



# Alliance Engineering

A Wood Group Company

## Onshore Projects



Engineering Excellence  
Predictability, Safety, and Quality



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## About Us

Alliance Engineering provides highly optimized concept-to-completion custom engineering and design solutions for the oil and gas industry, and past projects include some of the world's most recognized project developments. With an emphasis on quality initiatives, cost-effective engineering, and a partnership approach to customer relationships, Alliance has provided cutting-edge and fit-for-purpose engineering services for customers worldwide.

Alliance offers services and expertise for: onshore projects, including upstream production and processing facilities, compressor stations, pipelines, and storage projects, and offshore projects, including topsides facilities for fixed-platforms, FPSO's, semi-submersibles, tension leg platforms (TLP's) and Spar-type deepwater developments. Alliance has offices in Houston, TX, Denver, CO, and Canonsburg, PA.



## ISO 9001:2008

Certificate Number: 42273

*Alliance is ISO 9001:2008 certified.*

**Our core strengths and capabilities include the design of compressor stations, pipelines, meter stations, pump stations, and processing and production facilities.** We specialize in multifacility program developments for all of these core services. This promotes cost-effective and fit-for-purpose design solutions that meet our customers' objectives and expectations.

Our best resources are our people – both at the discipline level, and at all levels of management. Alliance employs people with expertise in all the relevant engineering and design disciplines, averaging more than twenty years of experience in their respective disciplines. Our company management, engineering management, design management, and project managers possess an average of twenty-five years of experience.

# Alliance's Depth

- **Compression Depth:** Over 1 Million horsepower of compression designed and installed over the last 10 years.
- **Pipeline Depth:** Over 1000 miles of pipeline designed and installed domestically over the last 10 years.
- **Meter / Regulator Stations Depth:** Over 50 mainline meter stations designed and installed over the last 3 years.
- **Production Facilities Depth:** Supported most majors and independents on multiple upstream production and processing facilities worldwide.
- **Gas Storage Depth:** Alliance has designed more than 20 gas storage facilities, and is considered the premier supplier of such services.

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**stations, and processing and production facilities.** We specialize in multifacility program developments for all of these core services. This promotes cost-effective and fit-for-purpose design solutions that meet our customers' objectives and expectations.

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# Onshore Services

## Engineering & Design

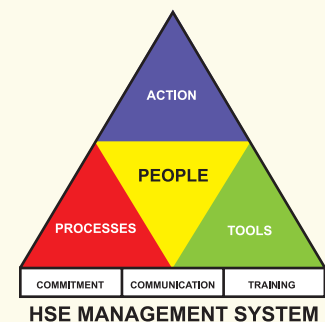
- Process, Mechanical, Electrical, Instrument, Civil & Structural Engineering
- Optimization & Troubleshooting
- Automation & Control
- Field Development & Feasibility Studies
- Permitting Assistance
- HAZOP's
- PSM - Process Safety Management
- As-built Documentation

## Project Services

- Pipelines
- Compressor Stations
- Production Facilities
- Pump Stations
- Meter and Regulator Stations
- Natural Gas Storage
- Control System Design
- Terminals and Loading Facilities
- Slug Catchers

## Construction

- On-site Management
- Engineering Inspection
- Materials Management
- Project AFE Cost Tracking
- N.D.T. Verification / Welding Inspection
- Testing Coordination



# Transco Program Development

## Series of Compressor Stations, U.S. Williams Partners, L.P.

- **Scope of work:** project management, engineering, design, and procurement services
- **Design rates:** 555 MMscfd
- **Equipment:** 2 CAT-3616 and 1 CAT GCM-34 engine driven compressor packages

Alliance provided project management, engineering, design, and procurement services for the installation of 13 compressor station projects on the Transco Pipeline. A typical station involved the installation of 2 CAT-3616 and 1 CAT GCM-34 engine driven compressor packages. Alliance's scope of work on these stations included providing engineering and design services for compressor buildings, gas cooling equipment, scrubbers, silencers, fuel gas conditioning skids, air compressor skids, storage tanks, generators, electrical buildings, and all required station and unit control systems. Alliance also provided assistance in attaining all required FERC and local permits.



