SUMMARY OF SAMPLE ANALYSIS PROCEDURES FOR THE NUTRIENTS WORKGROUP

1. Print or view backlog of samples to be analyzed daily. For digested chemistries: check for re-digestion requests before you start. Make sure to read your email regularly during the day but at least first thing in the morning and before you leave.

2. Choose samples to analyze based on:
   First: Expiration date
   Second: Priority/Date required

   All regular priority samples should be reported/completed a week before their required date to allow adequate time for corrections and re-analysis during the test and job review process. Priority one samples should be processed the day after they were received.

3. a) Order samples using the Sample Reservations module in the Laboratory Information Management System (LIMS). Analysts should submit reservations by 2:00 p.m. for samples needed before 10:30 a.m. the next day. Requests submitted between 2:00 p.m. and close of business will be ready for check out after 10:30 the following day. Request samples for the time you actually need them. Check samples out of receiving room (use Custody module in LIMS). Never leave the custody room with a sample that you have not checked out.

   or

   b) If samples have been prepared, retrieve samples from the prep area. The paperwork associated with the preparation is located in the LIMS Prep Worksheet Manager module.

4. If a sample is not in your reservation and there is no indication that another analyst has taken it or the custodian could not find it, check the custody log. Then contact a custodian or supervisor. If the stockroom staff cannot locate a sample for more than two days, you must notify your supervisor. Avoid pulling samples on your own. Samples removed from a reservation that is not your own should be marked on the reservation sheet with a note and initials. When practical, reserve samples that are not reserved by somebody else already.

5. Check expiration dates of standards and reagents needed for analysis or preparation. Discard expired standards or reagents immediately and prepare new. Analysis must never be run with expired standards or reagents. Document all preparations appropriately (DEP SOPs NU-041and NU-042). If you use auto-pipettes check their labels and re-calibrate, if necessary, before use (DEP SOP CM-032). If you use a balance, check its calibration status before use and, if necessary, perform a calibration check. Document the daily balance calibration check in the balance logbook (DEP SOP CM-011). Exact weights of dry components obtained

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from the balance must immediately be entered to the tracker module in LIMS. Make sure a computer is available close to the balance to directly transfer the data.

6. Ensure all support equipment and the instrument used during the analytical process is clean, calibrated, and maintained appropriately. Bring any malfunctioning equipment to a supervisor's attention immediately. Document all maintenance performed in the instrument or equipment logbook.

7. Make sure that samples are warmed up to room temperature before pouring them. Homogenize each sample bottle well before pouring. This is achieved by inverting the sample bottle multiple times and check visually that all particulates in the sample are suspended. Make a note on the bench sheet if a sample appears unusual, e.g. has unusual color, odor, particulates, etc. Never dip pipets or other liquid transfer equipment directly into a sample bottle to avoid accidental contamination. Pour a small amount of sample into a clean disposable plastic cup and pipet from the cup. The only exception from this rule are the sterile plastic syringes (usually used in conjunction with disk filters). Such syringes are precleaned and individually packaged. They can be dipped directly into sample bottle if the packaging is removed immediately before using.

8. Analyze samples. Check pass/fail for QC results while the run is going and mark them on your bench sheet or note down recoveries as you go, if possible. Perform corrective actions, as needed, for QC failures and document the problem and corrective action on the bench sheet. Refer to the specific chemistry SOP as well as DEP SOPs NU-043 and NU-038 for guidance. Follow all applicable SOP instructions and if in doubt about the analysis protocol or any acceptance criteria consult your supervisor immediately. All DEP SOPs and the Bureau's Quality Manual are accessible through the DEP Intranet:
a. SOPs: https://qlik.dep.state.fl.us/anon/sense/app/6242e27f-b3d1-4ae0-a28b-c8bf03f13b99/sheet/72fa70ff-e383-4049-9e6e-7405c2068449/state/analysis

b. Quality Manual:
https://floridadep.gov/dear/florida-dep-laboratory/content/dep-laboratory-quality-assurance-manual-and-sops

9. Print results and complete the analysis report (e.g. sample values, peaks and calibration, reagent and standard prep. sheets, bench sheet, digestion paperwork).

10. a) Check samples back into the receiving room. Do not type in sample ID's, always use the barcode scanner. The only exception is if the barcode is not readable due to a damaged label. You must have the bottle in hand when you type the sample ID.

Or:

b) Cap prepared samples and if necessary, change the status of samples that need redigestion to W (use Prep Worksheet Manager module in LIMS).

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11. Check that no samples are left in your name. (LIMS→Laboratory→Custody→Reports→Samples Checked Out→select your name.

12. Import results into the QC Manager. Perform calculations. Upload results to LIMS.

13. Sign and place all paperwork associated with the analysis in a manila folder and turn the folder in to your supervisor.

14. Supervisor reviews results and authorizes data uploaded to LIMS.

15. References:

    15.1. DEP SOP CM-032, Calibration of Auto-pipettes and Dispensers using the Check & Track Software.

    15.2. DEP SOP NU-041, Reagent Preparation Procedure.

    15.3. DEP SOP NU-042, Standard Preparation Procedure.

    15.4. DEP SOP NU-043, Nutrients Group Quality Assurance and Data Authorization Guidelines

    15.5. DEP SOP NU-038, Nutrients: Quality Assurance and Quality Control

Appendix of Changes

08/31/2012 Revised sections 4 and 6 and added section 12 for references.

10/11/2017 Revised sections 3, 5, 9 and added sections 4 and 10.

12/10/2018 Revised sections 2, 4, and 6 for clarity. The title was modified.

12/06/2019 Inserted section 7 to add sample pouring instructions.

08/09/2023 Revised sections 2, 5, 6, 7, 8, 9, and 15 for clarity and completeness. Updated file path link to the QA/QC manual. Added references to SOPs NU-038 and NU-043.

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