

Standard Operating Procedure 3.1.5.3

By Coyote Creek Riparian Station

Turbidity Measurement using the Dual Cylinder Method

This test is made by comparing the transparency (and/or turbidity) of a measured amount of the sample with an identical amount of turbidity-free water containing a measured amount of standardized turbidity reagent.

Equipment:

Turbidity kit (Lamotte or any other brand)
Distilled water or deionized water
Paper towels

1. Fill one of the turbidity columns (cylinders) to the 50 ml line with the sample water. If the black dot on the bottom of the tube is not visible when looking down through the column of liquid, pour out a sufficient amount of the test sample so that the tube is filled to the 25 ml line. If the dot is still invisible, add distilled water or deionized water to the 50 ml line, mix well by using the palm of your hand as a stopper and inverting several times, discard the top 25 ml, and record that the sample has been diluted by a factor of 2.
2. Fill the second turbidity column with an amount of turbidity-free water that is equal to the amount of sample being measured. Distilled water is preferred; however, clear tap water may be used. This is the “clear water” tube.
3. Place the two tubes side by side and note the difference in clarity. If the black dot is equally clear in both tubes, the turbidity is “0”. If the black dot in the sample tube is less clear, proceed to Step 4.
4. Shake Standard Turbidity Reagent (7520) vigorously. Add 0.5 ml to the “clear water” tube. Use the stirring rod to stir contents of both tubes to equally distribute turbid particles. Wipe off the stirring rod before using when going between tubes. Check for amount of turbidity by looking down through the solution at the black dot. If the turbidity of the sample is greater than that of the “clear water”, continue to add Standard Turbidity Reagent in 0.5 ml increments to the “clear water” tube, mixing after each addition, until the turbidity equals that of the sample.
5. Each 0.5 ml addition to the 50 ml size sample is equal to 5 Jackson Turbidity Units (JTU’s). If a 25 ml sample size is used, each 0.5 ml addition of the Standard Turbidity Reagent is equal to 10 Jackson Turbidity Units (See table below for multiplications). If you have diluted

the sample with distilled water, multiply the JTU result by the dilution factor.

6. Record turbidity in JTUs on your data sheet.
7. Discard water into the waste bucket. Rinse both tubes carefully after each determination. When you return from the field, discard liquid waste from the waste bucket into a sink connected to a sewer system (not a septic tank).

TURBIDITY TEST RESULTS

Number Measured	Of Additions	Amount in ml	50 ml Graduation	25 ml Graduation
1		0.5	5 JTU	10 JTU
2		1.0	10 JTU	20 JTU
3		1.5	15 JTU	30 JTU
4		2.0	20 JTU	40 JTU
5		2.5	25 JTU	50 JTU
6		3.0	30 JTU	60 JTU
7		3.5	35 JTU	70 JTU
8		4.0	40 JTU	80 JTU
9		4.5	45 JTU	90 JTU
10		5.0	50 JTU	100 JTU
15		7.5	75 JTU	150 JTU
20		10.0	100 JTU	200 JTU

Monitoring Tips

Most of the time the water in our creeks has low turbidity, unless there are erosion problems in the watershed, children playing in the mud upstream of our station, or it has just rained. If the oxygen bottle can hardly be seen inside the sampling apparatus, the sample should be diluted (in tap water or deionized water) and calculate the results accordingly. During low flows the creek water may be totally transparent, and we may take a “shortcut” and record <5 JTU without adding the reagent at all.