



**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 2**

June 27, 2019

**BY ELECTRONIC MAIL**

Robert Law, Ph.D.  
de maximis, inc.  
186 Center Street, Suite 290  
Clinton, New Jersey 08809

Re: Re: Diamond Alkali OU4 - Lower Passaic River Study Area– Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study (Agreement) CERCLA Docket No. 02-2007-2009

Dear Dr. Law:

The U.S. Environmental Protection Agency (EPA) reviewed the *draft Current Conditions Monitoring Program Physical Water Column Monitoring Quality Assurance Project Plan (QAPP)/Field Sampling Plan (FSP)*, prepared by Anchor QEA on behalf of the Cooperating Parties Group (CPG) for the Lower Passaic River Study Area (LPRSA) Remedial Investigation (RI)/Feasibility Study (FS).

EPA reviewed the responses to comments and the revised report submitted by the CPG. All comments were addressed with the exception of comments 4 and 9. EPA conditionally approves the report as long as these comments are addressed. Please finalize the report in accordance with Section X, Paragraph 44(a) of the Agreement. If there are any questions or clarifications needed, please contact me to discuss.

In accordance with Section X, Paragraph 44(a) of the Agreement, EPA hereby approves the CPG's *PWCM QAPP/FSP* for the LPRSA. If there are any questions or clarifications needed, please contact me to discuss.

Sincerely,

A handwritten signature in black ink, appearing to read "Diane Salkie".

Diane Salkie, Remedial Project Manager  
Lower Passaic River Study Area RI/FS

Enclosure

Cc: Zizila, F. (EPA)  
Sivak, M. (EPA)  
Hyatt, B. (CPG)  
Potter, W. (CPG)

No.	Section	General or Specific	Page No.*	Comment	CPG Response	Evaluation of RTC June 26, 2019
1	N/A	General	N/A	The QAPP lists Operable Unit (OU) 2 as the relevant OU. OU2 refers to the lower 8.3 miles of the Lower Passaic River (LPR). Since the QAPP pertains to sampling in the upper 9 miles of the LPR to support the upper 9 Interim Remedy (IR), the OU listed in the QAPP should be OU4.	The text will be revised accordingly.	The response is accepted.
2	N/A	General	N/A	Include a section, either in the QAPP or FSP describing lessons-learned from the past PWCM sampling effort.	A subsection will be added to Section 1 of the QAPP describing lessons learned from the RI PWCM event.	The response is accepted.

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3	N/A	General	N/A	<p>Variations from the 2009 QAPP/FSP were noted in the 2019 QAPP/FSP, including:</p> <ul style="list-style-type: none"> <li>• The 2009 QAPP/FSP included wet weather suspended solids sampling events at tributaries of the LPR</li> <li>• The 2009 QAPP/FSP included two 3-month deployments (fall and spring) to capture low and high flows characteristic of those periods, whereas the 2019 QAPP/FSP describes one 6-month deployment (beginning in the summer)</li> <li>• The 2009 QAPP/FSP attempted to collect transects during spring and neap tides, whereas the 2019 QAPP/FSP describes transect collection during four flow conditions.</li> <li>• The 2009 QAPP/FSP included meters set at 3 feet below water surface and 3 feet above river bottom, whereas the 2019 QAPP/FSP includes meters set at 3 feet below water surface and 2 feet above river bottom</li> <li>• The 2009 QAPP/FSP included POC/DOC measurement at a reduced rate relative to SSC measurement, whereas the 2019 QAPP/FSP describes both collected at equal frequency</li> </ul> <p>An explanation for these variations needs to be provided.</p>	<ul style="list-style-type: none"> <li>• The 2019 program has been designed to characterize suspended solids in the LPR under a range of tidal and freshwater flow conditions, including at least one high flow (storm) event. The spatial distribution of the data collection points (i.e., approximately every 2 miles) will characterize conditions in the LPR and quantify changes due to contributions from tributaries entering between monitoring locations. The 2009 data showed the tributaries to be minor sources of solids and these data should be sufficient to support model refinement.</li> <li>• The deployment periods have been selected to accommodate the overall project schedule.</li> <li>• The 2019 program is focused on the upper 9 miles of the LPR, which is on average more sensitive to freshwater flow conditions than to extreme tidal changes. Therefore, the primary focus is on evaluating the river during various freshwater flows during the tidal conditions existing when sampling is triggered by flow. We anticipate that various tidal ranges will be experienced over the course of the 2019 sampling.</li> <li>• The meters will be set at 2 feet off the bottom in 2019 to better accommodate the equipment mounting system.</li> <li>• All three analyses (SSC, POC, and DOC) will be performed on each sample in 2019 to provide a more robust dataset.</li> </ul>	The responses are accepted.

