GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

FILE COPY

Richard E. Dunn, Director

Land Protection Branch
2 Martin Luther King, Jr. Drive
Suite 1054, East Tower
Atlanta, Georgia 30334
404-657-8600

May 19, 2017

VIA EMAIL AND REGULAR MAIL

KIC Management LLC
c/o Mr. Edwin Chang, Registered Agent
2270 Evergreen Lane
Lawrenceville, Georgia 30043

Re: Compliance Status Report dated July 22, 2016
Former Dry Cleaning Depot, HSI Site No. 10880
Roswell, Fulton County, Georgia
Tax Parcel ID: 12-1902-0412-049-1

Dear Mr. Chang:

The Georgia Environmental Protection Division (EPD) has reviewed Atlanta Environmental Consultant's July 22, 2016 Compliance Status Report for the above referenced site. EPD provides the following comments:

1) *Offsite Groundwater Data.* In Section 3.0 and Section 5.5 of the CSR, offsite groundwater sampling locations from a separate monitoring well network are said to indicate decreasing dissolved concentrations of site constituents over distance and time. Further, the offsite wells are said to be used to evaluate potential downgradient contaminant plume migration. Offsite wells that do not belong to the site well network must be properly documented and referenced in the report text and figures if utilized to substantiate contaminant migration and decreasing contaminant concentrations.

2) *Groundwater Quality.* Section 5.8.3 describes the previous and current presence of site constituents. The February 2016 sampling event indicated groundwater concentrations of PCE at 0.944 mg/L in MW-7. AEC considers this result anomalous and that the level of PCE in MW-7 in 2016 may be the result of a historically high water table. EPD does not concur with the conclusion that the February 2016 MW-7 sample result was anomalous at this time, and requests continued sampling of MW-7 to monitor future groundwater concentration trends.

3) *Groundwater Trend Analysis.* Section 5.0 of the CSR states that onsite and offsite groundwater concentrations generally decrease over time. A groundwater trend analysis (e.g. Mann Kendall) should be conducted to demonstrate the proposed decreasing trend in groundwater constituents. Any data from offsite wells that does not belong to the site monitoring well network and are utilized in the trend analysis should be appropriately referenced.

4) *Groundwater Sampling Method.* Section 3.0 states that groundwater purging methods include purging by removing a minimum of three well volumes, purging a sufficient quantity until the water ran relatively clear, or purging until water quality parameters stabilize within 10% of final values in

three consecutive readings and/or the wells were purged dry. These methods are not considered adequate groundwater sampling practices. Further, no groundwater purge logs were included with the report. Purge logs must be completed for every groundwater sampling event and submitted with the corresponding report for EPD review. Please consider the following guidelines for groundwater sampling in future groundwater sampling events:

Pursuant to the U.S. EPA Region 4 Science and Ecosystem Support Division (SESD), "Operating Procedure SESDPROC –301-R3," EPD prefers groundwater sampling methods that require a minimum of three well volumes to be purged; however, low-flow/low-volume sampling (micro-purging) is allowed on a site-specific basis. The following guidelines should be followed when using low-flow/low-volume sampling at the site:

i. Detailed information regarding groundwater-sampling equipment and procedures should be provided for each sampling event. Information should include type of pump and tubing used to purge the monitoring wells and a detailed description of the sampling method (examples, "straw method" for VOCs and vacuum jug method for SVOCs).
ii. For low-volume sampling, the pump should always be carefully placed mid-way in the screened interval with minimum disturbance to the well. The depth of the pump intake should be noted on the field form for each monitoring well (and specified in the report).
iii. Water-level measurements should be periodically collected and recorded along with field parameters to ensure minimal drawdown, and that the rate of water withdrawal does not exceed the recharge rate of the well.
iv. The amount of water purged between analyses of field parameters (pH, specific conductance, dissolved oxygen, temperature, and oxidation reduction potential) should be adequate to assess any trends that may be occurring in the field parameters.
v. Field parameters listed above should be used to show stability of the purge water. Stability of the purge water should be indicated by parameters showing no increasing or decreasing trends for three successive readings in a row (10% of final values in three consecutive readings).

5) *Groundwater Delineation.* Figure 12, PCE Concentrations in Groundwater, shows PCE concentrations across the site from the most recent sampling event in April 2016. Based on review of the this figure, April 2016 PCE groundwater concentrations detected at MW-7, MW-5, MW-6 and MW-4 exceed delineation criteria and thus are subject to further delineation. Please delineate these areas of the plume by installing groundwater monitoring wells south of MW-4 and MW-5 on the Family Dollar property, and east of the site in the residential area to ensure PCE concentrations have not migrated to these properties..

6) *Groundwater and Soil Quality Assurance Samples.* As shown on Table 1, Soil Analytical Results, and Table 3, Groundwater Analytical Results, duplicate groundwater and soil samples do not appear to have been taken throughout the Site's history. In accordance with EPA Region IV, Operating Procedure, Field Sampling Quality Control, one duplicate sample should be collected per 20 samples per media collected. At Former Dry Cleaning Depot, 8 monitoring well locations are present, meaning that one groundwater duplicate should be collected per sampling event. If future soil sampling events should occur, please collect at least the minimum number of duplicate samples in accordance with EPA Region IV, Operating Procedure, Field Sampling Quality Control.

7) *Site Datum and Surveying.* During site characterization, sample points were 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 a database 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 were not described in the report. Figures 2 through 12 have an "approximate" horizontal scale. Horizontal distances should be absolute, with an established reference scale. The horizontal scale provides information on the lateral extent of contamination and site characterization. Please revise the figures with an absolute scale and detail the methodology used to determine the locations of site features.

