

# Georgia Department of Natural Resources

## Environmental Protection Division-Land Protection Branch

### Reply To:

Response and Remediation Program  
2 Martin Luther King Jr. Dr., S.E.  
Suite 1054 East  
Atlanta, Georgia 30334-9000  
Office 404/657-8600 Fax 404/657-0807

2 Martin Luther King Jr., Dr., Suite 1054, Atlanta, Georgia 30334  
(404) 656-7802; Fax (404) 651-9425  
Judson H. Turner, Director

February 5, 2014

PM, Ltd  
c/o Ms. Nancy Shannon  
Suntrust Bank  
25 Park Place, 2<sup>nd</sup> floor  
Atlanta, Georgia 30303

**RE:** May 8, 2012 through November 8, 2013 First through Fourth Semi-Annual Progress Reports and May 8, 2012 Responses to EPD Comments on the October 14, 2010 Voluntary Investigation and Remediation Plan (VIRP) Former Imperial Cleaners, 1233 B Alpharetta Highway, Roswell, Fulton County, GA HSI Site No. 10690 / VRP978375182 Tax Parcels: 12-1993-0450-063-5 and 12-1993-0450-062-7

Dear Ms. Shannon:

The Georgia Environmental Protection Division (EPD) has reviewed the subject submittals for HSI 10690/VRP 978375182 known as the Former Imperial Cleaners facility in Roswell, Fulton County, Georgia. The subject submittals were prepared and submitted by AMEC Environment & Infrastructure, Inc. (AMEC) on behalf of PM, Ltd, (PML). Said documents were submitted pursuant to the Georgia Voluntary Remediation Program Act (the Act) and the schedule set forth in the November 10, 2011 Voluntary Remediation Program (VRP) Application Acceptance Letter. In addition, EPD received responses to comments in the November 10, 2011 Notice of Deficiencies for the Voluntary Remediation Plan [now referred to as the Voluntary Investigation and Remediation Plan (VIRP)] on May 9, 2012. EPD is providing the comments herein in regard to the subject documents.

- 1. Risk Reduction Standards (Response to EPD Comments 1, 2, and 4):** The May 8, 2012 response to comments letter included several updated tables in response to the referenced EPD comments. The Appendix B tables have been revised to correct their labels and to document updated RRS calculations. The RRS presented in the revised Tables B-1 through B-9 (Appendix B), attached to the May 8, 2012 Response to Comments letter are acceptable for use at the site. However, several of the RRS summarized on the revised Table 8 attached to the response letter do not correspond to the approved RRS as summarized in the revised Appendix B tables. Table 8 of the VIRP must be revised accordingly and resubmitted for placement in EPD files and future similar tables must reflect the approved RRS as summarized in the revised Appendix B in the referenced responses to comments.
- 2. Vapor Intrusion Evaluation (Response to EPD Comment 3):** It is EPD's understanding that the Fulton County Board of Education is planning to demolish the current building located over the impacted soil and groundwater at the subject site and an environmental covenant restricting development of that portion of the Properties underlain and within 100 ft of the contaminant plume will be enforced. Therefore, under said circumstances, EPD will not require a vapor intrusion assessment be conducted for the current onsite building. Should said portion of the Properties be re-developed in the future, the need for a vapor intrusion assessment must be re-evaluated at that time.
- 3. Remediation Plan and Groundwater Contaminant Fate and Transport Modeling Efforts (Responses to EPD Comments 5 through 11 and Revisions in Subject Progress Reports):**
  - EPD concurs with the use of the 0.37 cfs stream flow value as representative of low flow conditions in Hog Wallow Creek in calculating current COC concentrations in Hog Wallow Creek, acceptable COC concentrations at the point of groundwater discharge and specific monitoring locations; however, since the value of the  $Q_1$  term

(flow rate of impacted groundwater entering the stream segment) shown on Table 1 of the subject progress reports remains the same as that shown in Table C3 of the VIRP, EPD must assume that all input values [hydraulic conductivity, hydraulic gradient, and cross-sectional discharge area (L x H)] remained the same in calculating said term in all of the referenced documents. Note:

- The hydraulic conductivity and gradient values used in the referenced calculations and used in the Biochlor groundwater contaminant fate and transport modeling efforts should be the same. EPD noted that the gradient values for calculating  $Q_1$  (0.05 ft/ft) and for Biochlor fate and transport modeling (0.04 ft/ft) in the subject progress reports were not the same. The VIRP indicates the 0.004 ft/ft value is representative of horizontal groundwater gradient within the shallow portion of the aquifer onsite and potentiometric surface maps provided in the subject progress reports confirm that the 0.004 ft/ft gradient is representative of groundwater conditions along the centerline of the contaminant plume.

