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*Director*

NORTH CAROLINA
***Environmental Quality***

February 24, 2021

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Colonial Pipeline Company
7524 Kenstead Circle
Charlotte, NC 28214
Attention: John Culbreath

Re: Notice of Continuing Violation
N.C. Gen. Stat. § 143-214.1
15A NCAC 02L .0202

**Colonial Pipeline SR2448**
SR 2488/Pipeline ROW
Huntersville, NC
Incident: **95827**
Risk Classification: High

Dear Mr. Culbreath:

On September 25, 2020, the Underground Storage Tank Section (UST Section), Division of Waste Management (DWM), of the Department of Environmental Quality (the Department) sent you a Notice of Violation (NOV) for the discharge of petroleum at the above referenced location. Information provided by Colonial Pipeline to the department shows petroleum concentrations above the groundwater quality standards established pursuant to N.C. Gen. Stat. §143-241.1 and codified in Title 15A of the North Carolina Administrative Code (NCAC), Subchapter 02L .0202.

**REQUIRED CORRECTIVE ACTIONS:**

Colonial Pipeline must restore groundwater quality to the level of the aforementioned standards, or as closely thereto as is economically and technologically feasible for protection of human health and the environment pursuant to 15A NCAC 02L .0106.

The September 25, 2020 NOV outlined the steps that Colonial Pipeline must take to meet the requirements of restoration of groundwater quality to the level of the forementioned standards, sample and protect water supply wells and surface water, and determine the horizontal and vertical extent of petroleum contamination throughout the plume. Specifically, the Department directed you to provide a Comprehensive Site Assessment (CSA) pursuant to 15A NCAC 02L .0507(b) and .0106(c) and (g) and the most recent version of the *UST Section Guidelines for Assessment for Non-UST Releases* (Guidelines) by January 20, 2021. The UST Section received the CSA on January 20, 2021. The UST Section has reviewed the CSA and found that the CSA has several deficiencies. The list provided below details the deficiencies the UST Section has identified at this time and the actions that are required to remedy those deficiencies:

1. The Resistivity Survey including a summary of the results was not included in the CSA. Include the Resistivity Survey Report as an attachment to the CSA, summarize the results in the CSA discussion, and reference the Report as an attachment.
2. The Vapor Intrusion Report including a summary of the results was not included in the CSA. Include the Vapor Intrusion Report as an attachment to the CSA, summarize the results in the CSA discussion, and reference the Report as an attachment. Also, include a discussion concerning the potential for vapor intrusion into utility conduits and measures that will be implemented to check for potential vapor intrusion into those conduits.
3. Section 2.3 of the CSA does not include a discussion of the soil sent for temporary storage at the Permitted Land-Farm in Shelby, NC that was later excavated and sent to the lined landfill at the Charlotte Speedway. Include a discussion in the CSA concerning the handling of that soil and ultimate disposal location.
4. The CSA did not include a discussion of air monitoring and results from the air monitoring effort at the site. Include a discussion concerning air monitoring and results from the air monitoring effort at the site.
5. The CSA did not include a discussion of noise monitoring and results from the noise monitoring effort at the site. Include a discussion concerning noise monitoring and results from the noise monitoring effort at the site.
6. Soil sampling information for Line 1 was provided at an interval of twenty-five feet spacing. The UST Section Guidelines require soil sampling at ten-foot intervals. Also, the extent of soil contamination along Line 1 was not defined to less than the lowest maximum soil contaminant concentrations (MSCC). Please define the extent of soil contamination along Line 1 to the lowest MSCCs using a ten feet sampling interval.
7. Table 1 did not indicate the correct regulatory limits for C9-C22 aromatics. The correct levels are 31 mg/kg for soil-to-groundwater, 469 mg/kg for residential, and 12264 mg/kg for industrial/commercial. Please amend Table 1 to reflect the correct levels.
8. The CSA did not include a discussion of the springs, located on the Wilson property, as a receptor. Include a discussion concerning the springs and sampling results. Also, please sample the springs monthly.
9. Please provide a table with receptor information out to 1500 feet from the edge of the free product plume (and less than 2000 feet beyond the pipe release) as well as those water supply wells to the southeast of the release (beyond 2000 feet of the pipe release). Please follow the receptor table format included in the CSA Guidelines (Table B-5). Note, include all the other receptors as indicated in Table B-5 of the CSA Guidelines.
10. Please provide all boring log and well construction information for each monitoring well, recovery well, air sparge well, soil vapor extraction well, and hydraulic control well to date. Some critical boring log information was either not compiled or partially compiled at locations where product was prevalent in the soil column (i.e., RW-16, RW-18, RW-19, RW-20, RW-21, RW-24, RW-25, RW-27, RW-29, RW-30, RW-31, RW-34, RW-36, RW-38). Other boring logs indicated no log (either entirely or partially) or log information is missing but a reason was not provided (i.e., RW-2, RW-3, RW-8, RW-23, RW-26, RW-41 through RW-44, RW-47, MW-12, MW-53, MW-54). The UST Section suggests compiling all drilling and boring log information for all borings wells in a single appendix per the Guidelines, 15A NCAC 2C, and ASTM D5434-12.
11. Please provide all field sampling notes. The UST Section suggests the information be included as a separate appendix.
12. Please provide all Shelby Tube information. The UST Section suggests compiling all Shelby Tube information in one appendix.
13. The recovery well construction and LNAPL elevations, in certain cases, revealed the bottom of the well elevation was coincident with or within approximately 1 foot (based on boring log data) of LNAPL/water interface elevation in wells RW-1, RW-4, R—7, RW-9, RW-10, RW-14, and RW-38. Surface elevations were not provided for RW-41 through RW-48. Based on provided data, in some instances adjusted groundwater elevations were below the bottom of recovery well elevations (i.e., RW-4, RW-10, RW-17). Please provide an explanation and correct accordingly.
14. Additional cross-sections are necessary to clarify or interpret the geological relationship between the LNAPL plume and subsurface geology, dissolved groundwater petroleum contamination, petroleum soil contaminant contamination, and evaluation of subsurface conditions, in accordance with the Guidelines. Additional cross-sections must include one north/south and through the apparent thickest portions of the LNAPL plume, and two geologic cross-sections across Huntersville Concord Road (one drawn along the long axis of the plume and the second, across it at right angles, showing the vertical distribution of the contaminants) in accordance with the Guidelines.
15. Please provide free product volume estimation documentation regarding the LDRM model input/output, calibration, sensitivity analysis and associated laboratory analyses signed and sealed by a North Carolina

