FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
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NOAH VALENSTEIN
SECRETARY

VIA EMAIL

July 24, 2018

Shannon E. McMorrow
404 SW 140th Terrace
Newberry, Gainesville
FL, 32669-3000, Florida

Re: Final Audit Report for Stream Condition Index Laboratory Audit of Wood Environment & Infrastructure Solutions, Inc. (formerly Amec Foster Wheeler Environmental and Infrastructure)

Dear Ms. McMorrow:

Thank you for responding to the preliminary audit report for this Stream Condition Index (SCI) Laboratory Audit. The Florida Department of Environmental Protection (department) has reviewed your response and determined that the proposed corrective actions are acceptable and complete.

Attached is the final audit report detailing the audit procedure and the department's recommendation for usability of the data. The final audit report will also be posted on the department's website at http://www.dep.state.fl.us/labs/cgi-bin/reports/search.asp. The details of the department's review are provided in the audit findings table. As noted in the report, the department has determined that your invertebrate taxonomy analysis procedures meet the data quality objectives for SCI sampler proficiency according to DEP SOP SCI 1000. The usability of the audited data for other purposes must be determined separately according to applicable requirements in rule 62-160.670, F.A.C.

Under Chapter 120 of the Florida Statutes, you and any other person whose substantial interests are affected by the department's agency action may challenge the attached final audit report, including the corrective actions and the data usability analysis. The process to challenge any portion of this agency action is described below in the Notice of Rights section.

If you have any questions or concerns about this final audit report, please feel free to contact Nia Wellendorf at (850) 245-8190 or Joy Jackson at (850) 245-8074.

Notice of Rights

This action is final and effective on the date mailed (via e-mail) unless a sufficient petition for an administrative hearing is timely filed under sections 120.569 and 120.57 of the Florida Statutes as provided below. If a sufficient petition for an administrative hearing is timely filed, this agency action becomes only proposed agency action, subject to the result of the administrative review process. Therefore, on the filing of a timely and sufficient petition, this action will not be final and effective until further order of the department. Because an administrative hearing may result in the reversal or substantial modification of this action, the petitioner is advised not to proceed until the deadlines noted below for filing a petition for an administrative hearing or request for an extension of time have expired. Mediation is not available.

A person whose substantial interests are affected by the department's action may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of General Counsel of the department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. The petitioner shall also mail a copy of the petition to Wood Environment and Infrastructure Solutions, Inc., at the address indicated above, at the time of filing.

Under rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the department's action may also request an extension of time to file a petition for an administrative hearing. The department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon. If a request is filed late, the department may still grant it upon a motion by the requesting party showing that the failure to file a request for an extension of time before the deadline was the result of excusable neglect.

If a timely and sufficient petition for an administrative hearing is filed, other persons whose substantial interests will be affected by the outcome of the administrative process have the right to petition to intervene in the proceeding. Intervention will be permitted only at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-106.205, F.A.C.

In accordance with rules 28-106.111(2) and 62-110.106(3)(a), F.A.C., petitions for an administrative hearing by the petitioner must be filed within 21 days of receipt of this written notice. Petitions filed by any persons who were not entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within 21 days of publication of the notice, if published, or within 21 days of receipt of the written notice, whichever occurs first. Under section 120.60(3) of the Florida Statutes, however, any person who has asked the department for notice of agency action may file a petition within 21 days of receipt of such notice, regardless of the date of publication.

The failure of any person to file a petition for an administrative hearing within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 of the Florida Statutes.

A petition that disputes the material facts on which the department's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination; (c) A statement of when and how the petitioner received notice of the agency decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate; (e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and (g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

A petition that does not dispute the material facts on which the department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301, F.A.C. Under paragraphs 120.569(2)(c) and (d) of the Florida Statutes, a petition for administrative hearing must be dismissed by the agency if the petition does not substantially comply with the above requirements or is untimely filed.

