FLORIDA DEPARTMENT OF Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, FL 32399

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Interim Secretary

VIA EMAIL
Read receipt requested

August 9, 2021

Laura Bedinger, PhD, Benthic Laboratory Manager
Water and Air Research, Inc.
6821 SW Archer Road
Gainesville, FL 32608
Email: LBedinger@waterandair.com

Re: Final Audit Report for Macroinvertebrate Laboratory Audit of WAR, Inc.

Dear Ms. Bedinger,

Thank you for responding to the preliminary audit report for this Macroinvertebrate Laboratory Audit. The Florida Department of Environmental Protection (department) has reviewed your responses and determined that the macroinvertebrate data produced by WAR meet the department's data quality objectives.

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's Aquatic Ecology and Quality Assurance Section has determined that your invertebrate taxonomy analysis procedures meet the data quality objectives for macroinvertebrate taxonomy data for the sample types covered in this audit, and recommends that the data sed in support of the scope of projects covered in this audit The usability of the audited data for other purposes must be determined separately according to applicable requirements in rule 62-160.670, Florida Administrative Code (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 Sarah Noble at (850) 245-8533 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 Laura Bedinger, 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 August 10, 2021, 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.

Ashley Phillips 8/10/21
Clerk Date

Final Audit Report
Water and Air Research, Inc.

Macroinvertebrate Laboratory Audit

Aquatic Ecology and Quality Assurance Section
Water Quality Standards Program
Division of Environmental Assessment and Restoration
Florida Department of Environmental Protection
August 2021

2600 Blair Stone Road, MS 6511
Tallahassee, Florida 32399-2400
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MACROINVERTEBRATE LABORATORY AUDIT REPORT

Scope of Audit

In 2013, DEP conducted an audit of Water and Air Research's (WAR) Stream Condition Index (SCI) sample processing protocols as part of the SCI refresher process that occurs every five years. Since that time, WAR has provided macroinvertebrate results to the Florida Department of Environmental Protection (DEP or department) in support of a variety of projects that includes multiple sample types. This current audit covers the scope of samples that WAR processed for DEP-related projects from 2014 through 2020. Table 1 lists the dates of collection, Lab ID, site and project name, and sample types that were reviewed as part of this audit.

DEP made an initial records request for the samples listed in Table 1 on June 29, 2020. The first records were provided on August 4, 2020, additional records were sent on October 30, 2020, and the final record was provided on January 29, 2021. It should be noted that DEP originally requested Wetland Condition Index sample SWT04 from February 4, 2014. However, this sample was outside the 5 years mandatory record retention period required, and according to the Laboratory Manager, a paper copy of the bench sheet was missing, and no electronic copy was available. As a result, sample SWT03 was reviewed instead. During the intervening period, WAR performed a thorough review of their database settings and calculator, backfilled gaps in lab records, reviewed and added new fields to their voucher collection records, and double-checked and updated naming conventions for their taxonomic identifications. DEP commends WAR for undergoing this thorough review of their process; however, the lengthy response time to a standard records request is concerning and exceeded the 45-day response time and as such is noted as a deficiency.

In some of the discussion below, DEP recognizes that WAR processes samples for many entities in addition to DEP and samples processed for those efforts may have different QA/QC requirements. Thus, while DEP reviewed the entire record for cumulative sorting and taxonomic identification rates and refers to the overall record, any deficiencies noted pertain only to those samples that were processed for DEP-related projects.

Table 1. Individual samples reviewed as part of the WAR macroinvertebrate laboratory audit.

