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Box Receiving  
UCD TI #251D, Version 3.1  
September 1, 2026  
Page 1 of 11

## UCD IMPROVE Technical Information #251D

### Box Receiving

*Interagency Monitoring of Protected Visual Environments  
Air Quality Research Center  
University of California, Davis*

*September 1, 2026  
Version 3.1*

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**UC DAVIS**  
**AIR QUALITY RESEARCH CENTER**

Section 508 Compliant ☐ Yes ☒ NoBox Receiving  
UCD TI #251D, Version 3.1  
September 1, 2026  
Page 2 of 11**DOCUMENT HISTORY**

| <b>Revision</b> | <b>Release Date</b> | <b>Initials</b> | <b>Section/s Modified</b> | <b>Brief Description of Modifications</b>                                                                                                                      |
|-----------------|---------------------|-----------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | 05/04/2021          | GRM             | All                       | Updated wording & formatting.                                                                                                                                  |
|                 | 02/01/2022          | SRS             | All                       | Previous anthologized version separated into individual TIs.                                                                                                   |
|                 | 03/17/2022          | GRM             | All                       | Updated wording to accommodate new procedure.                                                                                                                  |
| 3.1             | 09/01/2026          | RMA             | 2, 3, 4, 5, 6             | Reorganized document layout and section content for improved readability. Updated wording and added figures to reflect lab-app updates and procedural changes. |
|                 |                     |                 |                           |                                                                                                                                                                |
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Section 508 Compliant   ☐ Yes   ☒ No

**TABLE OF CONTENTS**

1. Purpose and Applicability ..... 4

2. Summary of the Method ..... 4

3. Definitions..... 4

4. Cautions ..... 4

5. Equipment and Supplies ..... 5

6. Procedural Steps..... 5

    6.1 Receive Boxes..... 6

    6.2 Inputting Log Sheet Comments ..... 7

    6.3 Flashcard Information..... 8

    6.4 Problem Notifications ..... 9

    6.5 Deliver Bins to the Sample Handling Lab ..... 10

**LIST OF FIGURES**

Figure 1. Week 1 bag labels..... 5

Figure 2. Box selection screen and box top label. .... 6

Figure 3. Box receiving page. .... 8

Figure 4. Log sheet comment pop-up. .... 8

Figure 5. Memory card labels. .... 9

Figure 6. Notification..... 10

Figure 7. Bins..... 11

## 1. PURPOSE AND APPLICABILITY

This technical information (TI) document describes the proper procedures for receiving IMPROVE blue boxes and transferring the contents to bins. Its purpose is to establish uniform guidelines for how to perform these tasks.

## 2. SUMMARY OF THE METHOD

IMPROVE blue boxes are not permitted in the sample handling laboratory to reduce the chance of contamination. Contents of these boxes must be removed and placed into matching site bins in the shipping/receiving area for the sample handling lab before getting transferred to the lab. Previous labels and tape are removed from blue boxes to prepare them for future use.

## 3. DEFINITIONS

- **2-3-2' Cycle:** While all IMPROVE filters sample on the same days, cartridges are delivered to the sites in one of two cycles offset by one week for logistic reasons. 2-3-2 cycle bins are delivered one week sooner and are processed through the lab in yellow bins.
- **3-2'-2 Cycle:** While all IMPROVE filters sample on the same days, cartridges are delivered to the sites in one of two cycles offset by one week for logistic reasons. 3-2-2 cycle bins are due one week later and are processed through the lab in blue bins.
- **IMPROVE Filter Processing Application:** Proprietary laboratory software for processing IMPROVE samples in the Sample Handling Lab. Can also be referred to as the lab app.
- **Site code:** A four letter and one number code that indicates the physical location a box or sample was sampled at (e.g. YELL2, which samples at Yellowstone National Park).

## 4. CAUTIONS

This station uses a box cutter. Cut away from yourself, and do not work too close to other people while using it. Be sure to put the blade away properly when finished.

Some site codes are very similar. Verify that the correct box and Velcro tag are being used, as failing to do so can cause filters to be processed incorrectly.

All boxes being received should only have samples from before the present date. Notify senior lab staff if a box was received that has future sample dates in it.

Section 508 Compliant ☐ Yes ☒ NoBox Receiving  
UCD TI #251D, Version 3.1  
September 1, 2026  
Page 5 of 11

## 5. EQUIPMENT AND SUPPLIES

- Computer with IMPROVE Filter Processing application (lab app)
- Blue shipping boxes containing sampled filters
- Bins for various box cycles
- Velcro Labels with site names
- Barcode scanner
- Sticky Notes
- Pens
- Box Cutter

## 6. PROCEDURAL STEPS

Locate blue boxes and move them to the shipping/receiving area. Blue boxes can return with green, yellow, pink or white box-top labels. Separate them based on the color of the box-top label.

