

STATE HYGIENIC LABORATORY AT THE UNIVERSITY OF IOWA

OpenELIS Manual

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OPENELIS MANUAL

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OpenELIS

OpenELIS is a robust Enterprise Laboratory Information System built around an extensible and scalable framework. OpenELIS is designed and developed through the collaborative efforts of Public Health Laboratories to accommodate business processes that are common to all public health laboratories; encompassing clinical, environmental, newborn screening, and animal testing.

The goal of the OpenELIS team is to develop a state of the art system that is economically sustainable by reducing both initial investment and ongoing maintenance costs. By using an open source approach, we ensure that the project will continue to evolve and meet the changing needs of the community.

CHAPTER 1 ACCESSING OPENELIS

This manual is organized into two main sections: (1) basic components of the OpenELIS database for new users, such as login, logout, screen elements (fields, buttons, icons, etc.), and how to do a general query, and (2) chapters about specific screens for data entry and analysts. It is recommended that new users first familiarize themselves with the screens relevant to their duties, using the beginning chapter on screen elements as a resource and reference.

We predict this manual will serve two main audiences: new users who need a general overview of the OpenELIS database to supplement their section-specific training and users who need to refer to specific tasks or terms in the manual.

1.1 LOGIN AND LOGOUT

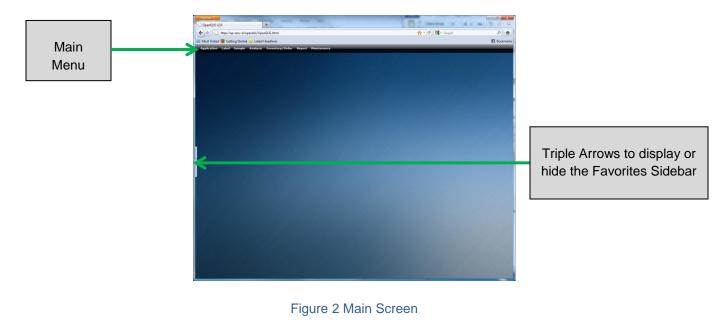
OpenELIS is an application that is accessed through a secure web page. To login to OpenELIS open a compliant browser (see supportive browsers in Section _) and type in the following url: <u>https://www.shl.uiowa.edu/openelis/OpenELIS.html</u>

The following screen should appear in the browser. This is the login screen. Enter your username and password to login to the application. Click on Sign In or press the Enter key.



Figure 1 Login Screen

Once you are logged in to the application you will see the Main Screen, or home screen, with a main menu at the top and the capability to expand the Favorites Sidebar on the left.



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It is important to logout of the OpenELIS database after each use, due to patient/client confidentiality. The Logout option is found at the bottom of the Application Menu.

Appli	cation Label Sample An	ē
ß	Preference Change your default settings including your current geographical location.	
-	Logout Exit the application.	
	Figure 3 Application Menu	

1.2 MAIN MENU

The Main Menu bar can be found at the top of the home screen. The major sections of the main menu consist of Application, Label, Sample, Analysis, Inventory/Order, Report, and Maintenance menus. Use the Main Menu to access all of the modules by expanding each section and clicking on the desired one.

Application	Label	Sample	Analysis	Inventory/Order	Report	Maintenance
			Figure 4	Main Menu		

1.3 PREFERENCES

The Preference screen under the <u>Application Menu</u> allows the user to change her default settings including her current geographical location. The user's default printer, default bar code printer, and location (Ankeny, Iowa City, or Lakeside) can be set on this screen. There are dropdown lists for each of these settings. The user needs to first click the **Update** button to initially select or modify these default settings, and then click the **Commit** button to confirm these selections.



Figure 5 Preference Screen

1.4 FAVORITES SIDEBAR

The Favorites menu found in the sidebar allows the user to proceed immediately to

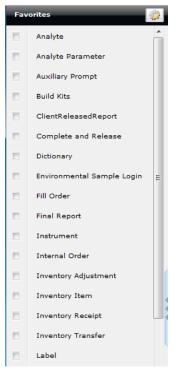


Figure 6 Available Favorites frequently used modules. Click on the triple arrows on the left-hand side of the Main Screen each time in order to display or hide the Favorites sidebar. Initially, the Favorites sidebar is empty. Click on the toggle button in the top right corner of the Favorites to display all available modules. Select the modules to appear in the personalized Favorites by checking the corresponding boxes. Click on the toggle button again to display the selected modules. They are now active and clicking on the desired name will open up that module.

Fav	orites 👸	Application
X	Analyte	
*	Fill Order	
Fir	nal Report	
	Test	
Ξ	To-Do	
Ти	rnaround	

Figure 7 Personalized Favorites

CHAPTER 2 GENERAL FUNCTIONALITY

2.1 SCREEN ELEMENTS

Status

The following are elements of a typical OpenELIS screen. This section discusses formats, fields, buttons, screen functions, and shortcuts.

			- x
* Last Name	First Name	🔍 Query 🔌 Previous 🕨 Next 🛛 🕞 Add 📄 Update 🛛 📀 Commit 🕃 Abort 🛛 Options	
A AABUSER	TESTY		
C AANESTAD		Id:	
D AAUSER	TEST	Last Name:	
E AAUSER	TEST	First Name: Master Record	
G ABDALLAH	MOUIN	Middle Name:	
H ABDUR	RAHIM	Losting Note	
I			
	Cidahar	Location External Id Apt/Suite #	
Query	Sidebar	Fields and Data	<u>^</u>
м			_
ABOUASSALY	MICHAEL	- 1	
P ABRAHAM	CHARLES		
Q ABRAHAMSON	N TIMOTHY		
R S ABRAMS	BETTY	Detail Record	
T ABRAMS	THAD		
ABRAMSON			
V	DR		
V	DR ALISON		
V W ABREM X ABREU		< III Add Row Remove Row	-

Figure 8 Screen Elements

The **Query Sidebar** that is found on some screens shows a list of the queried results. The result list can be paged forward or backwards by using the arrow buttons located at the bottom of the sidebar. For additional information, see <u>QUERY SIDEBAR</u>.

The **Screen Buttons** are located at the top of the screen. **Query**, **Add**, **Update**, **Commit**, and **Abort** are common to a majority of the screens.

The major white space in a screen is comprised of **Fields** and **Data**. The user can add information in these fields to query for existing records, add a new record, or update an existing record.

The **Master Record** is found in the upper part of some screens. The fields in the master record display the major items of information associated with the record.

The **Detail Records** are located in the lower part of some screens. The fields in the detail records display detailed information that is associated with the master record at the top.

The **Status Area** displays errors and warnings relevant to the last action that was performed by the user. For more information, see <u>STATUS AREA</u>.

2.1.1 SCREEN BUTTONS

There are three states for each button.

Screenshot of Button	State	Description
🖉 Update	Disabled	The button cannot be clicked if it is not appropriate to the current mode. The button will be grayed out.
🅜 Update	Enabled	The button can be clicked because it is appropriate to the current mode. The button's name will be in black text. The mouse cursor changes from an arrow to a pointing finger.
🕜 Update	Active	The screen is currently in that mode. For example, the button depicted in this example shows the screen to be in the Update mode. It will have a visible rectangular-shaped border.

Figure 9 Screen Button States

Below are the major buttons that are found on most screens along with a brief description of their function. The button must be clicked on most screens before the action can be taken. For example, click the **Query** button first, enter the information next, and then click the **Commit** or **Abort** button.

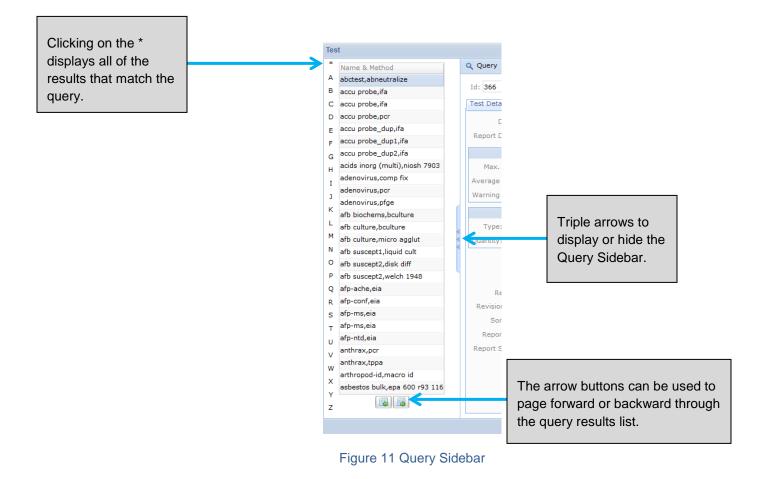
Button	Description

Q Query	Allows for the search of existing records within the database.
Add	Allows for the addition of a new record into the database.
🅜 Update	Allows for a change to be made to the current record.
Delete	Allows for the deletion of the current record.
📀 Commit	Enables any action to be committed. This function does not work unless Query, Add, Update, etc. is clicked first, and data is entered in the correct format.
🔀 Abort	Cancels the current operation that is running.
Previous	Displays the record listed prior to the one currently visible on the screen.
Next	Skips to the next record or listing.
Add Row	Allows for the addition of a row to a table.
Remove Row	Allows for the deletion of a row from a table.

Figure 10 Screen Button Descriptions

2.1.2 QUERY SIDEBAR

The **Query Sidebar** shows the results for a query in alphabetical or numerical order. It can be displayed by clicking on the triple arrows on the left side of many screens. The user can click on a letter or number to show the query matches that begin with that letter or number. The query results list can be paged forward or backward by using the arrow buttons located at the bottom of the sidebar. Clicking on the * displays all of the results for the query. Click on the **Next** or **Previous** buttons at the top of the screen to display the records one by one. Select an entry in the query results list to display that record in the right-hand pane.



2.1.3 TYPES OF FIELDS

The following section describes the functionality of the different field types that are utilized in OpenELIS.

2.1.3.1 TEXT FIELDS

Text fields allow the user to enter partial or complete text to add or update a record or to perform a query. Text can also be cut from, and copied and pasted into a text field. The OpenELIS program automatically displays the text as uppercase or lowercase depending upon the field. When the user clicks on a text field to activate it, the border of the text box turns green and a blinking cursor appears inside of it.

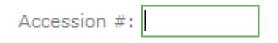


Figure 12 Active Text Box

There are required data formats for certain text fields. These are illustrated below.

Data Type	Format	Example
Date	YYYY-MM-DD	2006-05-09
Date/Time	YYYY-MM-DD HH:MM	2006-05-09 13:59
Zip Code	######-#####	52242-5002
Phone # with Extension	###/###-####.####	319/555-1212.3467

Figure 13 Data Formats

2.1.3.2 DROPDOWN LISTS

Dropdown lists allow the user to select from a prepared list of choices. The up and down arrows allow the user to move through the list one choice at a time. The scroll bar allows the user to move up or down through the list more rapidly. Click on the desired choice to enter it into the field. If the wrong item is selected, it can be deleted with the **Backspace** key and the correct selection can be made.

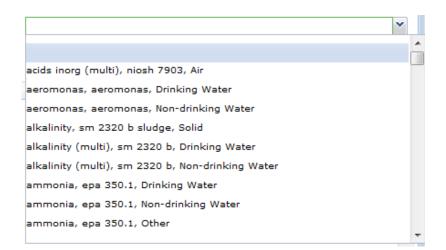
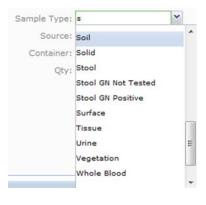


Figure 14 Dropdown List

2.1.3.3 AUTOCOMPLETE

Text fields also have an autocomplete capability. When the user types one or more characters in a text box while in Query Mode, a dropdown list appears. If there is one or more matches to the characters that have been entered, the first match will be highlighted and it can be selected via mouse click or by pressing the **Tab** key on the keyboard.





2.1.3.4 CHECKBOXES

Checking the box next to a description will note that the condition is true. An unchecked box next to a description notes that the condition is false. In the following example, the sample is noted as being hazardous.



Figure 16 Checkbox

2.1.3.5 TABLES

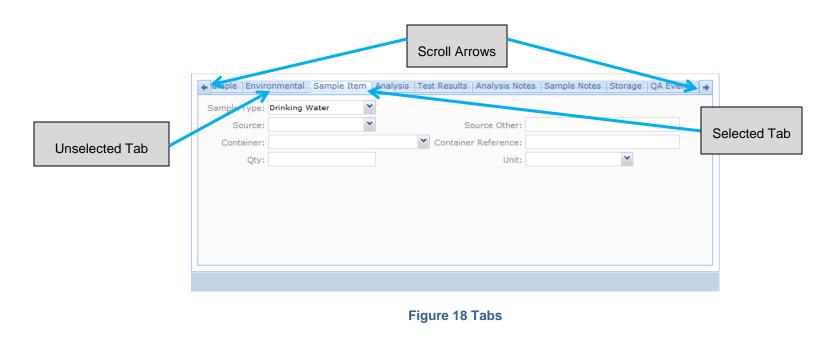
Tables contain information that is characterized by rows and columns. Each row represents a detailed record of information (e.g., an individual test result, storage information item, QA event). Each column is a different field category. Fields in tables may be text fields, drop-down lists, or checkboxes.

Acc #	Domain	Section	Test	Method	Collected	Received	Overrid	
1	E	enviro_micro-ic	wnv igm	eia	2009-04-27 14:00	2009-04-27 14:00		
1	E	enviro_micro-ank	wnv igg	eia	2009-04-27 14:00	2009-04-27 14:00		
1	E	bacteriology-ank	wnv igg	ifa	2009-04-27 14:00	2009-04-27 14:00		
1	E	airquality-ic	chl-gc	sda	2009-04-27 14:00	2009-04-27 14:00		
1	E	airquality-ic	chl-gc	sda	2009-04-27 14:00	2009-04-27 14:00		
1	E	airquality-ic	wnv igm	eia	2009-04-27 14:00	2009-04-27 14:00		
1	E	airquality-ic	wnv igg	eia	2009-04-27 14:00	2009-04-27 14:00		
1	E	airquality-ic	wnv igg	ifa	2009-04-27 14:00	2009-04-27 14:00		
1	E	airquality-ic	qftg stim	eia	2009-04-27 14:00	2009-04-27 14:00		
1	E	airquality-ic	sle igm	eia	2009-04-27 14:00	2009-04-27 14:00		
1	E	airquality-ic	sle igg	eia	2009-04-27 14:00	2009-04-27 14:00		
1	E	airquality-ic	sle igm	ifa	2009-04-27 14:00	2009-04-27 14:00		
1	E	airquality-ic	sle igg	ifa	2009-04-27 14:00	2009-04-27 14:00		
1	E	airquality-ic	lac igm	eia	2009-04-27 14:00	2009-04-27 14:00		
•		III					Þ	Ŧ

Figure 17 Table

2.1.3.6 TABS

Many of the OpenELIS screens have tabs in the Detail Record. Each tab contains fields or tables that are grouped by function. Click on the desired tab to see its member fields.



2.1.3.7 TREES

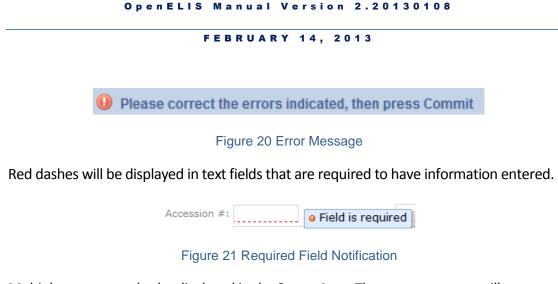
Some fields utilize a tree hierarchy. These trees allow the user to expand or collapse the tree directory by clicking on the drill-down arrows.

Items/Analyses	Type/Status
0 - 2-40ml Glass Vials	Blood
4 1 - 2-40ml Glass Vials	Blood
asper fumiga : mid	Released



2.1.4 STATUS AREA

The Status Area displays errors and warnings relevant to the last action that was performed by the user. Many of the error messages will inform the user to correct the indicated errors.



Multiple errors can also be displayed in the Status Area. The error messages will pop up when the user hovers the mouse on the ¹⁰⁰/₁₀₀ symbol.

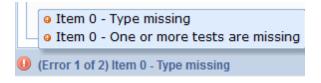


Figure 22 Multiple Errors Message

Sometimes when the record is committed a screen will popup displaying warnings. An example is provided here.

There are warnings on the screen: * coliforms : colilert mpn well - Sample type invalid * nitrate : epa 353.2 - Sample type invalid * This sample must have a report to Press Ok to commit anyway or cancel to fix these warnings.
OK Cancel

Figure 23 Warning Popup Screen

2.1.5 NAVIGATING THE SCREEN/KEYBOARD SHORTCUTS

The user can navigate through the screen in two ways:

- 1. By mouse click
- 2. By moving from field to field by using the **Tab** key

Ctrl Key: Multiple selections from a dropdown list can be performed by clicking on each desired selection while holding down the **Ctrl** key.

Shift Key: A continuous range of selections can be performed by clicking on the first and last desired selections in the range while holding down the **Shift** key.

Keyboard Shortcuts

The following key combinations can be used as shortcuts for the corresponding actions.

Key Combination	Action
Ctrl Q	Query
Ctrl P	Previous
Ctrl N	Next
Ctrl A	Add
Ctrl U	Update
Ctrl M	Commit
Ctrl O	Abort
Ctrl C	Сору
Ctrl V	Paste
Ctrl X	Cut

Figure 24 Keyboard Shortcuts

2.2 QUERY FUNCTION

OpenELIS screens are designed to allow *query by form*. A query by form allows the user to input data into one or more fields on a screen form. This data specifies the records that should be retrieved from the database. What makes this feature so powerful are the relational, range, alternations, and wildcard symbols that a user can include in a query.

2.2.1 GENERAL QUERY BY FORM CAPABILITIES

Begin a query by form by clicking on the **Query** button. Enter information into any field that you wish to query by. You may use appropriate wildcards to expand or limit your search. Increasing the number of fields that you enter information into will increasingly narrow your search. Begin your query by clicking on the **Commit** button. At this point, the screen will display the first matched record, or you will be informed in an error message in the Status Area that no record matched your query.

2.2.1.1 "AND" OPERATION

The "and" operation is used **between** fields when querying by form. The OpenELIS database is searched for all records that possess **all** of the values entered into the multiple fields.

Example 1: Entering SMITH into the Last Name field and ROBERT into the First Name field during a Provider query will display all records of providers with the name Robert Smith.

Example 2: Selecting "Released" in the Status field and entering 2011-11-11 in the Collected field and CEDAR RAPIDS in the City field during a Private Well Water Sample Login query will display all records for private well water samples from Cedar Rapids that were collected on November 11, 2011 and have been released.

2.2.1.2 "OR" OPERATION

The "or" operation is used **within** fields when querying by form. The OpenELIS database is searched for all records that possess **any** of the values entered into the individual field. The | keystroke (Shift \) is used to represent "or".

Example 1: Entering SMITH | RAMIREZ into the Last Name field during a Provider query will display all records of providers with the last name Smith **or** Ramirez.

Example 2: Entering WAVERLY KNOXVILLE into the City field during a Private Well Water Sample Login query will display all records for private well water samples from Waverly **or** Knoxville.

2.2.2 FIELD TYPE BEHAVIOR IN QUERY MODE

Certain types of fields behave differently in Query Mode than they do in Add or Update modes. These behavior differences are outlined in this section.

2.2.2.1 DROPDOWN LISTS ALLOW MULTIPLE SELECTIONS

Multiple selections from a dropdown list can be chosen by clicking on each desired selection while holding down the **Ctrl** key. A continuous range of selections can be chosen by clicking on the first and last desired selections in the range while holding down the **Shift** key.

Example: Selecting "Completed" and "Released" in the Status field during an Environmental Sample Login query will display all environmental samples that have been completed **or** released.

2.2.2.2 AUTOCOMPLETE

Autocomplete doesn't work the same way in Query Mode that it does in Add Mode. This allows the "or" operator to be utilized.

Example: Entering j*|m* in the Collector field during a SDWIS Sample Login query will display all records for SDWIS samples collected by people whose names start with a "j" or "m".

2.2.2.3 CHECKBOXES

Checkboxes can have three states in Query Mode.

Screenshot	State	Description
	"Yes"	All records will be displayed where the designated condition is true.
	"No"	All records will be displayed where the designated condition is false.
	"Indifferent"	The designated condition will be ignored in the query.

Figure 25 Checkbox States in Query Mode

2.2.2.4 PICTURES ARE NOT ENFORCED

Pictures are not enforced in Query Mode.

Example 1: Extended zip codes (5 integers + 4 integers) are not enforced. 5digit zip codes may be entered in the Zip Code field while in Query Mode.

Example 2: Date fields (YYYY-MM-DD) are not enforced. Dates can also be entered in the formats of YYYY/MM/DD, MM-DD-YYYY, or MM/DD/YYYY. Leading zeroes in the month or day parts of the date field do not need to be entered.

2.2.3 QUERY CAPABILITY USING WILDCARDS, RANGES, EMPTY AND NON-EMPTY FIELDS

The use of wildcards, ranges, empty and non-empty fields increase the functionality of queries. These capabilities are described below.

2.2.3.1 WILDCARD CHARACTER

The asterisk (*) is used as a wildcard character in queries to substitute for any other character or characters in a string.

Example 1: Entering s* in the Collector field of an Environmental Sample Login query will display all records by a collector whose name begins with the letter "s".

Example 2: Entering *CO in the Name field of an Organization query will display all records of organizations whose names end with the letters "CO" (e.g., LOUISA CO or ACME MINING CO).

Example 3: Entering *f*1* in the Address field of an Organization query will display all records of organizations that have an "f" **and** a "1" anywhere in the address.

Example 4: Entering *2*|*5* in the Address field of an Organization query will display all records of organizations that have a "2" **or** a "5" anywhere in the address.

2.2.3.2 RANGES

Ranges can be specified in Query Mode by using the .. characters.

Example 1: Entering 200..500 in the Id field of an Organization query will display all records of organizations that have an Id in the range of 200 to 500.

Example 2: Entering 2011-12-03 00:00..2011-12-03 23:59 in the Received field of a SDWIS Sample Login query will display all records of SDWIS samples that were received during that 24-hour period.

2.2.3.3 EMPTY FIELDS

Queries can be performed for text fields that are empty by inserting the = at the beginning of the field.

Example: Entering = in the beginning of the Location field of a Private Well Water Sample Login query will display all records of private well water samples that have that field empty.

2.2.3.4 NON-EMPTY FIELDS

Queries can be performed for text fields that are not empty by inserting the **!=** at the beginning of the field.

Example: Entering != in the beginning of the Location field of a Private Well Water Sample Login query will display all records of private well water samples in which that field is **not** empty.

2.3 ADD FUNCTION

The Add Function allows for the addition of a new entry into the database after clicking the **Add** button. Most screens require some information to be imputed. Some screens check for duplication of information (eg., Analyte), and will display a warning message that a record with that value already exists in the database.



Figure 26 Add Function: Duplicate Record Warning

2.4 UPDATE FUNCTION

The Update Function permits the modification of an entry after clicking the **Update** button. When **Update** is selected the latest version of the record is fetched from the database and it is locked for modification. This guarantees that other users cannot change the record during the duration of the lock (15 minutes). If another user attempts to update or delete the record during the duration of the lock, a message pops up detailing the username of the person who possesses the lock and the expiration date and time of the lock.

This record is locked by wberger until Thu Apr 0	5 11:40:05 CDT 2012
	ОК

Figure 27 Locked Record

If the user who has acquired the lock on the record fails to update it during the allotted time, a different user can acquire the lock in her place. When the initial user tries to commit her changes, an error message pops up explaining that her lock has expired, and she must abort and start over.

commitUpdate(): Your Lock on this record has expired; Please at	port and try again
	ОК

Figure 28 Expired Lock Message

The **Commit** button must be clicked in order to send all modifications back to the database to be recorded. Conversely, the **Abort** button may be clicked to stop the entire operation. If entry errors occur, error messages will be displayed. These errors will need to be fixed, and the **Commit** button clicked again.

2.5 DELETE FUNCTION

Not many screens allow the user to delete records. Clicking the **Delete** button fetches the latest version of the record and locks it. The user should review the data and make sure that he wants to delete the record. He will then need to click **Commit** to confirm the deletion or **Abort** to cancel it.

2.6 OPTIONS MENU

The Options Menu is found on many screens. It allows for the utilization of additional features such as duplicating records, previewing a Final Report, and reviewing history information on the currently displayed entry.

2.6.1 DUPLICATE

The Duplicate function places the screen into the Add mode and copies the previous displayed record into the current form with the exception of unique identifiers. An example of the Duplicate option would be to copy an internal or send-out order record. In this case, all of the fields are copied except for the Order #, which would be assigned automatically by the system when the record is committed.

Internal Order			- x
🔍 Query 🜗 Previous 🕨 Next 🔂 Add	🖉 Update 🛛 💿 Commit 🛛 🔞 Abort	Optior	
Order #: 332	Needed In Days: 0	8	Duplicate Duplicate the current record
Status: Processed 💙	Requested By: demo	\odot	History - Order
Order Date: 2011-04-01 🖪		\odot	History - Order Item
Cost Center:			
Items Filled Shipping Notes			
Quantity Inventory Item	Store		
2 alcohol swab	Main Store		^



2.6.2 HISTORY

The History feature on various screens gives detailed information about the current record and how it has changed over time at the field level. For screens that display a variety of records, the user will need to select different History options to view the details.

O Expand	🏥 Similar 🔍 Query 🕤		opdate 🖉	📕 Add Test 🛛 📕 Cancel Test	Commit	abort	Optio	ns 🔻	
Sample	Type/Status	_	Accession #:	319 Order #:				Unrelease Sample	1:00
4 319	Logged In	^			1				1.00
4 0 - <>	Drinking Water		Received:	2011-01-25 14:04 Status:	Logged In	Y Client	C	History - Sample	
coliforms : colilert	mpn w Released	ſ	Private Well]
b nitrate : epa 353.2	Logged In		Derest Ter	IOWA GEOLOGICAL SURVEY BURE	0 14	20	C	History - Sample Specific	
Storage					Org Id:		\odot	History - Sample Project	
Notes			Apt/Suite #:		Attn:	John Smith	\odot	History - Sample Organization	
QA Events			Address:	109 TROWBRIDGE HALL			\odot	History - Sample Item	
Aux Data			City:	IOWA CITY	Phone #:		0	History - Analysis	
			State:	IA Y Zip Code: 52242-1319	Fax #:		C	History - Current Result	
			Owner:		Project:		-		
							C	History - Storage	
			Collector:		Bill To:	IOWA GEOLO	Θ	History - Sample QA Event	
			Well Num:				C	History - Analysis QA Event	
							0	History - Aux Data	

Figure 30 History Option

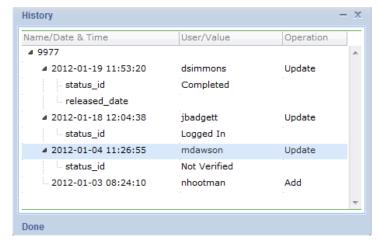
The History pop-up window allows you to view the operations that were performed on the currently displayed record, when, and by whom. The details can be viewed by clicking and expanding on the drill-down arrows. It lists the Name/Date & Time, User Name, and the Operation taken by that user for that particular record. The primary operations include Add, Update, and Delete.

History			- x
Name/Date & Time	User Name	Operation	
⊿ 835			*
2012-04-09 13:18:02	nhootman	Add	
			Ŧ
Done			

Figure 31 "Add" Sample History

All records in LIMS start with an "Add" operation. For example, in the History screen above, nhootman added sample accession # 835 to the LIMS at 1:18 PM on April 9,





2012. Since the "Add" operation does not modify any previous record, there aren't any field changes to display.



The "Update" operation on a history screen displays the field level information before it was modified. Entries in the History screen should be read from bottom to top with the most recent changes at the top. In the example in Figure 32, nhootman added the sample record to the LIMS with an accession number of 9977 at 8:24 AM on January 3, 2012. The sample record was then updated by mdawson at 11:26 AM on January 4, 2012. The variable, status_id, was changed from sample Not Verified to sample Logged In, which is found in the entry above it. Next, at 12:04 PM on January 18, 2012, jbadgett updated the status_id variable from sample Logged In to sample Completed, which is found in the entry above it. Finally, dsimmons updated the status_id variable from sample Completed to its current value (sample Released) at 11:53 AM on January 19, 2012. The "Released" sample status is displayed in the Status field of the current version of the sample record. The sample released_date variable was also updated at this time from an empty field to the released date and time found on the current version of the sample record.

OpenELIS displays the following names or labels in its history screens instead of the Id of the record: dictionary, test, analyte, inventory item, method, organization, project, QA event, sample item, and section.

The history of "Delete" operations are also maintained by the LIMS, including information for every field of that record. However, the user cannot display the history of these records.

CHAPTER 3 MANAGING SAMPLES

Samp	o <mark>le</mark> Analysis Inventory/Ord	0
7	Quick Entry Quickly login samples with minimal information to allow	N Ia
1	testing to begin. Verify Sample Data Entry	10
	Tracking Lookup and manage general sample information.	т р
	Environmental Sample Login Fully login environmental sample and analysis related information.	
☆	Private Well Water Sample Login Fully login private well water sample and analysis related information.	
۲	SDWIS Sample Login Fully login safe drinking water sample and analysis related information.	
	Clinical Sample Login Fully login clinical sample and analysis related information.	
	Newborn Screening Sample Login Fully login newborn sample and analysis related information.	
	Animal Sample Login Fully login animal sample and analysis related information.	
	PT Sample Login Fully login proficiency testing sample and analysis related information.	T S
	Project Create and manage projects that can be associated with samples.	(F m u
&	Provider Enter health care professionals and their contact information.	(e
	Organization Manage submitter and partner information.	3
F	igure 33 Sample Menu	La

One of the key features of a Laboratory Information Management System (LIMS) is its ability to help aboratories store, retrieve, and manage samples.

he life cycle of a sample includes the following basic rocesses:

- Samples are received at the laboratory
- 2. Samples are labeled
- 3. Samples are entered into the system
 - Quick Entry
 - Full Login
- 4. Analyses are added to the container(s)
- 5. Analysts schedule work by creating worksheets
- 6. Analysts complete analyses using worksheets
- 7. Second reviewer verifies and releases results
- 8. Final Reports become available
 - Printed and sent •
 - Faxed
 - Displayed through the web portal •

he Sample Menu provides access to the various domainpecific login modules, as well as, additional utility modules Project, Provider, and Organization). Sample modules are nainly designed for data entry personnel. Please note that sers can have different screens open at the same time e.g., Tracking and Organization).

.1 SAMPLE LABELS

aboratories routinely label all of their incoming. samples using a unique id called accession number. The

Label Menu contains two modules that allow users to print sample labels. Login

Barcode Labels is used to generate new accession numbers for initial sample login. Additional Login Barcode Labels Module is used to print additional container labels or replacement labels (for paperwork or containers).

Label	Sample	Analysis	Inven
	Login Barco	ode Labels	
	Additional I Labels	Login Barco	de

Figure 34 Label Menu

To print new accession labels, use the Login Barcode Labels screen and enter the # of Samples that need to be accessioned. Accession numbers are sequentially assigned by the LIMS and cannot be duplicated.

For each accessioned sample, the module will print one paper work label and one or more container labels specified by # of Containers. For example, to accession two samples each having three containers, enter 2 in the # of Samples field and 3 in the # of Containers field. In this case, a total of eight labels will be printed which includes two labels for sample paperwork.

The Date Received defaults to the current date and time but can be changed by clicking on the calendar to the right or by entering this information into the field in the correct format. The Location or the Printer can be changed by clicking on the drop-down arrow to the right. Click **Run Report**. If you need to reset the screen, click the **Reset** button.

Login Barcode Labe	ls	- >	5
# of Samples:	2		
# of Containers:	3		
Date Received:	2012-04-16 16:45		
Location:	Iowa City	*	
Printer:	103E_bar	*	
	Run Report Rese	et	
Done			

Figure 35 Login Barcode Labels Screen

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The Additional Login Barcode Labels screen allows for the printing of additional sample labels for existing accession numbers. For samples that have not been entered into the system, Date Received is required. For samples that have already been entered, Date Received is replaced with the sample's received date.

To print additional/replacement labels for:

- Paperwork only
 - 1. Enter Accession number, i.e., 1070.
 - 2. Enter 0 for # of Containers.
 - 3. Optionally enter Date Received (see above).
 - 4. Click on Run Report.
- Container replacement label
 - 1. To replace label for container 0, enter Accession number with starting container id, i.e., 1070-0.
 - 2. Enter 1 for # of Containers.
 - 3. Optionally enter Date Received (see above).
 - 4. Click on Run Report.
- Additional Containers
 - 1. To print new container labels, i.e., 1070-5 and 1070-6, enter Accession number with starting container id 1070-5.
 - 2. Enter 2 for # of Containers.
 - 3. Optionally enter Date Received (see above).
 - 4. Click on **Run Report**.

1070-5 (I)	
2011-03-10 11:10	01/01/2012/0



Figure 37 Additional Containers Labels



Figure 36 Container Replacement Label

Additional Login Barco	de Labels	- ×
Accession number:	1070-5	
# of Containers:	2	
Date Received:		•
Location:	Iowa City	¥
Printer:	103E_bar	•
Ru	n Report Reset	
Done		

Figure 38 Additional Login Barcode Labels

3.2 QUICK ENTRY

The Quick Entry feature is primarily used by analysts in order to quickly log-in sample(s) for one or more tests. Once tests are quick entered, secondary labels may be printed, work lists and worksheets may be created, and results may be entered. This allows the analytical work to proceed without having to wait for full sample demographic information to be entered.

The Quick Entry process is not compatible with the full sample login process that uses Order #. For samples that have order information (Send-out Order) the full login module should be used.

The link to the Quick Entry module is found in the top section of the Sample Menu.

Quick Entry				-	- x
💿 Commit					
Entry:	Accession #:	Tube #:	Received:		
	Test, Method, Sample Type:				~
	Test Section:				*
	Current Date/Time:	Print Labels:	Printer:		*
Accession # Received	Test	Method	Sample Type	Tube #	
					*

3.2.1 FIELD DESCRIPTIONS

Figure 39 Quick Entry Screen

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A description of the use of each field in the Quick Entry Screen follows:

Entry

The Entry field is used to scan data for all the fields: Accession #, Tube #, (Date and Time) Received, and Test, Method, Sample Type. Depending on the type of barcode scanned, the Entry field places the value into the appropriate field. For example, if you scan an accession number into the Entry field, the system will recognize the accession number format, and places the data in the Accession # field. If the scanner is not operational, you may manually enter values in these fields, followed by pressing the Enter key on the keyboard. If barcode entry does not seem to be responding, click in the Entry field before scanning again.

Accession

Scan the accession numbers that need the selected test/method/sample type assigned to them.

Tube

Scan this number from the barcode into the Entry field. The Tube # field will be automatically populated. Tube # has the format of three letters followed by three numbers (e.g., ABC123).

Received

Scan the date and time that the sample was Received from the first Sample Collection Form. A different date and time received only needs to be scanned if it changes.

Test, Method, Sample Type

Scan the barcode for the Test, Method, Sample Type for the test you are assigning from the preprinted <u>Sample Type Barcode Test Report</u>. The correct Test, Method, Sample Type may also be selected from the drop-down list to the right of this field.

Test Section

This field is automatically populated if the test is performed by one section. For tests that can be performed in multiple sections and depending on test definition, the LIMS will:

- 1. Default to your current location from Preference's Location if test definition specifies "Match User Location"
- 2. Force a selection if test definition has more than one section.

Current Date/Time

This feature has not been implemented at this time.

Print Labels

This feature has not been implemented at this time.

Printer

This feature has not been implemented at this time.

Test Order List

The Test Order List is a temporary holding place for analyses to be assigned to samples. It maintains a list of accession numbers and tests that will be entered into the LIMS. For each accession number and test, a new row will appear in the lower pane of the screen. Each test for a sample needs to be logged in separately. If a row needs to be removed, select that row and click the **Remove Row** button at the bottom of the screen.

Once the entries have been verified, click the **Commit** button on the screen. All of the tests are now committed to the LIMS, and the current list of accession numbers becomes cleared from the Quick Entry screen. Although it is not a requirement to save, it is recommended that the entries be committed occasionally in case of a power failure.

Be cautious with the entry of analyses. If the wrong test is added to a sample -- it CANNOT BE DELETED from the sample -- only cancelled. However, Sample Type can easily be updated for each sample that was entered incorrectly.

3.2.2 USING QUICK ENTRY FOR A SERIES OF SAMPLES

The following process should be followed to quick enter a series of samples:

1. Scan in the date and time the sample is received.

- Scan in the test barcode number. A list of tests with corresponding barcodes may be printed from the Test Report Screen located in the Report/Reference Menu. (See <u>Sample Type Barcode</u> for more information about this feature.)
- 3. Scan in the tube number (optional).
- 4. Scan in the accession number.
- 5. A new entry will appear in the Test Order List.

If the received date and time and/or the test/method/sample type are the same for the next sample in the series, these fields do not have to be scanned in again as the Quick Entry screen will keep them as default values. Only the new accession number needs to be scanned. Again, an error in an entry in the Test Order List may not be corrected. The entry must be deleted with the **Remove Row** button and reentered.

3.3 FULL SAMPLE LOGIN

Sample login screen(s) are specifically designed for data entry personnel to manage one sample at a time. Every aspect of a sample, i.e., general sample information, sample containers, analyses, QA events, etc., can be entered through these screens.

The sample screens are the primary modes of entering complete sample information. Metadata for samples that were logged-in through Quick Entry are completely entered through these full sample login modules. Information from the Quick Entry sample login is imported into the full sample login screen.

Full sample login is available for each type of sample domain: environmental, private well water, SDWIS (safe drinking water), clinical, newborn screening, animal, and PT (proficiency testing).

The links to the full sample login modules are located in the middle section of the <u>Sample</u> <u>Menu</u>.

3.3.1 COMMON FIELDS

Many of the fields are the same for each sample domain. These are usually found at the top and bottom of each full sample login screen. The common fields are shown below.

3.3.1.1 COMMON FULL SAMPLE LOGIN FIELDS – TOP OF SCREEN

Q Query 🔄 Previo	us 👂 Next	Add	🖉 Update	📀 Comm	it 🔞 Abort	Options 👻	
Accession #:		Order #:		Eq	Collected:		Time:
Received: 2011-	11-16 16:56 🔤	Status:	Not Verified	Y Clier	nt Reference:		

Figure 40 Common Full Sample Login Fields - Top of Screen

These are the fields that are found in the top section of all full sample login screens.

Accession

This field is used to enter the unique accession number for the sample. In add and update operation, the LIMS verifies that the accession # is not assigned to another sample. For samples that were Quick Entered, the LIMS will automatically populate the analysis part of the screen using previously entered data.

The field also ensures that the accession number has already been issued using the Login Barcode Labels module. An error message stating "Invalid Accession Number: Number not in use yet" will appear when an attempt is made to enter an unused accession number.

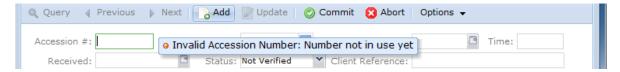


Figure 41 Error Message - Accession Number Not in Use Yet

Order

The Order # field is the unique Id for a send-out order (for non clinical samples). When the Order # from a send-out order is entered, the information from the send-out order populates the corresponding fields in the Full Sample Login screen. The pop-up button is to the right of Order # pops up a Send-out Order screen. (See <u>SEND-OUT</u> <u>ORDER SCREEN</u> for more information.) Sample order forms that have an order

number should be entered by Full Sample Login instead of Quick Entry because samples that already have tests assigned via Quick Entry cannot use an order number.

Collected

This field is for the date the sample was collected.

Time

This field is for the time the sample was collected.

Received

This field is for the date and time the sample was received at the laboratory.

(Sample) Status

This field displays the status of the sample. The sample statuses are:

- Not Verified This is the default status of a newly entered sample. A sample remains in this status until it is verified. See <u>USING PAPER VERIFICATION</u> for more information on the verification process.
- Logged In After a sample is verified its status changes to Logged In. The sample will remain in this status while testing is being performed unless an issue changes the status to Error.
- Completed Once all of the analyses are completed, the sample will automatically go to Completed status.
- Error A sample will go to Error status if there is a problem with its data or analyses. It will remain in this status until the problem(s) is corrected.
- Released Once all of the analyses are released, the sample will automatically go from Completed to Released status.

The Status field cannot be directly changed by the user. This field changes automatically based on sample and analysis data.

Client Reference

The value displayed in this field is one item that ties the client's information to the sample paperwork. It could be a client's lab number or another unique identifier for a sample that they collect.

3.3.1.2 COMMON FULL SAMPLE LOGIN FIELDS - MIDDLE OF SCREEN

Sample Items and A	nalyses	
Items/Analyses	Type/Status	
▲ 0 - 17 - Pint Glass (unpreserved)	Solid	*
billing misc charges : no method	Released	=
pesticides : epa 8270 nch, op	Logged In	
pesticides : uhl h 025	In Prep	-
Add Item	ove Row	

Figure 42 Sample Items and Analyses Tree - One Sample Item

Sample Items and Analys	ses	
Items/Analyses	Type/Status	
4 0 - 1 - Quart Plastic (unpreserved)	Non-Drinking Water	*
solids : usgs i-3765-85suspen	Released	
4 1 - 2 - 8oz. Plastic (1mL 1:1 sulfuric acid [H25	Non-Drinking Water	
ammonia : lac 10-107-06-1j	In Prep	÷
Add Item Add Analysis Add Analysis	ow Pop-out	

Figure 43 Sample Items and Analyses Tree - Two Sample Items

The Sample Items and Analyses tree is found in the middle section of all full sample login screens. This information is organized as a <u>tree hierarchy</u> with sample items (containers) being preceded with numerals and analyses assigned to the sample item following below. The sample type is specified to the right of each sample item. The analysis status is specified to the right of the analysis. The buttons shown at the bottom of this area are used to build the tree. The buttons are described below.

Add Item

The **Add Item** button allows for the addition of a sample item to the current sample. A sample item is a sample container (i.e., a tube of blood, a bottle with a preservative, a

sample aliquot) that contains the substance to be tested. When the **Add Item** button is clicked for the initial time, Item "0 - <>" is added to the Items/Analyses column in the Sample Items and Analyses tree. The sample container will replace the "<>" to the right of the "0". The sample container is selected from the Container dropdown list in the Sample Item tab located in the lower pane of a full sample login screen. (See <u>SAMPLE ITEM TAB</u> for more information.) The "<>" in the Type/Status column is replaced with the sample type. The sample type is selected from the corresponding drop-down list found in the Sample Item tab, as well.

Sample Items and Analyses	
Items/Analyses	Type/Status
0 - <>	\diamond

Figure 44 Adding a Sample Item in Full Sample Login

Add Analysis

The Add Analysis button allows the user to:

- 1. Add an analysis to a highlighted sample item
- 2. Add a peer analysis to a highlighted analysis
- 3. Add both a new sample item and a new analysis, if no sample item exists

Sample Items and Analyses	
Items/Analyses	Type/Status
4 0 - 1 - Quart Plastic (unpreserved)	Non-Drinking Water
$\langle \rangle$; $\langle \rangle$	Logged In

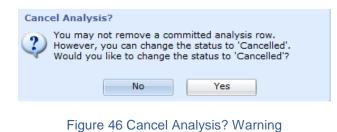
Figure 45 Adding an Analysis to a Sample Item

The "<> : <>" symbols are replaced with the test and method names. The Test and Method are selected on the Analysis tab. (See <u>ANALYSIS TAB</u> for a complete explanation.) The analysis Status is located to the right of the Analysis name in the Sample Items and Analyses tree. The initial analysis status would be Logged In (or In Prep for a prep test).

Remove Row



The **Remove Row** button allows you to delete a sample item or analysis that has not yet been committed. Once a sample item row is removed, its preceding numeral is no longer available for reuse. For example, if Sample Item 0 is deleted and a new sample item is added, it cannot be assigned the numeral 0 by the LIMS. If **Remove Row** is clicked for an analysis row after committing, a message pops up warning that the analysis may only be cancelled, not removed.



Pop-out

The **Pop-out** button displays the Sample Items and Analyses table in its own screen affording easier readability and the ability to move the analysis to a different container.

Sample Items and Analyses	-	X
Items/Analyses	Type/Status	
a 0 - <>	Non-drinking Water	*
pesticides : uhl h 016	Released	
prep pest : uhl h 016	Released	
1 - <>	Non-drinking Water	
4 2 - <>	Non-drinking Water	
glycols : uhl h 019	Released	

Figure 47 Sample Items and Analyses Pop-out Screen

3.3.1.3 COMMON FULL SAMPLE LOGIN FIELDS - BOTTOM OF SCREEN

Sample Item	Analysis	Test Results	Analysis Notes	Sample Notes	Storage	QA Events	Aux Data	
Sample Type:			•					
Source:			~	Source	Other:			
Container			*	Container Refe	rence:			
Qty:					Unit:		*	

Figure 48 Common Full Sample Login Fields - Bottom of Screen

The bottom section of each full sample login screen is comprised of multiple tabs. The information in these tabs is mostly tied to sample items and analyses. To change or view information for each sample item or analysis, select the desired sample item or analysis row and click on the tab of interest. The fields found in the bottom section are described below by tab.

3.3.1.3.1 SAMPLE ITEM TAB

ample Item	Analysis Test Res	sults Analysis Notes	Sample Notes	Storage	QA Events	Aux Data	
Sample Type:	Drinking Water	*					
Source:	Well Water	~	Source	Other:			
Container:	13 - 40mL Glass \	/ials(unpreserved) 🍸	Container Refe	rence:			
Qty:	3			Unit:		•	

Figure 49 Sample Item Tab

Sample Type

The Sample Type drop-down list allows for the classification of the sample (e.g., Breast Milk, Dust, Liquid, Oil, etc.). The Sample Type selected affects what tests can be assigned to this sample item. For example, if a "Drinking Water" sample type is selected, the Test drop-down list on the Analysis tab will only offer tests that can be performed on drinking water.

Source

This field specifies the source of the sample such as Well Water, Ground Water, etc. For clinical samples, this field is used to specify a collection source such as Capillary for Blood sample type, Left Ear Lobe for Skin Biopsy, etc.

Source Other

This field is a text field that can be used to enter more specific source information.

Container

The container is the apparatus that holds the sample. Examples include a bottle, vial, trip blank, culture swab, etc. All SHL container names have the following format: internal id - container name. The container name can be quite descriptive and often specifies its capacity, e.g., 70 - 250ml Brown Plastic Nalgene Bottle (EDTA preservative).

Container Reference

This text field can be used to uniquely identify the received container by using the manufacturer's inventory serial id, or the "Build Id" on the container label if you are building kits (see <u>BUILD KITS SCREEN</u>) through the LIMS.

Qty and Unit

These fields denotes the quantity of material in this container. For example, if the container holds 200 mL of water, enter 200 in the Qty field and select mL from the Unit drop-down list.

3.3.1.3.2 ANALYSIS TAB

Te	est:	volatiles		Method:	epa 524.2	thm .		Started:	2011-0	6-20 09:57 🖻		
Status: Released			Revision	0	Reportable: 🛛 Completed: 2011-06-20 1		6-20 10:29 🔤					
Section: volatile-ic			 Unit: 	ug/L Y Released		Released:	: 2011-11-02 14:00 🖪					
Sample Pr	ep:						~	Printed:		•		
Worksheet	Cre	eated	Status		User			User		Action		
97	201	1-06-20 09:57	Workin	9	tcain		*	tcain	Completed			4
								demo		Released		
4						Þ	-	•			Þ	
Select								Add Row	R R	emove Row		

Figure 50 Analysis Tab

The Analysis tab shows current test and method information for the selected analysis. This tab is also used to select the test and method for an analysis while the record is in Add Mode. The fields on this tab and their use are described below.

Test and Method

For a new analysis, the test autocomplete field allows the user to select a test and method based on the user's input and the sample type. Once the desired test name is selected, the Method, Revision, Unit, and Reportable (if applicable) fields will be automatically entered. For an existing analysis, the test field will only allow the test's method to be changed (method flipping) for those tests that can be performed by more than one method.

