<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 15th, 2019</td>
<td>Methanol and glycol injection is used in process lines where there is a risk of hydrate formation at low temperatures. Generally applied to natural gas wells and pipelines operating at pressures up to 1 500 bar (22 000 psi) the methanol glycol is injected at wellhead or subsurface during start up shutdown or continuously as required by the process.</td>
<td>Methanol and glycol MEG TEG injection PG Flow Solutions</td>
</tr>
<tr>
<td>May 12th, 2019</td>
<td>Chemical injection skids per each wellhead to avoid hydrate formation. AES Solution AES provided Methanol Injection Skids to be used to inject Methanol into Wellhead Piping Stream of Choke Valves in order to prevent hydrate formation primarily during startup. Result: The wellhead temperature is 96.8°F.</td>
<td>Khuff Gas Project AES Arabia</td>
</tr>
<tr>
<td>Apr 8, 2015</td>
<td>Design Chemical injection package with this specification Design package for injection special liquid to pipeline amp wellhead facility amp pipe process.</td>
<td>How is the volume of methanol injection required</td>
</tr>
<tr>
<td>May 16th, 2019</td>
<td>Following the methanol injection line was flushed with the LDHI 100 gal of the inhibitor were injected into the flowline. The flowing wellhead pressure is 943 psig which increases to 2 175 psig on shut in. The flowing wellhead temperature is 96.8°F.</td>
<td>FLOW ASSURANCE Hydrate inhibitors for deepwater flow</td>
</tr>
<tr>
<td>May 4th, 2019</td>
<td>Design Chemical injection package with this specification Design package for injection special liquid to pipeline amp wellhead facility amp pipe process.</td>
<td>Wellheadfacility com Chemical Injection Package</td>
</tr>
<tr>
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<td>Instead methanol is injected into the wellhead at the subsea wellhead. In the case of the pipeline shown in Fig 1 sufficient methanol is injected at the wellhead so that an excess of 23 wt methanol will be present in the free water phase over the entire pipeline length.</td>
<td>Preventing formation of hydrate plugs petrowiki org</td>
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<td>Methanol and Glycol MEG Injection. Methanol and glycol injection is used in process lines where there is a risk of hydrate formation at low temperatures. Generally applied to natural gas wells and pipelines operating at pressures up to 1 500 bar (22 000 psi) the methanol glycol is injected at wellhead or subsurface during start up shutdown or continuously as required by the process.</td>
<td>Methanol and Glycol MEG TEG Injection Pumps Calder Ltd</td>
</tr>
</tbody>
</table>
temperatures. High pressures are required to overcome friction losses in subsea pipelines where the well head can be up to 100 kms from the platform.

**Chemical amp Methanol Injection Systems Frames**
May 15th, 2019 - Chemical amp Methanol Injection Systems Chemical injection systems are commonly used in production facilities in the oil and gas industry. They prevent or mitigate a wide range of problems that might negatively affect the production flow and process completion.

**Skids GSW gswco.com**
May 14th, 2019 - Chemical injection skids. Generally, the Oil and Gas Extraction process requires Injection for its application. Chemical injection systems typically consist of multiple chemical services with associated single or multi compartment storage tanks or pressure vessels. In the Injection Major factor is the Injection rate and Injection temperature.

**Subsea trees GE Oil and Gas**
May 14th, 2019 - Subsea trees. Subsea trees are complex configurations of valves and other components installed at the wellhead to monitor and control production flow and manage gas or fluids injection. Valve orientations can be either vertical with production tubing suspended in the wellhead or horizontal with production tubing suspended in the tree.

**Instrumentation — Holta amp Håland Safety**
May 16th, 2019 - Chemical amp methanol injection units. Metering injection and transfer pump skids. Multiple chemical storage vessels up to 250m3. Pump range includes double diaphragm and plunger type capable of pressures in excess of 1 000 barg. Conforming to API675. For wellhead and petrochemical applications.

