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June 17, 2016

SENT VIA EMAIL

Mr. Larry Petty, President
Petty Machine Company, Inc.
P.O. Box 1888
Gastonia, North Carolina 28053

Re: *Facility Characterization Report* (revised June 10, 2016)
Petty Machine Company
2403 Forbes Road
Gastonia, North Carolina
EPA Identification Number: NCD 99 1278 805

Dear Mr. Petty:

The Hazardous Waste Section (Section) has reviewed the above referenced report. This report was submitted on your behalf by Mr. Al Quarles of S&ME via email download on June 10, 2016. This report was revised in response to comments provided by the Section in correspondence dated March 28, 2016, and to discussions during a Facility Meeting on April 8, 2016.

The *Facility Characterization Report* (Report) exactly adhered to the agreed upon sampling methodologies outlined in the approved *Facility Characterization Work Plan* (final document dated September 11, 2015). The Section has prepared the following comment:

- The Report reads "1,1-DCA, 1,1-DCE, cis-1,2-DCE, and TCE were detected in one or more samples from soil borings SL-AC1-1, SL-AC1-2, SL-AC1-3 at concentrations greater than the laboratory method reporting limits, but less than their respective PSRGs" [Section 4.2, second paragraph].

This sentence is incorrect. Three constituents were measured at concentrations exceeding their respective PSRGs for Protection of Groundwater in SL-AC1-1, including 1,4-dioxane; trichloroethene; and vinyl chloride. The Report should be corrected to accurately reflect the analytical results.

The Report summarizes results and provides recommendations for future actions. The Section has the following comments on recommendations for future actions. Comments are listed below on a unit-by-unit basis.

SWMU 1 (Former Metal Plating Building)

Two soil borings were advanced to a depth of ten feet below grade. Soil samples were collected from ground surface to one foot below grade and from nine to ten feet below grade. Samples were analyzed for eight RCRA Metals, nickel, and hexavalent chromium.

Hexavalent chromium was measured at a concentration exceeding the Preliminary Based Soil Remediation Goal (PSRG) for a Residential Setting in one sample collected from nine to ten feet below grade. The PSRG for an Industrial Setting and the PSRG for Protection of Groundwater were not exceeded for any of the measured analytes. The Report recommends No Further Action in conjunction with land use restrictions.

The Section concurs with the recommendation and approves No Further Action pending recordation of Perpetual Land Use Restrictions.

AOC 1 (TCE Surface Release Area)

SOILS

Four soil borings were advanced to a depth of approximately 40 feet below grade. Two soil samples were collected from each of the four borings. Samples were collected for laboratory analysis from the depth interval characterized by the highest photoionization detector reading between ground surface to 20 feet below grade and from 30 to 40 feet below grade. Soil samples were analyzed for volatile organic compounds (VOCs) using EPA Method 8260B.

1,4-Dioxane; trichloroethene; and vinyl chloride were measured at concentrations exceeding their respective PSRG for Protection of Groundwater in the soil sample collected from SL-AC1-1 (10-15 feet below grade). These analytical results, in conjunction with data collected in 1986, are used to delineate the extent of soil contamination.

The Section concurs that the horizontal and vertical extent of soil contamination is defined to the extent practicable given the physical and structural constraints of the site. The Section does not require additional testing of soils for delineation purposes. Petty Machine may opt to perform limited soil testing for purposes of designing a corrective action.

GROUNDWATER

A deep Type III groundwater monitoring well (MW-7C) was installed and sampled to evaluate the vertical extent of groundwater contamination. The boring was advanced to a depth of 145 feet below ground surface. The boring collapsed in response to the presence of a highly fractured zone and MW-7C was completed to a depth of 133 feet below ground surface. A groundwater sample was collected and analyzed for VOCs using EPA Method 8260B.

1,1-Dichloroethane; 1,1-dichloroethene; *cis*-1,2-dichloroethene; and trichloroethene were measured at concentrations exceeding their respective 15A NCAC Subtitle 2L Groundwater Standards. 1,4-Dioxane was not analyzed in the groundwater sample because its presence in soils was not identified at the time of sampling. 1,4-Dioxane will be added to future groundwater monitoring events.

The Report indicates that the vertical extent of the groundwater contaminant plume is not defined. No recommendations are made.

Given the difficulty of monitoring well installation in the fractured bedrock zone, Petty Machine may opt to evaluate if the vertical extent of the groundwater contaminant plume can be inferred based on contamination concentrations as a function of depth. It is plausible that for purposes of designing corrective actions, the plume is sufficiently defined at this time and installation of a deeper monitoring well would not yield sufficient benefit to warrant continued investigation.

Should Petty Machine opt to infer the vertical extent of groundwater contamination based on concentration trends, this argument should be submitted as a separate, standalone letter.

