DEPARTMENT OF HEALTH

SOC Suite (Herbicide, BNA, Carbamate, and Glyphosate)

SAMPLE COLLECTION PROCEDURE

Reference Method EPA 515.4, EPA 525.2/505, EPA 531.1 or 531.2, EPA 547

Read instructions carefully.

Samples may be rejected if ALL instructions are not followed.

- **Safety concerns:**

  Caution! Sample bottles contain chemicals. Open containers slowly and carefully. Do not rinse out containers.

  - View Safety Data Sheets (https://www.health.state.mn.us/communities/environment/envlab/sdsinformation.html)

- **Sample bottle:**
  - 250 mL amber herbicide bottle with 12.5 mg of Sodium Sulfite (Na_2SO_3) for Herbicide analysis
  - 1 L amber bottle with 40 – 50 mg of Sodium Sulfite (Na_2SO_3) and 3 mL of Hydrochloric Acid (HCl) preservative for BNA 525.2 analysis
  - 40 mL clear glass vial with 4 mg Sodium Thiosulfate (Na_2SO_3) for BNA 505 analysis
  - 40 mL clear glass vial with 1.2 mL of Monochloroacetic Acid ($ClCH_2COOH$) and 3.2 mg of Sodium Thiosulfate (Na_2SO_3) for Carbamate 531.1 analysis

    OR

    40 mL amber glass vial with 8 mg of Sodium Thiosulfate (Na_2SO_3) and 374 mg of Potassium Dihydrogen Citrate ($C_6H_5K_3O_7$) for Carbamate 531.2 analysis
  - 40 mL amber vial with 4 mg of Sodium Thiosulfate (Na_2SO_3) for Glyphosate analysis

- **Shipping/sample hold time:**
  - Herbicide – Ship within 3 days. The sample must arrive at the laboratory within 14 days of collection.
  - BNA 505 –Ship within 3 days. The sample must arrive at the laboratory within 14 days of collection.

  - BNA 525.2 – Ship within 3 days. The sample must arrive at the laboratory within 14 days of collection.
  - Carbamate – Ship within 3 days. The sample must arrive at the laboratory within 28 days of collection.
  - Glyphosate – Ship within 3 days. The sample must arrive at the laboratory within 14 days of collection.
- **Sampling locations:**
  - First sample tap following treatment (treated water).
- **Prior to collection:**
  - Remove ice packs from sampling kit and freeze at least 48 hours prior to sampling.

Sample collection procedure:

1. Attach the pre-printed label to the bottle. If you do not have a pre-printed label, write the following information, using a ballpoint or permanent pen, on the generic bottle label: PWSID, PWS Name, and Location ID.
2. Remove any attachments from the sample tap.
3. Turn on the cold water tap and run for 4 to 5 minutes, or until the water temperature has stabilized, whichever is longer.
   a. If there is only one faucet handle, make sure it is in the cold water position.
4. Reduce the flow of the water so the stream is steady and the width of a pencil.
5. Herbicide Analysis
   a. Remove bottle cap and hold in hand. Do not touch the underside of the cap or the inside of the bottle.
   b. Fill bottle to the shoulder. **DO NOT** overfill the container.
   c. Screw the cap back on the bottle. Make sure the cap is on securely. Turn the bottle upside down to make sure the water does not leak.
   d. Gently mix the sample by turning the bottle back and forth for 15 seconds.
6. BNA Analysis
   a. 1 L Amber Bottle
      i. Remove bottle cap and hold in hand. Do not touch the underside of the cap or the inside of the bottle.
      ii. Fill to between the two fill lines.
      iii. Remove from flow and add vial of hydrochloric acid.
      iv. Screw the cap back on the bottle. Make sure the cap is on securely. Turn the bottle upside down to make sure the water does not leak.
      v. Gently mix the sample by turning the bottle back and forth for 15 seconds.

b. 40 mL Clear Vial

   i. Remove vial cap and hold in hand. Do not touch the underside of the cap or the inside of the vial.

   ii. Position the vial, at a slight angle, under the water flow, fill to the top.

   iii. Screw the cap back on the vial. Make sure the cap is on securely. Turn the vial upside down to make sure the water does not leak.

   iv. Vigorously mix the sample for 1 minute. Headspace is allowable.

7. Carbamate Analysis

   a. Remove vial cap and hold in hand. Do not touch the underside of the cap or the inside of the vial.

   b. Position the vial, at a slight angle, under the water flow, fill to the top.

   c. Screw the cap back on the vial. Make sure the cap is on securely. Turn the bottle upside down to make sure the water does not leak.

   d. Vigorously mix the sample for 1 minute. No head space should be present in the vial but a small amount of air is acceptable.

8. Glyphosate Analysis

   a. Remove vial cap and hold in hand. Do not touch the underside of the cap or the inside of the vial.

   b. Position the vial, at a slight angle, under the water flow, fill to the top. No head space should be present in the vial but a small amount of air is acceptable.

   c. Screw the cap back on the vial. Make sure the cap is on securely. Turn the vial upside down to make sure the water does not leak.

   d. Gently mix the sample by turning the vial back and forth for 15 seconds.

9. Replace any attachments that were removed from the faucet or sample tap.

10. Upon completion of sampling, immediately (within 15 minutes) place sample in cooler with frozen cooling material.

Complete the Chain-of-Custody form using a ballpoint or permanent pen:

1. Name of the sample collector.

2. Date and Time collected (include a.m. or p.m.).

3. Field Number (if applicable).

4. Put your signature on the “Relinquished By” line, including date and time. The date and time are when the sample is put in the return mailer and sealed. If samples pass hands prior to packaging, both parties must sign, date, and time. The first party would put down the date and time of the transfer, and the second party would put down the date and time the sample is packaged.

Shipping and handling:

1. All sample containers must have cooling material present without evidence of sample freezing.
2. Sample temperature requirements depend on when the lab receives the sample:
   a. Received 0 - 24 hours after collection: frozen or partially frozen (i.e. containing some solids) cooling material must be present. The temperature of the cooling material must be less than the temperature of the sample(s).
   b. Received more than 24 hours after collection: frozen or partially frozen cooling material must be present. The temperature of the samples must be between 0.0 and 6.0° C.
3. Dropping off samples in person:
   a. Frozen or partially frozen cooling material must be present. Laboratory staff must confirm the state of the cooling material. The temperature of the cooling material must be less than the temperature of the sample(s). Temperature requirements listed above must be followed.
   b. Physically hand cooler/container containing samples and cooling material to laboratory sample receiving staff. Do not leave sample containers at the sample dock unattended.
4. Shipping samples:
   a. Make sure the completed Chain-of-Custody is in the shipping container.
   b. Add enough fresh, frozen cooling material to the mailing container to maintain appropriate sample temperature as indicated above, with no evidence of freezing.
5. Ship to the Public Health Laboratory using the applicable address. Because of the temperature requirement, it is recommended to ship using **guaranteed** overnight shipping.

Courier Service (Spee-Dee, UPS, FedEx, etc.)
Minnesota Department of Health
Public Health Laboratory
Environmental Sample Receiving
601 Robert Street North
Saint Paul, MN 55155-2531

U.S. Postal Service – 1st Class
Minnesota Department of Health
Public Health Laboratory
Environmental Sample Receiving
601 Robert Street North
P.O. Box 64899
Saint Paul, MN 55164-0899

If you have questions, call 651-201-4700, or email health.drinkingwater@state.mn.us

Minnesota Department of Health
Drinking Water Protection
651-201-4700
health.drinkingwater@state.mn.us
www.health.state.mn.us

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