This agency action constitutes an order of the department. Subject to the provisions of paragraph 120.68(7)(a) of the Florida Statutes, which may require a remand for an administrative hearing, the applicant has the right to seek judicial review of the order under section 120.68 of the Florida Statutes, by the filing of a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when the final order is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



David Whiting, Deputy Director
Division of Environmental Assessment and Restoration
2600 Blair Stone Road
Tallahassee, FL 32399
Tel No.: (850) 245-8191

Attachments:
Final Audit Report

Copies furnished to:

Kenneth Hayman, DEP Office of General Counsel
File

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this agency action, including all copies, was e-mailed before the close of business on 7/24, 2018, to the above listed persons.

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to 120.52(7)
Florida Statutes, with the designated Department Clerk,
receipt of which is hereby acknowledged.

Clerk 24 July 2018 Date

Final Audit Report

Wood Environment & Infrastructure Solutions, Inc. (Formerly Amec Foster Wheeler Environmental and Infrastructure)

SCI Laboratory Audit

Aquatic Ecology and Quality Assurance Section
Water Quality Standards Program
Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection
July 2018

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Tallahassee, Florida 32399-2400
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STREAM CONDITION INDEX LAB AUDIT REPORT

Scope of Audit
Wood Environment & Infrastructure Solutions, Inc. (formerly Amec Foster Wheeler Environmental and Infrastructure, Inc. and referred to in this report as "Wood") provided Stream Condition Index (SCI) data to the Florida Department of Environmental Protection (DEP or department) in support of an SCI Refresher Audit as a sub-contractor for Flatwoods Consulting. To provide assurance that Wood follows the sample processing and index calculation protocols in DEP SOP SCI 2000, DEP conducted a records audit of the required documentation associated with the SCI Refresher Audit sample. Records from an SCI sample collected from Little Payne Creek on March 22, 2017, and processed on April 4-6, 2017, were reviewed for adherence to sample preparation and identification protocols required in SCI 2000. Some of the audit findings are unique to the individual sample while other findings and comments pertain to the overall laboratory protocols for the handling and processing of SCI samples.

Summary of Findings/Acceptance of Corrective Actions
A preliminary audit report was sent to Wood on May 11, 2018, and Wood provided responses to the preliminary report on July 10, 2018. In general, the department found that Wood's procedures closely followed DEP SOP SCI 2000 with a few departures as outlined in Table 1.

Lab Quality System: Wood maintains copies of pertinent taxonomic identification keys and primary literature and an extensive reference collection that has been verified by external experts. DEP requested and was provided an Excel file of the reference collection with the higher-level phylogeny to more thoroughly review the extent of the collection. Taxa encountered in the samples reviewed for this audit are represented in Wood's reference collection.

Sample Processing, Sorting and QC: Examination of the laboratory documentation requested for the audit indicates that Wood's sample processing protocols follow DEP SOPs with the following exceptions:

In the preliminary report, DEP noted that three Baetidae spp. in Subsample B should have been collapsed into *Baetis intercalaris* and *Pseudocloeon ephippiatum* proportionately rather than being assigned exclusively to *B. intercalaris* and that after collapsing, Baetidae spp., should not have been counted in the Ephemeroptera or Total Taxa metrics. The same issue occurred when collapsing Coenagrionidae spp. and *Argia sedula*. In this case, the three Coenagrionidae were added to *A. sedula* for abundance calculations but were considered as a separate taxon for taxa richness. In the case of the Baetidae, Wood's response explained that the taxonomist could rule out the possibility that these were *Pseudocloeon ephippiatum* (now *Labiobaetis ephippiatus*) based on the mouthparts, which is why they were all collapsed into *B. intercalaris*. They stated that while this is typically noted on the benchsheet, it was not done so on this occasion. Wood acknowledged the lack of documentation and the tallying of the taxa into the appropriate metrics and said it will be rectified in future samples. Collapsing errors can impact the metrics and potentially the final score, although they did not in this case.

