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VIA EMAIL

August 10, 2016

Mary Szafraniec, Contract Manager
Water Resources
Amec Foster Wheeler
1101 Channelside Dr. Suite 200
Tampa, Florida 33602

Subject: Final Report Field Audit of Amec Foster Wheeler, conducted January 21, 2016; OGC Case No. 16-1232.

Dear Ms. Szafraniec:

Thank you for responding to the preliminary field audit report of Amec Foster Wheeler (Amec) for the South Florida Canal Study Phase III Contract (WQ030). The Florida Department of Environmental Protection (department) has reviewed your response and determined that the proposed corrective actions are acceptable and have been implemented. We are confident that the indicated corrective actions will improve the quality assurance system for Amec.

Attached is the final audit report detailing the audit procedure and the audit findings. 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. As noted in the report, the Department concludes that surface water and biological sampling procedures used by Amec are consistent with the Department's Standard Operating Procedures incorporated in Chapter 62-160, Florida Administrative Code.

Under Chapter 120 of the Florida Statutes, Amec, 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.

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 determination 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



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FINAL AUDIT REPORT

Amec Foster Wheeler
South Florida Canal Study Phase III Contract

Field Performance Audit, January 21, 2016

Aquatic Ecology and Quality Assurance Section
Water Quality Standards Program
Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection
August 10, 2016

Introduction

This field performance audit of the Amec Foster Wheeler (Amec) South Florida Canal Study Phase III Contract (WQ030) was conducted by the Florida Department of Environmental Protection (DEP or department) Aquatic Ecology and Quality Assurance Section (AEQAS), in accordance with Rule 62-160.650, Florida Administrative Code (F.A.C). The audit was conducted to inform the department and Amec staff of the extent of conformance of field procedures with the requirements of Chapter 62-160, F.A.C., including implementation of the DEP Standard Operating Procedures for Field Activities, DEP-SOP-001/01, March 1, 2014 (DEP SOPs), which cover sample collection, field testing, and required field documentation. The results of the audit have been evaluated to provide the required corrective actions and recommendations in this report that should be implemented by Amec for conformance with the DEP SOPs and DEP Agreement WQ030.

Description of Sampling Event and Audit

Department auditors Joy Jackson and Nia Wellendorf (AEQAS) conducted the audit of Amec samplers Mary Szafraniec, Joshua Raysin, Richard (Joe) Mansuetti, and Sean Jones on January 21, 2016 at two sampling locations in Collier County: Golden Gate Canal 1 (GGC-1) and Golden Gate Canal 2 (GGC-2). Preparations included the organization of sample bottles, field equipment, trucks, and boats. Following field preparation, the auditors and field personnel traveled to the first sampling location, GGC-1, and observed a typical surface water grab sampling (chlorophyll *a*, nutrients, total suspended solids, turbidity and color) and biological assessment (zooplankton, Stream Condition Index, Habitat Assessment, Linear Vegetation Survey, and Rapid Periphyton Survey) event conducted by Amec. Joy Jackson, Joshua Raysin and Richard (Joe) Mansuetti then traveled by boat to station GGC-2, while Nia Wellendorf, Mary Szafraniec, and Sean Jones traveled by trucks to GGC-2 where additional observations were made.

At both sites, the samplers collected water quality samples and field parameters directly from the boat and biological samples were collected by wading, where possible. The boat was used, where necessary, to move from one side of the canal to the other to ensure complete site coverage. All water samples were direct grab samples, which were acidified after collection for specific analytes, and submerged in wet ice in the field. All field data were logged on FDEP field sheets at each site.

Later that evening, auditors observed Sean Jones, Joshua Raysin, and Mary Szafraniec perform meter continuing calibration verification (CCV) procedures, and the auditors reviewed records pertaining to meter calibration, verifications, maintenance, buffers and standards. Auditors reviewed all field sheets and lab submittal form(s) for the samples taken that day. A sampling trip on the following day was not audited, but field sheets and lab submittal forms for the samples collected on the second day were emailed to the AEQAS auditors, and were reviewed in preparation for this report.

