FIELD AUDIT REPORT

Final Report

Aquatic Ecology and Quality Assurance Section
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Sampling Agency:	FDEP, DEAR, Northeast District Field Office
Field Personnel:	Jeremy Parrish, Jacob Mast, Jan Gruentzel and Pat O'Connor
Auditor(s):	Joy Jackson and Diana Thurman
Audit Date:	November 20 - 21, 2013
Site:	St. Marys Estuary
Audit Type:	Performance Audit
Copies of Audit Report to:	Jeremy Parrish, Jacob Mast, Jan Gruentzel, Pat O'Connor, Brad Hartshorn, Bipin Adhyaru, Michael Blizzard

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Auditors Joy Jackson and Diana Thurman of the Florida Department of Environmental Protection (FDEP), Division of Environmental Assessment and Restoration (DEAR), Aquatic Ecology and Quality Assurance Section (AEQA) audited two teams of the FDEP DEAR Northeast District (NED) field office staff over two days, November 20 and 21, 2013. Auditors met both teams in the field, Team 1 (Jeremy Parrish and Jacob Mast) on the 20th and Team 2 (Jan Gruentzel and Pat O'Connor) on the 21st. Five fixed sample sites throughout the St. Marys estuary system were planned for each day, and all sites were accessed by boat. The samplers collected water quality samples (chlorophyll *a*, nutrients, total suspended solids, turbidity and color) and field parameters directly from the boat. All samples were direct grab samples which were then preserved (acidified and put in wet ice) in the field. All relevant field data were logged on FDEP NED field sheets (NED FD0511) at each site. The auditors met Team 1 in the FDEP NED lab after the first day sampling to observe field meter continuing calibration verification (CCV) procedures and review 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 and shipped to the FDEP Central Lab in Tallahassee. Field sheets and lab submittal forms for samples taken on the second day were emailed to the auditors and reviewed in preparation for this report. It should be noted that only four samples were taken each day as rough weather conditions caused the sampling trips to be cut short.

Summary of Findings

Sampling Technique: Both teams consisted of experienced samplers and good techniques were demonstrated at all sites, despite rough weather and water conditions. Team 1 had a potential contamination issue while acidifying the first sample (see below for details); however, these were minor sampling errors and did not occur with any other sampling event. Samples were taken and preserved properly. Communication between samplers was excellent for both teams.

Sampling Equipment: These were direct grab samples so there was no other equipment used. New gloves were used at each site and proper technique was used in obtaining samples.

Preservation: The FDEP NED staff immediately added 2mL of a 50 percent dilution of sulfuric acid to samples, and checked the pH to ensure it was < 2.0 SU. The samples were then put into wet ice within 15 minutes of collection.

Field Meter Records: The NED staff have two meters, an YSI and a Hydrolab, so they use the meter brand as its ID. The meter IDs are only recorded on the calibration log and not on the field sheets, so there is no linkage between the calibration verifications and field measurements. The meter ID must be recorded on the field sheets. It must also be documented on the field sheet who took the meter readings. Currently, the NED field sheet only indicates who took the samples and who preserved them.

Additional Documentation: Team 1 had good field documentation, in general, and accurately transmitted data from the field sheets to the lab submittal form. The auditors noted some minor findings with field documentation and transmittal for Team 2, as indicated in the table below. The teams were not consistent about what data they included on the submittal form. Both teams measured and recorded salinity, conductivity, and dissolved oxygen (percent saturation and mg/L) on the field sheets, but the same data was not transferred by both teams. It is not required that this information is transferred to the submittal form, but it is useful to the labs and should be provided consistently. Both teams could have provided more details and consistency on field conditions for each site.