In the initial submission, it appeared that some analysts were not being evaluated for sorting quality control at the prescribed rate when an analyst fell below the sorting target for an individual sample. However, in their response, Wood clarified that the spreadsheet provided did not include the date the sample was sorted and was not in chronological order; rather, it was sorted by the analyst's initials and then in chronological order by the date that taxonomy was completed, which didn't always correspond to the order in which samples were sorted. When the spreadsheet is sorted by analyst

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and date, it shows that the remaining subsamples from this project (Gilshey Up, Down SCI A&B) were re-sorted, and any organisms missed were shown to the original sorter, “NP.” This was not noted on the spreadsheet that was originally provided to DEP. Analyst NP did not sort any more samples until March 2017. Those samples were checked and scored above 90%.

It was not clear from the documentation that corrective action was taken when analyst LCS had four consecutive samples fall below the 90% sorting efficiency. In their response, Wood clarified that some of the samples in question had only 1-2 petri dishes per sample and thus were completed before a second analyst had an opportunity to check them. Wood clarified that all four samples were re-sorted by a senior analyst, who instructed LCS to re-read the SOPs. Further, LCS was shown the organisms that were missed and was provided with additional guidance on sorting.

DEP originally noted that sample logs for 2016 and 2017 had multiple samples with no sorting information. Wood clarified that the clients performed the sorting for these samples, which is why the sorting information was left blank in their database. They have clarified this in their log using “N/A” when the sorting is not performed by Wood.

Taxonomic Identification QC: Taxonomic QC checks were not performed at the specified rate for all analysts. A QC sample was not performed for analyst JD during 2016. In their response, Wood indicated JD identified four SCI samples in 2016, but there is no record of a QC check being performed for this analyst. A minimum of 5% or one sample should be checked annually for each analyst. Wood said that JD is primarily a marine taxonomist, but acknowledged she did process SCI samples in 2016, which would necessitate annual QC checks. Wood will ensure that at least one sample for each analyst is checked per calendar year, based on the date completed, regardless of the overall number of samples processed. In addition, Wood went back and randomly selected a sample from 2016 for this analyst and performed a retrospective taxonomic QC check. The result was 100% correct identifications. Wood added and resubmitted this as Attachment 2 – QAQC Summary.

SCI Index Calculation: All taxa were correctly assigned to the various metric categories. The sample was assigned to the correct SCI region. The metrics and final scores were calculated correctly, except for the collapsing issues mentioned above. As was stated earlier, collapsing errors can impact the metrics and potentially the final score, although they did not in this case.

Data Usability Recommendation

Based on the results of this audit, the Aquatic Ecology and Quality Assurance Section has determined that the SCI data produced by Wood (Amec Foster Wheeler Environmental and Infrastructure, Inc.) meet the department’s data quality objectives, and recommends that the data may be used for refresher audit evaluation scoring for SCI sampling according to DEP SOP SCI 1000. The usability of the audited data for other purposes must be determined separately according to applicable requirements in rule 62-160.670, F.A.C.

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Table 1. Audit findings of deficiency and/or requests for additional information for the Laboratory Records Audit of selected SCI sample data produced by Wood.

SOP reference	Audit Finding	Wood Response	Corrective Action	DEP Comments
SCI 2100 Section 4	Some organisms were not properly collapsed. In subsample B, three (3) Baetidae spp. should have been collapsed into *Baetis intercalaris* and *Pseudocloeon ephippiatum* proportionately rather than being assigned exclusively to *B. intercalaris*.	The Baetidae spp. were all collapsed into *B. intercalaris* because the taxonomist was able to rule out the possibility that these were *Pseudocloeon ephippiatum* (now *Labiobaetis ephippiatus*) by looking at the mouthparts. Therefore, they were all collapsed into *B. intercalaris.* This is usually noted on the benchsheet, but was missed on this one.	Wood will ensure that collapsing notes are included on benchsheets when taxa are not collapsed proportionally due to ability to rule out certain taxa.	This response is acceptable.
SCI 2100 Section 4	After being collapsed, Baetidae spp., should not have been counted in the Ephemeroptera or Total Taxa metrics. Three Coenagrionidae were added to *A. sedula* for abundance calculations but were considered as a separate taxon for taxa richness calculations.	We recently noted this issue as well and have resolved it in our metric calculation methods.	Wood has also resolved this issue in our metric calculation methods and will ensure that persons performing QA pay careful attention to this issue.	This corrective action is acceptable and considered complete.