Sample Date	Lab ID	Site Name	Project Name	Sample Type
2014-02-04	30371	SWT03 Wetland	IP Pensacola WCI 2014	Wetland Condition Index
2014-06-27	30042, 30043	NE-2 Ditch Abv 90	Leon County Bio.	Stream Condition Index
2016-08-02	30723,030724,30725	Fenholloway River	Fenholloway Bio.	Petite Ponar
2018-06-01	31378, 31379, 31380	Tumblin Creek	Gainesville HD 2017	Hester-Dendy
2019-12-06	31977, 31978	Little Orange Creek	ESI SCI Sample ID	Stream Condition Index
2020-05-08	32060, 32061	Sweetwater Creek	Sweetwater Creek SCI	Stream Condition Index

Summary of Findings/Acceptance of Corrective Actions

A preliminary audit report was sent to WAR on November 23, 2020, and WAR provided responses to the preliminary report on January 29, 2021. Although DEP acknowledges multiple intervening holidays, the delayed response is beyond that the required 45-day required response time and, as such, is noted as a deficiency. In general, the department found that WAR's responses and proposed corrective actions are acceptable and that their procedures follow DEP SOP SCI 2000, with a few exceptions as discussed below and in Table 2.

Lab Quality System: WAR maintains copies of pertinent taxonomic identification keys and primary literature and has an extensive reference/voucher collection that has been verified by external experts with a few exceptions. Most of the taxa encountered in the samples reviewed for this audit were represented in the WAR reference or voucher collection except where noted in Table 2. DEP encourages WAR to continue to have specimens verified by external experts and represented in their reference and voucher collections.

Sample Processing, Sorting and QC: The documentation that was initially submitted did not contain the QA/QC sorting records for the samples reviewed as part of this audit due to the way that WAR randomly selects samples for QC checks. In response to the preliminary report, WAR's Laboratory Manager, Laura Bedinger, explained in personal communication with DEP's auditor on January 22, 2021, and in the document, "WAR Quality Control Precautionary and Corrective Measure 2021", that WAR's database randomly selects 10% of samples for sorting checks and 5% for taxonomic QC checks. Overall QC rates were actually higher during the period covered by this audit, with rates of 15.4% and 7.7% for sorting and taxonomy, respectively. However, section 2210 in DEP SOP 1000, clearly states that sorting efficiency checks be performed for 10% of all aliquots for each original SCI lab replicate. Performing QC checks on each sample ensures quality is maintained on an on-going basis rather than periodically. Performing checks on a portion of every sample eliminates the uncertainty for samples sorted in between QC checks should a check fall below the prescribed rate. Thus, DEP requests that, going forward, WAR perform QC checks on 10% of the aliquots for each sample processed for DEP-related projects.

WAR initially provided sorting efficiency records for analysts directly involved in the sorting of samples in Table 1 as requested by DEP. However, DEP was not able to calculate overall sorting efficiencies for analysts without the complete record of samples, and in response to a request from DEP, WAR provided the records on January 26, 2021 in the document, "Sort QA Record for FDEP." DEP acknowledges that WAR processes samples for entities in addition to DEP and the QA/QC requirements may differ. As such, it should be noted that, while the following discussion pertains to DEP SOP requirements, DEP sorting and taxonomic rates may not be applicable to the individual samples mentioned and thus are not considered a deficiency for those samples.

One of the worksheets in the sorting records contained the cumulative sorting efficiencies by year for each analyst; however, DEP requires the per sample cumulative efficiencies for each analyst. Maintaining records on a per sample basis ensures that corrective actions are taken immediately should an analyst fall below the prescribed sorting rate. On the tab titled, "All Sorters Back to 2014", individual sample records were available, and DEP was able to calculate the cumulative sorting rates for each analyst. In most instances, when an analyst fell below 95% sorting efficiency rate on an individual sample, there was a note that the sorter was re-trained on the organisms missed, but not in all cases. For example, analyst C. Cooper had three consecutive samples where the cumulative sorting rate fell below 95%. These samples were not DEP-related samples and as such are not a deficiency but are noted as a potential issue for future DEP projects. DEP recommends that, when an analyst falls below the required rate on a given sample, each subsequent sample be checked until the minimum sorting requirement is achieved.

