Reduction of Vented Methane, VOC’s and BTEX Emissions

Gas/Electric Partnership

February 8-9, 2017
Destructing Methane and BTEX Emissions From Dehydrators using SlipStream® GTS DeHy†

† Patented; other patents pending
SlipStream® Concept

SlipStream® GTS-DeHy

- A technology which creates value from vented dehy emissions while maintaining safe, reliable, compliant operation

- Combusts vented emissions, mainly vented hydrocarbons, as a supplementary fuel source for Glycol Heaters Dehydrators

- Results in both an environmental and economic benefits
The GTS-DeHy is an enclosed Combustion System that is used as an Emission Control Device to meet Federal and State Compliance Regulations
Glycol Dehydrator BTEX Emissions

**CHALLENGE**

- Wet Gas + Glycol
- Contactor
- Wet Gas + Glycol Recycle
- Still Vent
- Re-Boiler
- Dry Gas
- H₂O Vapour + BTEX
- Dry Gas
- Still Vent
- Re-Boiler
- Wet Gas (Gas + H₂O)

**WELL**

**DEHYDRATOR**

**SALES**
SOLUTION

Fuel Gas

BTEX

Still Vent

Glycol Re-boiler

Low Pressure Burner

High Pressure Burner

Aux Burner

Exhaust Stack

Liquids Knockout
SlipStream® GTS-DeHy Control Panel and BMS Controllers

- Main Burner BMS Controller
  - Controls HP and LP Gas to Burner
- Aux Burner BMS Controller
  - Controls LP Gas to Burner
- Supervisory Control to All GTS-DeHy Systems
SlipStream® GTS Technology

- No pressurization or recompression required

- Vent gases pass through a certified valve train (meets NFPA 8502 & CSA B149.3) which turns the burner on to combust the vent gas when vent pressure is detected
  - Main burner used for normal GPU operation as well as Vapor destruction
  - Vented gas are burned in the Main or Aux Burner via special low pressure orifice nozzle
  - Minimal increase in vent system pressure (between 3-4 oz)

- High VOC, BTEX and Methane destruction factor
  - The Air Fuel Ratio of each burner is adjusted to ensure maximum destruction for both the Main fuel and Vented Gases.
  - > 99.5 % Destruction Efficiency (Validated by AER)
For the reduction of Vented Emissions from Reciprocating Compressor Packing Vents, Condensate Tanks and other vented sources.

*A Patented REM Technology System*
Vent Capture\Energy Efficiency Solutions

Using vented natural gas as fuel!

• **What is SlipStream?**
  - A method and apparatus for utilizing vented gases as a supplementary fuel source on natural gas engines and other combustion devices such as Dehy and Tank heaters

• **Benefits:**
  - Reduced vented emissions
  - Reduced fuel costs
  - Significant GHG reductions
  - GHG credits
Efficiency of Destruction

• An internal combustion engine is very efficient in combusting fuel

• VOC destruction > 99%

• For most systems the added fuel is < 10% of engine fuel

• Advanced systems take up to 50% of engine fuel

• No catalyst fouling
Compressor Packing Gases Vent Capture

Pipe from compressor cylinder packing vents

Captured Packing Vent Gas
Header to SlipStream Valve Train

Captured Packing Vent Gas from compressor

Gas composition:
• 43% methane
• 16% ethane
• 41% VOC

Captured Packing Vent Oil Collection Pot and Seal
Compressor Packing Gases Vent Capture

**SlipStream® Control System**

Capture Packing Vent Header from Compressor

Pipe from SlipStream Valve Train

Flow Rate entering air intake duct. Typically 5” WC of vacuum

Pipe to Engine Air Intake Duct

SlipStream Valve Train
Thank you...Questions?