compressor units approximately 20,500, 15,900, 10,915 and 7,700 Hp, all auxiliary systems, piping systems and buildings. Additionally, UPI was responsible for FEED and detailed design of adjacent Kincheloe Meter Station. The opportunity for these projects were a result of the successful completion of the prior Pleasant Valley Compressor Station for Dominion.

Dominion – Pleasant Valley Projects
UPI provided detailed engineering services to expand Dominion’s Pleasant Valley Compressor station to service the Cove Point Liquefaction, Keys and CPV projects. Special features to the project included expansion of existing and an addition of a new compressor building to house five new compressors at the station. Moreover, all units were electric drive requiring upgrades to medium and high voltage service to station. Total installed HP was approximately 75,000 containing both high speed reciprocating and centrifugal compressors. Additionally, the compressor station expansion also included piping and equipment to be expansions, installations and upgrades to the Pleasant Valley M&R and possibly the Loudoun M&R.

Enbridge – Venice Compressor Station FEED
UPI provided detailed engineering and project management services for the development of a Total Installed Cost (TIC) Estimate with a +10% to -15% accuracy for a platform based compressor station. The steel platform deck is approximately 27 feet above grade to avoid coastal storm surges. The compressor station is designed for 150 MMSCFD of natural gas flow with provisions for additional capacity of 75 MMSCFD. The expected compression units will be gas engine driven with approximately 15,500 total Hp. Power to the compressor station will be provided by gas engine driven electrical generators located on the same platform. Included in the design is a dehydration unit, fuel gas package, power control buildings, a control room and ancillary equipment.

Florida Gas Transmission – Port Everglades Station 21.5
UPI provided FEED, detailed engineering, and procurement services to Florida Gas Transmission to increase the delivery pressure from 50 and 250 psig to 250 and 650 psig respectively and shift an additional 25 MMBTU/d to the FP&L Port Everglades M&R station while maintaining all current contractual requirements. To accomplish this, the following is required:

FGT Pompano CS21.5 station will include suction and discharge piping, required switchgear, stopple bypass for 24-inch mainline, installation of mainline/station bypass valve on FGT’s 18-inch and 24-inch mainlines, overpressure protection devices to accommodate dissimilar MAOPs and the installation of two (2) 22,000 Hp gas centrifugal compressors, gas coolers, lube oil coolers, inlet gas scrubber, auxiliary buildings and all associated equipment. CS21.5 will potentially be located at M.P. 868.5. All facilities will tie to the 18-inch and 24-inch mainlines approximately 16 to 17 miles north of the Port Everglades Lateral take off.

Kinder Morgan – Keota Compressor Station Expansion
UPI provided detailed engineering services for the installation of one (1) 3,550 Hp CAT/Ariel Two Stage gas turbine compressor unit; with inter-stage and discharge coolers; a new compressor building; modifications to an existing filter separator; installation of a new filter separator, replacement of dual 6 inch meter runs; and a new H2S Analyzer.

NET Midstream – Agua Dulce Compressor Station Addition
UPI provided FEED, detailed engineering and procurement services for the addition of two 12,000 and 15,000 electric drive centrifugal compressors. Expansion occurred on the low pressure inlet suction side of
the station. In addition, incoming power gas cooling and individual compressor buildings was required for the extension.

**NET Midstream - NET Mexico Project**

UPI provided detailed engineering, survey, procurement, and construction management (EPCM) services for a project in South Texas consisting of 120 miles of 42-inch and 48-inch natural gas pipeline, with a capacity of 2.1 BSCFD, originating near Agua Dulce, Texas terminating near Rio Grande City, Texas. The project includes the mainline, compressor station and metering facilities. Facilities include 3 compressor stations, the first station has 4 electric drive centrifugal compressors, about 100,000 Hp for a max flow of 2.1 BSCF/D, package by Solar. The second station has 2 engine driven reciprocating compressors, about 6,000 Hp for a max flow 200 MMSCFD, Caterpillar Engines and Ariel Compressors. The third station has 2 engine driven reciprocating compressors, about 7,000 Hp for a max flow 300 MMSCFD, Caterpillar Engines and Ariel Compressors. UPI managed the ROW and Environment subcontractors.

**Piedmont – Duke WS Lee Project**

UPI provided FEED and detailed engineering services of a grassroots compressor station containing three, 60% capacity 3500 Hp electric drive compressor packages and a 1.2 mile 16-inch pipeline and regulation facility at entrance to Duke Energy’s natural gas fired combined cycle combustion turbine plant. In addition to engineering design, UPI provided full procurement services purchasing on UPI paper, managing logistics, warranty transfer and expediting to Piedmont’s local material staging facility.

**Spectra – Colerain Compressor Station**

UPI provided detailed engineering services and material procurement assistance for a grassroots 20,000+ Hp compressor station near Colerain, OH for Spectra Energy Partners. This station consists of two Solar Taurus 70 gas turbines driving Solar C-404 centrifugal compressors. The compressor trains are to be operated in parallel. The design scope for this project included a compressor station including 30-inch pipeline launchers and receivers, mainline block valve, 30-inch side gate valves, 36-inch suction and discharge station piping and headers, an inlet gas filter/separator, fuel gas conditioning equipment, gas after cooler, pilot gas operated emergency shutdown system and station and unit blow-down systems. Buildings included a two unit Compressor Building, an Electrical Power and Control Room Building, an Office/Warehouse/Garage Building, a Product Storage Building, and an Auxiliary Building housing a 620 KW natural gas fueled standby generator, two air compressors, and an instrument air dryer system. The services included the preparation of the Design Basis Manual, the Project Procedures Manual, the Project Execution Plan; assistance in compressor station site selection; preparation of site layouts and plot plans, P&IDs, line lists, instrument lists, Cause & Effects Diagrams; performance of Stress and Acoustic Analysis for major gas piping; construction drawing packages for the civil/structural, process/mechanical, and electrical/instrumentation systems, material specifications and construction specifications; and construction engineering support.

**TransCanada – Collierville Compressor Station FEED**

UPI provided FEED services for the study of a new grassroots compressor station located near Colerain, Belmont County, OH. This station will include the installation of two (2) new Solar Taurus 70 gas turbine compressor packages (total 10,915 Hp) and ancillary equipment, new buildings, and all necessary support infrastructures for a new compressor station.

**Williams Transco – Atlantic Sunrise**

UPI provided detailed engineering services for piping modifications to enable compression for bi-directional flow and odor marking / deodorization at station 150 in Iredell County, NC; station 160 in Rockingham County, NC; and station 170 in Appomattox County, VA.

**Williams Transco – Leidy Southeast Project**

UPI provided engineering services for odor marking / deodorization at station 165 in Pittsylvania County, VA; station 170 in Appomattox County, VA; station 180 in Orange County, VA; station 185 in Prince William County, VA; and station 190 in Howard County, MD.
Compressor and Pump Stations Experience

**Last 5 years**

**Repsol Peru – Nuevo Mundo Compression Station FEED Study**
Front End Engineering Design (FEED) for the construction of a Compression and Generation plant using four (4) 5,000HP electric driven reciprocating compressors, to be located in the Unit 300 area at Nuevo Mundo, as part of the Kinteroni Project in Block 57.

**Florida Gas Transmission – Cape Canaveral – Station 32**
UPI provided a Class III Cost Estimate +/- 10% for the engineering, procurement, and project management for an installation of Compressor Station 32 (CS32), suction and discharge piping, FGT’s portion of the required switch gear and the installation of pulsation bottles, gas coolers and relocating the station blowdown stack at CS 18. CS 32 consisted of two (2) 15,000 electric drive centrifugal units.

**Khudairi Group – Bai Hassan Compressor Station**
UPI was selected to provide engineering, design and drafting services to include: detailed engineering, design, drafting, material specifications, procurement assistance, preparation of construction drawing packages, construction specification and schedule, and the preparation of commissioning manuals and inspection and testing forms.

