# San Gregorio Environmental Resource Center
## LaMotte Dissolved Oxygen Measurement Instructions

**Step 1: Fixing the Sample** (Must be done immediately after collecting sample)

1. Examine the Dissolved Oxygen collection bottle when removing it from the Water Sampling bottle to make sure that no air bubbles are trapped inside. (An air bubble can produce false, high readings. If there are air bubbles start over and take another sample from the creek.)

2. To fix the sample in the field as soon as it is collected do the following:
Add **8 drops of Manganous Sulfate Solution** and **8 drops of Alkaline Potassium Iodide Azide** (white capped bottles in the kit). Some of the sample may overflow as chemicals are added, but sufficient amounts of the oxygen-reacting chemicals will fall to the bottom of the bottle. The overflow assures that when the sample bottle is closed, no air bubbles will be trapped inside.

3. Cap and invert the bottle several times. A precipitate will form. Allow the precipitate to settle to the shoulder of the bottle before proceeding. Patience with this step is critical as impatience may result in an incomplete reaction and produce false readings.

4. Once the precipitate has settled below the shoulder of the bottle, add **8 drops of Sulfuric Acid, 1:1**. Cap the bottle and gently shake until the reagent and precipitate have dissolved. This may take a few minutes. A clear-yellow to brown-orange color will develop, depending on the oxygen content of the sample.

**Step 2: Test Procedure with Fixed Water Sample**

1. Fill the titrator bottle (with the cap with a hole in it) to the 20 ml line with the fixed water sample.

2. Fill the direct reading titrator (syringe) with **Sodium Thiosulfate 0.025N**. First, insert the titrator into the plastic fitting of the Sodium Thiosulfate bottle. Turn the bottle upside down and slowly withdraw the plunger until the bottom of the plunger is opposite the zero mark on the scale. If small bubbles are filling the syringe, pump the syringe until the bubbles disappear. Turn the Sodium Thiosulfate bottle right-side-up and remove the titrator.

3. Insert the titrator into the center hole of the water sample titration bottle. Slowly release one drop of the Sodium Thiosulfate into the water sample and gently swirl. **Continue until the water sample has turned a faint yellow**.

4. Add **8 drops of the Starch Indicator Solution. The sample will turn blue**.

5. Recap the titrator bottle and replace the syringe in the hole Continue to add one drop of the Sodium Thiosulfate at a time while gently swirling the bottle. **Continue until the blue color instantly turns colorless**. Make sure the solution remains colorless for at least 1 - 2 minutes.

If the plunger tip reaches the bottom line of the titrator before the solution turns clear, refill the syringe and continue titration.

6. Read the test results off the titrator (syringe) and **record on data sheet**. The titrator holds a total of 10 parts per million (ppm) of the reagent. Each minor division on the scale is equal to 0.2 ppm. If the titrator was refilled, add the first 10 ppm to the last reading to reflect the total amount of reagent dispensed.

7. Discard the water sample solution in the waste water bottle. Rinse the fixed sample bottle and the titrator bottle with distilled water and discard in waste water bottle.

*revised 9-20-04*