



SRAP
Water Rangers

TEST STRIP MONITORING PROTOCOL 2023

- 01** Test strips are dated on the bottom of the bottle. Never use expired test strips.
- 02** Never wash and reuse sample bottles with soaps or detergents. Clean sample bottles with distilled water and clean ammonia sample vials with tap water.
- 03** Test strips are to be used as indicators for levels of pollution that may trigger a more extensive chain of custody analysis at a certified laboratory. Test strips can also show trends in waterway health over time.
- 04** Test strips alone should never trigger a violation complaint unless combined with visual, photo, or video evidence of a manure discharge; a water quality problem; or an operational violation (e.g., manure in the water, strong smell of manure in the water, a significant fish kill, runoff from a land-application field, manure spreading in the rain, etc.).

ITEMS FOR A MONITOR'S SAMPLING TOOLKIT

- Testing strips
- Digital/phone camera (with time-date stamp; zoom capability also useful) for taking photos of area conditions, what the water looks like, and what the test strip results show
- Details of facility you're investigating (name, address, phone number, township, section #, etc.)
- DOT road maps that include right-of-way information
- Drain maps (can be surface water or tiled)
- Clean 100mL bottles for water samples
- Water pole for sample collection
- Rubber, latex, or nitrile gloves
- Distilled water for rinsing hands and sampling pole
- Hand sanitizer
- Notebook to document what you see
- Cell phone and charger

Have your agencies' pollution emergency phone numbers to report any manure discharge!

WATER RANGERS MONITORING STEP-BY-STEP GUIDELINES

01 Prep materials to take a water sample

- ▣ Grab a sampling bottle from your kit (we use 100mL bottles).
- ▣ Mark bottle with date, time, and location (use tape if you want to reuse bottles).

02 Take water sample(s)

- ▣ Two options for sampling:
 - Sampling in the waterway: Walk to middle of waterway if possible, make sure to choose a sample site that isn't disturbed.
 - Sampling from the bank: Stand on the bank of the waterway and use a sampling pole to take sample close to the middle.
- ▣ Dip sample bottle into water 3-4 inches below the surface, fill, and pour water out to rinse bottle. Do this at least 3 times.
 - Do not touch inside of bottle.
 - Avoid collecting surface water.
- ▣ Dip sample bottle 3-4 inches below the surface and fill to collect the water sample.

03 Analyze the sample

- ▣ Analyze the sample at a safe place (we recommend you put your water sample on ice in a cooler and go to a safe place to do the analysis).
- ▣ Use test strips. **Follow the instructions for each test-strip test:**

PHOSPHATE

50 test strips

Hach,* product number 27571-50

Phosphorus, Orthophosphate (reactive) Test Strips

Range is 0-50 mg/L (ppm) Phosphate

Level of Concern: >0.05 mg/L

- 01** Dip a strip into water for **5 seconds** and remove.
- 02** Hold the strip level, with pad side up, for **45 seconds**. Do not shake excess water from the strip.
- 03** Compare the PHOSPHATE test pad to the color chart on the container.
- 04** Take a digital photo (with a date-time stamp) of the test strip while holding the strip over the color chart on the container for evidence.

NITRATE/NITRITE

25 test strips

Hach,* product number 27454-25

Range is 0-3 mg/L (ppm) Nitrite-Nitrogen (30-Second Test)

Range is 1-50 mg/L (ppm) Nitrate-Nitrogen (60-Second Test)

Levels of Concern: Nitrate >10 mg/L, Nitrite >1 mg/L

- 01** Dip a strip into water for **1 second** and remove. **Do not shake** excess water from the test strip.
- 02** Hold the strip level, with pad side up, for **30 seconds**. Compare the NITRATE test pad (top pad) and the NITRITE test pad (bottom pad) to the color chart on the container. Estimate results if the color on the test pad falls between two color blocks.
- 03** Take a digital photo (with a date-time stamp) of the test strip while holding the strip over the color chart on the container for evidence.

AMMONIA

25 test strips

Hach,* product number 27553-25

Range is 0–6 mg/L (ppm) Ammonia

Level of Concern: > 2 mg/L

- 01 Fill sample vial to the top line with water. The Ammonia test strip kit comes with a sample vial.
- 02 Dip a strip into water sample vial. Vigorously move the strip up and down in the water sample for **30 seconds**, making sure both pads are always submerged.
- 03 Remove the test strip and shake off excess water.
- 04 Hold the test strip level, with pad side up, for **30 seconds**.
- 05 To read result, turn test strip over so that both pads are facing away from you.
- 06 Compare the color of the **small pad** to the color chart above. Read the result through the clear plastic of the test strip.
- 07 Rinse sample vial with tap water after each use.
- 08 Take a digital photo (with a date-time stamp) of the test strip while holding the strip over the color chart for evidence.

RECORD YOUR MONITORING RESULTS!

Contact: waterrangers@sraproject.org

STATE POLLUTION/SPILL HOTLINES:

Illinois: 1-800-782-7860

Indiana: 1-317-233-7745

Michigan: 1-800-292-4706

Ohio: 1-800-282-9378

Wisconsin: 1-800-943-0003

Your State Pollution Hotline #: _____



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Help Hotline: (503) 362-8303