Sample Custody, Preparation Labels and Worksheet Instructions for Bench Biology Samples

1. INTRODUCTION

1.1. This method provides instruction for getting samples into Bench Biology custody using the LIMS Custody module. Prior to analysis, the analyst checks out samples from the Receiving Room, prints appropriate labels for analyses and checks samples into Biology custody. The Bench Biology section handles microbiology and chlorophyll samples. The LIMS Analysis IDs include CHLSUITE-W, CHL-MDFL-W, CHL-CORR-P, DW-PLATECT, ECOLI-18QT, TCOLI-18QT, ENT-24-QT, FCOLI-MF, EN24-QT-CL, EC-18QT-CL, and FC-MF-CL.

2. SAMPLE COLLECTION AND PRESERVATION

2.1. The Receiving Room staff is responsible for receiving samples shipped from field personnel that collect water and soil samples throughout the state (SOP FS-1000). Bench Biology samples are logged into LIMS and stored at the correct temperatures (SOP LB-016). Analysts have access to the storage areas to obtain the samples for analysis.

3. SAMPLE CUSTODY AND LABELS

3.1. Samples approaching the end of holding times should be picked up by an analyst as soon as possible for immediate processing. These samples can be signed out of the Receiving Room if they have not been logged into the LIMS.

3.1.1. To sign out samples, match field IDs to the custody sheets and sign the bottom of each individual custody sheet with analyst name, date/time, sample type, and number of samples picked up.

3.2. SAMPLE CHECK OUT

3.2.1. Collect samples in the Receiving Room that have been logged in by the Receiving Room staff. Samples will have a large label indicating the sample ID number, field information and barcode. Check out samples by scanning each individual barcode at a computer in the Receiving Room before bringing them back to the lab. Log into LIMS. Select **Laboratory → Receiving → Custody → CheckOut**.

3.2.2. Scan the barcode of each sample. Be sure that the number of samples corresponds to the total number scanned, shown at the bottom of the screen.

3.2.3. Click **OK** after scanning the barcodes. When prompted, the analyst will either scan his/her ID badge or type the five-digit ID number located on the badge. Repeat and click **OK**. Analyst must be a custodian in LIMS to be able to check out/in samples. Return to the Microbiology Lab with the samples and arrange them by analysis.

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3.3. PREP WORKSHEETS

3.3.1. Log in to LIMS on the Microbiology Lab computer. Select **Laboratory → Technical → Prep Worksheet Manager**. Select the first shortcut button: **Create a prep worksheet**.

3.3.1.1. *Microbiological samples:*

In the panel to the left under "Preparation ID...", select MICRO-MF or MICRO-QT as appropriate. Then, select the analyst's name from the module below under "Assign to...". Ensure "BENCHBIO" is selected in the drop-down list box. Highlight all the micro samples that were just checked out of custody and populate the right side of the "Preparation ID..." panel, labeled Sample/Tests.
Note: As a shortcut, click on the **Samples Checked Out** icon, second from the first icon on the second row, to automatically highlight samples and the analyst's name. This must be done before checking samples back in. See Figure 1.

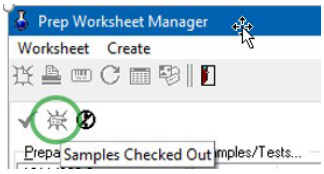


Figure 1

3.3.1.2. Click on the "check mark" icon to "**Create the new worksheet"** highlighted in Figure 2. Press [Escape] or click on the Abort (ESC) icon. Next, click on the "**Open a prep worksheet logbook"** icon to view the worksheet. See Figure 3.

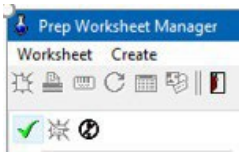


Figure 2

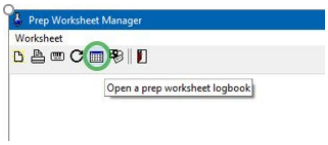


Figure 3

3.3.1.3. *Chlorophyll samples:*

3.3.1.3.1. In the first column labeled "Preparation ID…", select **SOP-BB29** or **SOP-BB28**. Select the analyst's name from the column labeled "Assign to...". Ensure "BENCHBIO" is selected in the drop-down list box. Highlight all the chlorophyll samples that were just checked out of custody.

Note: As a shortcut, click on the "**Samples Checked Out"** icon to automatically highlight samples and the analyst's name. This must be done before checking samples back in. See Figure 1.

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3.3.1.3.2. Click on the check mark icon **Create the new worksheet** highlighted in Figure 2. Press [Escape] or click on the Abort (ESC) icon. Next, click on the **Open a prep worksheet logbook** icon to view the worksheet. See Figure 3.