Site bins are color coded. Yellow bins are for the 2-3-2' cycle boxes and typically have yellow box-top labels. Blue bins are for the 3-2-2' cycle boxes and usually have green box-top labels.

If unsure which cycle a site is on, open the box and check the top right corner of the week 1 bag label. If it is a 3, put the box in a blue bin. If it is a 2, put the boxes contents in a yellow bin. (See the circled area of figure 1).

Figure 1. Week 1 bag labels.



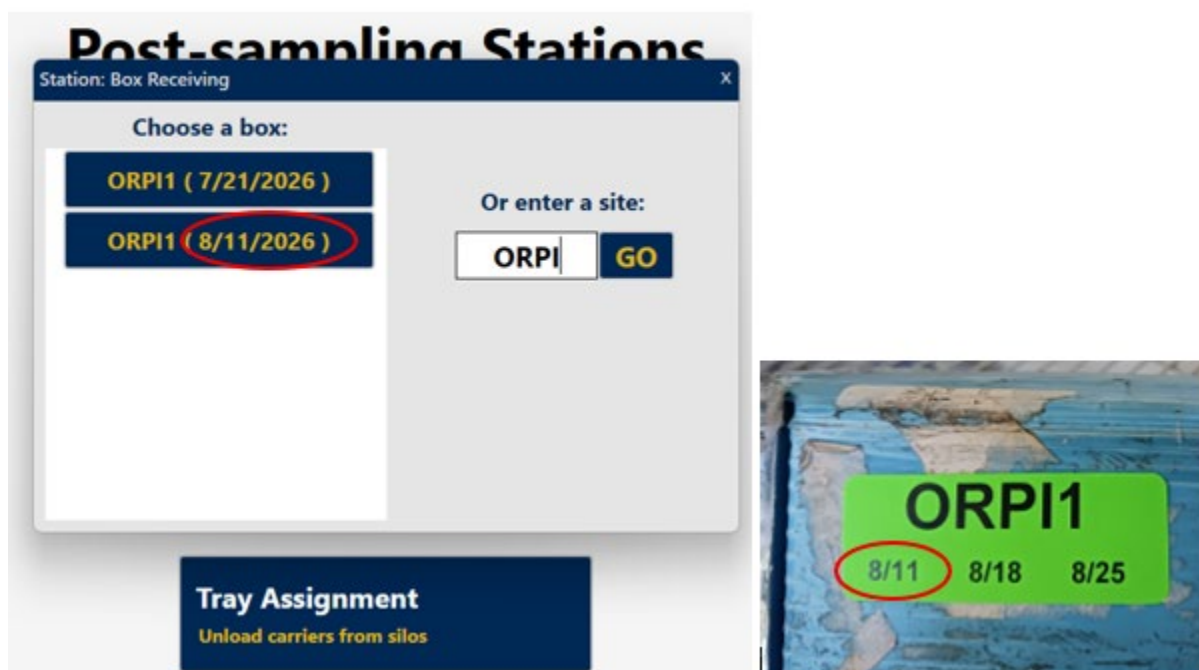
Section 508 Compliant ☐ Yes ☒ NoBox Receiving  
UCD TI #251D, Version 3.1  
September 1, 2026  
Page 6 of 11

Pay attention to any box alerts that pop up and follow the instructions on the screen, refer to section 6.5 for more information.

## 6.1 Receive Boxes

- 1) Open the lab app, select **Post Sample**, then **Box Receiving**.
- 2) Select a blue box to open, then locate the appropriate colored bin.
- 3) Find the Velcro label for the site selected; the labels are stored alphabetically and separated by box cycle. The Velcro labels have the site code and the associated barcode. Attach the designated Velcro label to front of the bin.
- 4) Scan the barcode on the Velcro label or type in Site Code. Verify the date in the lab app matches the box top label's week 1 sample change date (circled areas in figure 2).

Figure 2. Box selection screen and box top label.



- 5) Scan the return label into the “Inbound Tracking Number”. The tracking number is validated and a green check mark will appear.
  - If incorrect, double check the correct site and box were selected. If the site and box are correct, input a comment in the notes section. If the site and box are not correct, click exit and start over.
- 6) Open the box and remove the week 1 bag. Confirm the date label matches week

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Section 508 Compliant ☐ Yes ☒ NoBox Receiving  
UCD TI #251D, Version 3.1  
September 1, 2026  
Page 7 of 11

1 on the screen.