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4	1.21	Specific	2	Measurements of SSC, DOC, POC and Chlorophyll-a should be made at the time of initiation and termination of the PWCM instrument data logging, and at each servicing event that does not overlap with a CWCM sampling event. Also make consistent edits in Worksheet 14	Sampling for Chlorophyll-a, SSC, DOC, and POC will be conducted as part of the small volume chemical water column monitoring (SV CWCM). The SV CWCM program will include more numerous sampling events than the PWCM, and will provide a more robust dataset. It is anticipated that the data collected during the SV CWCM will be sufficient to establish relationships with chlorophyll-a, SSC, DOC, and POC throughout the upper 9 miles; therefore, analysis for chlorophyll-a will not be performed as part of the PWCM.	SSC, Chlorophyll-a, DOC and POC data collected as part of the CWCM program will be valuable for developing relationships with turbidity data recorded by the moored instruments. Collecting additional data during the period when the PWCM program is active, but before the CWCM program begins is requested by EPA to further strengthen the derived relationships.
5	QAPP Worksheet 3	Specific	11	Please update the telephone number for William Sy to (732) 321-6648.	The text will be revised accordingly.	The response is accepted.
6	QAPP Worksheet 11	Specific	28	The QAPP incorrectly states the DQOs are presented in Appendix A. This reference should be revised to state that DQOs are presented in Appendix B.	The text will be revised accordingly.	The response is accepted.
7	QAPP Worksheet 14	Specific	41	Include additional information on what the duplicate frequency will be for the ADCP (boat-based) data.	A field duplicate transect for ADCP will be collected once per sampling event. This will be added to QAPP Worksheet No. 14.	The response is accepted.
8	QAPP Worksheet 19	Specific	49	Since the laboratory will be filtering the samples for POC/DOC determination, it appears that the referenced SOP should be the laboratory SOP. The worksheet referenced a field SOP. Please verify. Also verify the footnotes numbering provided. There are two footnotes labeled as 1.	The filtration will be performed by ALS using SOP L-66. This will be changed in QAPP Worksheet No. 19.	The response is accepted assuming the footnote numbering error is also addressed.
9	QAPP Worksheet 20	Specific	50	Rinsate blanks should be included in the total number of samples sent to the lab. Also, clarify how rinsate blanks will be collected (field SOPs describe sampling using tubing, Van Dorn samplers, etc., and not all methods are equally appropriate to collect rinsate samples from).	As shown in QAPP Worksheet No. 20, equipment rinsate blanks will be collected at the rate of one per event.  A section will be added to the field sampling SOP (LPR-FI-02) to describe the equipment blank collection method to be employed in the PWCM.	Please revise the total number of samples to lab (e.g., 384 sample locations + 20 replicates + 4 blanks totals 408 samples to the lab, not 404).  The field sampling SOP revisions for equipment blank collection will be evaluated in the revised QAPP.
10	QAPP Worksheet 29	Specific	68	Provide additional information as to the conditions when duplicate ADCP data will be collected as indicated under the discussion for Data Analysis.	Field duplicates will be collected at a rate of one per event, and QAPP Worksheet No. 14 will be revised, as indicated in the response to Comment 7. There are no specific conditions under which duplicate ADCP data will be collected.  The reference to the moored sensor data downloads being evaluated on board "as conditions allow" in the Data Analysis discussion refers to field conditions and schedule. If sufficient time is not available to review downloaded data in the field, the downloads will be evaluated soon after transfers occur to the Data Management Task Manager to ensure completeness and consistency.	The response is accepted.