*The Transco Program Development projects have been ongoing since 2008.*

### ***Williams Gas Pipeline – Transco:***

***Program management for 13 stations, including recip, turbines, and electric motor drives***

# Bald Knob Station Expansion

## Compressor Station, Fayetteville Shale, U.S. Boardwalk Pipeline Partners, LP

- **Scope of work:** detailed engineering and design, project management services, drafting, and permit support
- **Design rates:** 30,500 hp / 1.3 Bscfd
- **Equipment:** 2 Solar Mars 100 units
- **Part of Alliance's multi-year Boardwalk program developments – 12 stations total**

Bald Knob compressor station is a representative example of the engineering and design program services provided for Boardwalk's compressor station program development, which included services for 12 stations. The goal of the Bald Knob expansion was to add compression to Fayetteville Shale Gas pipeline to increase peak-day transmission capacity to approximately 1.3 Bscfd. The Fayetteville Shale Lateral consists of approximately 165 miles of 36 in. pipeline. Detailed design consisted of all facets of mechanical, civil / structural, electrical, and instrumentation engineering. Major equipment included 2 Solar Mars 100 units with inlet air system and exhaust system, inlet gas scrubbing and discharge gas cooling, and the addition of PCR and auxiliary buildings as well as a plant air system. The project added 30,500 hp of compression.



***The Bald Knob Station Expansion was completed in 2009.***

### ***Bald Knob Station Expansion:***

***Representative example of Alliance's Boardwalk program work***

# REX Compressor Facilities



*The REX Compressor Facilities were completed in 2009.*

## Compressor Stations, U.S. Kinder Morgan

- **Scope of work:** conceptual, detailed engineering and design, and project management
- **Facilities:** 13 separate grassroots compressor stations
- **Design rates (total, all stations):** 1.8 Bscfd / 300,000 hp

Alliance provided conceptual and detailed engineering and design, along with project management, for 13 separate grassroots compression facilities and related meter stations for the Rockies Express (REX) system.

REX – a \$4.9 billion project – is a 42 in., 1,678 mile-long gas pipeline with a capacity of 1.8 Bscfd. The Alliance-designed facilities installed over 300,000 hp of compression. Alliance was also involved in designing gas coolers, fuel gas heaters, generators, warehouse facilities, infrastructure, power / control structures, and meter stations for this project. For more information on Alliance’s work on the REX meter stations, please see the “REX Measurement Facilities” project, found on page 11 of this brochure, in the “Meter / Regulator Station Design” section.

### *Kinder Morgan’s REX: Compressor program development for a major interstate pipeline*

## Marc I South Expansion

### Grassroots Compression Facility, U.S. Inergy, L.P.

- **Scope of work:** project management, engineering, design services, and procurement
- **Design rates:** 550 MMscfd
- **Equipment:** 1 CAT C12GCM-34 and 1 CAT C16GCM-34 engines driving Ariel reciprocating compressors

Alliance provided project management, engineering, design, and procurement services for the installation of 1 CAT C12GCM-34 and 1 CAT C16GCM-34 engine driven compressor packages. In addition, this grassroots facility design included the installation of compressor building, office / warehouse building, gas cooling, filter separators, silencers,

de-odorizing equipment, fuel gas conditioning skid, air compressor skid, storage tanks, generator, electrical building, and all required station and unit control systems. Alliance also provided assistance in attaining all required FERC and local permits. This facility is an asset of Central New York Oil and Gas Company, LLC (CNYOG), which is a wholly-owned, regulated subsidiary of Inergy, L.P.

### *Marc I South:*

*Total service engineering for CNYOG pipeline facilities – including compression, metering, and interconnect sites*

*The Marc I South Expansion project is currently in progress.*



## Station 430

### Grassroots Compression Facility, U.S. Gulfstream Natural Gas System, L.L.C.

- Scope of work: engineering and design, project management, and procurement services
- Design rates: 660 MMscfd
- Equipment: Solar Taurus 60 gas turbine driving a 7,150 hp Solar C402 centrifugal compressor



*Station 430 was completed in December 2008.*

Alliance provided project management, engineering, design, and procurement services for the installation of a Solar Taurus 60 turbine and C402 centrifugal compressor. Both turbine and compressor were installed inside an enclosure. In addition, this grassroots facility design included the installation of scrubbers, silencers, an air compressor skid, storage tanks, a generator, an electrical building, and all required station and unit control systems. Alliance also provided assistance in attaining all required FERC and local permits. The Gulfstream pipeline system's sponsors are Williams and Spectra Energy.

