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October 26, 2016

Via Certified Mail, Return Receipt Requested and E-Mail

7013 3020 0002 0435 8493

phmsa.hminfocenter@dot.gov

Office of Chief Counsel

Pipeline and Hazardous Materials Safety Administration

1200 New Jersey Avenue, SE

Washington, DC 20590-0001

Via Certified Mail, Return Receipt Requested

7013 3020 0002 0435 8509

United States Department of Transportation

Pipeline and Hazardous Materials Safety Administration (PHMSA)

Office of Pipeline Safety (PHP-30)

1200 New Jersey Avenue SE

Washington, DC 20590-0001

RE: Applicability of Title 49 of the Code of Federal Regulations (49 CFR) part 192 to materials transported in gaseous phase

Dear Sir or Madam:

This is a request for interpretive assistance under 49 CFR § 190.11(b) concerning the transportation of dual phase natural gas liquids (“NGL”) in pipelines primarily regulated under 49 CFR part 195. For the reasons articulated below, we believe part 195 is not fully protective of public safety concerning vapor phase hazards that occur during two-phase NGL transportation. I represent a group of landowners near a proposed dense phase NGL pipeline who are concerned about their safety, the safety of nearby schools and public gathering places, and the safety of visitors to their homes and businesses near the proposed pipeline. As explained below, my clients believe that both Part 192 and Part 195 should apply to dense phase NGL pipelines.

BACKGROUND

Informal written communication from PHMSA’s Eastern Region Community Assistance and Technical Services (CATS) indicates that PHMSA has chosen to regulate NGLs¹ under 49 CFR part 195² to the exclusion of part 192³. Natural gas liquids are further classified by PHMSA as

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¹ For the purpose of this inquiry, “natural gas liquids” are ethane, propane and butane, either separated into substantially pure form or mixed together in any proportion.

² Transportation of Hazardous Liquids by Pipeline

³ Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards

highly volatile liquids: “a hazardous liquid which will form a vapor cloud when released to the atmosphere and which has a vapor pressure exceeding 276 kPa (40 psia) at 37.8° C (100° F).” 49 CFR § 195.2. That is, NGLs will stay in liquid form only at certain combinations of pressure and temperature. Outside of this range, NGLs will be in gaseous phase. At virtually any normal atmospheric temperature and pressure NGLs will become gas.

A review of the engineering data demonstrates that during normal pipeline operations NGLs are not fully liquid, even at operating pressures as high as 1,500 pounds per square inch gauge (“PSIG”). NGLs are actually routinely transported in a two-phase state, commonly referred to as the “dense phase”, where part of the material is in liquid form and part of it is in gaseous form. At standard NGL pipeline operating parameters, this two-phase state is inherent to the material and it can be factually stated that these materials will never be purely liquid within the pipeline at operating temperatures and pressures required for NGL pipeline transportation.

This fact is well-known within the industry. It is discussed in available public literature. *See the following 2 examples:*

- 1) Mahmood Moshfeghain, *Transportation of Ethane by Pipeline in the Dense Phase*, March 1, 2014, www.jmcampbell.com/tip-of-the-month/2014/03/transportation-of-ethane-by-pipeline-in-the-dense-phase/ (last visited October 24, 2016)
- 2) Fred V. Van Orsdol, *Dense Phase Fluid Measurement*, www.crt-services.com/pdf/papers11/Dense%20Phase%20Fluid%20Measurement%20.pdf (last visited October 24, 2016).

In addition, at a recorded public meeting on September 26, 2016, a Sunoco Pipeline Project Engineer readily acknowledged that NGLs will often be in gaseous phase during transport, stating operating pressures well below the critical point for ethane and the other NGLs. Sunoco's representative only recites well known engineering parameters impacting ethane transportation that justify additional safety precautions not found in 49 CFR 195.

The main concern that Van Orsdol recites is transportation of a dense phase stream near the “critical point”. At typical operating temperatures, the critical pressure for ethane is above 700 psi. The pipeline operator will therefore need to maintain pipeline conditions well above that critical pressure (typically > 760 psi) to ensure mass density of the product is stable enough to allow its measurement system to properly monitor the flow. Because flow monitoring is often used as the primary means of leak detection, mass flow measurement accuracy is critical to safety.

For the purpose of this inquiry, please accept *arguendo* that NGLs as transported in a particular pipeline system will routinely and regularly exist inside the system in a two-phase state that consists of a significant proportion of non-liquid (gaseous) material.

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49 CFR § 195.1 contains an applicability statement which says in pertinent part:

(b) Excepted. This Part does not apply to any of the following:

(1) Transportation of a hazardous liquid transported in a gaseous state (emphasis added).

Facially, therefore, part 195 is inapplicable to the transport of gas.

49 CFR § 192.1 contains an applicability statement which says in pertinent part:

(a) This part prescribes minimum safety requirements for pipeline facilities and *the transportation of gas*, including pipeline facilities and the transportation of gas within the limits of the outer continental shelf as that term is defined in the Outer Continental Shelf Lands Act (43 U.S.C. 1331). (emphasis added).

QUESTION POSED

Should a pipeline system transporting NGLs in mixed gaseous/liquid phase be subject to the regulatory requirements of 49 CFR part 192 as well as part 195?

ANALYSIS

Natural gas liquids pipelines typically transport two-phase fluids, not the standard liquid-phase fluids commonly regulated under part 195. Part 195 lacks several public protection provisions that PHMSA included in part 192. We believe that regulation of NGL pipelines transporting dense phase fluids requires more public protection than what Part 195 affords. We believe that PHMSA should immediately begin requiring owners and operators transporting dense phase fluids, where the materials being transported are partly in gaseous phase, to comply with both part 192 and part 195. Such public health and safety protection would help the United States' population and pipeline and petroleum community mitigate avoidable risk. This question bears directly and immediately on the safety of lives and property, especially concerning property owners near dense phase pipelines.

If your response is that only part 195 and not part 192 is applicable to the transport of NGLs even with the material consisting of significant gaseous phase content, please explain the basis for your interpretation. Because part 192 contains safety standards designed to protect the public from releases of flammable gas (and NGLs under atmospheric conditions are flammable gas) please also identify the rule part under which NGLs being transported in gaseous phase are regulated. Part 192 safety provisions include design requirements (192.111) for High Consequence Areas based on pipeline proximity to locations per a clearly defined Class Structure (192.5) based upon a calculated Potential Impact Radius. Part 192 also includes a

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requirement to add an odorant to the line (192.625) that enables the public to detect leaks that go unnoticed by operator monitoring stations, a common occurrence.

For that reason, I respectfully request an expedited response.

Sincerely,

A handwritten signature in blue ink, appearing to read "RR/ED". The letters are stylized and cursive.

Rich Raiders, Esq.

RR/ly