The Bai Hassan Project involves the installation of three (3) Solar gas turbine driven dual tandem centrifugal gas compressors at three (3) new gas compressor stations, AB4, AB5 and AB6 near the Bai Hassan oil field in Iraq. The compressor stations will be designed for a flow capacity of fifty million standard cubic feet per day (50 mmscf/d). Each compressor station shall be capable of compressing gas from two (2) output streams derived from three phase gas separation. One stream will be received at 150 psig (43 mmscf/d) and the other at 60 psig (7 mmscf/d). The discharge pressure at each station, as measured at the compressor discharge flange, shall be 570 psig. The three compressor stations will each be built at green field sites located in the immediately vicinity of existing inoperable compression facilities. Certain existing station facilities will be utilized to support the new stations (fire water feed, closed drain system, flare system (LP & HP), and medium voltage (33kV/11kV) overhead feeders.

**Niska Storage Partners – Wild Goose Storage Phase 2B Expansion**
Storage capacities were increased from 250 MMSCFD injection / 450 MMSCFD withdrawal to 375 MMSCFD injection / 700 MMSCFD withdrawal. The expansion project entailed installation of a new process/compression train (consisting of two (2) 4,700 gas driven reciprocating units), four (4) injection wells, and a 24” loop between the compression facility and well pad, modifications to the existing well pad.

**Sempra – Bay Gas Cavern 5**
FEED Study for expansion of existing salt dome storage system complete with two unit injection compression (two (2) 4,735 gas driven reciprocating unit) and withdrawal gas heating/dehydration/pressure reduction systems. Detailed engineering/design of single unit injection compression installation when client elected to defer remainder of the expansion until a later date. Compressor unit is an engine-driven reciprocating compressor.

**Sempra – Mississippi Hub Cavern 2**
FEED Study for expansion of existing salt dome storage system complete with two unit injection compression (two (2) 4,735 CAT 3616 TÂLE/Ariel KBZ/6) and withdrawal gas heating/dehydration/pressure reduction systems. Detailed engineering/design of complete scope defined in FEED Study. Injection units are engine-driven reciprocating compressors.

**Boardwalk Pipeline Partners - Gulf Crossing Pipeline Project**
UPI provided survey, engineering design, mapping, drafting and project management for 357 miles of 42” high pressure natural gas pipeline extended from Sherman, Texas to Tallulah, Louisiana. The project also included two compressor stations in Texas and two compressor stations in Louisiana and five meter stations for the measurement and delivery of gas transported within the new pipeline system.
Compressor and Pump Stations Experience

Enbridge – DC Pipeline
70 miles of 36-inch natural gas pipeline from Bethel, TX to Bridge City, TX, with a 24-inch lateral line from Crockett, TX. Three (3) major pipeline interconnects and two (2) major compressor stations were also included in the project.

Falcon Gas Storage - MoBay Storage Hub Project
UPI provided the engineering for Falcon Gas storage’s MoBay Gas Storage Facility in Alabama. The MoBay Storage Hub facility was designed to facilitate withdrawal volumes and gas exchanges with compression, along with the bi-directional interconnections to the station with gas transmission pipelines. The compressor station hub included: eight (8) identical Caterpillar 3616 / Ariel JGZ6 reciprocating gas engine powered compressor units, inter-stage gas cooling and scrubbers, inlet slug catcher, suction gas filter-separation, compressor discharge filter-separation, TEG dehydration facilitates, TEG filter separators, liquid storage tanks and a pig receiver on the reservoir pipeline connection.

Transwestern Pipeline Company - Bloomfield Compressor Station Project
UPI performed the detailed design for the installation of a 15,000 HP electric motor driven Solar C65 centrifugal compressor utilizing a Vorecon variable speed gear drive for Transwestern Pipeline Company. This project included a new compressor building, new major gas piping additions, major piping rerouting, and two (2) services of gas cooling and all associated electrical systems. UPI also designed the High-to-Medium voltage (115 kV to 13.8 kV) substation including medium voltage (13.8~12.47 kV) distribution switchgear, medium voltage distribution to a Power Control Room (PCR) Building and the medium voltage motor control including autotransformer across the line starting in New Mexico.

Transwestern Pipeline Company - Red Rock Expansion: Klagetoh Station Project
UPI provided engineering design, and procurement assistance to Transwestern Pipeline Company for a 41,500 BHP gas turbine driven centrifugal compressor station upgrade at Transwestern's Station #2 located at Klagetoh, Arizona. The project included tie-ins to two (2) existing 30 inch pipelines comprising of two (2) side gates and mainline block valves at each line, turbine/compressor, lube oil system, gas after-coolers, new compressor building, new control building, new dual generator prime power building, new high efficiency gas scrubbers in each mainline, new PLC based control and ESD system, new power distribution system for new and existing facilities, new roads, storage and drainage facilities and the removal of existing mainline scrubbers.

Older

Acadian Gas – Grand Bayou Storage Project
Detailed engineering/design of injection/withdrawal compression additions for existing underground natural gas storage plant. Additions included two (2) 2,000 BHP engine driven units.

Alliance Pipeline Compression Facilities
UPI provided engineering, design, drafting and material procurement services for seven grass roots natural gas compressor stations and five meter delivery stations on the 888-mile, 36-inch diameter U.S. portion of the Alliance Pipeline. The pipeline runs from Fort St. John, British Columbia to its associated NGL Plant at Tampico, Illinois, near Chicago. A total of 663,000 BHP of gas compression capability (seventeen (17) 39,0000 BHP gas turbine drive centrifugal units) was included in the design package. The services included the preparation of the Design Basis Manual, the Project Procedures Manual, the Project Procurement Manual; assistance in compressor station site selection; preparation of site layouts and plot plans, P&IDs, line lists, instrument lists, construction drawing packages for the civil/structural, process/mechanical, and electrical/instrumentation systems, material specifications and construction specifications; and provided vendor shop inspection, construction management and engineering support.

American Pipeline Company – APC Pipeline Systems Project
Provided complete engineering services for two cross-country pipelines recently installed by American Pipeline Company. The Webb-Duval System consists of approximately 160 miles of natural gas transmission line, a turbine powered compressor station and numerous skid mounted custody transfer
Compressor and Pump Stations Experience

Universal also provided project management, detailed engineering, drafting, survey inspection and start-up assistance for the project. The Panola Rusk System consists of approximately 100 miles of natural gas transmission line, two compressor stations, skid mounted custody transfer measurement stations and the Supervisory Control and Data Acquisition (SCADA) System.

Anadarko Petroleum – Moscow Gas Gathering Compressor Station
Provided the engineering design of a field compressor station containing four (4) 1,000 BHP engine drive screw compressor units and associated facilities near Moscow, Kansas.

ANR Pipeline – Gageby Creek Compressor Station
Services performed included engineering, design, material procurement, scheduling and project documentation for the Gageby Creek Compression Facility near Pampa, Texas. This grassroots facility included installation of two (2) Solar Centaur T-4500 packaged compressor units and related auxiliary systems. Universal achieved the accelerated schedule needs of the client, resulting in the compression units being on-line less than three months after the start of the design engineering.

Beijing Huayou Natural Gas Company – Yulin Compressor Station Technical Support
UPI provided technical review, conceptual design, procurement and construction management for the Yulin compressor station. Four (4) 20 MW Electric drive centrifugal units were chosen.

Bethel Gas Storage – Compressor Addition
UPI provided engineering for 3 4,735 BHP engine driven multi stage reciprocating compressor units.

Bridgeline - Sorrento Gas Storage Project
Scope of work included all above ground facilities required for compression and injection of up to 100 MMSCFD and withdrawal of up to 320 MMSCFD including two (2) 2200 HP compressors, measurement, gas dehydration, site preparation and development, buildings and structures, auxiliary systems, instrumentation, controls and cathodic protection.

Centerpoint Energy – MCX Project
CenterPoint Energy and Duke Energy teamed up to move natural gas from the Texas Panhandle, the Barnett shale play in North Texas and the Fayetteville shale play in eastern Arkansas into the markets of the Northeast. Pipeline includes approximately 1,600 miles of large diameter pipeline and multiple compressor stations from Pampa to Bald Knob and on to Pennsylvania. A preliminary pipeline routing, environmental survey and resource reports to support a FERC 7© application are needed as Phase One of the MCX Project.

Cheniere Energy – Sabine Pass LNG Expansion
Cheniere Energy requested UPI to provide Project Management, Engineering, and Design for installation of a single unit compressor at their Sabine Pass LNG Plant. The project design consisted of installation of one (1) 7,500 HP reciprocating compressor with air coolers and lube oil skids, filter separator, and compressor canopy.