**Vent Injection Sub Wireline Pressure Control Pressure**
May 14th, 2019 - The Vent Injection Sub shortens filling and draining times while supplying a useful port for chemical injections. The hydraulic actuators open to allow air to escape while the risers are filled. During bleed off, the valve is opened to speed up the depressurization process.

**Production Wellsite Packages Frames Group**
May 14th, 2019 - Production wellsite packages deliver a robust ready to use solution for both onshore and offshore applications. Certified for hazardous areas. Frames combines all hydraulics flowline assurance well monitoring safeguarding on site control logics communication independent solar power supply and back up power into a single modular unit.

**Wellheadfacility.com Chemical Injection Package**
with this specification design package for injection special liquid to pipeline amp wellhead facility amp pipe process

**OPTIMIZING METHANOL USAGE FOR HYDRATE INHIBITION IN A GAS**
May 15th, 2019 - OPTIMIZING METHANOL USAGE FOR HYDRATE INHIBITION IN A GAS GATHERING SYSTEM injection or dehydration of the gas Esteban et al 4 Covington et al 5 The first widely recognized combined wellhead and booster station usage has remained relatively constant in the range of about 30

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**VersaTech Automation FZE Chemical Injection Systems**
May 14th, 2019 - You Are Here Chemical Injection Systems CHEMICAL INJECTION SYSTEMS CIS CIS Systems are supplied fully assembled and tested to customer specifications from concept to completion Chemical Injection Systems are available for various applications • Corrosion Inhibitors • Methanol Injection • Scale Inhibitors

**Methanol Injection Skid Oceaneering**
May 14th, 2019 - Methanol Injection Skid Cage Mount The Methanol Skid is designed to inject Methanol at low pressure 25 to 50 psi above ambient into the BOP H 4 connectors to reduce or break down the build up of Hydrates This is accomplished by pumping a volume of Methanol stored in four 109 inch long cylinders each holding 33 75

**Products – Hitec Products**
May 13th, 2019 - Wellhead Control Panel The WHCP is a complex hydraulic control system that provides control of the topside or direct hydraulic subsea christmas tree We can provide state of the art systems for small one well developments to major new developments with multiple trees

**Gas Hydrate Inhibitor Injection Calculations**
May 10th, 2019 - Gas Hydrate Inhibitor Injection has been discussed previously on Cheresources in several posts Besides the fact that the Hydrate Utility in HYSYS can calculate inhibitor injection rates there are other methods programmable in a simple excel sheet that can be utilized to provide fairly accurate inhibitor injection rates
Chemical amp Methanol Injection Systems

Chemical amp Methanol Injection Systems Frames
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Methanol and glycol MEG TEG injection PG Flow Solutions
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Injection Pumps amp Chemical Pumps Industrial Pumps for
May 12th, 2019 - Bruin Instruments Corp™ is a leading provider of Bruin Pumps chemical metering pumps and injection systems. Bruin Pumps’ complete engineering and manufacturing facility designs manufactures and markets the most reliable chemical injection pumps and pump packages for the global oil and gas industry.

Chemical Injection for Oil amp Gas spxflow com
May 11th, 2019 - Basic injection pump packages mobile injection packages for remote locations. Within the Oil and Gas Industry the requirements for Chemical Injection Packages are very diverse depending on the application and location the number of chemicals and injection points and changes to production conditions and output.

Water injection oil production Wikipedia
May 14th, 2019 - Water injection wells can be found both on and offshore to increase oil recovery from an existing reservoir. Water is injected to support pressure of the reservoir also known as voidage replacement and also to sweep or displace oil from the reservoir and push it towards a well.

