Florida Department of

Memorandum — Environmental Protection

TO: Frank Nearhoof
Division of Environmental Assessment and Management

FROM: Nia Wellendorf NKW
Standards and Assessment Section

THROUGH: Michael Blizzard
Standards and Assessment Section

DATE: December 9, 2011

SUBJECT: Final audit determination for the field sampling performance and field data review; Ocklawaha River and Rodman Reservoir; sampled by DEP Northeast District and St. Johns River Water Management District staff; audit conducted December 14, 2009

This memo and the attached Excel audit workbook summarize the findings and corrective actions implemented by the audited sampling teams for the subject audit, and comprise the final audit report.

SUMMARY OF PROJECT AND AUDIT EVENT

This audit was performed for the Ocklawaha River/Rodman Reservoir Nutrient and Chlorophyll *a* Study, for which sampling will be conducted at 18 sites within the river, reservoir, or tributaries, from December 2009 until at least one year after a planned drawdown of the reservoir. The DEP Northeast District (NED) is responsible for sampling at 14 sites, and the remaining 4 sites are ongoing St. Johns River Water Management District (SJRWMD) sampling sites. The NED and SJRWMD teams will split samples quarterly to determine if results are comparable, despite slightly different field techniques and different labs conducting the analysis. Under this project, samples are being collected for analysis of nutrients at all sites and chlorophyll *a* at selected sites. Field measurements include Secchi depth, dissolved oxygen, pH, specific conductance, and temperature.

Michael Blizzard and Nia Wellendorf observed field sampling at two sites for the SJRWMD and five sites for the NED on the December 14, 2009, the initial day of sampling for this project, and examined field records for all samples associated with the first month of the study (December 14, 15, and 16).

SUMMARY OF DIFFERENCES IN SAMPLING PROTOCOL BETWEEN TEAMS

The auditors noted the following differences between the DEP and SJRWMD teams:

1. DEP collected the chlorophyll *a* at mid-Secchi depth and the nutrient samples at mid-depth of the water column. SJRWMD collected all samples at mid-depth of the water column.
2. DEP measured field testing meter parameters at mid-depth of the water column. SJRWMD measured parameters in profile at three depths.
3. SJRWMD collected dissolved fractions in addition to total samples for some analytes. DEP collected total samples only (except for orthophosphate). SJRWMD collected additional samples for analytes not included in the DEP list.

SUMMARY OF DEFICIENCIES FOR THE DECEMBER 14, 2009, SAMPLING EVENT AND RECORDS

No major deficiencies were noted for either audited sampling team. The Excel audit workbook contains detailed findings, where all observed deficiencies are highlighted and additional comments are included.

The following minor deficiencies are noted here regarding the DEP NED sampling team:

1. Field sheets contained a list of matrixes, but samplers did not circle the matrix sampled (fresh water). Matrix should be circled for each sample.

2. DEP NED samplers did not record sample depth for chlorophyll *a* where collected (chlorophyll *a* was collected at mid-Secchi depth, but this was not indicated on the field record). Depth of chlorophyll *a* sample should be noted.
3. Every attempt was made to keep the bow upstream and collect samples upstream from the bow where flow direction could be determined. The borrowed airboat used by the DEP team did not have an anchor. An anchor should be used when possible to allow for sampling from the bow.
4. DEP NED field sheets had only one set of initials for all sampling, field testing and preservation activities. It is unclear from the documentation if one sampler conducted all activities or if the two samplers each conducted some of the activities.

The following minor deficiencies are noted here regarding the SJRWMD:

1. Sample depth correction was somewhat obliterated on one field sheet. Corrections should be made with a single strikethrough.
2. Custody sheet indicates that the sample was preserved and lists preservative type, but not the amount of preservative added. The amount of preservative added should be noted.
3. Insufficient ice was observed in the ice chest. Samples were placed on top of, but not in the ice. Sample bottles should be placed in wet ice to ensure rapid cooling.
4. Rinse water from intermediate devices was not discarded away from and downstream of the sampling location. The team was observed to rinse and discard at the surface of the sampling point.
5. At station OR316, the sample was collected at the middle of the boat. The sample should be collected from the bow (upstream of boat) whenever possible.
6. The acceptance criteria for field meter calibration verifications were not indicated on the calibration sheets.
7. The verification temperature was erroneously entered for the dissolved oxygen record for one calibration verification, and the auditors were unable to verify that the verification passed.

ADDITIONAL COMMENTS AND RECOMMENDATIONS

Based on the results of this audit, we offer the following recommendations and cautions to both teams:

1. Water column depth was measured by each team by sounding the bottom with the field meter sonde. Caution is advised regarding the disturbance of sediments when using this technique, especially at stations with shallow depths and/or low flow conditions. No obvious disturbance of sediment was observed during the audit.
2. Both the NED and SJRWMD teams used double-sided sheets, with sampling information on one side and field testing meter calibration information on the other side. The link between information on one side and information on the other side is presumed; however, caution is advised that photocopies of individual pages may result in loss of links (e.g., information for meter ID, acid kit used, date, sampler names, associated sampling locations, etc).

As a sampling project note, the DEP team remarked that the GPS coordinates given in the study plan for station RR6 appear to be unclear or otherwise incorrect.

FOLLOW-UP FOR AUDIT FINDINGS

As of July 2010, nearly all corrective actions have been implemented for all audit findings listed in this report. In 2011, one final corrective action was implemented. With the incorporation of the indicated corrective actions, field testing and field documentation procedures used by staff for the Ocklawaha River/Rodman Reservoir Nutrient and Chlorophyll *a* Study are now in conformance with DEP SOP requirements.

If you have any questions about the SAS findings or recommendations, please call me at 245-8190 or email me at Nijole.Wellendorf@dep.state.fl.us.

Attachment: Audit results (Excel workbook, 11-21-11)

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