

December 19, 2019

**Re: Soil Sampling Summary Attachment
Kerr-McGee Oil and Gas Onshore, LP
Jack Berger C GU #1
Form 27 Document # 402262861
Remediation # 9606
SWNE SEC 3-T1N-R67W**

Excavation Soil Sampling

On December 11 and 17, 2015, six soil samples were collected from base and sidewalls of the flowline excavation for laboratory analysis of total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and total xylenes (BTEX), pH, and specific conductivity (EC). The base soil samples were also analyzed for pH, EC, and SAR. Laboratory analytical results indicated that BTEX, TPH, and EC concentrations and levels were in full compliance with COGCC Table 910-1 allowable levels at the extent of the excavation. Laboratory analytical results indicated that the northern sidewall soil sample (N01@3') exceeded the COGCC Table 910-1 allowable level for pH at 9.12. However, sample N01@3' was collected below the root zone (greater than 3 feet below ground surface (bgs)); therefore, no further excavation was required.

In February 2016, additional impacted soil was encountered while deconstructing the tank battery. However, there was no indication of a secondary release associated with the tanks or dump lines. On February 18, 2016, five soil samples were collected from the tank battery excavation for laboratory analysis of TPH, BTEX, pH, and EC. Laboratory analytical results indicated the TPH concentrations in the western and eastern sidewall soil samples (TB-W01@7' and TB-E01@7') and the base soil sample (TB-B01@11') exceeded the allowable level for TPH at concentrations of 1,222 mg/kg and 2,326 mg/kg, respectively. Due to the presence of Kerr-McGee and third-party flowlines and infrastructure, excavation activities could not continue. The flowline and tank battery excavation soil sample locations are depicted on the Site Assessment Map provided as Figure 1. The flowline and tank battery excavation soil sample analytical results are summarized in Table 1.

Subsurface Soil Assessment

In February and March 2016, April 2018, June 2019, and November 2019, a series of subsurface soil assessments were conducted to determine the extent of petroleum hydrocarbon impacted soil in place. Thirty-two assessment soil borings (SB01 through SB32) were advanced at the site to depths ranging between approximately 6 feet and 20 feet bgs. The soil borings were continuously field screened using a photoionization detector (PID). Based on the PID headspace readings, soil samples were collected from soil borings SB01 through SB09 and SB11 through SB32 for laboratory analysis of TPH and BTEX. Soil boring SB10 was abandoned and not sampled after daylighting an unmarked third-party line. Soil samples collected in February and March 2016 and in June 2019 were also analyzed for pH and EC. Samples collected in June 2019 were also analyzed for naphthalene. Laboratory analytical results indicate petroleum hydrocarbon impacted soil remains in place north and south of the former tank battery. The extent of impacted soil in

place has been delineated around the location of the former tank battery. Subsurface assessment activities in the location of soil boring SB27 are ongoing. The soil boring locations and estimated extent of soil in place are depicted on the Site Assessment Map provided as Figure 1. The soil sample laboratory analytical results are summarized in Table 1, and the laboratory analytical reports for the 2019 soil samples are attached. Soil boring logs for SB16 through SB32 are included as an attachment.