

Houston-Galveston Area Council's Texas Stream Team Group is supported by the H-GAC's Clean Rivers Program
H-GAC Office: 3555 Timmons Lane, Suite 120, Houston, TX 77027 Website: www.h-gac.com/texas-stream-team
Email stream.team@h-gac.com completed Monitoring Forms or mark "H-GAC" as your Group in the electronic monitoring form.

At Site

Record **Field Observations and Comments** before disturbing the water.

Hang the thermometer out of direct sunlight and wait 2-3 minutes before recording **Air Temperature** (°C) to nearest 0.5 degree.

Remove sunglasses and check **Water Transparency** while shaded from the sun:

Secchi Disk Transparency: Lower Secchi Disk in water until it disappears, mark depth, raise Disk until barely visible and mark depth. Average both depth readings and record to nearest 0.01 meter (1 centimeter).

Transparency Tube: Rinse tube two times with sample water and discard downstream. If filling from a sample bucket rinse bucket two times as well.

1. Fill tube with sample water directly from the centroid of the flow or from the sample bucket. With bucket, fill tube immediately to prevent suspended materials from settling out.
2. Hold Tube vertically, look down tube and see if disk is visible. If not visible, release water until disk is just visible and record water level in meters. If visible, record the measurement as > the maximum tube length (>1.2 meters).

Measure **Total Depth** by lowering Secchi Disk into water until cord becomes slack then raise until straight. Mark and record to the nearest 0.1 meter.

Conduct **Bucket Grab**, rinse bucket 2X with sample water and discard water downstream. If rinsed for use with transparency tube, just grab bucket sample. *Collect sample from 0.3m below surface (or as close as you can get if shallower) and keep out of direct sunlight and wind.*

Measure **Water Temperature** in the bucket sample with the thermometer for 1½ minutes. Read thermometer while in the water and record to the nearest 0.5°C.

Dissolved Oxygen (DO)

1. Rinse both sample bottles and caps 2X in bucket sample water, dispose of rinse water downstream.
2. Fill each bottle and cap below surface then *check for air bubbles.*
3. Put on safety goggles and gloves and uncap both bottles.

Fixing the DO Sample

1. Add 8 drops of Manganous Sulfate Solution to each bottle.

2. Add 8 drops of Alkaline Potassium Iodide Azide to each bottle.
3. Cap both bottles and slowly invert 25 times. Let precipitate settle below bottle shoulder, *then invert 10 more times* and allow to settle below shoulder again.
4. Add 8 drops of Sulfuric Acid. Cap both bottles and invert for minimum of 3 minutes and until the reagent and precipitate dissolve. *Sample is now "Fixed" and can be finished at home within 4 hours* if weather or other conditions warrant.

Titration of the DO Sample

1. Rinse 1 vial 2X with a small volume of fixed solution from sample #1. Fill vial with fixed solution from sample #1 to 20 mL line and cap. Repeat for sample #2 and second vial and set aside.
2. Attach pink titrator tip to syringe and fill with Sodium Thiosulfate *The base of the plunger ring should be a 0.0.* Expel air bubbles and place titrator tip into the hole in the vial cap.
3. Add 1 drop at a time to vial and swirl gently to mix after each drop until the yellow-brown (amber) solution turns a pale-yellow color. The exact shade of pale yellow doesn't matter as much as being consistent between the two vials.
4. Uncap the vial with titrator still inserted and *keep tip suspended over vial.* Add 8 drops of Starch Indicator Solution, cap vial, and swirl to mix.
5. Continue adding and swirling one drop at a time from the titrator syringe until the solution becomes clear. Check against white background for any remaining color. Read and record number of units at base of plunger to nearest 0.1 mg/L under 1st titration.
6. Repeat titration process with second vial and sample and record results under 2nd titration. The 2nd result must be within 0.5 mg/L of 1st. If not, repeat process for vial/sample 1. If error limit still not met, repeat for vial/sample 2. If repeating doesn't meet error limit, collect new bucket grab and start over from the beginning.
7. Calculate the average of 1st and 2nd titration results to nearest 0.1 mg/L and record.
8. Rinse DO bottles, titration vials, and caps 2X with DI water.

pH

1. Rinse 1 test tube and cap 2X with sample water.
2. Fill tube with sample water:
 - a. If using the round glass tube with blue cap fill to 5 mL indicator line.
 - b. If using the square plastic tube with Octa-slide color bars fill to 10 mL line
3. Invert pH Wide Range Indicator bottle a few times to mix, add 10 drops to test tube, cap tube, and invert 10 times.
4. Insert tube in Viewer, *remove cap*, and hold up to a white background. Estimate and record to nearest 0.1 s.u.
5. Rinse tube and cap 2X with DI water.

Conductivity

Pre-Test Calibration

Record the Conductivity Standard Solution value under Standard Value in the conductivity/Salinity calibration row at the top of the monitoring form.

1. Rinse beaker and meter 2X with Conductivity Standard Solution. Alternatively, you can use the vial with cap that comes with the Tracer meter.
2. Fill beaker with 20-50 mL of conductivity solution, insert meter and stir gently to remove bubbles from probe.
3. *Turn meter on WHILE SUBMERGED* and slowly stir for 2 minutes.
4. Make sure the meter is in conductivity mode. A small "µS" (microsiemens) symbol will appear. If meter is not in µS, press and hold the MODE button and toggle through until µS is displayed.
5. Record the Standard Temperature and Pre-Test Calibration Initial Reading.
6. Press and hold the CAL button until "CAL" appears in the lower display. Release button. When calibration is complete, the meter automatically displays "SA" then "End" and returns to normal operation mode. The meter is now calibrated and should display the calibration value. *Turn meter off while submerged*. Record the Standard Value under Calibrated To on the monitoring form.
7. Rinse beaker and meter 2X with DI water.

Measurement

1. Rinse beaker and meter 2X with sample water.
2. Fill beaker with 20-50 mL of sample water, insert meter, and remove bubbles. Turn meter on and stir gently for 2 minutes. Stop stirring, hold meter ½ inch off bottom and sides, record reading in µS.
3. *Turn meter off while submerged* and rinse 2X with DI water.

Post-Test Calibration Check

1. Rinse beaker and meter 2X with Conductivity Standard Solution
2. Fill beaker with 20-50 mL, insert meter, and remove bubbles. Turn meter on and stir gently for 2 minutes. Stop stirring, hold meter ½ inch off bottom and sides, record reading under Post-Test Calibration Initial Reading. The difference between the Calibrated To value and the Post-Test Calibration Initial Reading should fall within ±20% of the calibration standard solution error limit.
3. Turn meter off while submerged, rinse 2X with DI water and replace cap.

ENVIRONMENTAL PROBLEMS CALL LIST:

TPWD Spills & Kills 24 Hour Line 512-389-4848

TCEQ Region 12, 24 Hour Spill Reports 800-832-8224

Galveston Bay Action Network
Report online at www.gbanmap.com

Houston 311 Call 311 inside Houston city limits, or
Email 311@houstontx.gov or visit www.houston311.org

HCFCO Service Request Hotline 346-286-4197, or
www.hcfcdo.org/community/contact-us/service-request

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