Based on the results of this audit, WAR revised its database to flag DEP-related samples. This designation will be present on the benchsheet. In addition, the sorter will retain all sorted material while processing the sample and when the sorting is complete, another sorter or taxonomist will resort 10% of this sorted material and record how many organisms they find on the QA Sort area of the bench sheet. After data entry, the sort QC information will be recorded in the Sorting Records spreadsheet, which will now contain a column that denotes whether samples are for DEP. These measures will allow WAR to track cumulative sorting efficiency for each analyst in an on-going basis and over a calendar year.

Taxonomic Identification QC: Taxonomic QA records were provided for samples from 2014 through 2020, but not all samples included in this audit were among those randomly selected by WAR for a QC check (as was described in the previous section). WAR subsequently provided annual average identification rates for each taxonomist ("WAR Taxonomy QC Records for FDEP"). A per sample cumulative taxonomic identification rate was not provided, but DEP was able to calculate it from the information provided. DEP noted that when taxonomists fell below the required 95% correct identification rate, corrective actions were rarely noted. Several analysts had rates that indicate additional training and more frequent QC checks are warranted. Namely, D. Strom fell below the 95% correct identification rate in 24% of samples identified (9 out of 29), D. Nelson fell below the target rate on 80% of samples (4 out of 5), and E. Tavarez fell below the rate on 25% of samples identified (2 of 8). DEP acknowledges that most of these samples were not processed for DEP-related projects but notes them as potential issues for future DEP-related projects and as an issue WAR should consider addressing in order to improve their overall laboratory QA/QC process. Further, DEP requests that, for DEP-related projects, WAR perform taxonomic quality control checks for 5% of all laboratory replicates processed and enumerated, or at least one replicate per year.

In the initial document submission, WAR failed to provide information on how discrepancies between analysts were handled or whether an extramural expert is consulted when needed. This information was subsequently described in the "WAR Quality Control Precautionary and Corrective Measures 2021" document and is considered acceptable and complete.

SCI Index Calculation: All taxa were correctly assigned to the various metric categories. The Sweetwater Creek sample (replicates 32060, 32061) was originally assigned to the incorrect SCI region, which impacted the metric and final score calculations. According to WAR's Laboratory Manager, WAR was not originally provided GPS coordinates for Sweetwater Creek and made an incorrect assumption about the site's location. WAR acknowledged this error and will request and verify locational information for future samples for which they are performing SCI calculations.

Data Usability Recommendation

Aquatic Ecology and Quality Assurance Section has determined that data produced by WAR meets the department's data quality objectives with the recommendations noted in the text and Table 2. DEP recommends that the data may be used for DEP-related purposes upon the full acceptance and implementation of the required corrective actions. The usability of the audited data for other purposes must be determined separately according to applicable requirements in Rule 62-160.670, Florida Administrative Code.

Table 2. Audit findings of deficiency and/or requests for additional information for the Laboratory Records Audit of selected sample data produced by WAR.

SOP Reference	Lab ID	Audit Finding	WAR Initial Response	Corrective Action and Implementation Date	DEP Comments
SCI 2210, Section 2.1	All	Cumulative sorting efficiency for each 12-month period covered by this audit was not provided for analysts.	WAR normally checks these (internally) through a Pivot Table in the Excel spreadsheet. Full sorting records from 2014 through 2020 have been provided to FDEP with tables for each sorter showing the cumulative (and average) efficiency for each regular sorter by year. 2021-01-26	Going forward, WAR will perform a QC of material from each FDEP-related sample. These samples will be marked in our database when logged in (and thus in our sample list) and that designation will be present on the benchsheet. The sorter will retain all sorted material while processing the sample. When the sorting is complete, another sorter or taxonomist will resort 10% of this sorted material and record how many organisms they find on the QA Sort area of the bench sheet. After data entry, the sort QC information will be recorded in the Sorting Records spreadsheet which will now contain a column that denotes whether or not samples are for FDEP. These measures will allow WAR to track cumulative sorting efficiency for each analyst in an on-going basis and over a calendar year (or other 12-month period). **Effective July 29th, 2021.**	This corrective action is acceptable and is considered complete.