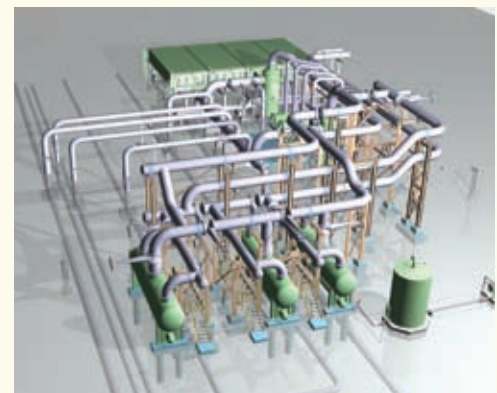
### ***Gulfstream Station 430:***

***Integral and ongoing subset of the Williams Gas Pipeline Program Development***

## Bravo Dome Station Expansion

### Compressor Station, U.S. Oxy

- Scope of work: project management support, detailed engineering and design, drafting, surveying, mapping, procurement, and construction management support
- Equipment: 2 new 11,000 hp electric drive centrifugal compressors, 4 total 48 in. PECO Filter / Coalescers, 3 total 84 in. PECO Filter / Coalescers



*The Bravo Dome Station Expansion was completed in September 2009.*

The Bravo Dome Station Expansion included modifications to the existing compression plant, installation of approximately 25 miles of large diameter pipe from 24 to 30 in. and installation of 70 miles of fiberglass pipe ranging from 4 to 14 in. in size. Plant modifications included installation of 2 new 11,000 hp electric drive centrifugal compressors with variable speed drives. Alliance provided project management support, engineering, design, drafting, surveying, mapping, procurement, and construction management support for the development of all gathering pipelines, lateral valves, buildings, pipe, valves, fittings, and other utilities that form part of the facilities required for the Bravo Dome Station Expansion project.

### ***Bravo Dome Station Expansion:***

***An example of Alliance's brownfield compressor station excellence***

# Clarksburg Compressor Station



***The Clarksburg Compressor Station was completed in November 2010.***

driven reciprocating compressors, compressor building, 2 glycol dehydration units, 900 bbl. tank battery, discharge measurement and flow control systems, PLC controls and control room emergency generator, launcher / receiver skids, and measurement skids. A helical pier foundation system was implemented to circumvent soil integrity issues with a coal seam. The project construction was phased to expedite production from new wells. Final build-out enabled simultaneous production from free-flowing wells and compression of gas from wells with depleted pressure.

## ***Clarksburg Compressor Station: Fit-for-purpose design in the Marcellus Shale region***

### **Compressor Station, Marcellus Shale, U.S. Antero Resources**

- **Scope of work:** engineering, procurement, construction management, and commissioning support
- **Equipment:** 5 gas-driven reciprocating compressors
- **Phase 1:** commissioning of dehydration systems
- **Phase 2:** installation of compression systems
- **Design rates:** 30 MMscfd / 6,700 hp (approx.)

In early 2010, Alliance successfully completed a 30 MMscfd natural gas gathering compressor station for Antero Resources as part of Antero's Marcellus Shale ventures. The major equipment installed includes 5 gas-

# Brazos Compressor Station



***The Brazos Compressor Station was completed in June 2010.***

equipment included 3 Cooper RAM-52 reciprocating compressors (complete with ancillary equipment), and an associated 250 ft. of 12 in. pipeline interconnect to interstate pipeline custody transfer meter site and that terminated at the suction of the compressor station. In addition, a gas yard pressure regulation, metering, and gas filtration facility was installed at the power plant. It contained 12 in. and 4 in. ultrasonic meters, meter PLC, gas chromatograph, moisture analyzer and walk-in enclosure, and dual vertical filter coalescers.

