NTN/PFAS Bag Sampling Change-out

Items needed:

- Field form - Field Observer Report Form (FORF), as started the previous week
- Field form, for next week's sample
- Bucket with new prepared bag and lid
- Empty protective bag for lid
- Extra lid (FLID) in protective plastic bag from previous week
- Tyvek lab coat
- Clean laboratory gloves
- Fresh (< 6 months old) deionized or distilled water in a plastic squeeze bottle
- Paper towels or lab wipes
- Power switch key (NCON), if used
- Sensor switch (for troubleshooting, if needed, see N-CON sensor change-out SOP)
- Carrier (if used) for supplies, lid, and new bucket
- Logbook, if used

Figure 1. Aerochem NTN bucket collector

Figure 2. N-CON NTN bucket collector

Precautions:

Use care when handling the sample bucket and lid to avoid contaminating the sample. NTN samples are analyzed for sodium, chloride, and potassium all of which are present in sweat.

NTN has replaced all bag sampling buckets with one style (two ring and standard height). The bag sampling buckets are modified with a hole drilled on the one side. Both buckets should be the same height. If they are not the same height contact the NADP Site Liaison for a replacement.

Instructions:

1. Wearing the Tyvek lab coat, approach the collector from the downwind side (i.e., facing the wind). This will reduce the chance that the sample is contaminated inadvertently. If there is snow or ice on the collector lid, brush it off away from the sample bucket before

proceeding. Set the prepared bucket down on the ground upwind from where you are standing and away from the collector.

2. Make observations as to the conditions of the collection site and equipment. Record observations in Block 10 (**Remarks**) on the Field Observer Report Form. See the Appendix to this document for the complete sample field form.

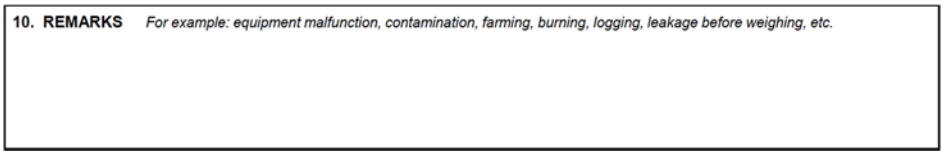

Figure 3. Field form Block 10: Remarks

Retrieving the deployed sample bucket.

3. On the Aerochem, there may be an ON/OFF switch on the motorbox, otherwise the power plug will need to be unplugged. On the NCON, locate the ON/OFF switch on the underside of the collector housing. The switch may be a toggle switch, or require a key.

4. Verify operation of the sensor by placing your finger on the sensor grid (Aerochem) or optical sensor (NCON). If the ambient temperature is less than 40°F (4°C) the sensor/grid should feel warm. Activate the collector lid by placing water on the sensor grid (Aerochem) or by waving your hand through the sensor (NCON) until the lid starts to open. When the lid has cleared the bucket (approx. halfway to allow cleaning of the lid pad seal), turn off or unplug power to the collector.

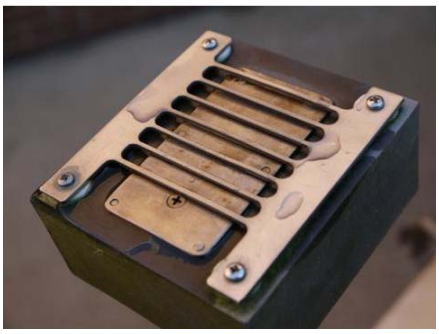


Figure 4. Activating the Aerochem (left) or NCON (right) sensor

5. Put on a clean pair of gloves. Cover the current deployed bucket with the extra lid that was brought to the site (from previous week). Save the bag as a spare in case you did not bring an empty lid bag.

Figure 5. Placing the spare lid on current sample bag bucket.

6. While wearing gloves, push the closest edge of the lid down firmly on the bucket rim and work the lid to the far side. Avoid touching the lip of the bucket and the underside of the lid with bare hands. Doing so may lead to sample contamination when the sample is decanted.

Figure 6. Seal the previous weeks sample bag bucket. Aerochem (left) and NCON (right).

7. Lift the sealed bucket from the collector holder and place it in the carrier or on a clean surface. Verify that the lid is sealed firmly on the bucket.

8. Complete Block 3 (**Field Bucket**) of the field form for the previous week to include the OFF Date and Time for the sample bucket that was collected. The Date is expressed in the form MMDDYY. Time is expressed based on a 24-hr clock.

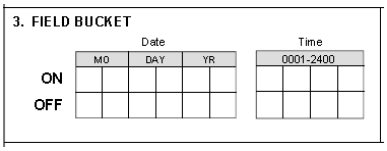

Figure 7. Complete Block 3 for bucket OFF date and time.

Cleaning the collector.

The previous week's bucket should be removed, sealed, and secured.