Audit Findings and Implementation of Corrective Actions

Audited procedures or records that did not comply with audit criteria are identified in the audit findings table for the surface water and biological sampling event (Table 1). In summary, the findings and associated deficiencies included various minor documentation topics, and specific deviations from several DEP SOPs noted by the auditors in Table 1. A preliminary audit report was sent to Amec's Contract Manager, Mary Szafraniec, on May 13, 2016. The report included a findings table with spaces for the audited party to respond with further information and/or corrective actions. Amec staff provided responses and corrective actions on July 22, 2016. For most findings, corrections were made by Amec the day of sampling after discussion with auditors, or immediately upon returning to the office. The auditors have reviewed the corrective actions and deem them acceptable. Corrective actions were implemented on January 21, 2016, or within the following week, and approved by the Department July 22, 2016.

Usability Statement

Based on the results of this audit, the samples collected by Amec meet the data quality objectives for this South Florida Canal Study as outlined in the Contract (WQ030) and Chapter 62-160, F.A.C.

Table 1. Findings of deficiency and corrective actions for surface water field sampling, field testing performance, and biological assessment protocols (audited 1/21/16).

Finding Number	DEP SOP Reference	DEP SOP Requirements	Audit Finding/Auditors' Notes	Recommended or Required Corrective Action (CA)	Amec Response	AEQAS Final Response
1	FS 2100, section 2.7	Collect surface water samples from downstream towards upstream.	At GGC-1, the sampler collected the first of two zooplankton replicates upstream from the collection sites for the other replicate and the water samples. The upstream collection created a sediment plume that could have contaminated the downstream site.	**Required CA**: Collect samples starting at the station furthest downstream or at the site with the least potential disturbance. The purpose of this order is to avoid collecting water samples within a plume created at the upstream sampling location, and to reduce the chance of contaminants coming into contact with the boat or other sampling equipment that could contaminate subsequently collected samples.	Noted. The order of sampling was immediately corrected the day of the audit. The samples were collected from downstream to upstream after the comment was made in the field by the auditor. However, it should be noted that most of these sites do not have observable flow. Therefore, the likelihood of a plume reaching the second sites is unlikely.	This corrective action is acceptable and considered complete.
2	FS 1006, section 5.1	When preservation requirements indicate cooling to a specific temperature, samples must be placed in wet ice within 15 minutes of sample collection.	At GGC-1, ice was not available on the boat from which surface water samples were collected, so samplers could not get samples in ice within 15 minutes. Ice was available at the site on the other boat, but the sampling team forgot to supply both boats with ice.	**Required CA**: Take ice into the boat or plan sampling so that samples requiring cooling are immediately submerged in ice within 15 minutes of collection.	Noted. Corrective action was taken the day of the audit.	This corrective action is acceptable and considered complete.
3	FS 2100 section 2.3	Avoid disturbing sediments in immediate area of sample collection.	At site GGC-1, the sampler sounded the bottom with a Secchi disk before collecting the water sample. The Secchi created a sediment plume that could have contaminated the sample.	**Required CA**: To avoid water collection within a sediment plume, collect water samples before sounding the bottom with the Secchi disk to determine total depth.	Noted, the potential discrepancy was addressed with staff and water samples were collected first for all sampling sites to avoid any chance of contamination.	This corrective action is acceptable and considered complete.

Finding Number	DEP SOP Reference	DEP SOP Requirements	Audit Finding/Auditors' Notes	Recommended or Required Corrective Action (CA)	Amec Response	AEQAS Final Response
4	FS 2100 section 2.6	Unless dictated by permit, program or order, sampling at or near structures (e.g., dams, weirs or bridges) may not provide representative data because of unnatural flow patterns.	At GGC-2, the sampler began the water collection immediately downstream of a mat of floating, decaying vegetation.	**Required CA**: Take water samples in open areas that are representative of the water body. Avoid sampling immediately adjacent to vegetation, bridge pilings, or other objects encountered that are not representative of the overall site conditions.	Whenever possible in these canal sites that are sometimes choked with vegetation, water samples are collected in open areas and away from structures. The sampling took place after a large storm event, which caused vegetation to drift down the canal and was present in large patches throughout the site. The sampler sampled in an open area to avoid the vegetation mats. The location he selected was representative of the typical flow patterns observed for that site.	This corrective action is acceptable and considered complete.
5	FS 2000, section 1.4.3	Except for volatile organic compounds and sulfide, leave ample headspace in the sample bottle to allow for expansion, effervescence and proper mixing at the laboratory.	Some water sample containers were filled completely to the top.	**Required CA**: Fill bottles approximately to the "shoulder" of the container.	Noted. Corrective action was taken the day of the audit.	This corrective action is acceptable and considered complete.
6	FS 1002, section 1.1	Do not insert pump tubing, measurement probes, other implements, fingers, etc. into sample containers or into samples that have been collected for laboratory analysis.	The auditor observed the sampler touching the preservative (acid) container to the inside of the sample container.	**Required CA**: Do not allow anything other than the sample itself to come in contact with the interior of the sample container, including the preservative vial.	Noted. Corrective action was taken the day of the audit.	This corrective action is acceptable and considered complete.