3.4. PRINT LABELS

3.4.1. Go back to the "Prep Worksheet Manager" window and select the icon "Print Prep Labels" (text appears when mouse hovers over selection). To print the appropriate labels for each type of analysis, follow the steps below. If there are samples of several different analyses.

Note: Alternatively, go to the top of the screen and select **Laboratory → Receiving → Print Preparation Labels** to access the "Print Prep Labels" window,

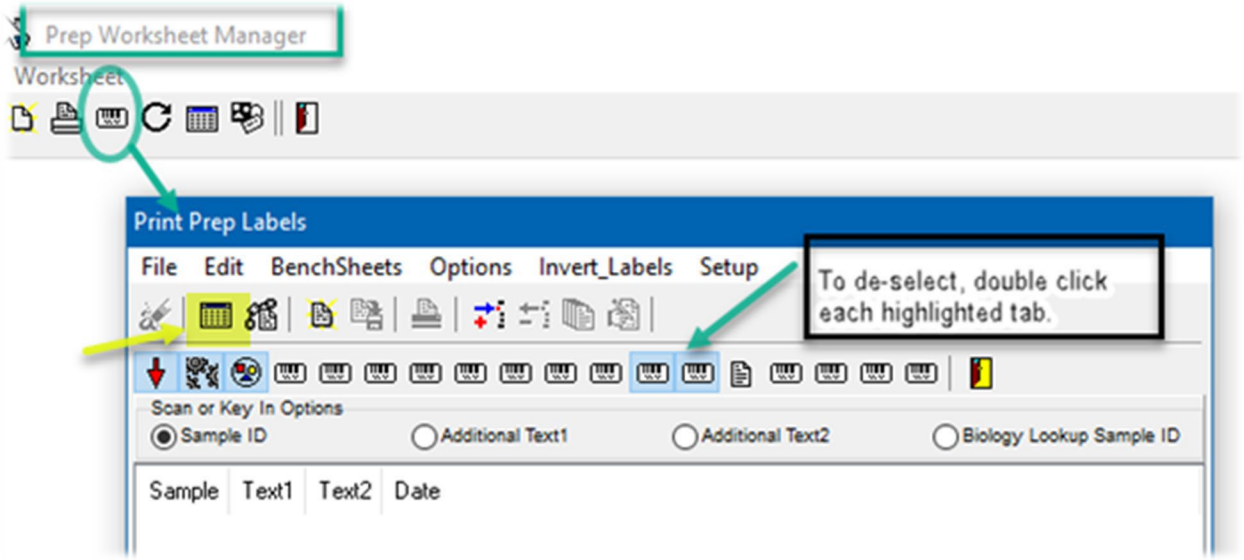


Figure 4

3.4.2. *Microbiological samples*:

3.4.2.1. Click on the icon **Micro Petri Dish**.

3.4.2.2. Click on the icon **Load Sample IDs from prep worksheet** **.** Select Worksheet that was just created from the drop-down list box and click **OK**. Verify that the samples shown correspond to the samples that you checked out. There will be one line for each analysis that has been scheduled for each sample.

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3.4.2.3. Click on the **Print List icon** . Select Generic/Text printer. The number of copies to print varies depending on the number of dilutions per analysis. For example, print three copies for analyses with three dilutions such as Membrane Filtration. For Quanti-Tray samples print one label per test ID. Click **OK** to print. Print an extra label for lab duplicates for one sample per test ID per day.

3.4.2.4. Each test uses a unique marker color to help identify the test. *E.coli* is red, T.coli is green, and *Enterococci* is purple. On each test that has a duplicate, write "DUP" on the label in the appropriate color. If a sample requires a dilution, write the dilution factor in the appropriate color. Refer to SOP MB-01.15 for more information.

3.4.2.5. Leave labels on microbiology lab bench to be used for sample prep.

3.4.3. *Chlorophyll samples*:

3.4.3.1. Click on the icon marked **Chlorophylls**.

3.4.3.2. Click on the icon **Load Sample IDs from prep worksheet** . Select the Worksheet that was just created from the drop-down list box and click **OK**. Verify that the samples shown correspond to the samples that you checked out.

3.4.3.3. Highlight the list of chlorophyll samples. For samples under **SOP-BB29,** select the radio button for "**Additional Text 1"** and Type "A 500" in the text box at the bottom of the window labeled "**Enter Additional Text (A/B)",** press [Enter]. A column should appear with an "A 500" for each sample. For samples under **SOP-BB28**, type "1000" in place of "500".

