FLORIDA DEPARTMENT OF Environmental Protection

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VIA EMAIL
Read receipt requested

June 21, 2019

David Herring
Advanced Environmental Laboratories, Inc., Miramar
10200 USA Today Way
Miramar, FL 33025
Email: dherring@aellab.com

Re: Final Audit Report for Microbiology Lab Records Audit

Dear Mr. Herring:

Thank you for responding to the preliminary audit report for the Microbiology Lab Records Audit of the Advanced Environmental Laboratory-Miramar laboratory (AEL). The Florida Department of Environmental Protection (department or DEP) has reviewed your response and proposed corrective actions.

Attached is the final audit report detailing the audit procedure, audit findings, and the department's audit conclusions. This 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 concluded that the laboratory procedures and laboratory documentation used by AEL have not met one or more critical Quality Control (QC) criteria required by the approved methods, NELAC 2003 standards, Chapter 62-160, Florida Administrative Code (F.A.C.), and/or requirements outlined in purchase order AF315E. The critical findings are the inability to confirm incubation temperature and lack of verification of positive and negative colonies. DEP auditors found other, non-critical QC deficiencies as well, as outlined in the report.

The laboratory's implementation of corrective actions described in this report will lead to an improved quality system. DEP will verify the implementation of corrective actions with future requests for QC documentation. Due to findings deemed critical by DEP auditors, data analyzed during the date range evaluated under this audit and data affected by the problems identified in the audit may be considered by DEP as estimated values for certain uses of the data.

Under Chapter 120 of the Florida Statutes, AEL, 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 Sarah Noble at (850) 245-8533.

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 AEL 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 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

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
Cheryl Swanson, DEP Biology Program
File

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this determination, including all copies, was e-mailed before the close of business on June 24, 2019, 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 6/24/2019
Date

Final Audit Report
Advanced Environmental Laboratories Miramar
(DOH #E82535)
Microbiology Lab Records Audit
Conducted January 2019

Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection
June 21, 2019

Introduction

This laboratory records audit of Advanced Environmental Laboratories (AEL-Miramar) located in Miramar, Florida, was conducted by the Florida Department of Environmental Protection's (DEP or department) Aquatic Ecology and Quality Assurance section (AEQAS). The audit was conducted in accordance with Rules 62-160.650 and 62-160.670, Florida Administrative Code (F.A.C.), to verify that AEL-Miramar is complying with the quality assurance (QA) requirements of DEP contract No. AF315E and correctly implementing approved analytical methods, including acceptable quality control, and maintaining adequate laboratory documentation.

This final audit report lists the procedural and documentary deficiencies determined by the department auditors, responses from the audited party, and the department's response to the corrective actions proposed by the laboratory.

Audit Description

DEP staff requested analytical and quality control records for ten samples analyzed for *Escherichia coli* (*E. coli)* and enterococci under contract during 2017 (Table 1). Records were requested on November 29, 2018, and received on December 6, 2018. A team from AEQAS reviewed the records, which included custody chains, laboratory check in logs, analytical runs, laboratory reports, and QA and Quality Control (QC) documentation. The DEP purchase order No. AF315E, the 2003 National Environmental Laboratory Accreditation Conference (NELAC) standards, Chapter 62-160, F.A.C., and the relevant methods (Table 1) provided the criteria for the audit and all findings.

Preliminary Audit Report and Implementation of Corrective Actions

A preliminary audit report of findings and deficiencies was sent to David Herring (AEL Miramar QAO) on March 5, 2019. Procedures or documentation that did not comply with audit criteria are identified in Table 2, along with the department's suggested or required corrective actions. Mr. Herring replied on April 1, 2019 with proposed corrective actions and implementation dates for the noted deficiencies, which have been included in Table 2. Additional clarification was requested by the auditors on June 4, 2019, and Mr. Herring replied on June 13, 2019. The AEQAS auditor reviewed the proposed corrective actions, and added additional responses to Table 2.

Audit Conclusions

Based on the findings for the records audit, DEP has determined that AEL-Miramar has not met one or more critical QC criteria required by the approved methods, NELAC 2003 standards, and/or DEP contract requirements. The critical findings are the inability to confirm incubation temperatures and lack of verification of positive and negative colonies. DEP auditors determined other QC deficiencies as well, as outlined in the findings table.

