Agave Energy Company

Grace Line Release

Sec 20, T22S – R 32E

Lea County, New Mexico

July 27, 2016

Location

The location of the pipeline release is approximately 4 miles east of County Road 798, Red Road, in the SW/NE Sec 20, T22S, R32E.

Introduction

On July 16, 2016 a rupture and subsequent release along an 8" poly line was reported to Agave. Agave personnel immediately responded to shut-in the line. The line is a low-pressure gas gathering line. The apparent cause of the leak cannot be definitively identified. We suspect, based on inspection of the pipe, that it may have been gouged during installation. This caused a weak spot in the pipe, and being uncovered by the shifting sand dunes, the pipe ruptured due to high line pressure over the weekend.

Along with the release of gas, was a minor amount of hydrocarbon liquids (approximately 5-10 bbls). These liquids were carried by the wind and covered an area approximately 450 ft. by 200 ft. at its greatest extent. There was no evidence of any release of produced water or chlorides. Soil sampling will be conducted to determine if chlorides were released.

The release occurred on BLM land, and notifications to the Carlsbad Field Office have been made. On Thursday 7/21/16 a BLM representative accompanied Agave personnel to the location to document the release and make recommendations/requirements regarding the remediation of contamination.

Site Ranking

Based on the *Guidelines for Remediation of Leaks, Spills and Releases* (NMOCD, August 13, 1993), hereafter referred to as "the Guidelines", the site ranking criteria are as follows.

Depth to Ground Water: The nearest Depth to Groundwater record (C-02096) listed on the New Mexico Office of the State Engineer (Sec 14, T22S-R32E) shows depth of groundwater to be approximately 360 feet. Average depth to groundwater in this Township is reported as 350 feet. Exhibiting a depth to groundwater of greater than 100 feet, results in a ranking score of 0.

Wellhead Protection Area: The nearest water source to the station C-02096 used for livestock watering, located 2.97 miles to the northeast of the site. According to the *Guidelines,* not being within 1000 feet of a water source results in a site ranking of 0.

Distance to Surface Water Body: The nearest surface water body is the Salt Lakes east of Carlsbad, located 13 miles to the west, or the Pecos River, located 21 miles to the west, resulting in a site ranking of 0.

Total Site Ranking:

Depth to Ground water	0
Wellhead Protection Area	0
Distance to Surface Water Body	0
Total:	0

Recommended Remediation Action Level

According to the *Guidelines*, a location with a site ranking of 0 is subject to the following Recommended Remediation Action Level (RRAL).

Benzene	10 ppm
BTEX	50 ppm
TPH	5000 ppm

There are no standards set for chloride contamination set within the *Guidelines*. In consulting with the BLM representative, a Mr. Randy Pair, upon the remediation of this location, he informed Agave that the BLM has set an action level for chlorides at 1000ppm. This will be the target concentration Agave will work towards in remediation of any chloride contamination.

Proposed Remediation Work

Due to the fact that most of the released liquids were blown over a large area, and didn't pool up and penetrate the soil to a substantial depth, Agave is proposing to remediate the contamination in place. This would be done by applying MicroBlaze or an equivalent product to the area affected by the overspray of hydrocarbon liquids. After this application, the vegetation most heavily contaminated would be mulched, brush-hogged, or otherwise mowed to encourage aeration and ultimate degradation of the hydrocarbon contamination. Agave and the BLM are in agreement that leaving as much vegetation in place as is possible would be preferable to excavating and disposing of soil. If we are forced to remove portions of the vegetation above ground by mulching, leaving the root structures in tact until new vegetation can grow, would result in the least amount of damage to the area as a whole.

Unless chlorides are shown to be present in levels exceeding the accepted action levels, excavation may be an unnecessary strategy for remediation. The ground water in this area is found at 300 feet and greater depths. The relatively minor amount of liquid released to the soil poses no threat to the groundwater. Additionally, the nearest freshwater body is over 20 miles away, and is not at risk of being contaminated. Overall, the potential harm posed to the environment by this release, is relatively minimal. If soil sampling shows contamination to have reached lower depths, the affected soil can be tilled and turned over on site, as necessary, to aerate the soil. Doing this in conjunction with additional applications of MicroBlaze should be able to ameliorate the level of contamination in place.

Closure samples will be collected after the onsite remediation has been conducted, and given enough time to affect the hydrocarbons present.

Unless the NMOCD District I office disagrees with this remediation strategy, or has additional stipulations, Agave will proceed upon receiving final approval from the BLM, and completion of an Archeological Survey of the location (as requested by BLM).

Please direct any questions or concerns regarding this remediation plan to Kerry Egan at (575) 513-8988 or Kegan@agaveenergy.com