TETRA TECH

May 25, 2020

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

Re: Release Characterization and Remediation Work Plan
ConocoPhillips
MCA Unit #123 Injection Line Release
Unit Letter D, Section 26, Township 17 South, Range 32 East
Lea County, New Mexico
1RP-4388
Incident ID nJXK1621825385

Sir or Madam:

Tetra Tech, Inc. (Tetra Tech) was contacted by ConocoPhillips to assess a release that occurred from an injection line near the MCA Unit #123 injection well, located in Public Land Survey System (PLSS) Unit Letter D, Section 26, Township 17 South, Range 32 East, in Lea County, New Mexico (Site). The release site coordinates are 32.810736°, -103.742846°. The Site location is shown on Figures 1 and 2.

BACKGROUND

According to the State of New Mexico C-141 Initial Report (Appendix A), on August 4, 2016 a leak was found inside a tinhorn on a 3-inch injection line at the MCA Unit #123 injection well (API No. 30-025-00705). The leak resulted in a release of 20 barrels (bbls) of produced water, of which 15 bbls were recovered with a vacuum truck. Immediate action taken by ConocoPhillips was to shut in the line to stop the release and submit a work order for repairs. The C-141 describes the affected area as an 8-inch deep 20-foot (ft) by 20-ft area of pasture. The NMOCD was notified of the release later that same day, and subsequently assigned the Site the Remediation Permit (RP) number 1RP-4388 and the Incident ID nJXK1621825385.

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. The site is in an area with low karst potential.

There are no water wells listed in Section 26, Township 17 South, Range 32 East on the New Mexico Office of the State Engineer (NMOSE) database. The average depth to groundwater in all of Township 17 South, Range 32 East is 126 ft below ground surface (bgs). Site characterization data are included in Appendix B.

REGULATORY FRAMEWORK

Based upon the release footprint and in accordance with Subsection E of 19.15.29.12 NMAC, per 19.15.29.11 NMAC, the site characterization data was used to determine recommended remedial action levels (RRALs) for benzene, toluene, ethylbenzene, and xylene (collectively referred to as BTEX), total

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petroleum hydrocarbons (TPH), and chlorides in soil. Based on the depth to groundwater at the Site, the RRALs for the Site are as follows:

CONSTITUENT	RRAL
Chloride (0 – 4 ft bgs)	600 mg/kg
Chloride (>4 ft bgs)	20,000 mg/kg
TPH (GRO+DRO+MRO)	2,500 mg/kg
BTEX	50 mg/kg
Benzene	10 mg/kg

INITIAL SITE ASSESSMENT

In August 2016, Basin Environmental Service Technologies (Basin) conducted soil field screening on behalf of ConocoPhillips at three locations within the release extent, though the precise locations are unknown. No samples were submitted for laboratory analysis. The initial stain map produced by Basin indicated that the impact from the release covered approximately 2,032 square ft and was an irregular-shaped area that flowed west from the release point along topographically lower elevations within the dunes. The release was mapped as extending 130 ft west of the former tinhorn. The initial release extent mapped by Basin and soil screening results are shown in Appendix C.

On January 22, 2020, Tetra Tech personnel were onsite to visually assess the Site. Cursory review of aerial imagery shows that the tinhorn was removed prior to February 2017 (Google Earth imagery date). The tinhorn was not observed during the field visit, and soils near the former tinhorn appeared to have been worked and or backfilled. Vegetation throughout the remainder of the observed release extent appeared stressed. Photographic documentation from the visual site assessment are included in Appendix D.

ADDITIONAL SITE ASSESSMENT

In order to verify the reported release extent from Basin and achieve horizontal and vertical delineation of the release footprint, Tetra Tech personnel were onsite to conduct soil sampling on March 23rd and 24th, 2020. A total of eight (8) borings (BH-1 through BH-8) were installed using an air rotary drilling rig. Three 10-ft borings (BH-2, BH-3, and BH-5) and three 7-ft borings (BH-6 through BH-8) were installed along the perimeter of the release to achieve horizontal delineation. The boring locations chosen for the horizontal delineation were based upon visual cues such as stressed vegetation. Care was taken to install borings for horizontal delineation outside of the observed impacted area. The remaining two borings, BH-1 and BH-4, were drilled within the release extent footprint to 50- and 60-ft depths, respectively, to achieve vertical delineation. Boring logs, included as Appendix E, present soil descriptions, sample depths and field screening data from the March 2020 assessment activities.

