State of New Mexico
ENVIRONMENT DEPARTMENT

ENTERED

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CERTIFIED MAIL – RETURN RECEIPT REQUESTED

May 1, 2018

Stacy Boultinghouse, PG
Environmental Manager
Transwestern Pipeline Company, LLC
1300 Main Street
Houston, TX 77002

RE: APPROVAL WITH MODIFICATIONS
REPORT OF 2017 GROUNDWATER REMEDIATION ACTIVITIES
FORMER SURFACE IMPOUNDMENTS
TRANSWESTERN COMPRESSOR STATION NO.9
(ROSWELL COMPRESSOR STATION)
6381 NORTH MAIN STREET
ROSWELL, CHAVES COUNTY, NEW MEXICO
EPA ID NMD986676955
HWB-TWP-18-001

Dear Ms. Boultinghouse:

The New Mexico Environment Department (NMED) has reviewed the *Report of 2017 Groundwater Remediation Activities Former Surface Impoundments, Transwestern Compressor Station No.9* (Report), dated March 2018 submitted by Transwestern Pipeline Company, LLC (the Respondent). NMED reviewed the Report and hereby issues this Approval with Modifications. The Respondent must address the following comments:

Comment 1

The Respondent submitted two paper copies of the Report on March 21, 2018; however, the Respondent is required to submit two paper copies and one electronic copy of the Report in accordance with Section IX.A of the *Stipulated Final Order* (Order). The Respondent must submit an electronic copy of the Report by **May 18, 2018**.

Comment 2
In Section 1.0, *Introduction*, page 2, the Respondent states, "[w]astes generated by current pipeline maintenance activities are temporarily stored in aboveground storage tanks at the Facility prior to off-site recycling." Provide information regarding the storage tanks (e.g., locations, sizes) in relation to the surface impoundment location and explain how the wastes are transported to the storage tanks in a response letter.

Comment 3
In Section 1.0, *Introduction,* page 2, the Respondent states, "[t]he recovered fluids are conveyed to a 90-barrel aboveground storage tank that serves as a surge tank and separation unit for PSH and groundwater." Figure 5 in the *Response to Comments Revised Operation, Maintenance & Monitoring Plan*, dated October 19, 2017 depicts the tank as a 210-barrel surge tank. Correct the discrepancy in future reports and work plans. No revision to the Report is necessary.

Comment 4
In Section 4.1, *Soil Vapor Extraction System Monitoring Results,* page 8, the Respondent states, "[a]nalytical data results summarizing in Table 4-1 indicate that the SVE system recovered approximately 3,050 pounds (or about 480 gallons) of TVOCs in 2017, which is greater than the approximately 2,000 pounds (or about 320 gallons) removed in 2016." According to Table 4-1, *SVE System Mass Removal Calculations for Total Volatile Organic Compounds,* the efficiency of contaminant mass removal rate has been improved approximately three times after August 2017 compared to the data collected in June 2017. The increased mass removal may be due to the result of system optimization. In the response letter, provide more detail regarding the increased mass recovery in terms of system optimization.

Comment 5
In Section 4.2, *Groundwater Treatment System Monitoring Results,* page 8, the Respondent states, "[i]n addition, approximately 1,550 gallons of PSH accumulated in the surge tank in 2017, which is more than four times the amount of PSH accumulated in the surge tank in 2016 (350 gallons)." The volume of recovered groundwater was approximately 90,550 gallons in 2017 while 137,650 gallons of groundwater was recovered in 2016. Although the volume of recovered groundwater decreased, the volume of recovered PSH increased more than four times from 2016 to 2017. The cause of increased PSH recovery volume may be due to the result of system optimization. In the response letter, discuss additional detail regarding the increased PSH recovery in terms of system optimization.

Comment 6
In Section 5.0, *Soil Vapor Extraction Optimization Pilot Study,* page 10, the Respondent states, "[i]n Circuit B, eleven recovery wells were used during the study. PID readings of greater than 150 ppmV were observed in seven of the eleven recovery wells (MPE-12, MPE-13, MPE-14, MPE-16, MPE-17, MPE-19, and MPE-20), while PID readings of less than 150 ppmV were observed in MPE-15, MPE-18, and MPE-38." According to Figure 1-3, *Remediation System*