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LQ 7419, LQ 7420, and SCI 2120	All	Sorting QC records were missing for all samples (except aliquot 32061) included in this audit (listed specifically below under the individual samples). DEP requests that WAR perform QC sorting checks on 10% of aliquots for each DEP sample rather than 10% of all samples to ensure on-going sorting efficiencies are maintained.	WAR conducts a sort QC on at least 10% of samples sorted in house. The entire sample marked for QC is resorted by an experienced biologist. Please note: TMBCK-A (31378) was also a sort QC and was completed. WAR is maintaining a QC rate of greater than 10% for all sorted samples, our long-standing policy/procedure. Out of the 13 samples selected by FDEP for this audit, two were sort QCs (15.4%).	As stated above, WAR will implement a new QC system for FDEP-related samples (10% of the sorted material from each FDEP sample) and mark the records for those in the QC spreadsheet for all samples from 2021 and beyond. We will examine cumulate sorting efficiencies for 12-month periods. **Effective July 29th, 2021.**	This corrective action is acceptable and is considered complete.
SCI 2100, Section 3.3, LT 7020	All	It does not appear that all worms, mites, and midges were mounted. There were too few slides for the number of slide-mounted organisms in each sample.	We are using two cover slips per slide and usually place five chironomids per cover slip. In some cases, more worms than that are mounted per slide.	We do not feel any corrective action is needed as our taxonomists are comfortable with this number of organisms per slide.	DEP acknowledges that the number of organisms per slide and cover slip may vary depending on the experience of the taxonomist. For newer taxonomists or those in training, DEP suggests placing fewer organisms on each slide. DEP considers this response acceptable and complete.

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SCI 2210, Section 1.4	All	The sorting efficiency calculation is incorrect in the Sorting QC Records. Total number of organisms = total number of organisms sorted in the replicate + QC organisms; QC organisms not included in total.	The sorting efficiency calculation is not incorrect. The total number of organisms used in the Excel sheet calculator is the complete number of organisms in the samples (as in the reporting) and includes all organisms identified from the sample.	No corrective action is needed as these numbers reflect what is stated here in column C.	It was initially unclear from the documentation whether the QC organisms were included in the total count or in addition to it. We acknowledge that they were included and therefore the calculation was performed correctly.
SCI 2110, Section 3.1.2.8	30042	There was a discrepancy in number of organisms in the aliquot; the bench sheet lists 161, while the sorting bench sheet lists 165.	The sorters are not always experienced taxonomists and might mistake a worm tail for a head (for example), so we do not always expect an exact match between what the taxonomists final total is, compared with the sorter.	We feel four organisms is within the margin of error. We do encourage sorters to be careful about counts and to ask questions regarding whether or not to include an organism in the count.	DEP acknowledges there is often a small discrepancy between the number of organisms sorted and the final number identified. DEP requests that this be noted on future records for clarification.
SCI 2110	30042, 30043	Missing required QA/QC records for sorter (L. Bedinger) and identifiers (L. Line and E. Tavarez). DEP requests performing QC sorting checks on 10% of all aliquots for DEP-related projects.	These individuals were included in the records provided to FDEP, but these two aliquots were not assigned a sort QC or a taxonomy QC by our system. Full sorting efficiency and taxonomy QC records from 2014 through 2020 will be provided to FDEP on 2021-01-25.	As stated above, WAR will implement a new QC system for FDEP-related samples (10% of the sorted material from each FDEP sample). **Effective July 29th, 2021**	This corrective action is acceptable and is considered complete.