AOC 2 (Sandblasting (Glass Bed Blasting) Unit Ventilation System)

Three soil borings were advanced to a depth of ten feet below grade and one boring was hand augered to a depth of five feet below grade. Soil samples were collected from the ground surface to one foot below grade and from nine to ten feet below grade in the three Geoprobe borings. Soil samples were collected from the groundwater surface to 0.5 feet below grade and from 4.5 to five feet below grade in the hand augered boring. Soil samples were analyzed for total chromium and hexavalent chromium.

Hexavalent chromium was measured at concentrations exceeding the PSRG for a Residential Setting in surficial soils collected from SL-AC2-1 (from zero to 0.5 feet) and from SL-AC2-3 (from zero to one foot). The PSRG for an Industrial Setting and the PSRG for Protection of Groundwater were not exceeded in these two samples. Total chromium and hexavalent chromium concentrations did not exceed the PSRG for a Residential Setting; the PSRG for an Industrial Setting; or the PSRG for Protection of Groundwater in samples collected at depth.

Hence, although the vertical extent of contamination appears to be limited, the Report indicates that the horizontal extent of chromium is not defined. However, because the PSRG for an Industrial Setting and the PSRG for Protection of Groundwater are not exceeded for any of the samples, the Report recommends No Further Action in conjunction with land use restrictions.

The Section concurs with the recommendation and approves No Further Action pending recordation of Perpetual Land Use Restrictions.

AOC 3 (Former Metal Plating Building Ventilation System)

The investigation of AOC 3 was limited both physically and structurally. As a consequence, the Section agreed to analysis of select soil samples collected to investigate SWMU 1 to be analyzed for total chromium and hexavalent chromium. Given the surficial nature of the chromium impacts observed at AOC 2 (see above), the samples selected to characterize AOC 3 were not be ideal.

Two soil samples were analyzed for total and hexavalent chromium (10-15 feet and 35-40 feet). Analytes were not measured at concentrations exceeding applicable screening values. The Report recommends No Further Action.

The Section concurs with the recommendation. However, given the fact that surficial soil samples were not collected in the area of AOC 3, the Section approves No Further Action pending recordation of Perpetual Land Use Restrictions.

Vapor Intrusion

Three indoor air samples and one outdoor air sample were collected to evaluate the potential for vapor intrusion impacts. Testing was conducted for a period of eight hours and samples were analyzed using EPA Method TO-15.

Although several volatile organic compounds were detected in the three indoor air samples, only trichloroethene was measured at elevated concentrations: 2.2 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) in IA-VI-1; 1.9 $\mu\text{g}/\text{m}^3$ in IA-VI-2; and 1.4 $\mu\text{g}/\text{m}^3$ in IA-VI-3. These values compare to the Division of Waste Management Indoor Air Screening Level of 1.75 $\mu\text{g}/\text{m}^3$. No compounds were detected in the outdoor air sample.

Because the Division of Waste Management Indoor Air Screening Level of 1.75 ug/m³ is defined for screening purposes across a wide swath of potential scenarios, this value is conservative. To more accurately assess indoor air impacts at Petty Machine Company, the Section evaluated site-specific risks based on a commercial setting for each of the three indoor air samples (IA-VI-1 through IA-VI-3). The cumulative carcinogenic risk and the hazard quotient for all three samples were less than applicable risks. The Report recommends No Further Action.

The Section concurs and No Further Action is approved.

Next Steps

CORRECTIVE ACTION

With the exception of addressing the vertical extent of groundwater contamination either through installation of additional groundwater monitoring wells or by presenting an argument that the vertical extent of groundwater contamination is defined for purposes of corrective action, site characterization is complete at this time. The next step is to submit a Corrective Measures Work Plan. The Corrective Measures Work Plan is due September 15, 2016.

As noted in earlier correspondence and discussed in teleconference calls, the proposed corrective action will address groundwater contamination only. Soils will not be remediated. The Section once again cautions that contaminated soils act as a continuing source of contamination to the groundwater in the absence of active soil remediation. Thus, even if treated by chemical injection, groundwater will continue to be characterized by contaminant concentrations exceeding regulatory standards for the unforeseeable future. By not actively addressing contaminated soils in the area of AOC 1, the remediation timeframe will be substantially lengthened. The effectiveness of the corrective action will be evaluated at five-year intervals and changes or modifications to the remedial strategy may be required in the future.

DECLARATION OF PERPETUAL LAND USE RESTRICTIONS

No Further Actions are granted by the Section pending recordation of a Declaration of Perpetual Land Use Restrictions (DPLUR). Generally, the Section prepares the first draft of the DPLUR and submits a copy of the document to the Facility for review and comment. After agreement is reached, Petty Machine will be responsible to survey the areas and record the document at the Gaston County Register of Deeds.

If you have any questions or comments, please do not hesitate to contact me at 919-707-8208 or via email at mary.siedlecki@ncdenr.gov.

Sincerely,



Mary Siedlecki, Project Manager
Division of Waste Management
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