9. Moisten a lab wipe or paper towels (non-print/colored) with deionized (or distilled) water. Wipe down the:
    - underside of the lid seal pad,
    - top and sides of the collector lid,

- lid arms and bucket holder posts,
- splash shield (NCON), and
- clean any debris or spider webs from the sensor.

10. Note the condition of the lid seal pad and record any problems in Block 10 (**Remarks**). If the seal pad is torn, punctured or looks discolored, call the Site Liaison for a replacement and circle *lid seal pad* in Block 9 (**Supplies**) of the field form. A damaged lid seal or one that fits poorly can lead to sample contamination.

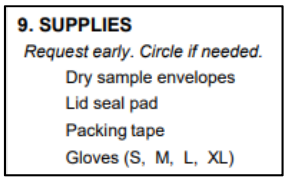

Figure 8. Supplies Block 9

11. Verify correct operation of the equipment (motorbox, sensor, and raingage). Complete Block 4 (**Site Operations**) of the field form.

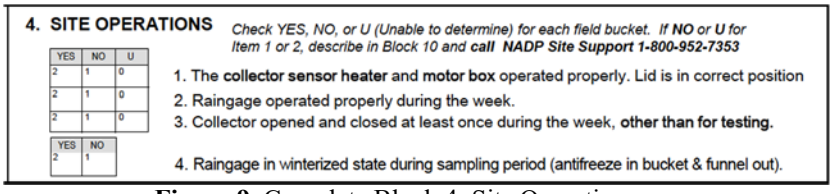

Figure 9. Complete Block 4: Site Operations.

Deploying new sample bucket.

12. Switch to the field form for the current week's sample. Complete blocks 1 and 2 (**Site** and **Observer,** respectively) for the sample bucket to be deployed. This includes:
    - the name of the Site
    - the 4 character ID of the Site (e.g., WI06)
    - your name as the Observer, and
    - your initials

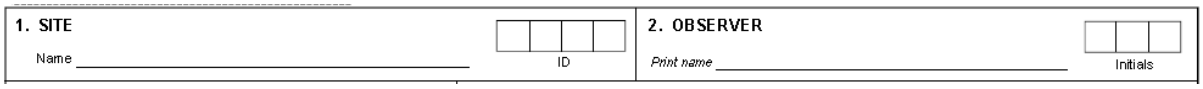

Figure 10. Complete Block 1 and 2 on new field form.

13. Grasp the new prepared bucket by its side. Place the bucket on the collector so its handle is located on the side with the bucket tie-down spring. Ensure the bucket is firmly seated in the Aercochem bucket holder or between the NCON bucket holder posts. Secure bucket handle with tie-down spring on collector.

Figure 11. Place the new sample bag bucket on the Aerochem (left) or NCON (right) collector.

14. Wearing a clean glove, remove the lid from the bucket and store in the protective bag that was brought to the site (if not available then use the bag from step 5 above). This lid will be used when retrieving next week's sample bucket.
15. Close the lid on the collector by restoring power (by power switch or plugging collector back into the outlet). The collector lid will close. The collector lid should move smoothly. Verify that the lid seal fits snugly over the bucket. If there is a gap between the bucket and the lid seal, it may be necessary to adjust the collector lid arms.

Figure 12. Check the lid pad seal on the sample bag bucket. Aerochem (left) and NCON (right).

NCON Only
See the SOP titled *Adjusting Collector Lid, N-CON Collector* for details on adjusting the NCON collector arms. Be certain to protect the exposed sample bucket to avoid contamination when cycling or servicing the collector.

If present, remove the power switch key (NCON) and store for the next site visit.

16. Enter the Date and Time that the sample bucket was placed "ON" the collector in Block 3 (**Field Bucket**) of the field form for the current week.

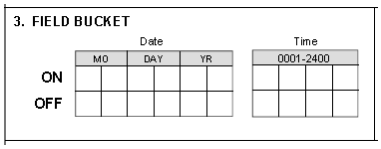

Figure 13. Complete the ON date and time in Block 3: Field Bucket on new field form.

17. Verify that the power switch is in the ON position or the collector is plugged in before leaving the site.

18. Take the extra lid (in protective bag) and the sealed bucket containing last week's sample to the lab or office for processing. This includes weighing the bucket and sample. The sample is then decanted to a bottle for shipment to the CAL for analysis. Refer to the SOP titled *PFAS_2212_Bag_Sampling_Decanting.*

Incorporating data from raingage.

19. Complete Block 7 (**Precipitation Record**) of the previous week's field form to include the daily precipitation values, and the type of precipitation (i.e., rain, snow, mixed, unknown) for each data with precipitation. Refer to the appropriate SOP for downloading data from the electronic raingage.