The laboratory's implementation of corrective actions described in this report will lead to an improved quality system. DEP will verify the implementation of corrective actions with future requests for QC documentation. Due to findings deemed critical by DEP auditors, data analyzed during the date range evaluated under this audit and data affected by the problems identified in the audit may be considered by DEP as estimated values for certain uses of the data.

NOTE: The audit evaluated the indicated data for the use(s) described in this report. The usability of the auditied data for other purposes or the usability of data produced by the audited organization for other analytes or other date ranges must be determined separately according to applicable requirements in rule 62-160.670, F.A.C.

Table 1. List of audited samples for the lab records audit of AEL-Miramar conducted by DEP in January 2019.

Lab ID	Collection Date	Analyte	Method
M1702893005	7/20/2017	Enterococci	EPA 1600 (2009)
M1703458004	8/28/2017	Enterococci	EPA 1600 (2009)
M1703640002	9/19/2017	Enterococci	EPA 1600 (2009)
M1703855002	10/4/2017	Enterococci	EPA 1600 (2009)
M1704671003	11/28/2017	Enterococci	EPA 1600 (2009)
M1703015001	7/27/2017	*E. coli*	EPA 1603 (2009)
M1703480006	8/30/2017	*E. coli*	EPA 1603 (2009)
M1703773001	9/28/2017	*E. coli*	EPA 1603 (2009)
M1704079004	10/18/2017	*E. coli*	EPA 1603 (2009)
M1704671001	11/28/2017	*E. coli*	EPA 1603 (2009)

Table 2. Findings for the lab records audit of AEL-Miramar conducted by DEP in January 2019.

Finding #	Analyte	Requirement Reference	Finding	Sample(s) Affected (lab ID)	Required or Recommended Corrective Action	Laboratory Response	AEQAS Response
1.	Enterococci	NELAC 5.5.8.3.1 a)1) and b)	Prompt for verification of temperature $\leq$ 10°C or received on ice not completed on lab chain of custody (COC).	M1704671003	**Required**: Check and record the temperature of all samples received.	Login staff shall ensure temperature is listed on COC and within range. Project managers will review temperatures noted on COC and within range. **Implementation Date:** January 2018	Acceptable
2.	Enterococci, *E. coli*	NELAC 5.4.12.1.5 f) and 5.4.12.2.3	Matrix listed as Surface Water on AEL Sample Receipt, but listed as Waste Water on AEL bench sheet.	M1703458003, M1703855002, M1704671001	**Recommended**: Review document chain for transcription errors.	Analysts retrained to check matrix on benchsheet matches COC. **Implementation Date:** March 2019	Acceptable
3.	Enterococci, *E. coli*	NELAC 5.D.3.1 a)1)	Samples were analyzed the same day or before mEI and mmTEC media sterility tests were completed.	M1702893005, M1703458004, M1703640002, M1704671003, M1703480006, M1703773001, M1704079004, M1704671001	**Required**: Check media sterility prior to first use with samples.	All media are being checked for sterility, positive and negative control prior to first use. The lab is notified a day prior to sample being received. **Implementation Date:** March 2019	Acceptable. DEP acknowledges labs can occasionally run out of prepared media due to large number of unexpected samples and it becomes necessary to prepare additional media on same day as sample analysis. We recommend increased communication between lab and customer to ensure adequate amount of media is prepared.

