Equinox Engineering Ltd.

Equinox Engineering Ltd is a world class provider of EPCM services to the global oil and gas marketplace.

Founded in 1997, Equinox has successfully executed over 4,000 significant projects in Canada and around the world.

We have a worldwide presence with offices in Calgary (Canada), Brisbane (Australia) and Mumbai (India) with projects executed in fourteen countries and three continents.

Natural Gas and NGL Expertise

Equinox has industry leading expertise in natural gas processing (with a specialization in sour gas treating), as well as natural gas liquids (NGL) recovery projects.

Our experience includes the design and installation of over 40 natural gas processing trains, 100s of field facilities, 1000s of wellsites, and 1000s of kilometers of pipelines.

Equinox delivers focused and experienced
Premium Teams customized with the best
Technical Expertise to align with
Client Culture to ensure repeatable and
Successful Projects

Gas Processing & Liquids Recovery

Equinox Engineering provides world class expertise in gas processing, gas treating and liquids recovery facilities design. We provide complete EPCM services including conceptual design, Front End Engineering Design and Detailed Design through to Start-up and Commissioning.
Glacier – Single & Dual Wellsites
FEED and Detail Design phase for wellsites and gathering lines; each wellpad includes single and dual wells. Wells are Doig zone at an average flow rate of 2.5 MMscfd. Wellsite equipment includes: line heater, wellhead ESD and pressure control valve, sand separator, wet metering skid, HP flare stack and knock-out drum, RTU panel, chemical tanks/pumps with methanol inhibitor, fuel gas pipeline.

North Montney – Unconventional Wellsites
FEED phase for up to 1,000 wellsites with gathering and trunk lines. Pads are modular and multiwell, expandable to 18 wells per pad. Wells are sour, Montney zone at an average flowrate of 4.0 MMscfd. Equipment includes: start-up separator, sand separator, line heater, group/ test separator, HP flare stack and knock-out drum, RTU/TEG building skid, chemical tanks/pumps with methanol inhibitor, thermo electric generator, RTU building.

South Montney – Unconventional Wellsites
FEED and Detail Design for development of over 250 wells utilizing multiwell pads, including gathering lines and trunk lines. Pad design is modular, multiwell pads expandable to 12 wells per pad. Wells are Montney zone at an average flow rate of 3.25 MMscfd. Wellsite equipment includes: a group separator (with metering package and test separator), line heaters, sand separator, HP flare stack and flare knock-out drum, RTU/TEG building skid, chemical tanks/pumps with methanol inhibitor.

Ojay Sour Wellsites & Dehydration Facility (30 MMscfd)
FEED and Detail Design for mole sieve dehydration facility (30 MMscfd at 20% H₂S, 7% CO₂) as well as sour (10 MMscfd at 20% H₂S) wellsites (with line heaters), along with 5 km of sweet fuel gas pipeline and 3 sour gas process lines.

Deep Basin Compression
FEED and Detail Design for a program of 12 standalone compressor stations throughout northwest Alberta. A modular design provides optimized installation in remote northern terrain. Each typical booster compressor station accepts raw gas from 6 – 10 wellsites and includes: an inlet separator/blowcase (48-inch separator and a 24-inch blowcase), vent stack, knockout drum and 1,478 hp compressor package.

South Montney – Trunklines & Gathering Lines
FEED and Detail Design for 75 km of trunklines and gathering lines. Trunklines include: 16” sour gas, 4” fuel gas and 4” source water. Gathering lines (laterals) include: 10” sour gas, 3” fuel gas and 3” source water. These projects also include 9 major river/creek crossings using HDD, pigging facilities and complete SCADA design and installation.

Wellsites & Field Facilities
Equinox has completed well over 1000 well site tie-ins and 1000s of kilometers of gathering systems, trunk and group lines. The company also has industry leading expertise in unconventional multiwell pads for shale and tight gas. We have also executed 100s of field facility projects including compression, dehydration, refrigeration, custody transfer and metering, product storage, etc.
Gas Treating & Processing

Our experience includes a wide range of processing and treating facilities including refrigeration plants, amine facilities, sulphur recovery, mercury removal, acid gas transportation and disposal, glycol dehydration and mole sieve dehydration, cryogenic processing plants, turbo-expander plants, NGL recovery and fractionation.

