6.1.2. **Gas Pro Compression BTEX VRU**

**Description**

Glycol dehydration is a common and economical process to reduce the water content in natural gas to meet downstream sales pipeline specifications. In a typical dehydration operation, the gas is put in contact with glycol, which absorbs water from it. However, the glycol also absorbs methane, ethane, and several other volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene and xylenes (BTEXs). This rich glycol is then sent to a regenerator, where it is heated to vaporize the water and regenerate the glycol. During this regeneration process, dissolved BTEX, greenhouse gases (GHG) (Methane, CO₂), and other organic compounds are also released along with water.

Gas Pro compression has developed a BTEX VRU system that allows 100% recovery of the emissions from the glycol regenerator. In this system, the regenerator emissions are condensed and then sent into a separator where the liquids drop out. The uncondensed vapor above the liquid then goes into a compressor, which delivers the gas back into the inlet of the facility. The condensed liquids from the separator are pumped to a storage tank.

Typical glycol dehydration facility

Gas Pro BTEX VRU system added to a typical glycol dehydration facility

**Technology Group**

Dehydration Units and Gas Treatment – Facilities Design and Equipment

**Site Applicability**

Upstream oil and gas facilities; midstream and pipelines; sweet and sour service
## Emissions Reduction

Gas Pro’s BTEX VRU eliminates BTEX, GHGs and VOC emissions. Based upon uncontrolled emissions data from GlyCalc for two dehys operating on one site, the technology eliminated approximately 247 tCO₂e/year. However, exact emissions reduction varies depending on the specific dehydrator being used.

## Economic Analysis

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Cost</td>
<td>Equipment costs range from $65,000 to $120,000 depending on the type of compressor, cooler, level of controls, and safety and other options. The complete package is a simple ‘plug and play’ that includes all the components and the controls, while the client must provide the controls and electrical if purchasing the stripped-down version.</td>
</tr>
<tr>
<td>Installation Cost</td>
<td>Exact installation cost figures are application-specific. However, installation costs are comprised of the piping and electrical needed to hook up the unit.</td>
</tr>
<tr>
<td>Operating Cost</td>
<td>Exact operating cost figures are application-specific. However, operating costs are comprised of the energy needed to operate the motors. The motors are equipped with VFDs that provide a soft start and prevent constantly running at full speed.</td>
</tr>
<tr>
<td>Maintenance Cost</td>
<td>Maintenance costs are expected to be minimal, consisting of periodic oil changes for the compressor.</td>
</tr>
<tr>
<td>Carbon Offset Credits</td>
<td>Carbon offset eligibility is application-specific.</td>
</tr>
</tbody>
</table>

## Reliability

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected Lifetime</td>
<td>With proper maintenance, the equipment is expected to last 25+ years.</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Maintenance can be completed with basic industry knowledge about gas compressors.</td>
</tr>
</tbody>
</table>

## Safety

Standard industry safety practices apply.

## Regulatory

- Meets all codes and standards for installation in Canada.
- AER Directive 039
- ABSA AQP for pressure piping, COR, Complyworks, ISN, CSA 22.2 No. 14, UL 508A.
- Client can request CSA SPE 1000, CSA 22.2 No. 30, Special Fugitive emissions study
Vendor Information

Company Name: Gas Pro Compression
Company Website: www.gaspro.ca
Product Website: http://www.gaspro.ca/index.php?page=products
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