GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Richard E. Dunn, Director

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August 7, 2017

Richard E. Bowen
305 Alpine Drive
Roswell, Georgia 30075

Subject: Compliance Status Report dated May 2016
Progress Report 8 dated April 16, 2015
Progress Report 9 dated December 7, 2015
Roswell Cleaners & Coin Laundry (HSI 10883)
Roswell, Fulton County, Georgia

Dear Mr. Bowen:

The Georgia Environmental Protection Division (EPD) has reviewed the Compliance Status Report (CSR) dated May 2016, Progress Report 8 dated April 16, 2015, and Progress Report 9 dated December 7, 2015, for the referenced site. These documents were reviewed for compliance with the Voluntary Remediation Program (VRP) Act and the Rules for Hazardous Site Response (Rules), as applicable. EPD has the following comments, which need to be addressed before a decision of concurrence with the CSR can be issued:

1. The Certification of Compliance with Risk Reduction Standards on page vii of the CSR states that the site does not meet Risk Reduction Standards (RRS) for soil and groundwater. In accordance with Section 12-8-107(e) of the VRP Act, the CSR must certify the compliance of the VRP property with applicable cleanup standards. Compliance with cleanup standards is needed for the site to be removed from the Hazardous Site Inventory. Please note that, in accordance with Section 12-8-107(h) of the VRP Act, a Uniform Environmental Covenant is needed for any voluntary remediation property or site relying on engineering or institutional controls for certifying compliance with cleanup standards. Please also note that the use of engineering or institutional controls may require continuing monitoring and maintenance to maintain compliance.

2. *Site Datum and Surveying.* During site characterization, sample points were reportedly surveyed to establish the relative locations of the site features. Section 5.0 – *Evaluation of Groundwater Contamination* states that "monitoring well (MW) top of casings (TOCs) were surveyed using an assumed onsite elevation to develop data on relative elevations of MW TOCs". While using a relative on-site reference datum is an acceptable approach to determine the relative spatial relationship among site features, the selected reference datum, which should be a permanent, fixed object, should be clearly identified and its location depicted on the figures of the report. This information was not provided within the text of the report. Neither do the figures of the report indicate the location of the fixed object used. Please provide the fixed position of the reference datum, describing its location in Section 5.0 and denoting it on Figures 2 and 3. For consistency, it is important that the

relative locations of all pertinent site features be based on the same fixed datum throughout the life of the project.

Horizontal surveying procedures used to establish the distance and area of the site should be provided. Figures 2 through 12 have an "approximate" horizontal scale. An exact scale is needed, particularly when presenting the groundwater potentiometric surface and flow direction.

3. *Soil Detections and Remediation Strategy.* Tetrachloroethylene (PCE) is present at multiple depth intervals throughout the southern portions of the site. Several sample points have detections of PCE above the Type III Risk Reduction Standard (RRS) of 0.5 mg/kg. PCE was particularly elevated in boring B-7, where the concentration of 193 mg/kg at 15 feet exceeds the default soil saturation concentration (C_{sat}) of 170 mg/kg. When the soil saturation concentration is exceeded, the contaminant may be present in free phase. Without additional investigation to confirm that PCE is not present in free phase or remediation of soil in this area, additional groundwater monitoring may be needed to confirm that source material is not migrating.

4. *Soil Delineation.* Figures 11A – 11D from the CSR show detections of COCs at varying soil depths. Upon review of these figures, several locations do not appear to be horizontally or vertically delineated. Listed below are areas that are not adequately delineated in accordance with Rule Section 391-3-19-.06(3)(b)2:

   a. Figure 11B – *PCE Concentrations at 5 feet.* Soil Sample MW-4 had a detection of PCE (6.1 mg/kg) and TCE (3.12 mg/kg) above RRS. As shown, there are no soil sample points around of this location.

   b. Figure 11C – *PCE Concentrations at 10 feet.* Soil Sample B-4B had a detection of PCE (6.31 mg/kg) above RRS. As shown, there are no soil sample points to the North, Northwest and Northeast of this location.

   c. Figure 11D – *PCE Concentrations at 15 feet.* Soil Sample B-2 had a detection of PCE (8.67 mg/kg) and TCE (2.84 mg/kg) above RRS. As shown, there are no soil sample points to the North and Northwest of this location.

   d. The soil boring converted to monitoring well MW-5 does not sufficiently delineate the area around the dry cleaning machine. In order to vertically and horizontally delineate this potential source area, sub-slab soil samples were requested to be collected within the building, adjacent to the dry cleaning machine.

   e. Vertical delineation has not been completed in the area of sample points B-7, MW-4, and B-2. Due to the elevated PCE soil concentration (193 mg/kg) from B-7 at 15 feet that exceeds the soil saturation concentration, care should be used during future subsurface sampling in this area to ensure that any free phase NAPL is not mobilized.