- Comment 10 of the November 10, 2011 EPD letter recommended that the source width of 75 ft be used as the "L" term in the mixing calculations to result in conservative allowable concentration values for COCs in groundwater at monitoring well MW-11R. Since the  $Q_1$  term used in the subject progress reports has not changed from that in the VIRP, EPD assumes that the requested revision was not implemented.

EPD calculated maximum concentrations of PCE, TCE, DCE (assumed all was trans-1,2-DCE), and vinyl chloride that should be protective of Hog Wallow Creek at the point of discharge using the method presented in the VIRP and the subject progress report with the hydraulic gradient and "L" terms revised as referenced above. The resultant "allowable" concentrations were higher than those proposed on Table 1 of the November 8, 2013 Progress Report, making the proposed values more conservative than those calculated by EPD. Therefore, the participant may use the proposed values as the maximum allowable COC concentrations protective of the stream at the point of discharge and at monitoring well MW-11R. Alternatively, the participant may propose alternative values based on calculations using the hydraulic gradient and "L" values referenced in the bulleted items above for EPD review.

- b. EPD cannot concur that the Biochlor groundwater fate and transport modeling results presented in the subject progress reports have been adequately calibrated based on comparison of predicted and actual groundwater analytical results. In addition, the prediction that steady state conditions should be reached at monitoring well MW-11R within 25 years is not supported by the documentation provided in Appendix C of the fourth Progress Report as predicted concentrations of PCE, TCE, DCE, and vinyl chloride 90 to 100 ft from the source show increasing trends through 25 years on the screenshots provided. Furthermore, EPD replication of the modeling effort indicates PCE, TCE, DCE, and possibly vinyl chloride are predicted to have upward concentration trends at MW-11R well beyond 25 years, due to the increased retardation factor used in the model. However, since: 1) the calculated maximum COC concentrations protective of surface water at the discharge point (see Comment 3a. above) are significantly greater than the maximum concentrations detected in groundwater at the Properties (including the source area) to date, and 2) it appears that the available mass of PCE (based on yield factors provided in the Biochlor User's Manual<sup>1</sup>), assuming no additional sources of PCE, in groundwater is insufficient to result in daughter product concentrations greater than the acceptable maximum concentrations at the point of discharge, EPD is not requiring that predictive modeling of COC plume behavior (*i.e.*, Biochlor, *etc.*) be conducted for comparison to future monitoring results as long as the acceptable maximum COC concentrations are not exceeded in any site monitoring well location and COC concentration trends indicate the maximum acceptable COC will not be exceeded in the future (*i.e.*, source concentrations do not increase significantly, observed concentration trends are relatively stable and/or demonstrate an overall decreasing trend through time, *etc.*). Should predictive modeling be necessary in the future, please contact the EPD site compliance officer to discuss documentation requirements, *etc.* prior to submittal of the associated progress report.
- c. It is EPD's understanding that the future Environmental Covenant for that portion of the subject Properties impacted by PCE and its degradation products will require semi-annual groundwater monitoring with annual reporting through March 2015. The proposed monitoring network will consist of monitoring wells MW-2, MW-4R, MW-7, MW-11R and MW-16. Said monitoring network and schedule is acceptable to EPD with the following comments:

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<sup>1</sup> Page 14, *Biochlor Natural Attenuation Decision Support System User's Manual, Version 1.0*, EPA/600/R-00/008 (January 2000).

- i. At least one monitoring event per year must be conducted in or about the month of June, and
- ii. Surface water sampling locations SW-1 through SW-3 must be included in the monitoring network during the final monitoring event to confirm surface water conditions for inclusion in the Compliance Status Report (CSR) that is due no later than November 10, 2016.

