

## **Condensate Loadout Operations**

### **Program Description**

This strategy to reduce ambient ozone levels within the non-attainment Area (NAA) involves modifying Regulation No. 7 (Reg. 7) to require control of condensate loadout at exploration and production (E&P) sites within the NAA.

When condensate is transferred from storage tanks to tank trucks, methane and volatile organic compounds (VOCs) are released from the condensate due to pressure and temperature changes that occur during transfer. The gas is typically vented through a tank truck vent to atmosphere. Emissions from liquid transfer into tank trucks can be controlled through the use of submerged filling, a vapor collection and control system, or by balancing vapors back to the storage tank. Of these three control options, the most feasible for condensate storage tanks is submerged filling.<sup>1</sup>

Liquid can be loaded into a tank truck using either a submerged or splash method. During most of the submerged loading method, the fill pipe opening is below the liquid surface level. Liquid turbulence is controlled significantly during submerged loading, resulting in much lower vapor generation than encountered during splash loading.

Methane and VOC emissions can be routed from the tank truck vent to a flare or vapor recovery unit (VRU) via a vapor recovery line. However, installation of a VRU to most existing tank installations is probably not feasible without a complete redesign and new installation. Most condensate storage tanks are pressure rated 3 to 5 pounds per square inch gauge (psig) and would need to be replaced with tanks designed with higher pressure ratings.<sup>2</sup> Currently only approximately 1 percent of condensate tanks in the NAA that are controlled use VRUs. Approximately 99 percent of emissions are controlled by flares.

Because most existing tanks are rated 3 to 5 psig, the vapor balance option is not a feasible control method. Vapor balance as a control method is suited to pressurized tanks. A vapor balance system is made of pipes and/or hoses used to create a closed system between the vapor spaces of a transport truck and a condensate storage tank. Vapors that are displaced from the truck as it is being loaded with condensate are transferred to the tank.

### **Air Quality/Health and Welfare Benefits**

While health benefits are not quantified here, it is understood that reducing direct emissions of VOCs will reduce air toxics and other criteria pollutants. This will reduce the incidence of human health impacts caused by pulmonary, cardiovascular, respiratory, and nervous system disease. Because ozone damages crops, forests, and other natural plant life, all would benefit if emissions are reduced. This strategy would also reduce emissions of methane, which contributes to climate change.

### **Program Costs**

To be determined.

### **Implementation/Administration**

To be determined.

<sup>1</sup> CH2MHill, *Review of Oil and Gas Operation Emissions and Control Options Final Report*, June 29, 2007

<sup>2</sup> Four Corners Air Quality Task Force, *Four Corners Air Quality Task Force Report of Mitigation Options*, Mitigation Option: Installing Vapor Recovery Units (VRU), November 1, 2007