Chevron - Carter Creek Gas Booster Compression Station Project
UPI performed the engineering design for Chevron’s Carter Creek Compressor Station upgrade in Wyoming. Design the installation of a two-unit electric motor driven reciprocating compressor facility for handling sour gas and handling system for associated sour condensate. Facilities include inlet slugcatcher/separator, compressors in building, gas aftercoolers with total recirculation capability, and booster pumps for sour liquids reinjection.

Chevron - Waltman Compressor
UPI provided engineering for 2000 HP electric driven gas compressors to replace three engine driven compressors in order to increase reliability, reduce air emission and boost field gas pressure for sales.
Compressor and Pump Stations Experience

**CNG Transmission – Chambersburg Transmission Station**
Provided engineering design, drafting, material procurement assistance and construction management assistance for a grassroots mainline transmission station sized for 800 MMSCFD. Two (2) 4,000 BHP electric drive reciprocating units were installed complete with automation and auxiliary systems. Work included custody transfer measurement stations with ten 12-inch orifice meters sized for 680 MMSCFD.

**Columbia Gas Transmission – Eastern Market Expansion - Seneca, Lanham, Lost River and Files Creek Compressor Stations**
UPI provided engineering and design services to Columbia for the expansion of six existing facilities, four (4) compressor Stations and two (2) gas storage facilities and the addition of three (3) pipeline loops. The compressor station expansions include the installation of one (1) 4,735 BHP single engine driven reciprocating compressor unit at Lost River, and the installation of dual 7,800 BHP turbine driven centrifugal compressor units at Seneca and dual 13,500 BHP electric drive centrifugal units at Lanham. New storage wells and associated piping, dehydration, regulation and measurement are being installed at the two gas storage facilities (Crawford and Coco) along with an additional Contactor and associated equipment at Coco. The three loops range in length from 2.82 miles to 7.24 miles of 26” to 5.75 miles of 36” loop lines.

**Columbia Gulf Transmission Compressor Stations – Hampshire Unit 412, 413, & Corinth Unit 507, & Inverness Unit 708 & 709**
UPI provided engineering design, drafting and material procurement assistance for the installation of three (3) 15,000 BHP gas compressor units and two (2) 18,000 BHP gas compressor unit for replacement of existing compressors for Columbia Gulf Transmission at their Hampshire, Corinth and Inverness, compressor stations. Preparation of removal drawings for existing units including associated foundation and yard piping. New installation work included compressor building, control building, compressor yard piping, compressor yard valves including relief and blow-down, emergency shutdown system, station utilities, compressor and control building fire protection systems, yard lights, sidewalks and driveways. UPI provided detailed engineering design and analysis for new facilities and tie-in to existing facilities, and preparation of a complete set of bid and construction drawings including plot plans, P&ID's, line list, equipment list, instrument list, piping, civil/structural, electrical, instrumentation and other drawings required for purchasing, fabrication, and construction.

**Columbia Gulf Transmission - Delhi Compressor Station Project Unit 811 & 812**
UPI completed the engineering for the removal of an existing GE LM-2500 turbine/compressor unit and a Pratt Whitney GT3 turbine/compressor and the installation of one (1) 34,400 new Solar turbine/compressors at Columbia Gulf Transmission's Delhi Compressor Station in Louisiana. Equipment includes: one (1) Solar Titan 130 turbine/compressor unit, one (1) Solar Mars 100 turbine/compressor unit (both units complete with all unit auxiliaries), two (2) new compressor buildings, new prefabricated power and control room (PCR) building to serve both units, foundations, extension/modification of the existing unit suction and discharge headers and utility piping along with new turbine lube oil cooling, new unit controls and interfacing with the existing station control system, motor control equipment, unit shutdown system(s) and station emergency shutdown system (ESD) updates.

**Dominion Natural Gas Transmission – Hackberry Compressor Station**
Conducted a project feasibility study, preformed the due diligence evaluation, developed the conceptual design and FERC quality project estimate and provided preliminary engineering for a 400 MMSCFD injection, 800 MMSCFD withdrawal, 30,000 HP natural gas salt dome storage facility located near Hackberry, Louisiana for Dominion Natural Gas Storage, Inc. The project included two 30” pipelines (17+ miles each) connecting the storage facility to two NGPL mainlines east of Calcasieu Lake, Louisiana and Transco's two S.W. Louisiana Laterals just south of Vinton, Louisiana. Storage facilities included pipeline launcher/receivers, filter separators (inlet & outlet), ultrasonic metering (dual by-directional), automated unit and yard valves, four 7,500 HP VFD electric motor driven reciprocating compressors with inter-stage coolers and scrubbers and after gas coolers and scrubbers, injection and withdrawal facilities, withdrawal heating and filtration, pressure reduction, dual withdrawal separators, dual regenerative glycol dehydration towers, dual withdrawal scrubbers, 69kV/6.9kV/480V electrical substation, emergency power generation,
Compressor and Pump Stations Experience

ESD and building shutdown systems, domestic fuel gas and instrument/utility air systems, compressor surge and recycle systems and station blowdowns with silencers. Storage facility buildings included the compressor building, electrical switchgear and control building, meter building, and the main building with offices, control room, shop and equipment areas. Facilities also included launchers/receivers, filter separators and ultrasonic metering at both pipeline tie-in points.

**El Paso / Tennessee Gas – Alamo Compressor Station**
Provided engineering, design, drafting, procurement services, limited procurement, construction, commissioning and startup for the installation of two (2) 2,200 BHP reciprocating compressors with natural gas driven reciprocating drivers for Tennessee Gas Pipeline’s Alamo Compressor Station, Hidalgo County, Texas. Station can compress 60 to 240 MMSCFD of sweet natural gas from 700 to 950 psig from a pipeline supply network to PEMEX. Station layout was set to accommodate future expansion. The drivers are Caterpillar 3608 turbo-charged units. The compressors are Ariel JGT-4, four throw, two-stage reciprocating units. After-cooling is provided by engine driven aerial coolers. Station facilities include: a new fully enclosed, insulated metallic building with 5 ton manually operated overhead crane, fans, ridge vent, etc. Additional facilities included: 54-inch PECO Inlet Filter Separator, 24-inch NPS suction and discharge headers, 16-inch NPS lead lines, station bypass valve, unit recycle valves, ESD and blow-down valves, starting gas and blow-down silencer, power gas volume bottle & distribution system, 15-foot by 30-foot Skid Mounted Control Building, Unit Control Panels, Building Protection Panel, Station Control Panel, underground conduit, electrical pull boxes, automated remote start/stop and loading control hardware, software and communications equipment, area lighting, roads, grading, fencing, etc. Process, mechanical, civil, instrumentation & electrical engineering, design, drafting and procurement activities were fast-tracked with overlapping construction & communications activities. Prepared P&ID’s, line lists, instrument lists, I/O lists, plot plans, piping plans, electrical plans, foundation details, piping sections & isometrics, electrical schematics & details, bill of materials, requests for equipment quotations, bid tabulations, equipment purchase orders, etc. With award of project in late March 2001, compressors were commissioned less than six months later, in early October 2001. Drawings were done in AutoCad 2000. Construction was sub-contracted.

**Enbridge – Orange Compressor Station**
UPI provided FEED, detailed design and procurement assistance for the installation of two (2) 4,700 CAT 3516 Tale/C Ariel JGC 4 totaling 9,400 HP.

**Enbridge – Goodrich Compressor Station**
UPI provided FEED, detailed design and procurement assistance for the installation of two (2) 3,000 Electric motor Reliance 10B40/C Ariel JGC 4 totaling 6,000HP.

**Energy Transfer Company - Katy-Oasis Gas Compression Station Project**
UPI provided engineering, procurement and project management assistance services to Energy Transfer Company for the expansion of their Katy-Oasis Gas Compression station located in Katy, Texas.