Layout, MPE-21 is included in Circuit B; however, the PID reading from MPE-21 was not discussed. Similarly, the Respondent states, "[i]n Circuit C, eleven recovery wells were used during the study. PID readings of greater than 150 ppmV were observed in six of the eleven recovery wells (MPE-30, PME-31, MPE-32, MPE-35, MPE-39, and MPE-40), while PID readings of less than 150 ppmV were observed in MPE-34, MPE-36, and MPE-37." According to Figure 1-3, MPE-39 and MPE-40 are not included in Circuit C while MPE-41 is included in Circuit C. The total number of recovery wells depicted in Circuit C is nine rather than eleven. Further, the Respondent states, "[i]n Circuit D, nine recovery wells were used during the study. PID readings of greater than 200 ppmV were observed in each of the nine recovery wells (MPE-22, MPE-23, MPE-24, MPE-25, MPE-26, MPE-27, MPE-28, MPE-29, and MPE-41)." According to Figure 1-3, MPE-41 is not included in Circuit D while MPE-39 and MPE-40 are included in Circuit D. The total number of recovery wells depicted in Circuit D is ten rather than nine. Clarify the discrepancies in the response letter and provide replacement pages and a revised figure that corrects the discrepancies.

Comment 7

In Section 5.0, *Soil Vapor Extraction Optimization Pilot Study*, page 11, the Respondent states, "[t]he lower applied vacuums of Circuits A and B may be attributed to the number of operating wells and the soil bedding material used for the underground main natural gas pipe line, which may be short-circuiting air for the SVE blowers." There are several recovery wells (e.g., MPE-12) in Circuits A and B, where elevated vacuum must be maintained so that contaminants can be effectively extracted. The recovery wells that exhibited elevated PID readings in Circuits A and B may be connected to Circuit C, where short-circuiting of air is unlikely, to provide higher vacuum. Concurrently, the recovery wells that exhibited lower PID readings in Circuit C (MPE-34, MPE-36 and MPE-37) may be disconnected from Circuit C and reconnected to Circuit A or B. In the response letter, propose to submit a work plan to maximize mass recovery from the wells in Circuits A and B, where elevated PID readings were observed.

Comment 8

In Section 5.0, *Soil Vapor Extraction Optimization Pilot Study*, page 12, duration of operation in each Circuit is recorded in Table B, *Approximate Vapor-phase Mass Removal.* The duration of operation in each Circuit varies from 552 to 2016 hours. Some Circuits appeared to be operated longer while others appeared to be operated intermittently during the study. There are two blowers in the extraction system and each blower is reportedly capable of providing vacuum pressure of 10 inches of mercury. It is not clear which Circuits are operated by which blower or if the two blowers were concurrently operated on the isolated Circuits during the study. The recovery efficiency cannot be compared between Circuits if operating conditions are different. For example, when one Circuit was operated using two blowers and the recovery efficiency was studied, the other Circuits must be operated under the same operating conditions to be able to compare the efficiency. Circuit D exhibited the highest PID readings while Circuit A exhibited the lowest. The Respondent must ensure that the data was collected under the same operating

conditions. Provide a more detailed discussion describing the operating conditions of the study in the response letter.

Comment 9

In Section 5.0, *Soil Vapor Extraction Optimization Pilot Study*, page 13, the Respondent states, "[i]f recovery efforts were isolated on Circuit D for one year and the vapor concentrations remain consistent, mass removal amounts could potentially range between approximately 10,000 pounds and 20,000 pounds per year." While Circuits A, B and C are not operating, it is possible that the contaminant plumes could expand downgradient from the source areas. The current plume extents may have been maintained due to the current configuration of the extraction network. The system must not be isolated to operate only Circuit D. Rather, evaluate the possibility of upgrading the system to provide sufficient vacuum pressure. Propose to submit a work plan to upgrade the system (e.g., adding another blower dedicated to Circuit D, rather than limiting the current coverage of blowers for the extraction network) in the response letter.

Comment 10

In Section 6.1, *Methodology,* page 16, the Respondent states, "[t]o evaluate the stability of each constituent plume, temporal trends of the metrics for each plume were evaluated statistically. The area, average concentration (average apparent thickness for PSH), and mass indicator for each year were initially plotted to observe changes in each parameter from event to event." Since both the multi-phase extraction (MPE) and soil vapor extraction (SVE) systems have been operating at the site most of the time, the stability of each plume was evaluated under the influence of the remediation system. The plume stability may change based on the operation of the remediation system. For example, the more the system is optimized, the plume size may become temporarily smaller. The thickness of PSH in well MPE-41 was recorded as 4.99 feet in May 2017 while the thickness of PSH in the same well was recorded as "non-detect" in November 2017 according to Figure 3-4, *Distribution of PSH in the Uppermost Aquifer May 2017* and Figure 3-5, *Distribution of PSH in the Uppermost Aquifer November 2017.* The sudden decrease in the PSH thickness may be due to system optimization. It is not likely that PSH in well MPE-41 was abated permanently. The evaluation of plume stability will not provide useful information at this time; the analysis will only provide a snap shot of how the remediation system is performing. Once the system appears to have achieved the remedial objectives in the future, the stability analysis for each plume may be resumed and evaluated. The plume stability analysis is not warranted at this time. Remove the discussion of plume stability analysis from future reports and work plans. No revisions to this Report are necessary.

