Utilizing VRT/VRU Configuration to Reduce Storage Tank Flash Emissions

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October 23, 2007

Flashing Losses from Storage Tanks

- Flashing from tanks occurs when oil/condensate dumps from a pressurized vessel to atmospheric storage tanks
- Emissions depend on composition of oil/condensate
- VOC emissions may range from 57-90%[1]
- Methane emissions may range from 1-20%[1]

1. Based on data and analysis gathered from APC's Austin Chalk operations

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Using a VRU directly on Tank Vent

- **Historically compressors (VRUs) have been connected directly to tank vents to capture losses**

- **Safety and Efficiency Concerns**
  - *Oxygen introduced to compressor presents explosion hazard*
  - *Compressor recycle time during tank gauging and loading operations*

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Adding the Vapor Recover Tower (VRT)

- Add separation vessel between heater treater or low pressure separator and storage tanks that operates at or near atmospheric pressure
  - *Operating pressure range: 1 psi to 5 psi*
- Compressor (VRU) is used to capture gas from VRT
- Oil/Condensate dumps from VRT to Storage tanks

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Adding the Vapor Recover Tower (VRT)

- **VRT reduces pressure drop from approximately 50 psi to 1-5 psi**
- **Reduces flashing losses**
- **Captures more product for sales**
  - *Anadarko Netted between $7 MM and $8 MM from 1993 to 1999 by utilizing VRT/VRU configuration*
  - *Tyler County Area: VRT/VRU captures approximately 170 MCFD of CH_4 from 20 wells. (1.6 MMCFD of gas)*

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Adding the Vapor Recover Tower (VRT)

- **Equipment Capital Cost: $11,000**
- **Different size VRTs available based on oil production rate**
  - *20” x 35’*
  - *48” x 35’*
- **Anadarko has installed over 300 VRT/VRU since 1993 and continues on an as needed basis**

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VRT / VRU PHOTOS

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DISCUSSION & QUESTIONS

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