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SCI 2200 Section 1	30042, 30043	*Ferrisia fragilis, Micromenetus floridensis, Microvelia americana*, and *Helobdella triserialis* not represented in reference collection.	*Ferrisia fragilis* was in the voucher list "WAR Freshwater Mollusca" (and Excel sheet deposited in Dropbox on July 31, 2020). Two specimens of *M. floridensis* were in the voucher collection (from 31493 and another from Hornsby Spring Run), but unfortunately, a tech had mistakenly changed the genus in the Excel sheet to *Menetus* for that species when it should not have been changed. The comments did note (in the sheet you received that had previously been *Micromenetus* and that is what the vial labels say). We have corrected those entries and are resending the freshwater Mollusca list. *H. triserialis* is represented in the voucher collection under its new name, the old name was in the version we provided in the "Synonyms" column. We will make a list of needed vouchers and be sure to add them to our collection at the next opportunity.	As one of these taxa was missing from our collection, WAR will be more consistent with checks at the reporting and identification stage that all organisms are represented in the voucher collection. This sample was processed in 2014. Since then I know we are making efforts to voucher "new" organisms.	This corrective action is acceptable and is considered complete.
SCI 2100, Sections 5.4 and 5.5	30042, 30043	Did not include % dominant metric sheet with requested materials.	It is possible this comment was in error. It was present in the Dropbox materials deposited 2020-08-26.	WAR re-sent this part of the reporting on 2021-01-22.	A PDF of the "% Occurrence Data" was not provided for Little Orange Creek or NE-2 Ditch Abv 90. However, the % Dominant Taxon metric was available in the "Metric and Scores" Excel worksheet. DEP requests consistent submissions to expedite the review process. This response is acceptable

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					and is considered complete
SCI 2100, Section 4 and LT 7040	30042, 30043	In each aliquot, Chironomidae are tallied, crossed out, and listed as "collapse up," but are not included in the final list or taxa count.	It is possible this comment was in error. The Chironomidae pupae (three in 30042 and one in 30043) were properly upcollapsed. Because they were upcollapsed, they should not be in the final taxa list or increase the taxa count. However, they were properly included in the number or individual organisms.	To our knowledge, we properly followed the FDEP SOP.	DEP acknowledges collapsing was done properly. WAR uses light colored ink to show its collapsing protocols, but this was not used in this instance, making it difficult to determine the collapsing protocol. This response is acceptable and is considered complete.
SCI 2220, Section 3.4	30042, 30043, 32060, 32061	Taxonomy QC not performed. No corrections noted on bench sheet; discrepancies not noted on QC spreadsheet. Please record all corrections on benchsheets, and all corrective actions if warranted on the QC spreadsheet. DEP does not require an additional QC record for this audit, but in the future DEP requests that for DEP-related projects, 5% of all replicates received a QC check or a minimum of one	Of all 13 samples selected by FDEP, only 32061 was marked by our system for taxonomy QC. We QC more than 5% of all samples for taxonomy. At the time of identifications, we use paper tabs to block the taxonomist from knowing if that particular sample is slated for QC or not. This sample was QCed for chironomids only and was removed from the system as counting towards our 5% rate. The reason the non-mounts were not QCed is that this was a training exercise for L. Bedinger, the non-mounts were not QCed as she received help from two other taxonomists (E. Nelson and D. Strom) and thus it would not have been a valid QC. Additional documentation showing the QC of the chironomids will be provided,	With our new system of marking FDEP-related samples in the database and in the QC record spreadsheets, we will ensure at least one full FDEP-related sample receives a full taxonomic QC every calendar year or 5% of all FDEP-related samples, whichever is a higher number of samples. **Effective July 29th, 2021.**	This corrective action is acceptable and is considered complete.