**Enron – Severnaya Russia Compressor Station**
UPI provided project management, conceptual and detailed engineering, material procurement assistance, engineering support both on-site and off-site during construction for a grass roots compressor station installed as a replacement for an outdated compressor station located near Severnaya, Russia. The facility included four (4) 8000 BHP Solar gas turbine drivers for Solar centrifugal process gas compressors with each compressor set housed in a separate compressor building, a turbine exhaust waste heat recovery system for heating the project buildings, a fuel gas conditioning system housed in a separate building, a lube oil/turbine oil purification system housed in a separate building, an inlet separator for the suction gas to the process compressors, a compressed air system, the installation of a mainline block valve and the related station suction and discharge side gate valves and compressor station suction and discharge lead lines. This compressor station has a capacity of 1.1 BSCFD of natural gas with a discharge pressure of approximately 900 psig. The minimum design temperature for the stations was minus (-)28°C.
Compressor and Pump Stations Experience

**Enron – Trailblazer Compressor Station**
UPI performed project management, engineering design, drafting and material procurement services for the installation of one (1) 10,000 BHP gas turbine compressor units at existing compressor station on natural gas transmission pipeline. This station consists of a Cedulec VFD electric motor driving a Solar C-402 centrifugal compressor.

**Enron – Bammel Storage Facility**
UPI provided engineering, drafting, survey and procurement assistance for the installation of seven (7) electric motor driven two-stage natural gas compressors totaling 49,000 HP (7,000 HP each). Suction pressure will be between 550 and 750 psig with discharge pressure from 1,300 to 2,400 psig. Units will be brought on-line utilizing 6.9 kV variable frequency drives and transferred to “across the line” at synchronous speed. Two VFDs were also installed. The station will have dual 138 kV power feeders and will “auto-transfer” in the event of a highline fault.

**Enron - Faribault, Minnesota Compressor Station Project**
UPI provided engineering design, drafting and material procurement assistance for a grass roots 15,000 BHP compressor station near Faribault, Minnesota for Enron Engineering and Construction Company. This station consists of a Solar Mars Gas Turbine driving a Solar C-651 centrifugal compressor. The design scope for this complete and fully operational compressor station included the mainline block valves in existing 26-inch and 30-inch mainlines, the 24-inch and 30-inch sidegate valves, the 36-inch suction and discharge station piping and headers, an inlet gas scrubber, fuel gas conditioning equipment, a Compressor Building, a Process Control Room Building, an Auxiliary Building, a 300 KW diesel-fueled standby generator, two air compressors, an instrument air dryer and all electrical power and control systems.

**Enron – Florida Gas Phase III Expansion**
Provided project management, engineering, drafting, material procurement assistance and project documentation for compression horsepower additions at five (5) existing compressor stations located in Louisiana, Mississippi and Florida. Scope of work included the addition of a total of six (6) 5,000 gas engine driven integral reciprocating compressors, totaling 30,000 BHP, compressor buildings, warehouse buildings, auxiliary electrical generators, upgrading fuel gas, start air and instrument air, lube oil and emergency shutdown systems, inlet filter/separators and inlet scrubbers, high pressure yard piping and site preparation.

**Enron – Station # 19**
Designed grass roots gas compressor station, located near Melbourne, Florida. This station included one (1) Dresser Rand 2,500 H.P. integral compressor unit; two station inlet filter separators, process gas and utility piping, tankage and automation system. Station inlet gas may be taken from either of two pipelines. Design of the station required meeting stringent local zoning and permit requirements, as well as a challenging foundation design concept presented by existing soil conditions.

**Enron – Napoleonville Gas Storage**
UPI provided project management, engineering, drafting, material procurement assistance and project documentation for an underground gas storage facility near Napoleonville, LA. The scope of work included all surface facilities required for compressor and injection of up to 400 MMSCFD and the withdrawal of up to 700 MMSCFD, including two (2) 2,650 BHP engine driven reciprocating compressors, gas dehydration, site preparation, buildings and auxiliary systems for the facility and one (1) 8-mile, 24-inch interconnection pipeline between the surface facility and the transmission pipeline, plus a 2.5 mile, 20-/24-inch pipeline from the surface facility to the storage caverns.

**Enterprise Products - Sherman Extension Pipeline– Wise & Collin Compressor Stations Project**
UPI provided engineering services to Enterprise Products Operating LP for the installation of two compressor stations on the Sherman Extension 42-inch pipeline, located in Wise and Collin Counties, Texas. The project included six (6) 8,000 hp electric motor driven reciprocating compressors. Each unit included automated unit valves, process and service piping, lube oil and gas cooling, and unit control
Compressor and Pump Stations Experience

A new electrical substation was designed to facilitate an incoming power drop and circuit breakers, two station transformers and secondary switchgear, along with any harmonic filters, utility transformers and power correction systems.

Escambia Partners - Escambia Partners Limited Pipeline System
Provided project management, engineering, survey, drafting, inspection and right of-way acquisition services for the design and installation of approximately 16 miles of 4-inch sour gas gathering system, three compressor stations and approximately 10 miles of fuel gas pipeline for a sour gas gathering and transportation system in southern Alabama.

Florida Gas Phase VI Expansion Project Compressor Stations #18 & #24
UPI performed engineering design and drafting, engineered the equipment and selected materials, wrote specifications, requested and evaluated equipment proposals, requisitioned equipment and major materials and prepared the construction drawing package for the installation of two (2) 7,200 HP natural gas turbine driven centrifugal compressor to expand two existing compressor station on the Florida Gas Transmission system in Orlando and Trenton, Florida. Engineered and designed facilities included a pulsations analysis of the existing five reciprocating compressor system, revamp of the station tie-in piping and valving, installation of turbine compressor components such as: suction scrubber; automated unit and station valving including surge and recycle valves; compressor fuel gas, seal air, lube oil and jacking oil systems; and, gas after coolers. Other systems engineered and designed for this project included the compressor building, power control room (PCR) building, emergency generation and its enclosure, VFD drive for the turbine starter motor, ESD and building shutdown systems and unit and station blowdowns with silencers.

Florida Gas Phase VI Expansion Project Compressor Station #26
UPI performed engineering design and drafting, engineered the removal of the existing compressor and associated auxiliary equipment, engineered and designed the installation of the replacement compression equipment, evaluated compressor drawings and documentation, requisitioned major materials and prepared the construction drawing package for the installation of a Rolls-Royce RFA 24 centrifugal compressor to expand the capability of an existing compressor station on the Florida Gas Transmission system at Lacanto, Florida. Engineered and designed facilities included installation of the compressor and associated components such as: compressor lube oil and jacking oil systems, unit control panel modifications and, redesign of suction and discharge unit piping to accommodate the new compressor nozzle locations.

Florida Gas Transmission - Phase VIII Expansion – Compressor Stations 11, 12, 13, 14, 15, 24, 27, 29
UPI provided FERC filling, detailed engineering design, as-built drawings, construction management, and inspection services for 240-miles of 24", 30", and 36" pipeline and 10 compressor stations with 11 compressor units for a total of 207,600 BHP from Mississippi to Florida.

Florida Gas Transmission – Turkey Point Compressor Station
UPI provided engineering design and drafting, engineered the equipment and selected materials, wrote specifications, requested and evaluated equipment proposals, requisitioned equipment and major materials and prepared the construction drawing package for the installation of two (2) 8,500 BHP electric drive centrifugal units for the Turkey Point Compressor Station in Miami, Florida.

Florida Gas Transmission – Station 32
UPI performed FEED and detailed engineering for the installation of two (2) 12,000HP electric motor driven centrifugal compressor units.

Florida Gas Transmission – Station 22
UPI performed a Feasibility Study, FEED and detailed engineering for the installation of two (2) 7,800HP electric motor driven centrifugal compressor units.
Compressor and Pump Stations Experience

**Gulf South - East Texas Expansion Project-Carthage, Vixen and Tallulah Compressor Stations Project**
UPI completed the engineering for three (3) compressor stations (totaling 110,620 BHP) on a 42-inch pipeline for Gulf South Pipeline Co. LLC. at Carthage Junction, Vixen and Tallulah in East Texas. The Carthage Junction and Tallulah stations included designs for the installation of two (2) Solar Mars 100 turbine/compressor units, and one (1) Solar Taurus 70 turbine/compressor unit complete with all unit auxiliaries, one (1) new compressor building, new power and control room (PCR) building to serve all units. The Vixen station included two (2) new Mars 100 solar turbine/compressors.