Test:	×	Method:	Started:				
Status:	Test	Method	Description				
Section:	bod	sm 5210b seeded&inh	BOD, 5 day seeded & inhibited				
	carbon dioxide	sm 4500 co2 b	Carbon dioxide calculation - requires temp, ALK &				
Sample Prep:	chem oxygen demand	epa 410.4	COD-chemical oxygen demand in water matrices				
orksheet Cre	chem oxygen demand	sm 5220 d	COD-chemical oxygen demand in water matrices(
	chlorophyll a	epa 445.0 rev 1.2	Chlorophyll Analysis by EPA 445.0 Rev 1.2				
	chlorophyll a	sm 10200 h	Chlorophyll Analysis by SM 10200 H				
	coliphage	male sp coliphage	Coliphage (male specific) in Water by 2 Step Proc.				
<	coliphage	somatic coliphage	Coliphage (somatic) in Water by 2 Step Proc.				
Select	color	sm 2120 c	Color in water matrices				
	conductivity	sm 2510 b	Conductivity				

Figure 51 Test Selection Drop-Down List

(Analysis) Status

This field displays the current analysis status. The different analysis statuses are:

- Logged In Shows that the analysis is assigned to the sample item and it is ready for testing to begin.
- Initiated The analysis has been added to an electronic worksheet and testing has begun.
- On Hold This status is used when the analyst is waiting for an external action (e.g., waiting on a directive from a client, other external events). This status needs to be manually selected.
- Requeue Indicates that the analysis is rescheduled for re-analysis. See <u>WORKSHEETS</u> for more detail.
- Completed Analysis has all the results and is waiting for second review. See <u>COMPLETING AN ANALYSIS</u> for more information.
- Released The second review is compete and the result is available for external reporting. See <u>RELEASING AN ANALYSIS</u> for more information.
- Error Logged In Analysis is in Logged In status but has missing or incorrect information such as invalid sample type.
- Error Initiated Analysis is in Initiated status but has missing or incorrect information.

- Cancelled Indicates that this analysis is no longer desired and should not be performed. Laboratories often cancel an analysis because of incorrect assignment.
 See <u>CANCELING AN ANALYSIS</u> for more information.
- In Prep Analysis is waiting for its prep test to be completed.

The Status is set to "Logged In" by default (or "In Prep" if a prep test needs to be completed first).

Revision

The Revision number indicates the current version of the analysis. Laboratories sometimes unrelease an analysis in order to correct analysis information. After the correction is committed to the LIMS, the revision number is automatically incremented by one.

Reportable

An analysis with the Reportable box checked will have its test results displayed and/or transmitted via the Final Report, Data View, or electronically.

This field is defaulted to the test definition but can be changed to indicate if an analysis should be reported. For those systems that create billing, the reportable flag is also used to create billing information.

Section

This field indicates which section is performing the analysis. For tests that can be performed by different sections, the Sections-Options in the test definition specifies how this field operates. See <u>TEST DETAILS TAB</u> for more information.

- If Sections-Options is blank, then the user must manually select the section
- For the Match User Location option, the LIMS tries to match the section where the test is performed to the user's Location (specified under <u>Preference</u>)
- The Default option always defaults that section to all analyses

Sample Prep

Use this field to link the current analysis to a prep analysis within the same sample. If an analysis has a prep analysis, the dependent analysis is placed into In Prep status until the prep analysis is completed. Then the status of the dependent analysis is changed to Logged In and the analysis available date is updated.

At times it may be desirable to choose a previously logged in analysis to be the prep analysis for a dependent analysis. This is accomplished by clicking on the dropdown arrow in the Sample Prep field and selecting the desired prep analysis. For a complete explanation of prep tests, see <u>PREP TESTS</u>.

	Sample Items and	Analyses			Orgai	nization Info	
Items/Analyses		Туре	/Status		Project:		¥ =
⊿ 0 - <>		Non-	Drinking Water	~	Report To:		¥ =
prep pest : ep	rep pest : epa 3510 water chi Logged In						
pesticides : ep	esticides : epa 8081 chi Logged In				Bill To:		•
				-			
🜉 Add Item 🛛 🜉 A	Add Analysis 🛛 📑 Rem	nove Row	Pop-out				
Sample Item Anal	ysis Test Results Ar	nalysis Notes	Sample Notes	Stor	rage QA Events Au	ıx Data	
Test: pest	ticides 💌	Method:	epa 8081 chi		Started:		
					Starteur	•	
Status: Logo	ged In 💙	Revision:	D Repor	table:	Completed:		
Status: Logo Section: pest	-	Revision: (Unit:		table:			
	-			table:	Completed:	3	
Section: pest	ticide-ic 🗸			table:	Completed:		

Figure 52 Selecting a Previously Logged In Analysis to be a Prep Analysis

Started

Indicates the date and time the analysis was performed. This field is automatically set to when the analysis is placed into a worksheet but can be overridden to indicate the actual time of analysis.

Completed

Indicates the date and time the results were entered into the LIMS. This field is automatically set to the date and time the worksheet was loaded back into the system.

Released

Indicates when the analysis was released or re-released. This field is set by the system and cannot be changed by the user.

Printed

The date and time the analysis was (or would have been) printed or re-printed on the Final Report.

Worksheet Table

This table displays all of the worksheets that contain this analysis. For example, if an analysis was run on two different worksheets, this table will have two entries indicating the worksheets.

To view the entire worksheet, select the row and click the **Select** button below the table.

User Table

This table displays a list of all of the laboratory staff that performed and/or released this analysis. The list is automatically populated by the Worksheet Completion and the Complete and Release modules. Additional entries can be manually added for those cases when multiple analysts worked on the analysis.

3.3.1.3.3 TEST RESULTS TAB

Sample It	em Analysis Test Results Analysi	s Notes Sample Notes Storage Q	A Events Aux Data
Reportable	Analyte		Response
	Fluorobenzene	10.	
Reportable	Analyte	Value	Expected Value
	Bromofluorobenzene		10.0 📃
	1,2-Dichlorobenzene-d4		10.0
Reportable	Analyte		Quantitation Limit
\checkmark	Chloroform	<0.5	0.5
\checkmark	Bromodichloromethane	<0.5	0.5
\checkmark	Dibromochloromethane	<0.5	0.5
•	m		۲. (۱
Add Ro	ow Remove Row Suggestic	ons) 📑 Pop-out) 🔽 Check All) 🔲	Uncheck All

Figure 53 Test Results Tab

This tab displays the results of the analyses in an easy-to-read table. The fields/buttons and their use are described below.

Reportable

This check box is used to mark an analyte and its related results reportable. This is a second level of reporting capability as the analysis will also have to be reportable.

Analyte

This column holds the analyte that was tested. OpenELIS generally calls any question (i.e., Chloroform, Date of Onset, Sign and Symptoms) an analyte.

Value

The Value field is used to enter the result for the corresponding analyte. It can be displayed as a numerical value (<0.5), as a qualitative result (Positive, Negative), as a titer (1:8, <1:256), or a date-time field (2012-12-21 00:01).

Other column analytes, such as Expected Value, Quantitation Limit, and MCL, might be present depending upon the test definition.

Pop-out

A **Pop-out** button shows the results in a larger window to enhance the readability of the table.

Check All and Uncheck All

These buttons check/uncheck the Reportable column.

Suggestions

For an explanation of the Suggestions button, see SUGGESTIONS.

3.3.1.3.4 ANALYSIS NOTES TAB

Sample Item Analysis Test Results Analysis Notes Sam	ple Notes Storage QA Events Aux Data
External:	Internal:
The sample was analyzed more than 8 hours after collection.	Call Regarding Results by demo on 2011-11-30 15:38
	A message was left on client's voice mail.
Edit Note	Add Note

Figure 54 Analysis Notes Tab

The Analysis Notes tab allows for the entering of both internal and external comments that are related to a specific analysis. There is only one external note allowed and it may be editied as many times as needed. Internal notes, however, are individual entries, can only be committed once, and cannot be edited. The subject line, author of the note, and date and time are only present on internal notes. Only external notes appear on result reports.

Click the appropriate button (**Edit Note** for an external note or **Add Note** for an internal note) to enter an analysis note. The Standard Note Selection Screen will pop up.

3.3.1.3.4.1 STANDARD NOTE SELECTION SCREEN

FEBRUARY 14, 2013

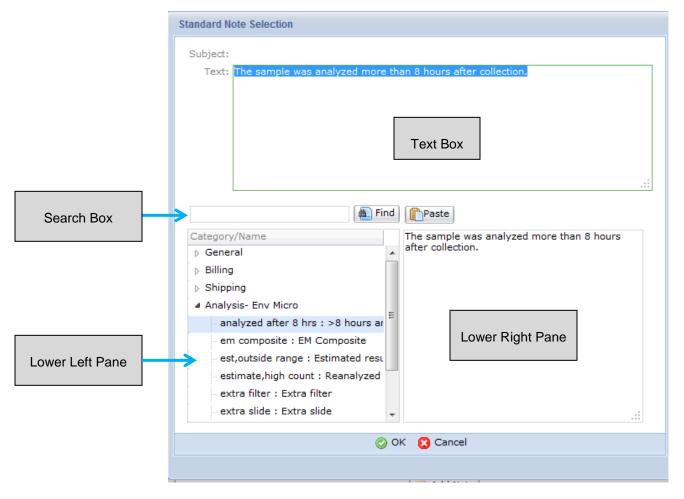


Figure 55 Standard Note Selection Screen

This screen is used for entering all internal and external notes within the LIMS. To type in a note, click in the Text Box and type in the desired note making sure to only return at the end of a paragraph.

You may also copy and paste text from the library of prewritten notes. These commonly-used notes are organized into categories and can be browsed by clicking on the tree arrows in the lower left pane. When a note *name : description* is selected the text of the note appears in the lower right pane for review. Click the **Paste** button to insert the note's text into the Text Box at the current cursor position. The note's text can be further edited in the Text Box to suit the user's needs.



Standard notes can also be searched and listed by entering a few letters or words in the Search Box in the middle of the screen and clicking the **Find** button. The search criteria matches the standard note's Name or Description.

Click **OK** to commit the note.

See <u>Standard Note</u> for more information on the structure of a standard note.

3.3.1.3.5 SAMPLE NOTES TAB

Sample Item Analysis Test Results Analysis Notes Sam	ple Notes Storage QA Events Aux Data					
External:	Internal:					
Sample date and time was missing from form. Called customer for information.	Fax Results by demo on 2011-11-30 16:40					
	The results should be faxed to Jenny Craig at 555-555-3894.					
Edit Note	J Add Note					

Figure 56 Sample Notes Tab

The Sample Notes tab allows for entering both internal and external comments that are tied to the entire sample. Sample notes are entered in the same manner as analysis notes. See <u>ANALYSIS NOTES TAB</u> and <u>STANDARD NOTE SELECTION SCREEN</u> for a detailed explanation.

3.3.1.3.6 STORAGE TAB

er Location				Check In Check Out				
demo 218, cart #2				2011-12-01	L 10:20			
demo 218, shelf west wall			2011-12-01	10:19	2011-12-01 10:20			
							Þ	
🔜 Add Row 📃	Remove Row							

Figure 57 Storage Tab

The Storage tab displays a list of storage locations for the current sample item or analysis. Click on the desired sample item or analysis in the Sample Items and Analyses tree to display its current location. Click on the **Add Row** button to enter a new location. The User name and Check In date and time are automatically entered to reflect the logged-in user and current date and time, respectively. The storage Location can be selected from a drop-down list. Add a new row to move an item/analysis to a new location. The current date and time will be automatically entered in the Check Out field for the previous location. Check In and Check Out dates and times can be manually overridden.

3.3.1.3.7 QA EVENTS TAB

Sample Item Analysis Test	Results Analys	sis Notes	Sam	ole Notes Storage QA Even	ts Aux Data		
Sample QA Events	Туре	Billable		Analysis QA Event	Туре	Billable	
date-time error	Warning	V	*	do deplete blank	Warning	V	*
Remove Row	ents	4	Ŧ	Remove Row	Events	¢	Ŧ

Figure 58 QA Events Tab

Quality Assurance events are flags that can be associated with a sample and/or an analysis to denote an exceptional condition. The Sample QA Events table shows a list of events that are associated with the sample while the Analysis QA Event table shows the events for the currently selected analysis.

QA events can be removed (**Remove Row** button) or added (**QA Events** button) using the appropriate button below each table. The user can also change the Type of QA Event (Internal, Result Override, or Warning) by clicking on the dropdown arrow. The Billable checkbox can also be checked or unchecked.

Since sample QA events affect all the analyses on that sample, they cannot be altered if any analysis has been released. The only exception is adding/removing internal QA events.

See <u>QA EVENTS</u> for a complete explanation of the benefits and types of QA events.

3.3.1.3.7.1 QA EVENT SELECTION SCREEN

Name	Description	Туре	Billable	
canceled test	Test was canceled per client	Result Override		4
client contamination	Client contamination	Warning		
client info updated	Client information has been upd	Warning		Ξ
container broken	Sample container was broken	Warning		
container non-shl	Non SHL sample container	Warning		
container replaced	Replacement container has bee	Warning		
container wrong	Improper sample bottle used	Warning		
date-time error	Date &/or Time missing or post	Warning		
empty bottle	Empty bottle	Result Override		
equipment failure	No result due to equipment failu	Result Override		
*			Þ	-
	📀 OK 🔀 Cancel	l		

Figure 59 QA Event Selection Screen

The QA Event Selection screen is the vehicle that is used for selecting all sample and analysis QA events. This screen displays a list of available QA events. The list for analysis QA events depends on which analysis is selected in the Sample Items and Analyses tree. The default QA event type is indicated in the Type column. The Billable checkbox indicates if the QA Event is, by default, billable or not.

Multiple QA events can be **Ctrl**-selected. Click the **OK** button to insert them onto the QA Events tab.

3.3.1.3.8 AUX DATA TAB

Sample Item	Analysis	Test Results	Analysis Notes	Sample No	tes	Storage	QA Events	Aux Data		
Reportable	Name				Value					
	Collected	Date								*
	Collected Time									=
	Client Reference									
V	Is Hazardous				No					
	Collector									
	Location				Kitchen Sink					
*									Þ	-
Remove R	ow 🔄 Ai	ux Groups								
Description:				Meth	od:			Unit:		

Figure 60 Aux Data Tab

The Aux (Auxiliary) Data tab displays ancillary information related to the sample. It is displayed in a three-column table (Reportable, Name, and Value). The Reportable checkbox may be manually checked (or unchecked) for any auxiliary analyte to mark it as reportable. Reportable values are visible through the Final Report, Web Data View, and electronically. Values for an auxiliary analyte may be manually entered at any time before sample release.

The Description field displays additional helpful information about the auxiliary analyte. The Method field shows the test method that is used to measure the auxiliary analyte and the Unit field displays its corresponding unit of measurement. Click on an auxiliary analyte to display its corresponding Description, Method, and Unit, if they are present. Examples include:

Description	Method	Unit
Dissolved Oxygen	SM 4500-O G	mg/L
Flow Rate Measurement	USGS CA8	CFS



To add auxiliary groups, click on the **Aux Groups** button. The <u>Aux Group Selection</u> <u>Screen</u> will pop up. Clicking the **Remove Row** button removes the entire auxiliary group, not just the individual auxiliary analyte.

This will remove all rows with the same group as this row.

Press Ok to continue.

ОК	Cancel

Figure 61 Aux Data Group Removal Warning

3.3.1.3.8.1 AUX GROUP SELECTION SCREEN

Aux Group Selection		
Name	Description	
client fax	Fax to client	*
env acceptance	Environmental Acceptance Criteria	
field data	Field Data	
lake field data	lake field data	
payment for env	Payment for Environmental Samples	Ξ
pool/spa data	Pool & Spa sample data to import	
sample env data	Sample environmental data to import into logir	
sample sdwis data	Sample sdwis data to import into the login scre	
sample well data	Sample private well data to import into the log	_
sdwis bacterial	SDWIS Bacterial Data	
	۱. ۲	Ŧ
	OK Cancel	
Done		

Figure 62 Aux Group Selection Screen

The Aux Group Selection screen is used to select one or more auxiliary groups to be added to a sample. Auxiliary analytes are grouped by function (e.g., environmental acceptance criteria, payment for samples, pool and spa sample, etc.) Select the

desired aux group(s) and click the **OK** button. The auxiliary analytes will populate the Aux Data tab.

3.3.2 SAMPLE DOMAIN-SPECIFIC FIELDS

There are various fields on the full sample login screens which are specific to the sample domain. These sample domain-specific fields are found in the middle sections of the full sample login screens. The following sections describe these sample domain-specific fields.

3.3.2.1 ENVIRONMENTAL SAMPLE SPECIFIC FIELDS

The environmental sample specific fields are located in two separate sections of the Environmental Sample Login screen: Environmental Info and Organization Info.

3.3.2.1.1 ENVIRONMENTAL INFO SECTION

	Environmental	l Info
Hazardous: 🔲	Priority:	
Collector: carl uhl0045	Phone #:	319-335-4651
Location: lake of the hills	Desc:	zooplankton

Figure 63 Environmental Info Section

The Environmental Info section contains environmental sample demographic information. The formats specified for these fields follow.

Hazardous

The checkbox indicates if the sample is considered hazardous. Hazardous samples require special disposal.

Priority

This field specifies the number of days that the client expects for sample turnaround. For example, a value of 3 would specify that the sample should be completed and reported within 3 working days.

Collector

The collector's name can be specified in the format of *lastname firstname*. A collector ID can also be entered depending on the laboratory section's SOP.

Phone

This field is used to specify the collector's phone number. The field will automatically format the digits for the area code, phone number, and extension (if applicable).

Location

The location for the collection of the environmental sample is specified in this field. Click on the pop-up button it to the right of this field to display the Sample Location screen which shows more detailed location information such as Address, City, State, and Zip Code, as needed.

Sample Location					
Location:	bloody run creek				
Apt/Suite #:					
Address:					
City:	MARQUETTE				
State:	IA Y Zip Code:				
Country:	×				
О К					
Done					

Figure 64 Sample Location Screen

Desc

The Desc(ription) text field is used to further describe the sample such as filter, duplicate, ice, etc. The information about sample type and source should be entered in the sample item tab and not in this field.

3.3.2.1.2 ORGANIZATION INFO SECTION

	Organization Info				
Project:	tmdImon	▼ 🗔			
Report To:	IDNR 319-2	▼ 🔄			
Bill To:	IDNR 319-2	▼ 🗔			

Figure 65 Organization Info Section

The Organization Info section is located to the right of the Sample Items and Analyses tree. It contains the following fields.

Project

The Project field is used to assign one or more projects to a sample. The first project can be selected from the drop-down list and additional projects can be added using the Sample Project pop-up screen by clicking on the pop-up button to the right. The permanent projects check box (Is Perm) has not been implemented and should be ignored. (See <u>PROJECT SCREEN</u> for more information on projects.)

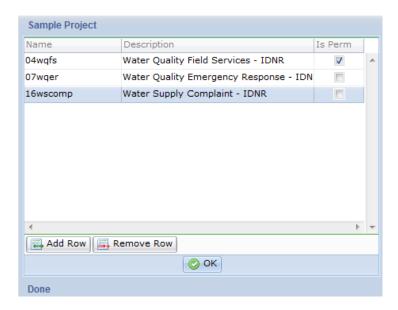


Figure 66 Sample Project Screen

Report To

This field is used to specify the organization(s) that receive the results of the sample. For the (primary) Report To organization, the sample results can be accessed through the web portal, a mailed Final Report, and faxed on a sample basis (through assignment of sample auxiliary data). (See <u>FINAL REPORT SINGLE/REPRINT</u> for more information on the faxing process). Secondary Report To organizations will only receive a copy of the Final Report.

The (primary) Report To organization can be selected from the drop-down list. Secondary Report To organizations can be selected using the Sample Organization pop-up screen by first clicking on the pop-up button to the right.

	Attention	Nar	me	City	State	
	PEGGY ROSS	OUF	R SAVIOURS LUTHERAN CHURCH	HUMBOLDT	IA	
То	SAMUEL ADAMS	A 1	COMPLETE	DES MOINES	IA	
						Þ.
Rer	nove Row					۴
	~	Attention PEGGY ROSS To SAMUEL ADAMS	V PEGGY ROSS OUR	▼ PEGGY ROSS 0UR SAVIOURS LUTHERAN CHURCH	▼ PEGGY ROSS 0UR SAVIOURS LUTHERAN CHURCH HUMBOLDT	▼ PEGGY ROSS 0UR SAVIOURS LUTHERAN CHURCH HUMBOLDT IA

Figure 67 Sample Organization Screen

The Type field can be changed by clicking on the drop-down arrow. The three options are Report To (primary), Secondary Report To, and Bill To. Secondary Report To recipients, as well as, the billed organization can be added by using the **Add Row** button and clicking on the drop-down list in the Name field. The organizational contact person's name can be entered into the Attention text field.

Bill To

The Bill To field operates in the same manner as the <u>Report To</u> field. The Bill To field only needs to be completed if the billed organization is different from the Report To organization.

3.3.2.2 PRIVATE WELL WATER SAMPLE SPECIFIC FIELDS

The Private Well Water Sample Specific Fields are located in two separate sections of the Private Well Water Sample Login screen: Private Well Info and Well/Collector Info.

3.3.2.2.1 PRIVATE WELL INFO SECTION

		Pi	rivate Well Info		
Report To:	HAYEK FARMS	Org Id:		Location:	outside well
Apt/Suite #:	19456 C. AVE NE	Attn:	PETE SEEGER	Apt/Suite #:	
Address:				Address:	
City:	CEDAR RAPIDS	Phone #:	319/555-1212.	City:	
State:	IA 🎽 Zip Code: 52402-	Fax #:	319/555-1313	State:	Y Zip Code:

Figure 68 Private Well Info Section

The Private Well Info section contains private well water sample demographic information. Beside the specific fields for private well water samples, this screen offers a one-time-use "report to" entry for non-repeat clients, thus, preventing the need to add a new organization to the LIMS. The formats specified for these fields follow.

Report To

This field is used to specify the organization where the results are sent. The organization can be selected from the drop-down list or manually entered.

- 1. If the Report To organization is selected from the drop-down list, the LIMS will automatically complete the Org Id and address information and disables these fields from being altered.
- 2. For one-time-use Report To addresses, the Org Id is blank and the address information fields are enabled so this information may be entered.

Apt/Suite

This free text field contains the apartment or suite number of the "report to" organization.

Address

This free text field contains the street address of the "report to" organization.

City

This free text field contains the city of the "report to" organization.

State

The state of the "report to" organization may be selected from the drop-down list. Selections consist of states/provinces of the United States, Canada, and Mexico.

Zip Code

The five-digit or nine-digit U.S. Postal Zip Code of the "report to" organization may be entered here.

Org Id

The Org(anization) Id is a unique identifier assigned to organizations entered through the Organization screen. (See <u>ORGANIZATION SCREEN</u> for more information.) The Org Id is disabled when adding demographic information for a one-time-use "report to" organization through the Private Well Info Section.

Attn

The Attn (Attention) field may be entered with the name of the organizational contact person.

Phone

The phone number of the "report to" organization may be entered in this field. It should include the area code and may include an extension, if applicable (e.g., 319/555-1212.3467).

Fax

The fax number (including area code) of the "report to" organization may be entered here (e.g., 319/555-7629).

Location, Apt/Suite #, Address, City, State, and Zip Code

The location information specifies the sampling collection address such as the address of the home, farm, or well.

3.3.2.2.2 WELL/COLLECTOR INFO SECTION

	Well/Collector Info				
Owner:	mickey hayes				
Collector:	pedersen samantha				
Well Num:	34893				
Project:	04wqfs	× 🔄			
Bill To:	380 CITGO FRESE INC	▼ 🗐			

Figure 69 Well/Collector Info Section

The Well/Collector Info section contains the following fields.

Owner

The name of the well's owner may be specified in this field.

Collector

The collector's name can be specified in the format of *lastname firstname*. A collector ID can also be entered depending on the laboratory section's SOP.

Well Num

If the well has a state assigned identifier, this Well Num(ber) should be specified in this field.

Project

The Project field is used to assign one or more projects to a sample. See <u>Project</u> for more information.

Bill To

The Bill To field operates in the same manner as the Report To field. The Bill To field only needs to be completed if the billed organization is different from the Report To organization. See <u>Report To</u> for more information.

3.3.2.3 SDWIS SAMPLE SPECIFIC FIELDS

The Safe Drinking Water Information System (SDWIS) sample specific fields are located in two separate sections of the SDWIS Sample Login screen: SDWIS Info and Collector/Organization Info.

3.3.2.3.1 SDWIS INFO SECTION

			SDWIS Info			
PWS ID:	IA2573701	詞 🛛 PWS Name:	XENIA RWD (DES MOINES)	State Lab #:	397	
Facility Id:	950	Sample Type:	RT - Routine 💙	Sample Cat:	Bacterial	*
Sample Pt Id:	950	Location:	21459 hwy 6			

Figure 70 SDWIS Info Section

The SDWIS Info section contains SDWIS sample demographic information. The formats specified for these fields follow.

PWS ID

The PWS (Public Water Supply) ID is a unique identifier assigned by the state to all public water supplies. The PWS ID begins with a two letter state abbreviation followed by a unique seven digit number. The pop-up button to the right of this field can be used to select the PWS ID. The PWS Information screen will pop-up and allow the user to search for a PWS record. When the desired record is located, click on the **Select** button. (For more information on the PWS Information screen, see <u>PWS</u> INFORMATION.)

Na	me	Q Query	Previous	🕨 Next 🛛 💿 C	ommit	🔀 Abort (Select	Option	is 👻			
(IN 11 2N 3 / 3 E 30	ACTIVE) GREENBRIER GOLI FRAME BOWLING D PLEASANT VIEW SUBDIVI AMIGOS BRIDGES PK-MARSHALL COM CLUB SUPPER CLUB	City County State Type	EXIRA AUDUBON	REENBRIER GO	Office #		Re Start	ason:	Population: SCONTINUED Month: 1 Month: 12		1976-03-01	.:
•	TRAILER COURT		ddress Monitor									_
38	0 BP, FRESE, INC	Name			Туре	State ID	Status	Water T	ype Available	e Identification	Descriptio	
3R	D BASE SPORTS PARK	DISTRIBUT	ION SYSTEM		DS	950	I			MRT	MRT	^
	SEASONS RESTAURANT AND	DISTRIBUT	ION SYSTEM		DS	950	I			ART	ART	
4 \	WAY TAP	DISTRIBUT	ION SYSTEM		DS	950	I			NFC	NFC	
41	61 NAPLES AVE SW	WELL # ()			WL	WL01	I	GW	P			
4T	H PUMPING PLANT PARK	S/EP FROM	WELL #1		SS	1	I					
4T	H PUMPING PLT PK 2	GENERAL P	NS FACILITY		от	OT01	I					
	DRIVE-IN THEATER											
61	DRIVE-IN THEATRE											
63	-80 TRUCK PLAZA											
	ONE STOP											
7 8	BRIDGES PK-BREMER CONSI											
												-

Figure 71 PWS Information Screen

PWS Name

The PWS (Public Water Supply) Name will be automatically populated when the PWS ID is selected.

State Lab

This number represents the laboratory id that was assigned to your laboratory by the state's laboratory certification program.

Facility ID

This field contains the state assigned water system facility id.

Sample Type

Enter the SDWIS sample type specified for this sample. This field should not confused with the Sample Type on the Sample Item tab.

Sample Cat

The Sample Cat(egory) specifies the SDWIS sample category. The sample categories currently are bacterial, radioactive chemical, chemical, and lead/copper.

Sample Pt ID

The Sample Pt (Point) ID field often contains the same information as the Facility ID.

Location

This is a description of the sampling point location.

3.3.2.3.2 COLLECTOR/ORGANIZATION INFO SECTION

C	ollector/Organization Info		
Collector:			
Project:		*	Eq
Report To:		*	
Bill To:		۷	EQ.

Figure 72 Collector/Organization Info Section

The Collector/Organization Info section contains the following fields.

Collector

The collector's name can be specified in the format of *lastname firstname*. A collector ID can also be entered depending on the laboratory section's SOP.

Project

The Project field is used to assign one or more projects to a sample. See <u>Project</u> for more information.

Report To

This field is used to specify the organization(s) to which results are reported. See <u>Report To</u> for more information.

Bill To

The Bill To field operates in the same manner as the Report To field. The Bill To field only needs to be completed if the billed organization is different from the Report To organization.

3.4 SAMPLE VERIFICATION

Sample verification is a process that ensures the initial data entered matches the paperwork submitted with the sample. This process can be achieved in several ways with two of the more common being paper verification and double data entry.

3.4.1 USING PAPER VERIFICATION

All logged in samples are initially in "Not Verified" status. Once the initial data has been entered into the LIMS, data entry personnel run the <u>Verification Report</u> to compare the entered data with the data on the paperwork and correct any discrepancies.

After the verification process has been completed, the LIMS needs to change the status of all the samples to "Logged In". This is accomplished through the Verify Sample Data Entry screen, whose link is located in the top section of the <u>Sample</u> <u>Menu</u>. The Barcode field accepts an accession number barcode that is located on the Verification Report. Each accession number is displayed in this field for a short time and the field is cleared to accept the next sample accession barcode. The screen should be closed when all samples have been verified.

Verify Sample Data Entry	- x
 Scan in the barcode for the sample accession number to be ver Repeat the above process for every sample record. Close the window when done. 	ified.
Barcode :	
Done	

Figure 73 Verify Sample Data Entry Screen

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3.4.2 USING DUPLICATE ENTRY

This function is not currently available.

3.5 QA EVENTS

QA events are flags that denote exceptional conditions associated with a sample or an analysis. These events provide several benefits to the laboratory process:

- 1. Provide a consistent language to inform the client about issues related to a sample or analysis.
- 2. Allows the laboratory to monitor and summarize issues by organization, laboratory section(s), or tests for a period of time.
- 3. Allow laboratories to document and inform the client about all the issues related to a sample or analysis. For example, if a sample was received outside shipping temperature requirements and also exceeded preservation time, that client might be informed to use correct packaging and a faster shipping method.

QA events are categorized into three types:

- 1. Result Override these events prohibit the result(s) from appearing on client reports while providing a description of the issue.
- 2. Warning these events are used to inform the client. The test result(s) are displayed on the client reports
- 3. Internal these events are not shown on client reports. They are used for counting internal processes or other housekeeping events.

The Billable checkbox is used to override billing information. When unchecked, it informs the billing module to not bill for that sample/analysis. Only one QA event in the Sample QA Events list needs to be unchecked for the entire sample (and all of its analyses) to not be billed. The same thing is true for the Analysis QA Event list in that, only one unchecked QA event will make that particular analysis not billable.

Sample QA Events	Туре	Billable		Analys	is QA Event		Туре	Billable	
anceled no charge	Result Overric	le 🔳	-						-
(• •					1	F -
	Events		Þ 7	r (move Row	QA Eve	ents	,	þ
			Þ 7	r (move Row	QA Eve	ents		Þ



Sample Item Analysis Te	st Results Anal	ysis Notes	San	np	e Notes Storage	QA Events	Aux Data		
Sample QA Events	Туре	Billable			Analysis QA Event		Туре	Billable	
			*		i-not billed		Internal		~
<u>ج</u>		Þ	-		٠			1	• •
Remove Row QA E	vents				Remove Row	QA Eve	ents		
					A QA event has analysis not bi		led that ma	kes this	

Figure 75 Analysis Not Billable Message

3.6 SAMPLE TRACKING

This screen is designed to provide lookup and general sample management capabilities for any type of sample within the LIMS. Additionally, the screen allows the user to view multiple samples in the structure of an expanding tree. In this way the user can quickly view and compare different pieces of information associated with samples.

The link to the Sample Tracking module is located in the top section of the Sample Menu.

FEBRUARY 14, 2013

ample	Type/Status	Accession	a la contra a	Collector	d: 2011-10-01 📑 Time: 09:00
16	Released 🔺				
4 0 - <>	Non-drinking Wat	Receiv	ed: 2011-10-01 16:43 Status:	Released Client Reference	3:
pesticides : uhl h 016	Released	Test Resu	lts		
prep pest : uhl h 016	Released	Reportable	Analyte	Value	Quant Limit
Storage		V	Acetochlor	<0.020	0.10
41-<>	Non-drinking Wate	V	Acetochlor OXA	<0.025	0.025
Storage		V	Acetochlor ESA	<0.025	0.025
42-<>	Non-drinking Wate	V	Alachlor	<0.020	0.10
glycols : uhl h 019	Released	7	Alachlor OXA	< 0.025	0.025
Storage			Alachlor ESA	<0.025	0.025
Notes		V	Dimethenamid	<0.020	0.10
QA Events		7	Dimethenamid OXA	< 0.025	0.025
Aux Data		4			4
45	Logged In 🔶			ons Pop-out Check All	Userhault All

Figure 76 Sample Tracking Screen

This screen is also used to add and cancel tests, unrelease samples, and change a sample's domain. This screen should NOT be used for entering results or completing analyses.

3.6.1 UNRELEASE SAMPLE OPTION

This option allows users with sample unrelease permission to change sample metadata, add or cancel tests, or to change a sample's domain. Unreleased samples go through several changes:

- 1. Sample status is changed to Completed. The final sample status depends on overall status of the analysis.
- 2. The sample's revision number is incremented.
- 3. Internal comment is added to the sample explaining why the sample was unreleased.

Released analyses cannot be changed from the Sample Tracking Screen. (See <u>UNRELEASING AN ANALYSIS</u> for this procedure.)

🚡 Expand 🛛 👩 Collapse 🃸	Similar 🛛 🔍 Query	• [[🥜 Update	📕 Add Test 🛛 📕 Cance	l Test 📔 💿 Commit	🔀 Abort 🛛 O	ptior	ns 🔻		
Sample	Type/Status		Accession	#. 719	Order #:		8	Unrelease Sample	: 10:30	
⊳ 300	Logged In	-					-		10:30	
⊳ 301	Released		Receiv	red: 2011-02-01 10:00	Status: Logged In	Y Clie	¢.	View Final Report		
b 614	Completed		Test Resu	lts				Change Domain		
712	Released		Reportable	Analyte	Value	-				
713	Released	-	7	Nitrate + Nitrite as NO3	14.0		\odot	History - Sample		
> 714	Released	-					0	History - Sample Specific		
715	Released						<u> </u>			
⊳ 716	Released						0	History - Sample Project		
⊳ 717	Released						\odot	History - Sample Organization		
⊿ 718	Logged In						0	History - Sample Item		
⊿ 0 - 21	Drinking Water						\odot	History - Analysis		
coliforms : colilert mpr	n w Initiated						0	History - Current Result		
b nitrate : epa 353.2	Released		•				-			•
Storage		-	Add R	ow Remove Row	Suggestions 📑 P	on-out	0	History - Storage		
	1						Θ	History - Sample QA Event		
	9						\odot	History - Analysis QA Event		

Figure 77 Unrelease Sample Option

3.6.2 VIEW FINAL REPORT OPTION

This option generates a Final Report. Only the analyses that have been released are listed on the report while pending analyses for the sample will be noted. Click on the View Final Report menu option to see the report for the selected sample.

3.6.3 HISTORY OPTION

See <u>HISTORY</u> for more information on the use of the history function.

3.6.4 CHANGE DOMAIN OPTION

There are occasions when a sample associated with one domain needs to be switched to a different domain. The Change Domain option switches the sample while preserving as much data as possible. The only data that will be lost is sample metadata that is domain-specific (i.e., collector, well number, PWS ID).

To change the sample's domain, you must be in Update or Unrelease Sample mode. Select the Change Domain option, select a different domain, and click OK.

🐻 Expand 🛛 🐻 Collapse 🏻 🏥 S	Similar 🔍 Query	6	🖓 Update 🛛 🔣 Add Test 🛛 📕 Cancel Test 🛛 📀 Commit	🔀 Abort	Optio	ns 👻	
Sample	Type/Status	Т				Unrelease Sample	
þ 2	Logged In	*	Accession #: 104 Order #:		41	Unrelease Sample	
a 45	Logged In		Received: 2011-04-12 11:04 🔤 Status: Logged In	n 🎽 Clie	4	View Final Report	
41-<>	Drinking Water		Environmental		6	Change Domain	
b coliforms : colilert pa	Initiated				_		
Storage		=	Hazardous: 🔳	Priority:	0	History - Sample	
Notes			Collector:	Phone #:	0	History - Sample Specific	
QA Events			Location:	Desc:	0	History - Sample Project	
→ Aux Data	Logged In		Project: The second sec	Report To: AU	0	History - Sample Organization	
b 104	Logged In		bii to.		0	History - Sample Item	
þ 127	Logged In				•	History - Analysis	
Þ 200	Logged In				0	History - Current Result	
þ 203	Logged In				ē	History - Storage	
þ 206	Logged In	-			_		
	Pop-out	it l			C	History - Sample QA Event	

Figure 78 Change Domain Option

Change Domain
Change To: SDWIS
📀 OK 🛛 Cancel
Done

Figure 79 Change Domain Screen

3.6.5 MAKING A GENERAL QUERY IN SAMPLE TRACKING

Sample Tracking has the benefit of being able to obtain information from samples in a specific domain or across all sample domains. The latter is accomplished by making a general query. Any of the fields in the top pane of the Sample Tracking screen or in the Sample Item, Analysis, or Aux Data tabs can be used to make a general query, as they are not domain-specific. Two examples are provided below:

Example 1: General Query of a Range of Accession Numbers

1. Click on Query and enter "1523..1526" in the Accession # field. Click Commit.

Sample Type/Status Accession #: IS23IS26 Order #: Collected: Time: Received: Status: Environmental Private Well Source Priority: Collector: Phone #: Location: Desc: Project: Y Bill To: Y
Accession #: IS231526 Order #: Collected: Time: Received: Status: Client Reference: Environmental Private Well SDWIS Sample Item Analysis Aux Data Hazardous: Priority: Collector: Phone #: Collector: Phone #: Location: Desc: Project: Report To: Mini Analysis

Figure 80 General Query of a Range of Accession Numbers in Sample Tracking

2. Click on the drill-down arrows in the left pane to expand the sample and analysis information or click on the **Expand** button to automatically expand all of the drill-down arrows in the entire tree.

mple	Type/Status			
1523	Released		Accession #: Order #: Collected: Time:	
40-<>	Drinking Water		Received: Status: Client Reference:	
a coliforms : colilert mpr	w Released	=		
Analysis				
Storage				
QA Events				
Notes				
▲ nitrate : epa 353.2	Released			
Analysis				
Storage				
QA Events				
Notes				
Storage				
Notes				
Notes		Ŧ		



3. Click on the drill-down arrows to collapse a sample or analysis or click on the **Collapse** button to automatically collapse all of the drill-down arrows in the entire tree.

SampleTracking		-	x
Collapse	🃸 Similar 🛛 🍳 Query	📝 Update 🛛 🛄 Add Test 📲 Cancel Test 💿 Commit 🔞 Abort 🛛 Options 🗸	
Sample	Type/Status	Accession #: Collected: Time:	
▶ 1523	Released		
▷ 1524	Released	Received: Status: Client Reference:	
⊳ 1525	Released		
⊳ 1526	Released		٦.



4. For each accession number, information related to the sample domain, sample item(s), test results, analyses assigned, sample and analysis storage, sample and analysis QA events, sample and analysis notes, and auxiliary data can be viewed. Select the label in the tree in the left pane to view the desired information. Example screen shots follow.

SampleTracking								- >
👩 Expand 🛛 👩 Collapse Sin	nilar 🔍 Query	🖉 Update 📃	Add Test 🛛 📕 Cancel	Test 🛛 💿 Commi	it 🔞 Abort	Options 👻		
	Type/Status Released	Accession #	10042	Order #:		Collected:	2012-01-03 📑	Time: 09:02
	Released	Received	2012-01-03 14:00	Status: Release	d 💙	Client Reference:		
▶ 10040	Released	Environment	al					
	Released	Hazardous:			Priority:			
▲ 10042 ▲ 0 - 32 - IDEXX 4 oz. Plastic (Released	=	crossland keith		Phone #:			
	Released	Location:	lazer bldg ro tank		Desc:			
Storage		Project:		¥ 💼	Report To:	U OF I WATER PL		
Notes		Bill To:		× 💼				
QA Events								
Aux Data								
	Released Released							
	Released							
		*						
		1						

Figure 83 Domain-Specific Information in Sample Tracking

ample	Type/Status			
10038	Released	*	Accession #: 10042 Order #: Collected: 2012-01-03 Time: 09:02	
10039	Released		Received: 2012-01-03 14:00 Status: Released Y Client Reference:	
10040	Released		Sample Item	
10041	Released			_
10042	Released	-	Sample Type: Non-Drinking Water	
4 0 - 32 - IDEXX 4 oz. Plasti	c (Non-Drinking Wat	=	Source: Source Other:	
b hpc : red pour plate	Released		Container: 32 - IDEXX 4 oz. Plastic (sodium thio 🎽 Container Reference:	
Storage			Qty: Unit:	
Notes				
QA Events				
Aux Data				
10043	Released			
10044	Released			
10045	Released	-		

Figure 84 Sample Item Information in Sample Tracking

nple 16	Type/Status Released	Accession #: 16	Order #:	Collected: 2011-10-01 Time: 09:00	
40-<>	Non-Drinking Wat =	Received: 2011-10-01 16	:43 Status: Released	Client Reference:	
▲ pesticides : uhl h 016	Released	Test Results			
Analysis		Reportable Analyte	Value	Quant Limit	
- Storage		Acetochlor	<0.020	0.10	
QA Events		Acetochlor OXA	<0.025	0.025	
Notes		Acetochlor ESA	<0.025	0.025	
✓ prep pest : uhl h 016	Released	Released	Alachlor	<0.020	0.10
- Analysis		Alachlor OXA	<0.025	0.025	
Storage		Alachlor ESA	<0.025	0.025	
QA Events		Dimethenamid	<0.020	0.10	
Notes		Dimethenamid OX	A <0.025	0.025	
- Storage 4 1 - <>	Non-Drinking Wat 🚽	✓ Add Row Remove R	ow Suggestions Pop-out	Check All	

Figure 85 Test Results in Sample Tracking

SampleTracking			- ×
🕞 Expand 👩 Collapse 🃸 Similar 🛛 🔍 Query 📗	🛛 Update 📔 🔣 Add Test 🛛 📕 Cance	l Test 📔 🎯 Commit 🛛 🔯 Abort 📔 Options	s 👻
Sample Type/Status 4 27377 Completed	Accession #: 27377	Order #: 7186 Co	llected: 2012-04-24 🖸 Time: 10:05
▲ 0 - 15 - 40mL Glass Vials(as Drinking Water	Received: 2012-04-26 10:30	Status: Completed Y Client Refe	erence: rws #1
▲ pesticides : epa 515.3 aci Released	Analysis		
Analysis Storage QA Events Notes	Test: pesticides Status: Released Section: pesticide-ic	 Method: epa 515.3 acid herbs Revision: 0 Reportable: Unit: mg/L 	Started: 2012-05-05 03:05 Completed: 2012-05-09 15:32 Completed: 2012-05-09 15:37 Completed: 2012-05-09 15:32 Completed: 2012-05-09 15:32 Completed: 2012-05-09 15:37 Complete: 2012-09 15:37 Complete: 2012-05-09 15:37 Complete: 2012-05-
▷ prep pest : epa 515.3 acii Released	Sample Prep: prep pest : epa 515	3.3 acid herbs	Printed:
semivolatiles : epa 525.2 On Hold volatiles : epa 524.2 Released =		atus User	User Action
Storage	5210 2012-05-09 10:30 Do	one mmainpri	mmainpri Completed vreedy Released
4 1 - 15 - 40mL Glass Vials(as Drinking Water			
Storage	4	۶ - ۳	4 b v
▲ 2 - 15 - 40mL Glass Vials(as Drinking Water 👻	Select		Add Row

Figure 86 Analysis Information in Sample Tracking

Sample	Type/Status						
⊿ 5150	Completed		Accession #: 5150	Order #:	Collected: 2012-05	-24 🖪 Time: 08:15	
40-<>	Drinking Water		Received: 2012-05-24	10:10 Status: Completed 💙 Clie	nt Reference: finished	water	
prep svol : epa 525.2	Completed		Storage				
> semivolatiles : epa 525.2	2 Completed		User	Location	Check In	Check Out	
Storage			mhayek	218, cart #2	2012-05-23 15:42		
Notes			mhayek	main store, room Warehouse	2012-05-22 11:13	2012-05-23 15:42	
QA Events		=					
Aux Data							
	Completed						
	Completed Drinking Water						
⊿ 5151							
4 5151 4 0 - <>	Drinking Water Completed						
▲ 5151 ▲ 0 - <> ▷ prep svol : epa 525.2	Drinking Water Completed		4				4

Figure 87 Analysis Storage Information in Sample Tracking

SampleTracking							- x
👩 Expand 👩 Collapse 🃸 Similar 🔍 Query	6	🛿 Update 📔 🎆 Add Test 🛛 🛄 Cancel Test 📔 💿 Commit		Abort Options -			
Sample Type/Status orthophosphate : lac 10-1 Released pesticides : epa 8270 nch Released Analysis	*	Accession #: 36291 Order #: 10408 Received: 2012-06-12 10:43 Status: Released OA Events	3	Collected: 2012-	06-11 🖪 Time: :	11:05	
- Storage - QA Events - Notes	ш	Sample QA Events Type Billable	*	Analysis QA Event equipment failure	Type Result Override	Billable 🔽	*
 ph-fm : sm 4500 h - field Released Analysis Storage 							
QA Events Notes ▷ phosphorus : lac 10-115-I Released ▷ prep limno - filter : epa 4 Released ▷ prep pest : epa 3510 wat Released	*	Remove Row QA Events	• •	Remove Row	vents		t v

Figure 88 Analysis QA Events in Sample Tracking

SampleTracking		- ×
👩 Expand 👩 Collapse 🃸 Similar 🛛 🔍 Query 📗	🖉 Update 📋 🔜 Add Test 🛛 🔜 Cancel Test 📔 🔘 Commit 🛛 🔞	Abort Options -
Sample Type/Status Storage 3 - 9 - 802. Plastic (unpreser Non-Drinking Wat Storage	Accession #: 36291 Order #: 10408 Received: 2012-06-12 10:43 Status: Released	Collected: 2012-06-11 Time: 11:05
 4 - 10 - 1/2 gal. Plastic(unpri Non-Drinking Wat Storage 4 5 - 32 - IDEXX 4 oz. Plastic (Non-Drinking Wat 	External: Upon arrival, sample met container and preservation requirements for the analysis requested. Please review	Internal: pH by jluzier on 2012-06-22 08:24
Storage G - 34 - Pint Plastic(unpreser Non-Drinking Wat Storage	carefully your sample results for additional analyte comments or method exceptions.	no pH result because of pH meter malfunction.
4 7 - 18 - Amber Quart Glass(i Non-Drinking Wat		by nhootman on 2012-06-13 09:22 3-18 @ 9C
QA Events	Edit Note	Add Note
		· · · · · · · · · · · · · · · · · · ·

Figure 89 Sample Notes in Sample Tracking

		Donare 1	Add Test 🔣 Cancel Test 💿 Commit 🔞 Abo	
mple Type/Status		Accession #:	36291 Order #: 10408	Collected: 2012-06-11 Time: 11:05
Storage	^			
4 3 - 9 - 8oz. Plastic (unpreser Non-Drinking Wat		Received:	2012-06-12 10:43 Status: Released	Client Reference: 10730001
Storage		Aux Data		
4 4 - 10 - 1/2 gal. Plastic(unpr/Non-Drinking Wat		Reportable	Name	Value
Storage			Received by	RLE
4 5 - 32 - IDEXX 4 oz. Plastic (Non-Drinking Wat			pH	<2
Storage			Sample Intact	Yes
4 6 - 34 - Pint Plastic(unpreser Non-Drinking Wat			Temperature	3.2
Storage			remperature	5.2
4 7 - 18 - Amber Quart Glass(ו Non-Drinking Wat				
Storage				
Notes		•		4
		Remove F	tow Aux Groups	
	Ε	Description:	M	ethod: Unit:
Aux Data	Ŧ	Description.	1910	diffe.