5. *Groundwater Delineation.* EPD cannot evaluate the adequacy of groundwater delineation until the information requested in Comment 11 related to groundwater purging and sampling procedures is provided. This information is needed to demonstrate that groundwater samples are representative of aquifer conditions and that appropriate sampling procedures were used.

Section 5.5 – *Groundwater and Surface Water Sampling Locations* of the CSR states that MW-1 is an upgradient monitoring well location. However, as shown on Figure 7 – *Potentiometric Map*, it appears that MW-1 is a cross-gradient sampling location. MW-1 is perpendicular to the groundwater flow path as drawn on Figure 7. Groundwater is drawn as traveling to the east-southeast direction, while MW-1 is a northeast location. Please revise the report to state that MW-1 is a cross-gradient well, as opposed to upgradient.

6. *Fate and Transport Modeling.* Fate and transport modeling should be used to demonstrate that impacted groundwater above the applicable risk reduction standards will not reach the point of exposure well, as defined in 12-8-102(b)(11) of the VRP Act. When preparing the groundwater model, please consider the headwaters of the unnamed creek reportedly located 250 feet from the site as described on page 6 of the December 2015 Progress Report. This unnamed creek appears to be the closest surface water body to the site and has the potential to be a receptor. Additionally, the information provided in the February 2011 Conceptual Site Model indicates that the nearest surface water body is Hog Wallow Creek located approximately 1,800 feet away. Please clearly identify the nearest surface water body in the Revised CSR.

7. *Groundwater Gradients and Velocity.* Section 5.4.2 – *Groundwater Gradients, Flow Rates and Flow Directions* does not provide vertical or horizontal gradient values or calculations. Instead, this section discusses the general potentiometric surface. Please include vertical and horizontal gradient calculations and results as provided by Rule Section 391-3-19-.06(3)(b)3(iii). Additionally, please calculate the groundwater velocity for this site.

8. *Slug Tests.* Table 3 – *Water Table Elevations* includes dates that slug tests were performed. However, the methodology and results of the tests were not discussed in the CSR, as required by Rule Section 391-3-19-.06(3)(b)3(iv). Please include the slug tests results and describe the testing methodology.

9. *Well Installation.* According to Section 5.5 – *Groundwater and Surface Water Sampling Locations* of the CSR, four permanent monitoring wells were installed at Roswell Cleaners. This section does not include the type of well casing material or a description of the well intake design (screen slot size and length, filter pack materials and length, and the method of filter pack emplacement). Additionally, the report does not discuss the method used to seal the well from the surface or discuss the design of the well to prevent the downward migration of contamination along the well annulus. Please include this information in Section 5.5 of the CSR as required by Rule Section 391-3-19-.06(3)(b)3(v). In addition, please include the following information for each respective well on Table 3: ground surface elevation, screen length and depth of well.

10. *Groundwater Purging and Sampling.* A description of groundwater sampling procedures is required by Rule Section 391-3-19-.06(3)(b)3(vi). Section 5.6 – *Groundwater Sampling Procedures* of the CSR details the development of temporary monitoring wells. This section does not provide information on the purging and sampling of the permanent monitoring wells. Sample methodology conducted in the field was not discussed in this report. Purge and sample logs were also not included. Please provide information on the purging and sampling

of the monitoring wells, including purging methods, sample withdrawal techniques, and sampling equipment. Purge and sample logs should also be attached as an appendix.

11. *Vapor Intrusion Evaluation.* EPD has the following comments regarding the vapor intrusion evaluation:
    a. Only one sub-slab soil gas sample has been collected. Sub-slab soil gas samples from a minimum of three locations are needed.
    b. It does not appear that generally accepted practices were followed when collecting the sub-slab soil gas sample as described in Section 6.0 of the CSR. Notably, a dedicated sub-slab port was not used and there is no indication that leak testing was performed. For a general discussion of sampling methods and techniques, see Appendix G of the ITRC Petroleum Vapor Intrusion guidance document dated October 2014, which is available at: www.itrcweb.org/PetroleumVI-Guidance/
    c. The use of PID readings within the building is insufficient for evaluating vapor intrusion. If indoor air sampling is needed, samples should be collected using Summa canisters.
    d. Exterior soil gas samples are needed to evaluate the vapor intrusion potential for buildings on adjacent properties that are located near impacted soil.
    e. The USEPA Vapor Intrusion Screening Level Calculator should be used to evaluate vapor intrusion risks from subsurface media (e.g., soil gas).
12. *Figures*. Please incorporate the following items into the CSR report figures:
    a. Please include the location of the dry cleaning machine on Figure 2 – *Site Plan Showing Potential Sources*.
    b. Please include a respective legend on Figure 4 through Figure 9.
    c. Please include vertical exaggerations on all cross sections.
    d. Please include all VOC detections on Figures 11A through 12. Titles should be changed from "PCE Concentrations" to "VOC Concentrations".
13. EPD has not received copies of the public notices for the CSR that are required by Section 12-8-107(f) of the VRP Act and Section 391-3-19-.06(5) of the Rules.