**Gulf South – Harrisville Compressor Station**
UPI provided engineering design, drafting, material specifications, topographical survey, procurement assistance as requested, preparation of bid and construction drawing packages, construction management and inspection as requested, engineering construction support, commissioning and start-up assistance, preparation of job books and drafting of as-built drawings for the installation of a new station at Harrisville which included the installation of four (4) 4,700 BHP Caterpillar 3616 engines driving Ariel JGC-6 reciprocating compressors.

**Gulf South – Delhi Compressor Station**
UPI provided FEED, detailed design and procurement assistance for the installation of three (3) 4,100 BHP Engines CAT 3608 TALE / C Ariel JGC4 totaling 12,300 HP.

**Gulf South – Airport Junction**
UPI provided engineering design, drafting, material specifications, topographical survey, procurement assistance as requested, preparation of bid and construction drawing packages, construction management and inspection as requested, engineering construction support, commissioning and start-up assistance, preparation of job books and drafting of as-built drawings for the installation of one new reciprocating compressor unit at its existing Airport Junction metering station located in Mobile County, Alabama. The turbine driven compressor package will include one (1) 4,700 Caterpillar G3616TALE / Ariel JGC/6 compressor unit.

**Gulf South – Whistler Compressor Station**
UPI performed FEED for the installation of a Centaur 40 refurbished turbine driven centrifugal compressor unit.

**Millennium Pipeline Company - Millennium Compressor Station**
Complete engineering/design and procurement for installation of a single Solar Mars 100S turbine/compressor package on a greenfield site adjacent to the existing Columbia Gas Pipeline Corning Compressor Station. New station included new commercial power supply, infrastructure, and independent utilities except for shared utility water supply, site access road, and SCADA communications link. Air compressor/dryer system, auxiliary generator, battery/UPS system, fuel gas system with water bath heater, waste liquids, and unit/station vent systems were included in new facilities. Electronic ESD system (PLC-based redundant system) of new station was interfaced to existing pressurized piping loop ESD system in existing facilities. Facilities also include multiple over-pressure protection systems to protect existing and new lower MAOP pipelines from overpressure from sources of higher pressure gas.

**Nicor – Troy Grove Gas Storage**
Nicor Gas installed one (1) 15,000 HP Solar Mars 100 gas turbine coupled with a Dresser Rand DR12R5S centrifugal compressor at their Troy Grove gas storage facility. The new unit operated in concert with multiple existing units already in service at the facility, which has an operating design capability of discharging the gas into either a system with an MAOP of 858 psig or a system with an MAOP of 1060 psig. UPI provided project management, engineering design, drafting, material procurement assistance for the project, and then prepared the as-built drawings.
Northern Natural Gas – Oakland Compressor Station
UPI provided engineering, detailed design, and procurement assistance for the installation of one (1) Solar Mars T-15000S (15,000BHP) gas turbine coupled with a rewheeled Solar 65 centrifugal compressor at their Oakland, Iowa compressor station.

Northern Natural Gas – Clifton Compressor Station
UPI provided the design, engineering, procurement, construction, and commissioning involved with the installation of a Compressor Building and Utility Building for one (1) 6,130 HP Solar Centaur gas turbine compressor, including various vessels, fuel skid, high pressure gas yard piping, inlet scrubbers, unit blowdown piping and control systems.

Northern Natural Gas – Redfield and Sublette Compressor Station
UPI provided engineering, design and procurement services for the relocation of units 23/25/27 from Sublette and installed at Redfield only one (1) 7,000B HP relocated Taurus turbine compressor set and ancillary equipment, and additional two (2) 1,100 BHP engine driven reciprocating units. Added 3,100BHP to Sublette.

Northern Natural Gas – Guthrie Compressor Station
UPI provided design, engineering, procurement, construction, and commissioning involved with the installation of one (1) 7,700 HP Solar Taurus gas turbine compressor, including various vessels, fuel skid, high pressure gas yard piping, unit blowdown piping and control systems.

Northern Natural Gas – Hugo Compressor Station
UPI provided design, engineering, procurement, construction, and commissioning involved with the installation of one (1) 7,700 HP Solar Taurus gas turbine compressor, including various vessels, fuel skid, high pressure gas yard piping, unit blowdown piping and control systems.

Northern Natural Gas – Farmington Compressor Station
UPI provided design, engineering, procurement, construction, and commissioning involved with the installation of one (1) 7,700 HP Solar Taurus gas turbine compressor, including various vessels, fuel skid, high pressure gas yard piping, unit blowdown piping and control systems.

Panhandle Pipeline Company / Trunkline - Cypress Compressor Station Project
UPI provided Panhandle/Trunkline Pipeline Company engineering services for the installations of one (1) new 7,500 HP electric motor driven centrifugal compressor package and all associated appurtenances, PCR building, substation, and modifications to the existing power distribution systems at their Cypress Compress Station.

PetroChina Limited - Jingbian Compressor Station No. 8 Project
UPI provided engineering services procurement assistance to PetroChina Company Limited's (PetroChina) for the construction of a gas turbine driven compressor station at Jingbian, located on the 40- inch West to East Pipeline in Chaoyang District, Beijing, China. The compressor station facilities consisted of two (2) 30,000 HP Cooper Rolls-Royce RB 211 gas turbines driving RF 36 Centrifugal Compressors. Specifications not available from PetroChina, preparation of bid solicitation drawings and specification packages for miscellaneous materials and equipment, material procurement assistance and the preparation of detailed 3D construction drawings, automated valves; unit suction, discharge and recycle piping; suction and discharge headers; lube oil and gas recycle coolers; associated Auxiliary Building and Compressor Building; un-interruptible backup power supplies; instrument air compressor/dryer reservoir system; unit and station control systems; low voltage motor control; station emergency shutdown system (ESD); and compressor unit shutdown system (USD). The station is designed for unmanned operation with remote monitoring and control.
Compressor and Pump Stations Experience

Regency Gas – Northern Louisiana Expansion
Design to loop approximately 50 miles of existing North Louisiana assets and to construct approximately 80 miles of 30-inch header to connect multiple interstate and intrastate pipelines. Scope included pipeline design, launcher and receiver design capable of ILI pigging operations, mainline valve settings, multiple ultrasonic and orifice meter station design and 10,000 HP mainline compressor station design on an extremely accelerated timetable of 9 months. Compression consisted of four (4) 4,700 HP compressors. Also responsible for ROW acquisition, environmental permitting, preparation of regulatory filings, preparation of 311 filing, mapping, certified plats and HDD design.

Sabine Gas Storage – Spindletop Gas Storage
Scope of work included all surface facilities required for the compression and injection of up to 240 MMSCFD and withdrawal of up to 480 MMSCFD of natural gas including four (4) 8,000 BHP electric motor drive process gas compressors, measurement, pressure reducing station, gas dehydration, site preparation and development, buildings and structures, auxiliary systems, instrumentation, controls and cathodic protection.

Swift Energy - Northwest Alabama Gas District Project Gas Storage
UPI provided Swift Energy conceptual as well as detailed civil, mechanical, process, instrumentation, and electrical design and engineering to Swift Energy for a natural gas storage facility for the Northwest Alabama Gas District. This facility included five wells converted from pressure depletion production to storage, as well as compression facilities designed for both withdrawal and injection modes. The station was designed to operate with minimal support personnel utilizing automated rate and pressure controls. Work included design and engineering of the site layout, equipment foundations, process piping, plant utilities, instrumentation and controls, and support systems. Expediting, procurement, construction supervision, project management, startup and commissioning services were provided. UPI worked closely with the client to develop DOT type operations manuals for the facility, as well as providing post commissioning engineering and technical support.

Tejas Power Corporation – Moss Bluff Gas Storage
Scope of work included all surface facilities required for compression and injection of up to 125 MMSCFD and withdrawal of up to 150 MMSCFD including two (2) 2600 HP engine driven recip compressors, gas dehydration, site preparation, buildings and auxiliary systems for this facility.

Transwestern Pipeline Company – La Plata Compressor Station
UPI provided design, engineering, procurement, construction, and commissioning involved with the installation of one (1) Solar Model Taurus 60 (T7000S) SoLoNox gas turbine (ISO rating of 7,000 HP) driving a Solar centrifugal compressor. The turbine and compressor was installed inside an extended west part of the existing compressor building. An additional gas cooler and aboveground gas piping, similar to the existing facility, were located on the north side of the compressor building.

