

NADP PO GENOP 008

Passive Mercury (MerPAS) Site Operator Instructions

1.0 Purpose and Applicability

- 1.1 This SOP describes deployment of passive mercury samples using Tekran MerPAS. As of January 2025, this is a pilot network of National Atmospheric Deposition Program (NADP), and samples are analyzed in the Trace Element Clean Lab (TECL) at the Wisconsin State Laboratory of Hygiene (WSLH).
- 1.2 Questions related to MerPAS should be directed to Christa Dahman, christa.dahman@slh.wisc.edu, 608-265-3712.

2.0 Receiving Your Supplies

- 2.1 Materials will be shipped in a cardboard box. Keep the box for the duration of the deployment and use it for return shipment.
- 2.2 Passive Mercury (MerPAS) samplers (5) should be received in individual zip top bags. The caps should be taped shut. If a sampler is not bagged and taped, do not deploy it. Trip blanks will be pre-assigned and labeled.
- 2.3 A hard copy of the field form will be included in each shipment. Additional copies of the form may be obtained at <https://nadp.slh.wisc.edu/hg-passive-pilot-network/>
- 2.4 One pre-paid return shipping label.
- 2.5 Two pairs of nitrile gloves will be included in the first shipment, one pair for deployment and one for retrieval. It is suggested that the vinyl gloves that are provided for MDN/NTN sites be used. If additional gloves are needed, contact Christa (1.2).
- 2.6 Additionally, the first shipment of materials will contain the following parts for mounting. The site operator may need to provide other tools (e.g., a drill) to set up the brackets:
 - 2.6.1 4 brackets (6" galvanized zinc)
 - 2.6.2 12 screws (1" deck screws with Phillips head)
 - 2.6.3 12 washers
 - 2.6.4 8 cable ties (21" nylon)
 - 2.6.5 White nylon tape (keep for retrieval, not mounting)

3.0 Deployment

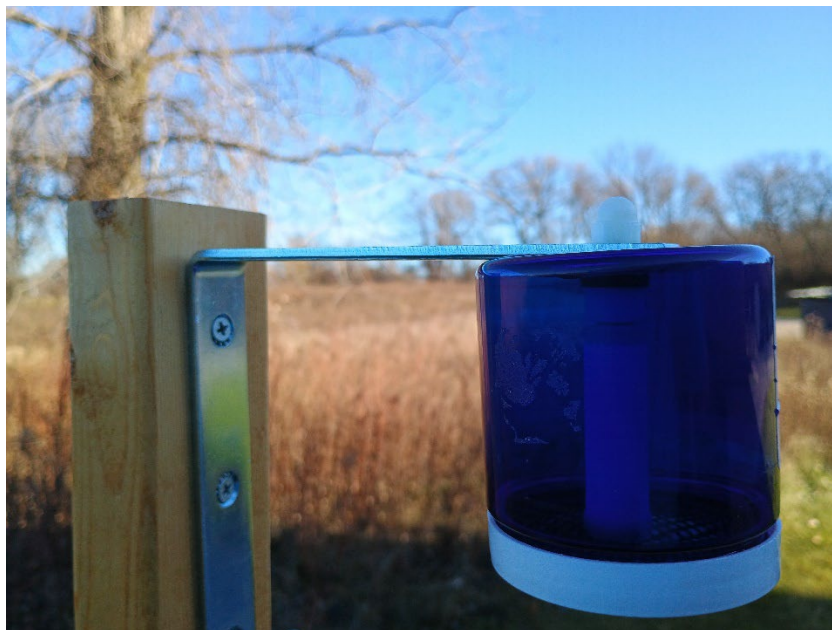
- 3.1 **Before the first deployment:** brackets will need to be installed in a location that allows for free-flowing air. Other mounting structures may be used as needed, as long as air flow is not obstructed. Screws are preferred for mounting the bracket. If cable ties are used for mounting, they should be carefully inspected for signs of weathering and replaced as needed.
- 3.2 Verify that brackets or mounting location are in good condition. If significant rust forms on a bracket, contact Christa (1.2) for replacement parts.
- 3.3 Don gloves and remove the sampler from its bag. The samplers labelled as Trip Blank must remain bagged.

3.4 Record the start date and time on the sampler label and field form.

3.5 Remove the tape and solid lid from the sampler. Screw on the screened lid. Make sure that the screen bends in toward the jar interior (concave). Place the solid lid back in the bag, seal it, and return the bag to the shipping box.



3.6 Remove the top nut and insert the threaded bolt through the hole at the end of the bracket. Reattach the nut to secure the sampler at finger-tightness (do not use a wrench). Repeat this for all samplers (not trip blanks).



- 3.7 Collect all other materials (bags, lids, forms, vinyl tape, additional gloves, **trip blank**, etc) and return them to the shipping box. Transport the box to an office location or similar environment and keep it until you return to retrieve the samplers.

4.0 Retrieval

- 4.1 Return to the site with the box from the previous deployment and the new box for the next deployment.
- 4.2 Don gloves and remove the sampler from the bracket. Return the nut to the bolt on the top of the sampler.
- 4.3 Remove the screened lid and replace it with the solid lid.
- 4.4 Wrap the solid lid with white nylon tape, completing two full revolutions around the jar and lid.
- 4.5 Place the sealed sampler and screened lid back in the ziptop bag and seal it. Put the bagged samples into the shipping box. Repeat for all deployed samplers.
- 4.6 For the **Trip Blank**, remove the sampler from the bag and remove the tape but do not remove the lid. Replace the tape with the supplied roll of white nylon tape, completing two full revolutions around the jar and lid. Return the trip blank to the bag, seal it, and place it in the return box.
- 4.7 Complete the field form (2.3) with all relevant information.
- 4.8 Deploy the next set of samples as described in Section 3.0.

5.0 Return Shipment

- 5.1 Verify that all necessary materials have been returned to the shipping box:
 - 5.1.1 4 deployed samplers
 - 5.1.2 1 trip blank samplers
 - 5.1.3 Field form
- 5.2 Affix the pre-paid shipping label included to the outside of the shipping box containing the samplers that were collected.
- 5.3 Seal the shipping box, and ship it to the lab for analysis. The shipping address is:

NADP Analytical Laboratory
465 Henry Mall
Madison, WI 53706

6.0 Related Documents

- 6.1 Tekran Instruments Corporation, Tekran MerPAS Instruction Sheet, Rev 012219.
<https://www.tekran.com/files/MerPAS-Instruction-Sheet.pdf>

7.0 Version Tracking Table

| Version # | Changes Made | Version author |
|------------------|--|-----------------------|
| OB1 | New SOP | C. Dahman Zaborske |
| 2 | Updated sampler quantity to reflect changes approved at 2025 fall meeting. Samples include 2 new MerPAS samplers from Tekran, 2 re-packed samplers from WSLH, and 1 Trip Blank from WSLH. Updated contact phone number. | C. Dahman Zaborske |