TETRA TECH

January 13, 2020

Rick Rickman
District Supervisor
Oil Conservation Division, District 1
1625 N. French Dr.
Hobbs, NM 88240

Re: Release Characterization and Remediation Work Plan
ConocoPhillips
VGEU 19-01 Flowline Release
Unit Letter L, Section 32, Township 17 South, Range 35 East
Lea County, New Mexico
1RP-5304

Dear Mr. Rickman:

Tetra Tech, Inc. (Tetra Tech) was contacted by ConocoPhillips to assess a flow line release that occurred at the Vacuum Glorieta East Unit (VGEU) 19-01 well pad, within Unit Letter L, Section 32, Township 17 South, Range 35 East, in Lea County, New Mexico (Site). The release site coordinates are 32.7905655°, -103.4863052°. The Site location is shown on Figures 1 and 2.

BACKGROUND

According to the State of New Mexico C-141 Initial Report (Appendix A), a release occurred from the VGEU 19-01 flowline on December 10, 2018. Approximately 45 barrels (bbls) of produced water were released and approximately 25 bbls of produced water were recovered. The release extent was predominantly confined to the lease pad.

SITE CHARACTERIZATION

A site characterization was performed and no watercourses, lakebeds, sinkholes, playa lakes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the specified distances and the site is in a low karst potential area. One (1) water well is listed in Section 32 on the New Mexico Office of the State Engineer (NMOSE) database with groundwater documented at 85 feet below ground surface. The groundwater data is shown in Appendix B.

REGULATORY FRAMEWORK

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills, and Releases, updated August 14, 2018. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene, and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil.

TETRA TECH
901 West Wall St., Suite 100, Midland, TX 79701
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

Based upon the Site characterization, the proposed RRALs are:

- Benzene: 10 milligrams per kilogram (mg/kg);
- Total BTEX (sum of benzene, toluene, ethylbenzene, and xylene): 50 mg/kg;
- TPH (GRO + DRO + ORO): 2,500 mg/kg;
- TPH (GRO + DRO): 1,000 mg/kg;
- Chloride: 10,000 mg/kg (600 mg/kg in the top four feet)

INITIAL RESPONSE

In accordance with 19.15.29.8. B. (4) NMAC that states "the responsible party may commence remediation immediately after discovery of a release", ConocoPhillips elected to begin remediation of the impacted area in February 2019. The release was predominantly confined to the caliche well pad, as shown on Figure 3. The visually impacted soils within the release area footprint were scraped to a depth of 6 inches.

INITIAL SITE ASSESSMENT

Post-initial response, COP personnel delineated and sampled the release area in February 2019. Six (6) borings (SP-1 through SP-6) were installed using a hand auger to a total depth of 3 feet below ground surface to evaluate the vertical extents of the release. A total of 12 soil samples were collected from these 6 boring locations on February 28, 2019 (Figure 3). The samples were submitted to an analytical laboratory for Total Petroleum Hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylenes (BTEX) and chloride (SM4500Cl-B) analysis. A copy of the analytical laboratory report and chain-of-custody documentation are included in Appendix D.

ADDITIONAL SITE ASSESSMENT

In order to more fully characterize and delineate the release area, Tetra Tech personnel conducted a subsurface investigation in September 2019. Nine (9) borings (BH-1 – BH-9) were installed using an air rotary drilling rig to various depths to evaluate the vertical and horizontal extents of the release. Selected samples were submitted to an analytical laboratory for TPH, BTEX, and chlorides (Method 300.0). Copies of the analytical laboratory reports and chain-of custody documentation are included in Appendix C. Boring logs, included as Appendix C, present soil descriptions, sample depths and field screening data from the additional site assessment.

SUMMARY OF SAMPLING RESULTS

The results of the assessment sampling event in February 2019 are summarized in Table 1. The sample locations are shown on Figure 3. The analytical results associated with boring locations SP-4, SP-5 and SP-6 were above the RRAL for chloride in the 0 ft. to 3 ft. depth intervals. Sample results from SP-1 were above the RRAL for chloride at the 0 ft. to 1 ft. depth interval. There was one RRAL exceedance for TPH at SP-4 (0-1'). There were no RRAL exceedances for BTEX in the initial assessment analytical results. Analytical results associated with boring locations SP-2 and SP-3 were below the RRALs for all constituents analyzed. Copies of analytical reports and chain-of-custody documentation are included in Appendix D.

The results of the additional assessment in September 2019 are summarized in Table 2. The sample locations are shown in Figure 3. All analytical results were below the proposed RRALs for both TPH and BTEX. The analytical results associated with boring locations BH-2 and BH-4 were above the RRAL for chloride in the 0 ft. – 1 ft. interval and the 0 ft. – 3 ft. intervals, respectfully. Chloride concentrations at boring locations BH-5, BH-6 and BH-7 are elevated in the 0 ft. – 3 ft. intervals and generally increase with depth. Further explanation on these results below. Analytical results associated with boring locations BH-1, BH-3 and BH-9 were below the RRALs for all constituents analyzed. Copies of analytical reports and chain-of-custody documentation are included in Appendix D.