Finding #	Analyte	Requirement Reference	Finding	Sample(s) Affected (lab ID)	Required or Recommended Corrective Action	Laboratory Response	AEQAS Response
4.	Enterococci, *E. coli*	EPA 1600 9.11, EPA 1603 9.11	Daily checks are not performed for mEI and mmTEC media sterility.	M1703855002, M1704079004, M1703015001	**Required**: Conduct media sterility check every day samples are analyzed.	All media go through sterility, positive and negative controls every day the analysis is performed. **Implementation Date:** March 2019	Acceptable
5.	Enterococci, *E. coli*	EPA 1600 9.11, EPA 1603 9.11	No records for media sterility checks of trypic soy agar (TSA) and verification media.	ALL	**Required**: Laboratory must test media sterility for each medium used, including TSA and verification media.	New personel trained to perform sterility checks on all verification media. Checks, positive and negative controls are documented for each new batch of media. **Implementation Date:** April 2019	Acceptable
6.	Enterococci, *E. coli*	EPA 1600 9.8, EPA 1603 9.8	Daily checks are not performed for filter sterility.	ALL	**Required**: Conduct filter sterility check every day samples are analyzed.	Sterility checks are performed every day samples are analyzed through the use of pre and post blanks. Now in addition, a single plate with filter alone is taken through the analysis to confirm sterility of filter and media alone. **Implementation Date:** March 2019	Acceptable. Ensure TSA media is being used for filter sterility checks.
7.	Enterococci, *E. coli*	EPA 1600 9.8, EPA 1603 9.8, NELAC 5.D.3.1 a)6)	No filter sterility check performed per lot.	M1704671003, M1704079004, M1704671001	**Required**: Conduct filter sterility check per lot of filters.	New analysts are trained to conduct sterility checks on filters based on lots and is documented. **Implementation Date:** May 2018	Acceptable

Finding #	Analyte	Requirement Reference	Finding	Sample(s) Affected (lab ID)	Required or Recommended Corrective Action	Laboratory Response	AEQAS Response
8.	Enterococci, *E. coli*	NELAC 5.D.3.1 b) and c)	Samples were analyzed the same day or before mEI and mmTEC media positive and negative control tests were completed.	M1702893005, M1703458004, M1703640002, M1704671003, M1703480006, M1703773001, M1704079004, M1704671001	**Required**: Run mEI and mmTEC media positive and negative control tests prior to first use with samples.	New analysts are trained to perform negative and positive controls the day prior to first use. **Implementation Date:** March 2019	Acceptable. DEP acknowledges labs can occasionally run out of prepared media due to large number of unexpected samples and it becomes necessary to prepare additional media on same day as sample analysis. We recommend increased communication between lab and customer to ensure adequate amount of media is prepared.
9.	Enterococci, *E. coli*	EPA 1600 9.6.1 and 9.6.2, EPA 1603 9.6.1 and 9.6.2	Positive and negative controls for mEI and mmTEC media not performed daily.	M1703855002, M1704079004, M1703015001	**Required**: Conduct positive and negative culture controls every day samples are analyzed.	Analyst is trained to conduct a positive and negative control every day samples are analyzed. The positive control will be substituted with an OPR, if an OPR is required on that day of analysis. **Implementation Date:** March 2019	Acceptable
10.	*E. coli*	EPA 1603 9.6	*Pseudomonas aeruginosa* (ATCC # 15442) was used as negative control for culture control tests.	ALL	**Required**: *Enterococcus faecalis* (ATCC # 19433) must be used as negative control.	New analysts trained to use *E. faecalis* as negative control for *E. coli*. **Implementation Date:** March 2019	Acceptable

Finding #	Analyte	Requirement Reference	Finding	Sample(s) Affected (lab ID)	Required or Recommended Corrective Action	Laboratory Response	AEQAS Response
11.	Enterococci	NELAC 5.D.3.8 b)6)i, EPA 1600 11.8	10/4/2017 AM temperature noted as 42.0°C, 10/5/2017 PM temperature noted at 39.5°C, 9/28/2017 AM temperature noted as 40.0°C, and 11/28/2017 AM temperature noted as 39.5°C for Incubator M8L. No corrective action noted for these temperature failures.	M1703855002, M1704671003	**Required**: Develop written procedures for corrective actions, including documentation, when temperature is out of range.	Incubator was replaced. Analysts were re-trained to rigourously follow rules for immediate QA notification of any temperatures out of range. Immediate repair to any out of range incubators. Sample results to be qualified when warranted. **Implementation Date:** October 2018	Acceptable
12.	Enterococci, *E. coli*	NELAC 5.D.3.8 b)6)i	Controlled Temperature Monitoring Logs for Incubators M8A and M8L have several missing temperature records, specifically 9/7/2017 PM temperature not recorded, 10/7/2017 AM temperature not recorded, and 10/18/2017 AM temperature not recorded for Incubator M8A.	M1703640002, M1703855002, M1703480006, M1703773001, M1704079004	**Required**: Temperature of incubators shall be documented twice daily, at least four hours apart on each day of use.	Analysts trained to take temperature twice a day minimum four hours apart. **Implementation Date:** May 2018	Acceptable We recommend the QA Officer periodically review the temperature logs.
13.	*E. coli*	NELAC 5.4.12.1.5 f) and 5.4.12.2.3	Incorrect 2nd incubator ID (M8L) recorded for mmTEC media QC records on 10/18/2017 and 11/28/2017.	M1704079004, M1704671001	**Required**: Explain the discrepancy. Ensure the correct incubator ID is recorded.	Analyst wrote down wrong incubator ID as incubator noted is next to M8B. All new analysts are trained to document the appropriate ID of incubators and water baths on benchsheets. **Implementation Date:** May 2018	Acceptable