Oil amp Gas Chemical Injection Tyco
April 30th, 2019 - Package engineering of chemical injection systems demand a particular set of value.
Effect of methanol on gas dehydration OGnition
May 11th, 2019 - Methanol injected at wellhead as hydrate inhibitor can pose the following problems to the glycol dehydration unit add additional reboiler heat duty Slugs of liquid methanol can cause flooding in the absorber Methanol will add to the still vapor load which can cause flooding and hence cause glycol losses by entrainment

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Oil amp Gas Methanol Injection System Tyco Fire and
April 30th, 2019 - Tyco Fire amp Integrated Solutions is a major supplier of methanol injection systems to the oil amp gas and petrochemical industries worldwide

Hydrate Prevention an overview ScienceDirect Topics
May 7th, 2019 - Methanol and MEG are the most commonly used inhibitors though ethanol other glycols and salts can be effectively used Inhibitor injection rates whether methanol or MEG are a function of water production and inhibitor dosage Inhibitor dosage is a function of design temperature and pressure and produced fluid composition

Oil amp Gas Solutions Wellhead Process amp Control amp Chemical
May 12th, 2019 - Chemical Injection • Process chemical injection amp methanol injection systems • Metering injection and transfer pump skids • Multiple chemical storage vessels up to 250m³ • Pump range includes double diaphragm and plunger type capable of pressures in excess of 1 000 barg conforming to API 675

Methanol Injection Wellhead paraglide com
May 15th, 2019 - methanol injection wellhead is available in our book collection an online access to it is set as public so you can get it instantly Our book servers saves in multiple locations allowing you to get the most less latency time to download any of our books like this one

Hydrate Prevention an overview ScienceDirect Topics
May 7th, 2019 - Methanol and MEG are the most commonly used inhibitors though ethanol other
Glycols and salts can be effectively used to inhibit injection rates whether methanol or MEG are a function of water production and inhibitor dosage. Inhibitor dosage is a function of design temperature and pressure and produced fluid composition.

**Methanol Injection Packages prevent hydrate formation**

October 24th, 2002 - Original Press Release Methanol Injection Packages Prevent Hydrate Formation in Pipelines and Wellhead. A series of methanol injection packages for offshore platforms that are designed to prevent hydrate formation within the pipelines and wellhead are being introduced by American LEWA Inc of Holliston Massachusetts.

**Effect of methanol on gas dehydration**

May 11th, 2019 - Methanol injected at wellhead as hydrate inhibitor can pose the following problems to the glycol dehydration unit: add additional reboiler heat duty. Slugs of liquid methanol can cause flooding in the absorber. Methanol will add to the still vapor load which can cause flooding and hence cause glycol losses by entrainment.

**Injection Pumps & Chemical Pumps Industrial Pumps for**

May 12th, 2019 - Bruin Instruments Corp™ is a leading provider of Bruin Pumps chemical metering pumps and injection systems. Bruin Pumps’ complete engineering and manufacturing facility designs, manufactures, and markets the most reliable chemical injection pumps and pump packages for the global oil and gas industry.

**Advances in Avoiding Gas Hydrate Problems SPE Aberdeen**

May 15th, 2019 - Minimising Methanol Injection Nuggets Gas Field – Pushing the Operational Barriers. SPE 166596. In 2010, the water production rate reached its maximum. On the other hand, methanol was causing product contamination. Methanol injection was reduced to practically zero.

**Fluor s Wellhead Gathering System Network Optimization**

May 14th, 2019 - Typical wellhead fluid processing includes the separation of oil, gas, and free water phases as well as at times condensate stabilization. Usually, some form of hydrate prevention, e.g., glycol contacting or methanol inhibitor injection is required for the gas, although the requirements are usually less stringent than those of the main gas.

**Methanol gazprominfo.com**

May 15th, 2019 - Methanol methyl alcohol CH₃OH is a wood alcohol used in gas and oil production as an inhibitor of hydrate formation, most often at gas condensate fields. Injection of methanol into the well downhole zone of gas hydrate fields causes not only...
decomposition of gas hydrates at the downhole of the well but also improves downhole zone filtration characteristics.

Fluor’s Wellhead Gathering System Network Optimization
May 14th, 2019 - Typical wellhead fluid processing includes the separation of oil gas and free water phases as well as at times condensate stabilization. Usually some form of hydrate prevention e.g., glycol contacting or methanol inhibitor injection is required for the gas although the requirements are usually less stringent than those of the main gas.

Glycol and Methanol Injectors Wireline Pressure Control
May 13th, 2019 - Glycol Methanol injectors precisely eliminates hydrate formations that can halt production and damage wirelines. Pneumatic driven Texsteam pump with 10,000 psi and 12 gallon tank fits within a 28”x13”x23” frame.

