Overview of Deliquification Services

European Gas Well Deliquification Conference
Groningen, 28-29 September 2011

Scott Caird
Champion Technologies - Specialty Oilfield Chemicals

Champion is:
The largest privately owned specialty oilfield chemical company
The second-largest in our industry

More than 2,800 employees worldwide in about 35 countries and 6 continents
Deliquification Services

- Chemical Gas Well Deliquification
- Modelling
- Laboratory testing
- Field Application
- Service
Deliquification Services
## GWD Scope and Strategy

<table>
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<tbody>
<tr>
<td></td>
<td>Onshore</td>
<td>Offshore</td>
<td>Brine</td>
<td>Condensate</td>
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<tr>
<td>Canada</td>
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GWD technology gaps and plans

Robust, environmentally acceptable solid chemical foamer

Condensate Foamer
Special Equipment – Gas Well Simulator

- Gas Well Simulator, Midland, TX, and verification with field

- Gas Flow Rate: 0-3MMSCFD
- Tubing ID 2.5in x 20ft
- Critical Rate 180MSCFD
- Continuous Liquid Flow Rate
  - 0-15Bbls/Day Hydrocarbon
  - 0-15Bbls/ Day Brine
  - Foamer: 0-50,000ppm
Special Equipment - Foamscan
Environmentally Acceptable Foamer / Defoamer / Clarifier Package

- **Foamatron V-502** gives high performance, even up to 35% condensate
- **Defoamer AF 400** quickly kills foam
- **Cleartron EZB 6101** reduces oil in water concentration
- **All products No Sub-Warning**
Combination Foamer / Corrosion Inhibitor / Halite Inhibitor

Figure 2: Summary of Halite Loop Runs

LPR Bubble Test SGS Type 3, Vigorous stirring regime. 70°C, 0.69 bar CO2, 90/10 15% NaCl/LAWS

- Foamer = 1000 ppm
- Salt = 20%
- Condensate = 25% HAN
- Collapse time > 180s