

## FUEL GAS CONDITIONING

FuelSep™

(REMOVE H<sub>2</sub>S, C<sub>3+</sub>, CO<sub>2</sub>, N<sub>2</sub>, H<sub>2</sub>O)

- **Upgrades raw gas to premium quality fuel gas**
- **Generates quality fuel gas right at the point of use — no trucked in diesel required**
- **Premium fuel quality increases engine and turbine life, eliminates de-rate, and brings emissions into compliance**
- **Avoids downtime due to unscheduled shutdowns**
- **Increases NGL recovery downstream**

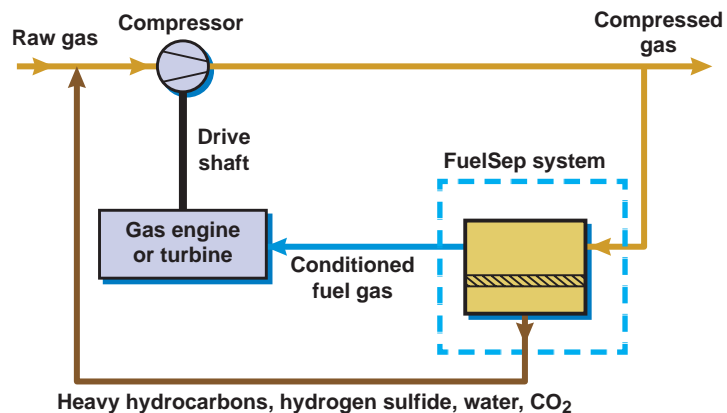
*“Conditioning fuel gas using FuelSep™ minimizes costly unscheduled downtime — a smart and simple solution.”*

**MTR** Membrane  
Technology  
& Research

### Problem

Raw gas often cannot be used to fuel the gas engines or gas turbines driving pipeline compressors due to poor quality. Significant concentrations of H<sub>2</sub>S and/or C<sub>3+</sub> will cause corrosion and carbon build-up in the gas engine. CO<sub>2</sub> and nitrogen will lower the BTU value. Any of these impurities can compromise engine operation, increase downtime or at a minimum put emissions out of compliance. Their presence in the raw gas can even render the gas unusable as fuel so expensive diesel has to be trucked in.

### Membrane Solution



MTR's FuelSep™ systems purify raw gas sidestreams to premium quality fuel gas. MTR membranes easily remove H<sub>2</sub>S, C<sub>3+</sub>, CO<sub>2</sub>, N<sub>2</sub> and water from fuel gas at moderate pressure. Because these impurities are taken out of the fuel gas and returned to the compressor suction, there are no effluent streams to be disposed of. Any C<sub>3+</sub> removed from the fuel gas goes back into the main gas stream, so all NGL in the raw gas stream is available for downstream recovery, if desired.

These units have no moving parts, are simple to install and operate unattended. Many units are operating worldwide.

## FUEL GAS CONDITIONING

### FuelSep™



FuelSep® unit operating in Texas

#### Benefits

- Removes heavy components such as C<sub>3+</sub> to clean up fuel gas
- Removes significant portions of acid gases such as H<sub>2</sub>S and CO<sub>2</sub> that will reduce acid formation in the turbine or engine exhaust and reduce emissions
- Increases reliability of gas engines and turbines
- Operates at ambient conditions with no external heating required to prevent hydrate formation
- Eliminates need to de-rate gas engine
- Decreases maintenance costs and reduces unscheduled downtime
- Increases recovery of liquids
- Contains no moving parts, simple to operate and maintain

#### System Performance

##### Gas Turbine Unit

- Feed flow rate: 5 to 15 MMscfd
- Raw feed C<sub>3+</sub> content: 8 to 20 vol%
- Raw feed dew point: 80°F to 120°F
- Conditioned gas dew point: 40°F to 60°F
- C<sub>3+</sub> removal: greater than 70%
- Unit dimensions and weight: 20 ft (L) x 10 ft (W) x 10 ft (H), 8,000 lb

##### Gas Engine Unit

- Feed flow rate: 0.5 to 2 MMscfd
- Raw feed Btu value: 1350 to 1500 Btu/scf
- Conditioned fuel gas Btu value: 1150 to 1250 Btu/scf
- Feed dew point: 80°F to 120°F
- Conditioned gas dew point: 40°F to 60°F
- C<sub>3+</sub> removal: greater than 70%
- Unit dimensions and weight: 8 ft (L) x 6 ft (W) x 6 ft (H), 2,000 lb

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