Transwestern Pipeline Company – Bisti & Gallup Compressor Station
Provided Inspection and Construction Management services for the Transwestern San Juan Expansion project in New Mexico. The project consists of 72 miles of 36” spiral weld pipe coated both internal and external. Included in the project is the installation of 15,000 HP electric drive unit at Bloomfield, New Mexico replacing electric drive units at Bisti (1 10,000BHP) & Gallup (1 12,000BHP) New Mexico. The project is being constructed within the boundaries of the Navajo nation called for UPI to hire and train people of Navajo descent and report activities to the ONLR. Receiving materials and completing project close out files done by UPI employees. Other groups within UPI provided survey and engineering for the project. Winter time construction in the high plains of New Mexico added to the challenge of our employees. Staffing ranged from Construction Manager, Chief Inspection, Safety Level 3 NDT auditors, Material Coordinators, office managers and as-built Drafters.
Compressor and Pump Stations Experience

Transwestern – Red Rock Expansion – Seligman Compressor Station
UPI provided engineering, design, drafting, specifications, request for quotations, material selection and take-offs, assistance with material procurement and the preparation of the construction drawing package for a 41,500 BHP ISO rated natural gas turbine driven centrifugal compressor station upgrade at Transwestern’s Station #1 located at Seligman, Arizona.

The project included automated unit and yard valves, new station header piping, stress analysis of all new piping, eight (8) bay gas after-cooler, new compressor building, new control building, new emergency power generation and building, emergency shutdown and building shutdown systems, fuel gas systems (process and domestic), instrument and utility air systems, new suction scrubbers, unit hot and cold recycle/surge control valves and unit and station blow-downs complete with silencers.

Transwestern Pipeline - Red Rock Expansion – Flagstaff & Leupp Compressor Station Project
UPI provided engineering design, drafting, specifications, request for quotations, material selection and take-offs, assistance with material procurement, and the preparation of the construction drawing package for the addition of a 41,500 BHP ISO rated natural gas turbine driven centrifugal compressor unit at each of four compressor stations for Transwestern Pipeline Company, in Seligman, and Luepp, Arizona (totaling 164,000BHP). This project included automated unit and yard valves, new station header piping, stress analysis of all new piping, eight bay gas after-cooler, new compressor building, new control building, new emergency power generation and building, emergency shutdown and building shutdown systems, fuel gas systems (process and domestic), instrument and utility air systems, new suction scrubbers, unit hot and cold recycle/surge control valves and unit and station blow-downs complete with silencers. As at Stations #1 and #2, the facilities engineered included tie-ins to two existing 30-inch pipelines comprising of two side gates and mainline block valves at each line, new PLC based control and ESD system, new power distribution system for new and existing facilities, new roads, storage and drainage facilities and the removal of existing mainline scrubbers.

Williams – Sunstone Pipeline Project
UPI provided Survey, GIS/GPS, Project Management, Feasibility Study, Consulting Engineering, FEED, & FERC for 600 miles of 42” (and variations for 30” and 36”) natural gas pipeline, and two (2) compressor stations, all in support of a FERC filing application.

Valero Gas Storage - Boiling Gas Storage Project
UPI provided project management, engineering, drafting, and material procurement assistance for all above-ground facilities associated with a salt-dome gas storage facility located near Boling, Texas. The required facilities included four (4) 2,000 BHP natural gas engine driven reciprocating compressors, flow measurement into and out of storage, two 200 MMSCFD gas dehydration trains and site preparation.
## Compressor Station Projects & Installed Horsepower

<table>
<thead>
<tr>
<th>Client / Project (listed in alphabetical order)</th>
<th>Number &amp; Types of Units</th>
<th>Total HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acadian Gas - Grand Bayou Storage Project</td>
<td>2 - 2,000 BHP Engine Drive</td>
<td>4,000</td>
</tr>
<tr>
<td>Alliance Pipeline Compression (14 Stations)</td>
<td>17 - 39,000 Gas Turbine Drive Cent.</td>
<td>663,000</td>
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<tr>
<td>Anadarko Petroleum Field Compressor Station</td>
<td>4 - 1,000 BHP Engine Drive Screws</td>
<td>4,000</td>
</tr>
<tr>
<td>ANR Pipeline Company Gageby Creek Compressor Sta.</td>
<td>2 - 4,500 BHP Turbine Drive Cents.</td>
<td>9,000</td>
</tr>
<tr>
<td>Bai Hassan Compressor Station - Iraq</td>
<td>1 - 7,800 BHP Turbine Drive Tandem Cents</td>
<td>7,800</td>
</tr>
<tr>
<td>Beijing Gas Yulin Compressor Station VFD</td>
<td>4 - 20 MW Electric Drive Cents.</td>
<td>107,000</td>
</tr>
<tr>
<td>Bethel Gas Storage - Compression Addition</td>
<td>3 - 4,735 BHP Engine Drive Multi Stage Recip</td>
<td>14,205</td>
</tr>
<tr>
<td>Bridgeline Gas Distribution Sorrento Gas Storage Project</td>
<td>2 - 2,200 BHP Engine Drive Recips.</td>
<td>4,400</td>
</tr>
<tr>
<td>Chenier Pipeline - Sabine Pass LNG Expansion</td>
<td>1 - 7,500 BHP VHD Elec. Drive Recip.</td>
<td>7,500</td>
</tr>
<tr>
<td>Chevron - Waltman Compressor</td>
<td>1 - 2,000 HP Electric Drive</td>
<td>2,000</td>
</tr>
<tr>
<td>CNG Transmission Corporation Chambersburg Compressor Sta.</td>
<td>2 - 4,000 BHP Electric Drive Recips.</td>
<td>8,000</td>
</tr>
<tr>
<td>Columbia Gulf Transmission Hampshire Compressor Station Unit 412</td>
<td>1 - 15,000 BHP Turbine Drive Cent.</td>
<td>15,000</td>
</tr>
<tr>
<td>Columbia Gulf Transmission Hampshire Compressor Station Unit 413</td>
<td>1 - 18,000BHP Turbine Drive Cent.</td>
<td>18,000</td>
</tr>
<tr>
<td>Columbia Gulf Transmission Inverness Station-Unit 708</td>
<td>1 - 15,000 BHP Turbine Drive Cent.</td>
<td>15,000</td>
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<tr>
<td>Columbia Gulf Transmission Inverness Station-Unit 709</td>
<td>1 - 15,000 BHP Turbine Drive Cent.</td>
<td>15,000</td>
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<tr>
<td>Columbia Gulf Transmission Corinth Station-Unit 507</td>
<td>1 - 18,000 BHP Turbine Drive Cent.</td>
<td>18,000</td>
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<tr>
<td>Columbia Gulf Transmission - Delhi Station-Unit 811</td>
<td>1 - 15,000 BHP Turbine Drive Cent.</td>
<td>15,000</td>
</tr>
<tr>
<td>Columbia Gulf Transmission - Delhi Station-Unit 812</td>
<td>1 - 19,400 BHP Turbine Drive Cent.</td>
<td>19,400</td>
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<tr>
<td>Columbia Gas Transmission - Lanham Compressor Station</td>
<td>2 - 13,500 BHP Electric Drive Cents.</td>
<td>27,000</td>
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<tr>
<td>Columbia Gas Transmission - Seneca Compressor Station</td>
<td>2 - 7,800 BHP Turbine Driven Cents</td>
<td>15,600</td>
</tr>
<tr>
<td>Columbia Gas Transmission - Lost River Compressor Station</td>
<td>1 - 4,735 BHP Engine Drive Recip</td>
<td>4,735</td>
</tr>
<tr>
<td>Dominion Natural Gas Storage – Hackberry, Louisiana - VFD</td>
<td>4 - 7,500 BHP VFD Elec. Drive Recips.</td>
<td>30,000</td>
</tr>
<tr>
<td>Dominion Atlantic Coast Pipeline - Marts Compressor Sta.</td>
<td>1-20,500 HP Solar Titan 130 Turbine Driven</td>
<td>55,100</td>
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<tr>
<td></td>
<td>1-16,000 HP Solar Mars 100 Turbine Driven</td>
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<tr>
<td></td>
<td>1-10,800 HP Solar Taurus 70 Turbine Driven</td>
<td></td>
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<td></td>
<td>1 - 7,800 HP Solar Centaur 60 Turbine Driven</td>
<td></td>
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<tr>
<td>Dominion Natural Gas - Pleasant Valley Projects</td>
<td>1 - 27,600 HP Electric Drive Cent</td>
<td>27,600</td>
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<tr>
<td></td>
<td>2 - 17,400 HP Electric Drive Cent</td>
<td>34,400</td>
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<tr>
<td></td>
<td>1 - 70,00 HP Electric Drive Cent</td>
<td>7,000</td>
</tr>
<tr>
<td></td>
<td>1 - 6,000 HP Electric Drive Cent</td>
<td>6,000</td>
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<tr>
<td>El Paso Energy Alamo Compressor Station</td>
<td>2 - 2,220 BHP Engine Drive Recips.</td>
<td>4,400</td>
</tr>
<tr>
<td>Enbridge Pipelines - Goodrich Compressor Station</td>
<td>2 - 3,000 Reliance 10B40/C Ariel JGC4</td>
<td>6,000</td>
</tr>
<tr>
<td>Enbridge Pipelines - Orange Compressor Station</td>
<td>2 - 4,700 CAT 3516 TALE / C Ariel JGC4</td>
<td>9,400</td>
</tr>
<tr>
<td>Enbridge - Venice Compressor Station</td>
<td>3 - Engine Drive Recip</td>
<td>15,500</td>
</tr>
<tr>
<td>Enron Engineering &amp; Construction Bammel Storage Facility - VFD</td>
<td>7 - 7,000 BHP VFD Elec. Drive Stg. Recips.</td>
<td>49,000</td>
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<tr>
<td>Enron Engineering &amp; Construction Trailblazer Sta. - VFD</td>
<td>1 - 10,000 BHP Elec. Drive Cent.</td>
<td>10,000</td>
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<tr>
<td>Enron Engineering &amp; Construction Faribault Station</td>
<td>1 - 15,000 BHP Turbine Drive Cent.</td>
<td>15,000</td>
</tr>
<tr>
<td>Enron Engineering &amp; Construction Severnaya, Russia Station</td>
<td>4 - 8,000 BHP Turbine Drive Cents.</td>
<td>32,000</td>
</tr>
</tbody>
</table>
## Compressor Station Projects & Installed Horsepower

