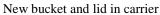
## NTN Sample Change-out, N-CON Bucket Collector

#### **Items needed:**

- Field Observer Report Form (FORF), as started the previous week
- FORF, for next week's sample
- power switch key, if used
- new bucket in protective plastic bag
- new lid in protective plastic bag
- fresh (< 6 months old) deionized or distilled water in a plastic squeeze bottle
- paper towels or lab wipes (e.g., Kimwipes\*)
- plastic washers (16), to adjust height of NTN bucket
- sensor switch (for troubleshooting, if needed, see N-CON sensor change-out SOP)
- carrier (if used) for supplies, lid, and new bucket
- log book, if used







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.

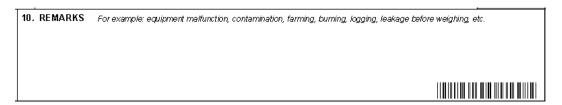
NTN has buckets of different height (see figure on next page). By default, the N-CON collector is configured for the tall bucket. When a short bucket is used, plastic washers must be placed on each of the four bucket posts to raise the height of the bucket. Use the appropriate number of washers to ensure a good seal between the lid pad and the bucket. In general, start with 3 washers, close the collector and check the seal between the bucket and the collector lid. Add/remove washers to each post as needed. Remember to handle the sample bucket with a gloved (or bagged) hand when adjusting the number of washers.

**Disclaimer:** Use of a trade or manufacturer's name does not constitute an endorsement by the University of Wisconsin, the Wisconsin State Laboratory of Hygiene, the National Atmospheric Deposition Program, or project sponsors.



## **Instructions:**

- 1. 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 before proceeding.
- 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 (FORF). See the Appendix to this document for a sample FORF.

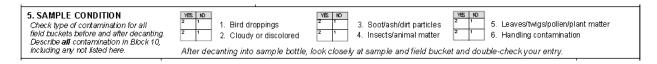


## Retrieving the deployed sample bucket.

- 3. Locate the ON/OFF switch on the underside of the collector housing. The switch may be a toggle switch, or require a key.
- 4. Activate the collector lid by waving your hand through the sensor until the lid starts to open. When the lid is open halfway, turn off power to the collector.



5. Inspect the contents of the bucket for contaminants. Do not lean over the open bucket. Doing so may lead to contamination of the sample (e.g., human hair, clothing fibers). Note any contaminants in Block 5 (**Sample Conditions**) of the FORF.



6. Grasp the bagged lid from the side opposite the zip. Fold the bag back over your wrist, exposing the lid with the seal side down. Use the bag as a "glove" and place the lid on the bucket.



7. Using your bagged hand, push the leading edge of the lid down firmly on the bucket rim. 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.



8. Lift the sealed bucket from the collector holder and place it in the carrier or on a clean surface. *Do not set the bucket on bare ground as dirt and dust are difficult to remove when the bucket is washed*. Verify that the lid is sealed firmly on the bucket.



9. Complete Block 3 (**Field Bucket**) of the FORF 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.

3. FIELD BUCKET							
Date				Time			
	MO DAY		YR	0001-2400			
ON							
OFF							

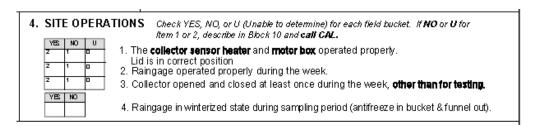
## Cleaning the collector.

The previous week's bucket should be removed, sealed, and secured. The new bucket should be bagged and protected prior to deployment.

- 10. Moisten a lab wipe (e.g. Kimwipes) 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,
  - bucket holder posts,
  - splash shield, and
  - clean any debris or spider webs from the sensor.
- 11. 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 CAL for a replacement and circle *lid seal pad* in Block 9 (**Supplies**) of the FORF. A damaged lid seal or one that fits poorly can lead to sample contamination.

9. SUPPLIES Request early.
Circle if needed, until received.
CAL address labels lid seal pad dashpot fluid packing tape dry sample env. raingage charts field forms raingage ink gloves (S, M, L)

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



## Deploying new sample bucket.

- 13. Determine whether the bucket to be deployed is "tall" or "short." Add, or remove plastic washers from the bucket holder posts as described above.
- 14. Switch to the FORF for the current week's sample. Complete blocks 1 and 2 (**Site** and **Observer**, respectively) for the sample bucket to be deployed. This includes:

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- the name of the Site
- the 4 character ID of the Site (e.g., IL11)
- your name as the Observer, and
- your initials

1. SITE		2. OBSERVER					
Name	. ID	Print name	Initials				

15. Grasp the new clean bucket by its handle and remove the twist-tie that holds the bag closed. Pull the bag back over your arm so that the bag acts as a "glove". Turn the bucket upside down and shake it to ensure that no rinse water remains in the bucket. Place the bucket on the collector so its handle is located toward the front of the collector (as illustrated below). The N-CON Systems identification plate is on the front of the collector. Ensure the bucket is firmly seated between the bucket holder posts.