Risk Assessment Comments

1. Please remove all non-regulated substances such as 1,2,4-Trimethylbenzene and 1,3,5-Trimethylbenzene from the RRS tables since the RRS do not apply to these substances.
2. *Table G-1 Soil Analytical Results and Appendix I Concentrations (mg/kg).* The Appendix I, Notification Concentration for vinyl chloride is missing from the table. Please insert the missing value of 0.04 mg/kg.
3. *Table G-3 Chemical Specific Values.* The incorrect Henry's law constants (atm-m^3/mol) were used in the table. The unitless Henry's law constants should be used based on the equation cited in the report and consistent with the values posted in the USEPA RSL tables.

4. *Table G-5 Summary Chemical Properties and Calculated Type 1 RRS for Noncarcinogenic Exposure.* EPD could not replicate the volatilization factor (VF) for all substances listed in the table. For example, EPD derived a VF of 2.64E+3 m^3/kg for PCE. Please verify that the correct default and chemical-specific information were utilized when deriving the VF. Note these errors will impact the final soil RRS.

5. *Table G-7 Type 1 Risk Reduction Standards for Detected Constituents.* The final Type 1 and 3 soil RRS presented are correct; however, the following discrepancies were noted and should be revised accordingly:

   a. When generating the Type 1 soil RRS for the adult resident, an error was observed in setting the non-cancer Averaging Time (ATnc). Specifically, it was noted that although the exposure duration (ED) term listed in table G-4 was set equal to 30 years, the ATnc value was presented as 70 years. It should be noted that when assessing the non-cancer risk, the ATnc must be set equivalent to the ED. Please revise the RAGS, Part B Equation 7 calculations as needed.

   b. EPD could not replicate any of the RAGS, Part B Equations 6 and 7 results listed in the table. At this time it is not apparent were the error occurred. It appears the incorrect toxicity and chemical-specific information was used to derive the RRS. Please ensure the most current USEPA RSL table is being used when calculating the results.

6. *Table G-9 Soil Saturation Concentrations.* The values and sources of all parameters used to calculate the soil saturation concentrations (C_{sat}) should be provided. Note that the USEPA RSL Tables list C_{sat} values for chemicals using default parameters. The C_{sat} values listed in the RSL Tables for PCE (170 mg/kg) and TCE (690 mg/kg) are considerably different from the values listed in Table G-9.

7. *Table G-10 Soil Concentrations Protective of Groundwater.* The values and sources of all parameters used to calculate the soil concentrations protective of groundwater should be provided. Please note that:

   a. The f_{oc} is given as 0.002 and incorrectly referenced as 2%. Note that 0.002 (a typical default value) is equivalent to 0.2%.

   b. The equations shown on page 14 for air-filled soil porosity (θ_a) and soil porosity (n) are incorrect. The equations should be: $\theta_a = n - \theta_w$, where $n = 1 - \rho_b/\rho_s$.

   c. Please specify the DAF used in the calculations, as opposed to listing a range from 1 to 20.

8. *Table G-11 Type 2 Soil RRS.* EPD could not replicate any of the RAGS, Part B Equations 6 and 7 results listed in the table. Please revise and provide example calculations for the substances listed.

9. *Table G-20 Type 2 Groundwater RRS.* The non-carcinogenic RAGS, Part B Equation 2 results for the substances listed in the table are incorrect. It appears the Type 2 groundwater results for the child resident were not considered. The correct Type 2 groundwater values based on a child resident for tetrachloroethylene, trichloroethylene, cis-1,2-dichloroethylene, vinyl chloride and chloroform should be 0.019 mg/L, 0.001 mg/L, 0.0313 mg/L, 0.0263

mg/L, and 0.0026 mg/L, respectively. Please revise and note that this may impact the final RRS.

10. *Table G-25 Type 4 Risk Reduction Standards for Groundwater.* EPD could not replicate any of the RAGS, Part B Equations 1 and 2 results listed in the table. Please see Risk Assessment Comment 5b above.

These comments must be addressed to EPD's satisfaction in order to demonstrate compliance with the provisions, purposes, standards, and policies of the VRP Act. A Revised CSR that addresses these comments is due by November 30, 2017. If you have any questions, please contact Susan Kibler at 404-657-7126.

Sincerely,

David Hayes
Unit Coordinator
Response and Remediation Program

c: Peter Kallay, AEC (via email)
Richard Wingate, Hallman and Wingate (via email)

File: 261-0592 (HSI 10883)

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