<table>
<thead>
<tr>
<th>Client / Project (listed in alphabetical order)</th>
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<tbody>
<tr>
<td>Enron Gas &amp; Liquids Group Florida Gas-Station No. 19</td>
<td>1 - 2,500 BHP Integral Recip.</td>
<td>2,500</td>
</tr>
<tr>
<td>Enron Gas &amp; Liquids Group Florida Gas Phase III Expansion</td>
<td>6 - 5,000 BHP Integral Recip.</td>
<td>30,000</td>
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<tr>
<td>Enron Gas Pipeline Operating Co. Napoleonville Gas Storage</td>
<td>2 - 2,650 BHP Engine Drive Recips.</td>
<td>5,300</td>
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<tr>
<td>Enterprise Products - Sherman Extension Pipeline Project - Collin &amp; Wise Compressor Stations</td>
<td>6 - 8,000 BHP Siemens Elec Motor driven Ariel JGC4 Recips.</td>
<td>48,000</td>
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<tr>
<td>Florida Gas Transmission - Port Everglades Station 21.5</td>
<td>2 - 22,000 BHP Gas Centrifugal</td>
<td>44,000</td>
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<tr>
<td>Florida Gas Transmission - Cape Canaveral - Station 32</td>
<td>2 - 15,000 Electric Drive Cents</td>
<td>30,000</td>
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<tr>
<td>Florida Gas Transmission - Phase VI Expansion - Compressor Stations 18, 22, 24, 26</td>
<td>1 - 12,000 BHP Electric Drive Cents</td>
<td>40,800</td>
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<tr>
<td>Florida Gas Transmission - Phase VIII Expansion - Compressor Stations 11, 12, 13, 14, 15, 24, 26, 27, 29</td>
<td>5 - 22,000 BHP Electric Drive Cents</td>
<td>207,600</td>
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<tr>
<td>Florida Gas Transmission - Turkey Point Compressor Station</td>
<td>2 – 8,500 BHP Elec. Drive Cents</td>
<td>17,000</td>
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<tr>
<td>Gulf South Pipeline Company - Airport Junction Compressor Station</td>
<td>1 - 4,700 CAT 3616 TALE/C Ariel JGC6</td>
<td>4,700</td>
</tr>
<tr>
<td>Gulf South Pipeline Company - East Texas Expansion Project - Carthage Junction, Vixen, and Tallulah Compressor Stations</td>
<td>6 - 15,000 BHP Turbine Drive Cents</td>
<td>110,600</td>
</tr>
<tr>
<td>Gulf South Pipeline Company - Dehli Compressor Station</td>
<td>3 - 4,100 CAT 3608 TALE/C Ariel JGC4</td>
<td>12,300</td>
</tr>
<tr>
<td>Gulf South Pipeline Company - Harrisville Compressor Station</td>
<td>4 - 4,700 CAT 3616 TALE/C Ariel JGC6</td>
<td>18,800</td>
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<tr>
<td>Kinder Morgan - Keota Compressor Station</td>
<td>1 - 3,550 HP CAT / Ariel Two Stage</td>
<td>3,550</td>
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<tr>
<td>Mobay Gas (Falcon) - Mobay Storage Hub</td>
<td>8 - 4,700 CAT 3616 TALE/C Ariel JGC6</td>
<td>37,600</td>
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<tr>
<td>NET Midstream - NET Mexico Project</td>
<td>4 - 25,000 HP Electric Drive Cent</td>
<td>100,000</td>
</tr>
<tr>
<td>Nicor Gas - Troy Grove Compressor Station</td>
<td>1 - 15,000 BHP Turbine Drive Cent</td>
<td>15,000</td>
</tr>
<tr>
<td>Niska Storage Partners - Wild Goose Storage Phase 2B Expansion</td>
<td>2 - 4,700 CAT 3616 TALE/C Ariel JGC6</td>
<td>9,400</td>
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<tr>
<td>NiSource - Eastern Market Expansion - Lost River Compressor Station</td>
<td>1 - 4,700 Waukesha Engine Arial Recip.</td>
<td>4,700</td>
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<tr>
<td>Northern Natural Gas - Clifton Compressor Station</td>
<td>1 - 10,000 Solar Centaur Gas Turbine</td>
<td>10,000</td>
</tr>
<tr>
<td>Northern Natural Gas Transmission - Farmington Compressor Station</td>
<td>1 - 7,700 BHP Turbine Drive Cents</td>
<td>7,700</td>
</tr>
<tr>
<td>Northern Natural Gas Transmission - Guthrie Compressor Station</td>
<td>1 - 7,700 BHP Turbine Drive Cents</td>
<td>7,700</td>
</tr>
<tr>
<td>Northern Natural Gas Transmission - Hugo Compressor Station</td>
<td>1 - 7,700 BHP Turbine Drive Cents</td>
<td>7,700</td>
</tr>
<tr>
<td>Northern Natural Gas Transmission - Oakland Compressor Station</td>
<td>1 - 15,000 BHP Turbine Drive Cents</td>
<td>15,000</td>
</tr>
<tr>
<td>Northern Natural Gas Transmission - Redfield Compressor Station</td>
<td>2 - 1,100 BHP Engine Drive Recips</td>
<td>9,200</td>
</tr>
<tr>
<td>Northern Natural Gas Transmission - Sublette Compressor Sta.</td>
<td>1 - 7,000 BHP Turbine Drive Centriat</td>
<td>9,200</td>
</tr>
<tr>
<td>PetroChina - Jingbian Compressor Station No. 8</td>
<td>2 - 30,000 BHP Turbine Drive Cents</td>
<td>60,000</td>
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<tr>
<td>Regency Gas - Northern Louisiana Expansion</td>
<td>3-4,750 BHP Engine Drive Recips</td>
<td>14,250</td>
</tr>
<tr>
<td></td>
<td>4 - 4,700 BHP Engine Drive Recips</td>
<td>18,800</td>
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## Compressor Station Projects & Installed Horsepower

