

HYDROGEN BLENDING

- INDUSTRY EFFORTS

- ▶ Use of blended hydrogen fuel is undergoing research by several major R&D organizations (GTI, Southwest Research, etc.)
- ▶ With the methane emissions focus by Congress and PHMSA, this will continue to be looked at with the goal of reducing greenhouse gas emissions
- ▶ Several operators have pilot programs in process to assess how hydrogen will work with existing pipeline distribution systems, effects on materials, leak detection processes, etc.
- ▶ In harmony with Section 113/114 of the PIPES Act, operators should be looking at ways to reduce emissions, including use of hydrogen (depending on results of the pilot programs)

HYDROGEN BLENDING

- CONCERNS

- ▶ The BTU content of hydrogen is less than natural gas. (H is 30% of CH₄)
 - ▶ The hydrogen molecule is very small and can leak where natural gas may not be leaking. (~8x smaller than natural gas)
 - ▶ Leak detection for hydrogen requires different equipment
 - ▶ Hydrogen may cause pipeline embrittlement of steel and plastic
 - ▶ Hydrogen has a flammability range of 4% - 75%
 - ▶ Hydrogen also has a lower autoignition temperature
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- ▶ I anticipate that there will be regulations developed for hydrogen.