## ***Brazos Compressor Station: Fuel gas compressor station and metering facility for power generation***

### **Fuel Gas Compressor Station and Metering, U.S. Troy Construction**

- **Scope of work:** engineering and detailed design, project management, procurement, and inspection
- **Equipment:** 3 Cooper RAM-52 two-throw single stage compressors with 900 hp EMD with VFD control, 2 ultrasonic meters (12 in. and 4 in.), meter / PLC building, and 250 ft. of 12 in. pipeline interconnect to interstate pipeline system

Alliance provided engineering and detailed design, drafting, material and equipment procurement, construction, commissioning and start-up services for a fuel gas compression station and gas yard pressure regulation, metering, and filtration facility located in North Texas. Installed

# Xcel Pipeline Modifications

## Pipeline, U.S. Xcel Energy

- **Scope of work:** engineering and design, procurement, construction management, and project management for pipeline valve set modifications and pipeline integrity management assessments
- **Equipment:** 25 valve sets on an 8 in. gas transmission line



*The Xcel Pipeline Modifications were completed in February 2010.*

Alliance provided engineering and design, procurement, construction management, and project management for pipeline valve set modifications and pipeline integrity management assessments. The integrity management program modifications and assessments were performed on the 8 in. West Main gas transmission pipeline running north-to-south through locations in the Rocky Mountains in the U.S. The goal of the project was to modify or replace 25 valve sets in order to facilitate hydrostatic testing and allow passage of smart pigs during future integrity management program operations.

### ***Xcel Energy Pipeline: EPC fit-for-purpose valve set modifications in the United States***

# Buck Ridge Gathering System

## Gathering Pipeline, U.S. Bargath, Inc. / Williams Production

- **Scope of work:** as-built locating, surveying, and alignment sheets
- **Equipment:** proposed 16 in. / 10 in. gathering pipeline



*The Buck Ridge Gathering System was completed in December 2010.*

Alliance provided as-built locating, surveying, and alignment sheets for the Buck Ridge Gathering System to determine constructability and space requirements for new 16 in. and 10 in. gathering pipelines. These proposed facilities are located in the contiguous United States, in the Rocky Mountains. Alliance also provided a 3-man surveying crew and all required equipment to locate and survey the Buck Ridge Main Trunk as well as 8 tie-ins. These tie-in lines varied in length up to 3.5 miles long and consisted of 4 in. diameter Flexsteel.

### ***Buck Ridge Gathering System: Fit-for-purpose gathering system design and construction***

# Kinder Morgan Lateral



*The Kinder Morgan Lateral was completed in September 2009.*

## Transmission and Distribution Pipeline, U.S. Kinder Morgan / Atmos Energy

- **Scope of work:** engineering and design, surveying, FERC 7C permitting, construction management, and project management
- **Equipment:** 12 in. outer diameter transmission pipeline; 6, 8, and 12 in. lateral pipeline

This lateral project, developed by Kinder Morgan Interstate Gas Transmission, is a 42-mile natural gas pipeline system that transports natural gas from points on a major hub to interconnection points in the Rocky Mountains. In addition to the pipeline, this project consisted of new pipeline laterals (owned and operated by Atmos Energy), serving commercial and residential customers. These additional pipeline laterals ranged in length from 0.5 miles to 4.5 miles, and ranged in diameter from 6 to 12 in. Alliance provided engineering and design, surveying, FERC 7C permitting, construction management, and project management for 42 miles of 12 in. outer diameter transmission pipeline, 10 miles of 6, 8, and 12 in. lateral pipeline, and 8 meter / regulation stations and odorization.

### *Kinder Morgan Lateral: A North American transmission and distribution pipeline project*

# Marcellus Pipeline Projects

## Pipeline and Gathering Design, U.S. Chesapeake Midstream

- **Scope of work:** assistance with project management, project controls, route development, and pipeline engineering
- **Pipeline:** multi-pipeline gas gathering system



*These Marcellus Pipeline projects are ongoing.*

These projects are part of the installation of a multi-pipeline gas gathering system in northeastern Pennsylvania, in the Marcellus Shale region. Alliance is providing a variety of engineering and project management services – including

project management, project controls, route development, and pipeline engineering services. In addition, Alliance is providing alignment sheet mapping and pipeline design services, which includes the generation of construction alignment sheets.

### *Marcellus Pipeline Services: Shale gas midstream services from concept to start-up*

# Liberty Gathering System

## Metering and other Facilities, Marcellus Shale, U.S. J-W Gathering Company

- **Scope of work:** project management, project controls, design, mapping, owner representation, and construction inspection
- **Meter stations:** custody transfer measurement for multiple receipt and delivery points

Alliance is providing project management, project controls, design, mapping, owner representation, and construction inspection for the planned installation of a grassroots Marcellus gas gathering field in Cameron County, Pennsylvania (indicated in the map of Pennsylvania on the right).