Finding #	Analyte	Requirement Reference	Finding	Sample(s) Affected (lab ID)	Required or Recommended Corrective Action	Laboratory Response	AEQAS Response
14.	Enterococci, *E. coli*	EPA 1600 9.10 EPA 1603 9.10	No filtration blank performed.	ALL	**Required**: Perform filtration blank before beginning sample filtrations.	Filtration Blanks are performed using pre- and post- blanks per unit, per analysis per day, and/or every 10 samples. Now performing Filtration Blank every day per filtration unit prior to the analysis of samples by filtering Buffer water through a filter on the filtration until and placing it on a TSA plate. **Implementation Date:** April 2019	Acceptable
15.	Enterococci, *E. coli*	EPA 1600 12.0-12.7, EPA 1603 12.0-12.6, Guidance document, page 5-6*	Verification of positive and negative colonies is not performed.	ALL	**Required**: Independently verify at least 10 isolated typical and 10 isolated atypical colonies per month, or at a frequency of 1 positive/negative sample per 10% of samples analyzed, whichever is greater.	Now confirming 10 typical and 10 atypical colonies per month. It is part of the monthly QA requirements for each analysis. **Implementation Date:** March 2019	Acceptable
16.	Enterococci, *E. coli*	EPA 1600 9.2 - 9.4, EPA 1603 9.2 - 9.4	No record of initial (IPR) or ongoing precision and recovery (OPR) samples were found in the audit records.	ALL	**Required**: The laboratory must perform IPR analyses before the method is used for monitoring field samples. Also, the laboratory must analyze one OPR sample after every 20 field and matrix spike samples or one per week that samples are analyzed, whichever occurs more frequently.	An IPR is performed as the IDOC for each analyst performing the test. Now OPR are performed once per week or every 20 samples whichever is greater. **Implementation Date:** April 2019	Acceptable

Finding #	Analyte	Requirement Reference	Finding	Sample(s) Affected (lab ID)	Required or Recommended Corrective Action	Laboratory Response	AEQAS Response
17.	Enterococci, *E. coli*	EPA 1600 9.12, EPA 1603 9.12	Analyst counting variability not performed.	ALL	**Required**: Counting variability tests must be conducted monthly with one positive sample read by each analyst within 10% difference or a duplicate count by one analyst within 5% difference.	Analysts retrained to perform counting variability as part of the monthly QC for each analysis. Documents in Micro Quality control is updated to include counting variability for *E. coli* and Enterococci. **Implementation Date:** March 2019	Acceptable
18.	Enterococci, *E. coli*	Guidance document, page 8*	Duplicate (Precision) samples not performed.	M1702893005, M1703458004, M1703640002, M1703855002, M1704671003 M1703480006, M1703773001, M1704079004, M1703015001	**Required**: At least 10% of samples (or at least one per test batch) shall be duplicated, and all duplicate results shall be evaluated per method specifications using the precision criterion.	Analysts are trained to perform duplicate analysis every 10 samples or one per batch per day if the batch is less than 10 samples. **Implementation Date:** March 2019	Acceptable
19.	*E. coli*	NELAC 5.5.8.2 b) and 5.5.8.3.1 d) 2) i; Guidance document, page 9*	Client Sample ID (Field ID) on COC (G4SE0101) does not match AEL Lab Report or electronic data deliverable (EDD) (G4SEC01).	M1703480006	**Required**: Ensure the field ID code that identifies each container is linked to the laboratory ID code.	Project Managers shall review logins and EDDs against COC to confirm Field ID matches. **Implementation Date:** March 2019	Acceptable
20.	*E. coli*	NELAC 5.D.3.8 b)6)i	Missing temperature records observed in the Controlled Temperature Monitoring Log for water bath M8B, July 2017-November 2017.	M1704079004	**Required**: Temperature of water baths shall be documented twice daily, at least four hours apart on each day of use.	All analysts trained to take temperature twice daily with minimum 4 hours apart. Water baths also have min/max thermomenters to capture temperature with samples are not present. **Implementation Date:** February 2019	Acceptable. We recommend the QA Officer periodically review the temperature logs.