Subsea Seal Tite International
May 16th, 2019 - Sealant was pumped down a methanol injection line in the 7900 feet long subsea umbilical and routed into the production annulus of the well. The sealant designed to fall through methanol and float on the packer fluid in the well settled across the leak site in the tubing string. Subsea Wellhead Leak Repair.

Petronash Modular Wellsite Packages
May 13th, 2019 - Corrosion Inhibitor Chemical Injection Skid Corrosion Inhibitor Scale Inhibitor Methanol will be injected into the crude line to protect the mechanical integrity of the piping from accelerated Corrosion Scale formation or to control hydrate formation. Wellhead Shutdown WSD Hydraulic Control Panel.

Modular Wellhead Production Equipment for Sakhalin Island
May 15th, 2019 - Modular Wellhead Production Equipment for Sakhalin Island. September 29 Modular Wellhead Production Equipment for Sakhalin Island natural gas driven crude oil shipping pumps 1 Methanol Injection Package amp 1 Glycol storage amp forwarding Package. All of these packages were installed in insulated High Cube ISO containers which were.

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Oil and Gas Methanol Injection System Tyco Fire and
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How it works: Bosch Water Methanol Injection System Water spraying advantages
April 26th, 2019 - Bosch water meth injection system OEM system Water spraying advantages Remember the BMW M4 MotoGP and analysis we do on the engine with the water spray s

Preventing formation of hydrate plugs petrowiki.org
May 12th, 2019 - Instead methanol is injected into the pipeline at the subsea wellhead. In the case of the pipeline shown in Fig 1, sufficient methanol is injected at the wellhead so that an excess of 23 wt% methanol will be present in the free water phase over the entire pipeline length.

Skids GSW gswco.com
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Methanol Injection Skid Oceanicering
May 14th, 2019 - Methanol Injection Skid Cage Mount. The Methanol Skid is designed to inject methanol at low pressure 25 to 50 psi above ambient into the BOP H4 connectors to reduce or break down the build up of hydrates. This is accomplished by pumping a volume of methanol stored in four 109 inch long cylinders each holding 33.75

Freeze Protection for Natural Gas Pipeline Systems and
May 15th, 2019 - Methanol Injection to prevent freezing. Methanol an anti-freeze type solution injection is a very common practice for freeze protection for smaller systems and specific locations. The methanol is injected into the gas stream by chemical injection pumps or enters the pipeline by methanol drips and effectively lowers the freeze point.

Services Walker Inspection
April 29th, 2019 - Services offered from Walker Inspection for specialized Drilling and Completion High Pressure Testing Torque and Frac Support.

Technology Acid gas injection eliminates sulfur recovery
May 15th, 2019 - Thus the wellhead injection pressure would generally be about 6,000-9,000 kPa and would
depend largely on the reservoir injectivity as well as reservoir pressure and depth. A four stage

**Oil amp Gas Chemical Injection Tyco**
April 30th, 2019 - Package engineering of chemical injection systems demand a particular set of value added capabilities. Tyco Fire amp Integrated Solutions is a major supplier of chemical injection systems to the oil and gas and petrochemical industries worldwide.

**Chemical injection Proserv**
May 14th, 2019 - These systems can be of standard design or built to customer requirements to deliver the full range of production chemicals. Our chemical injection pump units range from a single pump application to multiple pneumatic injection pumps with discharge flow rates of 0 to 2500 litres hour and pressures from 0 to 13 000 psi.

**RECLAMATION REGENERATION OF GLYCOLS USED FOR HYDRATE**
May 15th, 2019 - Although once through methanol is used in many Gulf of Mexico subsea fields, in this case the expected low volume of produced water resulted in a methanol injection rate greater than for glycol. This is due to the high solubility loss of methanol into the gas phase at subsea pipeline conditions. Any methanol distributing to the gas phase is

**Geveke Well Service Pump Packages**
May 12th, 2019 - Well service pump packages are of high importance in the oil and gas industry. These pump packages are used for servicing by means of injecting large amounts of fluid at high pressure to the production well. Methanol Injection Packages pump systems to prevent the formation of hydrates by injection of methanol, ethanol LDHI or KHI Service.