In addition to custody transfer measurement facilities for multiple receipt and delivery points, this project also involves the installation of other equipment, including: a compressor station, flow control, dehydration, pipeline pigging systems, overpressure protection, cathodic protection systems, purchase power, SCADA and controls systems, gas chromatograph, and moisture analysis.



*The Liberty Gathering System is currently in development.*

### ***Liberty Gathering System: Installation of a grassroots Marcellus gas gathering field***

# Tombs Run Facility

## Meter / Regulator Station, Marcellus Shale, U.S. Range Resources

- **Scope of work:** design reviews, project coordination, owner representation, and construction inspection
- **Design rates:** 700 MMscfd
- **Meter type:** ultrasonic

Alliance provided design reviews, project coordination, owner representation and construction inspection for a 700 MMscfd interconnect facility for Marcellus gas between Range Resources and Williams-Transco in Lycoming County, Pennsylvania. This meter / regulator station featured interconnections with three existing pipelines and utilized ultrasonic metering equipment. Additional equipment and design features included flow control, overpressure protection, cathodic protection system, purchase power, SCADA and controls systems, odorization system, gas chromatograph, moisture analyzer, as well as buildings for measurement, flow control, odorization, and electrical equipment.



*The Tombs Run Facility was completed in 2010.*

### ***Tombs Run Facility: Interconnect facility between Marcellus production and a major pipeline***

## Tiger Pipeline Expansion



*The Tiger Pipeline Expansion was completed in February 2011.*

**Meter / Regulator Stations, Haynesville Shale, U.S.  
Energy Transfer Partners, L.P.**

- **Scope of work:** engineering and design, drafting, procurement assistance, and project management
- **Design rates:** 250 MMscfd per meter station (2 stations total)

Alliance provided engineering and design services for 2 interconnect delivery points for the 42 in. Petrohawk transmission pipeline from the 42 in. ETC Tiger transmission pipeline as part of the Energy Transfer Partners, L.P. expansion of the Tiger Pipeline serving the Haynesville Shale producing region. The approximately 180-mile, 42 in. Tiger natural gas pipeline system, which was announced in January 2009, serves the eastern half of the United States. The pipeline was put into service the first half of 2011, and the expansion was completed shortly thereafter. Alliance provided engineering and design, drafting, procurement assistance services, and project management for 2 total 350 MMscfd receipt interconnect meter stations for the Tiger Pipeline Expansion Project.

### ***Tiger Pipeline Expansion:***

***Alliance designed meter / regulator stations for the Haynesville Shale region***

## REX Measurement Facilities



*The REX Measurement Facilities were completed in 2009.*

**Meter / Regulator Stations, U.S.  
Kinder Morgan**

- **Scope of work:** detailed engineering and design services, and project management
- **Facilities:** 20 total meter stations
- **Design rates (total, all stations):** 1.8 Bscfd

Alliance provided conceptual and detailed engineering and design, along with project management, for 20 meter stations for the Rockies Express (REX) system. REX is a \$4.9 billion, 42 in. pipeline, running 1,678 miles through six states in the Rocky Mountains and the Midwest. REX has a capacity of 1.8 Bscfd. For these 20 meter stations, Alliance provided process, piping, mechanical, civil, structural, electrical, automation, instrumentation, and pipeline engineering and design services. These stations featured a modularized and transportable design. Alliance also developed 13 grassroots compressor stations for REX; for more details, please see the “REX Compressor Stations” project on page 5 of this brochure, in the “Compressor Station Design” section.

### ***Kinder Morgan’s REX:***

***Multiple modularized metering facilities to allow for pipeline expansion and commissioning***

# Resolute Energy Facilities

## Gas Processing Facilities, U.S. Resolute Energy

- **Scope of work:** project coordination, piping design, full civil design, electrical and control design, and construction support
- **Facilities:** an 80 MMscfd propane refrigeration plant and a 60 MMscfd dehydration unit
- **Phase 1:** inlet filtration, 2 screw compressors, dehydration, propane refrigeration, and 2 reciprocating charge compressors

Alliance provided engineering and drafting services for the installation of an 80 MMscfd propane refrigeration plant and an 60 MMscfd dehydration unit at an existing facility.