A total of twenty-nine (29) samples were collected from the eight (8) borings and submitted to Pace Analytical National Center for Testing & Innovation in Nashville, Tennessee to be analyzed for chlorides via EPA Method 300.0, TPH via EPA Method 8015M, and BTEX via EPA Method 8021B. A copy of the laboratory analytical report and chain-of-custody documentation are included in Appendix F. Boring locations are shown in Figure 4. Photographic documentation of the site assessment is included in Appendix D.

SUMMARY OF SAMPLING RESULTS

Results from the March 2020 soil assessment activities are summarized in Table 1. The assessment successfully delineated the release. It is apparent from the analytical data that there are elevated chloride concentrations at depth at the former tinhorn location (BH-1). However, the excavation and backfilling in the vicinity of the former tinhorn resulted in the upper four feet were below reclamation limits for chlorides. Analytical results associated with the interior borings (BH-1 and BH-4) did not exceed the delineation criteria

for BTEX or TPH in the upper 4 ft. There were no detections of BTEX or TPH above their respective Site RRALs of 50 mg/kg and 2,500 mg/kg in any of the analyzed samples below 4 ft bgs.

Laboratory analytical results for chloride exceeded the 0-4 ft bgs RRAL of 600 mg/kg in BH-4 (3-4 ft bgs). There were no results that exceeded the >4 ft bgs RRAL of 20,000 mg/kg for chlorides. Per NMOCD 19.015.29.11(A)(5)(c), the vertical extent of the release was delineated to 600 mg/kg chlorides in BH-1 at 49 ft bgs and in BH-4 at 59 ft bgs.

REMEDIATION WORK PLAN

Based on the analytical results, ConocoPhillips proposes to remove the impacted material as depicted in Figure 4. Given the fact that the release footprint was observed to be larger than the extent indicated by Basin in 2016, as well as the clean backfill noted in the vicinity of BH-1, the area proposed for remediation is slightly smaller than the observed extent of distressed vegetation. However, screening samples will be collected during the excavation process to determine if the remediation footprint for the site will be modified based on field conditions. Impacted soils will be excavated using heavy equipment (backhoes, hoe rams, and track hoes) to a maximum depth of 4 ft below surface or until a representative sample from the walls and bottom of the excavation is below the RRAL. The area of the release extent that runs along the buried line within the release extent will be hand-dug to a depth of 4 ft or the maximum extent practicable.

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 700 cubic yards.

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. Ten (10) confirmation floor samples and fifteen (15) confirmation sidewall samples are proposed for verification of remedial activities. The proposed excavation encompasses an area of approximately 4,800 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, BTEX, and chlorides. Once results are received, NMOCD will be notified and the excavation will then be backfilled with clean material to surface grade.

SITE RECLAMATION AND RESTORATION PLAN

The backfilled areas will be seeded in Spring 2020 (first favorable growing season) to aid in revegetation. Based on the soils at the site, the New Mexico State Land Office (NMSLO) Sandy (S) Sites Seed Mixture will be used for seeding and will be planted in the amount specified in the pounds pure live seed (PLS) per acre. The seed mixture will be spread by a drill equipped with a depth regulator or a hand-held broadcaster and raked. If a hand-held broadcaster is used for dispersal, the pounds pure live seed per acre will be doubled.

Site inspections will be performed to assess the revegetation progress and evaluate the site for the presence of primary or secondary noxious weeds. If noxious weeds are identified, the NMSLO will be contacted to determine an effective method for eradication. If the site does not show revegetation after one growing season, the area will be reseeded as appropriate. The NMSLO seed mixture details and corresponding pounds pure live seed per acre are included in Appendix G.

CONCLUSION

ConocoPhillips proposes to complete remediation activities at the Site within 90 days 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:
Mr. Marvin Soriwei, RMR – ConocoPhillips
Mr. Charles Beauvais, GPBU - ConocoPhillips

LIST OF ATTACHMENTS

Figures:

Figure 1 – Overview Map
Figure 2 – Site Location/Topographic Map
Figure 3 – Release Extent and Assessment Map
Figure 4 – Proposed Remediation Areas
Figure 5 – Alternative Confirmation Sampling Plan

Tables:

Table 1 – Summary of Analytical Results – Soil Assessment

Appendices:

Appendix A – C-141 Forms
Appendix B – Site Characterization Data
Appendix C – Basin Map
Appendix D – Photographic Documentation
Appendix E – Boring Logs
Appendix F – Laboratory Analytical Data
Appendix G – NMSLO Seed Mixture Details

FIGURES

TABLES

APPENDIX A
C-141 Forms

APPENDIX B
Site Characterization Data

APPENDIX C
Basin Map

APPENDIX D
Photographic Documentation

APPENDIX E
Boring Logs

APPENDIX F
Laboratory Analytical Data

APPENDIX G
NMSLO Seed Mixture Details