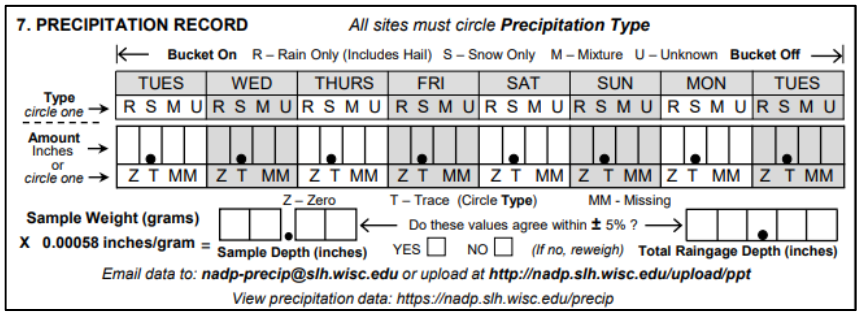

Figure 14. Complete Block 7: Precipitation Record on the previous field form.

Contact Information

Please contact the NADP Site Liaison at 800-952-7353 or via email at ntn@slh.wisc.edu if you have any questions, or if any problems are encountered. The site liaison can:

- help troubleshoot equipment problems,
- order replacement parts,
- explain the field form, and
- explain the steps in this manual in greater detail.

Appendix – Sample Field Observer Report Form (FORF)

NADP

NATIONAL TRENDS NETWORK
FIELD OBSERVER REPORT FORM (FORF)

Send Completed Form with Each Sample to:
NADP Sample Receiving, 465 Henry Mall, Madison, WI 53706

Need help? Call the NADP Site Support at 1-800-952-7353
e-mail: ntn@slh.wisc.edu

RECEIVER INITIALS ☐☐☐ ☐ BAG ☐ LEAK
NO BOTTLE ☐

FOR OFFICE USE ONLY

Place barcode sticker here

1. SITE
Name _____ ☐☐☐☐ ID

2. OBSERVER
Print name _____ ☐☐☐ Initials

3. FIELD BUCKET

	Date MO	DAY	YR	Time 0001-2400
ON				
OFF				

4. SITE OPERATIONS

*Check YES, NO, or U (Unable to determine) for each field bucket. If **NO** or **U** for Item 1 or 2, describe in Block 10 and **call NADP Site Support 1-800-952-7353***

	YES	NO	U
1. The **collector sensor heater** and **motor box** operated properly. Lid is in correct position	2	1	0
2. Raingage operated properly during the week.	2	1	0
3. Collector opened and closed at least once during the week, **other than for testing.**	2	1	0
4. Raingage in winterized state during sampling period (antifreeze in bucket & funnel out).	2	1	

5. SAMPLE CONDITION

*Check type of contamination for all field buckets before and after decanting. Describe **all** contamination in Block 10, including any not listed here.*

	YES	NO
1. Bird droppings	2	1
2. Cloudy or discolored	2	1
3. Soot/ash/dirt particles	2	1
4. Insects/animal matter	2	1
5. Leaves/twigs/pollen/plant matter	2	1
6. Handling contamination	2	1

After decanting into sample bottle, look closely at sample and field bucket and double-check your entry.

6. BUCKET SAMPLE WEIGHT

*Record **ALL** sample weights, even if DRY week or NO SAMPLE in bucket.*

☐☐☐☐☐.☐ 2. Bucket/Bag + Lid + Sample
− ☐☐☐☐☐.☐ 1. Prepared Bucket/Bag (No Lid)
(Weigh before going to site)
− ☐☐☐☐☐.☐ 3. Lid
= ☐☐☐☐☐.☐ →
Sample Weight (grams)

7. PRECIPITATION RECORD

*All sites must circle **Precipitation Type***

← **Bucket On** R – Rain Only (Includes Hail) S – Snow Only M – Mixture U – Unknown **Bucket Off** →

	TUES	WED	THURS	FRI	SAT	SUN	MON	TUES
Type *circle one* →	R S M U	R S M U	R S M U	R S M U	R S M U	R S M U	R S M U	R S M U
Amount Inches or *circle one* →	Z T MM	Z T MM	Z T MM	Z T MM	Z T MM	Z T MM	Z T MM	Z T MM

Z – Zero T – Trace (Circle **Type**) MM - Missing

Sample Weight (grams)
X 0.00058 inches/gram = ☐☐.☐☐ **Sample Depth (inches)**
← Do these values agree within ± 5% ? → YES ☐ NO ☐ *(If no, reweigh)* ☐☐☐.☐☐ **Total Raingage Depth (inches)**

*Email data to: **nadp-precip@slh.wisc.edu** or upload at **http://nadp.slh.wisc.edu/upload/ppt***
View precipitation data: https://nadp.slh.wisc.edu/precip

8. SAMPLE BOTTLE USE

*Pour **all** liquid (up to 1 liter) into the sample bottle.*

Did you pour sample into the bottle?
YES ☐ NO ☐

9. SUPPLIES

Request early. Circle if needed.
- Dry sample envelopes
- Lid seal pad
- Packing tape
- Gloves (S, M, L, XL)

10. REMARKS

For example: equipment malfunction, contamination, farming, burning, logging, leakage before weighing, etc.

White copy – Analytical Lab Pink Copy – Site Operator

Rev. 9-2023