Figure 90 Sample Auxiliary Data in Sample Tracking

Example 2: General Query by Analysis Information

- 1. Click on **Query** and select the Analysis tab.
- 2. Enter "pesticides" as the Test, "uhl h 018 fifra" in the Method field, and select "In Prep" as the analysis Status.

Expand 🐻	Collapse 🏾 🋗 Similar 🛛 🔍	Query	🖉 Update 📗 🥅	Add Test	Cancel Test	📀 Com	mit 🔞 Abort 🛛 Optio	ns 🗸				
Sample	Type/State	us	Accession #:		Order	#:	C	ollect	ed:	Time:		
			Received:		Stat	us:	 Client Re 	feren	ce:			
			Environmenta	al Private We	II SDWIS Sa	mple Item	Analysis Aux Data					
			Tes	t: pesticides	*	Method:	uhl h 018 fifra		Started:			
			Statu	s: In Prep	~	Revision:	Reportable		Completed:	•		
			Section	n:	*	Unit:		~	Released:			
			Sample Prep	p:				~	Printed:	•		
			Worksheet C	Created	Status		User	U	lser	Action		
								^				1
		-	∢ Select				Þ			Remove Row	•	
			Select						Add Row	Remove Row		



3. Click the **Commit** button. All samples that meet these three search criteria, regardless of sample domain, will be displayed.

ample	Type/Status									_	
34942	Logged In		Accession #	: 41313	Orde	#:		Colle	ected: 2012-06-1	1 🖆 Time:	
34943	Logged In		Received	: 2012-07-05 11:1	0 📑 🛛 Sta	tus: Logge	rd In 🌱	Client Refer	ence: 060812mo	0701-02	
36164	Logged In		Analysis								
37944	Logged In			_			-				
40789	Logged In	E	Te	st: pesticides	*	Method:	uhl h 018 fif	ra	Started:	•	
40790	Logged In		Stati	us: In Prep	*	Revision:	0 F	teportable: 🛽	Completed:	•	
41313	Logged In		Sectio	on: liquidchrom-ic	*	Unit:	ug/kg	~	Released:	•	
4 0 - 99 - Non SHL Containe	vegetation		Sample Pre	p: prep pest : uhl	h 018 exp			~	Printed:	•	
pesticides : uhl h 006	In Prep		Worksheet	Created	Status		User		User	Action	
▲ pesticides : uhl h 018 f	ifra In Prep							*			-
Analysis											
Storage											
QA Events			4						4		Þ
Notes		-	Select							Remove Row	

Figure 92 Matches of a General Query by Analysis Information in Sample Tracking

Example 3: General Query by Aux Data

- 1. Click on **Query** and select the Aux Data tab.
- 2. Click on the Aux Groups button.
- 3. Choose the desired aux group(s) from the Aux Group Selection screen. Click **OK**. For example, select "1-env acceptance".
- 4. Enter the desired value in the Value field (i.e., "7.4" for the pH Value). It should be noted that the Value field uses string comparison, and as such, all the string character operators such as "*" or "|"are allowed. Only one aux data row (individual auxiliary analyte) can be queried at a time.

Sample Type/Status Accession #: Order #: Collected: Time: Received: Sample Item Analysis Aux Data Received by PH 7.4 Sample Intact Temperature Constrained Method: Unit:	SampleTracking		- ×
Accession #: Order #: Collected: Time: Received: Status: Collected: Time: Environmental Private Well SDWIS Sample Item Analysis Aux Data Recordale Value Received by PH 7.4 Sample Intact Temperature Remove Row Aux Groups Description: Add if required by method	🐻 Expand 🐻 Collapse 🋗 Similar 🔍 Query	🍠 Update 🛛 🔣 Add Test 🛛 📕 Cancel Test 🛛 📀 Commit 🛛 😒 Abor	t Options 🗸
Received by PH 7.4 Sample Intact Temperature Remove Row CAUX Groups Description: Add if required by method Method: Unit:	Sample Type/Status	Received: Status:	Client Reference:
Sample Intact Temperature Remove Row En Aux Groups Description: Add if required by method Method: Unit:		Received by	×
Description: Add if required by method Method: Unit:		Sample Intact	/.4
Description: Add if required by method Method: Unit:			
			Abada Unite
	-	Description: Add if required by method Me	thoo: Unit:

Figure 93 General Query by Aux Data in Sample Tracking

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5. Click **Commit**. All samples that meet these search criteria, regardless of sample domain, will be displayed.

imple	Type/Status			
38408	Released 🔺	Accession #:	38408 Order #: 9587	Collected: 2012-06-21 🖾 Time: 11:30
⊿ 0 - 32 - IDEXX 4 oz. Plasti	ic (Non-Drinking Wat	Received:	2012-06-21 11:58 Status: Released	Client Reference:
pseudo : pseudalert pa	Released	Aux Data		
b total coliform : colilert	pa Released	Reportable	Name	Value
Storage			Received by	NS
# 1 - 32 - IDEXX 4 oz. Plasti	ic (Non-Drinking Wat		pH	7.4
Storage			Sample Intact	Yes
Notes			Temperature	27.2
QA Events		✓	Facility Name	CUTTYS OKOBOJI RESORT CLUB
Aux Data		V	Free Chlorine/Br	1.8
		•		•
		Remove F	Row Aux Groups	
		Description		all and the second s
	-	Description:	M	ethod: Unit:

Figure 94 Matches of a General Query by Aux Data in Sample Tracking

3.6.6 MAKING A DOMAIN-SPECIFIC QUERY IN SAMPLE TRACKING

When any field on a domain-specific tab (i.e., Environmental, Private Well, SDWIS, etc.) is used to query for samples, only matches from that particular domain will be returned.

Example 1: Query Using Domain-Specific Fields Only

Querying for "hay*" in the Collector field on the Environmental tab returns samples from the environmental sample domain whose collector's last name begins with the letters "hay".

SampleTracking		- x
🐻 Expand 🛛 👩 Collapse 🖀 S	imilar 🔍 Query 📝 Update	🔜 Add Test 📲 Cancel Test 💿 Commit 🛞 Abort 🛛 Options 🗸
Sample > 16	Type/Status Released	
▷ 100 ▷ 203 ▷ 14021	Error Receive Released Environme Not Verified Hazardou	
		pr: hayek mike Phone #:
		ct: burke YER Report To: OUR SAVIOURS LUTHERAN (YER)

Figure 95 Matches for a Domain-Specific Query in Sample Tracking

Example 2: Query Using a Combination of General and Domain-Specific Fields

Querying for a collected date range of "2012-05-01..2012-05-31", a sample Status of "Released", and project "gtc" returns matches that meet all three of the search criteria. Note that the first two criteria are general in nature, and the last one is domain-specific.

SampleTracking - 5
🐻 Expand 🐻 Collapse 🏥 Similar 🔍 Query 📝 Update 📖 Add Test 🔣 Cancel Test 🥝 Commit 🕄 Abort Options 🗸
Sample Type/Status Accession #: Order #: Collected: 2012-05-01.3 Time: Received: Status: Released Client Reference: Environmental Private Well SDWIS Sample Item Analysis Aux Data Hazardous: Priority: Collector: Phone #: Collector: Phone #: Location: Desct Project: gtc Bill To: Y Report To: Y
Enter fields to query by then press Commit

Figure 96 Making a Domain-Specific Query in Sample Tracking

Example 3: Multiple Domain Querying is Not Allowed

If fields in two different domains are used to query for samples, an error message will be displayed in the Status Area of the screen prohibiting this action. For example, if a query is conducted for all samples with a Project of "gtc" on the Environmental tab,



and a Sample Type of "RT – Routine" on the SDWIS tab, the following error message will be displayed:

Please query for only one domain at a time.

Figure 97 Error Message for a Multiple Domain Query in Sample Tracking

3.6.7 ADDING A TEST TO A SAMPLE IN SAMPLE TRACKING

- 1. Query and enter the Accession # or another parameter to find the desired sample.
- 2. Click on the accession # in the tree in the left pane.
- 3. Click on **Update**.
- 4. Click on the sample item.
- 5. Click on the Add Test button. The new test (highlighted below) will appear.

🐻 Expand 🛛 🐻 Collapse 🏻 🋗	Similar 🔍 Query	🖌 🖉 Upda	ite 🔣 Add Tes	t 🛛 🐻 Cancel Test	📀 Commit	Abort Option:	5 🕶		
ample # 319	Type/Status Logged In	Accessi	on #: 319	Order #:		Collec	ted: 2011-01-24	Time: 11:00	
40-<>	Drinking Water	Rece	ived: 2011-01-25	14:04 Status:	Logged In	Client Referen	nce:		
coliforms : colilert mpr	w Released	Analysis							
nitrate : epa 353.2	Logged In Logged In		Test:	Me	thod:		Started:	•	
Analysis	Logged In		Status: Logged In	Y Rev	ision: 0	Reportable: 🗐	Completed:	•	
Notes		s	ection:	~	Unit:	~	Released:		
Storage		Sample	Prep:				Printed:		
QA Events Storage		Workshe	et Created	Status	User		User	Action	
Notes									
QA Events									
Aux Data		<					<		>
		V Sele	ct				Add Row	Remove Row	

Figure 98 Adding a Test in Sample Tracking

- 6. Enter information into the Test field under the Analysis tab. The user must have permission to add a test.
- 7. Click on **Commit**, and the test will be added.

3.6.8 CANCELLING A TEST IN SAMPLE TRACKING

1. Query and enter the Accession # or another parameter to find the desired sample.

- 2. Click on the accession # in the tree in the left pane.
- 3. Click on the **Update** button.
- 4. Click on the analysis that needs to be cancelled.
- 5. Click on the **Cancel Test** button.
- 6. A pop-up box with the following instructions appears on the screen.

Can	cel Analysis?		
?	You may not remove a con However, you can change t Would you like to change th		
	No	Yes	

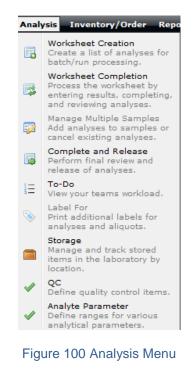
Figure 99 Cancelling an Analysis in Sample Tracking

- 7. Select the appropriate response from "No/Yes".
- 8. By clicking "Yes", the status of the logged-in analysis changes to "Cancelled".
- 9. By clicking "No", the status remains as "Logged In".
- 10. Click **Commit** to save your most recent changes.

CHAPTER 4 MANAGING ANALYSES

Tests are the procedures that are used to analyze the sample; they are the units of work that the analytical staff perform to obtain the results. Tests that are assigned to samples become "analyses". Analyses have additional information such as the date-time they were assigned to the sample, what status they are in, who performed the analyses, etc. that record the various aspects of the work performed. Much like samples, an analysis has a lifecycle that moves it along from initial login to completion and reporting. For more information on various analysis statuses, see <u>(Analysis) Status</u>.

The Analysis Menu provides analysts with access to screens used in their daily processes.



4.1 TO-DO LIST

The To-Do List in the Analysis Menu provides a detailed, sortable, filterable listing of items of interest. It is an improvement over the traditional paper to-do list, as it has up-to-the-minute information. The To-Do List is an extremely useful tool for analysts to view the workload across the lab, see what work needs to be done, and target problematic areas, especially the percent holding time used and the percent average turnaround time used.

The "Show my section's only" option is checked by default allowing the To-Do List to be narrowed to analyses that are relevant to the logged-in user. Unchecking this box will show the analyses for the entire laboratory. The **Refresh** button updates the To-Do List by retrieving up-to-the-minute information from the database. The **Details** button pops up the selected sample's information in a Sample Tracking screen. (On the Worksheet tab the **Details** button pops up the selected worksheet's Worksheet Completion screen.) The bottom pane found on many of the To-Do List's tabs displays a bar graph of tab-specific data. Users may also hover the mouse pointer on an individual bar to view its time and quantity values. The Override column found on many of the tabs indicates if the analysis or sample has been flagged with a QA event which overrides its results.

V Sh	ow my sec	tion's only			🕏 Refresh	Details	port To E	xcel
Logged	l In Initia	ted Workshe	et Completed	Released	To Be Verified	Other Instrume	ent	
Acc #	Domain	Section	Test	Method	Collected	Received		errid
15981	E	sample_prep-	-	niosh 7300		2012-02-10 1		
15982	E	sample_prep-	-	niosh 7300		2012-02-10 1		
15983	E	sample_prep-	ank dig	niosh 7300		2012-02-10 1		
15984	E	sample_prep-	ank dig	niosh 7300		2012-02-10 1		
15985	E	sample_prep-	ank dig	niosh 7300		2012-02-10 1	4:15	
15986	E	sample_prep-	ank dig	niosh 7300		2012-02-10 1	4:15	
15987	E	sample_prep-	ank dig	niosh 7300		2012-02-10 1	4:15	
15988	E	sample_prep-	ank dig	niosh 7300		2012-02-10 1	4:15	
15989	E	sample_prep-	ank dig	niosh 7300		2012-02-10 1	4:15	
15990	E	sample_prep-	ank dig	niosh 7300		2012-02-10 1	4:15	
15991	E	sample_prep-	ank dig	niosh 7300		2012-02-10 1	4:15	
15992	E	sample_prep-	ank dig	niosh 7300		2012-02-10 1	4:15	
15993	E	sample_prep-	ank dig	niosh 7300		2012-02-10 1	4:15	
15994	E	sample_prep-	ank dig	niosh 7300		2012-02-10 1	4:15	
٠		111						•
1	Tim ,000 —	e Since Analys	ses Logged-In					
alyses	750 —				4 - 7 days a Analyses: 8			
Vo. of Analyses	500 —							
No	250 —							
	0 —	Today Yeste	rday 2 days ago	3 days ago		10 days > 10 days ago ago	_	

Figure 101 Logged In Tab of To-Do List

4.1.1 SORTING AND FILTERING THE TO-DO LIST



The sorting and filtering capabilities that are inherent to the To-Do List allows the user to quickly narrow the list to the desired set. To access the sort or filter menus, hover the mouse on the column heading and click on the dropdown arrow.

The two sorting options that are available in most of the columns are ascending (A to Z) and descending (Z to A) sorts. The following example shows the options available for the Test column.

Го-Do				
V Sho	ow my sea	tion's only		💈 Refresh
Logged	In Initia	ted Worksheet	Completed	Released To Be Verified (
Acc #	Domain	Section	Test 💌	Method Collected
50	Q	enviro_micro-ic	colifc ≜↓	Ascending
65	Q	inorg_auto-ank	nitrat	Descending
101	E	semivolatile-ic	endo A+	Descending
102	E	sample_prep-ic	prep	Filters
200	W	enviro_micro-ic	coliforms	comert mp zoir-oo-or ir.c
200	W	enviro_micro-ic	coliforms	colilert pa 2011-03-01 11:0
201	Q	enviro_micro-ic	coliforms	colilert mp
206	E	enviro_micro-ic	iron bacteri	airon bacter 2011-12-15 06:0
206	E	enviro_micro-ic	iron bacteri	airon bacter 2011-12-15 06:0
300	E	inorg_manual-an	solids	usgs i-376!2011-07-15 14:0

Figure 102 Ascending and Descending Sorting

Filtering is available with many of the columns of the To-Do List. Available filtering options are dictated by the data in that column. One or more filtering options may be checked or unchecked for a column. Users may also apply filters to multiple columns, thus, limiting the list that is displayed. It is recommended that the user uncheck filters to go back to a previous set, instead of clicking the **Refresh** button. The **Refresh** button uses more system resources and is only meant to be used to update the To-Do List after a longer period of time has passed.

V Sho	ow my sec	ction's only				🤹 Re	fresh	Details Export	To Excel
Logged	In Initia	ited Worksheet	Comple	eted	Release	d To Be Veri	fied C	ther Instrument	
Acc #	Domain	Section	Test	~	Method	Collected		Received	Overrid
23221	E	industrial_hyg-an	Imeta	₽↓	Ascendi	na		2012-04-02 14:09	• •
23222	E	industrial_hyg-an	Imeta	Z↓	Descend	-		2012-04-02 14:09	
23223	E	industrial_hyg-an	Imeta	A+	Descend	ing		2012-04-02 14:09	
23224	E	industrial_hyg-an	Imeta		Filters				(and
23225	E	industrial_hyg-an	Imetais	strinin	umosn 7	300		All	
23226	E	industrial_hyg-an	Imetals	s(mult	ti niosh 7	300		formulations	
23227	E	industrial_hyg-an	Imetals	s(mult	ti niosh 7	300		dia	
23228	E	industrial_hyg-an	Imetals	s(mult	ti niosh 7	300		metals(multi) scan	
23229	E	industrial_hyg-an	Imetals	s(mult	ti niosh 7	300			
23230	E	industrial_hyg-an	metals	s(mult	ti niosh 7	300		hardness	
38063	E	asbestos-ic	asbest	tos	niosh 7	400		metals(multi)	
38064	E	asbestos-ic	asbest	tos	niosh 7	400		radium combined	

Figure 103 Filtering the To-Do List

4.1.2 SAMPLE DOMAIN CODES

Sample Domain Codes are used in many of the tabs of the To-Do List to distinguish the domain to which the sample belongs.

Domain Code	Sample Domain		
E	Environmental		
Q	Quick Entry		
S	SDWIS		
W	Private Well Water		

Figure 104 To-Do List Sample Domain Codes

4.1.3 DOMAIN SPECIFIC FIELD

This field, located on all tabs but the Worksheet tab, contains information which can be used to help identify an analysis/sample. The To-Do List's "Domain Specific Field" contains information from one or more domain-specific sample fields joined together

in the order specified in the table below. If one of the component domain-specific fields is empty, it is skipped in the formation of the To-Do List's "Domain Specific Field".

Sample Domain	Domain Specific Field
Environmental	Priority [pri], Project [prj], Location [loc]
SDWIS	PWS Name [pws], Facility Id [fac]
Private Well Water	Owner [own]

Figure 105 Descriptions of To-Do List Domain Specific Field

4.1.4 LOGGED IN TAB

The Logged In status tab is displayed by default when the To-Do List is opened. This tab provides the analytical staff with their team's workload of analyses that are in "logged in" status. For an explanation of logged in status, see <u>(Analysis) Status</u>.

Two special columns are found on this tab: % Holding Used and % Exp Completion.

% Holding Used

The Percent Holding Time Used for an analysis is calculated from the Turnaround Holding Hours value in its test definition:

% Holding Used =
$$\frac{(Started \ DateTime * - Collected \ DateTime **) x \ 100}{Turnaround \ Holding \ Hours \ in \ Test \ Definition}$$

* For analyses that have not been started, the Current DateTime is used to show the continual depletion of holding time.

** The % Holding Used is set to 0.0% if Collected DateTime is not present in the system.

Color	Percentage Range
Red	75.0 % and Above
Brown	50.0 – 74.9 %
Yellow	25.1 – 49.9 %
Green	25.0 % and Below

The bars in the % Holding Used column are color-coded to allow for easy interpretation.

Figure 106 To-Do List Bar Colors

% Exp(ected) Completion

The Percent Expected Completion for an analysis is calculated from the <u>Priority</u> of the sample.

% Exp Completion =
$$\frac{(Current DateTime - Collected DateTime *) x 100}{Priorty **}$$

* The Received DateTime is used for this calculation if Collected DateTime is not present in the system.

** The Turnaround Average Days in the test definition is used for this calculation if a Priority value is not present in the system.

The bars in the % Exp Completion column use the same color code as above.

The bar graph in the lower pane of the Logged In tab displays the distribution of analyses by the number of days since the analyses reached logged in status. See <u>Logged In Tab of</u> <u>To-Do List</u> for an example of the Logged In tab.

4.1.5 INITIATED TAB

The Initiated status tab displays analyses that have been added to an electronic worksheet and in which testing has begun.



Two special columns are found on this tab: % Holding Used and % Exp Completion. These columns are calculated in the same manner that they are for the <u>Logged In Tab</u>.

The bar graph in the lower pane of the Initiated tab displays the distribution of analyses by the number of days since the analyses were initiated.

Sh Sh	ow my section's	only		4	🝰 Refresh 🛛 📰 De	etails Export T	o Excel
Logged	d In Initiated	Worksheet Com	pleted Rele	ased To Be	Verified Other	Instrument	
Acc #	Domain	Section	Test	Method	% Holding Used	% Exp Comple	tion
74253	SDWIS	enviro_micro-ic	coliforms	colilert pa	11.7%		35.2%
74254	SDWIS	enviro_micro-ic	coliforms	colilert pa	0.170		35.2%
74255	Private Well	enviro_micro-ic	coliforms	colilert pa	5.0%		35.2%
74264	Environmenta	lenviro_micro-ic	hpc	dental pou	10.3%		14.1%
74265	Environmenta	lenviro_micro-ic	hpc	dental pou	9.2%		14.1%
74266	Environmenta	lenviro_micro-ic	hpc	dental pou	01070		14.1%
74267	Environmenta	lenviro_micro-ic	hpc	dental pou	11.4%		14.1%
74277	Environmenta	lenviro_micro-ic	hpc	red pour p	22.8%		11.7%
74278		lenviro_micro-ic	hpc	red pour p	22.8%		11.7%
74279	Environmenta	lenviro_micro-ic	hpc	red pour p	22.8%		11.7%
74280	Environmenta	lenviro_micro-ic	hpc	red pour p	6.4%		11.7%
74281	Environmenta	lenviro_micro-ic	hpc	red pour p	5.3%		11.7%
74282	Environmenta	lenviro_micro-ic	hpc	red pour p	12.7%		11.7%
74283	Environmenta	lenviro_micro-ic	hpc	green pour	20.2%		14.1%
•							- + -
ses	Time Sin 200	ce Analyses Initiat					
Vo. of Analyses	100 —		2-5 days ag Analyses: 6				
No	50 — 0 —						
	Today	Yesterday 2) days 21-30 days go ago	> 30 days ago	

Figure 107 Initiated Tab of To-Do List

4.1.6 WORKSHEET TAB

The Worksheet tab displays a list of worksheets that are yet to be completed. Clicking on the **Details** button will pop up and display the selected worksheet. For additional information about worksheet completion, see <u>WORKSHEET COMPLETION</u>.

If the tab includes worksheets that should not be on the list, the worksheet status should be changed to "Done".

Show my	/ section's only		🤹 Refi	resh 🔄 Detai	Is Export To Exc	el
Logged In	nitiated Worksheet	Completed Release	d To Be Verifi	ed Other In	strument	
Worksheet #	Username	Section	Test	Method	Created Date	
3594	smay	asbestos-ic	asbestos	epa 600 r93 1	2012-03-16 12:57	^
3655	wbenning	asbestos-ic	asbestos	epa 600 r93 1	2012-03-19 15:07	1
3662	wbenning	asbestos-ic	asbestos	epa 600 r93 1	2012-03-20 08:07	'
3719	Isulliva	liquidchrom-ic	pesticides	epa 547	2012-03-21 11:03	3
3799	Isulliva	liquidchrom-ic	pesticides	uhl h 006	2012-03-23 13:15	5
3807	Isulliva	liquidchrom-ic	pesticides	uhl h 006	2012-03-23 14:16	5
3813	Isulliva	liquidchrom-ic	pesticides	uhl h 006	2012-03-23 14:34	ŧ.
3835	mmainpri	pesticide-ic	pesticides	epa 515.3 acio	2012-03-26 10:47	,
3835	mmainpri	sample_prep-ic	prep pest	epa 515.3 acio	2012-03-26 10:47	,
3892	sosiohwo	volatile-ic	haloacetic acid	epa 552.2 haa	2012-03-27 13:38	3
4093	smay	organic-ic	uv-254	sm 5910	2012-04-03 14:32	2
4211	wbenning	asbestos-ic	asbestos	epa 600 r93 1	2012-04-06 10:06	; =
4255	Isulliva	liquidchrom-ic	pesticides	uhl h 018 fifra	2012-04-09 13:44	, L
4307	Isulliva	liquidchrom-ic	pesticides	uhl h 018 fifra	2012-04-10 15:36	5
4307	Isulliva	sample_prep-ic	prep pest	uhl h 018 exp	2012-04-10 15:36	5
4334	wbenning	asbestos-ic	asbestos	epa 600 r93 1	2012-04-11 10:41	Í.
4437	smay	organic-ic	uv-254	sm 5910	2012-04-13 15:39)
4648	Isulliva	liquidchrom-ic	pesticides	uhl h 023	2012-04-20 13:38	3
4654	Isulliva	liquidchrom-ic	pesticides	uhl h 023	2012-04-20 14:45	5
4695	jvargo	liquidchrom-ic	perfluorinated	epa 537	2012-04-23 14:53	3
4696	mcoleman	sample_prep-ank	dig	epa 3050b en	2012-04-23 14:56	5
4698	jvargo	liquidchrom-ic	perfluorinated	epa 537	2012-04-23 15:14	Į.
4753	Isulliva	liquidchrom-ic	pesticides	epa 547	2012-04-24 18:18	3
4829	Isulliva	liquidchrom-ic	pesticides	epa 547	2012-04-26 15:06	5
					•	-

Figure 108 Worksheet Tab of To-Do List

4.1.7 COMPLETED TAB

The Completed status tab displays a list of analyses that have been completed, but that still need to be reviewed by a second analyst for release.

The bar graph in the lower pane of the Completed tab displays the distribution of analyses by the number of days since the analyses were completed.

				Released		: : :		
		ted Worksheet			To Be Ver			ument
Acc #	Domain	Section industrial hyg-ic	Test	Method		Completed 2012-07-0		Domain Specific
25275	F					2012-07-0		
25276	F	industrial_hyg-ic				2012-07-0		
25277	F	=				2012-07-0		
	F	industrial_hyg-ic						
25279	-	industrial_hyg-ic				2012-07-0		DIANK
30040	E	bioassay-ank asbestos-ic	wett-ia-seria			2012-05-1		#10/set #5
30849	E		asbestos	epa 600 r9				#19/apt #5 ceili
30849	E	asbestos-ic	asbestos po					#19/apt #5 ceili
33010	E	liquidchrom-ic	pesticides	uhl h 006				#1 control
33011	E	liquidchrom-ic	pesticides	uhl h 006				#2 control
33012	E	liquidchrom-ic		uhl h 006				#3 sample 1
33013	E	liquidchrom-ic	pesticides	uhl h 006				#4 sample 2
33014	E	liquidchrom-ic	pesticides	uhl h 006				#5 sample 3
33015	E	liquidchrom-ic	pesticides	uhl h 006		2012-07-2	3 10:13	#6 sample 4
•		1	11					•
	240	e Since Analyses	Completed					
lyses	180 —	Today Analyses: 23	2					
Vo. of Analyses	120 —							
No.	60 —							_
	0	Today	Yesterday	2 days ago	3 day	/s ago	> 3 days a	ago

Figure 109 Completed Tab of To-Do List

4.1.8 RELEASED TAB

The Released status tab is used by client services staff to view the volume of analyses that have been released in the last four days. This tab allows users to easily check to see if an analysis has been recently released and to look up any information related to it.

V Sh	ow my sec	tion's only			🤣 Refresh	Details Export	To Exce	I
Logged	In Initia	ted Worksheet	Completed	Released	To Be Verified O	ther Instrument		
Acc #	Domain	Section	Test	Method	Collected	Released	Overrid	1
27219	E	sample_prep-ank	dig	epa 3050	t i i i i i i i i i i i i i i i i i i i	2012-07-24 15:56		Ŀ
27219	E	metals-ank	metal	epa 6010	t	2012-07-24 15:58		L
27444	S	volatile-ic	volatiles	epa 524.2	2012-04-26 08:00	2012-07-24 13:41		
33788	E	metals-ank	metals(multi	epa 200.7	2012-05-30 07:00	2012-07-23 16:49		
33789	E	metals-ank	metals(multi	epa 200.7	2012-05-30 07:00	2012-07-23 16:49		
33794	E	liquidchrom-ic	pesticides	uhl h 006	2012-05-29 00:00	2012-07-24 16:49		
33824	E	liquidchrom-ic	pesticides	uhl h 006	2012-05-29 00:00	2012-07-24 16:55		
36836	E	metals-ank	metal	epa 7471 (2012-06-12 11:00	2012-07-23 10:31		
36837	E	metals-ank	metal	epa 7471 (2012-06-12 11:00	2012-07-23 10:36		
36838	E	metals-ank	metal	epa 7471	2012-06-12 11:20	2012-07-23 10:37		
36839	E	metals-ank	metal	epa 7471	2012-06-12 11:20	2012-07-23 10:38		
36840	E	metals-ank	metal	epa 7471	2012-06-12 12:10	2012-07-23 10:38		
36841	E	metals-ank	metal	epa 7471	2012-06-12 12:10	2012-07-23 10:39		
36842	E	metals-ank	metal	epa 7471	2012-06-12 12:30	2012-07-23 10:39		
36843	E	metals-ank	metal	epa 7471	2012-06-12 12:30	2012-07-23 10:40		
37028	E	metals-ank	metal	epa 7470a	2012-06-06 14:00	2012-07-23 10:08		
37029	E	metals-ank	metal	epa 7470a	2012-06-12 14:00	2012-07-23 10:20		
37030	E	metals-ank	metal	epa 7470a	2012-06-13 10:00	2012-07-23 10:21		
37172	E	inorg_auto-ank	anions (mult	epa 300.0	2012-06-13 01:00	2012-07-23 15:59		
37232	E	metals-ank	metals(multi	epa 200.7	2012-06-06 00:01	2012-07-23 16:38		
37233	E	metals-ank	metals(multi	epa 200.7	2012-06-12 00:01	2012-07-23 16:38		
37242	E	metals-ank	metal	epa 7471	2012-06-14 10:00	2012-07-23 10:54		
37346	E	metals-ank	metal	epa 7470a	2012-06-14 15:20	2012-07-23 10:22		
37944	E	sample_prep-ic	prep pest	uhl h 029	2012-06-18 00:00	2012-07-25 07:19		

Figure 110 Released Tab of To-Do List

4.1.9 TO BE VERIFIED TAB

The To Be Verified status tab lists the samples that are pending data entry verification. See <u>SAMPLE VERIFICATION</u> for a complete description of this process.

The bar graph in the lower pane of the To Be Verified tab displays the distribution of samples by the number of days since the samples were received at the laboratory.

V Sh	ow my sec	ction's only			2	🕏 Refresh 🔄 🔄	etails Export	To Excel
Logged	l In Initia	ated Worksheet	Completed	Release	ed To Be	Verified Other	Instrument	
Acc #	Domain	Collected	Received		Override	Domain Specific	Field Rep	oort To
45568	E	2012-07-23 07:10	2012-07-24	10:15		arctic glacier ice	ARC	CTIC GLA 🔺
15599	E	2012-07-24 10:15	2012-07-24	10:15		main prod.	INT	EGRATE
45619	E	2012-07-23 10:00	2012-07-24	11:45			EAS	ST CENTR
45620	E	2012-07-23 10:00	2012-07-24	11:45			EAS	ST CENTR
45621	E	2012-07-23 10:00	2012-07-24	11:45			EAS	ST CENTR
15622	E	2012-07-23 10:15	2012-07-24	11:45			EAS	ST CENTR
45623	E	2012-07-23 10:15	2012-07-24	11:45			EAS	ST CENTR
45624	E	2012-07-23 10:15	2012-07-24	11:45			EAS	ST CENTR
45625	E	2012-07-23 10:30	2012-07-24	11:45			EAS	ST CENTR
15626	E	2012-07-23 10:30	2012-07-24	11:45			EAS	ST CENTR
15627	E	2012-07-23 10:30	2012-07-24	11:45			EAS	ST CENTR
45628	E	2012-07-23 10:45	2012-07-24	11:45			EAS	ST CENTR
15629	E	2012-07-23 10:45	2012-07-24	11:45			EAS	ST CENTR
45630	E	2012-07-23 10:45	2012-07-24	11:45			EAS	ST CENTR
٠			III					+ +
No. of Samples	200 — 150 — 100 — 50 — 0 —	Yeste Samples F Yeste Samp Today Yesterday		3 days a	ago 4-7	days 8 - 10 days	> 10 days	

Figure 111 To Be Verified Tab of To-Do List

4.1.10 OTHER TAB

This Other status tab is designed for laboratory staff to troubleshoot issues. The tab displays information for analyses that are not currently in the normal workflow process. These analysis statuses include: Error Completed, Error Initiated, Error In Prep, Error Logged In, In Prep, On Hold, and Requeue. This tab should be referred to frequently when an analysis cannot be found on the other tabs.

V Sh	ow my see	ction's only		4	Refresh	Details Export	t To Exce	:
Logged	l In 🛛 Initia	worksheet	Completed	Released To Be	Verified	Other Instrument		
Acc #	Domain	Section	Status	Test	Method	Collected	Receive	4
42018	E	volatile-ic	In Prep	haloacetic a	epa 552.2		2012-07	
42034	E	volatile-ic	In Prep	haloacetic a	(epa 552.2		2012-07	
42063	E	volatile-ic	In Prep	haloacetic a	(epa 552.2		2012-07	
42201	E	volatile-ic	In Prep	haloacetic a	cepa 552.2		2012-07	
42229	E	volatile-ic	In Prep	haloacetic a	cepa 552.2		2012-07	
42359	E	volatile-ic	In Prep	haloacetic a	epa 552.2		2012-07	
42510	E	volatile-ic	In Prep	haloacetic a	(epa 552.2		2012-07	ł,
42532	E	volatile-ic	In Prep	haloacetic a	(epa 552.2		2012-07	ł
42536	E	liquidchrom-ic	In Prep	pesticides	uhl h 018	f2012-06-22 00:00	2012-07	
42537	E	liquidchrom-ic	In Prep	pesticides	uhl h 018	f2012-06-22 00:00	2012-07	
42545	s	radchem-ic	Requeue	gross alpha	epa 00-02	2012-07-10 13:30	2012-07	
42547	S	radchem-ic	Requeue	gross alpha	epa 00-02	2012-07-09 23:00	2012-07	
42759	E	inorg_auto-ank	Requeue	toc (multi)	sm 5310 l	5	2012-07	
42759	E	inorg_auto-ank	In Prep	perchlorate	epa 314.0		2012-07	
42759	E	metals-ank	In Prep	metal	epa 200.8		2012-07	
42759	E	metals-ank	In Prep	metal	epa 245.2		2012-07	
42759	E	metals-ank	In Prep	metal	epa 200.7		2012-07	
42862	E	inorg_auto-ank	In Prep	ammonia	lac 10-10	7 2012-07-11 10:30	2012-07	
42896	E	volatile-ic	In Prep	haloacetic a	(epa 552.2		2012-07	
42899	E	volatile-ic	In Prep	haloacetic a	epa 552.2		2012-07	
42903	E	volatile-ic	In Prep	haloacetic a	epa 552.2		2012-07	
42906	s	radchem-ic	Requeue	gross alpha	epa 00-02	2012-07-11 07:18	2012-07	
42918	E	volatile-ic	In Prep	haloacetic a	cepa 552.2		2012-07	
42954	E	inorg_auto-ank	In Prep	ammonia	lac 10-10	7 2012-07-11 11:30	2012-07	



4.1.11 INSTRUMENT TAB

This tab is currently not functional.

4.2 ADDING AN ANALYSIS TO A SAMPLE

An analysis can be added to a sample through three different types of screens: the full sample login screens (environmental, private well water, SDWIS, etc.), Sample Tracking, and Quick Entry (as long as the sample has not been fully logged in).

For a complete explanation of the procedure for adding an analysis through the full sample login screens, see <u>COMMON FULL SAMPLE LOGIN FIELDS – MIDDLE OF SCREEN</u> and <u>ANALYSIS TAB</u>.

For a complete explanation of the procedure for adding an analysis to a sample in Sample Tracking, see <u>ADDING A TEST TO A SAMPLE IN SAMPLE TRACKING</u>.

For a complete explanation of how to add an analysis through the Quick Entry module, see <u>QUICK ENTRY</u>.

4.3 GETTING ADDITIONAL TEST SPECIFIC LABELS

This feature has not been currently implemented.

4.4 PREP TESTS

A prep test is a test that is a prerequisite for another test. Examples include digestions, leaching, sample preparation, and afb digestion/concentration. While a test can have multiple prep tests available from which to select, only one prep test can be assigned to the dependent analysis. In other words, an analysis can have only one prep analysis. When there are multiple prep tests available from which to select, the Prep Test Selection screen will pop up to allow a selection. Check the Select box for the desired prep test and click **OK**.

	Copy To Empty	Copy To All
Analysis/Prep Test & Method	Section	Select
ø pesticides, uhl h 018 fifra		
- prep pest, uhl h 018 dupont	sample_prep-ic	
- prep pest, uhl h 018 imids	sample_prep-ic	
prep pest, uhl h 018 su	sample_prep-ic	
prep pest, uhl h 018 mod su	sample_prep-ic	
prep pest, uhl h 018 flu	sample_prep-ic	
prep pest, uhl h 018 exp	sample_prep-ic	
		-
0	OK 😢 Cancel	

Figure 113 Prep Test Selection Screen

Tests that are defined with a required prep test will have the Select checkbox preselected and it cannot be unselected. Click **OK** to accept the required prep test.

Prep Test Selection		
	💿 Copy To Empty 🧊	Copy To All
Analysis/Prep Test & Method	Section	Select
▲ chlorophyll a, epa 445.0 rev 1.2		
prep limno - filter, epa 445.0 filter	limnology-ic	V
© 01	< 🔀 Cancel	

Figure 114 Prep Test Selection Screen for a Required Prep Test

The **Copy To All** button copies the highlighted section to all the prep tests. The **Copy To Empty** button performs the same operation but only on those prep tests that don't have any predefined section.

Another way to select a prep test is by choosing a previously logged in analysis to be the prep analysis for its dependent analysis. See <u>Sample Prep</u> for an explanation of how to perform this action.

For a complete explanation of how prep tests are built into a dependent test definition, see <u>PREP TEST & REFLEX TEST TAB</u>.

4.5 REFLEX TESTS

Often a result of a test requires an additional or confirmatory test to be performed. This additional test is known as a reflex(ed) test. A reflex analysis is linked to its parent analysis and result which is important in tracking the testing process.

Multiple tests can be reflexed from a single analysis giving the analyst the choice for selecting the next step. When there are multiple reflex tests available from which to choose, the Reflex Test Selection screen will pop up to allow a selection. Check the Select box(es) for the desired reflex test(s) and click **OK**.

Reflex Test Selection		
	Copy To Empty	Copy To All
Reflex Test & Method	Section	Select
4 524: gross alpha, epa 900.0 including		*
metal, epa 200.8 uranium dw	metals-ank	
gross alpha adjusted, epa 900.0/20	00. radchem-ic	
turbidity, sm 2130 b screen	sample_prep-ank	
		Ţ
	📀 ОК	
Done		

Figure 115 Reflex Test Selection Screen

Tests that are defined with a required reflex test(s) will have its Select checkbox preselected and it cannot be unselected. Click **OK** to accept the required reflex test(s).

For a complete explanation of how reflex tests are built into a parent test definition, see <u>PREP TEST & REFLEX TEST TAB</u>.

4.6 CANCELING AN ANALYSIS

There are times that a laboratory wishes to remove an analysis from a sample. However, for auditing purposes an analysis cannot be removed from a sample and must be cancelled. Once an analysis is cancelled, it cannot be un-cancelled, reported, or modified in any way.

An analysis can be cancelled in two different places. It can be cancelled from the Sample Tracking screen. (See <u>CANCELLING A TEST IN SAMPLE TRACKING</u>.) It can also be cancelled from any of the full sample login screens. Click on the analysis in the "Sample Items and Analyses" section and then click on the **Remove Row** button. A "Cancel Analysis?" warning window pops up allowing the user to change the status of the analysis to cancelled. This action must then be committed to take effect.

	Sample I	tems and A	nalyses				Orga	nization Info	
Items/Analyses			Тур	e/Status			Project:		× 🖪
⊿ 0 - 22 - Gallo	on Plastic(unpres	erved)	Soli	d	*	R	eport To: A & B L	ABORATORIES	¥ 🗔
dig : epa	7471 a hg			ned In		1.0			× 🗔
metal : ep	pa 7471 a mercu	ry		l Analysis					
	🙀 Add Analysis Analysis 🛛 Test R		\bigcirc	However, ye	ou can chan	nge t	nmitted analysis r he status to 'Can he status to 'Cano Yes	celled'.	
Test:	dig	~	Method:	epa 7471 a	a hg		Started:	ŧ	3
Status:	Logged In	~ F	Revision:	0	Reportable	: 🗉	Completed:	8	3
Section:	sample_prep-an	k 🎽	Unit:			~	Released:	8	3
Sample Prep:						Y	Printed:	8	•
Worksheet Cre	eated	Status		User			User	Action	
						~			-
*						Ŧ	*		
Select							Add Row	Remove Row	

Figure 116 Canceling an Analysis in Full Sample Login

In the instance where a client no longer wishes for a requested analysis to be performed, the laboratory procedure could be to add an overriding QA event. This still reports that analysis (excluding the results) to the client with possible external comments documenting the client "cancellation". The reason to do this is because an analysis "cancellation" by a client has billing, turnaround, and analyses volume implications.

QA Event		- x
🔍 Query 🔌	Previous 🗼 Next 🔒 Add 📝 Update 💿 Commit 🔞 Abort Op	ptions 👻
Name:	canceled with charge	
Description:	Test was canceled per client but will be charged	
Type:	Result Override	
Test:	Y Method:	
Billable:	▼	
Sequence:		
Text:	There will be a charge for this testing because the request to cancel was made after testing was started and/or completed.	

Figure 117 QA Event: Test Was Canceled Per Client But Will Be Charged

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4.7 ADDING QA EVENTS, EXTERNAL NOTES, AND INTERNAL NOTES

For general information about QA events, please see <u>QA EVENTS TAB</u> and <u>QA EVENTS</u>. Additionally, sample level QA events cannot be added/removed if any analysis has been released. This is to prevent the meaning of a previously reviewed analysis from changing on reports.

Sample and analysis internal notes are viewable only by lab personnel and are meant to explain any circumstances of note. The major difference between QA events and notes comes from the fact that QA events can be tracked, tabulated, and analyzed, whereas, notes cannot. For more information on adding external and internal notes, see <u>ANALYSIS NOTES TAB</u> and <u>SAMPLE NOTES TAB</u>.

4.8 COMPLETING AN ANALYSIS

The Complete and Release screen found in the Analysis Menu is used to review, complete, and release analyses.

- Analysts can query based on accession number, test, method, analysis status, and sample status.
- For each record, there are information tabs for sample, domain (environmental, private well water, SDWIS, etc.), sample item, analysis, test results, analysis notes, sample notes, storage, QA events, and auxiliary data.
- Any of the information in these tabs can be updated by clicking on the **Update** button, followed by the **Commit** button.

The sample can be queried, thus, displaying the analyses that were conducted on the sample. First, the desired analysis row is selected in the top pane of the Complete and Release screen. Next, the Test Results tab is selected in the bottom pane and the analysis values are entered. When the user is certain that the analysis is complete, the **Complete** button is clicked. If the result information is incomplete, there will be a warning that is displayed on the bottom of the screen.

		Release 🛛 💿 Com	mit 📓 Abort C			
ccession #	Test	Method		Analysis Statu		
18	coliforms	colilert mpn	well	Initiated	Logged In	- 1
18	nitrate	epa 353.2		Released	Logged In	
1	ate Well Sample Item	Analysis Test Results		Sample Notes S	torage QA Events	•
← Sample Priv Reportable Analyt			Value			
Reportable Analyi	te Coliform Bacteria		Value <1			^
Reportable Analyi						^
Reportable Analy			<1			

Figure 118 Complete and Release Screen

The Analysis Status changes to "Completed". If this is the final analysis to be completed for the sample, the Sample Status also changes to "Completed".

FEBRUARY 14, 2013

	Update 🛛 🎻 Complete 🛛 🙀 Releas	se 📔 💿 Comr	nit 🔞 Abort 🛛 O	ptions 👻		
ccession #	Test	Method		Analysis Status	s Sample Status	
18	coliforms	colilert mpn v	well	Completed	Completed	-
18	nitrate	epa 353.2		Released	Completed	
◆ Sample Pr Reportable Anal	vate Well Sample Item Analysis] Test Results	Analysis Notes S	Gample Notes St		•
	l Coliform Bacteria		<1			
V E.co			<1			

Figure 119 Completing an Analysis

4.9 RELEASING AN ANALYSIS

The Complete and Release screen found in the Analysis Menu is used to review and release an analysis. The sample accession number can be queried, thus, displaying the analyses that were conducted on the sample. First, the desired analysis row is selected in the top pane of the Complete and Release screen. Next, the various tabs are selected in the bottom pane to review their information. When the user is certain that the analysis is ready to be released, the **Release** button is clicked. You may release one or more analysis' records at one time. To release more than one analysis, select multiple rows before clicking on the **Release** button.

FEBRUARY 14, 2013

	Jpdate 🛛 📝 Complete 🛛 🙀 Relea	se 🛛 💿 Comr	nit 🔝 Abort O	ptions 👻		
Accession #	Test	Method		Analysis Statu	us Sample Status	
18	coliforms	colilert mpn v	vell	Released	Released	-
18	nitrate	epa 353.2		Released	Released	
Sample Pri	vate Well \Sample Item \Analysis	Test Results	Analysis Notes S	ample Notes) S	Storage QA Events	F -
Reportable Analy			Value			^
Total	Coliform Bacteria		<1			
E.col			<1			

Figure 120 Releasing an Analysis

The Analysis Status changes to "Released". If this is the final analysis to be released for the sample, the Sample Status also changes to "Released".

4.10 UNRELEASING AN ANALYSIS

In order to update any analysis or result information on a released analysis, the analysis needs to be unreleased first. Select the analysis from the Complete and Release screen and click on the Unrelease Analysis button on the Options drop-down list.

Complete and R	elease			
🔍 Query 🛛 🌽	Update 🛛 📝 Complete	🙀 Release 🛛 💿 Commit 🛛 Abort	Option	s 🔻
Accession #	Test	Method		Unrelease Analysis
319	coliforms	colilert mpn well		onicicase Analysis

Figure 121 Unreleasing an Analysis



As part of the unrelease process, the system requires an internal note explaining the reason for unreleasing the analysis. The "Unrelease Analysis" message pops up to inform the analyst of this requirement.

Unrelease Analysis	
You must add an internal n unreleased. Press Ok to co	ote when sample/analysis is ntinue or Cancel to abort.
Cancel	ОК

Figure 122 Unreleasing an Analysis Internal Note Requirement

Once an analysis has been unreleased, it will go to completed status and must be rereleased. Only users with analysis release/unrelease permission can perform these actions.

4.11 PREVIEW FINAL REPORT OPTION

It is useful for a reviewer to see the completed analysis information and results in a report format before the analysis is released. The Preview Final Report option on the Complete and Release screen was developed for that purpose.

Since this option shows any analysis before it is released, an "Internal" watermark is placed in the background to distinguish between this preview and the actual Final Report.

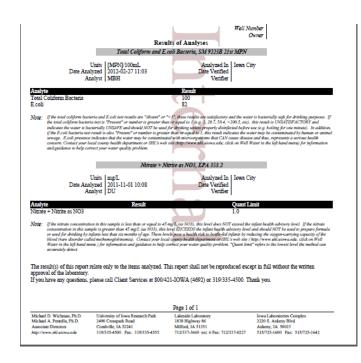


Figure 123 Final Report Preview

An analysis that has not been released can be previewed in Final Report format by checking the **Preview Final Report** checkbox (on the Options drop-drown list). Each analysis that is selected will automatically cause the Final Report Preview to be refreshed.

Complete and R	elease		
🔍 Query 🛛 🍃	Vpdate 🛛 🧭 Complete 🔓	💦 Release 🛛 💿 Commit 🛛 🔞 Abort	Options 🗸
Accession #	Test	Method	Unrelease Analysis
8	newtest225101	elisa	Preview Final Report
32	accu probe	pcr	
32	adenovirus	comp fix	History - Sample
32	testnew1112	iron bacteria	
33	accu probe	pcr	
34	accu probe	pcr	 History - Sample Project
35	yersinia	pcr	 History - Sample Organization

Figure 124 Previewing the Final Report

4.12 SUGGESTIONS

The **Suggestions** button on the bottom of the Test Results tab of the Complete and Release screen can be used to view the permissible value(s) for the selected field. This is useful if the user wishes to see the valid result range or a list of dictionary entries.