8) *Monitored Natural Attenuation.* In Section 3.0 monitored natural attenuation (MNA) is the recommended remediation strategy for the site. MNA for PCE is monitored by measuring the degradation of PCE to its associated daughter products: Trichloroethylene (TCE), cis-1,2-Dichloroethylene (cis-1,2-DCE), trans-1,2-Dichloroethylene (trans-1,2-DCE), vinyl chloride (VC) and ethylene. Degradation trends for PCE have not been established at the site. Under MNA conditions, PCE concentrations would drop and corresponding TCE detections would increase. However, PCE concentrations drop without subsequent increases in daughter products. Without evidence of PCE degradation occurring at the site, the effectiveness of MNA cannot be evaluated for the site.

9) *Point of Demonstration.* Point of Demonstration (POD) well TMW-9 is said to be a temporary well installed on the west side of Hog Wallow Creek as stated in Section 5.5. According to Table 2 of the report, TMW-9 has an estimated TOC of 12 feet. A temporary well is not a sufficient POD, and should be a permanently installed groundwater monitoring well that has been properly surveyed for an accurate TOC elevation. Additionally, more than one sample should be collected from the POD well to demonstrate that contamination has not impacted the downgradient point of exposure (POE). Please include all POD wells and POE locations with the figures.

10) *Groundwater Gradients and Velocity.* Horizontal and vertical groundwater flow gradients are used to characterize the flow rates of groundwater across the Site. These gradients also provide insight into contaminant transport. These calculations were not included in the report. 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 provide vertical and horizontal gradients calculations and results and summarize the implications of the calculated gradients in Section 5.4.2. Rule Section 391-3-19-.06(3)(b)(3)(iii). Additionally, please calculate the groundwater velocity for this site. By using the site-specific hydraulic conductivity, the horizontal gradient and an estimated effective porosity of soil, groundwater velocity can be calculated. Groundwater velocity has fate and transport implications and can be used to measure the effectiveness of plume delineation and control. Please incorporate

groundwater velocity into Section 5.4.2.

11) Vapor Intrusion Evaluation. Section 6.0 describes the single sub-slab vapor intrusion sample collected within the building crawl space via tubing through a small diameter hole located on the south side of the building. The following guidelines, and those outlined in EPA's 2015 OSWER Technical Guidance, should be followed when collecting sub slab vapor intrusion samples at the site:

i. Multiple samples per building should be collected to best represent special variability in sub-slab concentrations.

ii. The sub-slab point should be leak tested after installation to ensure that the penetration and sample point are properly sealed.

iii. Prior to sample collection, each sample point should have at least two hours to equilibrate following sample point installation and leak test.

iv. Prior to sample collection, a vacuum test should be completed to ensure that ambient air has been sufficiently purged from the sample setup.

v. Site conditions such as wind direction, pressure differential between the indoors and subsurface, precipitation information, barometric pressure, temperature and other site specific information that can influence the soil gas concentration patterns at the site should be documented.

vi. Vapor intrusion should be sampled through multiple seasons in order to comply with best-practice vapor intrusion sampling strategy as outlined in EPA's 2015 OSWER Technical Guidance. Seasonal variability in temperatures between indoor and subsurface locations (e.g. the "stack effect") can convey vapors into a building through depressurization. Large vents can also account for building depressurization. Any cracks or openings in the slab of the building should also be noted.

The remainder of the dry cleaner was screened using a PID. The use of PID readings within the building is insufficient for the purpose of evaluating vapor intrusion. Indoor air samples should be collected following the guidelines in EPA's 2015 OSWER Technical Guidance document.

Modeling of vapor intrusion was conducted using the Johnson and Ettinger Vapor Intrusion Model. The vapor intrusion model in Appendix F was completed for TCE, however Section 6.0 states the model was run for PCE. The model should be run for PCE and resubmitted for EPD review.

12) Other Incomplete CSR Release to Groundwater Requirements.

i. 391-3-19.06 (3)b(3)(i) A description of methods used to characterize sub-surface geology

ii. 391-3-19-.06(3)b(3)(iii) A description of methods used to characterize vertical and horizontal groundwater flow gradients, flow rates and flow directions

iii. 391-3-19-.06(3)b(3)(iv) Methods used to determine hydraulic conductivities and other pertinent hydrogeological characteristics, including a description of any slug and/or aquifer tests

iv. 391-3-19-.06(3)b(3)(v) A description of groundwater monitoring well locations, and their installation and construction methods

13) Institutional Controls. The groundwater at the site does not meet any applicable risk reduction standards (RRS). If you wish to utilize institutional controls in combination with MNA to remediate groundwater contamination, then Uniform Environmental Covenants must be filed to ensure the groundwater at the site is not used for residential purposes on properties that do meet the applicable RRS.

This site was accepted into the Georgia EPD Voluntary Remediation Program on July 10, 2011. It has exceeded the 5 year schedule. As the Certification of Compliance in the CSR stated that the groundwater at the site does not meet RRS, the site cannot be delisted from the Hazardous Site Inventory. Therefore, if you wish to continue with the VRP process, EPD will require that you enter into a Consent Order with a new schedule for completing the process. If you do not wish to stay in the VRP process or do not agree to the Consent Order, then EPD will remove you from the VRP and the requirements of the Hazardous Site Response Act will apply to the site again.

Please submit a revised Compliance Status Report to EPD to address the above comments by July 31, 2017 and indicate whether you intend to remain in the Voluntary Remediation Program. If you have any questions regarding this matter, please contact Mr. Yue Han of the Response and Remediation Program at (404)657-8678.

Sincerely,

David Brownlee
Unit Coordinator
Response and remediation Program

C: Peter T. Kallay, AEC, LLC
File: 10880