The project directive is to utilize dehydration, refrigeration, and eventually a membrane plant to clean up and recycle the CO<sub>2</sub>, which is currently being injected into Resolute Energy's fields for oil recovery. Alliance's scope of work included project coordination, interconnecting piping design, full civil, electrical and control design as well as construction support.



*The Resolute Energy Facilities were completed in 2011.*

### ***Resolute Energy Gas Processing Facilities: A fit-for-purpose propane refrigeration and dehydration plant***

# Chipeta Train II Expansion

## Gas Processing Facility, U.S. Company Confidential

- **Scope of work:** engineering and design, procurement assistance, and construction support for a plant expansion
- **Design rates:** 250 MMscfd gas
- **Equipment:** 27,000 hp Solar compressor with Siemens synchronous electric motor

Alliance acted as the lead design firm for the Chipeta Train II Plant Expansion. The expansion was designed to process 250 MMscfd of gas using cryogenic expander technology. The 27,000 hp Solar compression (with Siemens Synchronous Electric Motor) was installed to compress 250 MMscfd of residue gas from approximately 410 psig to 1,648 psig. Facilities include: compressor, coolers, building, header system for tie-in to existing cryogenic plant, NGL pipeline pumps, power distribution, and PLC integration.



*The Chipeta Train II Expansion was completed in April 2009.*

### ***Chipeta Train II Expansion: A major brownfield gas facility expansion project***

# Hunter Mesa Station Expansion



***The Hunter Mesa Station Expansion was completed in August 2011.***

In addition, Alliance provided project management, procurement, and construction support. This expansion added 2 new reciprocating compressor units, plus associated equipment. Associated equipment included process and utility coolers, a 175 MMscfd dehydration unit (as detailed above), MCC, as well as piping and electrical additions. This project expanded the station's capacity from 100 MMscfd to 150 MMscfd.

## **Production Facility, U.S. Encana / Enterprise Products**

- **Scope of work:** detailed engineering and design, project management, procurement, and construction support
- **Facility:** expanded from 4 to 6 compressor units, plus associated production equipment
- **Production expansion:** added a 175 MMscfd dehydration unit with filter coalescer, contactor tower, discharge separator, glycol regeneration skid, and still overhead condenser heat exchanger

**Alliance provided detailed engineering and design for the expansion of the Hunter Mesa compressor station.**

### ***Hunter Mesa:***

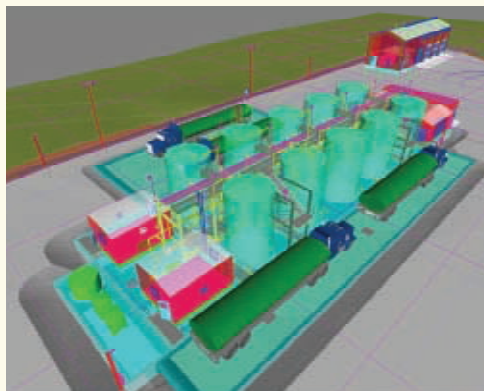
### ***Fit-for-purpose production facility expansion***

# Jonah Section 18 Facility

## **Production Facility (Water Facility), U.S. Encana**

- **Scope of work:** detailed engineering and design
- **Equipment:** water tanks, transfer injection pumps, power generation, truck loading and unloading
- **Facility:** 10 tanks, each with 750 bbl. capacity

**Alliance performed detailed engineering and design for the Encana Natural Gas Section 18 Water Facility, located in the Jonah Gas Field.** This greenfield construction project consists of 10 tanks (each with 750 bbl. capacity), transfer and injection pumps, truck loading and unloading, concrete spill containment, and onsite power generation. This site is designed to receive produced water via truck unloading,



***The Jonah Section 18 Facility was completed in October 2010.***

perform water / solids / condensate separation, inject the clean water into onsite storage wells, and provide truck loading for solids and condensate sales. Alliance's scope of work included detailed engineering and design of equipment layout, pipe routes, foundations, structural supports, and electrical equipment. Alliance also developed data sheets and specifications for select equipment, including fuel gas supply, generator and MCC building, and instrumentation; Alliance also issued RFQs and performed bid evaluations, and provided construction support.