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		replicate per year to ensure on-going taxonomic proficiency is maintained	including the internal form showing the chironomid IDs of both taxonomists and the resolution of any discrepancies. (Response date: 2021-01-27) If desired, WAR could provide sample internal forms and documentation from another sample that received a full identification QC of both mount and non-mount organisms.		
LT 7010, Section 3.9	30371	The target number of organisms was exceeded by 30 organisms. The target number of organisms for WCI samples is 100 (± 25) and 155 individuals were included in this sample. This could significantly impact the metrics and final score, but because WAR only performed the identifications, that determination was not part of this audit.	Thank you for calling this to our attention. We will be very careful to check organism numbers on all future samples.	To show our WCI reporting process in good faith, we are following the data reduction SOP and reducing the number of organisms in this data set to the appropriate number and re-running the reporting. These will be provided to FDEP on 2021-01-27	This corrective action is acceptable and is considered complete.
LT 7000, Section 3.6	30723	*Glycera oxycephala* and *Mesokalliapseudes* sp. are not represented in the reference collection.	*Glycera oxycephala* was in our voucher collection as *Glycera* sp. B Vittor (per D. Strom). I have updated the listing as *G. oxycephala* and am resending the voucher list with it. M*esokalliapseudes* is represented in our voucher collection by a specific species in the genus. The specimen in 30725 (the only instance in those three replicates) was described as damaged by the taxonomist. We would voucher	We have adjusted the nomenclature related to *Glycera oxycephala* in our voucher list. 2021-01-27	This response is acceptable and is considered complete.

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			something identified only to the genus level if we felt it represented something different than specimens we already have. Also, we do not normally voucher damaged specimens if it can be avoided.		
LT 7040	30724	Decapoda (LPIL) should be collapsed under *Pinnixa* sp. (There is no indication that the analyst believed it to be something other than *Pinnixa* sp.) Procedures for Counting and Collapsing of Taxonomic Data is to be used with dredge and core samples as indicated in the introduction to LT 7720). Replicates should be kept separate during collection, processing, and identification but should be combined for the final index and score calculation.	Our reading of FS 7450 in combination with LT 7040 did not indicate to us that we should be upcollapsing across ponar replicates. FS 7450 states to keep replicates separate so they can statistically be analyzed separately. Please clarify. Moreover, *Pinnixa* sp. only occurs in 30723 and Decapoda (LPIL) only occurs in 30724 where it is stated it was damaged and immature, but the taxonomist did not indicate that it was likely Pinnixa, so do not upcollapse.	Thank you for this clarification. We are updating our procedures to include collapsing taxonomic names across replicate samples from a single station as not to artificially inflate the diversity and err on the side of being conservative. **Effective July 29th, 2021.**	This corrective action is acceptable and is considered complete.
LT 7000 Section 3.6	30725	Bench sheet indicates that *Paraprionospio alata* was put in the reference collection, but according to the voucher list it is missing from the collection.	Yes, we see that this vial was marked as missing. Occasionally one breaks or is misplaced.	We will continue to look for it and will make a replacement from the next time we encounter the organism.	This response is acceptable and is considered complete.

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LQ 7410 and LQ 7420	30723, 30724, 30725	Missing required QA/QC records for sorters (L. Bedinger and T. Leslie) and identifiers (L. Line, L. Bedinger, and D. Strom). DEP requests performing QC sorting checks on 10% of all aliquots for DEP-related projects.	Full sorting records and full taxonomic QC efficiency log from 2014 through 2020 will be provided to FDEP 1/26/2021.	As stated above, WAR will implement a new QC system for FDEP-related samples (10% of the sorted material from each FDEP sample). **Effective July 29th, 2021.**	This corrective action is acceptable and is considered complete.
LQ 7410 and LQ 7420	31378, 31379, 31380	Missing required QA/QC records for sorter (B. Ruben) and identifier (L. Line).	Full sorting records and full taxonomic QC efficiency log from 2014 through 2020 will be provided to FDEP 1/26/2021.	As stated above, WAR will implement a new QC system for FDEP-related samples (10% of the sorted material from each FDEP sample). **Effective July 29th, 2021.**	This corrective action is acceptable and is considered complete.
SCI 2100, Section 3.2.2.2, SCI 2200 Section 1	31977, 31978	The original bench sheet lists *Ancyronyx glabratus* (31778) which is not a valid taxon. On the "Unpooled Counts" tab in the "Little Orange Creek SCI Dec 2019" Excel file, *A. variegatus* is listed. *Stenelmis convexula* is an invalid name, the valid name *S. bicarinata* (31977). The original bench sheets should be updated with correct names.	As you noted, WAR used the updated version of the names in the final reporting.	In the future we will be sure to always go back and add updated names to the original benchsheet in colored ink before the final scan. 1/27/2021	This response is acceptable and is considered complete.