**Methanol Injection What is it Why you need it How does it work**
May 6th, 2019 - Watch this video on Methanol Injection. This video will explain what it is and why performance enthusiasts and shop owners like it so much. For more information on performance tuning please contact.

**A Successful Methanol Treatment in a Gas Condensate**
May 14th, 2019 - Value for pure methanol was measured as 990 ppm. Figure 2 shows the mixing paths during injection of methanol into a formation with two different assumed values of salinity points 1 and 1 being 120 000 and 240 000 ppm NaCl respectively. If pure methanol is injected the concentration at the effluent will follow the mixing line 1 2 or 1 2.

**Petronash Modular Wellsite Packages**
May 13th, 2019 - Corrosion Inhibitor Chemical Injection Skid. Corrosion Inhibitor Scale Inhibitor. Methanol will be injected into the crude line to protect...
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**Methanol Injection Wellhead paraglide.com**
May 15th, 2019 - methanol injection wellhead is available in our book collection an online access to it is set as public so you can get it instantly Our book servers saves in multiple locations allowing you to get the most less latency time to download any of our books like this one

**Khuff Gas Project AES Arabia**
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**Methanol gazprominfo.com**
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**Vent Injection Sub Wireline Pressure Control Pressure**
May 14th, 2019 - The Vent Injection Sub shortens filling and draining times while supplying a useful port for chemical injections The hydraulic actuators open to allow air to escape while the risers are filled During bleed off the valve is opened to speed up the de pressurization process

**Chemical Injection Quills Injection Quill Koflo**
May 14th, 2019 - Koflo Chemical Injection Quills are used to introduce medium to highly corrosive chemicals into a pipeline without damage to the side port or pipe wall at the point of injection Chemical injection quills ensure that chemicals are evenly dispersed into the center of the pipeline which prevents channeling of the chemical down the pipe wall

**Pressure on Demand Haskel**
May 14th, 2019 - pressure before the wellhead valves are opened In this application our 8 and 10 hp pumps inject either diesel fuel or methanol line in order to “equalize” the pressure both sides of the wellhead Haskel pumps are used for methanol injection where flows and pressure are higher

**Hydrate problems in production petrowiki.org**
May 14th, 2019 - The injection of salts primarily CaCl
2 reduces hydrate formation by lowering the chemical activity of water and by lowering the solubility of gas in water. The last alternative is used more frequently now with a transition from methanol to ethylene glycols for health safety and environment HSE reasons.

**Chemical Injection Pump cscpetro.com**
May 16th, 2019 - Chemical injection pump is used to inject methanol or ethylene glycol into a fluid at the upstream of choke manifold to prevent the hydrate of formation fluid icing up due to the pressure drop increases the reliability of the well test system and the pressure drop range above below the choke to restore the oil gas well to normal operation.

**Oil amp Gas Solutions Wellhead Process amp Control amp Chemical**
May 12th, 2019 - Chemical Injection • Process chemical injection amp methanol injection systems • Metering injection and transfer pump skids • Multiple chemical storage vessels up to 250m³ • Pump range includes double diaphragm and plunger type capable of pressures in excess of 1 000 barg conforming to API 675.

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**Commissioning Lessons Learned—Methanol Systems — GATE Inc**
May 14th, 2019 - Following startup methanol was continuously injected at the tree until the wellhead temperature was above the hydrate formation temperature. Methanol was injected subsea via a positive displacement triplex pump. Injection pressure was controlled by a recycle valve that routes flow back to the storage tank.

**Bladder Skids Subsea Fluid Injection System**
May 5th, 2019 - Subsea dispersant injection Remote production wellhead chemical injection Subsea methanol injection Incorporating the Subsea Fluid Injection System with the OceanWorks UPS 3000 battery system allows injection to be accomplished either autonomously or through ROV control eliminating the need for expensive cabled interconnects.

