



# CHEMICAL ACTION TEAM: ON-SITE PROCEDURES

Temperature, Turbidity, Dissolved Oxygen fixation, pH, Sample collection, Habitat observations

Stony Brook-Millstone Watershed Association

31 Titus Mill Road, Pennington, NJ 08534

P: 609-737-3735 | F: 609-737-3075 | www.thewatershed.org

NJDEP Environmental Emergency Action Line: 877-927-6337

## BEFORE LEAVING THE HOUSE

**Sample Date:** Check the StreamWatch Schedule to ensure you are going out on the proper sample date!

**DI and Distilled Water:** Fill the Demineralizer Bottle with tap water and shake for 30 seconds to produce deionized (DI) water. (Do NOT fill the demineralizer bottle with stream water.) Also, fill a bottle with distilled water to bring with you (or just bring the gallon jug.) You will need both of these in the field.

## IN THE FIELD

**Data Sheet:** Complete top portion of data sheet, including site name, date, time, full name of monitor(s), and weather.

**Temperature:** Measure air temperature first, then water. Air – keep in shade if possible. Water – prevent from touching stream bottom. Let thermometer sit for 3-5 minutes before reading. Record temperature to the closest 0.5°C.

## **Turbidity**

1. Triple rinse one turbidity column with sample water, then fill to the 50 ml line. If the black dot on the bottom is not visible when looking down through the column, pour water out until the tube is filled to the 25 ml line. This is the “sample tube”. Circle the amount of water added to this tube on the data sheet.
2. Triple rinse the second turbidity column with distilled or clear tap water, then fill to the same level as the first column. (Distilled water is preferred.) This is the “clear tube”.
3. Place the two tubes side-by-side and note the difference in clarity. (Please note: you are not comparing water color, but just the clarity of the black dot at the bottom.) If the black dot is equally clear in both tubes, the turbidity is zero. If the black dot in the sample tube is less clear, proceed to Step 4.
4. Shake the *Standard Turbidity Reagent* vigorously. Using the dropper in the cap, add 0.5ml of the reagent to the clear tube. Use the stirring rod to stir the contents of both tubes to equally distribute turbid particles, then compare the clarity of the black dot in both tubes. If the turbidity of the sample tube is greater than that of the clear tube, continue to add the *Standard Turbidity Reagent* to the clear tube in 0.5ml increments, stirring after each addition, until the clarity of the black dot at the bottom of both tubes is equal. Record the total amount of *Standard Turbidity Reagent* added to the clear tube on the data sheet.
5. If the sample tube was filled to the 50ml line, each 0.5ml addition is equal to 5 Jackson Turbidity Units (JTUs). Multiply the quantity of reagent added by 10 to obtain your result in JTUs.

If a 25ml sample tube was used, each 0.5ml addition of reagent is equal to 10 JTUs. Multiply the quantity of reagent added in ml by 20 to obtain your result in JTUs.

Number of Measured Additions	Amount in mL	50mL Graduation	25mL Graduation
1	0.5	5	10
2	1.0	10	20
3	1.5	15	30
4	2.0	20	40
5	2.5	25	50
6	3.0	30	60
7	3.5	35	70
8	4.0	40	80
9	4.5	45	90
10	5.0	50	100

6. When finished, pour clear tube with reagent into poisons container. Rinse both tubes with demineralized water before storing in your kit.

*Continued on other side...*

# CHEMICAL ACTION TEAM: ON-SITE PROCEDURES . . . continued from other side

## Dissolved Oxygen (DO)

1. Triple rinse 3 sample bottles and their caps in stream water. Cap bottles, submerge in water on its side, uncap underwater, turn the bottle up to let the water fill it completely, tap to remove any air bubbles, and cap underwater. Flip the bottle upside down to ensure there are no bubbles, or headspace, in the bottle.
2. Add 8 drops of *Manganous Sulfate*, 8 drops of *Alkaline Potassium Iodide*, then cap and invert gently several times. Allow the precipitate to settle below the shoulder of the bottle before proceeding.
3. Add 8 drops of *Sulfuric Acid* to bottle, then cap and shake gently until the precipitate dissolves. The sample is now "fixed" for up to 8 hours maximum. Repeat steps 1-3 for each of 3 DO bottles.

**Stream Sample:** Triple rinse sample bottle in stream, then fill sample bottle facing upstream. Avoid stirring up stream bottom.

**pH** (Must measure within 15 minutes of collecting sample water)

1. Triple rinse 5ml test tube and cap with sample water, then fill to 5 ml line.
2. Add 8 drops of *Wide Range Indicator*. Cap tube and invert 5-10 times.
3. Uncap tube and place in pH color comparator. Match the sample color to a color standard, then record pH result on data sheet. (Light should enter through the back of the comparator. Avoid direct sunlight or irregularly lit background. Holding a white sheet of paper behind the comparator will help with an accurate reading.)
4. Pour treated sample into poisons container, then rinse test tube with demineralized water. Store in kit uncapped.

**Habitat Observations:** Record water odor, water color (as seen in bottle), and wildlife, floatable, and other observations.

### *Algal Bloom Index (ABI)*

ABI VALUE	DESCRIPTION
0	<i>Clear:</i> No algal blooms visible.
1	<i>Visible:</i> Nuisance algae reach a level at which filaments and/or colonies are visible, including widely scattered surface mats or streaks of algae.
2	<i>Extensive Blooms:</i> Large portions of the stream or lake are covered by surface mats of nuisance algae. Odor problems possible in localized areas.

### *Aquatic Vegetation Index (AVI)*

AVI VALUE	DESCRIPTION
0	<i>None:</i> No vegetation present.
1	<i>Patchy:</i> Small colonies or clumps; sparse bottom coverage.
2	<i>Dense:</i> Extensive grass beds; lush meadows.