3.4.3.4. Click on the **Print List icon**. Select Generic/Text printer. Click **OK** to print two copies of each label.

3.4.3.5. Highlight the list of all chlorophyll samples. Next, deselect one sample listed out of every 20 lab duplicates. Check the previous chlorophyll worksheet and begin counting to the 20th sample from the last blank. Select the radio button for "**Additional Text 1"** and Type "B 500" for **SOP-BB29** samples or "B 1000" for **SOP-BB28** samples in the text box at the bottom of the window labeled "**Enter Additional Text (A/B)",** press [Enter]. A column should appear with a "B 500" or "B 1000" for each sample. (There should always be at least one duplicate per day.)

3.4.3.6. Click on the **Print List icon**. Select Generic/Text printer. Click **OK** to print one copy of each.

3.4.3.7. Stick each label to the top of the matching chlorophyll bottle and save the second copy of labels for the Chlorophyll Run Log.

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3.4.4. Click on the door icon **Exit label printing** and see Section 3.5 to check in samples.

3.5. SAMPLE CHECK IN

3.5.1. Go to **Laboratory → Receiving → Custody→ CheckIn**. Scan the barcode of each sample and be sure that the total number checked in corresponds to the original number of samples.

3.5.2. Click **OK** after scanning the barcodes. When prompted, the analyst will scan his/her ID badge or type the five-digit ID number located on the badge. Repeat and click **OK**.

3.6. PREP WORKSHEET DATA

3.6.1. Log into LIMS on workstation computer. Select **Laboratory → Technical → Prep Worksheet Manager**. Click the spreadsheet icon **Open a prep worksheet logbook** (See Figure 3.)

3.6.2. Click the radio button **Active** in the **Worksheet Status** menu located on the right side of the screen. Next, open the worksheet for the samples being analyzed by double clicking on the corresponding worksheet from the list populated on the left.

3.6.2.1. *Chlorophyll samples*: Fill out the sections **Prepared By, Prep Start Date/Time**, the serial number for the **Reagent** in the header and the filter number being used within the first row under **Sample Comments**. Select and right click the duplicate samples to add a **Duplicate Row** and then type “dup” to the selected **Sample IDs**. Only fill out the prep start time once the first sample has begun filtering. The right click function can also be used to add extra lines or delete lines. BLK_1 is a default line on the worksheet. Using the up/down arrows at the bottom, move this blank below the sample ID after which it is filtered. Re-name the BLK_1 following the format: BLK_XXXX-1; where the four X’s are the worksheet ID four numbers and the -1 symbolizes the first blank. Any more blanks filtered will be added to the worksheet in its filtered position using the right click function. Additional blanks are consecutively labeled as -2, -3… and so on. To add samples to a worksheet, click the **Add Sample(s)** button at the bottom of the page, highlight the samples to be added and click **OK.** After filtering, enter the **Filtration Volume (mL)** for each sample and the **Date/Time Frozen** in the header. Click **Complete** at the bottom to complete the prep worksheet. The worksheet can now be viewed in the **Completed** worksheet menu.

3.6.2.2. *Microbiological samples*: Fill out the sections **Prepared By** and **Prep Start Date/Time** in the header. In the **Prep Comments** box, enter the rinse water serial number for **MICRO-QT** samples as “Sterile DI H2O mmddyy-M1, O:mm.dd.yy” where mmddyy-M1 is the date the water was made and O:mm.dd.yy is the date the sterile water bottle was opened. Use

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a bottle of sterile water up to 7 days from the date of opening. In the **Media** boxes, enter the prep serial number for the media used. In the **Reagent** boxes, enter the serial number of the reagent used. Right click the duplicate samples to add **Duplicate Row** and then type "dup" to the **Sample ID**. The right click function can also be used to add extra lines or delete lines. For **MICRO-MF** samples, Blk_A and Blk_B will appear as default lines in the worksheet. A blank set needs to be added for every Test ID. For **MICRO-QT** samples, BLK will appear as a default line in the worksheet. A blank needs to be added for every Test ID. A single tray can be used as a blank for *E. coli* and T. *coli* analyses since they use the same media; the blank will need to be duplicated on the worksheet. Be sure to assign a Test ID for each blank. To add samples to a worksheet, click the **Add Sample(s)** button at the bottom of the page, highlight the samples to be added and click **OK.** Fill out the **Date/Time of Filtration** (MF only), **Date/Time Sample Prepared** (QT only), **Date/Time Incubated**, and **Incubator ID** in the worksheet column. Enter conductivity values for each **MICRO-QT** sample measured in the "Lab Salinity" column. Enter the **RECORD_NUMBER** from the **Lab Logbook/LAB_SUPPLIES_QC** and/or **PIPET-FUN_CAL_LOG** for the QC associated with each consumable used during analysis in the appropriate field (**Filter QC ID**, **Petri Dish QC ID**, **Mixing Vessel QC ID**, etc). If a sample has been diluted, write "X mL Dilution" in **Sample Comments 2** column where X = the dilution factor. Click **Save.** When the plates/trays have been read, add **Date/Time Read** and **Read By** to the worksheet column. Verify the data is correct then proceed to enter the **Date/Time Reviewed** and select the analyst's name from the drop-down list box labeled "**Reviewed By**". If samples are suspected of having chlorine (analysis ID with -CL suffix), enter information on the chlorine check (including chlorine strip lot number and result) in the **Chlorine Residual** column. Click **Complete.** The worksheet can now be viewed in the **Completed** worksheet menu.

