Emerging Technology
Ejector Vapor Recovery Units

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Gulf Coast Environmental Affairs Group,
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Vapor Recovery Units

- Conventional Vapor Recovery Unit
- Venturi Jet Ejector
- Vapor Recovery with Ejector
- Trade Offs
- Benefits of Vapor Recovery Units
Conventional Vapor Recovery Unit

- Crude Oil Tank
- Vent Gas
- Condensate Return
- Liquid Transfer Pump
- Suction Scrubber
- Vapor Suction Line
- Pressurized Gas to Sales Pipeline
- Booster Compressor
- Vent to Atmosphere

Reducing Emissions, Increasing Efficiency, Maximizing Profits
Venturi Jet Ejector

Reducing Emissions, Increasing Efficiency, Maximizing Profits

High-Pressure Motive Gas (~850 psig)

Flow Safety Valve

Flow Control Valve

Pressure Indicator

Temp Indicator

EVRU Suction Pressure (-0.05 to 0 psig)

Low-Pressure Vent Gas from Tanks (0.10 to 0.30 psig)

Discharge Gas (~40 psia)
Vapor Recovery with Ejector

Reducing Emissions, Increasing Efficiency, Maximizing Profits

1,000 Mcf/d Gas
1,000 B/d Oil

Oil & Gas Well

LP Separator

Compressor

2,200 Mcf/d
(30 Mcf/d Incr. fuel)

80 psig

Ejector

Gas to Sales
@ 300 psig
1,000 Mcf/d
Net Recovery
Ratio Motive / Vent = 5

200 Mcf/d

Crude Oil Stock Tank

Oil to Sales

1,000 Mcf/d Gas
1,000 B/d Oil

Oil

2,200 Mcf/d

Gas
## Trade Offs

<table>
<thead>
<tr>
<th></th>
<th>Conventional VRU</th>
<th>Ejector</th>
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<tbody>
<tr>
<td>Electricity</td>
<td>$3,000/year</td>
<td>_</td>
</tr>
<tr>
<td>Fuel</td>
<td>_</td>
<td>$60/year</td>
</tr>
<tr>
<td>Spare Compressor HP</td>
<td>500</td>
<td></td>
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<tr>
<td>Maintenance</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Capital Cost per recovered Mcf/year</td>
<td>$0.70</td>
<td>$0.03</td>
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<tr>
<td>Payback</td>
<td>&lt; 4 months</td>
<td>&lt; 1 month</td>
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Benefits of Vapor Recovery Units

- Capture up to 95 percent of hydrocarbon vapors that accumulate in tanks
- Recovered vapors often have higher Btu content than pipeline quality natural gas
- Recovered vapors can be more valuable than methane alone