Comment 11

In Section 8.0 *Recommendations,* page 22, "[i]solate vacuum extraction efforts on each recovery well circuit, focusing mainly on Circuits C and D, and pulsing with Circuits A and B." Instead of limiting current spatial and temporal coverage of the extraction network, propose to upgrade the remediation system to accommodate sufficient vacuum pressures to allow the optimization in the response letter. Refer to Comment 9.

Comment 12

Figure 3-1, *Well Locations* does not depict the locations of the SVE wells. Provide a replacement page of a revised Figure 3-1 or a separate figure showing the locations of SVE wells. In addition, wells SVE-1A, SVE-2A and SVE-3 appear to be active according to Table 3-4, *Summary of Well Completion Details.* However, these SVE wells are not listed in Table 3-2, *Summary of Groundwater Surface Elevations.* Include these SVE wells in Table 3-2 and provide a replacement page. If these SVE wells have not been gauged previously, resume the measurements starting in 2018. The data must be presented in future reports.

Comment 13

According to Table 3-2, the depth to groundwater in well RW-1 is recorded as 32.96 feet below ground surface (bgs) while the depths to groundwater in surrounding wells MPE-27, MPE-28 and MPE-40 are recorded as 68.27, 58.33 and 70.58 feet bgs, respectively in November 2017. The total depth of well RW-1 is reportedly 42.5 feet bgs where the well depth is more than 15 feet above the depths to groundwater in surrounding MPE wells. Provide an explanation for the measured depth to groundwater in RW-1 compared to the depths to groundwater in surrounding wells in the response letter. In addition, the well construction details for RW-1 are not included in Table 3-4. Include well construction details for RW-1 in Table 3-4. Provide a replacement page that includes well construction details for RW-1.

Comment 14

In Figure 3-3, *Groundwater Surface Elevation in the Uppermost Aquifer November 13, 2017,* seven data points are excluded from groundwater contour elevation. These exclusions are noted as anomalous. In Figure 3-2, *Groundwater Surface Elevation in the Uppermost Aquifer May 22, 2017,* two data points that are used as valid data points for contouring the November 2017 groundwater elevation are noted as anomalous and excluded. The anomalies in the groundwater elevation measurements appear to occur sporadically at the site. Provide an explanation for why the anomalies occur and propose a measure to eliminate or reduce the occurrences in the response letter.

Comment 15

Figures 3-4 and 3-5 use color scale to depict a thickness contour for measured phase separated hydrocarbons (PSH). The thickness of PSH and the color that represents its thickness do not match in the figures. For example, the thickness of PSH in well MPE-10 is recorded as 0.90 feet in Figure 3-4; however, the color representing its thickness depicts more than one foot. The thickness of PSH in well MPE-10 is recorded as 1.01 feet in Figure 3-5; however, the color representing its thickness depicts less than one foot. Revise Figure 3-4 and Figure 3-5 to present accurate PSH thickness. Provide replacement pages for the figures in the response letter.

Comment 16

In Table 4-4, *Summary of Water Treatment System Analyses,* page 4 of 4, there is a typographical error on the date (11/27/18). Correct the error in future reports and work plans. No revision to this Report is necessary.

Comment 17

In Appendix A, *Historical Submittal Summary,* a historical summary of submittals to NMED since the issuance of the Order is provided. However, some submittals (e.g., Extension Request dated October 3, 2017) are not listed in the summary. Revise Appendix A to include all submittals. Provide a replacement page for Appendix A or remove the Appendix altogether.

The Respondent must address all comments contained in this Approval with Modifications. An electronic copy of the Report must be submitted by no later than **May 18, 2018**. The response letter and replacement pages must be submitted to NMED no later than **August 31, 2018**.

If you have questions regarding this Approval with Modifications, please contact Michiya Suzuki of my staff at 505-476-6059.

Sincerely,

John E. Kieling
Chief
Hazardous Waste Bureau

cc: D. Cobrain NMED HWB
K. Van Horn NMED HWB
M. Suzuki NMED HWB
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L. King, USEPA, Region 6

File: TWP-18-001 and Reading, 2018
NMOCD Administration Record, AP-125