Licensed Geologist or Professional Engineer. Also, include the calculations for the estimation of equivalent product volume for soil vapor and soil excavation. The UST Section suggests including the report as one appendix.

16. The CSA did not include a discussion concerning geophysical logging. Include all geophysical logging information and bedrock aquifer characteristics, along with a summary and discussion of this information. The UST Section suggests including the geophysical logging information as an appendix.
17. The UST Section found the highest conductivities from the 16 separate monitoring wells tested were associated with four wells. Those four wells, based on the provided boring logs, each reportedly penetrated the weathered bedrock zone. The remaining test wells did not indicate penetration of the weathered bedrock zone. Those that penetrated the weathered bedrock zone revealed an average conductivity of approximately 3.5 times greater than those that did not. Please reevaluate the hydraulic conductivities and their horizontal and vertical spatial distribution. This information is needed for aquifer characterization, assessment of more transmissive zones for product mitigation and mass flux determination for dissolved phase migration.
18. The primary objective of the CSA is to fully define the horizontal and vertical extent of contamination throughout the plume of contamination. Vertical extent monitoring wells were only installed at the edge of the plume on contamination and not throughout the plume of contamination. Potential impacts to the bedrock have not been fully assessed. Additional vertical extent monitoring wells must be installed throughout the plume of contamination to assess potential impacts to the bedrock aquifer. The UST Section suggests additional vertical extent monitoring wells be installed near the following locations (RW-9/02, RW-12, RW-13, RW-15. RW-16, MW-19, MW-40, RW-3, RW-35/38, RW26/28/MW50, MW8, and MW-42). Also, please assess vertical gradients.
19. Provide a separate vertical extent groundwater flow map and contaminant concentration map. Please include groundwater flow direction arrows in all groundwater flow maps.
20. Please identify all wells with enhanced product recovery (enhanced product recovery through vacuum) and provide specific design and operational details. Including the process train from well to offsite transport.
21. Please provide specific system design and operational details of the air sparge/vacuum extraction system.
22. Please provide a discussion of remediation goals and a preliminary evaluation of remediation alternatives appropriate for the site. Discuss the remediation alternative(s) likely to be selected.

Please submit a revised CSA (complete CSA Document) that includes the items noted in this Notice of Continuing Violation by **April 26, 2021**.

Please continue to sample the monitoring wells monthly, the spring monthly, water supply wells within 1000 feet of the edge of the free product plume (2000-foot line from the point of release) on a weekly basis, water supply wells whose properties intersect the 2000-foot line every 6 months, surface water every two weeks and after rainfall events, maintain the booms, and submit monthly monitoring reports by the end of each month. Please submit the electronic data deliverable (EDD) documentation directly to EQUIS monthly. Also, please continue to perform assessment, product recovery activities, and corrective action at the site until approval of a Corrective Action Plan.

Penalties may be assessed for the violations described within this Notice of Continuing Violation. Prompt attention to the items described herein is required. Failure to comply with the State's rules, in the manner and time specified, may result in the assessment of civil penalties and/or the use of other enforcement mechanisms available to the State. Each day that a violation continues may be considered a separate violation.

Because a release or discharge has been confirmed, a Licensed Geologist and/or a Professional Engineer, certified by the State of North Carolina, must prepare and certify all reports submitted to the Department of Environmental Quality in accordance with 15A NCAC 02L .0103(e) and 2L .0111(b).

Please note that before Colonial Pipeline sells, transfers, or requests a "No Further Action" determination for a property that has not been remediated to below "unrestricted use" standards, Colonial Pipeline must file a Notice of Contaminated Site or Notice of Residual Petroleum with the Register of Deeds in the county where the property is located (N.C. Gen. Stat. § 143B-279.9, and 143B-279.10 or 143B-279.11).

If you have any questions regarding the actions that must be taken or the rules mentioned in this letter, please contact me at 919-707-8246.

Sincerely,

Michael E. Scott
Division Director
Division of Waste Management, NCDEQ

cc: Jeff Morrison, Colonial Pipeline
John Wyatt, Colonial Pipeline
Robert Hughes, Colonial Pipeline
Michael Scott, NCDEQ
Vance Jackson, NCDEQ
Scott Bullock, NCDEQ
Ron Taraban, NCDEQ
Laura Leonard, NCDEQ
Wayne Randolph, NCDEQ
Shawna Caldwell, LUESA- Mecklenburg County Health Department