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11	QAPP Worksheet 35	Specific	78	Please provide the data validation SOPs that will be used.	LDC's SOP for data validation (LDC 14.0.0) will be included in the revised PWCM QAPP as Appendix E, and reference to this will be made in QAPP Worksheets No. 14 and 34. The SOP is augmented by program-specific information included in QAPP Worksheets No. 12, 28, 35, 36, and 37.	The data validation SOP will be evaluated in the revised QAPP.
12	Field Sampling Plan, Section 1	Specific	1	The introduction states that the PWCM data will be used to establish baseline conditions for the IR. Please note that additional sampling events are planned to establish baseline conditions for the IR.	The text will be revised to state that baseline chemical conditions will be established during the small and high volume chemical water column monitoring programs.	The response is accepted.
13	Field Sampling Plan, Section 2.1	Specific	2	The second paragraph of this section states that the RM 15.8 meter will be deployed approximately 3 feet below the surface. Elsewhere in the FSP and in the QAPP, it is described as being placed approximately mid- depth in the column. Please revise the location so it is consistent with the rest of the QAPP.	The instrumentation at RM 15.8 will be deployed at mid-depth in the water column; the text will be corrected.	The response is accepted.
14	Field Sampling Plan, Section 2.2	Specific	4	The FSP requires the targeted river flows to be maintained for 7 days antecedent to the survey, except for the high flow event. Please justify the 7-day requirement and describe the protocol when the antecedent condition is met, but flow conditions change during the sampling event.	The length of the antecedent period was based on a goal of minimizing the influence of the prior differing conditions, travel time through the system and what appears to be reasonably achievable based on historical trends. The antecedent period, as well as the flow conditions identified in the FSP for triggering sampling events are targets, and it is understood that there may be some difficulty in meeting these criteria. Initiation of each survey will be coordinated with EPA. Once initiated, surveys will be completed. Should flow conditions change during a sampling event, flow information will be tracked and the data collected will still be useful.	Please include this discussion of antecedent flow conditions in the revised QAPP.
15	Field Sampling Plan, Section 2.3.2	Specific	6	The reference to Figure 2 for an example location of the along river transects should be verified. It appears that it should be Figure 3.	The text will be revised accordingly.	The response is accepted.
16	Field Sampling Plan, Table 2	Specific	1	Table 2 includes a cross-channel transect at RM 15.8. Elsewhere in the FSP and QAPP, only 4 cross-channel transects are described (RM 8.4, RM 10.2, RM 12, and RM 13.5). Either revise Table 2 to delete the extra transect or revise the relevant sections of the QAPP to include a RM 15.8 transect.	The reference to a cross-channel transect at RM 15.8 in Table 2 is an error and will be corrected.	The response is accepted.
17	Field Sampling Plan, Figure 2a	Specific	6	The cross-channel sampling locations shown on Figure 2a are numbered beginning on the east side of the river, while the numbering shown on Figures 2b-2d begin numbering on the west side of the river. Please revise to be consistent.	The figures will be revised accordingly.	The response is accepted.
18	Appendix B, DQOs	Specific	1	The word turbidity is misspelled (spelled as turbity) in the second bullet of the right hand column of Step 3. Please correct.	The text will be corrected.	The response is accepted.

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19	Field SOPs, Navigation/ Positioning SOP	Specific	3	The procedure to establish position at a location includes a step where the HYPACK system is configured with the "target ring" or maximum allowable offset based on task-specific requirements listed in the QAPP. However, the QAPP does not include the requirements. Please revise either the QAPP or SOP to include the requirements.	The SOP statement is in reference to target locations with certain tolerance, such as conducted in delineation of sediment contamination, confirmation sampling, etc., and is not applicable to surface water sampling. The SOP has been modified to indicate that these target rings are not applicable to surface water sampling.	The response is accepted.

N/A – not applicable