Please note that the CSR may be submitted *in lieu* of the final annual monitoring report if it can be demonstrated that the VRP participating properties are in compliance with the *applicable cleanup standards in effect at the time*.

#### 4. Progress Reports:

- a. **Groundwater Well Purging and Sampling Field Procedures:** In general, EPD prefers that groundwater sampling procedures be conducted in accordance with current EPA Region 4's Field Branches Quality System and Technical Procedures (FBQSTP) Groundwater Sampling Procedures (*SESDPROC-301-R3*: effective March 6, 2013)<sup>2</sup> to ensure that collected groundwater samples are representative of groundwater conditions and are not compromised by improper sampling techniques. Other procedures *may* be allowed on a site-specific basis with adequate justification and must be discussed with the EPD site compliance officer before use at the site. EPD has the following comments regarding groundwater purging and sampling procedures documented by field records provided in Appendix B of the Fourth VRP Progress Report:
  - i. **Documentation:** At a minimum, field groundwater purging/sampling records submitted in future progress reports must include the following information to document procedures used by field personnel:
    - Description of the well purging technique used (as referred to in the *SESDPROC-301-R3*) and specific method by which the final water samples were withdrawn from the wells (*i.e.* peristaltic pump/Teflon® tubing/vacuum jug, downhole pump with Teflon® tubing, or closed-top Teflon® or stainless steel bailer, *etc.*). Note that bailers, sample tubing and bladders (if bladder pumps are used) which come into direct contact with groundwater samples must be Teflon® or Teflon®-lined or stainless steel (bailers) if groundwater is sampled for volatile organic compounds (VOCs) and the results are to be used for demonstration of compliance with applicable cleanup standards,
    - Date and time of beginning and end of purging, sample collection, and stabilization parameter readings,
    - Depth to groundwater prior to installation of the purge pump, volume of water in the well prior to purging,
    - Total depth, screened interval depths, and diameter of monitoring well, and
    - Initial well volume of water calculations and final purged volume,
    - Notation if the well purged dry,
    - Purge rate, depth to water during the purge process, stabilization parameters (pH, specific conductivity, turbidity, *etc.*) readings during purging, depth to the pump intake during the purging process, and the intake depth of the sampling device, and
    - Description of sample collection technique (*i.e.*, the "soda straw" method, *etc.*).Several of the field purging/sampling records provided in the subject progress reports are incomplete with regards to the above required information. For instance: 1) pump intake depth, 2) purging device, tubing or bailer composition, well volume of water, purging rate, turbidity measurements, total volume of water purged, well diameter (circling of the well diameter under well casing volume in the lower right corner of the form is sufficient), the specific method by which the final water sample was withdrawn from the well, and date and time of sample collection were not provided on the field purging/sampling record for monitoring well MW-4, *etc.* Please ensure that all of the required information is provided on field sampling records in future submittals.
  - ii. Pursuant to Section 3.1 of the *SESDPROC-301-R3*, EPD prefers the use of purging procedures requiring the removal of at least three well volumes of groundwater as described in Sections 3.2.1 and 3.3 of the same document. Specifically, the "Traditional Multiple Volume" Method described in Sections 3.2.1 and 3.3.1, which requires placement of the pump intake near the top of the water column during purging efforts, is the preferred method. Alternate purging methods, including the "Tubing-In-Screen" Method, which also requires the removal of at least three well volumes of water, micro-purging, *etc.*, *may* be allowed on a site-