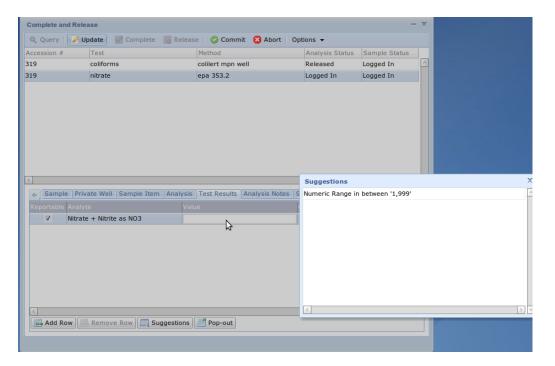


Figure 125 Suggestions for a Numeric Range



Figure 126 Suggestions for a Qualitative Result

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4.13 STORAGE

The Storage screen provides the ability to view, move, and discard items from storage locations. Both sample items (containers) and analysis ??? are tracked through this screen: the Current tab shows all of the items that are presently in the storage location, while the History tab shows all of the items that were formerly stored in that location. This screen is not used for general inventory items such as reagents or standards.

Storage Q Query 4 Previous	Next 🛛 🔗 Upd	ata 🖉 Commi	t 🗇 Abort	-
Query q Frevious	Next 🖉 Opu		C Abort	
Storage Location Name: 2	18			
Location: n	nanufacturing stor	e ic		
Storage Unit: n	oom			
Available:	/			
Current History				
Storage Location/Item		User	Check In	Check Out
▲ shelf,west wall				
2147 - 0,prep svol :	epa 525	demo	2011-12-20 09:29	
16894 - 1,prep pest	epa 35	demo	2011-12-16 02:00	
cart,#1				
⊿ cart,#2				
5150 - 0		mhayek	2012-05-23 15:42	
11111 - 0,bromate :	epa 300	demo	2011-12-01 10:20	
cart,#3				
cart,#4				
cart,#5				
cart,#6				
Move Discard				
1				

Figure 127 Storage Screen

The fields on the Storage screen are described below. The top section is used for querying and cannot be edited; it is defined by using the <u>Storage Location</u> screen.

Storage Location Name

This is a short name for the storage location and is usually a room number/name.

Location

This field provides a more detailed description of the Storage Location Name (e.g., Bottle Prep, Manufacturing Store Ankeny).

Storage Unit

This field defines the type of storage for this storage location. Examples include bench, cart, fridge, room, shelf, etc. This field is defined by using the <u>Storage Unit</u> screen.

Available

This checkbox displays whether the storage location is available for use.

Current Tab

This tab provides a list of items currently stored in the storage location. Items in that location (e.g., refrigerator, freezer, incubator) should match this list. The Current tab displays each Storage Location and Item, the User who checked-in the item, and the Check In date and time. The Check Out column will usually be blank. Storage locations that have sub-locations (i.e., a refrigerator with shelves) must be expanded to view the sample, sample item, and analysis ??? information.

A sample container is displayed with the format of Accession Number – Sample Item Number, Container name while an analysis ??? is displayed with Accession Number – Sample Item Number, Test Name : Method Name.

History Tab

The History tab displays items that were formerly stored in that location. This provides a permanent record for auditing purposes; showing a chain-of-custody for sample items/analyses ??? . The columns found in this tab show the Storage Location, Item information, the User who checked-in the item, the Check In date and time, and the Check Out date and time.

	ocation: 1207				
	age Unit: 1207 fridge/freezer				
Current History	/				
Storage Location	Item	User	Check In	Check Out	
1207	16590,7,34 - Pint Plastic(unp	oredemo	2011-12-15 15:02	2012-11-20 12:01	-
1207	16473,7,34 - Pint Plastic(unp	oredemo	2011-12-15 14:16	2012-11-20 12:01	
1207	16472,7,34 - Pint Plastic(unp	oredemo	2011-12-20 13:35	2012-11-20 12:01	
1207	16899,7,34 - Pint Plastic(unp	oredemo	2011-12-16 13:36	2012-11-20 12:01	
1207	16900,7,34 - Pint Plastic(unp	oredemo	2011-12-19 12:27	2012-11-20 12:01	
1207	16899,chlorophyll a : epa 44	15. demo	2011-12-16 13:35	2011-12-16 13:35	
< [

Figure 128 Storage Screen - History Tab

4.13.1 MOVING ITEMS TO A NEW STORAGE LOCATION

Item(s) from a storage location can be moved to another storage location or discarded. Multiple items can be moved by **Ctrl**-selecting or **Shift**-selecting them, and then, clicking the **Move** button.

🔍 Query 🔌 Previous 🖒 Next	Jupdate C	🔉 Commit 🛛 🔀 Abort	
Storage Location Name: 1207			
Location: 1207			
Storage Unit: 1207 fridg	e/freezer		
Available: 🔽			
Current History			
Storage Location/Item	User	Check In	Check Out
a 1207			
- 16434 - 0,ammonia : lac 10-	acarl	2012-01-25 11:29	
16472 - 7,34 - Pint Plastic(ur	demo	2011-12-20 13:35	
16901 - 7,chlorophyll a : epa	demo	2011-12-19 13:37	
16900 - 7,34 - Pint Plastic(ur	demo	2011-12-19 12:27	
- 16899 - 7,34 - Pint Plastic(ur	demo	2011-12-16 13:36	
- 16590 - 7,34 - Pint Plastic(ur	demo	2011-12-15 15:02	
- 16473 - 7,34 - Pint Plastic(ur	demo	2011-12-15 14:16	
16292 - 1,chlorophyll a : epa	demo	2011-12-15 12:59	
- 16471 - 7,chlorophyll a : epa	demo	2011-12-15 08:54	
16292 - 1,34 - Pint Plastic(ur	acarl	2011-12-14 09:26	
🚱 Move 📋 Discard			
4			

Figure 129 Moving Items to a New Storage Location

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The Storage Location Selection screen will pop up. Select the new storage location and
click OK .

Parent	Channes Unit	Location	
218	Storage Unit	west wall	
	0.101		
d127	shelf	bottom	
209	cart	#1	
main store	room	Warehouse	
209	pallet	#1	
ehp section	cart	shelf 2	
ehp section	cart	shelf 3	
218	cart	#2	
218	cart	#1	
218	cart	#3	
4			Þ

Figure 130 Storage Location Selection Screen

The moved items will be time stamped with the current date-time in the Check Out column and will be checked into the new location concurrently. The moved items will not be displayed in the Current tab of their former location after the screen refreshes. They will instead be displayed in the History tab.

Q Query 4 Previous > Next	🖉 Update (🔉 Commit 🛛 🔀 Abort	
Storage Location Name: 1207			
Location: 1207			
Storage Unit: 1207 fridge	/freezer		
Available: 🔽			
Current History			
Storage Location/Item	User	Check In	Check Out
▲ 1207			
16434 - 0,ammonia : lac 10-	acarl	2012-01-25 11:29	
- 16472 - 7,34 - Pint Plastic(ur	demo	2011-12-20 13:35	2012-11-20 12:01
16901 - 7,chlorophyll a : epa	demo	2011-12-19 13:37	
16900 - 7,34 - Pint Plastic(ur	demo	2011-12-19 12:27	2012-11-20 12:01
- 16899 - 7,34 - Pint Plastic(ur	demo	2011-12-16 13:36	2012-11-20 12:01
- 16590 - 7,34 - Pint Plastic(ur	demo	2011-12-15 15:02	2012-11-20 12:01
16473 - 7,34 - Pint Plastic(ur	demo	2011-12-15 14:16	2012-11-20 12:01
- 16292 - 1,chlorophyll a : epa	demo	2011-12-15 12:59	
16471 - 7,chlorophyll a : epa	demo	2011-12-15 08:54	
16292 - 1,34 - Pint Plastic(ur	acarl	2011-12-14 09:26	
😭 Move 📋 Discard			

Figure 131 Moved Items Checked-Out of Former Location

4.13.2 DISCARDING ITEMS

Item(s) from a storage location can also be discarded. Multiple items can be discarded by **Ctrl**-selecting or **Shift**-selecting them, and then, clicking the **Discard** button. The difference between discarding and moving items is that discarding does not check the items into a new storage location. They are permanently removed from the LIMS. A record of where these discarded items were formerly stored will still be viewable through the History tab(s) of their former location(s).

Storage	🕨 Next 📝 Upda	ate 📀 Commit	🔀 Abort	-
Storage Location Name:	1247			
Location:	Media Prep Room			
Storage Unit:	room			
Available:	V			
Current History				
Storage Location/Item		User	Check In	Check Out
autoclave #2,East Wal				
16434 - 0,ammonia		mhayek	2012-11-20 16:56	
16901 - 7,chlorophy	ylla:epa	mhayek	2012-11-20 16:56	
16471 - 7,chlorophyll a : epa		mhayek	2012-11-20 16:55	
🚱 Move 📄 😇 Discard				
•				

Figure 132 Discarding Items

Laboratories often desire to maintain logs of materials that are autoclaved, discarded, or sent to other agencies for containment. This can be achieved by creating storage locations such as "autoclave", "chem waste pickup", etc., moving sample items/analyses ??? to that location first, and then discarding these items from there. Once again, this will provide a permanent record for auditing purposes and provide evidence of chain-of-custody for sample items/analyses ??? .

4.14 QC

This screen is being redeveloped.

4.15 ANALYTE PARAMETER

This screen is used to define a range of performance criteria over a period of time for a set of analytes such as those defined in tests, QCs, or associated with the performance of a provider.

The fields of the Analyte Parameter screen are described below.

Туре

Currently, there are two types of analyte parameters implemented in the LIMS: Test and QC. One of the types must be selected for a query to be executed. The type specifies as to whether the selected screen applies to a test, QC, or provider.

Name

This field contains the name of the test, QC, or provider to which the analyte parameters are associated. The test name that is displayed consists of the paired test and method names. The QC name that is displayed consists of the QC name followed by its Id in parentheses. The provider name consists of first and last name.

Active

This checkbox denotes whether the analyte parameter is currently defined and usable for calculations.

Analyte

This field specifies the analyte from the test, QC, or provider.

Sample Type

This field can be used to further restrict an analyte parameter by type of sample (drinking water, liquid, solid, non-drinking water, etc.)

Begin Date

This is the initial date and time that the parameter(s) for the corresponding analyte were available to be used in the system.

End Date

This is the final date and time that the parameter(s) for the corresponding analyte can be used (or were used) in the system.

P1, P2, P3

These fields contain values that are specific to the selected test/QC/provider and analyte. These values are dependent on how that information is used, e.g. they can represent min, max, and average % recovery, lower control limit (LCL), UCL, and mean for QC Charting Analyte Parameter (fixed) option, etc.

Туре	Name	Q Quer	y 🖣 Previous 🌓 Next 🛛 🔜 A	dd 🛛 📝 Update	🛛 💿 Commit 🛛 🔞	Abort			
Test	semivolatiles , epa 525.2								
Test	volatiles , epa 524.2	Type:	Test Y Name: semivolatiles , e	epa 525.2 🎽					
Test	volatiles , epa 524.2 thm	Active	Analyte	Sample Type	Begin Date	End Date	P1	P2	P3
		⊳ 🔽	1,3-Dimethyl-2-nitrobenzene		2012-06-26 10:40	2099-12-31 00:00	0.00145	0.00335	
			Perylene-d12		2012-06-26 10:41	2099-12-31 00:00	0.00125	0.00345	
			Pyrene-d10		2012-06-26 10:41	2099-12-31 00:00	0.00183	0.00325	
		▶ 🔽	Terphenyl-d14		2012-06-26 10:41	2099-12-31 00:00	0.0025	0.00358	
			Triphenyl phosphate		2012-06-26 10:41	2099-12-31 00:00	0.00153	0.00368	
		▶ ■	Dibenzo(a,h)anthracene						
		₫ ▷ 🕅	Instrument Run Id						
		1 Þ	Benzo(g,h,i)perylene						
			Benzo(a)pyrene						
			Indeno(1,2,3-cd)pyrene						
			4,4'-DDT						
			4,4'-DDE						
			4,4'-DDD						
			Endrin						
			Lindane						
			Naphthalene						
			Dieldrin						
			Acenaphthylene						

Figure 133 Test Analyte Parameters

CHAPTER 5. WORKSHEETS

OpenELIS uses an electronic worksheet (bench sheet) to organize and manage laboratory runs or batches. There are many benefits to using an electronic worksheet including reduction in transcription errors, ability to provide automatic calculations, and to easily store and retrieve a significant amount of data. In general, electronic worksheets provide the following functions:

- 1. The ability to capture and retain all of the raw instrument data per analyte while transferring only a subset to the analysis results
- 2. Capture and retain QC data
- 3. Link QC data to analyses
- 4. Worksheet runs can be tied to the instrument to capture instrument usage
- 5. Worksheets can be linked to provide continuous calibration or to link a QC validation worksheet to analytical runs
- 6. Document failed runs, obtain statistics on QCs used and the number of times an analysis has been run, and view the entire run when releasing the analysis

The additional benefit to using an electronic worksheet is to easily create control charts. See <u>QC CHART</u> for a complete description of this process.

5.1 WORKSHEET CREATION

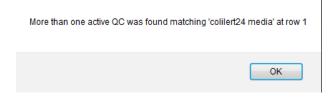
The initial step to creating any worksheet utilizes the Worksheet Creation module. The link to the Worksheet Creation module is located on the <u>Analysis Menu</u>. The steps below illustrate how to create a worksheet.

- Select the Worksheet Creation module from the Analysis Menu. The Worksheet Creation Lookup screen will appear on top of the Worksheet Creation screen to aid in the location of samples to be added to the worksheet that is being built.
- Query by the Test/Method of the analyses which will be run. Select the desired analysis status. While the analysis status normally selected will be "Logged In", other statuses such as "Requeued" may also be chosen when desired. It is possible to query by several other fields, if necessary. Click the Search button.

Test	prep svol 👻	Method: epa 52	5.0	Section:		~	
Accession #	. Free com	Status: Logged		Sample Type:			🖌 🚵 Search
Received		Entered:		Sample Type:		-	
Accession #	Description	Test	Method	Section	Status	Collected	Received
5104	[loc]plant tap 5 [rpt]IOW/	A prep svol	epa 525.2	sample_prep-ic	Logged In	2012-04-16	2012-04-16 10:
5150	[loc]plant tap 2 [rpt]IOW/	A prep svol	epa 525.2	sample_prep-ic	Logged In	2012-05-24	2012-05-24 10:
5151	[loc]plant tap 3 [rpt]IOW/	A prep svol	epa 525.2	sample_prep-ic	Logged In	2012-05-24	2012-05-24 10:
16814	[loc]s\ep we;; #4 [rpt]MA	fprep svol	epa 525.2	sample_prep-ic	Logged In	2011-12-14	2011-12-16 10:
17301	[loc]sample tap 1 [rpt]IO	∀prep svol	epa 525.2	sample_prep-ic	Logged In	2011-12-28	2011-12-29 07:
17302	[loc]vault tap #1 [rpt]JAE	Cprep svol	epa 525.2	sample_prep-ic	Logged In	2011-12-28	2011-12-29 07:
17481	[loc]farm well head tap [r	rprep svol	epa 525.2	sample_prep-ic	Logged In	2012-05-08	2012-05-08 09:
17483	[rpt]SHL/PAM KOSTLE	prep svol	epa 525.2	sample_prep-ic	Logged In	2012-05-24	2012-05-24 08:
17483	[rpt]SHL/PAM KOSTLE	prep svol	epa 525.2	sample_prep-ic	Logged In	2012-05-24	2012-05-24 08:
•							Þ

Figure 134 Worksheet Creation Lookup Screen

- Ctrl-select or Shift-select the analysis rows to add to the worksheet. Alternatively, the Select All button can be used to add all of the analyses from the query.
- 4. Click the Add button.
- 5. If there are QCs built into the test definition, OpenELIS will attempt to load them onto the worksheet that is being created. (See <u>WORKSHEET LAYOUT TAB</u> of the test definition for more information.) If there is more than one active lot in the LIMS for a particular QC, a warning message will pop up stating this fact.





6. After **OK** is clicked, a QC Lookup screen will pop up that allows the user to select the QC with the lot number that is appropriate for her use. Click **OK** and this specific QC/Lot Number will be added to the worksheet.

* N A C B F	D	Enter Search: colile	rt24 media	🛍 Search	
		Name	Lot Number	Usable Date	Expire Date
DF		colilert24 media	CG750 IC	2011-07-07 00:00	2012-04-06 23:00
E S		colilert24 media	CG730 LK	2011-07-07 00:00	2012-04-06 23:00
F 1 G L		colilert24 media	CG830 ANK	2011-07-07 00:00	2012-04-06 23:00
	V N K Y	4			۶.
м					

Figure 136 QC Lookup Screen

7. Selected analyses and any QCs that are associated with their test definitions are placed on the Worksheet Creation screen. QCs have an Accession # with a format of "worksheet_number.position_number". When the worksheet is saved the "X" in the QC Accession # is replaced with the Worksheet #. For example, a QC with an Accession # of X.2 means that the QC has been placed in Position 2 on the worksheet that is being created. After the worksheet is saved the Accession # might change to 932.2, meaning that the QC occupies Position 2 on Worksheet # 932.

Received
4 2012-05-24 10
4 2012-05-24 10

Figure 137 Worksheet Creation Screen

8. It is possible to re-query for analyses to be added to the worksheet as many times as necessary. Go back to <u>Step 2</u> to repeat this process. Some analysts

perform separate queries in order to add "Requeued" analyses first to their worksheets, followed by "Logged In" analyses, or vice-versa.

- 9. If the worksheet has been created satisfactorily, skip to <u>Step 13</u>. If additional QCs need to be inserted, click the **Insert QC From Lookup** button.
- 10. The QC Lookup screen will pop-up over the Worksheet Creation screen. Query for the desired QC by typing the beginning of its name in the Enter Search box or clicking on the first letter of its name in the sidebar. Click the **Search** button.
- 11. Select the desired QC(s) and click **OK**.

* A B	N O P	Enter Search: *525*		🐞 Search	
C	Q	Name	Lot Number	Usable Date	Expire Date
D		525.2 ofw high spike	S2381A OFW	2011-07-05 00:00	2012-01-05 00:00
E	s	525.2 ofw low spike	S2381B OFW	2011-07-05 00:00	2012-01-05 00:00
F G	т U	525.2 ofw method blank	525.2 OFW	2010-09-21 12:13	2099-12-31 12:13
н	v	525.2 prep information	525.2 PREP INFORMATION	2011-12-02 00:00	2012-06-02 00:00
I	W	525.2 sample duplicate	525.2 SAMPLE DUPLICATE	2012-04-16 09:46	2099-12-31 12:13
ј К	X Y	525.2 tap high spike	S2381A TAP	2011-07-05 00:00	2012-01-05 00:00
L		4			Þ
М					
			📀 OK Cai	ncel	

Figure 138 QC Lookup Screen

12. Additional QCs that are selected from the QC Lookup screen are automatically added to the first available positions on the Worksheet Creation screen.

	orksheet #:	Related Worksheet #:	<u>.</u>				
	Accession #	Description	QC Link	Test	Method	Status	
1	X.1	525.2 prep information					
2	X.2	525.2 ofw method blank					
3	X.3	525.2 tap water blank					
4	5150	[loc]plant tap 2 [rpt]IOWA CITY WATER DEPART	-	prep svol	epa 525.2	Logged In	
5	5151	[loc]plant tap 3 [rpt]IOWA CITY WATER DEPART	-	prep svol	epa 525.2	Logged In	
6	X.6	525.2 ofw high spike					
7	X.7	525.2 sample duplicate					

Figure 139 Worksheet Creation Screen with Two Additional QCs Added at the End

13. When adding a sample duplicate QC, click on the corresponding QC Link field to select the Accession # of the sample for which it is a duplicate.

💾 Sa	ave 🚮 Exit						
	Worksheet #:	Related Worksheet #:	E				
Inst	rument Name:	~					
Positi	on Accession #	Description	QC Link	Test	Method	Status	
1	×.1	525.2 prep information					4
2	X.2	525.2 ofw method blank					
3	×.3	525.2 tap water blank					
4	5150	[loc]plant tap 2 [rpt]IOWA CITY WATER DEPAR	г	prep svol	epa 525.2	Logged In	
5	5151	[loc]plant tap 3 [rpt]IOWA CITY WATER DEPAR	г	prep svol	epa 525.2	Logged In	
6	×.6	525.2 ofw high spike					
7	X.7	525.2 sample duplicate	5150	~			
			X.1				
4			X.2				•
🜉 I	nsert From Works	heet 🛛 🛺 Insert QC From Lookup 🕅 🔜 Remove R	сХ.З				
			5150				
			5151				
			X.6				
			X.7	631116111111111			

Figure 140 Inserting a QC Link

- 14. Analyses rows from another worksheet could be inserted into the worksheet that is being created. If this process is not desired, skip to <u>Step 20</u>.
- 15. To do this, click the **Insert From Worksheet** button on the Worksheet Creation screen.
- 16. Enter the Worksheet # (or another search parameter) into the Worksheet Lookup screen that pops up and click **Search**.
- 17. Click on the desired worksheet from the list and click **Select**.

Worksheet #: Created Date:		Username Status:	*	Search	
Worksheet #	Username	Created Date	Status	Test	Method
2	demo	2011-02-07 15:01	Working	coliforms	colilert mpn v
4					•



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18. Select the rows from the Worksheet Row Selection Screen that will be added to the new worksheet and click **OK**.

Position	Accession #	Description	Test	Method	
1	713		coliforms	colilert mpn well	*
2	714		coliforms	colilert mpn well	
3	718		coliforms	colilert mpn well	
4	720		coliforms	colilert mpn well	
5	721		coliforms	colilert mpn well	
6	724		coliforms	colilert mpn well	
				ŀ	
4				P	
		OK	🔀 Cancel		

Figure 142 Worksheet Row Selection Screen

- 19. These selected analyses will be added to the first available rows on the Worksheet Creation screen.
- 20. Any of the fields of the Worksheet Creation screen can be used to sort the analyses list. Once sorted, the saved worksheet will maintain that order.

Ins	Worksheet #: trument Name:		Related Work	sheet #:	67				
ion	Accession #	Description	QC Link	Test	Method	Status	Collected	Received	
	1046	[loc]kitchen [rpt]Th	H	coliforms	colilert mpn well	Logged In	2011-	Ascending	
	1047	[loc]kitchen tap [rp	of and a second s	coliforms	colilert mpn well	Logged In	2011- Z	Descending	
	1052			coliforms	colilert mpn well	Logged In	2011- *	Descending	
	1053	[loc]kitchen faucet		coliforms	colilert mpn well	Logged In	2011-02-20	2011-02-21 08:58	
	1054	[rpt]JEFF BANAS		coliforms	colilert mpn well	Logged In	2011-02-17	2011-02-21 08:58	
	1060	[loc]house outside	1	coliforms	colilert mpn well	Logged In	2011-02-21	2011-02-22 08:00	
	X.7	colilert18 media							
	X.8	colilert24 media							
				III				÷.	Ŧ



- 21. Enter/select the Related Worksheet # to link this worksheet to another worksheet, if applicable.
- 22. Select the Instrument Name of the instrument that is being used to analyze the run, if applicable.



23. Review the Worksheet Creation screen and click the **Save** button. The following message pops up stating that worksheets cannot be changed once they have been saved. Click the **Save** button on the message.

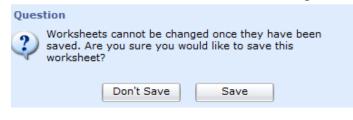


Figure 144 Worksheet Save Warning

- 24. The Worksheet # is assigned by the LIMS. It is suggested to note the Worksheet # for future use. Click the **Exit** button.
- 25. Complete the laboratory work.

See <u>WORKSHEET CREATION FOR A PREP TEST</u> and <u>ANALYTICAL WORKSHEET</u> <u>CREATION</u> for worksheet creation examples.

5.1.1 ORDER OF QCs ADDED TO WORKSHEETS

There are some special rules that apply to the order that QC's are added onto a worksheet. These rules follow:

- QCs will automatically be added to the end of the list if no row (position) is selected when Insert QC From Lookup is clicked. See <u>Worksheet Creation</u> <u>Screen with Two Additional QCs Added at the End</u>.
- 2. If a row (position) is selected, the QC will be added immediately after that row unless there are fixed position QCs present. In that case the QC will be added after the fixed position QCs. As an example, when Row 4 is selected, QC "525.2 ofw low spike" is added to Row 5; Accession #'s X.6 and X.7 stay put because they are fixed-row QCs; and the analysis with Accession # 5151 is forced to move down to Position 8.

	/orksheet #: ment Name:	Related Works	sheet #:	EQ					
Position	Accession #	Description	QC Link	Test	Method	Status	Collected	Rec	
1	X.1	525.2 prep information							
2	X.2	525.2 ofw method blank							
3	X.3	525.2 tap water blank							
4	5150	[loc]plant tap 2 [rpt]IOWA C	п	prep svol	epa 525.2	Initiated	2012-05-24	201	
5	X.5	525.2 ofw low spike							
6	X.6	525.2 ofw high spike							
7	X.7	525.2 sample duplicate							
8	5151	[loc]plant tap 3 [rpt]IOWA 0	сіт	prep svol	epa 525.2	Initiated	2012-05-24	201	



3. If Position 5 (containing QC 525.2 of w low spike) is removed, a warning Question box pops up.

Question This is a Q remove it		sure you would like to
	Don't Pemove	Remove

Figure 146 QC Removal Warning

- 4. If the QC is removed, Accession # 5151 vacates Position 8 and moves back up to Position 5, thus, returning to the original order on the worksheet shown in Worksheet Creation Screen with Two Additional QCs Added at the End.
- 5. It is important to double-check QC links after adding or removing rows to make sure that they have not disappeared. QC links can always be re-added before saving the worksheet. See <u>Inserting a QC Link</u> for this process.

5.2 WORKSHEET COMPLETION

The Worksheet Completion module allows the laboratory analyst to process a worksheet by entering results, reviewing, and completing analyses. The steps below illustrate how to complete a worksheet.

1. Click on the Worksheet Completion module in the Analysis Menu.

- 2. The Worksheet Lookup screen pops up on top of the Worksheet Completion screen.
- 3. A created worksheet can be queried by Worksheet #, Username, Created Date, and/or Status. Worksheet statuses consist of Working, Done, Failed Run, and Void. Normally, an analyst will query for a worksheet in Working status. Click the Search button. Highlight the desired worksheet from the table in the lower pane and click the Select button. The Worksheet Lookup screen automatically closes allowing the Worksheet Completion screen to be displayed.

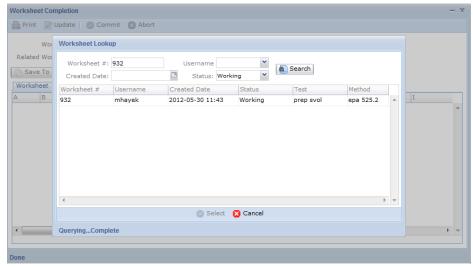


Figure 147 Worksheet Lookup Screen

4. All of the information and the analytes from the test definition are loaded into the Worksheet Completion screen. This screen displays the Worksheet #, Status, Related Worksheet #, and Instrument Name in its top pane. The bottom pane consists of two tabs: Worksheet and Note. The Worksheet tab has the same columns and values that are found in the Excel version of the worksheet. The Worksheet Completion screen is only a viewer – you cannot edit the worksheet from this screen. In order to edit the worksheet it must be saved to an Excel file. Click the Save To Excel File button for this purpose. The location of the saved Excel file on the network drive will be specified in the Status Area of the screen.

	Worksheet #:	932	Sta	tus: Working	~				
Related	d Worksheet #:		Instrument Na	ime:	~				
📄 Save	e To Excel File	Load From Excel File	Load From Ir	nstrument File					
Worksh	neet Note								
Position	Accession #	Description	QC Link	Test	Method	Status	Analyte	Reportable	
1	932.1	525.2 prep informa	1				Surrogate/Interna		1
							Surrogate/Interna		8
							Spike Volume		-
							Reagent Water ph		
							Methylene chlorid		
							Ethyl acetate Lot		
							Methanol Lot Num		
							C18 Disk Lot Num		
2	932.2	525.2 ofw method b					Sample Volume		
							Instrument Run Io		
							Acenaphthene-d1		
1								•	

Figure 148 Worksheet Completion Screen

5. The Note tab on the Worksheet Completion screen is used to write any notes that might be related to the run. This tab is intended to contain notes pertaining to the worksheet (e.g., an explanation of why the run failed). Click Update and then Add Note. The Standard Note Selection screen will pop up. See <u>STANDARD NOTE SELECTION SCREEN</u> for more information on how to use standard notes.

Worksheet Completion	- ×
📝 Update 📀 Commit 🔇 Abort Options 🗸	
Worksheet #: 2 Status: Working V	
Related Worksheet #: 🛐 Instrument Name:	
Save To Excel File Load From Excel File Load From Instrument File	
Worksheet Note	
S Add Note	

Figure 149 Note Tab of Worksheet Completion Screen

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- 6. Open the Excel worksheet file. If an Excel Security Warning pops up saying "Macros have been disabled.", click on the **Enable Content** button.
- 7. Click the **Yes** button on the Security Warning pop-up message: "Do you want to make this file a Trusted Document?". Excel has the capability to automatically enable macros for certain Excel files. Ask your IT group on how to enable this option.
- 8. With each Position, Accession #, and Description are attached rows of analytes.

Home Ins	ert Page Layout Formulas	Data Review View				1.0021	11112		1	3. P	a E AutoSum •	T A		
Copy -	B Z ∐ - ⊡ - ③r - J		Whap Text		1 1 24 2	Cendition	1994			elete Forma	I 10 -	ZT OFO		
Format Painter						Formatting	- es Table -				2 Clear - r	itter * Select *		
pboard G		Aligner	unt.	S No	nber	5	Styles			Cella	Edite	4		
A2	• (*													_
_mhayek [Comp	atibility Mode]												0 8	8
A 8		c	D		F		н	1		ĸ	L	M	Ν.	
	on # Description		QC Link	Test	Method :	Status	Analyte		Raw Value	Final Value	Expected Value			-
932.1	525-2 prep information						Surrogate/Internal Std Id	N			\$2404A	Copy to Final		
							Surrogate/Internal Std Volume	e N			100 uL	Copy to Final if Empty		
							Reagent Water pH	N			100 UL 7		-	
							Methylene chloride Lot Numb				B&J DF128			
							Ethyl acetate Lot Number	N			B&J DD085			
							Methanol Lot Number	N			8&J DF006			
							C18 Disk Lot Number	N			3M 320606			
932.2	525.2 ofw method blank						Sample Volume	N			950 mL			
							Instrument Run Id	N						
							Acenaphthene-d10	N			0.0025			
							Phenanthrene-d10	N			0.0025			
							Chrysene-d12	N			0.0025			
							1,3-Dimethyl-2-nitrobenzene	NN			0.0025			
							Triphenyl phosphate Pyrene-d10	N			0.0025			
							Terphenyl-d14	N			0.0025			
							Perviene-d12	N			0.0025			
							Simazine	N			<0.0001			
							Atrazine	N			<0.0001			
							Alachior	N			<0.0001			
							bis(2-Ethylhexyl)adipate	N			<0.0006			
							bis(2-Ethylhexyl)phthalate	N			<0.0006			
							Benzo(a)pyrene	N			<0.0001			
932.3	525.2 tap water blank						Sample Volume Instrument Run Id	N N			950 mL			
							Acenaphthene-d10	N			0.0025			
							Phenanthrene-d10	N			0.0025			
							Chrysene-d12	N			0.0025			
							1,3-Dimethyl-2-nitrobenzene				0.0025			
							Triphenyl phosphate	N			0.0025			
							Pyrene-d10	N			0.0025			
the last state to be a	t Overrides Sheet3						514							

Figure 150 Excel Worksheet

- 9. Every cell in blue cannot be edited. It is write-protected.
- 10. The bar at the top can be used to collapse (- button) and expand (+ button) the middle columns of the spreadsheet so that the user can easily edit the values in the white columns on the right side of the spreadsheet.
- 11. The Status can be changed for an analysis by selecting the appropriate choice from the dropdown list. This is normally only done to change the analysis status to On Hold or Requeue. It is not necessary to change the status of each analysis to Completed, as the system will automatically do this when the Worksheet Completion screen is committed.

Status	Ar
Initiated	-
Initiated	*
Completed	_
Released	
In Prep	
On Hold	
Requeue	-
Cancelled	
Error Logged In	Ŧ

Figure 151 Changing the Analysis Status on the Excel Worksheet

12. The Reportable column can be changed from Y to N or vice versa for each analysis by clicking on the dropdown arrow.

Reportable	Ra
Y	
Y	-
Y	
N	

Figure 152 Changing the Reportable Flag for an Analysis on the Excel Worksheet

- 13. Expected Values include information, defaults, concentrations for chemical analytes, surrogates and internal standards, target analytes for a method blank, etc.
- 14. Raw Values may include any measurement (i.e., volume measurements, pH measurements, or measurements that came off an analytical instrument).
- 15. Some considerations for Raw Values include:
 - They could be different from the Final Values. Some tests require multiple dilutions and the Raw Value is not representative of the Final Value.
 - b. If the Raw Value is not entered into the worksheet, the data that came off the instrument will not be captured. Only the Final Value will remain stored in the LIMS. If another user changes the Final Value, the previous Final Value is lost, and there will not be any raw instrument values to view or compare.
 - c. The Raw Value Is not rounded in the Excel worksheet but may be rounded to compute the Final Value if it is specified in the test definition.

16. Every worksheet has several built-in Macro buttons to perform routine calculations or data transfers. The Copy to Final button copies all values from the Raw Value or Calculated Value column to the Final Value column. All of these types of values are saved back to the LIMS. The Final Value is what goes into the Value field on the <u>Test Results tab</u> of the full sample login and Complete and Release screens and are the values that are reported. Final Values can be manually overridden (e.g., to report an average of calculated values).

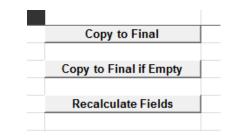


Figure 153 Excel Macro Buttons

- 17. The **Copy to Final if Empty** button copies values from the Raw Value (or Calculated Value) column to the Final Value column, only for those Final Value cells that are empty. This is used so that values that are already entered in the Final Value column are not overridden.
- 18. The Recalculate Fields button does a number of checks and calculates the macros (i.e., completes the Calculated Value column, compares results to Range Low and Range High values, determines Calculated % Recovery based on Expected Value, etc.)
- 19. The Overrides tab of an Excel worksheet allows the user to override several pieces of information for an analysis. By default the logged-in user is credited with completing the analysis when the Worksheet Completion screen is committed. Multiple usernames can be entered in the User(s) cells on the Overrides tab to allow credit for completion of the analysis to be shared. The logged-in user's username must be entered for he/she to receive credit in such a situation. A network username should be entered, followed by a comma, and with no spaces between usernames. Make sure it is copied down for each analysis row, if appropriate.

1	A	В	C	D	E	F	G	Н
1	Position	Accession #	Description	Test	Method	User(s)	Started	Completed
2	1	932.1	525.2 prep information			mhayek, mbielick, wberger	2012-05-30 11:43	
3	2	932.2	525.2 ofw method blank			mhayek, mbielick, wberger	2012-05-30 11:43	
4	3	932.3	525.2 tap water blank			mhayek, mbielick, wberger	2012-05-30 11:43	
5	4	5150	[loc]plant tap 2 [rpt]IOWA CITY WATER DEPARTMENT (1)	prep svol	epa 525.2	mhayek, mbielick, wberger	2012-05-31 09:20	
6	5	5151	[loc]plant tap 3 [rpt]IOWA CITY WATER DEPARTMENT (1)	prep svol	epa 525.2	mhayek, mbielick, wberger	2012-05-31 09:20	
7	6	932.6	525.2 ofw high spike			mhayek, mbielick, wberger	2012-05-30 11:43	
8	7	932.7	525.2 sample duplicate			mhayek, mbielick, wberger	2012-05-30 11:43	

Figure 154 Overrides Tab of an Excel Worksheet

- 20. The Overrides tab of the Excel worksheet is also used to correct the Started date and time for an analysis to the actual date and time that the analysis began. The Started date and time is set by default to the worksheet creation date and time.
- 21. The Completed date and time for each analysis can also be overridden, if necessary, using the Overrides tab. The Completed date and time is set by default to the date and time that the Worksheet Completion screen is committed.
- 22. When finished make sure to save and close the Excel file so that it doesn't sit on the network drive indefinitely.
- 23. Open the Worksheet Completion module. Enter the Worksheet # (or another search parameter) into the Worksheet Lookup screen and click **Search**.
- 24. Select the desired worksheet and click **Select**.
- 25. Click the **Update** button on the Worksheet Completion screen. Click the **Load From Excel File** button. The Worksheet Completion screen is populated with the values from the completed Excel worksheet.
- 26. After reviewing the Worksheet Completion Screen, the status can be changed to one of the following:
 - a. Done. This sets all of the analyses to Completed status if possible; if an analysis has an analyte with a required result but no result value, then the analysis cannot be changed to completed. Completed analysis must still be Released. See <u>RELEASING AN ANALYSIS</u> for more information on this procedure.
 - b. **Failed Run**. This status will change all of the worksheet's analyses to Requeued status so that they may be rerun at a later time.
 - c. Void. This status will set all of the analyses back to Logged In status.
- 27. Click **Commit**. This will save the worksheet and all the information back to the database.

See <u>WORKSHEET COMPLETION FOR A PREP TEST</u> and <u>ANALYTICAL WORKSHEET</u> <u>COMPLETION</u> for worksheet completion examples.

CHAPTER 6. ORGANIZATIONS, PROJECTS, AND PROVIDERS

Organization, provider, and project information form the basis for many of the client interactions with the system. For example, the sample "Report To" organization provides the necessary permissions for external users to view their results through the web portal; projects group samples for disease outbreak/case management or to provide billing/contract discounts. Similarly, the provider information offers hospitals the ability, through electronic data exchange, to notify physicians when their results are available.

Organization, project and provider information can be queried, added, or updated through these three specific screens. Only select personnel will have permission to update or add these records, whereas, most lab personnel will only be allowed to query this information.

Querying for organization, project, or provider information works in the same manner as any of the other OpenELIS queries. Clicking on the * at the top of the Query Sidebar displays all of the current records in alphanumeric order. The user can page through the records or click on the initial letter/number of the name of the organization, project, or provider. Alternatively, a query can be conducted using most fields. See QUERY SIDEBAR and QUERY FUNCTION for more information on performing queries.

Organization, project, and provider information can be added in much the same way in which other records in OpenELIS are added and updated. A description of the fields on each of the three screens follows.

6.1 ORGANIZATION

The Organization screen contains information about all of the clients that interact with the laboratory. This includes diverse organizations such as environmental regulatory agencies, private businesses, municipalities, hospitals, physician offices, etc. Due to the pervasive effect that organization information has on the reporting, billing, and statistical analysis processes, only select personnel will have permission to update or add these records. The duplication of organization records is allowed in OpenELIS, but this action will most likely lead to confusion. It should only be performed as a last resort.

Having duplicate organizations will also lead to other errors, such as samples being assigned to a wrong organization. This has confidentiality implications both in terms of sending a final report to an incorrect organization and providing immediate web access to someone else's results.

Many laboratories have developed a standard process for adding new organizations to the system which include querying for an organization in multiple ways such as partial name search, looking for all the organization in the same city/address, etc.

The link to the Organization screen is found at the bottom of the Sample Menu.

Org	anization											-	- x
*	Name		Q Query 📢	Previ	ious 🕨 Next	🔂 Add 🖉 u	Jpdate	e 🔘 Co	ommit	🔀 Abort 📗	Options 👻		
B	SHERY ONEAL	- [
с	SHILOH			3201									
D	SHIRL STONE		Name:	SHL A	ANKENY			City:	ANKENY	(
E	SHIRLEY GILLMORE		Apt/Suite #:	IOWA	ALABORATORIES	COMPLEX		State:	IA 💙	Zip Code	: 50023		
G	SHIRLEY WELDEN		Address:	2220	S ANKENY BLVD			Country:			~		
H	SHIRLEY WOOD		Parent Org:				~	Active:	\checkmark				
IJ	SHIV SINGH		Contact Par	amete	ar Note								
к	SHIVE HATTERY INC		Туре		Contact Name	Work #		Home	#	Cell #	Fax #		
L	SHL ANKENY		туре		Sonrace Marrie	WOIK #		nome	***	Cell #	Tax #		~
M	SHL ASBESTOS DEPARTMENT	-1											
0	SHL CORALVILLE	4											
P	SHL EMPLOYEE												
Q R	SHL ENVIRONMENTAL MICROB												
s	SHL LAKESIDE												
Т	SHL LIMNOLOGY												
V	SHL LIMNOLOGY												
w	SHL/AIR QUALITY												
X	SHL/BARB JANES												
YZ	SHL/BARRY MILLS		•		11							•	-
-	SHL/BEV FRENCH		Add Row		Remove Row								

Figure 155 Organization Screen

6.1.1 GENERAL FIELDS

The general fields of the Organization screen are detailed below.

ld

The organization Id is a unique integer that is used to assign permissions for web users to view the results that are reported to that organization. It also serves as the billing Id for an automated billing program.

Name

This field contains the complete name of the client organization.

Apt/Suite #, Address, City, State, Zip Code, and Country

These fields specify the complete address of the client organization.

Parent Organization

Subsidiary organizations can be linked to their parent organization in order to determine overall sample volumes, discounts, and other statistics.

Active

The Active checkbox indicates whether samples can be linked to this organization. For organizations that no longer exist, the laboratory should deactivate the organization. If an organization changes its name or address, the updated information will not only affect future reports but also previously reported samples. This is the correct behavior because the laboratory would want to send an updated final report to the current correct address.

6.1.2 CONTACT TAB

The Contact tab can hold contact information for the organization including the name of the contact person(s), work, home, and cell phone numbers, fax numbers, e-mail addresses, and mailing addresses. Additional contact types can be added through the dictionary table. The **Add Row** button is used to add a contact.

Contact Parame	eter Note					
Туре	Contact Name	Work #	Home #	Cell #	Fax #	
General	Jim Smith	515/555-1212				*
General	Sally Surefine	515/555-1278		515/555-6987	515/555-:	

Figure 156 Organization Contact Tab

6.1.3 PARAMETER TAB

This tab is used to set special parameters at the organization level. The Type field specifies the specific name of the parameter, while the Value field contains a related

value, such as a date, e-mail address, or fax number. The **Add Row** button is used to add a parameter. Common organization parameters are detailed below.

Parameter Type	Value	Function of Parameter
Received Report-to Email	E-mail address of web access user	Notifies user that sample has been received at the lab
Released Report-to Email	E-mail address of web access user	Notifies user that sample/analysis has been released by the lab
General FAX Number	Fax number for general use	Fax number that can be used to send any forms, documents, or instructions to the organization
Final Report Fax Number	Fax number of "report to" organization	Instead of printing the Final Report, it faxes the report to this number
Don't Print Final Report	Effective date (yyyy-mm-dd)	Causes the Final Report to not be printed (for paperless reporting)
Hold/Refuse Sample	Effective date (yyyy-mm-dd)	Used to notify lab staff that samples from this organization should be held or refused due to chronic non-payment

Figure 157 Organization Parameters

Contact Parameter Note		
Туре	Value	
Receivable Report-to Email	jsmith@gmail.com	*
Hold/Refuse Sample	2012-10-11	
Don't Print Final Report	2012-04-24	
Released Report-to Email	jsmith@gmail.com	
Receivable Report-to Email	ssurefine@hotmail.com	
Released Report-to Email	ssurefine@hotmail.com	

Figure 158 Organization Parameter Tab

6.1.4 NOTE TAB

The Note tab can be used to document a change or log client calls for use by other staff. The **Add Note** button is used to accomplish this task. This brings up the <u>STANDARD NOTE SELECTION SCREEN</u> which is used to enter a note.

Contact Parameter Note
Name Change by mhayek on 2012-11-08 10:21
Changed name from Simpson Food Ingredients to Simpson North America per e-mail from Jan 11/7/12 per phone call from Bob Sampson.
Add Note



6.2 PROJECT

The Project screen contains information about the projects in the LIMS. Projects are utilized to group multiple samples that are related, for example, all the samples collected from a certain river or clean-up site or all the samples collected from an outbreak. Projects



can also play an important role in billing since the project can be tied to a contract or special pricing.

To reduce ambiguity, project names have to be unique. However, a project name can be reused if the previous project is deactivated. This is useful in case the begin/end date for the project or other parameters have changed.

The link to the Project screen is found at the bottom of the <u>Sample Menu</u>.

*	ject	O Query	4 Previous Nex	t 🛛 🔒 Add 🍃 Upda	te 🔊 Com	mit 🖾 Abort	Ontions -	- x
Α	Name *m*	of Query					options v	
B	01wqfmm	Id	: 9					
D	03wqcsi	Name	: 16wscomp					
E	04wqfs	Description	Description: Water Supply Complaint - IDNR Owner: smarine					
G	05wqfk	Owner						
H I J K L M N O P Q R S T	07wqer	Active		Reference To:				
	08wqcity		2011-09-01	Scriptlet:			v	
	09wqlgriv	-	2099-12-31	Scriptice				
	16wscomp	End Date	: 2099-12-31					
	17wstech	Parameter			Operation	Value		
	319 drc	ન						~
	319 ebir							
	319 ltfllk							
	319 prlake							
	319 ugl							
V	319 wntcrk							
w	319-2 cmpcrk							
X	319-2 drc							_
z		Add Row	Remove Row					* *

Figure 160 Project Screen

The fields of the Project screen are detailed below.

ld

The project Id is a unique integer assigned to each project. This id is also used to assign permissions for web users to view the results that are assigned to that project.

Name

This is the abbreviated name of the project and it appears on results reports and web access dropdown lists for selection.

Description

This field contains a detailed description of the project.

Owner

The Owner field contains the username of the person responsible for the project in the LIMS.

Active

The Active checkbox indicates whether future samples can be linked to this project. For projects that are no longer current, the laboratory should deactivate the project.

Reference To

This field may contain an external identifier. Examples include an external contract number, a CDC case number, or a CDC outbreak number.

Begin Date

This is the date that the project officially started.

End Date

This is the date that the project is scheduled to terminate.

Scriptlet

This functionality has not yet been implemented.

Parameter Table

This functionality has not yet been implemented.

6.3 PROVIDER

The Provider screen contains demographic information about individual clinical providers. The provider information is used for newborn screening and other clinical samples throughout the system including electronic orders and results.



The link to the Provider screen is found at the bottom of the <u>Sample Menu</u>.

*	Last Name	First Name	1	Q Query	🖣 Previous 🌗	Next 🛛 🔂 Add	🖉 Update 📔 💿 Commit	🙁 Abort 🛛 Options 🗸		
A B	MCCOY	LEONARD			Id: 1					
C D				Lact Na	me: MCCOY		Type: doctor	1		
E					me: LEONARD		NPI: 9999999999			
F G					me: BONES		NPL: 3333333333			
н										
I J				Locations	Note	External Id	Apt/Suite #	Address	City	
к					Memorial Hospital		Apt/Suite #	835 VULCAN WAY	MIL	
L M			a		Physicians Group		307	122 ENTERPRISE AVE	MIL	
NOPQRSTUVWXYZ			u L	۲ ا	III ow	Row			4	4

Figure 161 Provider Screen

6.3.1 GENERAL FIELDS

The general fields of the Provider screen are detailed below.

ld

The provider Id is a unique integer that is assigned by OpenELIS.

Last Name, First Name, Middle Name

These fields comprise the complete name of the provider.

Туре

This field denotes the type of provider (i.e., doctor, nurse, etc.) Additional provider types can be added through the dictionary table.

NPI

This field contains the National Provider Identifier. It is a unique 10-digit identification number issued to health care providers in the United States by the Centers for Medicare and Medicaid Services (CMS).