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SCI 2100, Section 4	31977, 31978	Original bench sheets illegible.	While we at WAR can these particular benchsheets, we understand these can be difficult for outsiders to decipher.	Efforts will be made to be clearer in the handwriting used on benchsheets and will consider recopying benchsheets if necessary (and have done so in some cases in the past). 1/27/2021	This response is acceptable and is considered complete.
SCI 2100, Section 4	31977, 31978, 32060, 32061, 30042, 30043	Original and collapsed taxa lists not maintained. It appears taxa were collapsed during the identification process.	Because we are a for profit business, time is limited so we do the upcollapsing clearly on the original in different light color ink, but after the final identifications have been made.	We will make an effort to be sure that upcollapsing is clear and distinct on the sheet in colored ink. We will consider making photocopies of the finished benchsheet and do the upcollapsing on a photocopy and scanning both versions. 1/27/2021	This response is acceptable and is considered complete.
SCI 2110	31977, 31978	Missing required QA/QC records for sorter (C. Harding) and identifier (D. Strom). DEP requests performing QC sorting checks on 10% of all aliquots for DEP-related projects.	Full sorting records and full taxonomic QC efficiency log from 2014 through 2020 will be provided to FDEP 1/26/2021.	As stated above, WAR will implement a new QC system for FDEP-related samples (10% of the sorted material from each FDEP sample). **Effective July 29th, 2021.**	This corrective action is acceptable and is considered complete.
SCI 2110	31977, 31978	Missing required QA/QC records for sorters (B Ruben and C. Harding) and identifiers (D. Strom, T. Leslie, and L. Bedinger). No taxonomic QA records for T. Leslie. DEP requests performing QC sorting checks on	Full sorting records and full taxonomic QC efficiency log from 2014 through 2020 will be provided to FDEP 1/26/2021. Please note only D. Strom did identifications on these aliquots.	As stated above, WAR will implement a new QC system for FDEP-related samples (10% of the sorted material from each FDEP sample). **Effective July 29th, 2021.**	This corrective action is acceptable and is considered complete.

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		10% of all aliquots for DEP-related projects.			
SCI 2100, Section 3.3.2.6	32060, 32061	Aliquot 32060 (row 22) and aliquot 32061 (row 28) - note of "Jar," no unique ID listed and no explanation for removal. No explanation for removal.	Please note the "jar" note was only to indicate the location of the specimen (as placed by the sorter) for other WAR employees and has no meaning other than the type of container (does not mean it was vouchered for example). We always put the sample identification information in every jar, vial, and slide associated with a sample. WAR assumes this comment is in reference to *Koenika* sp. being crossed out on line 29. Please note there was never a number of organisms associated with this ID. L. Bedinger lined it out (and initialed) as she realized it was not correct before attributing any organisms to it. It was not removed, just written in error. As previously noted, L. Bedinger was training in freshwater identifications on this SCI under supervision.	None needed.	This response is acceptable and is considered complete.
SCI 2100, Section 4 and LT 7040	32060	Aliquot 32060: Bench sheet recorded Plecoptera changed to Perlidae on collapsed list but should have been collapsed to *P. drymo*.	Thank you for this comment on our upcollapsing.	The changes suggested have been made and the results have been regenerated and will be provided to FDEP. 2021-01	This response is acceptable and is considered complete.
SCI 2100, Section 4 and LT 7040	32060	*Stempellina* and *Stempellinella* samples are inverted/switched from bench sheet to collapsed list.	Thank you for this comment.	We have corrected this data entry mistake and the results have been regenerated and provided to FDEP. 2021-01	This response is acceptable and is considered complete.