Borings BH-4, BH-5, BH-6 and BH-7 were drilled in locations outside the 1RP-5304 release footprint to attempt to provide horizontal delineation. Based on the release extent, field screening data, and the subsequent analytical results, it appears the elevated chloride concentrations in the surface and subsurface at BH-4, BH-5, BH-6 and BH-7 are due to a historical release, and unrelated to the current release (1RP-5304). Cursory review of available satellite imagery indicates the general area has historically been used for production, however, imagery is not available prior to 1996.

REMEDIATION WORK PLAN

Based on the analytical results, ConocoPhillips proposes to remove the impacted material as depicted in Figure 4. Impacted soils (intervals shaded in Table 1 and 2) will be excavated until a representative sample from the walls and bottom of the excavation is below the RRAL. Excavations will be performed using heavy equipment (backhoes, hoe rams, and track hoes) to a maximum depth of 4 feet below surface within the release area. The area of the release extent that runs along the pressurized line near the 1RP-5304 release location will be hand-dug to a depth to 4' or the maximum extent practicable. Photographic documentation of the Site release area is included as Appendix E.

The impacted soil in the vicinity of boring locations BH-4, BH-5, BH-6 and BH-7 (assumed to be related to a historical release) will be excavated to a depth of 4 ft. and will be extended laterally (west) to the edge of the well pad and no more than 3 ft. from any pressurized lines. Additionally, excavations in the area containing BH-4 will extend laterally to the northeast until an acceptable sidewall sample is collected or the excavation reaches the lease road to the east.

Excavated soils will be transported offsite and disposed of at an NMOCD-approved or permitted facility. Confirmation floor and sidewall samples will be collected for verification of remedial activities, and analyzed for TPH, BTEX and chloride. Once the sample results are received, NMOCD will be notified and the excavation will then be backfilled with clean material to surface grade. The estimated volume of material to be remediated is 1,100 cubic yards.

VARIANCE REQUEST

In accordance with 19.15.29.14(A) NMAC, ConocoPhillips requests a variance for the remediation of the historical release area should excavation floor concentrations exceed 10,000 mg/kg. A 20-mil reinforced polyethylene liner will be installed and properly seated at a depth of 4 ft. within the excavated areas associated with the historical impacts. The liner will provide an engineered barrier that will inhibit the downward migration of residual constituents to groundwater.

ALTERNATIVE CONFIRMATION SAMPLING PLAN

In accordance with 19.15.29.12(D)(1)(b) NMAC, ConocoPhillips proposes the following alternative confirmation sampling plan to adhere with NMOCD requirements. The proposed confirmation sample locations are depicted in Figure 5. Twelve (14) confirmation floor samples and twenty-six (27) confirmation sidewall samples are proposed for verification of remedial activities. The proposed excavation encompasses an area of approximately 5,800 square feet.

These confirmation sidewall and floor samples will be representative of no more than approximately 500 square feet of excavated area. Confirmation samples will be sent to Pace Laboratories for analysis of TPH (Method 8015 modified), BTEX (Method 8260B), and chlorides (USEPA Method 300.0).

CONCLUSION

ConocoPhillips proposes to complete remediation activities at the Site within 90 days of the date of NMOCD approval of this submittal. Upon completion of the proposed work, a final closure report detailing the remediation activities and the results of the confirmation sampling will be submitted to NMOCD. If you have any questions concerning the soil assessment or the proposed remediation activities for the Site, please call me at (512) 338-2861 or Greg at (432) 682-4559.

Sincerely,
Tetra Tech, Inc.

Christian M. Llull, P.G.
Project Manager

Greg W. Pope, P.G.
Program Manager

cc:
Ms. Jenni Fortunato, RMR – ConocoPhillips
Mr. Gustavo Fejervary-Morena, GPBU - ConocoPhillips

List of Attachments

Figures:

- Figure 1 – Site Overview Map
- Figure 2 – Site Topographic Map
- Figure 3 – Release Assessment Map
- Figure 4 – Proposed Remediation Areas
- Figure 5 – Alternative Confirmation Sample Plan

Tables:

- Table 1 – Summary of Analytical Results – Initial Soil Assessment
- Table 2 – Summary of Analytical Results – Additional Soil Assessment

Appendices:

- Appendix A – C-141 Forms
- Appendix B – NMOSE Groundwater Data/Karst Potential Map
- Appendix C – Boring Logs
- Appendix D – Laboratory Analytical Reports
- Appendix E – Photographic Documentation

FIGURES

TABLES

APPENDIX A
C-141 Forms

APPENDIX B
NMOSE Groundwater Data

APPENDIX C
Boring Logs

APPENDIX D
Laboratory Analytical Reports

APPENDIX E
Photographic Documentation