6.3.2 LOCATIONS TAB

This tab allows for entering complete contact information for every working location of the provider. A new location can be added by using the **Add Row** button. The fields on this tab include: Location, External ID, Apt/Suite #, Address, City, State, Zip Code, Country, Work #, Home #, Cell #, Fax #, and Email.

The External Id is the identifier for that provider that is assigned by her organization and is used for electronic orders to match provider information.

	Country Work # Hor United States 319/354-0096.173 312 United States 319/335-6060.90 315
	United States 319/354-0096.173 319
50.175 515	
06 172 210	Country Work # Hor
Hoi	
0.	
RISE AVE MIL	
	307 122 ENTERPRISE AVE MIL



319/342-9967 319/345-9373 319/335-6010

bonesmccoy@startrek.net

6.3.3 NOTE TAB

6060.90

The Note tab can be used to document a change or explain any part of the provider's information. The **Add Note** button is used to accomplish this task. This brings up the <u>STANDARD NOTE SELECTION SCREEN</u> which is used to enter a note.

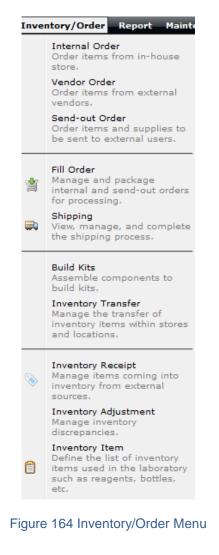
Locations Note
New Location Address by mhayek on 2012-11-08 14:56
Star Trek Physicians Group has moved to a new location as of 11-01-2012 per Mr. Spock, Chief Science Officer. Address updated by mhayek on 11-08-2012.
Add Note

Figure 163 Provider Note Tab

CHAPTER 7. MANAGING INVENTORY AND ORDERS

Many public health laboratories require the capability to manage inventory items in direct support of the testing process, as well as, the ability to send inventory such as kits and media to other organizations.

The inventory and order modules are all conveniently located on the Inventory/Order Menu. These modules include: Internal Order, Vendor Order, Send-out Order, Fill Order, Shipping, Build Kits, Inventory Transfer, Inventory Receipt, Inventory Adjustment, and Inventory Item.



7.1 INVENTORY ITEM

The purpose of the Inventory Item module is to define the list of inventory items used in the laboratory such as reagents, containers, instructions, labels, and kits. Inventory items may be queried, updated, and added in the usual manner. See <u>QUERY</u> <u>FUNCTION</u> for more information on general query formats and capabilities.

Before inventory items can be entered into the system, there are two concepts that should be considered, namely "store" and "storage location". The store is used to define how items are replenished and dispensed. This includes a general store that contains all the inventory items of the laboratory that are purchased and dispensed at vendor quantities – acid in 2.5 liter containers and gauze in quantities of 1000/box. The general store is used to requisition items for laboratory bench use and manufacturing stores.

For laboratories that build kits or manufacture media or reagents, additional manufacturing stores will be setup to manage the inventory in smaller, dispensed quantities. For example, to build a bacterial water kit you will need a bottle, a Styrofoam mailer, and a chipboard bottle mailer all in a quantity of one, which will not be available in the general store. The manufacturing store is used to hold a subset of general store items that are dispensed at the minimum level needed to build any kits in that store. Using the acid example from above, the manufacturing store would transfer acid from the general store in quantities of 2500 mL while dispensing it in quantities of 1 mL.

The concept of the store should not be confused with storage location. The items in a store can be placed in one or more storage locations, even at separate geographical locations. Each storage location will maintain its own quantity on hand and lot information (depending on item parameters).

7.1.1 GENERAL FIELDS

The link to the Inventory Item module is found in the bottom section of the Inventory/Order Menu.

#19 Iowa City #19 instr tritium Iowa City Name: #21 #20 Ankeny #21 intr tritium Iowa City Description: Frivate well kit #22 intr inb3, n22+rAnkeny Store: Iowa City #20 instr iron back-Iowa City Min Order Level: I #20 instr iron back-Iowa City Min Order Level: I #21 intr advice Store: Iowa City #22 intr admin, clowa City Min Order Level: I #22 intr gamma, ichakeny Components Iccation/Quantity Additional Info Manufacturing Note #22 intr gamma, ichakeny Components Iccation/Quantity Additional Info Manufacturing Note #22 intr gamma, ichakeny Components Iccation/Quantity Additional Info Manufacturing Note #22 instr gamma, ichakeny Ecote Idevice #24 instr private ficAnkeny Ecote Idevice #25 Iowa City Bottle, plastic, 4oz IDEXX (upreserved) #25 Ankeny Ecote Idevice #25 instr rad chem Ankeny #25 instr sdwa leacAnkeny	Name	Store	🔍 Query 🜗 Previous 🕨 Next 🛛 📄 Add 📄 Update 🛛 💿 Commit	Abort Options -
#19 Lowa City Name: #21 Active Active #19 instrictium in Lowa City Description: Private well kit Active Active #20 Active Description: Private well kit Category: Containers Category: Containers Built #20 Iowa City Min Order Level: I Reorder Level: O Built #20 Iowa City Min Order Level: I Reorder Level: O Built #21 Iowa City Min Order Level: I Reorder Level: O Do Not Inventory #22 Iowa City Components Description Quantity Labor #22 Iowa City Components Description Quantity Labor #22 Iowa City Components Description Quantity Labor #22 Iowa City Dottle, 4oz idexx sodium tiBotile, plastic, 4oz IDEXX (upreserved) 1 1 #22 Iowa City Dottle, 4oz idexx Bottle, plastic, 4oz IDEXX (upreserved) 1 #22 Iowa City E Sotie, videxx Bottle, plastic, 4oz IDEXX (upreserved) 1 #22 Iowa City E	#18 instr tclp or sp	lowa City		Controls/Paramete
#19 instr tritium I lowa City Name: #21 Aukone: #21 Aukone: #21 #19 instr tritium in lowa City Description: Private well kit Lot # Required #2 instr nh3, no2+t Ankeny Store: Iowa City Min Order Level: I Reorder Level: 0 #20 instr nb hoate1owa City Min Order Level: I Reorder Level: 0 Bulk #21 Iowa City Max Order Level: 0 Dispensed Units: Each Do Not Inventor #22 Iowa City Components Location/Quantity, Additional Info, Manufacturing Note Quantity #22 instr gamma,icAnkeny Components Description 1 #22 instr rad chem Ankeny #24 instr private ficAnkeny Bottle, plastic, 4oz IDEXX (unpreserved) 1 #25 Iowa City #25 Ankeny #25 Sortie Sortie #25 Iowa City #25 Ankeny #25 Sortie Sortie Sortie #26 instr rad chem Ankeny #25 Iowa City #26 Ankeny #25 Sortie Sortie #26 instr sdwa leacAnkeny #26 instr sdwa leacAnkeny Iowa City #26 Iowa City Iowa City Iowa City Iowa Ci	#19	Iowa City		Active:
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22 instr srb Iowa City 22 instr srb Iowa City 22 instr srb Iowa City 22 instr gamma,ic lowa City Dispensed Units: Esch 22 instr gamma,ic lowa City Components 22 instr gamma,ic lowa City Components 22 instr gamma,ic Ankeny Components 22 instr rad chem Ankeny bottle, 402 idexx sodium tl Bottle, plastic, 402 IDEXX (unpreserved) 22 instr rad chem Ankeny 1 24 instr rad them Ankeny bottle, 402 idexx 25 instr rad them Ankeny 25 25 instr sdwa leac Ankeny 26 instr sdwa leac Ankeny	#2 instr nh3, no2+	rAnkeny	Store: Iowa City	Bulk:
#20 instr rank lowa City Max Order Level: Sub-Assembly #21 lowa City Dispensed Units: Each Dispensed Units: Each Do Not Inventory #22 instr gamma, iclowa City Components Location/Quantity Additional Info Manufacturing Note #22 instr gamma, iclowa City Components Location/Quantity Additional Info Manufacturing Note #22 instr gamma, iclowa City Components Location/Quantity Additional Info Manufacturing Note #22 instr gamma, iclowa City Each Max Obtle, 4oz idexx sodium tl Bottle, plastic, 4oz IDEXX (preserved) 1 #22 instr gamma, iclowa City Each Bottle, plastic, 4oz IDEXX (upreserved) 1 #22 instr gamma, iclowa City Each Bottle, plastic, 4oz IDEXX (upreserved) 1 #24 instr private ficAnkeny Each Bottle, plastic, 4oz IDEXX (upreserved) 1 #25 Iowa City Each Each Each #25 Iowa City Each Each Each #26 Ankeny Each Each Each Each #26 Ankeny Each Each Each<	#20	Iowa City	Min Order Level: 1 Reorder Level: 0	Not For Sale:
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#22 instr gamma,icAnkeny bottle, 4oz ideox Bottle, plastic, 4oz IDEXX (unpreserved) 1 #22 instr rad chem Iowa City #2 #22 instr rad chem Ankeny #2 #24 Ankeny #2 #25 Iowa City #25 Ankeny #26 Ankeny #26 instr sdwa leacAnkeny	#22	Iowa City	Component Description	Quantity
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#26 Ankeny #26 instradwa leac Ankeny	#25	Iowa City		
#26 instr sdwa leac Ankeny	#25	Ankeny		
· ·	#26	Ankeny		
#27 Iowa City 4	#26 instr sdwa lea	d Ankeny		
	#27	Iowa City	4). F

Figure 165 Inventory Item Screen

The fields in the upper pane of the Inventory Item Screen include:

ld

The Inventory Item Id is a unique identifier assigned by the LIMS.

Name

This is the abbreviated name of the inventory item and can consist of a number and/or words (e.g., "#17", "#15 trip blank", or "label, hazard, #8". This field appears in all the dropdowns on the other inventory and order screens.

Description

This field contains a detailed description of the inventory item, such as "Private well kit", "instr for atrazine immunoassay", or "Bottle, Plastic, 120ml clear IDEXX (sodium thiosulfate)".

Category

This field specifies the classification of the inventory item (i.e., General Lab Supplies, Standards, Gas Cylinders/Tanks, Solvents/Reagents, Office Supplies, and Containers, etc.)

Store

This is the name of the store that stocks this item. A laboratory often has a general store and one or more manufacturing stores for building kits, reagents and media.

Min(imum) Order Level

This integer when appended with the Dispensed Units selection specifies the minimum amount of the item which should be ordered from the external vendor.

Reorder Level

This integer when appended with the Dispensed Units selection specifies the threshold amount of the item which will trigger an external vendor order to be created if the Auto Reorder parameter is checked.

Max(imum) Order Level

This integer when appended with the Dispensed Units selection specifies the maximum amount of the item which should be ordered from the external vendor.

Dispensed Units

This field specifies the unit in which the item is dispensed. Examples include: each, package, case, bottle, box, jug, mg, kg, and mL.

7.1.2 CONTROL/PARAMETERS



Figure 166 Inventory Item Screen - Controls/Parameters

In the upper right corner of the Inventory Item screen is located the Controls/Parameters section. The following controls/parameters may be checked:

Active

This parameter denotes whether the inventory item is available to be used in the system. If the Active checkbox is not checked, the item has been retired.

Auto Reorder

If this parameter is checked, the inventory order report will include this item if the quantity on hand falls below the Reorder Level.

Lot # Required

The lot number is an identification number assigned to a particular quantity or lot of material from a single manufacturer. When items with this flag are being replenished through the Vendor Order or Build Kits processes, additional requirements and/or information is requested:

- 1. When receiving or building inventory, the user needs to provide lot number information. Lot numbers from a single vendor are unique; laboratory manufactured items should follow the same rules and have a unique numbering system.
- 2. An expiration date can be entered for any item marked with Lot # Required.
- 3. When receiving inventory, items received in one shipment are different from items received in an earlier or later shipment, even if all the other information is identical. See <u>Inventory Receipt Screen</u> for more information.
- When building kits, the quantity requested (the number of kits that can be built) is dependent on its components and their quantity on-hand. See <u>Build</u> <u>Kits Screen</u> for more information.

Serial # Required

This field triggers the LIMS to create serialized inventory. Serialized inventory are always at quantities of one and can be uniquely identified through their system-wide, unique serial number. Newborn screening collection cards are an example of serialized inventory since each card has a unique serial barcode.

Bulk

The field indicates that all quantities of this item do not require detailed tracking. The inventory system will continue to track inventory levels and locations but not lot, serial, or expiration information.

Not For Sale

This flag is used to indicate that the item is used internally and should not be sent to other organizations.

Sub-Assembly

This field indicates that the item is used as part of another item such as a kit. These types of items are often marked Not For Sale.

Labor

To accurately manage costs, staff time for building kits or preparing reagents can be entered and managed through the inventory process. For example, a laboratory can create an inventory item called "box assembly labor" in units of one minute and then assign the item as a component to various kits. This item needs to be replenished and inventoried with an associated cost just like any other inventory item. A standard inventory report can then account for this cost.

Inventory Item			-	×
🔍 Query 👍 Previous	Next Add Update Ocommit Abort	Optior	ns 🗸	
Id: 183		Contro	ls/Paramete	rs
Name: box, #	67 spa kit single		Active:	_
Description: Box, c	hipboard bottle mailer (single) spa		to Reorder: # Required:	
Category: Genera	al Lab Supplies 💙	Serial #	# Required:	
Store: Iowa C	ity Y	N	Bulk: ot For Sale:	
Min Order Level: 1	Reorder Level: 0		-Assembly:	_
Max Order Level:			Labor:	
Dispensed Units: Each	*	Do Not	Inventory:	
Components Location/Q	uantity Additional Info Manufacturing Note			
Component	Description		Quantity	
box assembly labor	labor to assemble one shipping box	2	2	*
box, chipboard single mai	Box, Chipboard bottle mailer (single)	1	L	
label, id, spa kit	Spa kit id label for sample containers #66/#67	1	L	

Figure 167 Labor Component of an Inventory Item

Do Not Inventory

Items marked with this flag do not have to be replenished and the system does not subtract from their quantities as they are being used. For building kits, the instructions that are sent with kits are marked with Do Not Inventory. This allows the instructions to be printed on demand without having to preprint and physically store the instructions. See <u>Build Kits Screen</u> for more information.

There are five tabs found in the lower pane of the Inventory Item Screen: Components, Location/Quantity, Additional Info, Manufacturing, and Note.

7.1.3 COMPONENTS TAB

Some inventory items are made from multiple components. The Components Tab displays the list of components that are part of this inventory item. To use a component, the component must first be entered into OpenELIS as an inventory item. Most inventory items will not have any components, with kits being the major exception. For example, a Private Well Water Kit consists of two components: one 4 oz. plastic IDEXX bottle (preserved) and one 4 oz. plastic IDEXX bottle (unpreserved).

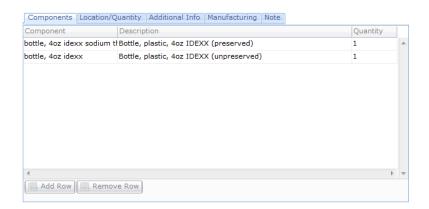


Figure 168 Inventory Item Screen - Components Tab

The fields of this tab are described below:

Component

The entry in this field is taken from the Name field of the component item's record.

Description

The entry in this field is taken from the Description field of the component item's record.

Quantity

This field specifies the quantity of the component used within the inventory item (kit).

7.1.4 LOCATION/QUANTITY TAB

This tab displays the location and quantity of this item throughout the laboratory.

This tab displays all the location(s) where this inventory is or has been stored. Locations with a quantity of zero are displayed for documentation purposes as they provide lot and expiration data. The list is sorted by quantity with zero quantities at the bottom.

Loc #	Location	Lot No.	Serial #	Expiration Date	Qty	
2925	d159, room Manufacturing Store An	1412ANK			268	-
2109	d159, room Manufacturing Store An	1412ANK		2013-01-04	183	
1840	218, cart #7	53112ANK1412		2013-01-04	25	
305	d159, room Manufacturing Store An	2612ANK			0	Ξ
502	d159, room Manufacturing Store An	031912ANK1412			0	
503	d159, room Manufacturing Store An	03912ANK1412			0	
507	d159, room Manufacturing Store An	031912ANK			0	
526	d159, room Manufacturing Store An	32112ANK1412			0	
642	218, cart #7	1412ANK			0	
113	d159, room Manufacturing Store An	1412ANK			0	
805	d159, room Manufacturing Store An	042412ANK			0	

Figure 169 Inventory Item Screen - Location/Quantity Tab

The fields of this tab are described below:

Loc(ation)

This field specifies a unique ID for that item received at that location and time.

Location

This field specifies the physical location where the item is or has been stored. A location is defined using the <u>Storage Location</u> screen and each part of the name is separated by a comma.

Lot No.

The lot number is an identification number assigned to a particular quantity or lot of material from a single manufacturer. The <u>Inventory Receipt Screen</u> is used to enter the lot number for an item that is received from an external vendor, whereas, the <u>Build Kits Screen</u> is used to enter the lot number for an item that is manufactured internally. See <u>Lot # Required</u> for more information on lot numbers.

Serial

This field specifies the system-wide, unique serial number for an individual item. Serialized inventory are always at quantities of one.

Expiration Date

This date specifies when the quantity at that location will expire. The <u>Inventory</u> <u>Receipt Screen</u> is used to enter the expiration date for an item that is received from an external vendor, whereas, the <u>Build Kits Screen</u> is used to enter the expiration date for an item that is manufactured internally.

Qty (Quantity)

This field specifies the number of the item at that location.

7.1.5 ADDITIONAL INFO TAB

This tab provides additional information about inventory, inventory transfer, and usage statistics for the inventory item.

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FEBRUARY 14, 2013

Components Lo	cation/Quantity Additional Info Manufacturing Note
Product URI:	print://37_wastewater_nitrate_or_nitrite.pdf
Parent Item:	V
Parent Ratio:	
Avg Lead Time:	Avg Cost: Avg Daily Use:

Figure 170 Inventory Item Screen - Additional Info Tab

The fields of this tab are described below:

Product URI

The Product URI (uniform resource identifier) field identifies a product resource for the inventory item such as a product or vendor web page. Another use for this field is to provide on-demand printing. On-demand printing is used to print forms such as collection or shipping instructions at the time the kit is being assembled or inventory is being sent out.

For on-demand printing, the format of the URI is "print://filename.ext". The directory path is specified in the system variable, inventory_uri_directory, and is prepended to the filename to locate the file. The file content must be suitable to be sent directly to the printer; Word or Excel documents will not work but PS or PDF formats can often be directly processed by the printer.

Parent Item

This field links together two related inventory items that exist in different stores. This function is used to link items from a manufacturing store with the same item in a general store to facilitate automatic inventory transfer during kit building. Please see <u>BUILD KITS</u> for a complete explanation.

Parent Ratio

This field is used to multiply the quantity transferred from the parent inventory store. For example, a value of 5 means that for every 1 item transferred from the parent store, 5 items are placed in the current store.

Avg (Average) Lead Time

This field is currently not implemented.

Avg (Average) Cost

This field is currently not implemented.

Avg (Average) Daily Use

This field is currently not implemented.

7.1.6 MANUFACTURING TAB

The Manufacturing Tab displays assembly instructions for kits, reagents, and media. The **Edit** button opens a Rich Text Editor so that bolding, italicizing, numbering, and bulleting, etc., can be used to edit the instructions/recipe. The instructions can be repeatedly modified and saved.

Rich	Text E	ditor														
В	I	U	X ₂ X	x² ≣	≣	≣			Ē	Ξ	- \$	=	Ц	C	2	
							📀 ок	< 😢	Cance	el						
Done																

Figure 171 Rich Text Editor

7.1.7 NOTE TAB

This tab is used for internal notes. The **Add Note** button pops up the <u>Standard Note</u> <u>Selection Screen</u> so that a plain text note can be added. These notes cannot be modified after committal.

7.2 INTERNAL ORDER

The Internal Order module allows the user to order items from the in-house stores. Previous internal orders can be queried by any of the fields. See <u>QUERY FUNCTION</u> for more information on general query formats and capabilities.

This screen can also be used to view orders that are automatically created when the staff builds kits or transfers inventory from one location or store to another.

The link to the Internal Order module is found in the top section of the Inventory/Order Menu.

	Requested By	🔍 Query 👍 Previous 🖒 Next 🛛 🔂 Add 📝 Upd	ate 💿 Commit 🔯 Abort 🛛 Options 👻
3901	bmills		
3900	kvanauke		d In Days: 0
3899	kvanauke	Status: Processed Y Requ	uested By: bmills
3898	kvanauke	Order Date: 2012-02-22	
3897	tkrabill	Cost Center:	
3894	kvanauke	Items Filled Shipping Notes	
3892	kvanauke	Quantity Inventory Item	Store
3887	bmills	144 bottle, 4oz idexx sodium thio	Iowa City
3871	kvanauke	144 bottle, 4oz idexx	Iowa City
3851	kvanauke	4	lowe city
3834	kvanauke		
3825	tkrabill		
3803	tkrabill		
3802	bmills		
	bmills		
3801	kvanauke		
3799	kvanauke		
3799 3792	kvanauke kvanauke		
3801 3799 3792 3791 3790		4	×

Figure 172 Internal Order Screen

7.2.1 GENERAL FIELDS

The general fields of this screen are described below.

Order

This is a unique system-wide order number assigned by the LIMS. All orders (internal, send out, and vendor) share the same pool of order numbers.

Needed In Days

This field specifies the number of days in which the order needs to be filled. For automatically placed orders, the system enters a value of zero.

(Order) Status

The status of the order is specified in this field:

Pending – the order is waiting to be filled through the <u>FILL ORDER</u> screen.

Cancelled – the order filler can use this status to indicate the order has been cancelled because it is not needed.

Back Ordered – the order filler can use this status to indicate the order, in whole or in part, is back ordered.

Processed – the order has been filled through the FILL ORDER screen.

On Hold – the order is not ready to be filled due to missing items or information. This status can be selected by the order requester to indicate the order should not be filled yet.

Requested By

This field is defaulted to the username but can be overridden to the requesting person or the department name.

Order Date

This is the date that the order was entered into the system. This date can be changed to reflect the actual order date.

Cost Center

This field contains the organizational unit, program, or project that is responsible for the cost of the order. This field is linked with the dictionary category system name "cost_centers".

The **Duplicate** button in the Options drop-down menu allows for an order to be easily duplicated.

There are three tabs present in the lower pane of the Internal Order screen that provide details of the order: Items, Filled, and Shipping Notes. The tabs are described below.

7.2.2 ITEMS TAB

The Items tab contains a table that lists the items that were requested in the internal order.

Quantity	Inventory Item	Store	
1	#18	Iowa City	
1	#7 ucmr3	Iowa City	
1	#7 ucmr3 field blank	Iowa City	
1	#75	Iowa City	
1	#76	Iowa City	
1	. #77	Iowa City	=
1	#77 ucmr3 field blank	Iowa City	-
1	. #78	Iowa City	
1	#78 field blank	Iowa City	
1	#79	Iowa City	
1	#9 ucmr3 field blank	Iowa City	
•			+ -

Figure 173 Internal Order Screen - Items Tab

The fields located on this tab are described here.

Quantity

The number of each inventory item being requested is specified in this field.

Inventory Item

This field contains the name of the inventory item that is being requested. See <u>INVENTORY ITEM</u> for a detailed explanation of how inventory items are created and managed in OpenELIS.

Store



This is the name of the store from which this item is being requested. A laboratory often has a general store and one or more manufacturing stores for building kits, reagents and media. See <u>INVENTORY ITEM</u> for a detailed explanation of stores.

7.2.3 FILLED TAB

The filled tab displays the items that were filled along with related information.

lotes				
Location	Quantity	Lot #	Exp Date	
218, temporary items transfer	24			*
256, table table	240	K02046		
	218, temporary items transfer	218, temporary items transfer 24	218, temporary items transfer 24	218, temporary items transfer 24

Figure 174 Internal Order Screen - Filled Tab

The fields located on this tab are described here.

Inventory Item

This field contains the name of the inventory item that was filled. See <u>INVENTORY</u> <u>ITEM</u> for a detailed explanation of how inventory items are created and managed in OpenELIS.

Location

This field specifies the physical location from where the item was taken. A location is defined using the <u>Storage Location</u> screen and each part of the name is separated by a comma.

Quantity

The number of each inventory item that was filled is shown in this field. If an item is filled from more than one location, there will be multiple rows with different quantities.

Lot No.

The lot number is an identification number assigned to a particular quantity or lot of material from a single manufacturer. The <u>Inventory Receipt Screen</u> is used to enter

the lot number for an item that is received from an external vendor, whereas, the <u>Build Kits Screen</u> is used to enter the lot number for an item that is manufactured internally. See <u>Lot # Required</u> for more information on lot numbers.

Exp(iration) Date

This date specifies when the quantity at that location will expire. The <u>Inventory</u> <u>Receipt Screen</u> is used to enter the expiration date for an item that is received from an external vendor, whereas, the <u>Build Kits Screen</u> is used to enter the expiration date for an item that is manufactured internally.

7.2.4 SHIPPING NOTES TAB

The Shipping Notes tab is used to enter a note specifying how the items should be shipped. This note can be written or edited by clicking on the **Edit Note** button. This action will pop up the <u>Standard Note Selection Screen</u> to be used for this purpose.

7.3 VENDOR ORDER

The Vendor Order module allows the user to order items from external vendors. Any item that is managed in the inventory system can be ordered from any vendor. The system does not manage a preferred vendor list, however, similar orders are often duplicated which functionally provides the same capability.

Once the order is placed in the system, the purchasing department can locate and process the newly created orders. Additional information such as Order Date and Ext Order Number can be entered as the order is being placed with the vendor.

The users can track their orders through this screen. See <u>QUERY FUNCTION</u> for more information on general query formats and capabilities. Once the order is received by the laboratory, the status of the order will change to "Processed".

The link to the Vendor Order module is found in the top section of the Inventory/Order Menu.

Order #	Requested By	🔍 Query 🔌 Previous 🕨 Next 🛛 🔓 Add 🍃 Update 👘 Com	imit 🛞 Abort Options 👻
450	mhayek		
448	radchem	Order #: 448 Needed In Days	
445	mhayek		: A 1 COMPLETE
312	mhayek	Order Date: 2013-01-15	RAY LEWIS
58	demo	Requested By: radchem Apt/Suite #	:
34	demo	Cost Center: 15010 Address	5900 SOUTHEAST 6TH AVE
		Ext Order #: TX76895-973 City	DES MOINES
		State	: IA Zip Code: 50327-
		Items Filled Shipping Notes	luck control control of
		Quantity Inventory Item Store Image: State of the state	Unit Cost Catalog # 1.2 cv-37681
		25 label, hazard, white, h2so4 Iowa City	0.75 ar-98523
		25 label, hazard, white, h2so4 10wa City	0.75 ar-98523
		4	4

Figure 175 Vendor Order Screen

7.3.1 GENERAL FIELDS

The general fields of this screen are described below.

Order

This is a unique system-wide order number assigned by the LIMS. All orders (internal, send out, and vendor) share the same pool of order numbers.

(Order) Status

The status of the order is specified in this field. See <u>(Order) Status</u> for a definition of each status.

Order Date

This is the date that the order was entered into the system. This date can be changed to reflect the actual order date.

Requested By

This field is defaulted to the username but can be overridden to the requesting person or the department name.

Cost Center

This field contains the organizational unit, program, or project that is responsible for the cost of the order. This field is linked with the dictionary category system name "cost_centers".

Ext(ernal) Order

Many times when an order is placed with a vendor, the vendor issues an order number that is unique to their system. This field is used to capture that information and can be used in the <u>Inventory Receipt</u> screen to quickly locate and receive an order from the vendor's paper manifest.

Needed In Days

This field specifies the number of days in which the order needs to be filled.

Vendor

This is the name of the external vendor. A vendor is an organization defined in the <u>Organization</u> screen.

Attention

This text field may contain the name of the person at the vending company who is responsible for servicing the order.

Apt/Suite #, Address, City, State, Zip Code

Once a vendor is selected, the associated address information from the <u>Organization</u> screen will automatically populate these fields.

The **Duplicate** button in the Options drop-down menu allows for an order to be easily duplicated.

There are three tabs present in the lower pane of the Vendor Order screen that provide details of the order: Items, Filled, and Shipping Notes. The tabs are described below.

7.3.2 ITEMS TAB

The Items tab contains a list of items that were requested in the vendor order.

Quantity	Inventory Item	Store	Unit Cost	Catalog #	
144	bottle, plastic, 8 oz round	Ankeny	2.5	90000111AZ	
144	cap, 28-410, white, lined	Ankeny	0.35	90000124BE	

Figure 176 Vendor Order Screen - Items Tab

The fields located on this tab are described here.

Quantity

The number of each inventory item being requested is specified in this field.

Inventory Item

This field contains the name of the inventory item that is being requested. See <u>INVENTORY ITEM</u> for a detailed explanation of how inventory items are created and managed in OpenELIS.

Store

This is the name of the store where the inventory item will be housed when it arrives. A laboratory often has a general store and one or more manufacturing stores for building kits, reagents and media. See <u>INVENTORY ITEM</u> for a detailed explanation of stores.

Unit Cost

This field contains the cost of each item in U.S. dollars.

Catalog

This field may be used to record the vendor's catalog number. This information is often useful to the ordering department to match a specific item from the vendor.

7.3.3 FILLED TAB

The filled tab displays the items that have been received from the vendor.

Inventory Item	Location	Quantity	Lot No.	Exp Date		Date Rec	Cost	Ext Reference	
oottle, plastic, 8 oz round	d159, manufacturing store anke	80)		*	2013-02-13	2.5		
ottle, plastic, 8 oz round	d127, shelf bottom	64				2013-02-13	2.5		
ap, 28-410, white, lined	d159, manufacturing store anke	80	1			2013-02-13	0.35		
ap, 28-410, white, lined	d127, shelf bottom	64	ł			2013-02-13	0.35		



The fields located on this tab are described here.

Inventory Item

This field contains the name of the inventory item that was filled. See <u>INVENTORY</u> <u>ITEM</u> for a detailed explanation of how inventory items are created and managed in OpenELIS.

Location

This field specifies the physical location where the item was placed. A location is defined using the <u>Storage Location</u> screen and each part of the name is separated by a comma.

Quantity

This field displays the quantity of the item received. If an item is stored in more than one location, or the item was received multiple times because of a back order, there

will be multiple rows with different quantities, received dates, and possibly lot numbers and expiration dates.

Lot No.

The lot number is an identification number assigned to a particular quantity or lot of material from a single manufacturer. The <u>Inventory Receipt Screen</u> is used to enter the lot number for an item that is received from an external vendor. See <u>Lot #</u> <u>Required</u> for more information on lot numbers.

Exp(iration) Date

This date specifies when the quantity at that location will expire. The <u>Inventory</u> <u>Receipt Screen</u> is used to enter the expiration date for an item that is received from an external vendor.

Date Rec(eived)

The date that the item was received from the vendor is displayed in this field. The <u>Inventory Receipt Screen</u> is used to enter the date that an item is received from an external vendor.

Cost

The actual unit cost of the item in U.S. dollars is displayed in this field. The <u>Inventory</u> <u>Receipt Screen</u> is used to enter the actual unit cost of an item that is received from an external vendor.

Ext(ernal) Reference

This free text field may contain any reference information related to the item or the order such as PO#, Sequestered Lot information, etc.

7.3.4 SHIPPING NOTES TAB

The Shipping Notes tab is used to enter a note specifying how the items should be shipped. This note can be written or edited by clicking on the **Edit Note** button. This action will pop up the <u>Standard Note Selection Screen</u> to be used for this purpose.

7.4 SEND-OUT ORDER

The Send-out Order module allows the SHL employee to order items and supplies to be sent to external users. Previous send-out orders can be queried by most of the fields.

The link to the Send-out Order module is found in the top section of the Inventory/Order Menu.

Order #	Requested By	QQ	juery 🖣 Pr	revious	🕨 Next 🛛 🔂 Ad	a 🖉 u	poate OC	ommit 👿	Abort Optic	ons 👻	
449	bteske		Order #:				Needed In Da		# Forms: 1		
447	demo										
446	demo		Ship From:			*			GEOLOGICAL SU	JRVEY BL	
444	nhall		Status:	Processed	~		Attenti	on: MARY S	SKOPEC		
443	nhall	(Order Date:	2013-02-0)7 🛄		Apt/Suite	#:			
442	acarl	Rec	uested By:	bteske			Addre	ss: 109 TR	OWBRIDGE HA	ALL	
441	bfrench	с	ost Center:	6000		~	Ci	ty: IOWA	CITY		
440	bfrench		Description:			~		te: IA 💙	Zip Code: 5	2242-1319	
439	demo										
438	demo	Org	anization A		Test Container	Items		tomer In	ternal Sample		
437	demo	Туре			ntion		Name			Apt/Suite #	Addr
436	demo	Bill T			Y SKOPEC		IDNR AMBIE				109 1
435	demo	4 Repo	ort To	MAR	Y SKOPEC		IOWA GEOLO	GICAL SU	RVEY BUREAU		109 1
434	demo										
433	demo										
432	demo										
431	demo										
430	demo										
429	demo										
428	demo										
427	demo										
426	demo										
425	demo	•	26-								F.
		444	Add Row	🛼 Remov	a Row						

Figure 178 Send-out Order Screen

7.4.1 GENERAL FIELDS

The fields that are present in the top pane of the Send-out Order screen are the SHL assigned order #, ship from (Ankeny, Iowa City, or Lakeside), order status (pending, cancelled, back ordered, processed, or recurring), order date, requested by, cost center, description, needed in days (number), # forms, and the "ship to" name and address. There are nine tabs present in the lower pane: Report/Bill To, Aux(iliary) Data, Test, Items, Shipping, Customer, Internal, Recur, and Filled.

The **Duplicate** button in the Options drop-down menu allows for an order to be easily duplicated. Clicking on the **Shipping Information** button in the Options menu pops up

the Shipping Screen with all of the information relevant to shipping the send-out order. See <u>SHIPPING SCREEN</u> for more information on this screen. Clicking on the **Order Request Form** button in the Options menu pops up the Environmental Sample Collection Form for the send-out order in pdf format. This form already has the "report to" and "bill to" information, requested analyses/tests, and some of the requested auxiliary data already completed. This form can be printed and sent out with the order.

Order	r#: 289		REPORT TO:	BILL	TO:
Page	s in Order: 1	of 1	2929	2929	
Conta	ainers in Orde	er: 1	SHL 2490 CROSSPARK RD CORALVILLE, IA 52241-		CROSSPARK RD WILLE, IA 52241-
	-	#6 Trip Blank (GCMS triha	Requested A lomethanes (THMs) in drinking water) Complete or correct	Analyses/Tests the following informat	tion
	orm	Collected Date:		Collected Time:	
	Environmental Sample Collection Form		yy-mm-dd p blank	ls Hazardous:	hhimm
	ollect	Collector:		Location:	
	CO	Location City:		Priority	:
1	ᇳᄚᇤ	Collector Phone:		Description:	: trip blank
	Sai	Project Name:		_	
State Hygienic Laboratory	Lakeside Laborstory 1539 Highway 86 Miford, IA 5135 1-7267 Phone # 712-337-3069				
abol	100T		Chain of Custod	ly/Tracking Signature	8
C L	7 904 1000	Relinquished By:		Date/Time:	year mm dd Military Time
ien	keny Laboratory 20.8. Aukeny Bvd. keny, IA 5002.3-9093 ione # 515-725-1600 http://www.shitulowa.edu	SHL Sample Receiving Cu Relinguished By:	stodian:	Date/Time:	year mm dd Military Time
Hyg	Ankeny Laboratory 2220 S. Ankeny Bvd. Ankeny, IA 50023-9093 Phone # 515-725-1600 http://www.shl.uowa.	SHL Sample Receiving Cu	stodian:	Date/Time:	year mm dd Military Time
tate			For SHL Use Only - Ple	ase do not write belo	,
õ	12 ×	Received By:		pH:	
	U of I Research Park 2490 Crosspark Roa d Coral/lib, JA 52241-4721 Phone # 319-3354500 or 800-4214/DWA	Sample Intact: Yes Date Printed: 2012-04-20 Bottles Received:	No	Temperatur	e:
	U of I I 2490 C Coral Phone	SECONDA SAMPLE LA	RY SECC BEL SAMPI	ONDARY LE LABEL	PRIMARY SAMPLE LABEL

Figure 179 Environmental Sample Collection Form

7.4.2 REPORT/BILL TO TAB



The Report/Bill To tab contains the names and addresses of these organizations if the "report to" organization is different from the "bill to" organization.

Report/Bill To	Aux D	ata Test	Items	Shipping	Customer	Internal	Recur Fill	ed	
Report To:	LAKEVIE		5 НОМЕО	WNE 🚩	Bill To:	LAKEVIE	W KNOLLS H	IOA (B)	•
Attention:					Attention:				
Apt/Suite #:					Apt/Suite #:				
Address:	4116 O	VERLOOK	RD NE		Address:	2762 LA	KEVIEW DR	NE	
City:	SOLON				City:	SOLON			
State:	IA	Zip Coo	e: 5233	3-	State:	IA	Zip Code:	52333	

Figure 180 Send-out Order Screen - Report/Bill To Tab

7.4.3 AUX DATA TAB

The Aux Data tab contains a table with the fields of Reportable, Name (of the auxiliary data), and its Value. The auxiliary data items are usually standard for the tests that are ordered.

Report/Bill To	Aux Data	Test Items	Shipping	Custo	mer	Internal	Recur	Filled		
Reportable	Name				Value	е				
\checkmark	Collected D	ate								*
V	Collected Ti	ime								
V	Client Refer	rence								
V	Is Hazardou	IS								Ξ
V	Collector									
V	Location				efflue	ent				
	Location Ap	t/Suite #								
	Location Str	reet Address								
									Þ	-
Remove R	ow 📃 Aux	k Groups								
Description:										
Method:			Unit	:						

Figure 181 Send-out Order Screen - Aux Data Tab

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7.4.4 TEST TAB

The Test tab contains the fields Test, Method, and Description in its upper pane and Container, Quantity, and Sample Type in its lower pane. The test and method is usually entered by client services or central accessioning personnel after consultation with the external client.

Report/Bill To Aux Data	Test Items Shipping	g Customer	Internal Recur Filled		
Test	Method	Descrip	otion		
mpa	mpa	Microso	opic Particulate Analysis		*
•				Þ	-
Add Row Remov	ve Row				
Container		Quantity	Sample Type		
60 - 50ml centrifuge tube	w/wipe	1	Non-Drinking Water		*
4				Þ	$\overline{\mathbf{v}}$

Figure 182 Send-out Order Screen - Test Tab

7.4.5 ITEMS TAB

The Items tab contains the fields Quantity, Inventory Item, and Store (Ankeny or Iowa City).

Report/Bil	l To 🛛 Au	ix Data	Test	Items	Shipping	Custom	ier	Internal	Recur	Filled		
Quantity	Invento	ory Item					Stor	re				_
1	#37						Ank	eny				*
1	#37 ins	tr sdwa	no2 an	nd-or no	3		Ank	eny				
•											Þ.	Ŧ
Add Ro	ow 🔜	Remove	Row									

Figure 183 Send-out Order Screen - Items Tab

7.4.6 SHIPPING TAB

The Shipping Tab contains special shipping information for the send-out order.

Report/Bill To Aux Data Test Items Shipping Customer Internal Recur Filled

Cooler with ice packs.

Figure 184 Send-out Order Screen - Shipping Tab

7.4.7 CUSTOMER TAB

The Customer Tab

Report/Bill To	Aux Data	Test	Items	Shipping	Customer	Internal	Recur	Filled	
Grease & Oil BTEX by OA-1									

Figure 185 Send-out Order Screen - Customer Tab

7.4.8 INTERNAL TAB

The Internal Tab displays internal notes created by SHL personnel that are related to the send-out order. Each note will have a subject line, the author's name, and the creation date and time.

eport/Bill To Aux Data Test Items Shipping Customer Internal Recur Filled	
or lakeside y bfrench on 2012-02-29 10:13	
Dennis emailed, customer in to pick up kit, forwarded form to him.	

Figure 186 Send-out Order Screen - Internal Tab

7.4.9 RECUR TAB

The Recur Tab displays the details for recurring send-out orders. The required fields in this tab are active (status), begin date, end date, frequency, and unit (days, months, years). Optional fields include parent order # and order will recur on (which displays the dates of the recurring send-out order by clicking on the **Show Dates** button.

Report/Bill To Aux Data Test Items Shipping Customer	Internal Recur Filled	
Active: 🔽	Order Will Recur On	
Begin Date: 2012-03-16		^
End Date: 2020-01-01		
Frequency: 1 Unit: Month		
	-	
Parent Order #:		
	*	+ +
	Show Dates	

Figure 187 Send-out Order Screen - Recur Tab

7.4.10 FILLED TAB

The Filled Tab shows the details of the filled items from the send-out order. The fields present in this tab are SHL inventory item (number), (storage) location, quantity, lot #, and exp(iration) date.

Report/Bill To Aux Data	Test Items Shipping Custo	mer Inter	nal Recur Fill	ed	
Inventory Item	Location	Quantity	Lot #	Exp Date	
#1	d159, room Manufacturing Stor	2			*
#2	d159, room Manufacturing Store	1	2612ANK		
#3	d159, room Manufacturing Stor	1	03112A		
#74	d159, room Manufacturing Stor	1	2612ANK		
٩				4	Ŧ
-				F	

Figure 188 Send-out Order Screen - Filled Tab

7.5 FILL ORDER

The Fill Order screen provides the capability to manage and package internal and send-out orders for processing. The user can query in this screen by most of the fields. By default, a query will be performed for any orders with a status of "pending", although orders with any status may be queried. By selecting an order in the upper pane of this screen, its details are displayed in the lower pane. The tabs in the lower pane are Items, Shipping Notes, and Customer Notes. The Items tab displays the cost center, "ship to" address, SHL ord(er) #, qty, Item (name), (storage) location, lot #, and exp(iration) date.

The link to the Fill Order module is found in the second section of the <u>Inventory/Order</u> <u>Menu</u>.

```
FEBRUARY 14, 2013
```

	Query	🖉 Update	Process	Com	mit 🛞 Abort	Options 👻				
	Ord #	Status	Order Date	Ship From	Requested By	Ship To	Description	# Days	Days Left	Туре
	511	Pending	2012-01-06		mdawson	CRAIG STARK		2	-54	Send-out
	3463	Pending	2012-02-16	Iowa City	rdrayfah	MANGOLD ENVIRONMENTAL		0	-15	Send-out
	3690	Pending	2012-02-22	Iowa City	mdawson	SIOUX CITY WATER SUPPLY	rg/c	0	-9	Send-out
	3692	Pending	2012-02-22	Iowa City	mdawson	WARSAW WATERWORKS	g/c	0	-9	Send-out
	3804	Pending	2012-02-23	Iowa City	bteske	SHL/AIR QUALITY	dnr/metals	0	-8	Send-out
	4147	Pending	2012-02-28	Iowa City	mdawson	CHARITON MUNICIPAL WAT	g/c	0	-3	Send-out
	4159	Pending	2012-02-29	Iowa City	mschuell	SHL LIMNOLOGY	limnology	1	-1	Send-out
	4164	Pending	2012-02-29	Iowa City	mschuell	SHL LIMNOLOGY	limnology	1	-1	Send-out
	4165	Pending	2012-02-29	Iowa City	mschuell	SHL LIMNOLOGY	limnology	1	-1	Send-out
	4166	Pending	2012-02-29	Iowa City	mschuell	SHL LIMNOLOGY	limnology	1	-1	Send-out
I	tems S	hipping Notes Ship To	Customer N Address	lotes			Items Ordered			
			Address	~	Ord # Qty	Item	Location	Lot #	Expl	Date
	Cost Cer				▷ 4164 2	#1	Loodton	Loc	Exp .	*
(Attention:				⊳ 4164 1	#2				
(⊳ 4164 1	#7				
	Apt/Suite	Address: 2490 CROSSPARK RD								
		ess: 2490 CR								
	Addr	ess: 2490 CR	LLE							
	Addr	Dity: CORALV	LLE Zip Code: 52	2241-						-

Figure 189 Fill Order Screen

The Shipping Notes tab displays any notes that are related to shipping out the order.



Figure 190 Fill Order Screen - Shipping Notes Tab

The Customer Notes tab displays

Items Shipping Notes Customer Notes

Figure 191 Fill Order Screen - Customer Notes Tab

7.5.1 PROCESS FOR FILLING AN ORDER

The steps to fill an order are listed below.

1. The desired order can be queried by any of the fields in the Fill Order Screen.



2. The **Update** button is clicked and the box is checked in front of the desired order to be filled.

F	Fill Order - X											
	Q Query	🕜 Update	🛒 Process	💿 Comn	nit 🔞 Abort	Options 👻						
	Ord #	Status	Order Date	Ship From	Requested By	Ship To	Description	# Days	Days Left	Туре		
5	7 305	Pending	2012-03-02	Ankeny	mhayek	61 DRIVE-IN THEATRE	surface water	3	3	Send-out	*	

Figure 102	Fill Order	Screen -	Selecting an	Order to be Fille	Ы
Figure 192	Fill Oldel	Screen -	Selecting an		J

3. The item row under Items Ordered is selected and the Add Location button is clicked.

Y Stat	us Order E	Dess O Co Date Ship Fro 3-02 Ankeny	m Reque	sted By		Description surface water	# Days	Days Left	Type Send-out			
Pend	ding 2012-03	3-02 Ankeny	mhaye	k	61 DRIVE-IN THEATRE	surface water	3	3	Send-out			
									ound out			
									_			
				_	III					-		
Shippi	ng Notes Custom	ner Notes										
	Ship To Address					Items Ordered						
Center:		~	Ord #	Qty	Item	Location	Lot #	Exp D	Date			
	DAVE THOMAS	-	⊿ 305	52	acid, hydrochloric 1:1				*			
	DAVE HIOMAS			2			~					
						Description			Lot	#	Qty	Exp Dat
uite #:			⊳ 305	52	acid, nitric	Dependent						
uite #:	129 N MAIN ST		▶ 305	52	acid, nitric	d159, d159 central	services Anke	ny Central	Service: 121	1911	2496	2012-12
uite #: Idress:	129 N MAIN ST MAQUOKETA		▶ 30	52	acid, nitric		services Anke	ny Central	Service: 121	1911	2496	2012-12
uite #: Idress:	MAQUOKETA	e: 52060-	▶ 30!	52	acid, nitric		services Anke	ny Central	Service: 12	1911	2496	2012-1
	enter:	Ship To Address		Ship To Address	Ship To Address	Ship To Address V Ord # Qty Item 4 305 2 acid, bydrochloric 1:1	Shipping Notes Customer Notes Ship To Address Items Ordered enter: Items Ordered 0rd # Qty 4 305 2	Shipping Notes Customer Notes Ship To Address Items Ordered uenter: Items Ordered 0rd # Qty 4 305 2	Shipping Notes Customer Notes Ship To Address Items Ordered enter: Items 4 305 2 acid: hydrochloric 1:1	Shipping Notes Customer Notes Ship To Address Items Ordered Ord # Qty Item Location Lot # Exp Date 4 305 2 acid. bydrochloric 1:1 *	Shipping Notes Customer Notes Ship To Address Items Ordered center: V 0rd # Qty Items Location Location Lot # Exp Date	Shipping Notes Customer Notes Ship To Address Items Ordered Center: Ord # Qty Item 4 305 2 acid, bydrochlorig 1:1

Figure 193 Fill Order Screen - Specifying a Location for Items Ordered

- 4. The (storage) location of the item can be chosen. The lot # and exp(iration) date are automatically entered if this information is present.
- 5. The **Process** button is clicked, and the Shipping Screen pops up.
- 6. For information on how to use the Shipping Screen, see <u>SHIPPING SCREEN</u>.

7.6 SHIPPING

The link to the Shipping module is found in the second section of the <u>Inventory/Order</u> <u>Menu</u>.