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<tr>
<td>Repsol - Nuevo Mundo Compressor Station</td>
<td>4 - 5000 HP Electric Drive Recips</td>
<td>34,250</td>
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<td></td>
<td>3 - 4750 HP Engine Drive Recips</td>
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</tr>
<tr>
<td>Sabine Gas Storage - Spindletop Gas Storage</td>
<td>4 - 8,000 BHP Electric Drive Recips.</td>
<td>32,000</td>
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<tr>
<td>Sempra Storage - Bay Gas Cavern 5</td>
<td>2 - 4,735 CAT 3616 TALE/C Ariel KBZ 6</td>
<td>9,470</td>
</tr>
<tr>
<td></td>
<td>2 - 4,700 CAT 3616 TALE/C Ariel JGC8</td>
<td>9,400</td>
</tr>
<tr>
<td>Sempra Storage - Mississippi Hub Cavern 2</td>
<td>2 - 10,000 HP Solar Taurus 70 Gas Turbine</td>
<td>20,000</td>
</tr>
<tr>
<td>Spectra Colerain Compressor Station</td>
<td>2 - 11,000 HP Solar Taurus 70 Gas Turbine</td>
<td>22,000</td>
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<tr>
<td>Spectra Salenville Station</td>
<td>2 - 15,000 BHP Elec. Drive Cent.</td>
<td>15,000</td>
</tr>
<tr>
<td>Spectra Valley Crossing Agua Dulce</td>
<td>1 - 12,000 BHP Elec. Drive Cent.</td>
<td>12,000</td>
</tr>
<tr>
<td>Spectra Valley Crossing Brownsville</td>
<td>1 - 7,000 BHP Turbine Drive Cent.</td>
<td>9,200</td>
</tr>
<tr>
<td></td>
<td>2 - 1,100 BHP Recips.</td>
<td></td>
</tr>
<tr>
<td>TransCanada - Collierville Compressor Station</td>
<td>1 - 10,000 BHP Elec. Drive Cent.</td>
<td>10,000</td>
</tr>
<tr>
<td>Transwestern Pipeline - Bisti Compressor Station VFD</td>
<td>1 - 15,000 BHP Elec. Drive Cent.</td>
<td>15,000</td>
</tr>
<tr>
<td>Transwestern Pipeline - Bloomfield Compressor Station</td>
<td>1 - 41,500 Gas Turbine Cent</td>
<td>41,500</td>
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<tr>
<td>Transwestern Pipeline Company - Gallup Compressor Station - VFD</td>
<td>1 - 41,500 BHP Turbine Drive Cents.</td>
<td>166,000</td>
</tr>
<tr>
<td>Transwestern Pipeline Company - La Plata Compressor Station</td>
<td>1 - 7,000 BHP Turbine Drive Cent.</td>
<td>9,200</td>
</tr>
<tr>
<td></td>
<td>2 - 1,100 BHP Recips.</td>
<td></td>
</tr>
<tr>
<td>Transwestern Pipeline Company - Red Rock Expansion - Flagstaff &amp; Leupp Compressor Stations</td>
<td>4 - 41,500 BHP Turbine Drive Cents.</td>
<td>166,000</td>
</tr>
<tr>
<td>Transwestern - Seligman Compressor Station</td>
<td>1 - 41,500 Gas Turbine Cent</td>
<td>41,500</td>
</tr>
<tr>
<td>Trident NGL, Inc., - Hackberry Facility Expansion</td>
<td>2 - 200 BHP Electric Drive Cent.</td>
<td>400</td>
</tr>
<tr>
<td>Trunkline Gas Company</td>
<td>1 - 7,500 BHP Elec. Drive Cents.</td>
<td>7,500</td>
</tr>
<tr>
<td>Valero Gas Storage Company - Boling Gas Storage Project</td>
<td>4 - 2,000 BHP Engine Drive Recips.</td>
<td>8,000</td>
</tr>
<tr>
<td>Confidential Project</td>
<td>4 - 30,000 HP Solar Titan 250 Gas Turbine</td>
<td>12,000</td>
</tr>
<tr>
<td>Confidential Project</td>
<td>3 - 15,000 HP Solar Titan 100 Gas Turbine</td>
<td>45,000</td>
</tr>
</tbody>
</table>

**Total Installed Horsepower** 3,120,736
2. Pump Stations Experience

**Enbridge – Flanagan South Pipeline (FSP)**
Pontiac, Illinois to Cushing, OK
7 Pump Stations
Hp: 115,000
Driver Type: Centrifugal
UPI provided FEED, detailed engineering, procurement, survey, and construction support for seven (7) pump stations for a 593 mile 36-inch diameter crude oil pipeline from Pontiac, IL to Cushing, OK. The pipeline was designed to a capacity of 650,000 barrels per day (bpd) of 100% heavy crude. The total project cost is $3+ Billion.

**Enbridge – Spearhead North Reversal & Sale Project**
Pontiac, IL to Chicago, IL
1 Pump Station
Hp: 6,000
Driver Type: Centrifugal
Added pump station to facilitate reversal pipeline between 2 existing locations.
UPI provided FEED, detailed engineering, and material procurement assistance for the addition of one (1) new pump station, modifications of two (2) terminals adding booster pumps, piping, quality control, surge relief system, pressure control, deactivation and nitrogen purging for Enbridge to accommodate the transportation of 130,500 BPD of heavy Canadian crude from Flanagan, Illinois to Hartsdale, Indiana on Enbridge's Spearhead Pipeline System.

**Enbridge – Spearhead South Expansion (SSE)**
Pontiac, Illinois to Cushing, OK
13 Pump Stations
Hp: 56,100
Driver Type: Centrifugal
Upgraded pipeline pump stations from 26,600 Hp to 56,100 Hp.
UPI provided FEED, detailed engineering, and procurement services to Enbridge on their Spearhead Pipeline system for the expansion of nine (9) crude oil pump stations and the addition of three (3) new pump stations to accommodate a flow rate increase from 120,000 BPD to 190,000 BPD of heavy Canadian crude from Pontiac, Illinois to Cushing, Oklahoma.

**Enbridge – Trailbreaker Line 6B Project**
Griffith Terminal, IN to Sarnia, Ontario
UPI provided Class 3 TIC estimates, FEED, and detailed engineering services to Enbridge for the expansion of seven (7) crude oil pump stations and the addition of seven (7) new pump stations to accommodate a capacity of 425,000 BPD of heavy Canadian crude from Griffith Terminal, IN to Sarnia, Ontario.

**Fortis - Woodland Trap Sites, MLBV and Compressor station Tie-ins**
UPI provided detailed engineering, procurement, and construction management services as well as Regulatory application support.

**Kinder Morgan Cortez Project**
UPI provided detailed design, mapping, and procurement support for the expansion of the Kinder Morgan Cortez CO₂ system. The project included 70 miles of 16-inch pipeline, five (5) green field pump stations, four (4) brown field pump stations, and four (4) miles of gathering lines.

**Kinder Morgan – Lobos / Dry Gas Gathering**
UPI provided FEED, detail engineering, mapping, and procurement services for a 220 miles of 16-inch pipeline with three (3) pump stations for transporting super-critical carbon dioxide (CO₂) for enhanced oil
recovery operations in West Texas. The pipeline originates near St. Johns, Arizona and terminates near Albuquerque, New Mexico.

**Plains Midstream Canadian operation – Carmon Creek Facility**
UPI provided engineering, procurement, project management, construction management, and regulatory application support for development of a Class 3 Total Installed Cost (TIC) Estimate for extra heavy Dilbit with very low to high capacity operation ratio.

**Plains Midstream Canadian Operation – IDIGO**
UPI provided detailed engineering, procurement, construction management, and regulatory application services for two (2) pump stations, liquid metering, liquid QA/QC, launchers and receivers, main line block valves, and leak detection system.

**Plains Midstream Canadian Operation – NCCP**
UPI provided detailed engineering, procurement, construction management services, and regulatory application services for two (2) pump stations, liquid metering, liquid QA/QC, launchers and receivers, main line block valves, and leak detection system.