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<sup>2</sup> The referenced document may be accessed via the worldwide web at: <http://www.epa.gov/region04/sesd/fbqstp/Groundwater-Sampling.pdf>

specific basis with adequate justification and must be discussed with the EPD site compliance officer before use at the site since very strict guidelines must be followed. If the purging/sampling pump intake is placed at a substantial depth below initial measured water levels in the sampled well, stable water levels must be maintained (within  $\pm 0.1$  to 0.3 ft) during purging efforts to ensure that stagnant water from above (or in the sand pack) is not introduced into the sample, thereby compromising it. EPD noted that field records provided in Appendix B of the Fourth VRP Progress Report, although three well volumes of water were removed from all or most of the monitoring wells prior to sampling that the pump intake was placed well below the measured static depth to water in several monitoring wells. For instance, the pump intake was placed 25.25 ft and 26.82 ft below the measured static water level depths in monitoring wells MW-3 and DW-1, respectively. Therefore, it appears that the preferred sampling method was not employed by field personnel for said monitoring wells. Please place purging/sampling pump intakes near the top of the measured static water columns during future groundwater sampling events consistent with the SESD Traditional Multiple Volume Purging Method or provide justification for the method used in future submittals. The pump intake should be lowered as the water column is lowered if necessary.

iii. Stabilization criteria posted on the bottom of the field purging forms is not consistent with the criteria described in Section 3.2.1.1.2 of *SESDPROC-301-R3*:

- Specific conductivity measurements should be  $\pm 5\%$  over three consecutive measurements, the field records indicate measurements within 3% were used and is acceptable to EPD since the 3% variation is more conservative than the 5% variation allowed in the SESD standard operating procedures (SOPs),
- Field records indicate oxidation/reduction (aka redox) measurements may have been used as a stabilization parameter. SESD SOPs specifically state that said measurements may be recorded, but should not be used to determine purge adequacy,
- Dissolved oxygen (DO) readings, if used as a stabilization parameter, must stabilize within  $\pm 10\%$  saturation or 0.2 mg/L, whichever is greater, and
- SESD SOPs have a minimum turbidity purging goal of <10 NTUs. The referenced field forms indicate turbidity readings of <20 Nephelometric Turbidity Readings (NTUs) as a minimum purging goal.
- SESD SOPs states that , if after three well volumes have been removed, the chemical parameters have not stabilized, additional well volumes (up to five well volumes or the well is purged dry), should be removed and not based on the 2 hour timeframe indicated on the referenced field forms. If the parameters have not stabilized within five volumes, it is at the discretion of the project leader whether or not to collect a sample or to continue purging. If, after five well volumes, pH and conductivity have stabilized and the turbidity is still decreasing and approaching an acceptable level, additional purging should be considered to obtain the best sample possible, with respect to turbidity.

Please revise future purging procedures to ensure stabilization criteria are consistent with SESD SOPs. Furthermore, review of the referenced field records indicated all SESD required stabilization criteria may not have been met prior to ceasing purging in several of the monitoring wells sampled such as monitoring wells MW-4 and MW-12 (turbidity not recorded); and MW-5 and MW-16 (last three recorded pH measurements not  $\pm 0.1$  standard units).

- b. **Figures and Tables:** In future submittals, please include groundwater COC concentrations vs time trend graphs for monitoring wells MW-2, MW-4R, MW-7, MW-11R and MW-16 and a table summarizing all historical groundwater COC analytical results at monitoring well MW-11R compared to the maximum allowable COC concentrations at the groundwater discharge location to Hog Wallow Creek in support of conclusions regarding plume behavior and to expedite EPD review in the future. Note that an explanation of calculations regarding the derivation of the maximum allowable COC concentrations in groundwater at the point of discharge is not necessary in future submittals unless the participant wishes to revise those values proposed and accepted by EPD (see Comment 3.a. above).
- c. **Electronic Submittal Format:** A signed certification page stating that the electronic copies of the subject progress reports were complete, identical to the associated paper copies, and virus free was not provided to EPD. In the future, please ensure that said certification page is submitted with all electronic copies of submittals to EPD.

Former Imperial Cleaners, Roswell, Fulton County, Georgia  
HSI Site No. 10690/VRP 978375182  
February 5, 2014  
Page 5 of 5

If you have any questions regarding this letter or the subject VRP site in general, please contact Carolyn L. Daniels, P.G. of my office at (404) 657-8646.

Sincerely,



David Reuland  
Unit Coordinator  
Response and Remediation Program

c: Joan Sasine, Esq., Bryan Cave (paper and email)  
Stephen R. Foley, P.G., AMEC Environment & Infrastructure, Inc. (email only)  
Charles T. Ferry, P.E., AMEC Environment & Infrastructure, Inc. (paper and email)

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