

### ATCO Midstream – Golden Spike

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Engineering and technical auditing of the detailed design for a 40 MMSCF/d sour gas plant involving 450 hp acid gas (50% H<sub>2</sub>S) injection, turbo expansion and coldbox, ethane extraction, mole sieve, and mercaptan removal.

Project scope included:

- Project management and engineering management, EPC contract development and administration, and start-up services
- AENV permit application, EUB permit applications, and audit manuals  
Study of third party gas processing options
- Process design, permitting and project management for a 12 MMSCF/d sacrificial sweetening system. Project included Solar compressor upgrades, replacement of trays with structured packing and construction management
- Acid gas volume: 212 m<sup>3</sup>/d. Acid gas compression: 450 hp
- Chemical Report

### Cenovus Energy – Brooks East

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- New horizontal well was drilled on lease. Piping and facilities installed, and a chemical injection system was installed.

### CFR Chemicals – Confidential

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- Performed site evaluation and optimization

### Champion Technologies – Calgary

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Mechanical, civil, and structural design, and construction support for plant automation and installation of additional process equipment in Southwest Alberta. Project scope included:

- Decreased truck loading times in half
- Doubled plant processing capacity without increasing manpower (Increase from 2.5 million litres / month to 5.0 million litres / month)
- New automated drum packaging area
- Expanded existing tank farm to a total of 30 tanks by adding 16 new tanks (most heated and insulated)
- Installed heat exchangers on lines feeding in-line blenders and batching kettles
- Installed heaters to supply heat for tanks and heat exchangers
- Provided an extra truck unloading station to the newly expanded tank farm for incoming product
- Installed high / low level switches with electronic level indicators on new and old tanks

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- Installed flow meters on the lines in the blend area
- Provided electrical and automation to pumps, flow meters, weight scales on batching kettles to automate shut off when filling a set quantity of product in a batching kettle

### Champion Technologies – Vermillion

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Mechanical, civil, and structural design and construction support for a tank farm installation for a chemical storage plant in Vermillion, Alberta. Project scope included:

- Six (6) 70,000 litre ULC tanks for product storage
  - Four stainless steel tanks
  - Two carbon steel tanks
- Concrete tank farm berm and liner system designed for future tank farm expansion to twelve (12) tanks
- Catwalk system between tanks. Was designed for future tank farm expansion with catwalks to twelve (12) tank locations.
- Six (6) pumps (100-150 US gpm each) for truck-in/out
- One (1) portable pump for truck-in/out along with dedicated hoses for each chemical to reduce contamination
- Fire water retention pond, fire water pump house, three (3) fire hydrants, and associated piping
- Complete civil work on entire site including site drainage
- After project completion three (3) 20,000 litre ULC tanks were purchased by the client and installed in the future tank farm expansion area. Gas Liquids Engineering Ltd. updated P&ID drawings and plot plans to reflect this.

### Enerplus – Medicine Hat

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- Performed various modifications at a polymer injection plant. Replaced chemical tank, troubleshoot line heater and water tank, and troubleshoot polymer filtration system.

### XTO Energy – Kaybob, Alberta

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- Installed a chemical injection package.