**Methanol and Glycol MEG TEG Injection Pumps Calder Ltd**
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Diaphragm Pumps Enhance Chemical Injection Systems During
May 2nd, 2019 - Methanol injection helps maintain and increase production in a well over time. Although chemical injection and other EOR methods can increase oil recovery by up to 75 percent, such techniques are expensive when compared to primary and secondary recovery methods.

FREEZE PROTECTION FOR NATURAL GAS PIPELINE SYSTEMS AND
May 15th, 2019 - Methanol Injection to prevent freezing. Methanol, an antifreeze type solution injection, is a very common practice for freeze protection for smaller systems and specific locations. The methanol is injected into the gas stream by chemical injection pumps or enters the pipeline by methanol drips and effectively lowers the freeze point.

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**X WELL COMPLETION AND PRODUCTION PRACTICES INTRODUCTION**

May 14th, 2019 - gallons of methanol antifreeze over the wellhead so the methanol can drip into the production line and prevent freeze ups. This system is less sophisticated but is cheaper to install than a separator with a catalytic heater. The small catalytic heaters are usually positioned near the regulator or valves on the separator.

**Modular Wellhead Production Equipment for Sakhalin Island**

May 15th, 2019 - Modular Wellhead Production Equipment for Sakhalin Island September 29 Modular Wellhead Production Equipment for Sakhalin Island natural gas driven crude oil shipping pumps. 1 Methanol Injection Package amp 1 Glycol storage amp forwarding Package. All of these packages were installed in insulated High Cube ISO containers which were.

**Water Methanol Injection More Boost**

May 16th, 2019 - Water methanol injection is used typically on high powered vehicles to assist with reducing the likelihood of knock and thus allowing for higher compression ratios more timing advance and

**Chemical Injection Systems – Hitec Products**

May 4th, 2019 - Chemical Injection Systems We have a close cooperation with the main component suppliers and will custom design systems according to your specifications. Our deliveries include

**Subsea Forum Young Engineers Day Paris 13th June 2007**

May 13th, 2019 - Subsea Forum Young Engineers Day Paris 13th June 2007 Paul Betteridge the Well via its interface with the subsea Wellhead Xmas Tree features • Control monitor and condition either produced or injected media. Methanol Injection Skid Chemical Injection Skid PJB Hydraulic Electrical Cables Chemical Methanol Umbilical.

**Chemical Injection Systems Frames Group**
May 15th, 2019 - Chemical injection systems are commonly used in production facilities in the oil and gas industry. They prevent or mitigate a wide range of problems that might negatively affect the production flow and or process completion. Frames designs manufactures and supplies custom built injection systems for a broad range of applications.

**Christmas tree oil well Wikipedia**

May 15th, 2019 - In petroleum and natural gas extraction, a Christmas tree or tree is an assembly of valves, spools, and fittings used to regulate the flow of pipes in an oil well gas well water injection well water disposal well gas injection well condensate well and other types of wells. It was named for its resemblance to the series of starting lights at a drag racing strip.

**Prevent Hydrate Formation an overview**

ScienceDirect Topics

April 21st, 2019 - Methanol and MEG are the most commonly used inhibitors though ethanol other glycols and salts can be effectively used. Inhibitor injection rates whether methanol or MEG are a function of water production and inhibitor dosage. Inhibitor dosage is a function of design temperature and pressure and produced fluid composition.

**Divider Blocks for Methanol Application**

epicompression.com

May 12th, 2019 - Methanol injection pumps are often used in wellhead and pipeline applications where seasonal drops in ambient air temperature result in the freezing of liquids falling out of the gas stream. By injecting methanol at various points, the potential for freezing is reduced or eliminated.

**Chemical Injection for Oil and Gas spxflow.com**

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Well Site Projects Equinox Engineering Ltd
May 12th, 2019 - Well Site & Field Facility Projects. Equinox has completed thousands of well site tie-ins and designed gathering systems trunk and group lines as well as field facilities including compression, dehydration, refrigeration with ultimate transport of products to a central sour or sweet gas processing facility.