# of Pa	Status: Processed ¥ ackages: 1	Cost: Shipped To:		DRIVE-IN THEATRE	
	ed From: Ankeny	Attention: Apt/Suite #		VE THOMAS	
	ssed By: mhayek			N MAIN ST	
Shipped	Method: UPS	City:	MA	QUOKETA	
		State:	IA	Zip Code: 52060-	
	Shipping Notes				_
Qty 2	Item Order # 305: acid, hydrochlo	ria 1.1		Tracking #'s 1ZX538634744854998	
	Order # 305: acid, nitric				

Figure 194 Shipping Screen

Using the Shipping Screen the # of packages, shipped method (courier, FedEx, pick up, UPS, USPS, etc.), shipped date, and cost are entered by shipping personnel. The "shipped from" location, "processed by" employee name, "shipped to" organization, and attention fields may be changed on this screen. A package tracking # can be added by clicking the **Add Row** button and entering the number. A shipping note may be added by selecting the Shipping Notes tab and clicking the **Add Note** button. When the required fields have been completed, click the **Commit** button.

Items Shipping Notes
Shipping by mhayek on 2012-03-02 15:18
A shipping suggestion for the replacement sample: please avoid mailing samples just before or during weekends and/or holidays.
Add Note



A Shipping Print Screen will pop up with the options of print manifest, print labels, print instructions, and print request form checked by default. The user's preferences for printer and barcode printers are selected by default. Any of these print options can be changed on this screen.

Print		- x						
Print Manifest:	V							
Print Labels:	V							
Print Instructions:	V							
Print Request Form:	V							
Printer:	103_hp4250	~						
Barcode Printer:	103E_bar	~						
Run Report Reset								
Done								

Figure 196 Shipping Print Screen

The Shipping Manifest for the above order is shown below.

Emironmental and Public Health Laboratory			11/8101	ic Laborato	51 9
Est. 1904 Phy Linversity or Lout		The Un	viversity of	Iowa	
Mar 02, 2012			SHIPPING MA	NIFEST	Page 1 of 1
DAVE THOMAS		SHIP TO		Ship From: Ankeny	
61 DRIVE-IN THEATRE				Shipping Id: SH33	
129 N MAIN ST MAQUOKETA, IA 52060	_				
111g0010111, 111 51000					
	YT			MODITY DESCRIPTION	
305	2 a	cid, hydrochloric 1:1	acid, hydrochlor	ic 1:1 for TOC sample containers	

Figure 197 Shipping Manifest

An example of a shipping label is displayed below.

State Hygienic Laboratory	UPS
lowa Laboratories Complex 2220 S. Ankeny Blvd Ankeny, IA 50023	SH33

Figure 198 Shipping Label

An example of an instruction sheet follows.

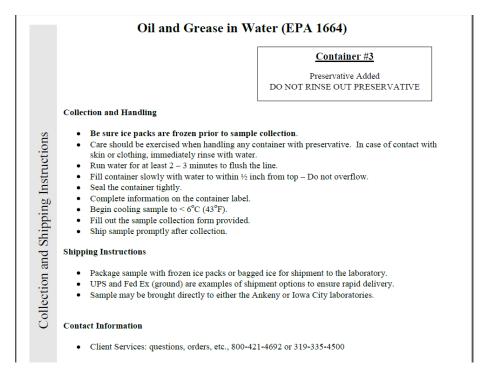


Figure 199 Collection and Shipping Instructions

For an example of an Environmental Sample Collection Form (Request Form), see Environmental Sample Collection Form.

Other than the history options, there are two other choices in the Options menu of the Shipping Screen: Process Shipping and Print. The Process Shipping option allows the user to scan in a barcode for the shipping record and any tracking numbers associated with that record. The Print option pops up the Shipping Print Screen allowing the user to select which items (shipping manifest, shipping labels, collection and shipping instructions, and/or request form) to print or reprint. See <u>Shipping Print</u> <u>Screen</u> for more information.

Shipping						- x
🔍 Query 👍 Pre	vious 🕨 Next	🔂 Add 🛛 🖉 Upo	date 📔 💿 Comr	mit 🙁 Abort 📔	Optior	ns 🔻
Id:	33		Shipped Date:	2012-03-02 🖪	0	Process Shipping
Status:	Processed 💙		Cost:	10	\odot	Print
# of Packages:	1		Shipped To:	61 DRIVE-IN THEA	0	History - Shipping
Shipped From:	Ankeny	*	Attention:	DAVE THOMAS	0	History - Item
Processed Date:	2012-03-02 📑		Apt/Suite #:		0	History - Tracking
Processed Rv:	mhavek		∆ddress:	129 N MAIN ST	9	history - fracking

Figure 200 Shipping Screen Options

Process Shipping	- x
 Scan in the barcode for the shipping record. Scan in one or more tracking numbers associated with that re Repeat the above process for every shipping record. Close the window when done. 	cord.
Barcode :]

Figure 201 Process Shipping Screen

7.7 BUILD KITS

The Build Kits screen enables the user to assemble components in order to build kits for both internal laboratory and external client use. The kit must first be defined as an inventory item before kits can be assembled.

The link to the Build Kits module is found in the third section of the <u>Inventory/Order</u> <u>Menu</u>.

Build Kits					-	x
🔒 Add 📀 Commit 🛛	Abort					
Kit:# Requested:		Existing:			•	
Component	Location	Lot #	Unit	Total	On Hand	*
Transfer Enter information in the fields	s, then press Commit				ł	Ŧ

Figure 202 Build Kits Screen

After the **Add** button is clicked, the initial characters of the kit's name can be typed in the Kit field, which will allow the desired kit name to be selected from a drop-down list.

Kit:	#11		v /	Add To Existing:					
# Requested:	Name		Desc		Store		Disper	nsed Un	
# requested	#11 #11		Jar, glass, pint clear (1ml 1:1 sulfu Iowa City					Each	
			Jar, glass, pint clear (1ml 1:1 sulfu Ankeny			Each			
	#11 instr	total phenol	instr for Tota	al Phenol	Anker	ıy	Each		
Component		Location		Lot #	Unit	Total	On Hand		
		Location		201 //				*	
								*	

Figure 203 Build Kits Screen - Entering a Kit Name

The components of the kit will be automatically displayed in the lower pane of the screen. The user then must select the location of each component from a drop-down list. If there is an insufficient quantity of units available for the component, the user

should click on the **Transfer** button at the bottom of the screen. See <u>INVENTORY</u> <u>TRANSFER SCREEN</u> for more information on transfers. The unit, total, on hand, and lot # (if applicable) fields will be automatically entered with the correct information. The quantities in the Total column will reflect the quantity ratio for the components as defined for the kit in the Inventory Item Screen.

Build Kits						- x
🔒 Add 📀 Commit 🔞	Abort					
Kit: #11 # Requested: 5		D Existing:			~	
Component	Location	Lot #	Unit	Total	On Ha	
jar, glass pint, clear	230, room Warehouse IC		Case	5	5	^
acid, sulfuric	Description		mL	10 Lot #	Qty	Exp Date
	230, room Warehouse IC			G123718-1		2014-03-30
				12345	4990	2014-03-30
	230, room Warehouse IC					2011-10-27
	main store, room Warehouse			ACID1206		
	256, bottle prep table			K02046	1786	
۲ آهر Transfer						-

Figure 204 Build Kits Screen - Selecting a Component Location

The # requested, (storage) location, lot #, exp(iration) date, and ext(ernal) QC fields can be completed with appropriate values. The Add To Existing box can be checked for bulk item kits only so that they may be added together. If any component of the kit has a lot # value then it cannot be considered as a bulk item, and this checkbox will be inactivated.

Build Kits						-	- x
🔓 Add 📔 💿 Commit 🛛 👔) Abort						
Kit: #11	✓ Add To	Existing:					
# Requested: 5		Location:	d127	7, shelf b	ottom	~	
		Lot #:	8745	557			
	E	Exp Date:	2013	3-03-06	•		
		Ext QC:					
Component	Location	Lot #		Unit	Total	On Hand	
jar, glass pint, clear	230, room Warehouse IC			Case	5	5	*
acid, sulfuric	230, room Warehouse IC	G123718-	-1	mL	10	2490	
Transfer						+	Ŧ

Figure 205 Completed Build Kits Screen

After the **Commit** button is clicked, the build kits record is added to OpenELIS and the Kit Labels Print Screen pops up. The user can specify the starting # for the kit labels, select whether or not special instructions should be printed on the labels, or choose a different barcode printer from her default one.

Print - X
Starting #: 1 Special Instructions: SULFURIC ACID PRESERVED FOR
Barcode Printer: 103E_bar
Run Report Reset
Done

Figure 206 Kit Labels Print Screen

An example of a kit label is shown below.

	nic Laborato 19–335–450 5–725–1600	-
Lot #: 783556	Created	: 2012 - 03 - 06
Build Id:	Expires	: 2013 - 03 - 06
#11		
SULFURIC ACID PRESE	RVED FOR GREA	SE AND OIL
Facility or Location:		
Date:	Time:	AM / PM
Collector:		

Figure 207 Kit Label

7.8 INVENTORY TRANSFER

The Inventory Transfer Screen is used to manage the transfer of inventory items within stores and storage locations. After clicking the **Add** button, the user clicks on the **Add Row** button for each inventory transfer that he wishes to make. The item to be transferred is selected from the drop-down list available in the From Item field. The From Loc(ation) and On Hand fields are automatically entered with their respective values. The quantity to be transferred is entered by the user in the Qty field. Next, the "To Item" is selected from its drop-down list. If the item to be transferred is a bulk item, the Add To Exst (Existing) box may be checked. The "To Loc(ation)" is then selected from its drop-down list. When all inventory transfer fields have been completed, the **Commit** button is clicked.

The link to the Inventory Transfer module is found in the third section of the Inventory/Order Menu.

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👌 Add 🛛 📀 C	ommit 🔀 Abort						
rom Item	From Loc	On Hand	Qty	To Item	Add To Exst	To Loc	
1	209, cart #1	168	5	#1	▼	218, cart #3	
Add Row	Remove Row						4
Add Row		1	Item Inf	formation			ł
] Store	Item Inf	formation Dispensed U	Jnits Lot #	Exp Date	Þ
Add Row	ion		Item Inf		Jnits Lot #	Exp Date	ħ

Figure 208 Inventory Transfer Screen

7.9 INVENTORY RECEIPT

The Inventory Receipt Screen is used to manage items that are placed into inventory from external sources.

The link to the Inventory Receipt module is found in the bottom section of the Inventory/Order Menu.

7.9.1 QUERYING INVENTORY RECEIPT RECORDS

Inventory Receipt records can be queried using the Ord(er) # or Ext(ernal) Order # fields.

Inventor	y Receipt								- x
Q Que	ry 🔂 Add 💋	Update 🛛 🥥	Commit	🔀 Abort					
Ord #	Ext Order #	Date Rec	UPC	Inventory Item	Vendor	# Req	# Rec	Cost	
>0									

Figure 209 Inventory Receipt Screen - Querying by Order #



The top pane contains the following fields: Ord(er) #, Ext(ernal) Order #, Date Rec(eived), UPC (Universal Product Code), Inventory Item, Vendor, # Req(uired), # Rec(eived), and Cost (per item).

d #	Ext Order #	Date Rec	UPC	Inventory Item	Vendor	#	Req	# Rec	Cost	
2	34AC-856642			#62	A & B LABORATOR	IES	100			
										Þ
Ad	d Pow I Remo	VE POW								4
Ad	d Row]	ve Row								4
	d Row) Remov		ites							4
			ites	Add To Exi	sting:					4
	s Vendor Addres	s Shipping No								4
	s Vendor Address	s Shipping No		re bag Loc	ation:				~	4
	s Vendor Addres	s Shipping No		re bag Loc					•	4

Figure 210 Inventory Receipt Screen

Selecting the desired inventory receipt row in the top pane displays the information in the lower pane. The lower pane has three tabs: Items, Vendor Address, and Shipping Notes. The Items tab has Description, Store, Dispensed Units, Add To Existing, Location, Lot #, Ext(ernal) QC, and Exp(iration) Date fields.

Items Vendor Address Shipping Notes			
Ac	dd To Existing: 🔲		
Description: Bottle, plastic, 4oz + wire enclosure bag	Location:		~
Store: Iowa City	Lot #:		
Dispensed Units: Each	Ext QC:	Exp Date:	-

Figure 211 Inventory Receipt Screen - Items Tab

The Vendor Address tab displays the complete address of the vendor from which the inventory item was received.

Items Vendor Address Shipping Notes	
Apt/Suite #:	
Address: 10100 E FREEWAY STE 100	
City: HOUSTON	
State: TX Zip Code: 77029-	

Figure 212 Inventory Receipt Screen - Vendor Address Tab

The Shipping Notes tab displays any relevant shipping information pertaining to this vendor order.

Items Vendor Address S	ipping Notes
A shipping suggestion for	he replacement sample: please avoid mailing samples just before or during weekends and/or holidays.
Add Note	

Figure 213 Inventory Receipt Screen - Shipping Notes Tab

7.9.2 UPDATING AN INVENTORY RECEIPT RECORD

First, the desired inventory receipt row in the top pane must be selected and the **Update** button must be clicked. The Date Rec(eived) for the item in that row can now be chosen. The # Rec(eived) for that item can be entered and the Cost (per item) can be adjusted, if necessary. A storage location must be chosen for the received items. It can be selected from the drop-down list in the Location field of the Items tab. Shipping notes may also be added through their tab in the lower pane of the screen.

7.9.3 ADDING AN INVENTORY RECEIPT RECORD

After clicking the **Add** button, the **Add Row** button must be clicked. Information may then be entered in the Date Rec, UPC, Inventory Item, Vendor, # Rec and Cost fields. A storage location must be chosen for the received items. It can be selected from the drop-down list in the Location field of the Items tab. If there is already a quantity of the selected item in inventory, the Add To Existing box in the Items tab may be checked. Lot #, Ext QC, and Exp Date values can also be entered in the Items tab depending upon the inventory item.

Quer	ry 🛛 🔓 Add 🔡 🖓 U	Jpdate 💿	Commit (Abort					
rd #	Ext Order #	Date Rec	UPC	Inventory Item	Vendor	# Req	# Rec	Cost	T
		2012-03-06		#1	A & B LABORATORIE	S	15	\$1.25	5
								•	
, Add	Row)	Row						Þ	
								Þ	
	Row Remove		tes					Þ	
			tes	Add To E>	isting: 🗸			Þ	
Items		Shipping Not	tes		sting: ▼ ation: main store, room Wa	rehouse		•	
Items	Vendor Address	Shipping Not plastic, Qt	tes	Lo		rehouse			
Items	Vendor Address	Shipping Not plastic, Qt	tes	Lo	ation: main store, room Wa	rehouse			

Figure 214 Adding an Inventory Receipt Record

7.10 INVENTORY ADJUSTMENT

The Inventory Adjustment screen is utilized for the management of discrepancies in inventory.

The link to the Inventory Adjustment module is found in the bottom section of the Inventory/Order Menu.

7.10.1 QUERYING INVENTORY ADJUSTMENT RECORDS

Inventory Adjustment records may be queried by most of the fields on this screen. The integer in the On Hand field reflects the current quantity of the inventory item accounted for by the OpenELIS system, not the quantity of the item that was accounted for by the system at the time of the inventory adjustment.

A	djustment #	Adj Date	Q Q	Jery 🖣 Previous 🖒 Next 🔤	Add	🖉 Update 🛛 💿 Co	mmit (Abort 💽	Options	•		
40	0	2012-02-22										
39	9	2012-02-17	Adji			Recycled/rewashed ja						
38	8	2012-02-16		Adj Date: 2012-02-16	User:	bmills	Store:	Iowa City	r		~	
37	7	2012-02-16	Loc #	Inventory Item		Storage Location			On Hand	Phys #	Adj Quan	
36	6	2012-02-16	8	jar, glass qt clear		218, temporary items	transfer		120	250	211	
35	5	2012-02-16										
34	4	2012-02-16										
33	3	2012-02-15										
32	2	2012-02-01										
31	1	2012-01-31	4									
30	0	2012-01-30	at i									
29	9	2012-01-27										
28	8	2012-01-27										
27	7	2012-01-27										
26	6	2012-01-27										
25	5	2012-01-27										
24	4	2012-01-27										
23	3	2012-01-27										
	2	2012-01-27	-								•	

Figure 215 Querying an Inventory Adjustment Record

7.10.2 UPDATING AN INVENTORY ADJUSTMENT RECORD

After querying for and selecting the desired inventory adjustment record, it may be updated by clicking on the **Update** button. The following fields may be updated: Description, Adj(ustment) Date, Store, Loc(ation) #, Inventory Item, and Phys(ical) #.

Inve	entory Adjustme	nt								-	- x
#	Adjustment #	Adj Date	Q Query	y 🖣 Previous 🖒	Next 🛛 🌄 Add	📝 Update 🛛 📀 C	ommit 🛛 🔀 Abort	Options	•		
	6	2012-03-07									
	5	2012-03-07	-	ment #: 4		build kit error					
	4	2012-03-07	Ad	dj Date: 2012-03-07	User:	mhayek	Store: Iowa Cit	у		*	
	3	2011-12-14	Loc #	Inventory Item		Storage Location		On Hand	Phys #	Adj Quan	
	2	2011-10-24	33	vial, 40ml clear glass	s	ehp section, cart she	lf 3	70	69	-2	^



7.10.3 ADDING AN INVENTORY ADJUSTMENT RECORD

Click on the **Add** button to create an inventory adjustment. Values must be entered in the Description and Store fields. The Adj(ustment) Date and the User fields will be automatically entered, however, the Adj Date may be overridden. Click on the **Add Row** button. Next, the user will select the item to be adjusted from the drop-down list in the Inventory Item field.

Adjust	tment #: De	scription: build kit er	ror				
A	Adj Date: 2012-03-07 🖪	User: mhayek	nhayek Store: Ankeny				
Loc #	Inventory Item	Storage Lo	Storage Location		On Hand Phys # A		
		~					
	Name	Store	Location	Lot #	Exp	Date Qt	y
	#1	Ankeny	209, cart #1			16	8
	#1	Ankeny	218, cart #3			10	
	#1	Ankeny	218, cart #2			10	
	#1	Ankeny	main store, room Wa	rehous		77	
	#1	Ankeny	Ankeny d127, shelf bottom				
	#1	Ankeny	d159, d159 central se	ervices		16	_
	#1	Ankeny	d127, floor floor			25	
	#1	Ankeny	218, cart #2			10	_
	#1	Ankeny	d159, manufacturing	store a		12	
	#2	Ankeny	d127, shelf bottom	1212	1 2012	-12-01 26	_
							Þ

Figure 217 Adding an Inventory Adjustment Record

The Loc(ation) #, Storage Location, and On Hand (quantity accounted for in the OpenELIS system) will be automatically entered. The user enters the actual quantity of the item in the Phys(ical) # field. The Adj(ustment) Quan(tity) field will be automatically entered with the difference between the On Hand and Phys # values. A negative Adj Quan value indicates that there are fewer actual items in inventory than were previously accounted for by the system. A positive Adj Quan value indicates that there are more actual items in inventory than were previously accounted for by the system. When all desired adjustments have been entered, click the **Commit** button.

Q Quer	ry 🖣 Previous 🖒 Next 🛛 🔂 Ad	d 📝 Update 🛛 💿 Commit 🔞 Abo	rt Options	•		
		n: build kit error r: mhayek Store: Anken	y		~	
Loc #	Inventory Item	Storage Location	On Hand	Phys #	Adj Quan	T
203	#1	d127, floor floor	25	23	-2	1
90	cap, 53-400mm	d127, shelf bottom	1300	1324	24	

Figure 218 Completed Inventory Adjustment Record

CHAPTER 8. DEFINING TESTS AND METHODS

The Test , Method, and Panel modules define the testing procedures that are used in OpenELIS.

8.1 TEST DEFINITION

The Test module defines information about tests available in the OpenELIS database. Test information is managed by the OpenELIS Protocol Committee and the IT staff due to its various implications, such as result management, analytes result entry, and reporting.

Tests need to be defined and activated within the database before they can be assigned to a sample. Multiple test records can share a test name but only one test record can be active at a given time. This is accomplished by checking the Active box. Known as "test aging", this allows the database to maintain information about old testing procedures and to create new tests as procedures change.

The Test Screen has three global fields that are displayed at the top regardless of which tab is selected: (test) Id, (test) Name, and Method. There can be multiple tests with the same test name, but with different methods and unique test Id's. Each test has a short name that is used internally by SHL (the Name field). This name is used along with the Method short name wherever a test is entered throughout all internal screens.

The link to the Test module is located in the top section of the Maintenance Menu.



Figure 219 Maintenance Menu - Top Section

The following subsections describe the five tabs of the Test Screen: Test Details, Sample Type, Analytes & Results, Prep Test & Reflex Test, and Worksheet Layout.

es *	t	
*	Name & Method	🔍 Query 🔌 Previous 🕨 Next 🌄 Add 📝 Update 💿 Commit 🔞 Abort Options 🗸
A	acids inorg (multi),niosh 7903	Id: 330 Name: asbestos Method: epa 100.2
В	aeromonas,aeromonas	Id: 330 Name: asbestos Method: epa 100.2
С	alkalinity,sm 2320 b sludge	Test Details Sample Type Analytes & Results Prep Test & Reflex Test Worksheet Layout
D	alkalinity (multi),sm 2320 b	Description: asbestos in water
	ammonia,epa 350.1	Report Description: Asbestos in Water
F	ammonia,lac 10-107-06-1j	
G	ammonia,niosh 6015	Turn Around Activity
H	ammonia,sm 4500 nh3 d	Max. days: 2 Transit days: 2 Active: 🕅
I	anions (multi),epa 300.0	Average days: 21 Holding hours: 48 Begin Date: 2011-09-27
1	apc,food aerobic plate c	Warning days: 14 End Date: 2011-12-31
¢	arsenic speciation,uhl as spec	
	asbestos,epa 100.2	Additional Label Sections
	asbestos,epa 600 r93 116	Type: Name Options
1	asbestos,epa 600 r93 116	Quantity:
	asbestos,niosh 7400	
)	asbestos gravimetric,epa 600 r	Add Row Remove Row
	asbestos point count,epa 600 r	Add Row Add Row
5	benthic,sm 10500	Reportable: 🔽
ł	billing misc charges,no method	Revision Method: Allow Update 💙 Trailer: mcl on final report 💙
S	billing rush charges, no method	Sort Method: By Test Sequence
Г	bod,sm 5210b 5 day	Report Method: Complete Sample Only Y Scriptlet:
J	bod,sm 5210b 20 c	Scriptet.
v	bod,sm 5210b 20 day	Report Sequence: 3520
v	bod,sm 5210b 5 c	
c	bod,sm 5210b 5 filt&inh	
Y	bod,sm 5210b 5 filtered	
z		

Figure 220 Test Screen

8.1.1 TEST DETAILS TAB

The first field on the Test Details Tab, Description, is also used internally, but it is a longer and more descriptive version of the test name. The Report Description field is used in the Final Report and other reports that are generated for organizations.

The Turn Around section of this tab shows laboratory workflow information related to this test and method. The Turn Around fields are Max. days, Average days, Warning days, Transit days, and Holding hours. Holding Time is the maximum number of hours from time of sample collection to the time the analysis should begin.

The Additional Label section (Type and Quantity) are used to create additional barcode labels. See <u>SAMPLE LABELS</u> for more information about printing additional barcode labels.

Test Details Samp	le Type Analytes & Re	esults I	Pre	p Test & Re	eflex Test	Works	heet Layout	
Description	BOD, 5 day seeded							
Report Description	BOD, Seeded 5 Day							
Т	urn Around			A	Activity			
Max. days: 8	Transit days: 1			Active	: 🗸			
Average days: 6	Holding hours: 4	8		Begin Date	: 2011-10	0-04 🖪		
Warning days: 7				End Date	: 2099-12	2-31 🖪		
Ad	ditional Label				Se	ections		
Туре:		~	I	Name		Options		
Quantity:			i	inorg_manual-ank Match U			ser Location	-
				norg_manu	ial-ic	Match U	lser Location	E
				•			•	Ŧ
			Į	Add Ro	w R	emove F	Row	
Reportable:	\checkmark							
Revision Method:	Allow Update		۲	Trailer:				~
Sort Method:	By Test Sequence		۲	Format:	Three Co	lumn		•
Report Method:	Complete Sample Only	,	۲	Scriptlet:				*
Report Sequence:	1525							

Figure 221 Test Screen - Test Details Tab

The Activity section of this tab shows whether the test is active or has been aged out. Active tests will have this box checked. There are also fields for the beginning and ending dates of the test.

The section of the Test Details Tab entitled "Sections" lists the SHL laboratory sections that are authorized to perform this test. The Name of the lab section is displayed in the first

column and the Options (Default or Match User Location) are displayed in the second column.

The bottom section of the Test Details Tab has a miscellaneous grouping of fields including Reportable, Revision Method, Sort Method, Report Method, Report Sequence, Trailer, Format, and Scriptlet. The Revision Method options are Allow Update, Copy and Update, and Ask. The Sort Method options are As Analyses Complete and By Test Sequence. The Report Method choices are As Analyses Are Released and Complete Sample Only. The Report Sequence specifies the order that the test is displayed on the Final Report. A test with a Report Sequence of 1 would be printed first on the Final Report. The Trailer field specifies the name of the test trailer that will be printed on the Final Report. The Format field specifies the number of columns that will be used to print out the analysis results on the Final Report. The choices include: one, two, three, four, five, and six equally-sized columns, four columns with a wider column for a long analyte name, and five columns with a wider column for a long analyte name.

8.1.2 SAMPLE TYPE TAB

The Sample Type Tab lists all of the possible types of samples that can be analyzed with that specific test and method. There are only two columns on this tab: Sample Type with its corresponding Unit of Measure. An example of the Sample Type Tab is shown below.

Test Details Sample Type Analytes & R	esults Prep Test & Reflex Test Worksheet La	ayout
Sample Type	Unit of Measure	
Other	[MPN]/g	*
Solid	[MPN]/g	
Food	[MPN]/g	
PT Sample	[MPN]/g	
Other	[MPN]/mL	
Other	/{sample}	



8.1.3 ANALYTES & RESULTS TAB

The Analytes & Results Tab displays information about acceptable result values and types (among other things) for each analyte for that particular test.

8.1.3.1 INTERPRETING INFORMATION ON THE ANALYTES & RESULTS TAB

The upper table of the Analytes & Results Tab of a typical test may display the column headings Analyte, Value, Quant Limit, and MCL. The integer in each of the fields (Value, Quant Limit, and MCL) designates the subtab of the lower table that displays the details for that parameter. The details of each subtab may be displayed by either clicking directly on the subtab in the lower table or by clicking on the corresponding integer in the upper table. For example, the Value Subtab 1 (see <u>Test Screen - Analytes & Results Tab – Value Subtab</u>) illustrates that for the analyte Chlorite's result value, its unit is not specified, its value must have a type of numeric, and its value must be in the range of 0 to 100,000.

		2	3		4	
Inalyte		Value	Quant Limit		MCL	
Chlorite		1	2		3	
	III					۴.
able Op	ptions: Analyte	▼ (○) (○) Type:	 Reportable 	e: 🔳 Scrip	tlet:	
1 2 3	3					
nit	Туре	Value	Flags	S.D.	Rdng. Method	
		0,100000				
	Numeric	0,100000				
	Numeric	0,10000				
	Numeric	0,100000				
	Numeric	0,100000				
	Numeric	0,10000				
	Numeric	0,10000				
	Numeric	0,10000				
	Numeric	0,10000				
	Numeric	0,10000				
	Numeric	0,10000				
	Numeric	0,10000				b

Figure 223 Test Screen - Analytes & Results Tab – Value Subtab

The Quant Limit Subtab 2 (see <u>Test Screen - Analytes & Results Tab – Quant Limit Subtab</u>) shows two acceptable units for this parameter: mg/L and ug/L. The paired entries in this table define that a quant limit with a unit of mg/L must have a numeric type and its value must be in the range of 0 to 100,000 with a default value of 0.04 mg/L. A quant limit with a unit of ug/L must have a numeric type and its value must be in the range of 0 to 100,000 with a default value of 0.04 mg/L. A quant limit with a unit of ug/L must have a numeric type and its value must be in the range of 0 to 100 with a default value of 0.04 mg/L.

Unit	Туре	Value	Flags	S.D.	Rdng. Method	
mg/L	Numeric	0,100000				
mg/L	Default	0.04				
ug/L	Numeric	0,100				
ug/L	Default	20				

Figure 224 Test Screen - Analytes & Results Tab - Quant Limit Subtab

The MCL Subtab 3 (see <u>Test Screen - Analytes & Results Tab – MCL Subtab</u>) illustrates that the Maximum Contaminant Level (MCL) must have a unit of mg/L, a type of numeric, a value in the range of 0 to 1.1, and a default value of 1.0 mg/L.

1 2 3						
Unit	Туре	Value	Flags	S.D.	Rdng. Method	
mg/L	Numeric	0,1.1				*
mg/L	Default	1.0				

Figure 225 Test Screen - Analytes & Results Tab – MCL Subtab

8.1.3.2 ADDING/UPDATING INFORMATION ON THE ANALYTES & RESULTS TAB

The options and buttons in the middle of the Analytes & Results Tab are used to build the upper table on this tab. There are three choices for Table Options: Analyte, Column, and Header. After the choice is selected, the Solution must be clicked. The Analyte name and column headers can be chosen from the drop-down list or text entered. The Solution is used to remove a row from the upper table.

Table Options: Analyte 💙	🔾 🤤 Type:	Reportable:	Script	et:	~
Analyte					
Unit TyColumn	Value	Flags	S.D.	Rdng. Method	
Header					*

Figure 226 Test Screen - Middle of Analytes & Results Tab – Table Options

The Type field specifies whether the analyte is Required, Optional, Read Only, or Supplemental. The box labeled Reportable should be checked if the result of the analysis needs to be listed on the Final Report.

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Table Options: Analyte 💙	💿 🤤 Type:	~	Reportable:	Script	let:	*
Unit Type	(Required Optional Read Only Supplemental	ags	S.D.	Rdng. Method	*

Figure 227 Test Screen - Middle of Analytes & Results Tab – Type

The buttons at the bottom of the Analytes & Results Tab are used to build the lower table on this tab. The **Add Group** button creates an analyte group in this table represented by the information on its own subtab. The **Add Row** button creates a row in the lower table. The fields in each row consist of Unit, Type (Dictionary, Numeric, Titer, Date, Date-Time, Time, Default, Alpha Lowercase, Alpha Uppercase), Value, Flags, S.D. (Standard Deviation), and Rdng. (Rounding) Method. The **Remove Row** button removes a row in the lower table, and the **Dictionary** button pops up the Dictionary Entry Selection Screen to aid in completing this table.

Unit	Type Va	alue	Flags	S.D.	Rdng. Method	
	×					
۲ مراجع	Dictionary Numeric Titer Date Date-Time Time Default Alpha Lowercase	Remove Row	Dictionary			4



Dictiona	ary Entry Selection	
* N A O B P C Q	Select Category: Enter Search: *	Y 🏭 Search
DR	Entry	Category
ES	(Milligram per Gram) per Hour	Description - Unit of Measure
FT	(Milligrams/Gram) per Hour	Description - Unit of Measure
нv	Absent	General Results
ΙW	Absent, Bacterially Safe	General Results
JX	Actinolite asbestos	Asbestos
LZ	Aggressive Index	Description - Unit of Measure
м	•	-
	📀 OK [🔀 Cano	cel
Done		



8.1.4 PREP TEST & REFLEX TEST TAB

A prep test is a test that is done in preparation for another test. A prep test may be mandatory or optional. The upper table on the Prep Test & Reflex Test Tab of the Test Screen specifies the prep test(s) and their corresponding method(s) for the chosen test. The box labeled Optional will be checked if the prep test is not mandatory.

Test Details	Sample Type	Analytes & Results	Prep Test & Reflex Test	Worksheet Layout
Prep Test			Method	Optional
dig			epa 3050 b envpb	

Figure 230 Test Screen - Prep Test & Reflex Test Tab – Prep Test Table

A reflex(ed) test is another test that may be required to be performed if the result of the chosen test for the designated analyte falls within a certain range. The information pertaining to the reflex test(s) is found in the lower table on the Prep Test & Reflex Test Tab of the Test Screen. The Reflex Test name and corresponding Method is located in the first two columns. The name of the test analyte that may trigger the reflex test to be conducted is located in the Analyte column. The range of results that may trigger the reflex test to be conducted is found in the Result column. The Flags field has the following options: Auto-Add (automatically add the reflex test to the sample regardless of whether or not it has already been added), Prompt (ask the analyst if the reflex test should be added to the sample regardless of whether or

not it has already been added), Auto-Add, Non-duplicate (automatically add the reflex test to the sample if it has not already been added), or Prompt, Non-duplicate (ask the analyst if the reflex test should be added to the sample if it has not already been added).

Reflex Test	Method	Analyte	Result	Flags
metal	epa 200.8 uranium dw	Gross Alpha including Uranium	15,1000000	Prompt, N
gross alpha adjusted	epa 900.0/200.8	Gross Alpha including Uranium	15,1000000	Prompt, N
turbidity	sm 2130 b screen	Gross Alpha including Uranium	15,1000000	Prompt, N

Figure 231 Test Screen - Prep Test & Reflex Test Tab - Reflex Test Table

8.1.5 WORKSHEET LAYOUT TAB

The Worksheet Layout Tab provides details of how the worksheet that corresponds to the test was constructed. The Format field provides the name of the worksheet template that was utilized to create the specific test worksheet. The Subset Capacity specifies the maximum number of analyses that can be conducted in a subset of the total (e.g. 96 for a 96-well plate). The Total Capacity specifies the maximum number of analyses that can be conducted on the worksheet.

In the QC Items table the column labeled Position specifies the exact position of that QC item in the test run (e.g. Position 1 would indicate the first well on a plate). The column named Type has the following options for QC items: Fixed, Fixed Always, Duplicate, Random, Last of Subset, Last of Run, Last of Subset & Run. For example, a QC item with a "fixed" position of 10 will only show up on the worksheet if the run is large enough to get to the 10th position. A QC item with a "fixed always" position of 10 will be displayed on the worksheet regardless of whether or not the run is large enough to get to the 10th position. A QC item with a type of "duplicate" will be a copy of the QC item that is found in the preceding position. A QC item with a type of "random" will be located in a randomly determined position. A QC item specified with a type of "last of subset" will always be located in the final position of the subset (e.g. the last well on the plate). A QC item with a type of "last of subset " will always be located in the final position of the run. Finally, a QC item specified as "last of subset & run" will occupy only one position (the final position) which will be considered as both the



last of the subset **and** the last of the run. The column labeled QC Name specifies the name of the QC item.

	ails Sample Type An	nalytes & Results Prep Test & Reflex Test Worksheet Layout	
	Format: HPC	•	
Subset (Capacity: 999	Total Capacity: 999	
:	Scriptlet:	×	
		QC Items	
Position	Туре	QC Name	
1	Fixed	9215b media blank_ic	*
2	Fixed	9215b air plate_ic	
	Last of Run	hpc media	
	Last of Run	pbs dil bottles	
۲.	Row Remove Rov	w	+ +
Add I	Kow Kemove Kov		
	Kow I kenove kov	Analytes excluded from worksheet	
Analyte			*

Figure 232 Test Screen - Worksheet Layout Tab

The table entitled "Analytes excluded from worksheet" on The Worksheet Layout Tab of the Test Screen lists the analytes that will not be found on the worksheet, along with the fields of Repeat and Flag. The Repeat field contains an integer which specifies the number of times to exclude this analyte from the worksheet. The Flag field has the options of Choose Highest, Average, Choose Lowest, Standard Deviation, and Median. The **+ Analyte** and **– Analyte** buttons are used to add and delete analytes from this table, respectively.

8.2 METHOD

The Method screen displays a full description of each testing method. Methods are required for each test defined within the OpenELIS database. The link to the Method screen is located in the <u>top section of the Maintenance Menu</u>.

Metho	d		- x
* N A O	Method	🔍 Query 👍 Previous 🖒 Next 🌄 Add 📝 Update 🔘 Commit 🔯 Abor	Options 👻
BP	cdc	Name: colilert mpn well	
CQ	cdc urine	· · · · · · · · · · · · · · · · · · ·	
DR	colilert It2	Description: MPN Total Coliform & E.coli by Quanti-Tray	
E S F T	colilert mpn	Report Description: SM 9223B 21st	
Gυ	colilert mpn other	Active: 🔽	
H V I W	colilert mpn sdwa am	Begin Date: 2011-04-04 🖸	
JX	colilert mpn sdwa pm	End Date: 2099-12-31	
κY	colilert mpn well		
LΖ	colilert pa		
М			

Figure 233 Method Screen

The name of the method is specified in the Name field. The Description field is a longer and more detailed explanation of the method. Both of these fields are used internally on analysis screens in OpenELIS. The Report Description field is used in the Final Report and other reports for organizations to specify the method. The Active field is a checkbox which should be checked for all active methods. The starting date for the method is specified in the Begin Date field. The last date for which the selected method was or can be used is detailed in the End Date field.

8.3 PANEL

The Panel screen allows tests to be grouped under a single name. For example, the "rad alpha exclu only" test panel, described below as "Panel- gross alpha (excluding uranium) only", will assign those tests (gross alpha, gross alpha adjusted, metal, and env acceptance) and methods to the sample.

The link to the Panel screen is located in the top section of the Maintenance Menu.

2, Query 🛛 🛛	Previous	Next 🛛 🔂 Add		Juare 6	Delete 🛛 💿 Co	Abor	t Options 👻	
Name:	rad alpha	exclu only						
Description:	Panel - gr	ross alpha (excluding ura	nium	n) only				
Name		Method			Name	Method	Section	
gross alpha		epa 900.0 including			acids inorg (mu	Iniosh 7903	industrial_hyg-a	
gross alpha a	djusted	epa 900.0/200.8			aeromonas	aeromonas	enviro_micro-ic	
metal		epa 200.8 uranium dw			alkalinity	sm 2320 b slud	cinorg_manual-a	
env acceptan	ce				alkalinity	alkalinity (multi)	sm 2320 b	inorg_manual-a
					alkalinity (multi)	sm 2320 b	inorg_manual-lk	
				<<	ammonia	epa 350.1	inorg_auto-ank	
					ammonia	lac 10-107-06-1	l inorg_auto-ank	
					ammonia	niosh 6015	industrial_hyg-a	
					ammonia	sm 4500 nh3 d	inorg_manual-lk	
+		Þ	$\overline{\tau}$		*		Þ	
Remove	Row	Move Up	wn		Refresh			

Figure 234 Panel Screen

To create a panel, click on the **Add** button, and specify a name and description for the panel. Next, select tests from the available ones in the right-hand pane, and move them to the left-hand pane by clicking on the double arrow button. The buttons on the bottom of the screen allow for the tests to be placed in a specific order (**Move Up**, **Move Down**), or for a test to be deleted from the panel (**Remove Row**).

🔍 Query 🔌	Previous 膨 Next					mmit 🔞 Ab	ort Options 🗸	
Name:	air toxics panel							
Description:	Panel - Air Toxics Ca	anisters						
Name	Method				Name	Method	Section	
volatiles	epa to-12		*		wett-mo-single	epa821-r-02-	01 bioassay-ank	1
volatiles	epa to-15				yeast mold	yeast mold	enviro_micro-ic	
					zooplankton	wetzel likens	20 limnology-ank	
					zooplankton	wetzel likens	20 limnology-ic	
					zooplankton	wetzel likens	20 limnology-lk	
				<<	env acceptance			
					fax client			
					fluoride installat			
					giardia/crypto			
4		Þ	Ŧ		+		Þ	-
Remove	Row 🏦 Move Up	Move Dov	wn		🗟 Refresh			

Figure 235 Creating a Panel

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CHAPTER 9. DEFINING NEW QUESTIONS (ANALYTES) AND ANSWERS (DICTIONARY)

9.1 ANALYTE

The Analyte screen defines the chemicals and other substances that are used to perform an analysis. The fields on this screen consist of Name, Parent Analyte, External Id, and Active. Any of these fields can be used to query.

The link to the Analyte screen is located in the second section of the Maintenance Menu.

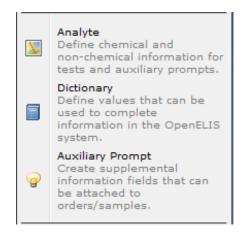


Figure 236 Maintenance Menu – Second Section

Analyte				- x
🔍 Query 🔌 Pr	revious 🕨 Next 🛛 🔜 A	dd 🛛 📝 Update 🛛 💿 Commit	🔀 Abort	Options 👻
Name: Parent Analyte: External Id: Active:	7440-65-5			

Figure 237 Analyte Screen

The Name field lists the name of the analyte. The field known as Parent Analyte displays which other analyte is the predecessor of this analyte. The External Id field normally contains a numerical value assigned by . The Active checkbox shows the availability of the analyte to be used in the OpenELIS system.

9.2 DICTIONARY

The Dictionary screen contains categorizations and definitions of terms used in the OpenELIS system. The upper pane contains the information that is related to the selected dictionary category.

The link to the Dictionary screen is located in the <u>second section of the Maintenance</u> <u>Menu</u>.

The first field in the upper pane is entitled Category Name. The dictionary is arranged by this field. The second field, Description, contains a more detailed explanation of the Category Name. If completed, the Section field specifies the SHL laboratory section that utilizes this dictionary category. The System Name field contains the name of the selected category as it is used by the system code. The System Name is always lowercase and uses underscores instead of spaces. The System checkbox denotes those categories that are part of the system software. Categories that are not marked as "System" are used for analysis results and auxiliary data values.

Image: Solution of the soluti	Dictiona Q Qu	-	Add 🔀 Update	🔘 Commit 🛛 Abort 🛛 C	— 3 Options ↓			
v sdwis_category_bacterial TC Bacterial v sdwis_category_radchem RA Radio Chemical v sdwis_category_chemical CH Chemical v sdwis_category_lead PB Pb/Cu	Description: List of SDWIS sample categories Section: System Name: sdwis_sample_category							
Image: solution of the solution	Active	System Name	Abbreviation	Entry	Related Entry			
sdwis_category_chemical CH Chemical sdwis_category_lead PB Pb/Cu	V	sdwis_category_bacteria	і тс	Bacterial				
sdwis_category_lead PB Pb/Cu	V	sdwis_category_radchen	n RA	RA Radio Chemical				
	V	sdwis_category_chemica	І СН					
	V	sdwis_category_lead	PB					
	1		11					

Figure 238 Dictionary Screen

The table in the lower pane of the Dictionary Screen contains the dictionary entries for each dictionary category. Each category may contain numerous dictionary entries for use in the system. The first column (Active) holds checkboxes for marking each entry as being active in the system or not. This column is followed by the System Name, Abbreviation, Entry (name), and Related Entry, if applicable. The System Name is used as the name for the variable in the software code, whereas, the Entry name is how the variable is specified as an option in a drop-down list.

The dictionary can be queried using any field on the Dictionary Screen.

9.3 AUXILIARY PROMPT

The Auxiliary Prompt screen defines the organization and parameters relating to auxiliary data. Auxiliary data is information that is collected and recorded that can be considered as supplemental to testing results. Any field on this screen can be used to conduct a query.

The link to the Auxiliary Prompt screen is located in the <u>second section of the</u> <u>Maintenance Menu</u>.

The upper pane contains the global fields that define the selected auxiliary group. The first field, Group Name, contains the actual name of the auxiliary group. The Description field provides a more detailed explanation of the group name. The Active checkbox denotes whether the auxiliary group is active in the system or not. The Begin Date and End Date fields contain the starting and expiration dates for the auxiliary group.

Q Query 🛛 🖣	Previous	Next	Add	Update	Commit	: 💽 Abort Options 🗸	
Group Name:	env accepta	ince					
Description:	env accepta	ince					
Active:	V Begi	n Date: 20	11-12-13	🖻 Er	nd Date: 20	99-12-31 🔤	
Analyte	Method	Unit	Active	Required	Reportabl	Description	
Received by			v	V		Initials of receiving person	
pН			V			Add if required by method	
Sample Intact			V	v		Is sample intact	
Temperature		degrees	v			Temp upon receipt	
<	Pamawa	Row	III				+
<	Remove Value	Row	III				4
Add Row		Row	m				4
Add Row		Row	TIT				4

Figure 239 Auxiliary Prompt Screen

The middle pane is comprised of a table consisting of the following columns: Analyte, Method, Unit, Active, Required, Reportable, Description, and Scriptlet. The Analyte column contains the individual auxiliary data items that make up the auxiliary group. The Method field contains the lone testing method associated with the analyte, if

applicable. The Unit field specifies the measurement unit for the analyte. The Active checkbox denotes whether the auxiliary item is active in the system or not. The Required checkbox and the Reportable checkbox specify whether each item is mandatory and/or displayed on the Final Report, respectively. The Description field provides a more complete explanation of the auxiliary item.

The lower pane of the Auxiliary Prompt Screen ...

CHAPTER 10. SUPPORT MODULES

The OpenELIS Support Modules define such diverse entities as storage units and locations, testing instruments, test trailers, standard notes, labels, laboratory sections, and QA events. This chapter describes each of these modules.

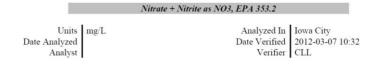
10.1 QA EVENT

QA (Quality Assurance) events are the circumstances surrounding the sample and/or an analysis. Sample QA events are usually general in nature, while Analysis QA events can be general or test-specific. For example, the QA event named "sample leaking" when attached at the sample level will place the following statement in boldfaced type near the top of the Final Report: "Sample was leaking upon receipt. Integrity of sample is questionable." QA events can also be used for missing information on the sample collection form.

Note: Not analyzed. No sample information form received. Information was taken from container label. Collection time of sample to receipt in laboratory (holding time) was outside the acceptable limits.

Figure 240 Sample Level QA Events on the Final Report

QA events can also be selected at the analysis level in OpenELIS. They are listed as a note in boldfaced type below the appropriate analysis on the Final Report.



Note: Not analyzed. Improper sample bottle was received for the test requested.



QA events will be listed on the Final Report in the order selected (unless there is an integer in the Sequence field of the QA Event screen). Internal QA events are never printed on Final Reports. They have a name that begins with "i-".

QA events can be tracked in the OpenELIS database and can be used to keep control/track of processes internally if and only if related to clients (for internal QA events only).

The QA Event screen may be accessed through the link in the <u>top section of the</u> <u>Maintenance Menu</u>. It is used to enter new QA events into the LIMS, or to look up any existing QA event, by querying in the Name, Description, Type, Test, Billable, or Sequence fields. This screen provides internal information as well as the text of the QA event that appears on the Final Report.

QA	Eve	nt								- ×
* A	N O	Name	Test	🔍 Query 🛛 🖣	Previous	Next Add	🖉 Update	💿 Commit	🔀 Abort	Options 👻
	Р	no form		Name	not analyzed	4				
C D	-	not analyzed		Description:						
	S	not billed - env			Result Over					
F				Test:		~	Method:			
G H				Billable:			Method:			
I J			4	Sequence:						
	Ŷ		व ब		Not analyze	d.				
L	z									
м										

Figure 242 QA Event Screen

Each field of the QA Event screen is explained below.

Name

Each QA event has a short name that is used internally by the laboratory.

Description

The Description field is used internally but is a longer, more detailed explanation of the name.

Туре

The field specifies which type (Internal, Result Override, or Warning) the QA event is categorized as. The QA event has to be set to one type by default.

Internal QA events are for lab use only and do not appear on the Final Report. For example, "i-fax" is a faxed Final Report and this QA event can be tracked and used to keep statistics on the number of Final Reports that an organization requests to have faxed.

Result Override QA events will appear in place of a result when an event prohibits the sample from being released with an analysis result; however, a test still needs to be assigned to the sample in order to have the QA event linked to the proper analysis. For example, the "container not rec'd" QA event will show the following statement in place of the results on the Final Report: "Test was not performed because the laboratory did not receive the required container."

Warning QA events appear on the Final Report in addition to the analysis result. For example, the "client contamination" QA event will display "Information from sender indicates possible sample contamination." in addition to the result.

QA events will be listed on the Final Report in the order that they were selected. It is strongly recommended not to use more than three QA events for any given sample and to list the Result Override QA event(s) first for clarity and brevity.

Test and Method

These fields specify the test and method to which this QA event is associated. These fields are empty for general QA events. General QA events are used by many sections of the laboratory; whereas, test-specific QA events can only be assigned to the designated test and method. Test-specific QA events will only be displayed in drop-down lists for their corresponding analyses.

