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Methanol Air Emissions of No Concern in Fracking Operations

(Washington, D.C.) – An update to the comprehensive report on the use of methanol in hydraulic fracturing concludes that ‘methanol air emissions are not of a concern’ when considering the impact of flowback water retention ponds on the environment. The update to the white paper, which was first released in 2011 and also prepared by leading engineering and scientific consultant Exponent, provides the most thorough analysis of the fate and impact of methanol in flowback water available, and also refutes misleading information that has been widely circulated in the media.

“Methanol’s unique properties make it an ideal component to aid in hydraulic fracturing operations,” said Methanol Institute Acting CEO Gregory Dolan. “As Exponent’s research demonstrates, methanol is very useful as both an anti-freeze and lubrication component for the natural gas industry as well as being completely biodegradable – which prevents any negative impact on the surrounding environment.”

With increasing public attention on hydraulic fracturing operations around the world, the Methanol Institute commissioned the original white paper from Exponent to examine the fate and transport of methanol in hydraulic fracturing operations. This report examined the use of methanol in hydraulic fracturing as a common component of enhanced recovery operations by exploring its role as a fracking fluid additive, evaluating hypothetical exposure scenarios, and assessing methanol’s health risks. The updated new chapter, in addressing the potential for evaporative methanol emissions from retention ponds, concludes that methanol has a very low tendency to volatilize from flowback ponds. This has been confirmed by the Pennsylvania Department of Environmental Protection in their observation of active fracking retention ponds, due to its infinite solubility in water and its low concentration in the fracking flowback – of which 95% consists of water and sand.

The revised report also refutes claims from the widely cited “Harvey Report” (2009) which discussed a hypothetical scenario of 10 wells discharging 12.5 million gallons of flowback water to a pond, which would result in a “*theoretically possible*” methanol air emission of 32.5 tons / year. The Exponent analysis notes that the methanol content in such a scenario would actually be 875 pounds of methanol, and not 65,000 pounds as estimated in the Harvey Report. Further, the Harvey Report stated that methanol has a low solubility in water and a relatively high vapor pressure, when in reality methanol is infinitely soluble in water and the evaporation rate for dissolved methanol is 35,000 times lower than that of water.

In the environment, methanol evaporates 35,000 times slower than water, and orders of magnitude slower than other chemical components commonly used in the enhanced recovery process. Although methanol has been cited as the most widely used additive in fracking fluids, it represents a miniscule portion of those liquids – commonly less than 0.001%. The Exponent report states, “While a beneficial additive for fracking operations, the actual volume of methanol used is a small fraction of the total fluid system, typically just a several hundred pounds out of what may be tens of millions of pounds of fracking fluids at a single site.” Because of the low volumes of methanol actually used, its miscibility in water, and biodegradation, methanol practically does not evaporate in retention ponds according to Exponent.

“Methanol has a number of useful applications in energy, industry and chemistry,” continued Mr. Dolan. “And the increased access to natural gas created by fracking operations is also benefitting each of these industries equally.”