Natural Gas Dehydration

Applicable Air Programs
What are Natural Gas Dehys?
Where are Dehy Units Located

- Anywhere water needs to be removed from the natural gas stream
- Production well compressor stations
- Transmission stations
- Usually co-located with compressors but not necessary
More than just water is removed

- Typically see Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX)
- Some other HAPs like n-Hexane and 2, 2, 4 Trimethylpentane are also measurable, but at lesser quantities
- Hydrogen Sulfide also regulated by 45CSR10
Applicable MACT Regulations

- Subpart HH – Natural Gas Production
- Subpart HHH – Natural Gas Transmission
- Subpart ZZZZ – Reciprocating Internal Combustion Engines (RICE)
Subpart HH – Production - Applicability

- Affected Source is Dehydration Unit
- PTE is based only on dehydration and tanks with flash potential only
- Emissions from engines are excluded
- Covers N.G. processing from well to and including processing plant (e.g. where liquids are removed, ethane, propane, butane)
- Existing source compliance date 6/17/02
Example flow diagram

Process Flow Diagram for TEG or DEG Dehydrators
Subpart HHH – Transmission – Applicability

- Affected source is dehydration unit
- PTE is based on dehy., engines, and tanks
- Covers natural gas processing from liquids extraction plant to customer distribution network
- Existing source compliance date 6/17/02
Subpart ZZZZ – RICE - Applicability

- Affected source is the reciprocating internal combustion engine > 500 hp
- PTE is based on dehys., storage vessels with flash potential as well as the engines
- Existing sources constructed before 12/19/02
- Existing sources affected 4 SRB
- New sources affected 4SRB, 4SLB and 2SLB, Combustion Ignition CI
Problems Encountered with MACT

- Sources potentially subject to Subpart HH and HHH have come up short on recordkeeping.
- Applicability determination have shown sampling of stack gas has been done incorrectly, not using prescribed methods.
- Facilities with Flares may not be practically enforceable due to lack of testing.
Practical Enforceability

- We need annual wet gas sampling for BTEX Conducted according to proper methods GPA Method 2166, Specified by Glycalc
- We also need flare efficiency demonstration in accordance with federal flare requirements 60.18 or 63.11
- The flare requirement require BTU-Method 18 and Flow – Method 2 measurements to be made
Where we go from here

- EPA Region III’s enforcement group has decided to target the N.G. industry for Subparts HH and HHH.
- As a result Region III is conducting research in the form of file reviews and inspections to determine where sources need to make improvements.