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UPDATE ON FUGITIVE NGL ISSUES IN THE CONWAY AREA - ASSESSMENT AND MONITORING

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Abstract

In 2001, fugitive natural gas liquids (NGL) were discovered in the Cathodic Protection Well CP-8 and subsequently in the Brine Production Test Well Willems No. 1 located near the Williams Midstream Natural Gas Liquids Inc. (Williams) Conway Underground East (CUE) Storage Facility in Conway, Kansas. Following the discovery, Williams completed an investigation of the aerial extent of the NGL in the shallow, unconsolidated, alluvial deposits of the McPherson Formation. The results of the investigation indicated a plume of NGL located east of the Brine Production Test Well Willems No. 1. Geophysical logging of the Brine Production Test Well Willems No. 1 and adjacent Brine Production Well indicated poor cement bond along the casings. Subsequent abandonment of the Brine Production Well Willems No. 1 and recompletion of the Brine Production Test Well Willems No. 1 have resulted in a rapid and significant decrease in the concentration of NGLs in the adjacent shallow Monitoring Well CUE01-6S. This decrease suggests that the pathway of migration from the Wellington Aquifer to the shallow alluvial overburden had been eliminated. New soil gas monitoring points are now in-place for monitoring the presence of the NGLs in the shallow, unconsolidated, alluvial deposits located near the former Brine Production Well Willems No. 1. Soil gas monitoring data from 2003 and 2004 indicate NGL concentrations near the edge of the plume are continuing to decrease while NGL concentrations in the central portion of the plume remain relatively stable. Continued soil gas monitoring will assist in determining if the plume is slowly attenuating as higher oxygen concentrations are introduced along the edge of the plume, or if NGLs are slowly migrating through fractures in the shale bedrock and continuing to feed the shallow plume at low concentrations.

Key Words: Natural Gas Liquids, Soil Gas, Monitoring, Conway, Wellington Aquifer