Finding #	Analyte	Requirement Reference	Finding	Sample(s) Affected (lab ID)	Required or Recommended Corrective Action	Laboratory Response	AEQAS Response
21.	*E. coli*	EPA 1603 11.8 – 11.9, NELAC 5.4.12.2.5.3 g)	There is no prompt for Date/Time Out for First Incubation nor Date/Time In for Second Incubation on the benchsheet.	M1703480006, M1703015001	**Required**: Record exact incubation times to ensure incubation periods are met.	Benchsheets updated to ensure exact time out and in for first and second incubation periods. **Implementation Date:** June 2017	Acceptable
22.	*E. coli*	NELAC 5.D.3.1 a)2), Guidance document, page7*	On the bench sheet, there is a break in the batch (a new set of post- and pre-blanks are run), so the auditor assumes more than 30 mintues have passed. However, the start filtration time is the same for all blanks and samples (1740), and the start of incubation time is 2000.	M1703480006	**Required**: Ensure exact filtration start and end times are recorded. Please explain why there is such a large time period between start of filtration and start of incubation.	Start time is actually 19:40 not 17:40, which is a 20 min difference between the start of filtration to incubation time. A new set of pre/post-blanks were for the setup of IDOCs by the training analyst (JG). Analysts trained to incubate samples within 30 mins after start of filtration and note incubation time as well as start of new filtration time if necessary. **Implementation Date:** May 2018	Acceptable. Auditor acknowledges filtration start time is 19:40. Please ensure benchsheets are legible.
23.	*E. coli*	NELAC 5.4.12.2.5.3 g), EPA 1603 9.9, Guidance document, page 7*	Pre and post method blank sample volume not recorded on bench sheet.	M1704079004	**Required**: Record volume filtered and include with analytical records.	Analyst re-trained to document all volumes used for blanks, controls, and samples. **Implementation Date:** July 2018	Acceptable

* Florida Department of Environmental Protection (DEP). Guidance for Microbiological Data Reported to DEP (attached to purchase order), Version 060117.

References

Florida Department of Environmental Protection (DEP). Request for Proposals Contractual Services, Microbiological Overflow Services, Solicitation Number 2017004C, Agency Release Date July 29th, 2016.

Florida Department of Environmental Protection (DEP). Guidance for Microbiological Data Reported to DEP (attached to purchase order), Version 060117.

National Environmental Laboratory Accreditation Conference (NELAC). 2003 NELAC Standard, EPA/600/R-04/003, Volume 1, Module 5, Quality Systems, Approved June 5th, 2003.

United States Environmental Protection Agency (EPA). Office of Water. 2009. EPA-821-R-09-016, Method 1600: Enterococci in Water by Membrane Filtration Using membrane-Enterococcus Indoxyl-β-D-Glucoside Agar (mEI).

United States Environmental Protection Agency (EPA). Office of Water. 2009. EPA-821-R-09-007, Method 1603: *Escherichia coli* (*E. coli*) in Water by Membrane Filtration Using Modified membrane-Thermotolerant *Escherichia coli* Agar (Modified mTEC).