

UCD IMPROVE Technical Information #251T

Data and Records Management

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DOCUMENT HISTORY

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TABLE OF CONTENTS

1. Purpose and Applicability.....	4
2. Data and Records Management	4
2.1 Databases.....	4
2.2 Macros and Other Data Connections	5

1. PURPOSE AND APPLICABILITY

The purpose of this TI is to describe the different databases, programs, macros, and other data connections used daily in the sample handling laboratory to manage, view, and organize data.

2. DATA AND RECORDS MANAGEMENT

Multiple databases, programs, and macros are employed in the initialization, tracking, and organization of IMPROVE filters. These are listed and briefly described below:

2.1 Databases

The sample handling lab uses a variety of databases daily. All of them are SQL databases, primarily accessed by users through the lab application and the web application.

IMRPOVE database: The IMPROVE database houses the majority, if not all data, within the IMRPOVE network. The tools and tables the sample handling lab uses frequently are noted below.

- a. Filter Table: The Filter Table database includes all non-analytical data for a single filter. Data is written to the Filter Table through the lab application.
- b. WEIGHTS: The WEIGHTS database, tied to the Filter Table database through the lab application and web application, is organized to include the mass and identification data for each filter in a single record. Each record contains analysis QC code, site, sample date, channel, status, pre-weight, post-weight, sample weight, pre-temperature, post-temperature, pre-relative humidity, post-relative humidity, pre-weight time and date, post-weight time and date, microbalance used for pre-weight, microbalance used for post-weight, and initials.
- c. Reference Weights for Manual Balance: The Reference Weights data is accessed through the IMPROVE database and is organized to include the initials of the balance operator, the date and time, the weight value, the name of the microbalance, and any related comments.
- d. Lab Blanks: The Lab Blanks data is accessed through the lab application and is organized to include the following information for the balance (Mettler 1); filter identification name; pre-weight date; post-weight date; number of days between the pre- and post-weighing of the filter; and initials of the balance operator responsible for each measurement.
- e. Lotnums: The lot number data is accessed through the web application and records the lot number, manufacturer, filter media type, filter diameter, applicable module configurations, start date and time of a new lot, end date if the lot is complete, and any associated comments.
- f. Ambient RH/Temp: The ambient RH and temperature data is accessed through the web application. Based off a probe located in the sample handling lab,

records are taken for relative humidity and temperature in real-time. The web application displays a comparison of two graphs; the first one displays the last seven days of data and the second one displays the last 31 days of data.

- g. MTL database: The MTL database houses all of the weight records, relative humidity, and temperature for all of the sampled, blank, reference, and test filters processed through the MTL AH500 chambers. The data for the routine IMPROVE production is transferred to the IMPROVE database.
- h. Reference Weights for MTL AH500 chambers: The Reference weights for the MTL AH500 chambers are accessed through the MTL database and is organized to include the weight ID, weighing date, weighing type, weight value, RH, and temperature.
- i. AH500 Chamber RH/Temp: The chamber RH and temperature data is accessed through the MTL database. Based off a probe located within each unit, records are taken for relative humidity and temperature in real-time. When an artifact is weighed, the data is tagged with a measurement of RH and temperature at the given time.

2.2 Macros and Other Data Connections

The sample handling lab uses a variety of macros, reports, a web application, a web interface, and a data connection to perform vital tasks. These will be listed and described below.

1. B_Filter_Inventory_ION: This macro organizes nylon filter data into sets of 400 filters for organization and shipping purposes.
2. C_Filter_Inventory_CARBON: This macro organizes quartz filter data and is similar to ION_Contractors
3. A_Filter_Inventory: This macro is used to sort and organize 1A (PM_{2.5}) filter data into sets and separate into Months. 1A filters are analyzed by FT-IR primarily in the order created by this macro.
4. Problems_Contractors: This macro is used to sort terminal status filter data into sets of 400 filters for organization and shipping purposes.

All the Contractor macros store the set lists they create in folders labeled by analysis or filter type. All 2B filter set lists are placed in an Ions folder, all 3C filter set lists (including inactive-C's) in a *Carbon* folder, and all 1A filter sets in an *XRF* folder.