### ***Jonah Section 18 Facility:***

### ***Fit-for-purpose greenfield production facility design***

# Golden Triangle Storage Facility

Cavern Gas Storage Facilities, U.S.  
AGL Resources

- **Scope of work:** detailed engineering and design, surveying, FERC 7C permitting, and project management
- **Equipment:** 3 CAT 3616 compressors, 20 in. cavern gas pipeline, 24 in. gas pipelines, water pipelines of various widths
- **Facility:** 2 caverns, 12 bcf capacity



*The Golden Triangle Storage Facility was completed in July 2010.*

Alliance performed services for a solution mining facility of two caverns totaling 12 bcf storage capacity with future total capacity of 28 bcf in 5 caverns. In addition, Alliance designed a compression facility consisting of 3 CAT 3616 compressors with future space for 2 more 3616 compressors. Alliance designed water and brine pipelines, which varied in size, from 12 to 16 in. in diameter. In addition, Alliance designed 1 mile of 20 in. cavern gas pipeline and 8.75 miles of parallel 24 in. gas pipelines. Alliance assembled and managed a three-part team for this project, consisting of an Alliance team in the main office in Houston, an Alliance team in the Denver office, and a team from Energeticos, Alliance's sister company through Wood Group.

***Golden Triangle Storage:  
A complex cavern gas storage facility, made fit-for-purpose***

# Monroe Gas Storage Facility

Storage Facility, U.S.  
Foothills Energy Resources

- **Scope of work:** detailed engineering and design, FERC 7C permitting, HDD designs, and project management
- **Equipment:** 24, 18, and 12 in. pipelines and gathering lines
- **Design rates:** 500 MMscfd capacity
- **Facility:** 4 pipelines, 9 separate depleted storage wells



*The Monroe Gas Storage Facility was completed in November 2009.*

Alliance performed detailed engineering and design, FERC 7C permitting, HDD designs, and project management for 23.5 miles of 24 in. pipelines, 0.75 miles of 18 in. gathering line and half-mile of 12 in. gathering lines capable of moving 500 MMscfd to 4 separate pipelines and 9 separate depleted reservoir storage wells. During the construction phase, Alliance provided construction management and craft inspection services, as well as assisted in the start-up and commissioning activities for a complete and operable compression and dehydration station, 5 storage well and metering sites with storage of 12 Bscf, and 2 custody transfer metering facilities.

***Monroe Gas Storage:  
Complete gas storage system engineering and design***

# Ryan Gulch Gathering System



*The Ryan Gulch Gathering System was completed in December 2010.*

**Field Services, U.S.  
Bargath, Inc.**

- **Scope of work:** surveying, inspection, and project management
- **Equipment:** natural gas gathering pipelines of various widths (between 6 and 24 in.); 4 and 6 in. Flexsteel water gathering and distribution pipelines

**Bargath, Inc. (Williams Production CO) installed a pipeline gathering system for 7 proposed new Williams RMT gas wells in the Ryan Gulch area to tie into the Williams processing plant in the Rocky Mountains.** Alliance provided field services for surveying (construction and as-built), inspection (construction and fabrication), as-built alignment sheets, as-built drawings for all tie-ins, weld maps, job books, and project management for approximately 40 miles of 6, 8, 12, 16, 20, and 24 in. natural gas gathering pipelines and 4 and 6 in. Flexsteel water gathering and distribution pipelines.

## ***Ryan Gulch Gathering System:***

***Field services included surveying, construction inspection, and as-building***

# Clarksburg Gathering System



*The Clarksburg Gathering System was completed in November 2010.*

**Field Services, Marcellus Shale, U.S.  
Antero Resources**

- **Scope of work:** detailed design, pipeline route selection, ROW assistance, environmental coordination, surveying, permitting, procurement, and inspection
- **Equipment:** 8, 10, 12, and 16 in. gathering pipeline

**Alliance provided detailed design, pipeline route selection, ROW assistance, environmental coordination, managing and coordinating surveying, permitting, procurement, and craft inspection for a Marcellus Shale gathering system.** Alliance provided detailed design and other services for a gathering system consisting of 8, 10, 12, and 16 in. gathering lines, including launcher and receivers, meter station, wellhead metering, as-built drawings and alignment sheets, job books, project management, and construction management.

## ***Clarksburg Gathering System:***

***An Alliance-designed shale gas production facility, in the Marcellus region***



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A Wood Group Company

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