Finding Number	DEP SOP Reference	DEP SOP Requirements	Audit Finding/Auditors' Notes	Recommended or Required Corrective Action (CA)	Amec Response	AEQAS Final Response
7	FS 2110, section 1.2.1.3	Mark the line attached to the sampler with depth increments so the sampling depth can be accurately recorded. (this section is specific to Depth Grab Samplers, but applies to any depth sampling)	Pieces of tape were placed at measured intervals along the Secchi Disk rope to measure depth. The pieces of tape were sliding up and down during use and the sampler was having to reposition them.	**Required CA**: Use a method for indicating Secchi Disk and total depth that is secure and does not move with use.	Noted. Corrective action was taken the day of the audit. There was one piece of tape loose on the Secchi Disk rope during this event. This was corrected by marking the Secchi Disk with permanent marker at appropriate depth increments.	This corrective action is acceptable and considered complete.
8	Zooplankton Sampling SOP for South Florida Canal Aquatic Life Study and SOP 7001, section 1	Final preservation concentration for zooplankton sample is 5% formalin.	Samplers at GGC-1 added 5% formalin to a zooplankton sample container that was nearly half full with site water from rinsing.	**Required CA**: Add 10% formalin to a sample bottle that is ± half full with site water to obtain a final concentration of 5% formalin.	The original Zooplankton SOP provided prior to the January sampling audit was not clear on the preservation process. The revised SOP, (dated March 3, 2016) further clarified the process. The change in process was noted and addressed the day of the audit.	This corrective action is acceptable and considered complete.
9	FD 4100, section 2.9	Document whether each calibration verification passed or failed.	Indication of passing or failing was not recorded on Amec's calibration/verification forms.	**Required CA**: Include indication of pass/fail on Amec's calibration/verification forms.	The samplers were handwriting the pass/fail on the edge of the form instead of providing a discrete column. Corrective action was taken the evening of the audit and forms have since been revised to include a pass/fail column.	This corrective action is acceptable and considered complete.
10	FD 4100, section 2.12	Document acceptance criteria used for all verifications or cite relevant DEP FT SOP or internal SOP.	The acceptance criteria were not recorded on Amec's calibration/verification forms.	**Required CA**: Include acceptance criteria on Amec's calibration/verification forms.	Noted. The form has since been revised to include acceptance criteria and relevant DEP FT SOP.	This corrective action is acceptable and considered complete.

Finding Number	DEP SOP Reference	DEP SOP Requirements	Audit Finding/Auditors' Notes	Recommended or Required Corrective Action (CA)	Amec Response	AEQAS Final Response
11	FD 5000, section 1.2	Indicate on the label in how many jugs the entire sample is contained, e.g., "1 of 2," "2 of 2."	There was an instance where some of the SCI containers were not labeled as 1 of 2, 2 of 2, etc.	**Recommended CA**: Ensure proper labeling of all sample containers and indicate the number of bottles collected if more than one is used per analyte (1 of 2, 2 of 2, etc.)	Noted. Corrective action was taken the day of the audit.	This corrective action is acceptable and considered complete.
12	SCI 1100, section 2.8	Save finer debris plus organism mixture in large wide-mouth jugs.	Samplers were reducing aquatic vegetation in the field to try to fit all of the material into two SCI containers. The risk of organism loss is increased with this type of structurally-complex vegetation.	**Recommended CA**: If the aquatic vegetation is structurally-complex, do not reduce in the field and use more containers as necessary.	Noted. Corrective action was taken the day of the audit. All structurally complex vegetation is now retained to prevent any organism loss.	This corrective action is acceptable and considered complete.