- 16. Using the switch on the bottom of the collector, turn the collector ON. 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 either:
  - a. place plastic washers on the bucket holder posts, beneath the sample bucket, or
  - b. adjust the collector lid arms

See the SOP titled *Adjusting Collector Lid, N-CON Collector* for details on adjusting the 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 and store for the next site visit.

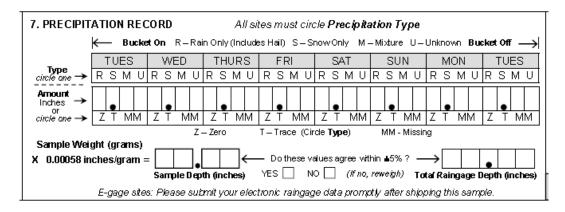
17. Enter the Date and Time that the sample bucket was placed "ON" the collector in Block 3 (**Field Bucket**) of the FORF for the current week.

3. FIELD BUCKET									
		Date	Time						
	MO	DAY	YR	0001-2400					
ON									
OFF									

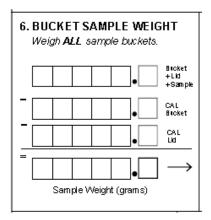
- 18. Place the sealed bucket containing last week's sample in the plastic bag that the new bucket came in. Seal the bag, and return it to the carrier for transport to the field laboratory.
- 19. Verify that the power switch is in the ON position before leaving the site.

## Incorporating data from raingage.

20. Complete Block 7 (**Precipitation Record**) of the previous week's FORF 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 interpreting a Belfort raingage chart, or for downloading data from the electronic raingage.



21. Take the bagged and sealed bucket containing last week's sample to the field lab 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 *Decanting the Sample for Shipment to the CAL*. Block 6 (**Bucket Sample Weight**) and Block 8 (**Sample Bottle Use**) of the FORF will be completed.





22. Indicate any supplies that are needed in Block 9 (Supplies) of the FORF.

## **Contact Information**

Please contact the NADP Site Liaison at 800-952-7353 or via email at <a href="mailto:ntm@slh.wisc.edu">ntm@slh.wisc.edu</a> if you have any questions, or if any problems are encountered. The site liaison can:

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

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# **Appendix – Sample Field Observer Report Form (FORF)**

NADP  Place barcode sticker here	NATIONAL TRENDS NETWORK FIELD OBSERVER REPORT FORM (FORF) Send Completed Form with Each Sample to: Central Analytical Laboratory, 2601 Agriculture Drive, Madison, WI 53718  Problems? Call the CAL at 1-800-952-7353 e-mail: ntn@slh.wisc.edu	AG LEAK SP
1. SITE  Name	2. OBSERVER Print name	Initials
3. FIELD BUCKET  Date  ON  OFF	4. SITE OPERATIONS  Check YES, NO, or U (Unable to determine) for each field bucket. If NO ltem 1 or 2, describe in Block10 and call CAL.  1. The collector sensor heater and motor box operated properly. Lid is in correct position 2. Raingage operated properly during the week. 3. Collector opened and closed at least once during the week, other that 4. Raingage inwinterized state during sampling period (antifreeze in bucket)	n for testing.
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.		
6. BUCKET SAMPLE WEIGHT  Weigh ALL sample buckets.  Bucket + Lid + Sample + Sample  CAL Bucket  CAL 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  Circle one -> R S M U R S	8. SAMPLE BOTTLE USE Pour ANY and ALL liquid up to 1-liter into the sample bottle. Did you pour sample into the bottle?  YES NO  CAL USE RGSRC
Circle if needed, until received.  CAL address labels lid seal pad dashpotfluid packing tape dry sample env. raingage charts field forms raingage ink gloves (S, M, L)	REMARKS For example: equipment malfunction, contamination, farming, burning, logging, leakage before weighing, on the copy – Analytical Lab Pink Copy – Site Operator	Rev. 3-18