**Montney Gas Plant (440 MMscfd) & Infrastructure**
FEED phase for unconventional gas program including Central Processing Facility; 2 compressor/dehydration field facilities (2 x 220 MMscfd); utilities and gathering lines (1,000 wells situated at 72 multiwell well pads); sales pipelines and trunklines (12" and 34" pipelines); water handling and power generation.

**Dawson Gas Plant (120 MMscfd)**
FEED and Detail Design for a sour gas plant with process trains (2 x 60 MMscfd) containing inlet separation, inlet/sales compression (4 reciprocating compressors totaling 15,000 hp), amine sweetening (CO2 and H2S removal), refrigeration, liquid fractionation and stabilization, acid gas compression, vapour recovery, recycle system, power generation (2 x 4.6 MW gensets), storage for produced water, condensate (275 bpd) and NGL (171 bpd) with truck-out facility.

**West Doe Gas Plant (100 MMscfd)**
FEED and Detail Design for a 3 process train sour gas plant containing inlet separation, inlet/sales compression (3 reciprocating compressors totaling 6,500 hp), amine sweetening (CO2 and H2S removal), refrigeration, acid gas compression, vapour recovery, a recycle system, power generation (5 MW), storage for produced water, condensate and NGL with truck-out facility.

**Pouce South Gas Plant (60 MMscfd)**
FEED and Detail Design for a 2 process train gas plant containing inlet separation/slug catcher, inlet/sales compression (4 reciprocating compressors totaling 7,920 hp), amine sweetening (CO2 and H2S removal), refrigeration, condensate stabilization, acid gas compression, vapour recovery, recycle system, storage for produced water and condensate (390 bpd) and truck out facility.

**Musreau Phase 1 Gas Plant (45 MMscfd)**
FEED and Detail Design for a gas plant which includes inlet separation, condensate stabilization, inlet/sales compression (5 reciprocating compressors totaling 10,000 hp), refrigeration, de-ethanizer, a vapour recovery, recycle system, storage for produced water, condensate (800 bpd) and NGL (912 bpd) with truck-out facility.

**Pouce Coupe Gas Plant (60 MMscfd)**
FEED and Detail Design for a sour gas plant that includes inlet separation, inlet/sales compression, amine sweetening (CO2 and H2S removal), refrigeration, liquid fractionation and stabilization, acid gas compression, acid gas blending, vapour recovery, recycle system, storage for produced water, condensate and NGL with truck-out facility.
Musreau Turbo Expander  
(200 MMscfd + 23,600 bbl)  
FEED and Detail Design for a 200 MMscfd sour gas plant containing inlet separation, inlet compression (3 reciprocating compressors totaling 14,205 hp), mole sieve dehydration, a turbo expander liquid recovery package (17,697 bbl C2+), sales compression (2 centrifugal compressors totaling 26,440 hp), C2+ storage, condensate stabilization (5,896 bbl), LACT and power generation (11.2 MW). A sour gas processing train is included with amine sweetening (CO₂ and H₂S removal), and vapour recovery unit.

Stanley Liquids Recovery  
(140 MMscfd + 5169 bbl)  
FEED and Detail Design for a 140 MMscfd gas plant located in a tropical rainforest designed for unique seismic design conditions. Process trains (2 x 70 MMscfd) contain inlet separation, injection compression (5 reciprocating compressors totaling 19,490 hp), mercury removal, refrigeration, condensate stabilization, (5,169 bpd), condensate transfer pumps, power generation, condensate storage (25,000 bbl) and produced water storage.

Waskada Liquids Recovery  
(7 MMscfd + 1400 bbl)  
FEED and Detail Design for a 7 MMscfd gas plant and liquids recovery facility including inlet separation, inlet compression (reciprocating compressor totaling 1445 hp), amine sweetening (CO₂ and H₂S removal), refrigeration (1400 bpd) and NGL storage.