- 7) Open the bag and remove the log sheet. Unfold the log sheet and confirm the date matches. Check the sheet for any operator comments. These will be input in the lab app if relevant, refer to section 6.2 for inputting comments.
  - If the “Initial or Final Readings” dates written on the log sheet are incorrect, place the log sheets in the tray with the bags. Unpack and submit the tray like usual, adding a comment about the dates to the log sheet comments section. Fill in one of the ‘Problem forms’ sitting on the top of the shelf and place it at the front of the bin. Place the bin and its contents on the top available space on the shelf in the lab labeled ‘Problem shelf.’
- 8) Flip the week 1 log sheet over and start a stack of upside-down log sheets.
- 9) Place the week 1 bag at the front of the colored bin, week 2 goes behind week 1 and then week 3 goes behind week 2. Repeat these steps for weeks 2 and 3. Once all 3 weeks are confirmed, click the “correct dates” box.
- 10) Locate the flashcard; this can be in any of the week’s bags or in the box itself. If the flashcard is correct, click the “flashcard: box. See section 6.3 for more information.”
  - If the flashcard number is incorrect then write a comment at the bottom of the screen. Include the flashcard number found in the box.
- 11) Place the flashcard at the front of the colored bin.
- 12) Remove all tape and all outer labels except the pink “do not leave in direct sunlight”.
- 13) Place the completed bin on the rack in the receiving area. Bins can be moved to the lab once receiving is complete or shift is done.
- 14) The stack of log sheets is flipped over and placed in a labeled bin in the lab.
- 15) Place the empty blue box on the labeled shelves.

## 6.2 Inputting Log Sheet Comments

Field operators will occasionally write additional comments on the weekly log sheets. These comments are added at the time the box is received and by using the lab app. On the box receiving screen, there are three **add** buttons on the right side, one for each week of sampling. If a log sheet is completely blank, select **Log sheet Blank**.

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Figure 3. Box receiving page.

1. Click on add for the week needed, opening the following screen. The operator initials and final readings should auto-populate. If these two fields do not auto-populate and the writing is legible type the information in.

Figure 4. Log sheet comment pop-up.

2. If the operator initials and final date readings are not written on the log sheet these fields can be left blank and no further action is needed.
3. Not all comments need to be added, for example a comment stating the weather was nice that day is not relevant. However, a comment stating the cassette popped open and a filter fell out should be included. If unsure, please check with senior lab staff.

6.3 Flashcard Information

Every box should contain at least one memory card, which is labeled with an eight-digit number on one side and the site code and UC code on the other. (Figure 5) Typically, the memory card is found in the Week 3 bag because the operator removes the memory card

Section 508 Compliant ☐ Yes ☒ NoBox Receiving  
UCD TI #251D, Version 3.1  
September 1, 2026  
Page 9 of 11

at the end of the week. However, if a memory card is not there, thoroughly check the other two bags as well as inside of the box. Sometimes it is best to empty the contents of each week to find the memory card, as it can get stuck in the log sheet or hidden under cartridges. If the memory card is not found in the box; in the lab app, do not select the box for the flashcard and type “No memory card found” in the comment section.

Sometimes a memory card will have a label that reads “IMPROVE Replacement” instead of a site name. These replacement cards also have a number assigned to them; confirm it matches what is listed in the lab app when receiving the box.

Figure 5. Memory card labels.



## 6.4 Problem Notifications

If a “NOTIFICATION MESSAGES FOR SELECTED SAMPLER BOX” comes up, follow the instructions on the screen.

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Figure 6. Notification.

The screenshot shows a web application interface for 'Box Receiving' at station 'VIIS1 (1A, 2B, 3C, 4D)'. A red notification banner at the top reads: 'NOTIFICATION MESSAGES FOR SELECTED SAMPLER BOX: Box Receiving: Box likely did not sample on originally designated days. Need to swap records and filters. Place this on the problem shelf with the logsheets, please-RMA'. Below this, there is a list of dates: 9/23/2025, 9/30/2025, and 10/7/2025. A blue button labeled 'CHANGE BOX' is positioned below the dates. To the right of the dates, there is a section for 'Inbound Tracking Number' with a text input field, and checkboxes for 'Correct Dates' and 'Flashcard (0000.38.02)'. Further right, there is a list of weeks: Week 1 (9/23/2025), Week 2 (9/30/2025), and Week 3 (10/7/2025). Below the 'CHANGE BOX' button is a text area labeled 'Box comments:'. At the bottom, it shows 'Shipped By: CAG (8/12/2025)' and 'QC Checked By: RMA'.

If the box receiving screen seems frozen, check if the word “Flag” is visible in the upper right of the screen. If yes click on the word “Flag” and this will bring the popup message to the forefront of the screen.

If any questions arise while opening boxes or something is unclear, ask senior lab staff for assistance or place the box on the shelf labeled “problem shelf” with a ‘problem form’ filled in.

6.5 Deliver Bins to the Sample Handling Lab

Loaded bins are carried to the sample handling lab and placed on the rack next to the post-sample processing station. Bins of higher priority are placed on higher racks, while bins of lower priority are placed on lower racks (Figure 7).

Bin priority is as follows: bins with yellow tags > bins with green tags > bins with pink tags (Multi-sites) > bins with Post-Process only tags.

Section 508 Compliant ☐ Yes ☒ No

Box Receiving  
UCD TI #251D, Version 3.1  
September 1, 2026  
Page 11 of 11

Figure 7. Bins.