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SOP reference	Audit Finding	Wood Response	Corrective Action	DEP Comments
SCI 2110 Section 2.1.1	There were several instances where an analyst fell below the sorting target, but subsequent samples do not appear to have been checked as indicated in the description of precautionary and corrective measures provided by Wood.	The spreadsheet we provided in pdf format did not include the date the sample was sorted and was not in chronological order by that date. It was sorted by the sorter's initials and then in chronological order by the date that taxonomy was completed, which didn't always correspond to the order in which samples were sorted. When you sort the spreadsheet by the sorter's initials and the date sorted, the issue appears to be with analyst NP at the very end of 2016. According to the sorting benchsheets, the remaining subsamples from this particular project (Gilshey Up, Down SCIA&B) were re-sorted by analyst NP or a taxonomist and analyst NP was shown what she missed. This was not noted on the spreadsheet that we provided to FDEP. She did not sort anymore samples until March 2017, and those were checked and scored above 90%.	We have updated our sample log to indicate that those samples were re-sorted by NP and JD to retrieve any missing organisms- see Attachment 1. We will make sure to provide the sorted date in our future audit submittals.	This corrective action is acceptable and considered complete.

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SCI 2110 Section 2	Cumulative sorting efficiencies were not maintained for all analysts. Analyst LCS had a sorting efficiency of 85% based on four samples. The sorting records appear incomplete after this date. DEP was unable to determine whether the analyst continued to sort samples or whether additional corrective action was taken.	In the Attachment 1 Sample Log 2016 submitted with our response it shows the dates of sorting and shows that LCS passed QA on all samples in 2016 until Little Bull (Dup) on 12-1-2016, which was the last sample he processed in 2016. At this point, NP resorted the entire sub-sample (all petri dishes) for Little Bull (Dup) and showed LCS what organisms were missed and provided guidance on improving efficiency. In 2017, HC Still A and B and SC Iw A and B were QA-ed and failed. Each of these sub-samples only included 1-2 petri-dishes, and they were all resorted to retrieve all organisms for each sample. QA for these samples was completed after LCS had already sorted all of them. JD met with LCS to go over the organisms that had been missed and provided additional guidance on sorting. LCS was directed to re-read the SOP for sorting. Following these samples, LCS was no longer an employee with Wood, so no additional corrective actions were implemented.	N/A	DEP accepts this clarification and this element is considered complete.

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SOP reference	Audit Finding	Wood Response	Corrective Action	DEP Comments
SCI 2210 Section 2	It is unclear why several entries in the 2016 and 2017 sample logs have no sorting information.	Our clients had already conducted the sorting for these samples, we only performed the taxonomic identifications on these samples which is why the sorting information was left blank in our database.	Wood has corrected this by marking the sorter as "N/A" in our database instead of leaving it blank for samples that we received from this client in 2018. This was also added to 2016 Sample Log- Attachment 1.	This response is acceptable.

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SOP reference	Audit Finding	Wood Response	Corrective Action	DEP Comments
SCI 2220 Section 1	Taxonomic QC checks were not performed at the specified rate for all analysts. A QC sample was not performed for analyst JD during 2016.	Analyst JD processed over 100 marine samples in 2016 that were not included in this report. She performed taxonomy on only two SCI samples at the very end of 2016 and we missed the QA requirement for her on these.	When a taxonomist identifies less than 20 samples per year, Wood will ensure that at least one is QA'd for each calendar year based on the date completed in our database. Wood went back and selected a random sample from 2016 that this analyst processed and completed QA/QC on it. The results were acceptable. Wood added the results of that QA/QC to the sample log and resubmitted it as QAQC summary-Attachment 2.	This corrective action is acceptable and is considered complete.

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