

2018 Equipment Check & Percent Recovery

Centre County Pennsylvania Senior Environmental Corps

The mission of the Centre County Pennsylvania Senior Environmental Corps (CCPaSEC) is to develop and to support teams of senior citizens who gather and publish data on the quality of water in the streams of Centre County.

Through public outreach, with the assistance of the ClearWater Conservancy, the Centre County Conservation District, Nature Abounds, and other environmentally concerned organizations, CCPaSEC seeks to keep the public informed of the importance of clean water and how the management of our civil and natural resources affects the quality of streams in the county.

CCPaSEC Quality Control Team

The CCPaSEC Quality team conducted our yearly Equipment Check on February, 22 2018.

QC Team: Rob Fugate, Dan DeLotto, Ralph Locklin, Lou Mayer, Mick McKay, Ken Johnson. The Quality team met at Dan DeLotto's home at 9:30 am.

All seven (7) the CCPaSEC field kits were collected for the exercise.

Procedure:

The CCPaSEC Equipment Check procedure is available on our website at: <http://www.ccpasec.org/index.php/quality-control>

All seven field kits were examined by our Quality volunteers.

- Physical condition of the equipment.
- Replaced batteries. *
- Repair and maintenance as required.
- Determination of the Percent Recovery Equipment (PR)
- Colorimeter Hach DR/850 Nitrate, Sulfate & Phosphate
- Dissolved Oxygen YSI Model 550A
- Flow Meter Flowatch

Observations:

One colorimeter battery had failed, leaked and caused corrosion on one of the contacts. The contact was cleaned and new batteries were installed. However, the colorimeter liquid crystal display rapidly dimmed to unreadable. Further attempts failed to recover it. As a result, the meter was replaced with a new one we had in reserve for a new kit.

This year we did not evaluate the pH and conductivity field kit meters. We did check two others and found them to hold the calibration for 24 hrs. We do include pH and conductivity results in our duplicate testing

with our field teams. Those results become part of our Relative Percent Difference (RPD) report at the end of the current year.

Two Flowmeters were not set to the average velocity units of cm/sec. It is not known what units of measure the field teams may have been using to record data. It was determined that the two meters were set to the calibration mode. Calibration requires holding the meter probe in close proximity to a 60Hz magnetic field.

Some of the Field manuals and Flowmeter instructions were missing or not current. Team leaders are reminded it is their responsibility to keep updated the manuals, instructions, and training data sheets in the field kits.

All YSI dissolved oxygen meters had the batteries replaced, probe tips and sides cleaned off with a mild emery paper, and probe electrolyte replaced. Once that was completed, meters were checked using home tap water. All seven temperature readings were within 0.1-degree C of each other; and all DO readings, (with the water agitated), were only a few tenths of a DO unit from each other.

Percent Recovery is an indicator of our equipment capability.

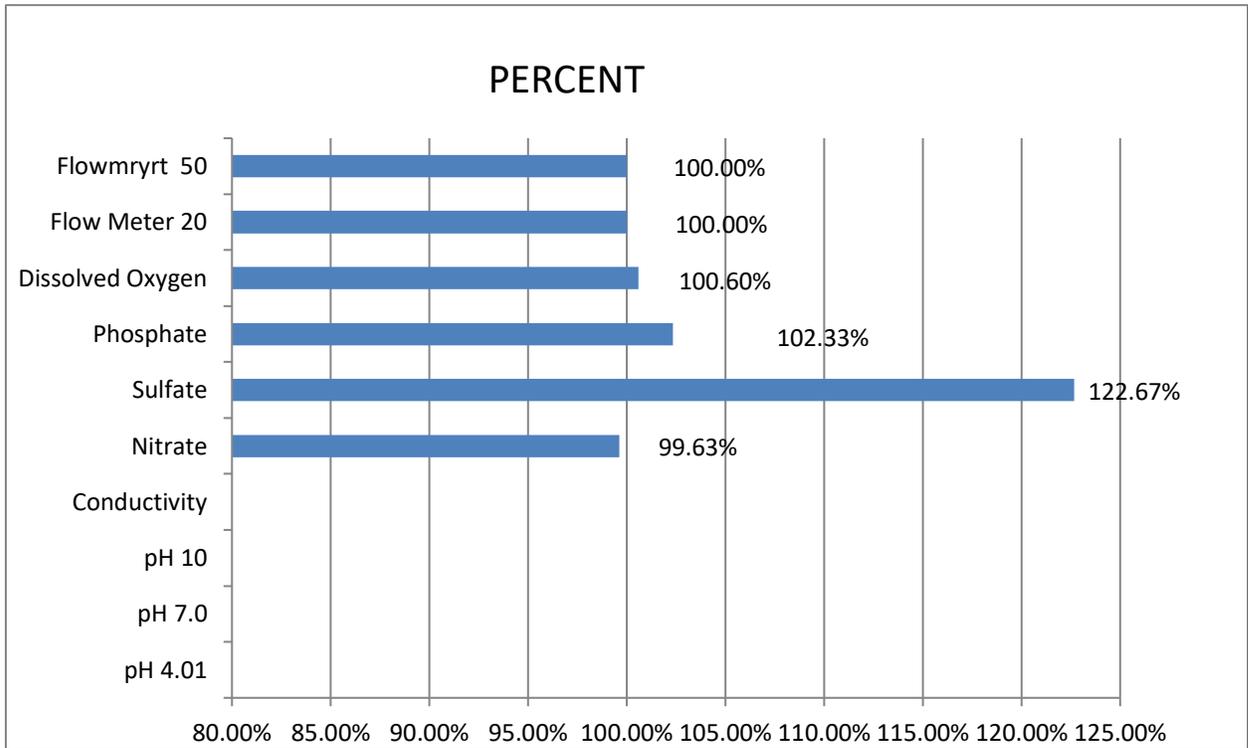
The Nature Abounds™ established a percentage goal for all equipment to be within the range of 100 +/- 10 %. Percent Recovery is reported as the mean for each equipment type for all of our field kits.

The tests compare the kit equipment to a common standard.

$$\text{Percent Recovery} \quad PR = \frac{\text{Mean}}{\text{Standard}} * 100$$

Where the *Mean* is the mean (average) value of the measurements made with our equipment and the *Standard* is the value specified on the standard label.

Results: The goal for Percent Recovery is 100% +/- 10 %



* Note: CCPaSEC addressed the battery issue of concerns of battery life and the potential of battery leakage. Many of our instruments have not had a battery replacement.

Last year we lost a HACH (135 minilab) which had to be replaced because batteries had failed and leaked. All brands of Alkaline batteries are prone to leakage due to age.

It is now CCPaSEC policy to replace batteries every year at the equipment check.

KJ 2/2018