Billable

The billable checkbox shows the default behavior of the QA event. QA events that are not checked as billable will override the charging for an analysis. For example, when the QA event "lab accident" is assigned to an analysis that is routinely billed, the QA event overrides the billing, and that analysis will not be charged. The billable checkbox can still be selected or unselected by the user at the time that the QA event is assigned.

Sequence

The Sequence field is the integer that specifies the order in which QA events are displayed on the Final Report. QA events without an integer entered in the Sequence field will appear first on the Final Report; followed by QA events in ascending numerical order.

Text

The Text field displays the explanation of the QA event as it will be displayed to the client on the Final Report.

For general information about QA events, please see QA EVENTS TAB and QA EVENTS.

10.2 LABORATORY SECTION

The purpose of the Laboratory Section screen is to define service groups within the laboratory that perform related testing or other work. The purpose of defining laboratory sections using this screen is three-fold.

- To assign appropriate OpenELIS permissions to employees.
- For defining and linking tests with a particular laboratory section.
- To link e-mail notifications for certain testing thresholds (e.g., MCL violations, turnaround time warnings and maximums) to designated employees of that laboratory section.

The Laboratory Section screen may be accessed through the link in the <u>top section of</u> <u>the Maintenance Menu</u>. An explanation of each field on this screen is displayed below.

Laboratory Section			- x				
🔍 Query 👍 Pr	revious	🕨 Next 🛛 🔂 Add 📝 Update 🛛 💿 Commit 🔯 Abort 🕬	Options 👻				
Name:	sample_p	rep-lk					
Description:	Sample P	reparation Lakeside					
External:		SIDE 💌					
Organization:	SHL LAKES						
Parent Section:		×					
Туре		Value					
MCL Violation Em	ail	bart-simpson@uiowa.edu					
MCL Violation Em	ail	doris-day@uiowa.edu					
Turnaround Max E	Email	bart-simpson@uiowa.edu					
Turnaround Max B	Email	doris-day@uiowa.edu					
Turnaround Warn Email oscar-madison@uiowa.edu							
•							
Add Row	Remove	Row					

Figure 243 Laboratory Section Screen

Name

This field contains an abbreviated section name.

Description

This field holds the complete section name.

External

This field is a checkbox indicating if this section is external to the laboratory.

Organization

This field contains the name of the organization which encompasses this laboratory section (e.g., SHL LAKESIDE, SHL ANKENY). It is a drop-down and auto-complete field.

Parent Section

This drop-down and auto-complete field is designed to be used for the major sections of the laboratory when there are subsections.

Type and Value

These fields specify the type of laboratory section parameter and their associated values. The three parameter types currently in OpenELIS are all system-generated e-mail notifications: MCL Violation Email, Turnaround Warn(ing) Email, and Turnaround Max(imum) Email. The values for each of these three types consist of the e-mail addresses of designated employees belonging to that lab section.

10.3 LABEL

The third section of the Maintenance Menu contains the links to open the Label, Standard Note, and Trailer for Test screens.



Figure 244 Maintenance Menu – Third Section

The Label module has not yet been implemented.

10.4 STANDARD NOTE

Standard notes are used to explain a commonly occurring sample condition/requirement or analysis result. External standard notes will appear on the Final Report so that their message can be conveyed to the client. Internal standard notes will only appear in the internal LIMS and will not be displayed on the Final Report. They are meant to provide an explanation to fellow employees and serve as documentation. Standard notes can be applied at the sample or analysis level depending upon the scope of the explanation. See <u>ANALYSIS NOTES TAB</u> and <u>STANDARD NOTE SELECTION SCREEN</u> for more information on how to search, insert, and edit analysis and sample standard notes.

The link to the Standard Note screen is located in the <u>third section of the Maintenance</u> Menu.

*	N	Name	🝳 Query 👍 Previous 🗼 Next 🛛 🕞 Add 📄 Update 📄 Delete 🛛 💿 Commit 💿 Abort 🛛 Option	ns 🗸
B	P	acceptance criteria		
с	Q	analyzed after 8 hrs	Name: acceptance criteria	
D	R	avoid weekends	Description: Sample Acceptance Criteria (Environmental)	
E	S T	composite of 4 vials	Type: Sample Receiving 💙	
G	U	U em composite	Text: Upon arrival, sample met container and preservation requirements for the analysis	
н	۷	est,outside range	requested. Please review carefully your sample results for additional analyte comments or method exceptions.	
1	W X	estimate,high count		
ĸ	Y	exceeds cal range		
L	Ζ	extra filter		
м		extra slide		
		fax results		
		filter billing		
		foil -nominal amount		

Figure 245 Standard Note Screen

All of the fields of the Standard Note screen may be used to query for standard notes, except for the text field.

An explanation of each field of the Standard Note screen follows.

Name

This is a short name for the standard note and it is designed for internal use only.

Description

The Description field offers a longer explanation for the use of the standard note.

Туре

These are the pre-defined categories for standard notes. The types include: Analysis – Analytical Services, Analysis – Enviro. Micro., Billing, Client Services, General, Sample Receiving, and Shipping.

Text

This field contains the exact text of the standard note. This text is printed on the Final Report if this standard note is selected as an external note. It can be edited, as necessary, during the selection process.

10.5 TRAILER FOR TEST

The Trailer for Test screen allows you to define a block of standard information that is associated with a test. A test trailer is often an explanation of how the test was conducted, how the results should be interpreted, or it may contain an accreditation laboratory ID. A test can have only one test trailer, and the trailer cannot be changed based on the test results.

The link to the Trailer for Test screen is located in the <u>third section of the</u> <u>Maintenance Menu</u>.

Q Query 🛛	Previous 🕨 Next 🕞 Add 📄 Update 📄 Delete 💿 Commit 🐼 Abort Options 🗸
Name:	private nitrate
Description:	Private Nitrate Interpretation
Text:	If the nitrate concentration in this sample is less than or equal to 45 mg/L (as NO3), this level does NOT exceed the infant health advisory level. If the nitrate concentration in this sample is greater than 45 mg/L (as NO3), this level EXCEEDS the infant health advisory level and should NOT be used to prepare formula or used for drinking by infants less than six months of age. These levels pose a health risk to bottle-fed infants by reducing the oxygen-carrying capacity of the blood (rare disorder called methemoglobinemia). Contact your local county health department or SHL's web site (http://www.shl.uiowa.edu; click on Well Water in the left hand menu) for information and guidance to help correct your water quality problem. "Quant limit" refers to the lowest level the method can accurately detect.

Figure 246 Trailer for Test

The fields in the Trailer for Test screen are explained below.

Name

This field contains the short name that is used internally in the laboratory.

Description

This field is also used internally but it is a longer and more detailed characterization of the test trailer.

Text

The text of the test trailer is italicized in the Final Report and it is displayed in the Note section below the associated analysis results.

Analyte	Result	Result (ppm)	% Desorption Efficiency	Quant Limit
n-Butyl alcohol	2860		90	360
Note: Calculation of concentration is 102530. Sample results are not	based upon sampling information pro blank corrected.	ovided to the laboratory by the	client. AIHA-LAP, LLC acc	creditation Laboratory ID

Figure 247 Test Trailer Displayed in a Final Report

10.6 STORAGE UNIT AND STORAGE LOCATION

The Storage Location screen is used in conjunction with the Storage Unit screen to create storage places in the laboratory. Sample items (containers) and analysis ??? are then managed in these storage locations through the <u>Storage</u> screen.

The fourth section of the Maintenance Menu contains the links to open the Storage Unit and Storage Location screens.

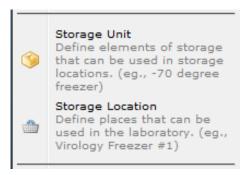


Figure 248 Maintenance Menu – Fourth Section

10.6.1 STORAGE UNIT



The Storage Unit Screen is used to define elements of storage that can be utilized in storage locations. Storage units can include carts, refrigerators, freezers, rooms, tables, temporary, etc.

'N	Description	Q Query	Previous	Next	Add	🖉 Update	Delete	💿 Commit	🔀 Abort	Options
P	cart foidea	Categor	y: Surface	¥						
R	fridge room	Descriptio	n: cart							
S T	table	Singula	ar: 🔳							
v	temporary	् च								
W X										
(Y . Z										
1										

Figure 249 Storage Unit Screen

An explanation of the use of each field is found below.

Category

This field categorizes the storage unit (i.e., room, fridge, surface, etc.)

Description

The Description field provides a brief characterization of the storage unit (i.e., cart, fridge, bench, counter, room, table, temporary, etc.)

Singular

The checkbox denotes whether the storage unit is a solitary item.

10.6.2 STORAGE LOCATION

The Storage Location screen defines actual places that can be used in the laboratory for storage. Storage locations hold sample items (containers), analysis ???, and general inventory items such as reagents, standards, and kits. Examples of storage locations include "Limnology IC Storage" and "Manufacturing Store Ankeny".

The upper pane of this screen contains the fields Name, Location, Storage Unit, and Available. The Name field can contain any alphanumeric name of the location, but it is generally assigned a number. The Location field contains a more descriptive explanation of where the storage location is situated. The Storage Unit field is a dropdown list. The usual choice for the storage unit would be "room". The choices for this field are defined in the aforementioned Storage Unit Screen. The Available field contains a checkbox that denotes whether this storage location is currently available to be used.

Q Qu	Jery 🖣	Previous	Ne	xt	Add	🖉 Update	💿 Commit	🙁 Abort	Options 👻		
	Name:	218									
	Location:	Manufactu	iring St	ore I	с						
Stor	age Unit:	room						~			
А	Available:	V									
Stora	Storage Sub Unit				Locatio	on			Available		
cart	cart				#1				V	~	
cart			#2				\checkmark				
cart			#3				\checkmark				
cart		#4				V					
cart					#5				\checkmark		
cart					#6				V		
cart					#7				V		
cart					#8				V		
cart					#9				\checkmark		
cart					#10				\checkmark		
tempo	orary				items	transfer			\checkmark		
										F T	
🔜 A	dd Row	🔜 Remo	ve Row								

Figure 250 Storage Location Screen

An explanation of the use of each field is found below.

The lower pane consists of a chart that details the storage sub units that make up the storage location. The first field, Storage Sub Unit, is a dropdown list consisting of such choices as cart, fridge, table, and temporary. These choices are the same ones that are defined in the aforementioned Storage Unit Screen. The Location field specifies the location (or a further descriptor) of the storage sub unit. The Available field contains a checkbox that denotes whether this storage sub unit is currently available to be used.

10.7 INSTRUMENT

The fifth section of the Maintenance Menu contains the link to the Instrument module. The Instrument Screen is utilized to define instruments that can be used in the laboratory. It can also associate instruments with analysis runs and Excel worksheets.



Figure 251 Maintenance Menu – Fifth Section

The upper pane contains the instrument information. The Name field contains a brief instrument name, while the Description field holds a longer, more detailed explanation of the instrument. The next two fields contain the Model # and Serial #, respectively. The Type field is a dropdown list consisting of such instrument categories as Balance, Dissolved Oxygen Meter, and Gas Chromatograph/Mass Spectrometer. The Location field specifies the lab section(s) that use the instrument followed by the room number (e.g., semivolatile-ic, pesticide-ic, 2160-P). The Active field is a checkbox denoting whether the instrument is active or not in the OpenELIS system. The Begin Date and End Date specify the starting and ending dates for the instrument. Any of these fields can be used to query for an instrument. The Query Sidebar displays the Name and Serial # for the instruments that match the query.

Name	Serial #	🔍 Query 🔌 F	Previous 🖒 Next	📄 Add 🛛 🖉 Update	💿 Commit 🛛 🔞 Abort	Options 👻	
4000 ct	V09390509						
4000qtrap	AR23570901H	Name: 7	301 gcms svol				
7001 gcms	vc2932A12081, 198	Description: 7	301 GC/MS, ui tag S	555507			
7002 gcms	s\2905A11766, 293	Model #: 6	890/5973				
7201 gcms	vc5890/5972	Serial #: U	582330212,1998				
7301 gcms	s\US82330212,1998	Type: G	as Chromatograph/	Mass Spectrometer	~	Active: 🔽	
7302 gcms	s\US94240069, 200	Location: se	emivolatile-ic, 2160	-0		Begin Date: 2011-08-22	-
7303 gcms	s\US10441055, 200	Scriptlet:		×		End Date: 2099-12-31	
7305 gcms	vcUS40620493, 200						-
7306 gcms	s\US10441047, 200	и Туре	Worksheet	Begin Date	End Date	Note	
7502 gcms	v(US92033261, 200	Run Completed	3606	2012-03-16 14:37	2012-03-19 09:19		
7503 gcms	ai US10393607, 201	Run Completed	3585	2012-03-16 10:37	2012-03-19 08:45		
aa2 nox-n	BL0039526 (mast	Run Pending	3472	2012-03-13 11:50			
aa2 phenol	BL0049526	Run Completed	3400	2012-03-09 13:07	2012-03-09 14:13		
agec1 gcec	clUS10541066	Run Completed	3318	2012-03-07 15:22	2012-03-08 07:50		
agec2 gcec	h CN10537096	Run Completed	3309	2012-03-07 14:10	2012-03-07 14:39		
do meter a	nk05J2351-AF	Run Completed	3182	2012-03-05 13:06	2012-03-05 13:31		
do meter a	nk 3480	Run Completed	3144	2012-03-02 11:44	2012-03-02 12:24		
do meter a	nk95A27841	Run Pending	3016	2012-02-28 10:03			
do meter a	nk08005413	•		m		,	Þ.

Figure 252 Instrument Screen

The lower pane consists of a chart containing logging information pertaining to the instrument. These chart entries are logged automatically if the instrument is selected on an analysis Excel worksheet. Entries can also be made manually on the chart. Manual entries are used especially for recording instrument maintenance events. The first column in this chart, Type, lists the category for the entry: Lab Maintenance (Unavailable), Offline (Unavailable), Run Completed, Run Pending, Service Call (Unavailable), and Service Performed. The second column (Worksheet) contains the analysis Excel worksheet number of this entry, if applicable. Begin Date and End Date lists the starting and finishing dates for the analysis run, if applicable. The final column, Note, displays any special notes that may have been entered for the run or maintenance event.

10.8 SYSTEM VARIABLE

The sixth section of the Maintenance Menu contains the link to the System Variable module. This module is used by OpenELIS administrators to define system properties.

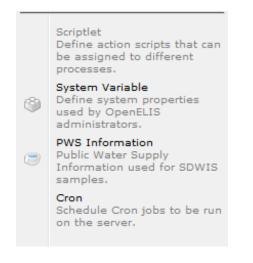


Figure 253 Maintenance Menu – Sixth Section

Each system variable has a Name and Value. Name's use underscores to separate individual words and are lowercase. Values can consist of numbers, words, dates and times, etc. For example, the mcl_violation_email system variable currently has a value of labfax@dnr.iowa.gov,matthew-bielicke@uiowa.edu. The system variable, last_billing_report_run, has a value that is automatically updated by the system to stay current (e.g., 2012-06-26 00:09).

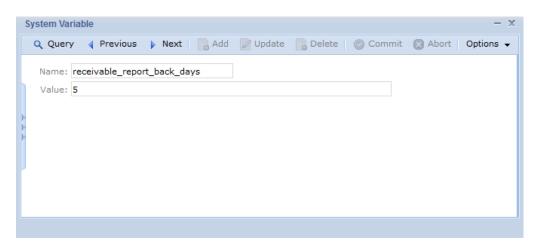


Figure 254 System Variable Screen

10.9 PWS INFORMATION

The PWS Information screen is used to view public water supply information pertaining to SDWIS samples. The link to this screen is located in the <u>sixth section of</u> <u>the Maintenance Menu</u>.

	-							
PWS ID: IA2328801 F	ield Office #	: FO6	St		pulation: 2			
Name: 61 DRIVE-IN THEATRE			_	and the second se		#4950200, 09/0 2001 3 miles ea		r
City: DELMAR		Rea	ason: reactiv	0.00 37277	9/27/2001 3 miles east of Delmar .::			
County: CLINTON			Start	Day: 1 Mo	onth: 4 E	ffective Begin:	2008-12-10	-
State Type: NC				Dav: 30 Mo		Effective End:	2000 12 10	
			LIIU	Day. 30 MC	9	Encouve End.		-
Facility Address Monitor								
Name	Туре	State ID	Status	Water Type	Available	Identification	Descriptio	
DISTRIBUTION SYSTEM	DS	950	A	GW	P	NFC	NFC	*
DISTRIBUTION SYSTEM	DS	950	A	GW	P	MRT	MRT	
		950	Α	GW	P	ART	ART	
DISTRIBUTION SYSTEM	DS	930	<u>^</u>					
DISTRIBUTION SYSTEM DISTRIBUTION SYSTEM	DS	950	A	GW	P	950	MENS RR	
						950	MENS RR	
DISTRIBUTION SYSTEM	DS	950	A	GW	P	950	MENS RR 61 DRIVE	
DISTRIBUTION SYSTEM WELL #1 - PLUGGED	DS WL	950 WL01	A I	GW GW	P O			
DISTRIBUTION SYSTEM WELL #1 - PLUGGED S/EP FROM WELL #1	DS WL SS	950 950 WL01 1	A I I	GW GW GW	P 0 0			

Figure 255 PWS Information Screen

10.9.1 GENERAL PWS INFORMATION

The upper pane of the PWS Information screen contains general information describing the public water supply. The fields are defined as follows.

PWS ID

The PWS (Public Water Supply) ID is a unique identifier assigned by the state to all public water supplies. The PWS ID begins with a two letter state abbreviation followed by a unique seven digit number (e.g., IA0533884).

Field Office

This is the number of the Iowa Department of Natural Resources field office which has jurisdiction over this public water supply (e.g., FO4).

Status

The status of the PWS is specified in this field. Codes consist of A for active, I for inactive, and P for pending.

Population

This field contains the number of people who are served by this PWS (i.e., population of the municipality, seating capacity of the restaurant, number of residents of the housing development, etc.).

Name

The name of the PWS is displayed in this field.

City

The nearest city to the public water supply is shown here.

County

The county in which the PWS is located is specified in this field.

State Type

This field specifies the type of public water supply as classified by the state in which it is located. State Types can include C to denote a community water system, NC for a non-community water system, and NTNC for a non-transient non-community water system.

Reason

This field provides a place to explain such circumstances as, the PWS has merged with another PWS, the PWS has discontinued operation, or to correct or add additional demographic information.

Start Day and Month

These fields display the beginning day and month during a year in which PWS service is provided.

End Day and Month

These fields display the ending day and month during a year in which PWS service is provided.

Effective Begin

This field shows the effective date that the PWS began providing service.

Effective End

This field shows the effective date that the PWS quit providing service.

10.9.2 FACILITY TAB

Facility Address Monitor								
Name	Туре	State ID	Status	Water Type	Available	Identification	Descriptio	
DISTRIBUTION SYSTEM	DS	950	A			MRT	MRT	
DISTRIBUTION SYSTEM	DS	950	A			ART	ART	
DISTRIBUTION SYSTEM	DS	950	A			NFC	NFC	
HANDPUMP WELL	WL	WL01	A	GW	P			
S/EP FROM HANDPUMP WELL	SS	1	A					
GENERAL PWS FACILITY	от	OT01	A					

Туре	State ID	Status	Water Type	Available	Identification	Description	Source
DS	950	А			MRT	MRT	FN
DS	950	А			ART	ART	FN
DS	950	A			NFC	NFC	FN
WL	WL01	Α	GW	P			
SS	1	Α					
от	OT01	А					

Figure 256 PWS Information Screen - Facility Tab

The lower pane of the PWS Information screen consists of three tabs: Facility, Address, and Monitor. A facility is a component of a public water supply system (e.g., distribution system, well, water treatment plant). These facilities have various characteristics that are described on this tab. The fields in the Facility tab are defined below.

Name

This field displays the name of the facility (i.e., Distribution System, Well #1 (1959), Treatment Plant, General PWS Facility, Breezeway Tap #1, etc.)

Туре

This field denotes the facility type. Some examples include a code of DS for distribution system, TP for treatment plant, WL for well, and OT for other.

State ID

This identifier is assigned by the state to distinguish each facility. For the state of Iowa, the State ID is a text field with the leading zeros being dropped (e.g., the "1" in the figure above is actually "01"). All source entry points from 1 to 9 begin with a leading zero. Most distribution systems have a facility State ID of 950 or above.

Status

This field displays the status of the facility (e.g., A for active and I for inactive).

Water Type

This field denotes the type of water (e.g., GW for groundwater, SW for surface water, GU for groundwater under the direct influence of surface water).

Available

This field characterizes the availability of the facility (e.g., P for permanent, S for seasonal, and E for emergency).

Identification

This field normally matches the facility's State ID, except for some sampling in the distribution system. Possible values include: MRT (maximum residence time), ART (average residence time), and NFC (near first customer).

Description

This is a text field describing the sample location (e.g., 202 S 4TH, BATHROOM TAP, WATER PLANT, WELL #2, DISTRIBUTION SYSTEM, RAW, etc.)

Source

This is the source of the water sample (e.g., FN for finished water and RW for raw water).

10.9.3 ADDRESS TAB

Facility	Address	Monitor			
Туре	Active	Name	Addr1	Addr2	
OP	А	PALO COMMUNITY CENTER	ATTN WATER SUPT	PO BOX 229	-
AC	A	PALO COMMUNITY CENTER	ATTN WATER SUPT	PO BOX 229	
ow	A	PALO, CITY OF	ATTN TERRY SANDERS MAYOR	PO BOX 229	

Facility A	ddress Monitor						
	Addr2	City	State	Zip Code	FIPS	Phone #	
	PO BOX 229	PALO	IA	52324-0229	19		*
	PO BOX 229	PALO	IA	52324-0229	19		
S MAYOR	PO BOX 229	PALO	IA	52324-0229	19		

Figure 257 PWS Information Screen - Address Tab

The Address tab provides name, address and other contact information for the public water supply. The fields are described below.

Туре

This field denotes the type of address that is provided for the Public Water Supply in this particular row. Options include: OP for the operator of the PWS, OW for the owner of the PWS, and AC for the administrative contact for the PWS.

Active

The status of the PWS address information is specified in this field. Codes consist of A for active, I for inactive, and P for pending.

Name

The name of the owner, operator, or administrative contact for the PWS is provided in this field.

Addr1

This is the first line of the address. This field is often used to specify the name of the person to whose attention correspondence should be sent.

Addr2

This is the second line of the address and often contains the street address or post office box.

City, State, Zip Code

These fields contain the city, state, and zip code of the owner, operator, or administrative contact for the PWS.

FIPS

The Federal Information Processing Standard (FIPS) code is contained in this field for the state in which the PWS is located (e.g., 19 for the state of Iowa).

Phone

The phone number of the owner, operator, or administrative contact for the PWS is located in this field.

10.9.4 MONITOR TAB

•					•
1	WELLS 4, 5 @ WATER PLANT	Inorganic Chemicals (IOC) - Regulated	1	2004-07-01	2013-0
1	WELLS 4, 5 @ WATER PLANT	Nitrate	1	2010-07-01	2011-0
1	WELLS 4, 5 @ WATER PLANT	COMBINED RADIUM (-226 & -228)	1	2010-07-01	2011-0
1	WELLS 4, 5 @ WATER PLANT	Radionuclides(RAD) - Gross Alpha	1	2009-04-01	2012-0
1	WELLS 4, 5 @ WATER PLANT	Radionuclides(RAD) - Combined Radium	1	2009-04-01	2012-0
1	WELLS 4, 5 @ WATER PLANT	Volatile Organic Chemicals (VOC) - Regulat	1	2006-10-01	2012-0
1	WELLS 4, 5 @ WATER PLANT	SODIUM	1	2008-07-01	2011-0
1	WELLS 4, 5 @ WATER PLANT	Synthetic Organic Chemicals (SOC) - Regul	1	2006-10-01	2012-0
950	DISTRIBUTION SYSTEM	Lead and Copper	10	2010-06-01	2012-0
950	DISTRIBUTION SYSTEM	Total Trihalomethanes (TTHM)	1	2009-07-01	2011-0
950	DISTRIBUTION SYSTEM	Haloacetic Acids (HAA5)	1	2009-07-01	2011-0
Туре	Name	Series	# Sample	Begin Date	End Da

Series	# Sample	Begin Date	End Date	Frequency	Period	Г
Haloacetic Acids (HAA5)	1	2009-07-01	2011-08-31	THREE YEARS - TTHM	DBP YEAR	
Total Trihalomethanes (TTHM)	1	2009-07-01	2011-08-31	THREE YEARS - TTHM	DBP YEAR	
Lead and Copper	10	2010-06-01	2012-09-30	THREE YEARS-PB	PBCU YEAR	
Synthetic Organic Chemicals (SOC) - Reg	ul; 1	2006-10-01	2012-09-30	SIX YEARS	3RD QUARTER	
SODIUM	1	2008-07-01	2011-06-30	THREE YEARS	2ND QUARTER	
Volatile Organic Chemicals (VOC) - Regula	at 1	2006-10-01	2012-09-30	SIX YEARS	3RD QUARTER	
Radionuclides(RAD) - Combined Radium	1	2009-04-01	2012-03-31	THREE YEARS	1ST QUARTER	
Radionuclides(RAD) - Gross Alpha	1	2009-04-01	2012-03-31	THREE YEARS	1ST QUARTER	
COMBINED RADIUM (-226 & -228)	1	2010-07-01	2011-06-30	YEARLY	2ND QUARTER	
Nitrate	1	2010-07-01	2011-06-30	YEARLY	2ND QUARTER	
Inorganic Chemicals (IOC) - Regulated	1	2004-07-01	2013-06-30	NINE YEARS	2ND QUARTER	
•	-				4	

Figure 258 PWS Information Screen - Monitor Tab

The Monitor tab provides monitoring requirements for distribution systems and a public water supply's other facilities such as wells, water treatment plants, etc. Monitoring requirements indicate the type of monitoring (analytical series), number of samples, the period between which those samples must be collected, and the frequency of monitoring. The fields are described below.

Туре

This field contains the facility's State ID. The leading zeros have been dropped (e.g., the "1" in the figure above is actually "01")

Name

This is the name of the facility.

Series

This field specifies the analytical series that is being monitored.

Sample

This field specifies the number of samples that are required to be tested. For Total Coliform Rule - bacteria sampling and Lead and Copper monitoring this could be more than one sample.

Begin Date

Sampling should start on or after this date.

End Date

Sampling should end on or before this date. If a sampling cycle runs over several calendar quarters, then sampling is usually conducted in the last quarter. The last quarter of the sampling cycle is indicated in the Period field (see below).

Frequency

The frequency, or spacing, between sampling.

Period

This is the time frame when the sample(s) should be taken. Generally, this is the last quarter of a given frequency cycle. For example, the sampling period would be in the third quarter of a three year cycle. For Lead and Copper, the sampling period would be from June 1 to September 30 (the PBCU Year).

10.10 CRON

"Cron" is the time-based job scheduler in Linux and Unix-based computer operating systems. Cron enables users to schedule jobs (commands or shell scripts) to run periodically at certain times or dates. It is commonly used to automate system maintenance or administration. The OpenELIS Cron module is used by system administrators to schedule cron jobs to be run on the LIMS server. The link to this screen is located in the <u>sixth section of the Maintenance Menu</u>.

0	Cron	- x
	🔍 Query 🛛 🖣	Previous 🕨 Next 🛛 🔂 Add 📝 Update 🛛 💿 Commit 🔞 Abort 🛛 Options 👻
	Name	Billing Report
h	Cron Tab	10 0 * * *
	Bean	/openelis/openelis.jar/BillingReportBean!org.openelis.local.BillingReportLocal
- þ.	Method	runReport
þ	Parameters	
	Active	

Figure 259 Cron Screen

The fields on the Cron screen are detailed below.

Name

This field contains the name of the cron job.

Cron Tab

The Cron Tab (cron table) field contains the time component for the cron job. The values are entered in this order: Minute Hour Day Month DayofWeek. The wildcard character (*) accepts any value. DayofWeek can have an integer value from 0 (Sunday) to 6 (Saturday). In the example above, the Billing Report will be run at 12:10 AM every day. A cron job with a Cron Tab entry of 30 8 * * 6 will be run at 8:30 AM every Saturday. A cron job with a Cron Tab entry of 0 15 * * 1,2,3,4,5 will be run at 3:00 PM every weekday.

Bean

The Bean field contains the Java class that contains the method that this cron job is trying to call.

Method

This field contains the method that the cron job is trying to call.

Parameters

This field contains the parameters passed to the stated method.

Active

The Active checkbox displays whether this cron job is currently active in the system.

CHAPTER 11. REPORTS

The Report Menu of the OpenELIS LIMS allows users to set parameters that generate dynamic, predetermined reports.

11.1 VERIFICATION REPORT

The link to the Verification Report Screen is located in the Login Section of the Report Menu.

Report Maintenance	-	
Login		Verification Report
Reference		Test Request Forms
Summary	Þ	Order Request Form Hold/Refuse Organizations

Figure 260 Login Section of the Report Menu

Verification Report	- x
User ID: mhayek	
Printer: View in PDF	
Run Report Reset	
Generated file verification307980952889134851	3.pdf

Figure 261 Verification Report Print Screen

All logged in samples are initially in "Not Verified" status. Once the initial data has been entered into the LIMS, data entry personnel run the Verification Report to compare the entered data with the data on the paperwork and correct any discrepancies. The Verification Report creates a sample list and its associated tests for this purpose. Entering the User ID allows the person calling up the report to print her workload. If nothing is specified in the User ID field, it defaults to the user who is currently logged-in to OpenELIS. The specimens printed are in the same order as they were entered.

After the verification process has been completed, the LIMS needs to change the status of all the samples to "Logged In". This is accomplished through the Verify Sample Data Entry screen. The Barcode field accepts an accession number barcode that is located on the Verification Report.

For more information on sample entry paper verification see Using Paper Verification.

Apr 16, 2012 11:54:22	Ve For mhayek	rification Report		Page 1 of 1 mhayek
Accession Number: 14021 Received Date/Time: 2012-02-24 14:29	Revision: Status: Not Verified	Order#: 0 Client Reference:	Collection Date/Time: 2012-02-24 09:00	
Description: Collector: hayek mike Collection Site: frank farms Attention: Report To: A & B LABORATC Apt/Suite #: Address: 10100 E FREEWAN City, State, Zip: HOUSTON, TX 770 Phone: Fax:	7 STE 100	Apt/Suite #: Address:	A & B LABORATORIES 10100 E FREEWAY STE 100 HOUSTON, TX 77029-	
Notes:				
	San	nple Item #0		
Sample Type: Solid Quantity: Container Reference:	Source	ource: Sediment Other: tainer: 22 - Gallon Plastic(unpreserve Unit: mg/L	d)	
	Mercury analys	is of solid samples, Cold vapor		
017-01	Status: Logged In Section: metals-ank	Revision: Unit: mg/kg [dry wt	Reportable: Y]	
QA Events:				
	Mercury digestion of solid sa	amples, Mercury digestion of solid s	amples	
	Status: Cancelled Section: sample_prep-ank	Revision: Unit:	Reportable: N	
QA Events:				

Figure 262 Verification Report

11.2 ORDER REQUEST FORM

An Order Request Form can be printed from the Login Section of the Report Menu.

Order Request Form	- x
Order #: 294 Printer: View in PDF Run Report Reset	
Generated file order6851694549802773382.pdf	

Figure 263 Order Request Form Screen

The Order # needs to be inputted into this screen along with the printer selection. The Order Request Form will contain all of the information that is pertinent to the order. See <u>SEND-OUT ORDER SCREEN</u> and <u>Environmental Sample Collection Form</u> for a detailed description of the Order Request Form.

11.3 HOLD/REFUSE ORGANIZATIONS REPORT

Occasionally, organizations are delinquent in paying their invoices to laboratories. When a laboratory's payment policy necessitates that samples be refused or held from an organization until their account is in good standing, the Hold/Refuse Sample parameter may be assigned to that organization. (See the Organization screen's <u>Parameter Tab</u> section for more information.) This parameter is then used to generate the Hold/Refuse Organizations Report. This report is designed to alert sample receiving and accessioning staff to hold or refuse samples from these organizations.

A Hold/Refuse Organizations Report can be printed from the Login Section of the Report Menu. The report can be printed directly to a printer or viewed as a pdf.

Hold/Refuse Organizations	- x
Printer: 103_hp4250	
Run Report Reset	
Done	

Figure 264 Hold/Refuse Organizations Screen

The Hold/Refuse Organizations Report contains the following fields:

Org. ID

This field specifies the internal identifier for the organization.

Name, Address, City, State, Zip Code

These fields specify the name and address information of the organization.

Refuse Info

This field displays the effective date (yyyy-mm-dd) when samples from the organization are to be refused or held.

Dec 31, 2012 10:12:03		Organizations with Hold/Refuse Flag				1 of 1 mhayek	
Org. ID	Name	Address	City	State	Zip Code	Refuse Info	
2915	ABC TESTING INC	654 COMMERCIAL AVE	FORT WAYNE	IN	43871-	2012-06-01	
2975	CITY OF NIXON WATERWORKS	735 RAILROAD LANE	NIXON	IA	59973	2012-10-01	
2976	ELMER FUDD	7534 155TH AVE	SPIVEYS CORNER	IA	56734	2012-10-06	
2974	FLINTSTONE DRILLING SERVICE	9007 JOE ROCKHEAD LN	BEDROCK	MT	78653	2012-04-09	
2973	MARILYN MONROE	222 WHARF AVE	LEXINGTON GREEN	IA	54999	2012-09-15	

Figure 265 Hold/Refuse Organizations Report

11.4 TEST REPORT

The link to the Test Report Screen is located in the Reference Section of the Report Menu.

Report Maintenance		
Login	Þ	
Reference	▶	Test Report
Summary		Billing Report

Figure 266 Reference Section of the Report Menu

The Test Report prints a list of all available tests within the LIMS. Tests are grouped by laboratory sections. Test Reports can be printed by individual or multiple Section Name and/or individual or multiple Test Name.

Test Report			- x
Section Name: Test Name:	limnology-ic limnology-ank	•	~
Detail:	Name List	*	
Printer:	1150_ld380	*	
	Run Report Reset		

Figure 267 Test Report Screen

The Test Report can be generated in three formats. The format is selected in the Detail field of the Test Report Screen.

11.4.1 NAME LIST

This is a brief characterization of each test by Section, Test/Panel name, Method name, and Description.

15:55:29				den
Section	Test/Panel name	Method name	Description	
imnology-ank	benthic	sm 10500	Benthic Macroinvertebrate Analysis by Standard Methods 10500	
	conductivity-fm	iso 7888-1985	Field Specific Conductance by ISO 7888-1985	
	dissolved oxygen-fm	astm d 888-05 c	Field Dissolved Oxygen by Luminescence	
	dissolved oxygen-fm	datalogger-sonde	Field Dissolved Oxygen by Hydrolab	
	dissolved oxygen-fm	sm 4500-o g	Field Dissolved Oxygen by Membrane Electrode Method	
	fish id	sm 10600	Fish Analysis by Standard Method 1060	
	flow-fm	flow-csi	Flow Rate for NPDES Compliance Sampling	
	flow-fm	flow-stream	Stream Flow	
	microscopy	microscopy	Microscopic Identification	

Figure 268 Name List Test Report

11.4.2 SAMPLE TYPE BARCODE

This format includes all of the information that is present in the Name List format with the addition of barcodes for each defined sample type of a particular test/method. The corresponding unit of measure is also displayed if it is defined in the test definition. This report format can be used during <u>Quick Entry</u> to scan in a test/method.

Apr 20, 2012 6:06:49			Test Name Report		
ection	Test/Panel name	Method name	Description		
ample_prep-ic	leaching	epa 1311 tclp	TCLP leaching		
		Sample type	Unit of measure		
		Other			
		Solid			
	microcystins	immunoassay	Immunoassay for microcystins		
		Sample type	Unit of measure		
		Drinking Water	ppb		
		Non-Drinking Water	ppb		
	pesticides	immunoassay	Immunoassay for pesticides		
		Sample type	Unit of measure		
		Drinking Water	ug/L		
			_		
		Non-Drinking Water	ug/L		



11.4.3 FULL DETAIL

This format gives the complete test details including Section, Test/Panel name, Method name, Description, Sample type, Unit of measure, and individual analyte parameters. This format does not include sample type barcodes.

Apr 20, 2012 16:21:29		1	fest Name Report					1 of 59 demo
Section	Test/Panel name	Method name	Description					
metals-ank	arsenic speciation	uhl as spec	Arsenic speciation	on				
		Sample type		Unit of measure	•			
		Drinking Water		ug/L				
		Non-Drinking Water		ug/L				
		Analyte			Resu	t# Report	Type	
		Arsenic (III)			1	N	Optional	
		Quant Limit				Y	Required	
		Arsenic (V)			1	N	Optional	
		Quant Limit			1	Y	Required	
		R # Unit of measure	Туре	Value				Sig.
		1	Numeric	0,10000	0			
			Default	<1.0				
		2	Numeric	0,10000	0			
			Default	1.0				



11.5 SAMPLES IN-HOUSE REPORT

The link to the Samples In-House Report screen is found in the Summary Section of the Report Menu.

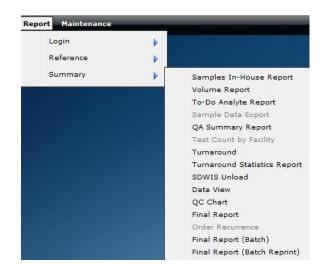


Figure 271 Summary Section of the Report Menu

The Samples In-House Report screen allows for the generation of a report that provides details of samples that are being processed or have been processed. Any of the fields on this screen can be utilized to provide a custom sample report. These fields consist of Starting Entered Date, Ending Entered Date, Section Name, Test Name, Analysis Status, Project, and Organization Id. The Sort By field determines the column that will be used to determine the sorting order. The report can be sorted by Accession Number (the default), Collection Date, Date Received, Test & Method, and Analysis Status. The Printer field is used for selection of the printer to print a hard copy, to view the report in pdf format on the computer monitor, to fax it, or to e-mail it to the user as a pdf file.

Samples In-House Report	- x
Starting Entered Date: 2	2012-12-28 14:07
Ending Entered Date: 2	2012-12-31 14:07
Section Name: i	norg_manual-ic 💌
Test Name:	*
Analysis Status:	*
Project:	*
Organization Id:	
Sort By: A	Accession Number
Printer: N	/iew in PDF
	Run Report
Generated file inhouse8029)305285395352779.pdf

Figure 272 Samples In-House Report Screen

Using the entries that were provided in the Samples In-House Report Screen above, the following report was generated.

Dec 31, 20 14:26:53	12			Samples In-House Report			1 of 1 mhayek
Accession	Collected	Received	Sample Type	Test, Method	Status	Due Date	Expires
75511	2012-12-28 11:01	2012-12-28 14:08	Drinking Water	nitrite, sm 4500 no2 b	Released	2012-12-30 14:08	2012-12-30 11:01
75512	2012-12-28 11:00	2012-12-28 14:08	Drinking Water	nitrite, sm 4500 no2 b	Released	2012-12-30 14:08	2012-12-30 11:00
75526	2012-12-28 13:45	2012-12-28 16:59	Non-Drinking	bod, sm 5210b 5 c	Initiated	2013-01-03 16:59	2012-12-30 13:45
75527	2012-12-28 15:30	2012-12-28 16:59	Non-Drinking	bod, sm 5210b 5 c	Initiated	2013-01-03 16:59	2012-12-30 15:30
75528	2012-12-28 14:30	2012-12-28 16:59	Non-Drinking	bod, sm 5210b 5 c	Initiated	2013-01-03 16:59	2012-12-30 14:30
75559	2012-12-31 10:00	2012-12-31 11:39	Non-Drinking	bod, sm 5210b 5 c	Logged In	2013-01-06 11:39	2013-01-02 10:00
75596	2012-12-31 12:40	2012-12-31 13:51	Non-Drinking	bod, sm 5210b 5 day	Logged In	2013-01-06 13:51	2013-01-02 12:40

Figure 273 Samples In-House Report – Accession Number Sort

The following columns are found in the Samples In-House Report: Accession (number), (date) Collected, (date) Received, Sample Type, Test/Method, Status, Due Date, and (date) Expires. Changing the Sort By field in the report screen to Analysis Status yields a new report with the Status field ordered alphabetically (Initiated, Logged In, Released, etc.)

Dec 31, 20 14:28:31	012			Samples In-House Report			1 of 1 mhaye
Accession	Collected	Received	Sample Type	Test, Method	Status	Due Date	Expires
75526	2012-12-28 13:45	2012-12-28 16:59	Non-Drinking	bod, sm 5210b 5 c	Initiated	2013-01-03 16:59	2012-12-30 13:45
75527	2012-12-28 15:30	2012-12-28 16:59	Non-Drinking	bod, sm 5210b 5 c	Initiated	2013-01-03 16:59	2012-12-30 15:30
75528	2012-12-28 14:30	2012-12-28 16:59	Non-Drinking	bod, sm 5210b 5 c	Initiated	2013-01-03 16:59	2012-12-30 14:30
75559	2012-12-31 10:00	2012-12-31 11:39	Non-Drinking	bod, sm 5210b 5 c	Logged In	2013-01-06 11:39	2013-01-02 10:00
75596	2012-12-31 12:40	2012-12-31 13:51	Non-Drinking	bod, sm 5210b 5 day	Logged In	2013-01-06 13:51	2013-01-02 12:40
75511	2012-12-28 11:01	2012-12-28 14:08	Drinking Water	nitrite, sm 4500 no2 b	Released	2012-12-30 14:08	2012-12-30 11:01
75512	2012-12-28 11:00	2012-12-28 14:08	Drinking Water	nitrite, sm 4500 no2 b	Released	2012-12-30 14:08	2012-12-30 11:00

Figure 274 Samples In-House Report – Analysis Status Sort

11.6 VOLUME REPORT

The link to the Volume Report screen is found in the <u>Summary Section of the Report</u> <u>Menu</u>. The Volume Report Screen generates a spreadsheet detailing the number of analyses by test for a selected date range and laboratory section(s).

Volume Report	- x
Starting Entered Date:	2012-04-01 13:57
Ending Entered Date:	2012-04-25 13:57
Section Name:	enviro_micro-lk enviro_ 💙
Run R	eport
Generated file volume282	8833517516777247.xls

Figure 275 Volume Report Screen

The Volume Report Spreadsheet contains the following columns: Section; Test; Method name; analyses with a status of Logged In, Initiated, On Hold, Completed, Released, and Other; Test Total, and Section Total. The Section Total specifies the total number of analyses for the entire section for all tests.

- 21	A	В	С	D	E	F	G	H		J	K
1	Section	Test	Method name	Logged In	Initiated	On Hold	Completed	Released	Other	TestTotal	Section Total
2	enviro micro-ank	MPN Total Coliform & E.	colilert mpn well				2	6	0	8	349
3	enviro micro-ank	P/A Total Coliform &	colilert pa					16	0	16	349
4	enviro micro-ank	Total Coliform & E.coli	colilert mpn sdwa am						1	1	349
5	enviro micro-ank	Total Coliform & E.coli	colilert pa sdwa am					1	0	1	349
6	enviro micro-ank	Total Coliform & E.coli	colilert pa sdwa pm				4	168	0	172	349
7	enviro micro-ank	HPC, all other water	blue pour plate					6	0	6	349
8	enviro micro-ank	E.coli MPN (Colilert),	colilert mpn				4	123	2	129	349
9			mf fecal					8	1	9	349
10	enviro micro-ank	MPN Total Coliform & E.	colilert mpn other				2		5	7	349
11	enviro micro-ic	MPN Total Coliform & E.	colilert mpn well		7			120	0	127	2302
12	enviro micro-ic	P/A Total Coliform &	colilert pa	1	21			299	0	321	2302
13	enviro micro-ic	Nitrate for Private Drinking	epa 353.2	1	33			357	3	394	2302
14	enviro micro-ic	Total Coliform & E.coli	colilert mpn sdwa am					5	0	5	2302
15	enviro micro-ic	Total Coliform & E.coli	colilert mpn sdwa pm					10	0	10	2302
16	enviro micro-ic	Total Coliform & E.coli	colilert pa sdwa am		18			350	0	368	2302

Figure 276 Volume Report Spreadsheet

11.7 TO-DO ANALYTE REPORT

The link to the To-Do Analyte Report screen is found in the <u>Summary Section of the</u> <u>Report Menu</u>.

11.8 QA SUMMARY REPORT

The link to the QA Summary Report Screen is found in the <u>Summary Section of the Report</u> <u>Menu</u>. This screen generates a report detailing the QA events that have been linked to specific samples and analyses for a selected date range and laboratory section(s). As in most other report screens, multiple sections and test names can be selected using the **Control** key.

QA Summary Report		- x
Test Name:		Y
Printer:	View in PDF	•
	Run Report Reset	
Generated file qasummar	y2761788992497853015.pdf	

Figure 277 QA Summary Report Screen

There are three types of QA Summary Reports that may be printed: Full Details, Client Summaries, and Grand Totals Only. The type of report is selected in the Detail dropdown field of the QA By Organization Screen.

11.8.1 QA SUMMARY REPORT - FULL DETAILS

The Full Details version of the QA Summary Report lists each organization in a gray background as a section header followed by a line for each QA event associated with that organization for the specified time period. The first column of the report lists the sample accession numbers that have QA events tied to them. The second column denotes whether the QA event is at the sample level or is linked to a specific analysis. The third column specifies the internal QA event name. There is a Totals row for each organization that summarizes this information. Near the end of the report is located the Grand Totals which summarizes this information for all of the organizations that are tied to the report.

Apr 30, 2012 10:22:46	Fre	QA Summary 2012-04-01 10:20	Report to 2012-04-30 10:20	Page 2 of 3 mhayek
Totals:	3 Sample(s)	3 Analyses	4 exceed temp	
ROQUETTE AMER	ICA INC		KEOKUK, IA	
	24339	-sample-	incomplete form	
	24340	-sample-	incomplete form	
	24341	-sample-	incomplete form	
	27198	-sample-	date-time error	
	27199	-sample-	date-time error	
	27200	-sample-	date-time error	
	27201	-sample-	date-time error	
	27202	-sample-	date-time error	
	27203	-sample-	date-time error	
	27204	-sample-	date-time error	
	27205	-sample-	date-time error	
	27206	-sample-	date-time error	
Totals:	12 Sample(s)	0 Analyses	9 date-time error	
			3 incomplete form	
PUMP SYSTEMS			WEST FRANKLIN, NH	
	27376	-sample-	date-time error	
Totals:	1 Sample(s)	0 Analyses	1 date-time error	
FOUNDATION AN	ALYTICAL SERVICES		CALUMET, IA	
	27379	-sample-	exceed temp	
Totals:	1 Sample(s)	0 Analyses	1 exceed temp	

Figure 278 QA Summary Report - Full Details

A bar graph is located at the end of the report that illustrates the grand totals for each QA event.

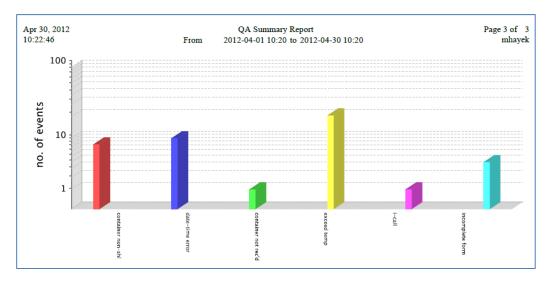


Figure 279 QA Summary Report - Bar Graph of Grand Totals

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11.8.2 QA SUMMARY REPORT - CLIENT SUMMARIES

The Client Summaries version of the QA Summary Report lists each organization in a gray background as a section header followed by the totals for the QA events associated with that organization for the specified time period. The Totals denote the number of samples and analyses that have QA events associated with them, and list the quantity of each specific QA event. Near the end of the report is located the Grand Totals which summarizes this information for all of the organizations that are tied to the report. A bar graph is located at the end of the report that illustrates the grand totals for each QA event.