3.6.2.2.1. *Micro Quality Control:* Fill out the sections **Prepared By** and **Prep Start Date/Time** in the header. In the **Prep Comments** box, enter the item or reagent being tested: glassware, type of media and serial number of supplies, etc. In the **Media** boxes, enter the prep serial number for the media used. In the **Reagent** boxes, enter the serial number of any cultures or buffered water used. For **Sample IDs**, enter each piece of equipment being tested or different inoculation combination or dilution used. Fill out the **Date/Time Incubated** and **Incubator ID** in the worksheet column. Enter the **RECORD_NUMBER** from the **Lab Logbook/LAB_SUPPLIES_QC** and/or **PIPET-FUN_CAL_LOG** for the QC associated with each consumable used during analysis in the appropriate field (**Filter QC ID**, **Petri Dish QC ID**, **Mixing Vessel QC ID**, etc). For new media, enter the pH in the **Lab pH** column. Click **Save.** When the tests have been read, add **Date/Time Read** and **Read By** to the worksheet column. Add the results for each Sample ID entry in the

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Sample Comments. Verify the data is correct then proceed to enter the **Date/Time Reviewed** and select the analyst's name from the drop-down list box labeled "**Reviewed By**".

4. REFERENCES

4.1. DEP SOP, *FS 1000 General Sampling Procedures*

4.2. DEP SOP, *LB-016 Chemistry Section Receiving Room: Standard Operating Procedure for the Receipt and Log-in of Samples by the DEP Central Laboratory*

4.3. DEP SOP, *MB-01.15 Quanti-Tray/2000 Colilert-18 Method for Escherichia coli, Total coliforms, and Enterolert Method for Enterococci*

Appendix of Changes

06/11/2009	SOP reviewed and edited to update according to current procedures. Changes were made regarding the creation of prep worksheets for microbiological samples in Section 3.5
07/13/2010	Changed Prep Worksheet template to updated version for new report style.
06/13/2011	Added instruction to print labels for lab duplicates for microbiological samples.
06/02/2012	Added directions to check out samples in the Receiving Room prior to returning to the Microbiology Lab. Moved instructions to print prep worksheets to occur before printing prep labels.
04/11/2013	Added comments to label instructions to make sure there is at least one duplicate made per day per analysis received.
12/12/2013	Added instructions for Quanti-Tray tests.
01/14/2015	Added information about the electronic prep worksheets.
11/17/2015	Added information to 3.6.2.2
09/21/2017	Changes made to the Introduction in section 1 and Sample Custody and Labels in section 3.
05/07/2019	Changes made to section 3.3 regarding the creation of prep worksheets for microbiology and chlorophyll samples including the addition on Figures 1, 2 and 3. Edited wording on sections 3.2, 3.4 and 3.6 to expand on current procedures. Changed SOP Reference in sections 2 and 4.
04/23/2020	Added instructions for the creation of prep worksheets for micro quality control (section 6.2.3).
05/05/2021	Removed instructions and test IDs regarding Sediment samples. Revised section 3.4.3.7 to specify correct amount of chlorophyll labels to print. Added instructions to section 3.6.2.1 to specify the correct way to label chlorophyll blanks in the worksheets. Additional guidance regarding blanks was included in section 3.6.2.2.
02/16/2022	Added T.coli to SOP. Added color-coding to label making. Noted that sample dilutions need to be added to worksheet.

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10/16/2023 Added information for chlorophyll samples under SOP-BB28. Added formatting information for sterile DI H2O for microbiology samples.

11/19/2024 Chlorophyll worksheet filter number and prep start time instructions added. Removed test IDs for Total Coliforms. Clarified the printing instructions for label printing on all tests.

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