

Utilizing VRT/VRU Configuration to Reduce Storage Tank Flash Emissions

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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

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*

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

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*

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

VRT / VRU PHOTOS



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DISCUSSION & QUESTIONS