FIELD AUDIT REPORT

Final Report

Standards and Assessment Section
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Sampling Agency:	UF Center for Wetlands NWCA Team FL 2
Field Personnel:	Valerie Burkett and Jenet Dooley
Auditor:	Nia Wellendorf
Audit Date:	June 23, 2011
Site:	NWCA11-1314, wetland within Swamp Creek Preserve
Audit Type:	Field Performance Audit

Description of Sampling Event

This field audit was of water quality sampling and field parameter data collection being conducted for the Florida Department of Environmental Protection (FDEP) by the University of Florida (UF) Center for Wetlands as part of the EPA National Wetland Condition Assessment (NWCA) program. On June 23, 2011, auditor Nia Wellendorf accompanied the UF field crew FL2 in the field to site NWCA11-1314 on a privately owned reclaimed mine site in Gadsden County, Florida. Nia audited the water and algal collection portions of the NWCA protocols for EPA records, and audited the additional water sampling being conducted for FDEP. This report contains findings relevant to the additional water sample collection and field parameter measurements for FDEP (under DEP Contract WM967).

The UF field crew had four members, with Carrie Boyd as the crew leader. Valerie Burkett and Jenet Dooley comprised the water sampling team. Valerie and Jenet collected an equipment blank in the morning several miles from the sampling site while waiting for the landowner to meet the sampling crew. Although the blank was not collected at the sampling site, it was conducted outdoors with the same setup as the field site. Once at the site, the crew identified an appropriate sampling location for water quality and collected the samples. The site was an herbaceous/shrubby wetland with sheetflow apparently originating from groundwater. Water samples were collected from a channel with water sufficiently deep for sampling.

Valerie used a dipper to collect samples from a slowly flowing channel within the sheet flow. She rinsed the dipper three times before sampling and was careful not to disturb the sediment. The water was only 15 cm deep, so surface skimming could not be avoided; however, she cleared the surface of any particles before collecting the sample. Samples were collected and preserved properly within 15 minutes. Jenny used the YSI meter to collect field parameters, and was careful not to disturb the sediment. YSI data were recorded on the appropriate EPA form as well as the DEP sample submittal form.

There was some confusion about how to complete the DEP sample submittal form and the water sample collection QA form, and the auditor reminded the samplers how to complete the forms. The auditor delivered the samples to the DEP lab the following morning.

Field meter verification records and completed field sheets were scanned and sent to the auditor via e-mail on the day after the sampling event.

Summary of Findings

Overall the sampling team collected the samples and data according to the DEP SOPs with no major issues. Below are findings that can be addressed through staff training and improved documentation.

Representativeness of sampling location The location from which water quality samples are taken can impact their results, so it is always important to ensure that the sampling location chosen is representative of the site as a whole. Water sampling in wetlands is especially challenging, and this concept is a very important one. The crew leader and the auditor initially identified an area of standing water, to which the water samplers and auditor walked. There was a small pool with full sunshine and copious algae, which was not characteristic of the site, but water flowing into the pool was more similar to other water on the site and less influenced by samplers' footsteps. The samplers were preparing to collect from the pool, which would not have provided a representative picture of the water quality of the site. The DEP Standards and Assessment section recently created a document and powerpoint presentation to help samplers ensure representative sample locations for streams. Although wetlands and streams are not the same, we will make the presentation available to samplers for review.

YSI probes calibration and verification No records were available to verify temperature probe verification. A temperature verification log sheet should be used. DEP recommends that temperature probe verifications be conducted monthly with a NIST-traceable thermometer until a demonstration is made that the probe is stable and verifications can be done less frequently (see SOP FT 1400, Section 2.2.3). For pH calibration, calibration was conducted with the pH 4 buffer followed by the pH 7 buffer. The pH 7 buffer should always be the first buffer used in calibration.

YSI Documentation Each YSI instrument should have a unique identifier, and that identifier should be on the calibration logsheets as well as the field sheets associated with sampling, in order to link verification records with sampling data. All YSI maintenance should be recorded on a maintenance log sheet. Samplers should be sure to complete all portions of the YSI log, including the project, date ranges, meter ID, expiration dates and lot and bottle numbers for standards, and indication of passing or failing calibration or verification. If the standards do not have bottle numbers, that should be indicated as N/A (not applicable). It may be helpful to have a single 3-ring binder in the lab to keep all YSI documentation together.

Some DEP submittal and QA forms have been completed correctly, but some have been completed with errors that could cause confusion for DEP staff. The auditor reminded the samplers of the proper way to fill out DEP forms.

	Audit Finding	SOP Reference
1	No records available to verify temperature verification for YSI sonde.	FT 1400 section 2.2.2
2	No unique identifier for YSI instrument	FD 3000 section 2.0
3	YSI calibration logs incomplete for several entries.	FD 4100 section 2
4	pH 7 buffer was not used as the first buffer in pH probe calibration	FT 1100, section 2.3.2.1
5	J qualifier not used on field forms for failed calibration verifications; however, failure is noted if verification completed before field form is shipped	FT 1000, section 2.2.5.4
6	Ink not used for all documentation (except for allowed use with waterproof paper)	FD 1100 section 2.5
7	Errors sometimes obliterated rather than corrected with a single strike through.	FD 1100 section 2.6
8	Field crew wrote the time of collection on the sample submittal form, but not on the bottle. Sampling time should be written on the bottle.	FD 5000, section 1.2.1

9	Samplers were planning to collect water samples from a pool that was not representative of the site overall. Auditor discussed with samplers the importance of obtaining a representative sample from an appropriate location. After discussing, a more representative location was chosen for sampling.	FS 2100, section 2.5
10	No maintenance log available for field meter.	FD 3000 sections 1, 1.1 – 1.2.1

Implementation of Corrective Actions

As of 8/1/2011, corrective actions have been implemented for all audit findings listed in this report. Corrective actions included establishment of temperature verification routine for the field meters, and training field crew members about proper documentation, calibration, verification, and the importance of representative sampling locations. With the incorporation of the indicated corrective actions, field testing and field documentation procedures used by UF staff for this NWCA project are now in conformance with DEP SOP requirements.

Additional information about findings, responses, and corrective actions is contained in the checklists for this performance audit, and are available upon request.