		Audit Finding	SOP Reference
1	Expectation	The matrix collected was recorded for all samples.	FD 5000 section 2.8
	Observation	Site 7 did not have the matrix recorded on field sheet.	
2	Expectation	Accurate Sample Transmittal of field records to the lab submittal form.	FD 5000 sections 3
	Observation	Site 5 sample time was not transferred to lab submittal sheet and Site 6 temperature reading on lab submittal form is not consistent with the field sheet.	
3	Expectation	Nothing was inserted into or came into contact with the sample containers or sample (pump tubing, measurement probes, fingers, pH paper, etc.).	FS 1002, sections 1.1.1 and 3
	Observation	Site 1 - pipette used during acidification touched inside of sample bottle and the rim of the open sample bottle was touched with gloved hand.	
4	Expectation	The date of receipt, expiration date and date of first use for all calibration standards and reagents used on the sampling project were documented.	FD 4100 section 1.1
	Observation	The receipt & expiration dates are marked on all containers, but the date of first use is not marked on the box nor recorded anywhere else.	
5	Expectation	All field measurement tests and related data were recorded and linked to the project, the date and the sample source.	FD 4100 section 3
	Observation	FDEP NED field sheets do not have a spot to enter the meter ID associated with the sample(s) nor which sampler collected the metered data. This information was not noted anywhere on the field sheets. The sheets do indicate who took the samples and preserved them.	
6	Expectation	General Requirements for Sample Documentation: Specific description of sample location.	FD 5000 section 2.5
	Observation	The field sheet indicates the mid-depth metered results for Site 6 as the 'top' readings; the actual 'top' sample results have the same indication. If one doesn't check the actual depth reading, you may use the wrong data.	
7	Expectation	Record for all sampling: ambient field conditions to include but not limited to weather, tides, etc.	FD 5000, section 2.3
	Observation	Ambient conditions were not fully nor consistently recorded. A number of stations had no ambient information at all.	

Additional information about findings is contained in the checklist for this performance audit.

Recommended Corrective Actions

The auditors recommend that DEP NED staff implement the following corrective actions to address the above findings:

Documentation - The majority of the findings for this audit pertained to either mistakes made in documentation, insufficient documentation or inconsistency.

- NED staff should update their field sheet template to include information on the meter used for sampling and more clearly indicate who collected the metered data.
- Samplers should be more thorough in filling out the field sheets, provide all pertinent information for that sampling event, provide consistent data among sampling teams, and double check all areas of both the field sheet and lab submittal forms for completeness and accuracy.

	Performance Assessment Remarks	FDEP NED Response and/or Corrective Action	Approved by AEQA
1	Site 7 did not have the matrix recorded on field sheet.	Matrix will be marked at each site and is based on conductance level measured.	1/6/2014
2	Site 5 sample time was not transferred to lab submittal sheet and Site 6 temperature reading on lab submittal form is not consistent with the field sheet.	Transfer of data from field sheet to the lab submittal form will be reviewed twice and by both personnel.	1/6/2014
3	Site 1 - pipette used during acidification touched inside of sample bottle and the rim of the open sample bottle was touched with gloved hand.	Pipettes will not be introduced into the bottle or touch neck of bottle.	1/6/2014
4	The receipt & expiration dates are marked on all containers, but the date of first use is not marked on the box nor recorded anywhere else.	The standards used in lab will have receipt, open, and expiration dates recorded in lab book and on container.	1/6/2014
5	FDEP NED field sheets do not have a spot to enter the meter ID associated with the sample(s) nor which sampler collected the metered data. This information was not noted anywhere on the field sheets. The sheets do indicate who took the samples and preserved them.	Field sheet was ammended for field meter number on the front of the fieldsheet. In addition, we added initials for designating who was preserving and sampling, and added decontamination of the equipment with ambient water at each site.	1/6/2014
6	The field sheet indicates the mid-depth metered results for Site 6 as the 'top' readings; the actual 'top' sample results have the same indication. If one doesn't check the actual depth reading, you may use the wrong data.	Sample will be taken and recorded at either mid depth or surface, and designated as such on the field sheet.	1/6/2014
7	Ambient conditions were not fully nor consistently recorded. A number of stations had no ambient information at all.	All ambient weather data will be recorded on the field sheet.	1/6/2014