Kiunga Condensate Terminal  
(75,000 bbl)  
FEED and Detail Design for a Condensate Terminal including floating roof Condensate Storage Tank (75,000 bbl), 2 centrifugal condensate loading pumps, diesel storage (750 bbl), lube oil storage, and power generation.

Liquids Recovery  
Equinox has significant experience with refrigeration, hydrocarbon dewpoint control and liquid recovery plants including propane refrigeration, mixed refrigerant plants, Joule Thompson (J-T) refrigeration, turbo-expanders, de-ethanizers, de-propanizers and de-butanizer facilities.
Equinox has extensive knowledge and expertise in all phases of pipeline system design, material selection and construction. We provide consultation services that include site and route selection, stress analysis and fluid hydraulics. Our experience includes pipelines from 4" to 36". We are masters in design considerations for both buried and above ground pipelines. Our pipeline team including our mechanical design and stress engineers are experts in material selection requirements for pipelines, expansion loops, transitions and valve stations as well as crossings (river, road, rail, and pipeline). Our civil and earthworks team are also qualified in design and construction considerations for pipeline support and anchor design in swamp, muskeg and jungle conditions.

Water Treatment
Equinox provides water treatment expertise for natural gas and conventional oil applications, including produced water treatment and hydraulic fracturing water treatment. Our experience with water treatment issues (produced, fresh, brackish, saline, brine, disposal) and solutions include lime softening, ion exchange softening, evaporation, reverse osmosis, advanced oxidation, thermal vapour recompression, thermal distillation.

Debolt Water Treatment Facility
The Debolt Water Treatment Facility (in remote northern Canada) utilizes an unconventional source of saline subsurface water by tapping into the Debolt Aquifer approximately 800 meters below the surface. Water extracted from the aquifer that contains H₂S is first treated then placed in a storage facility to be used for hydraulic fracturing purposes throughout the region. Water pipelines then transport water from extraction wells back into the Debolt aquifer.

The scope of the project was to design and install a grassroots, sour water treatment plant with a facility design capacity at 16,000 m³/d of inlet sour produced water.

Three phase inlet separation, sour gas compression, sour gas stripping tower, degassing tank, reactor towers, pump packages, HCl storage and injection, H₂S analyzers and power generation are included.

The facility design utilizes a leading edge processing technology which is a proprietary, confidential process. It reduces the H₂S content of the water facility to 0 ppm.

ENvironMENtAL PErFOrMaNCE
This project was awarded the prestigious CAPP Environmental Performance award.
Selected Projects

North America

1. Musreau Gas Plant (200 MMscfd) with Liquids Recovery (17,500 bpd)
2. Dawson Gas Plant (120 MMscfd)
3. West Doe Sour Gas Plant (100 MMscfd)
4. Pouce South Sour Gas Plant (60 MMscfd)
5. Pouce Coupe Sour Gas Plant (60 MMscfd)
6. Tooga Sour Gas Plant (55 MMscfd)
7. South Peace Gas Pipeline (100 km x 20")

Australia and Papua New Guinea

8. Gas Plant (140 MMscfd) and Condensate Recovery (5,100 bpd)
9. Condensate Terminal and Storage Facility (75,000 bbl)
10. River Mooring and Load Out Facility
11. Condensate Pipeline (12" x 2 km)
12. Condensate Pipeline (6" x 43 km)
13. PreFEED Gas Plant (250 MMscfd) and Liquids Recovery Facility

Other International

14. Oudeh Oil Processing (90,000 bpd) FEED
15. Tishrine Oil Processing (135,000 bpd) FEED
16. Haditha Pump Station (500,000 bpd)
17. Lower Fars (9,000 bpd) Heavy Oil Pilot
18. Mina Abdullah Refinery De-Hazing
19. Fateh Offshore Platform Upgrades
20. Kub-Gas Plant Expansion (45 MMscfd)
21. Kumsai Oil Processing (1,000 bpd) Pilot