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SCI 2210, Section 1.4	32060, 32061, 30042, 30043	Sorting efficiency calculation not recorded on bench sheet.	This value was recorded in our Excel spreadsheet, but has been added to the benchsheet.	Added to the benchsheet and rescanned. 2021-01-27	This response is acceptable and is considered complete.
SCI 2100, Section 3.3.2.4	32060	32360: Cricotopus bicinctus collapsed to Cricotopus-Orthocladius Group Epler (higher taxonomic level).	Thank you for this comment on our upcollapsing. We have actually updated the data for this and incorporating the information from our internal QC of chironomids. The identification now stands at *Orthocladius* sp. and we upcollapsed lower level taxa to this.	This update will be reflected in the new results provided to FDEP. 2021-01	This response is acceptable and is considered complete.
SCI 2100, Section 3.3.2.4	32061	32061: *Nanocladius* sp. not collapsed to *Nanocladius crassicornus.* DEP suggests that WAR include a brief note on benchsheets when choosing not to collapse (*e.g.* new, different).	The taxonomist had noted on the benchsheet not to upcollapse these.	We do try to do this. Taxonomists and project managers will be reminded to make sure these notes are consistently included. **Effective July 29th, 2021.**	This response is acceptable and is considered complete.
SCI 2100, Sections 5.1-5.3 and 5.5, Table SCI 2000-2 and 3	32060, 32061	Taxa without assigned metrics: Ancylidae, Ferrisia, Cricotopus / Orthocladius, and tubificoid naididae were not included in very tolerant metric. *Perlinella drymo* was not included in sensitive taxa or clinger taxa metrics.	Thank you for this comment. We have a question about the higher-level taxa. The combination genus for the chironomid has been removed due to a data correction.	We have fixed the entry for *P. drymo* - our database has been updated and is now correct and this correction for *P. drymo* should be reflected in the new version of the results we are now providing to FDEP (and will also provide the client). The other taxa have been addressed in an email from D. Strom to FDEP and we await the answer. 2021-01	This corrective action is acceptable and is considered complete.

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SCI 2100, Section 5.6	32060, 32061	Site analyzed as Big Bend; however, Sweetwater Creek is in Liberty County which is in the Panhandle SCI region. Therefore, metrics and final SCI score were calculated incorrectly.	Thank you for this comment.	The region for this sample in our database has been updated and the scores should now be correct, and, in the results, we are now providing FDEP. Moreover, WAR will request GPS locations for samples collected by clients for which there might be some doubt as to SCI region going forward. 2021-01-26.	This corrective action is acceptable and is considered complete.
SCI 2220, Section 2	N/A	L. Line did not achieve 95% cumulative correct identification rate in 2017. No corrective action noted.	The spreadsheet for taxonomic QC provided to FDEP on 8/24/2020 actually contained an error. L. Line did receive a 50% (there were only two animals and she got one wrong) on sample 30895 but this was entered in the spreadsheet twice. The version of the sheet provided on 1/26/2021 has the duplicate entry removed and L. Line's average correct identification rate is 96% and her cumulative correct identification rate is 98%.	Full taxonomic QC efficiency log spanning from 2014 through 2020 were provided to FDEP on 1/26/2021 and reflects this correction. Also see the precautionary and corrective action document for how WAR would handle potential cases of this. January 2021	This corrective action is acceptable and is considered complete.
LQ 7410 and LQ 7420	N/A	No sorting records were provided for E. Tavarez although analyst performed numerous QA sorting checks from 2014-2016.	E. Tavarez sorted none of the samples selected by FDEP for this audit. Nor was he the one doing either of the two sort QCs included in the selected samples. However, full sorting records from 2014 to 2020 were provided in January 2021.	Full sorting records and full taxonomic QC efficiency log from 2014 through 2020 were provided to FDEP 1/26/2021	This corrective action is acceptable and is considered complete.

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