Apr 30, 2012 11:40:44	Fror	QA Summary Report n 2012-04-01 10:20 to 2012-04	4-30 10:20	Page 1 of 5 mhayek
UNKNOWN ORGANIZATIO	ON			
Totals:	16 Sample(s)	4 Analyses	1 quant not sufficient 4 no form 8 i-not billed 5 not analyzed 1 i-call	
BENTON CO HEALTH DEP	Т		VINTON, IA	
Totals:	11 Sample(s)	0 Analyses	11 i-not billed	
BGM HIGH SCHOOL SWIM	I POOL		BROOKLYN, IA	
Totals:	1 Sample(s)	0 Analyses	1 missing label info	
CEDAR CO HEALTH DEPT			TIPTON, IA	
Totals:	4 Sample(s)	0 Analyses	4 i-not billed	
CLIMAX MOLYBDENUM	COMPANY		FORT MADISON, IA	
Totals:	1 Sample(s)	0 Analyses	1 i-not billed 1 not analyzed 1 container broken	

Figure 280 QA Summary Report - Client Summaries

11.8.3 QA SUMMARY REPORT - GRAND TOTALS ONLY

The Grand Totals Only version of the QA Summary Report denotes the number of samples and analyses that have QA events associated with them, and lists the quantity of each specific QA event for all of the organizations that are tied to the report. A bar graph is located at the end of the report that illustrates the grand totals for each QA event.

Apr 30, 2012		QA Summary I	Report	Page 1 of
11:59:46	From	2012-04-01 10:20 1	o 2012-04-30 10:20	mhayel
11:59:46 Grand Totals:		2012-04-01 10:20 f	5 canceled no charge 32 not analyzed 14 container wrong 1 missing pws info 1 trc performed 1 empty bottle 1 replicate 86 container non-shl 1 estimated flow 20 i-call 3 do deplete 1 not billed - env 2 container not rec'd 4 interfering 12 incomplete form 4 unable to match 4 quant not sufficient 15 no form	mhaye
			219 i-not billed 14 exceed holding time	
			63 date-time error 359 exceed temp 4 container broken	
			24 missing label info	

Figure 281 QA Summary Report - Grand Totals Only

11.9 TURNAROUND REPORT

The link to the Turnaround Report screen is found in the <u>Summary Section of the Report</u> <u>Menu</u>. The Turnaround Report Screen generates a Turnaround Report detailing the different turnaround times for a selected date range and laboratory section(s).

Turnaround		- x
Starting Released Date:		
Ending Released Date: Section Name:	2012-04-30 14:49	¥
Printer:	View in PDF	~
Run I	Report	
Done		

Figure 282 Turnaround Report Screen

The Turnaround Report is organized by columns that specify the Test name, Method name, and # tested. The report then gives the Min (minimum), Max (maximum), Average, Median, and 1 SD (standard deviation) turnaround times for the specified test and method. There are six different turnaround times calculated on the report:

- Col-Rel (sample collected date/time to analysis released date/time)
- Rec-Rel (sample received at the lab date/time to analysis released date/time)
- Rec-Cmp (sample received at the lab date/time to analysis completed date/time)
- Cmp-Rel (analysis completed date/time to analysis released date/time)
- Rdy-Cmp (analysis available date/time to analysis completed date/time)
 - The analysis available date/time would be after any applicable prep analyses have been performed.
- Col-Rec (sample collected date/time to sample received at the lab date/time)

All turnaround times are in days and hours, i.e., 4.09 represents 4 days and 9 hours. There is a bar graph to the right of each test and method that illustrates these six different average turnaround times.

Apr 30, 2012 4:41:33				2012	Turna -04-01 14:37	ound Report		7:59	Page 2 of mhaye
est name	Method name	# tested	Min	Max	Average	Median	1 SD		
CMS volatiles in	epa 624	5	4.23	12.14	7.11	7.05	3.13	Col-Rel	A
			4.03	4.23	4.14	4.22	0.10	Rec-Rel	2 -
			0.21	3.22	2.10	1.19	1.08	Rec-Cmp	8 -
			0.04	3.05	2.03	3.02	1.09	Cmp-Rel	2
			0.20	3.21	2.10	1.19	1.08	Rdy-Cmp	
			0.01	7.15	2.22	3.02	3.08	Col-Rec	•
									Col-Rel Rec-Rel Rec-Cmp Cmp-Rel Rdy-Cmp Col-Rec
CMS volatiles in	epa 8260	10	2.23	13.05	8.14	7.04	3.23	Col-Rel	
			1.03	10.01	6.16	6.07	2.23	Rec-Rel	22
			0.03	8.23	5.23	6.05	3.03	Rec-Cmp	
			0.01	2.17	0.16	0.19	0.19	Cmp-Rel	2
			0.03	8.22	5.17	6.02	2.23	Rdy-Cmp	
			0.01	4.06	1.21	2.18	1.16	Col-Rec	0
									Col-Rel Rec-Rel Rec-Cmp Cmp-Rel Rdy-Cmp Col-Rec
aloacetic acids	epa 552.2 haa	37	8.03	72.01	15.12	13.20	10.16	Col-Rel	
			6.03	71.01	14.07	13.18	10.08	Rec-Rel	n - 1
			4.03	19.02	11.11	12.00	4.12	Rec-Cmp	g - ²
			0.01	57.21	2.19	1.17	9.08	Cmp-Rel	u - 1
			2.22	2.22	2.22	2.22		Rdy-Cmp	
			0.00	5.23	1.01	0.23	1.04	Col-Rec	
									Col-Rel Rec-Rel Rec-Cmp Cmp-Rel Rdy-Cmp Col-Rec

Figure 283 Turnaround Report

11.10 TURNAROUND STATISTICS REPORT

The link to the Turnaround Statistics Report screen is found in the <u>Summary Section of</u> the <u>Report Menu</u>.

11.11 SDWIS UNLOAD

The link to the SDWIS Unload screen is found in the <u>Summary Section of the Report</u> <u>Menu</u>.

11.12 DATA VIEW

The link to the Data View screen is found in the <u>Summary Section of the Report Menu</u>. The Data View module generates a spreadsheet allowing the user to compare information across a range of samples and/or analyses. Each field (checkbox) selected becomes a column in the spreadsheet. The Data View Screen is separated into five tabs.

11.12.1 QUERY TAB

The first tab, Query, contains the fields that may be used to search for samples/analyses. Analysis fields such as Test, Method, Status, Completed (from) and To dates, and Released (from) and To dates may be used to query for analyses. Sample fields such as Accession # (from) and To ranges, Collected (from) and To dates, Received (from) and To dates, Project (code), and Report To (organizations) may be used to search for samples. The user can also Exclude Results and Exclude Aux(iliary) Data in her search. Why is this called Result Fields To Search By?

Open Query 📔 Save Query 👔	Execute Query			
uery Common Environmental	Private Well SDWIS			
Analysis Fields To Search By	,			
Test:	asbestos	Method:		
Exclude Result Override:		Status:	~	
Completed:	2012-04-01 🔤	To:	2012-04-30 🖻	
Released:		To:		9
Reportable:	~			
Sample Fields To Search By				
Accession #:		To:		
Collected:	•	To:	•	_
Received:	3	To:	2	
Entered:	3	To:	E	
Client Reference:		Project:	~	
Report To:				
Result Fields To Search By				
Exclude Results:	Exclude	Aux Data	:	

Figure 284 Data View - Query Tab

11.12.2 COMMON TAB

The Common Tab of the Data View Screen contains checkboxes that can be selected to specify which fields will be displayed on the Data View spreadsheet. These fields consist of four types: sample, organization, sample item, and analysis.

uery C	omn	non Environm	enta	al Private	We	II SDWIS				
Select	Sai	nple Fields F	or (Dutput						
	\checkmark	Accession #		Revision	V	Collected	V	Received		Entered
	\checkmark	Released	\checkmark	Status		Project		Client Refer	end	ce
Select	Org	ganization Fie	elds	For Out	put					
		Id	V	Name		Attention		Apt/Suite #		Address
	\checkmark	City		State		Zip Code				
Select	V			-		Source Other		Container		Container Reference
Select		Sequence	For	Output						
	\checkmark	Id	V	Test	V	Method	V	Status	V	Revision 🔽 Reportable
		Unit		QA Event		Completed		Ву	V	Released 🔳 By
		Started		Printed						

Figure 285 Data View - Common Tab

11.12.3 DOMAIN-SPECIFIC TABS

There are currently three domain-specific tabs found on the Data View Screen. These domain-specific tabs are mutually exclusive. In other words, fields may only be selected from one of these domains. The Environmental Tab contains such fields as Collector (name), Location, and Description.

pen Query	📄 Save Query	Execute Query
ry Commo	n Environmental	Private Well SDWIS
oloct Envir	onmental Fields	For Output
		Priority
	Collector	
		Location City
	Description	

Figure 286 Data View - Environmental Tab

The Private Well Tab contains such fields as Owner, Well Num(ber), and Phone #.

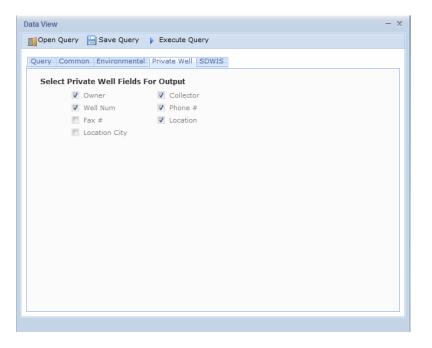


Figure 287 Data View - Private Well Tab

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The SDWIS Tab contains such fields as PWS ID, PWS Name, and State Lab #.

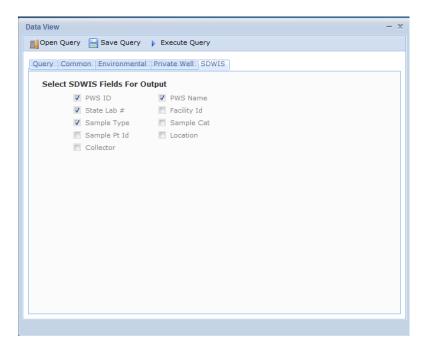


Figure 288 Data View - SDWIS Tab

11.12.4 HOW TO GENERATE A DATA VIEW SPREADSHEET

Several steps must be performed in order to generate a Data View spreadsheet. These are outlined below.

- At least one pair of "From" and "To" fields must be entered. Examples would include Completed (from) and To dates, Accession # (from) and To, and Received (from) and To dates. As always, entering information in multiple fields will limit your query.
- Select the Common and domain-specific fields to be displayed in the spreadsheet (optional). It is recommended that at least a few fields (i.e., Accession #, Sample or Analysis Status, (Organization) Name, Sample Type) be selected to distinguish analysis rows in the spreadsheet.
- 3. Click the **Execute Query** button at the top of the screen.
 - a. A query may also be saved for future use by clicking on the **Save Query** button at the top of the screen. It will be saved as an XML document.

- b. When the time comes to run the saved query, click on the **Open Query** button at the top and navigate to the location of the saved query to open it. This action will automatically populate the desired fields of the Data View screen with the saved values. These fields may be edited and additional ones may also be used. Click on the **Execute Query** button.
- 4. The Filter By Test Analyte And AuxData Screen will next pop up. Select the Test Analyte(s) and/or Aux Data in the left-hand pane(s) to use to filter the data. Next, select the associated Result(s) or Value(s) in the right-hand pane to further refine the data filtering. Alternatively, use the Select All buttons to display all of the corresponding test analyte and auxiliary data.
- 5. Click the **Run Report** button.
- 6. Open or save the Data View Spreadsheet.

	st Analyte			
	Name		Result	
1	Fiber Density	~		
/	Fibers			
7	InterLab Sr			
/	IntraLab Sr			
			•	Þ
	x Data			
1	Name Flow Rate	*	Value	
		*	Value	
/	Flow Rate	A	Value	
, ,	Flow Rate Start Date and Time	A	Value	
1	Flow Rate Start Date and Time Stop Date and Time		Value	
1	Flow Rate Start Date and Time Stop Date and Time		Value	
	Flow Rate Start Date and Time Stop Date and Time		Value	k

Figure 289 Filter by Test Analyte and Aux Data Screen

2 3 4	22706	Collection Date 2012-03-19 12:30	Released Date	0 1 01 1			G	H		0	K
2 3 4		2012 02 10 12:20		Sample Status	Sample Type	Test	Method	Location City	Analyte	Value	Quant Limit
3 4	22706 1	2012-03-19 12.30	2012-04-02 10:26	Released	Air	asbestos	niosh 7400	CEDAR RAPIDS	Fiber Density	110 fibers/mm2	7 fibers/mm2
4	22100 2	2012-03-19 12:30	2012-04-02 10:26	Released	Air	asbestos	niosh 7400	CEDAR RAPIDS	Fibers	0.12	0.010
	22706 2	2012-03-19 12:30	2012-04-02 10:26	Released	Air	asbestos	niosh 7400	CEDAR RAPIDS	InterLab Sr	0.16	no units
5	22706 2	2012-03-19 12:30	2012-04-02 10:26	Released	Air	asbestos	niosh 7400	CEDAR RAPIDS	IntraLab Sr	0.11	no units
6	22706 2	2012-03-19 12:30	2012-04-02 10:26	Released				CEDAR RAPIDS	Flow Rate	x2	
7	22706 2	2012-03-19 12:30	2012-04-02 10:26	Released				CEDAR RAPIDS	Start Date and Time	2012-03-19 12:30	
8	22706 2	2012-03-19 12:30	2012-04-02 10:26	Released				CEDAR RAPIDS	Stop Date and Time	2012-03-19 15:30	
9	22706 2	2012-03-19 12:30	2012-04-02 10:26	Released				CEDAR RAPIDS	Volume Collected	180	
10	22707 2	2012-03-19 12:30	2012-04-02 10:25	Released	Air	asbestos	niosh 7400	CEDAR RAPIDS	Fiber Density	<7 fibers/mm2	7 fibers/mm2
11	22707 2	2012-03-19 12:30	2012-04-02 10:25	Released	Air	asbestos	niosh 7400	CEDAR RAPIDS	Fibers	<0.045	0.045
12	22707 2	2012-03-19 12:30	2012-04-02 10:25	Released	Air	asbestos	niosh 7400	CEDAR RAPIDS	InterLab Sr	0.16	no units
13	22707 2	2012-03-19 12:30	2012-04-02 10:25	Released	Air	asbestos	niosh 7400	CEDAR RAPIDS	IntraLab Sr	0.25	no units
14	22707 2	2012-03-19 12:30	2012-04-02 10:25	Released				CEDAR RAPIDS	Flow Rate	x2	
15	22707 2	2012-03-19 12:30	2012-04-02 10:25	Released				CEDAR RAPIDS	Start Date and Time	2012-03-19 12:30	
16	22707 2	2012-03-19 12:30	2012-04-02 10:25	Released				CEDAR RAPIDS	Stop Date and Time	2012-03-19 13:00	
17	22707 2	2012-03-19 12:30	2012-04-02 10:25	Released				CEDAR RAPIDS	Volume Collected	60	
18	22708 2	2012-03-20 08:30	2012-04-02 10:26	Released	Air	asbestos	niosh 7400	CEDAR RAPIDS	Fiber Density	<7 fibers/mm2	7 fibers/mm2
19	22708 2	2012-03-20 08:30	2012-04-02 10:26	Released	Air	asbestos	niosh 7400	CEDAR RAPIDS	Fibers	<0.010	0.010
20	22708 2	2012-03-20 08:30	2012-04-02 10:26	Released	Air	asbestos	niosh 7400	CEDAR RAPIDS	InterLab Sr	0.16	no units
21	22708 2	2012-03-20 08:30	2012-04-02 10:26	Released	Air	asbestos	niosh 7400	CEDAR RAPIDS	IntraLab Sr	0.25	no units

Figure 290 Data View Spreadsheet

11.13 QC CHART

The link to the QC Chart screen is found in the <u>Summary Section of the Report Menu</u>. This screen is used to generate a table of QC analyte data points which can then be plotted to display a series of statistics.

Data can be retrieved based on a date range or on a number of most recent QCs. A single QC name/type can be selected in the Name field. Currently, only the "Lab Control Spike" type has been implemented for charting; future design enhancements are needed to retrieve (and chart) data for QCs of other types (Duplicate, Blank, etc.). The Plot Using option specifies whether the control limits and other statistics should be computed dynamically or statically. Selecting the "data points (dynamic)" option will use the QC data to compute standard deviation, control limits, etc. Selecting the "analyte parameters (fixed)" option will select the same data but produces a chart illustrating control limits based on fixed parameters P1 and P2 which can be set in the <u>Analyte Parameter</u> module.

QC Chart													- x
	Range		1	cent QCs	Get Data								
			 •		 Recompute								
Name:													
Plot Using: •			*										
Plot Accessio	n # Lot I	10.	Creation Date	e Analyte	Value1	Value2	Plot Value	Mean	UWL	UCL	LWL	LCL	
													*
∢		(TRALE											-
Select	Unselect	V Selec	t All Unseled	t All									
Done													

Figure 291 QC Chart Screen

The **Get Data** button retrieves all the matching data along with calculated values. Data from worksheets having a status of "void" and "failed run" are excluded in the data retrieval. When retrieving QC data based on the "# to Retrieve", the prep worksheet is counted even though it may contain no values to plot; therefore the number of QCs retrieved may differ from the number of data points retrieved.

The table of data can be sorted by Accession #, Lot No., Creation Date, or Analyte in order to view or unselect a range. The table includes columns labeled Value1, Value2, and Plot Value, which are specific to the type of QC being plotted. Individual data points may be deselected in the table and the various statistics can be re-computed using the **Recompute** button. The fields in the table on the lower half of the QC Chart screen are described below.

Plot

This checkbox is used to select whether the corresponding analyte data point should used in computations and plotted.

Accession

This is the unique identifier for the QC and is defined in the format of worksheet_number.position_number. For example, Accession # 1718.8 indicates that

the QC item was originally located on Worksheet 1718 and in position 8. If the QC was initially added to a sample preparation worksheet, the Accession # will indicate the prep_worksheet_number.position_number.

Lot No.

This field displays the unique lot # for the QC.

Creation Date

This is the date-time that the worksheet that contains the QC item was created. For prep QCs that are included on analytical worksheet, the creation date references the analytical worksheet.

Analyte

This field contains the name of the analyte.

Value1, Value2, Plot Value

These values are dependent on the QC type. Please refer to the relevant QC type subsection for specific information.

Mean

This field displays the average of the plot values for the specific analyte. It is calculated from the currently retrieved QC data. When the "analyte parameters (fixed)" option is selected, the Mean is equal to the fixed parameter, P3.

UWL (Upper Warning Limit)

This field represents +2 SD (standard deviations) from the mean. It is a measure of the upper limit of uncertainty for precision.

UCL (Upper Control Limit)

This field represents +3 SD from the mean. This calculation indicates the upper threshold at which the process output is considered statistically "unlikely". When the "analyte parameters (fixed)" option is selected, the UCL is equal to the fixed parameter, P2.

LWL (Lower Warning Limit)

This field represents -2 SD from the mean. It is a measure of the lower limit of uncertainty for precision.

LCL (Lower Control Limit)

This field represents -3 SD from the mean. This calculation indicates the lower threshold at which the process output is considered statistically "unlikely". When the "analyte parameters (fixed)" option is selected, the LCL is equal to the fixed parameter, P1.

11.13.1 QC CHART REPORT

The QC Chart Report is produced from a table of selected data points in the QC Chart screen by clicking the **Plot Data** button. This report includes a graph of the plot values, as well as, a table of statistics. The UCL, LCL, UWL, LWL, and Plot Mean are found on every QC Chart Report. The other statistics vary and are based on the QC's parameters.

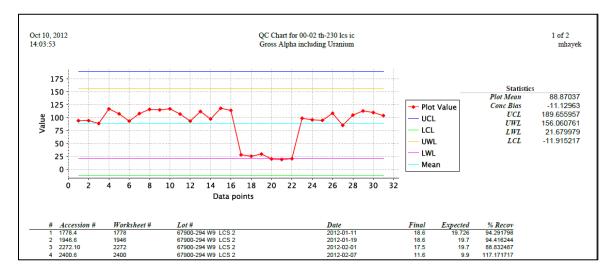


Figure 292 QC Chart Report

The Worksheet # on the QC Chart Report refers to the worksheet from which the data for the QC was retrieved.

	hart											-	1
	Jse Date Rai		Most Recent	005									
		-	I	-									
	Begin:		OR #toR	etrieve: 100	et Data								
	End:	•	1	🥵 R	ecompute								
			I										
				No. P	ot Data								
	Name: 525.2	ofw high spike	~										
Plo	t Using: data	points (dynamic)	~										
lot	Accession #	Lot No.	Creation Date	Analyte	Value1	Value2	Plot Valı	Mean	UWL	UCL	LWL	LCL	Ē
-	1718.8	S2410B OFW	2012-01-18 11:52	Benzo(a)pyrene	0.0025	92.48	0.002312	0.002212	0.00329	0.00384	0.0011	260.000584	4
\mathbf{V}											0.0017	790.001445	4
V	1718.8	S2410B OFW	2012-01-18 11:52	1,3-Dimethyl-2-nitrobenzene	0.0025	93.4	0.002335	0.002445	0.00311	20.00344	0.0017	/50.001443	
	1718.8 1718.8	S2410B OFW S2410B OFW	2012-01-18 11:52 2012-01-18 11:52		0.0025							43-0.0001443	
V V				Simazine		35.68	0.000892	0.001266	0.00219	0.00265	0.0003		L
V V V	1718.8	S2410B OFW	2012-01-18 11:52	Simazine Atrazine	0.0025	35.68 86.84	0.000892	0.001266	0.00219	0.00265	20.0003 20.0018	43-0.00011	3
V V V	1718.8 1718.8	S2410B OFW S2410B OFW	2012-01-18 11:52 2012-01-18 11:52 2012-01-18 11:52	Simazine Atrazine	0.0025	35.68 86.84 103.36	0.000892 0.002171 0.002584	0.001266 0.002507 0.002861	0.00219 0.003204 0.003574	0.00265: 40.00355: 40.00393	20.0003 20.0018 10.0021	43-0.00011 110.001463	L 3
V V V V	1718.8 1718.8 1718.8	S2410B OFW S2410B OFW S2410B OFW	2012-01-18 11:52 2012-01-18 11:52 2012-01-18 11:52 2012-01-18 11:52	Simazine Atrazine Alachlor	0.0025	35.68 86.84 103.36 106.64	0.000892 0.002171 0.002584 0.002666	0.001266 0.002507 0.002861 0.002534	0.00219 0.00320 0.00357 0.00357	0.00265 40.00355 40.00393 40.00393	20.0003 20.0018 10.0021 40.0014	43-0.00011 110.001463 480.001792	2
V V V V	1718.8 1718.8 1718.8 1718.8 1718.8	S2410B OFW S2410B OFW S2410B OFW S2410B OFW	2012-01-18 11:52 2012-01-18 11:52 2012-01-18 11:52 2012-01-18 11:52 2012-01-18 11:52	Simazine Atrazine Alachlor bis(2-Ethylhexyl)phthalate	0.0025	35.68 86.84 103.36 106.64 106.28	0.000892 0.002171 0.002584 0.002666 0.002657	0.001266 0.002507 0.002861 0.002534 0.002497	0.00219 0.00320 0.00357 0.00357 0.00364	0.002653 40.003553 40.003933 10.004194 10.003613	20.0003 20.0018 10.0021 10.0014 20.0017	43-0.00011 110.001463 480.001792 280.000875	L 2 5
V V V V	1718.8 1718.8 1718.8 1718.8 1718.8 1718.8	S2410B OFW S2410B OFW S2410B OFW S2410B OFW S2410B OFW	2012-01-18 11:52 2012-01-18 11:52 2012-01-18 11:52 2012-01-18 11:52 2012-01-18 11:52	Simazine Atrazine Alachlor bis(2-Ethylhexyl)phthalate bis(2-Ethylhexyl)adipate Triphenyl phosphate	0.0025 0.0025 0.0025 0.0025 0.0025	35.68 86.84 103.36 106.64 106.28 115.56	0.000892 0.002171 0.002584 0.002666 0.002657 0.002889	0.001266 0.002507 0.002861 0.002534 0.002497 0.002753	0.00219 0.00320 0.00357 0.00364 0.00324 0.00324	0.00265 40.00355 40.00393 10.00419 10.00361 0.00376	0.0003 0.0018 0.0021 0.0014 0.0017 0.0020	43-0.00011 110.001463 480.001792 280.000875 530.001381	L 3 5 1

Figure 293 QC Chart Screen for Selecting Lab Control Spikes

The fields of the QC Chart screen which are specific to lab control spikes are defined below.

Value1: Expected Value

The Value1 field is the Expected Value from the analytical worksheet. It may differ from the QC definition. Its column is labeled as Expected on the QC Chart Report.

Value2: % Recovery

This Value2 field represents the percent recovery and is calculated based on the following formula:

% Recovery (Value2) = $\frac{\text{Final Value (Plot Value) for each QC Result x 100}}{\text{Expected Value (Value1) for each individual analyte}}$

Its column is labeled as % Recovery on the QC Chart Report.

Plot Value: Final Value

The Plot Value field is the Final Value for each QC result, and its column is labeled Final Value on the QC Chart Report.

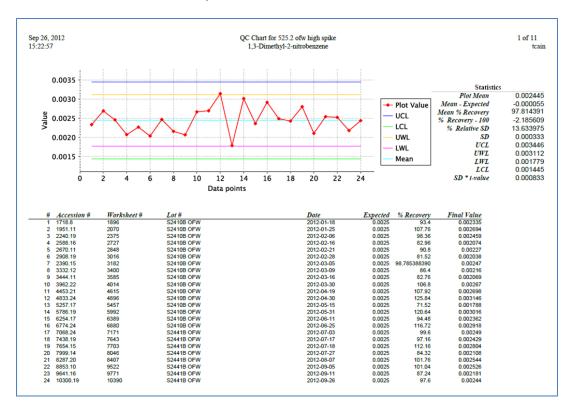


Figure 294 QC Chart Report for Lab Control Spikes

The following values are located in the Statistics table at the top of the QC Chart Report. The Mean – Expected, % Recovery – 100, and Mean % Recovery values are based on the assumption that the Expected Value is assumed to be fixed for an individual QC.

Plot Mean

This value is the calculated average of all the plotted QC Final Values for that analyte.

Mean - Expected

This value represents the bias in concentration and is based on the mean of the Final Values minus the Expected value for Data Point #1 in the table.

Mean % Recovery

This value is the calculated average of all of the % Recovery values in the table for that analyte.

% Recovery - 100

This value is calculated by subtracting 100 from the Mean % Recovery. It represents the bias in percent (uncertainty for accuracy).

% Relative SD

This value is the standard deviation divided by the mean times 100.

SD

The sample standard deviation is calculated from the following formula

$$s = \sqrt{\frac{1}{N-1} \sum_{i=1}^{N} (x_i - \overline{x})^2}$$

where **s** is the standard deviation, **N** stands for the size of the sample, $\{x_1, x_2, ..., x_N\}$ are the observed values of the sample items, and \overline{x} is the mean value of the sample items.

SD * t-value

This value is the standard deviation times the student's t-value using a table of t-values. The table contains 200 t-values for \geq 201 data points. SD * t-value may be used to calculate method detection limits with a minimum of seven data points at an appropriate concentration.

11.14 FINAL REPORT SINGLE/REPRINT



The link to the Final Report Single/Reprint Screen is found in the <u>Summary Section of the</u> <u>Report Menu</u>. This screen is used to print or fax a Final Report for an individual accession number with print being the default action.

Final Report Single/F	Reprint	- x
Accession #: 16		
V Print		
Organization:		~
Printer:		
	OUR SAVIOURS LUTHERAN CHURCH	
Destination:		~
Fax #:		
From:	State Hygienic Laboratory	
To Name:		
To Company:		
Comment:		
	Run Report Reset	

Figure 295 Final Report Print Option - Organization Dropdown List

After the Accession # is entered the LIMS will display all of the "report to" organizations (both primary and secondary) in the Organization drop-down list. If the first option in the drop-down list (the "blank" choice) is selected, then separate copies of the Final Report will be printed for all of the "report to" organizations. Alternatively, one of the organizations may be selected to populate the "report to" name and address of the Final Report and only that copy will be printed.

The Fax checkbox must be selected to fax the Final Report. The Fax # field must be populated in one of three ways.

- 1. The Fax # may be entered manually.
- 2. If "From Sample" is selected from the Destination dropdown list, the LIMS will automatically enter any relevant auxiliary items that are present in the sample data (i.e., Fax # and To Name).

Final Report Single/F	eprint		- x
Accession #: 16			
Print			
Organization:		~	
Printer:	103_hp4250	*	
🔽 Fax			
Destination:	From Sample	~	
Fax #:	319-335-4556		
From:	State Hygienic Laborator	У	
To Name:	SHERRI		
To Company:			
Comment:			
	Run Report Res	et	

Figure 296 Final Report Fax Option – Destination: From Sample

3. If the name of a "report to" organization is selected in the Destination dropdown list, the LIMS will automatically enter any relevant parameters that are present in the Organization screen (i.e., Fax #).

Final Report Single/F	Reprint	- x
Accession #: 16		
Print		
Organization:	•	
Printer:	103_hp4250	
▼ Fax		
Destination:	OUR SAVIOURS LUTHERAN CHURCH	
Fax #:	319-335-4340	
From:	State Hygienic Laboratory	
To Name:		
To Company:	OUR SAVIOURS LUTHERAN CHURCH	
Comment:		
	Run Report Reset	

Figure 297 Final Report Fax Option - Destination: Organization

As with the Fax # field, the To Name, To Company, and Comment fields may all be entered manually. An SHL cover sheet is automatically generated and faxed along with the Final Report.

	e University of Iowa
Sufford Sufford	цан цаналарын терелар жана и каталарын барарын караларын караларын караларын караларын караларын караларын кар Караларын караларын ка
Fax	
Г ЧЛ	
Attention	: ATTENTION
	; BRONSON WATER SUPPLY
Fax Number	: 3193354340
From	: State Hygienic Laboratory
Date	: Tue May 01 2012, 16:37 CDT
Pages excluding cover sheet	: 2
Comments	

Figure 298 SHL Fax Cover Sheet

CHAPTER 12. TROUBLESHOOTING

12.1 FREQUENTLY ASKED QUESTIONS (FAQS)

Question: I don't have the permissions that I need, who can help me?

Answer: Call or e-mail Mike Hayek in IT (319-335-4358, <u>michael-hayek@uiowa.edu</u>) to request a change in permissions.

Question: I typed my password in wrong too many times and now I'm locked out of OE, what do I do?

Answer: You have a maximum of 4 tries before the system will lock you out. You must wait 10 minutes before you can try again. Double check to make sure you are typing in the correct password (remember the field is case sensitive).

Question: Can I be logged onto OE on more than one computer?

Answer: No.

Question: I was away from my computer and OE has timed out, what do I do now?

Answer: The OE system will sign of any user that is inactive for more than 30 minutes. You will need to login again.

Question: I want to override the start date and time and/or the completion date and time in OE through the Excel spreadsheet, what is the format?

Answer: All date/time fields in the OE system are in the following format; YYYY-MM-DD HH:MM.

Question: I am trying to upload an Excel spreadsheet that contains user override information and the system keeps giving me an error message. What do I do now?

Answer: Abort your update in OE and check the Excel spreadsheet file to make sure that the users names are spelled correctly and that they are separated by a comma <u>without</u> a space (ie. jsmith,tjones). Also make sure that there are units assigned to the test.

Question: When encountering errors in OE, what things can I check before calling IT department?

Answer: There are 4 things to try;

- Checks to see if you are logged into the correct system (production vs. test)
- Try clearing the cache (there is a "how to" under LIMS/OpenELIS folder).
- Checks to make sure you are using the correct browser (Mozilla Firefox not Internet Explorer).
- Try rebooting your computer.

Question: How do I print a final report?

Answer: You can print a final report by using "options" in the Sample Tracking screen.

Question: Can I search by a range of accession numbers or dates in OE?

Answer: You can search a range of accession number by using two periods between the numbers (i.e. 345..349). For a search of date ranges use the (..) between the two dates.

Question: How do I search for 2 different accession numbers instead of a range?

Answer: You can use the | symbol (located above the Enter key) between numbers to indicate more than one number.

Question: Can I reprint a label or print additional labels?

Answer: Yes, if you have label printing permissions, it's located under the Label tab.

Question: Can I view a bottle order, and where do I do this?

Answer: Yes you can view a bottle order by looking under the "Inventory/Order tab and choosing the "Send-out Order" option.

Question: Data processing has the record locked that I want to update, what do I do?

Answer: Click on abort to cancel your update. Wait 2-3 minutes and try to perform the update again. If the record is still locked, call the individual who has the record locked.

Question: I'm releasing results for a test and I found a data processing error, what do I do now?

Answer: Notify the data processing department of the error and wait until the issue has been resolved before releasing the analysis.

Question: A bottle order has the incorrect test assigned to it. Should I (and can I) change the test?

Answer: If you have permission to add & delete the test in your section, then yes you can and should change the test/method to the correct test/method. You should also notify the client services department that a bottle order needs to be corrected. Be sure to supply them with the bottle order number as well as the test ID's.

Question: When & why should I use worksheets in OE?

Answer: Using worksheets in OE makes entering several analysis results (batch processing) faster. Worksheets also allow you to track QC for the analysis.

Question: When do Final Reports get printed?

Answer: Monday – Friday at 10:30 & 3:00, Saturday 8:30 & 10:30.

Question: Do customers receive notification of receipt of sample; if so, how and when?

Answer: Clients are notified via e-mail (if requested) 24hrs every day at 10 minutes past the hour.

Question: Is there a training manual and/or training videos and where are they located?

Answer: Yes there is a training manual <u>and</u> training videos and they are located under;

M:\LIMS\TrainingGroup\OpenELIS\OpenELIS Manual v2.pdf

and

M:\LIMS\TrainingGroup\OpenELIS\Training_Videos

12.2 HELP

If you have questions about the OpenELIS database, please contact Dari Shirazi (319-335-4451), Matt Bielicke (319-335-4462), or Mike Hayek (319-335-4358).

If you have questions or comments regarding the OpenELIS Manual, please contact Dari Shirazi at <u>dariush-shirazi@uiowa.edu</u> or Mike Hayek at <u>michael-hayek@uiowa.edu</u>.

APPENDIX

A. WORKSHEET CREATION FOR A PREP TEST

The initial step to creating any worksheet utilizes the Worksheet Creation module. The link to the Worksheet Creation module is located in the <u>Analysis Menu</u>. After this module is selected, the Worksheet Creation Lookup screen is displayed on top of it to aid in the location of samples to be added to the worksheet that is being built. The steps below illustrate how to create a worksheet for a semivolatiles prep test on two SDWIS drinking water samples.

- Select the Worksheet Creation module from the Analysis Menu. The Worksheet Creation Lookup screen will appear on top of the Worksheet Creation screen.
- Query for Test/Method (e.g., type "prep svol" in the Test field and select "epa 525.2" as the Method). Select "Logged In" as the Status. Click the Search button.

	•						
Test:	prep svol 💙	Method: epa 52	5.2	Section:		~	
Accession #:		Status: Logged	In 💙	Sample Type:		•	🖌 🚵 Search
Received:		Entered:					
Accession #	Description	Test	Method	Section	Status	Collected	Received
5104	[loc]plant tap 5 [rpt]IOWA	A prep svol	epa 525.2	sample_prep-ic	Logged In	2012-04-16	2012-04-16 10:
5150	[loc]plant tap 2 [rpt]IOW#	A prep svol	epa 525.2	sample_prep-ic	Logged In	2012-05-24	2012-05-24 10:
5151	[loc]plant tap 3 [rpt]IOWA	A prep svol	epa 525.2	sample_prep-ic	Logged In	2012-05-24	2012-05-24 10:
16814	[loc]s\ep we;; #4 [rpt]MA	fprep svol	epa 525.2	sample_prep-ic	Logged In	2011-12-14	2011-12-16 10:
17301	[loc]sample tap 1 [rpt]IO	∀prep svol	epa 525.2	sample_prep-ic	Logged In	2011-12-28	2011-12-29 07:
17302	[loc]vault tap #1 [rpt]JAE	Cprep svol	epa 525.2	sample_prep-ic	Logged In	2011-12-28	2011-12-29 07:
17481	[loc]farm well head tap [r	prep svol	epa 525.2	sample_prep-ic	Logged In	2012-05-08	2012-05-08 09:
17483	[rpt]SHL/PAM KOSTLE	prep svol	epa 525.2	sample_prep-ic	Logged In	2012-05-24	2012-05-24 08:
17483	[rpt]SHL/PAM KOSTLE	prep svol	epa 525.2	sample_prep-ic	Logged In	2012-05-24	2012-05-24 08:
•							Þ

Figure 299 Worksheet Creation Lookup Screen

- 3. **Ctrl**-select or **Shift**-select the desired Accession Numbers to add to the worksheet.
- 4. Click the **Add** button. Alternatively, the **Select All** button can be used to add all of the samples from the query.

5. On the Worksheet Creation screen, the three QCs that are associated with the prep svol test (Accession #'s X.1, X.2, and X.3) are placed in the top 3 positions followed by the two samples (Accession #'s 5150 and 5151) in Positions 4 and 5. When the worksheet is saved the "X" in the QC Accession # is replaced with the worksheet number.

	orksheet #: ment Name:	Rela	ted Workshee	t #:	EQ			
Position	Accession #	Description	QC Link	Test	Method	Status	Collected	Received
1	X.1	525.2 prep inform	r					
2	X.2	525.2 ofw method	t					
3	х.з	525.2 tap water bl	3					
4	5150	[loc]plant tap 2 [rp	t	prep svol	epa 525.2	Logged In	2012-05-24	2012-05-24 10
5	5151	[loc]plant tap 3 [rp	t	prep svol	epa 525.2	Logged In	2012-05-24	2012-05-24 10
d								T

Figure 300 Worksheet Creation Screen for a Prep Test

- 6. If the worksheet has been created satisfactorily, skip to Step 11. If additional QC's need to be inserted, click the **Insert QC From Lookup** button.
- The QC Lookup screen will pop-up over the Worksheet Creation screen. To search for QC's that have a name that begins with that method number, "*525*" could be typed in the Enter Search field. Click the Search button.
- 8. Ctrl-select "525.2 ofw high spike" and "525.2 sample duplicate" and click OK.

Р	Enter Search: *525*		🍋 Search		
0	Name	Lot Number	Usable Date	Expire Date	
R	525.2 ofw high spike	S2381A OFW	2011-07-05 00:00	2012-01-05 00:00	4
	525.2 ofw low spike	S2381B OFW	2011-07-05 00:00	2012-01-05 00:00	
L L	525.2 ofw method blank	525.2 OFW	2010-09-21 12:13	2099-12-31 12:13	
v	525.2 prep information	525.2 PREP INFORMATION	2011-12-02 00:00	2012-06-02 00:00	
	525.2 sample duplicate	525.2 SAMPLE DUPLICATE	2012-04-16 09:46	2099-12-31 12:13	
X Y	525.2 tap high spike	S2381A TAP	2011-07-05 00:00	2012-01-05 00:00	-
z	4				
	N K K	S 525.2 ofw high spike S 525.2 ofw low spike S 525.2 ofw method blank S 525.2 prep information S 525.2 sample duplicate S 525.2 tap high spike	S25.2 ofw high spike S2381A OFW S25.2 ofw low spike S2381B OFW S25.2 ofw method blank S25.2 OFW S25.2 prep information S25.2 PREP INFORMATION S25.2 sample duplicate S25.2 SAMPLE DUPLICATE S25.2 tap high spike S2381A TAP	S25.2 ofw high spike S2381A OFW 2011-07-05 00:00 S25.2 ofw low spike S2381B OFW 2011-07-05 00:00 S25.2 ofw method blank S25.2 OFW 2010-09-21 12:13 S25.2 prep information S25.2 PREP INFORMATION 2011-12-02 00:00 S25.2 sample duplicate S25.2 SAMPLE DUPLICATE 2012-04-16 09:46 S25.2 tap high spike S2381A TAP 2011-07-05 00:00	S25.2 ofw high spike S2381A OFW 2011-07-05 00:00 2012-01-05 00:00 S25.2 ofw low spike S2381B OFW 2011-07-05 00:00 2012-01-05 00:00 S25.2 ofw method blank S25.2 OFW 2010-09-21 12:13 2099-12-31 12:13 S25.2 prep information S25.2 PREP INFORMATION 2011-12-02 00:00 2012-06-02 00:00 S25.2 sample duplicate S25.2 SAMPLE DUPLICATE 2012-04-16 09:46 2099-12-31 12:13 S25.2 tap high spike S2381A TAP 2011-07-05 00:00 2012-01-05 00:00

Figure 301 QC Lookup Screen

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9. These two QCs are added to Positions 6 and 7 on the Worksheet Creation screen (as Accession #'s X.6 and X.7, respectively). Please note: When the worksheet is saved the "X" in the QC Accession # is replaced with the worksheet number.

	/orksheet #: ment Name:	Related Worksheet #:	EQ				
Position	Accession #	Description	QC Link	Test	Method	Status	
1	X.1	525.2 prep information					4
2	X.2	525.2 ofw method blank					
3	х.з	525.2 tap water blank					
4	5150	[loc]plant tap 2 [rpt]IOWA CITY WATER DEPART	-	prep svol	epa 525.2	Logged In	
5	5151	[loc]plant tap 3 [rpt]IOWA CITY WATER DEPART	-	prep svol	epa 525.2	Logged In	
6	X.6	525.2 ofw high spike					
7	X.7	525.2 sample duplicate					

Figure 302 Worksheet Creation Screen with Two Additional QC's Added at the End

10. For the sample duplicate QC in Position 7, click on the corresponding QC Link field to select the Accession # of the sample for which it is a duplicate.

😑 Savi	e 🇾 Exit					
W	/orksheet #:	Related Worksheet #:	Eq			
Instru	ment Name:	~				
osition	Accession #	Description	QC Link	Test	Method	Status
	X.1	525.2 prep information				
2	X.2	525.2 ofw method blank				
	X.3	525.2 tap water blank				
	5150	[loc]plant tap 2 [rpt]IOWA CITY WATER DEPART	f i i i i i i i i i i i i i i i i i i i	prep svol	epa 525.2	Logged In
	5151	[loc]plant tap 3 [rpt]IOWA CITY WATER DEPART	r i	prep svol	epa 525.2	Logged In
j	X.6	525.2 ofw high spike				
,	X.7	525.2 sample duplicate	5150	•		
			X.1			
ا ا			X.2			F
🜉 Ins	ert From Works	heet 🛛 🔜 Insert QC From Lookup 🛛 🔜 Remove R	сх.з			
			5150			
			5151			
			X.6			
			X.7	and the state of the		

Figure 303 Inserting a QC Link

- 11. Since this is a prep test batch there isn't any Instrument Name to choose.
- 12. Save the Worksheet Creation screen by clicking the **Save** button. A warning message pops up notifying the user that worksheets cannot be changed once

they have been saved. The Worksheet # is assigned by the LIMS. It is suggested to note the Worksheet # for future use. Click the **Exit** button.

13. Complete the laboratory work.

B. WORKSHEET COMPLETION FOR A PREP TEST

The Worksheet Completion module allows the laboratory analyst to process a worksheet by entering results, completing, and reviewing analyses. The steps below illustrate how to complete a worksheet for the same example that was used in Appendix <u>A. WORKSHEET CREATION FOR A PREP TEST</u>.

- 1. Click on the link to the Worksheet Completion module in the Analysis Menu.
- 2. The Worksheet Lookup screen pops up on top of the Worksheet Completion screen.

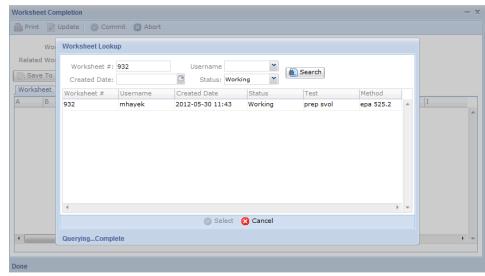


Figure 304 Worksheet Lookup Screen

3. A created worksheet can be queried by Worksheet #, Username, Created Date, and/or Status. Worksheet statuses consist of Working, Done, Failed Run, and Void. Click the **Search** button. Highlight the desired worksheet from the table in the lower pane and click the **Select** button. The Worksheet Lookup screen automatically closes allowing the Worksheet Completion screen to be displayed.

	Worksheet #:	932	S	status: Working	~				
Relate	d Worksheet #:		Instrument !	Name:	~				
🍺 Sav	e To Excel File	Load From Excel File	Load From	Instrument File					
Works	neet Note								
Position	Accession #	Description	QC Link	Test	Method	Status	Analyte	Reportable	
1	932.1	525.2 prep informa					Surrogate/Interna		
							Surrogate/Interna		:
							Spike Volume		
							Reagent Water pH		
							Methylene chlorid		
							Ethyl acetate Lot	I	
							Methanol Lot Num		
							C18 Disk Lot Num		
2	932.2	525.2 ofw method l	:				Sample Volume		
							Instrument Run Id		
							Acenaphthene-d1		
1								•	

Figure 305 Worksheet Completion Screen

4. The Worksheet Completion screen displays the Worksheet #, Status, Related Worksheet #, and Instrument Name in its top pane. The bottom pane consists of two tabs: Worksheet and Note. The Worksheet tab has the same columns and values that are found in the Excel version of the worksheet. The Worksheet Completion screen is only a viewer – you cannot edit the worksheet from this screen. In order to edit the worksheet it must be saved to an Excel file. Click the Save To Excel File button for this purpose. The location of the saved Excel file on the network drive will be specified in the Status Area of the screen.

Worksheet #: Commit Status: Worksheet Worksheet #: Instrument Image: Commit Commi Commit Commit Commi Commit Commit Commit Commit Commit Commit Com	Worksheet Completion - X
Related Worksheet #: Instrument Name: Save To Excel File Load From Excel File Load From Instrument File Worksheet Note	Vpdate 🛇 Commit 🙁 Abort Options 🗸
[Worksheet] Note	
	Save To Excel File Load From Excel File Load From Instrument File
Add Note	Worksheet Note
Add Note	
	Add Note

Figure 306 Note Tab of Worksheet Completion Screen

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- 5. The Note tab on the Worksheet Completion screen is for user convenience to write any notes that might be related to the run. This tab is intended to contain notes pertaining to the worksheet (e.g., an explanation of why the run failed). Click Update and then Add Note. The Standard Note Selection screen will pop up. See <u>STANDARD NOTE SELECTION SCREEN</u> for more information on how to use standard notes.
- Open the Excel worksheet file. If an Excel Security Warning pops up saying "Macros have been disabled.", click on the Enable Content button.
- 7. Click the **Yes** button on the Security Warning pop-up message: "Do you want to make this file a Trusted Document?"
- 8. With each Position, Accession #, and Description are attached rows of analytes.

Home Insert		Rasiew View		Caller Design		B_ THE ITTA X AutoS	in a drive day		
Conver		🚛 🛞 - 🔤 Wrap Text		P2 10		i i 🔝 🖬	Zr ara		
Format Painter	в I Ц - 🖽 - ду - А - 🖷	著著 谭律 图Merge & Cente	- 5 - 1/4 + 1/2 23	Conditional Format Formatting - as Table -	1	nsert Delete Format 2 Clear	Sort & Find & Filter - Select +		
board G	Font	Alignment	Number 5	Styles		Cella	Editing		
A2 -	(~ F 1								
mhayek [Compat	ilbility Mode]							0 8	Ð
A B				G Н	1	K L	м	N	
sition Accession		QC Link		atus Analyte		/alue Final Value Expected V		. N	
932.1	525-2 prep information	- GO LINK	THAT INSTITUT OF	Surrogate/Internal Std Id	N	\$2404A	Copy to Final	_	+
_				Surrogate/Internal Std Volum		100 ut.			
				Spike Volume	N	100 uL	Copy to Final if Empty		
				Reagent Water pH	N		7		
				Methylene chloride Lot Numi	ver N	B&J DF128			
				Ethyl acetate Lot Number	N	B&J DD085			
				Methanol Lot Number	N	B&J DF005			
				C18 Disk Lot Number	N	3M 320606			
932.2	525.2 ofw method blank			Sample Volume	N	950 mL			
				Instrument Run Id	N				
				Acenaphthene-d10	N	0	0.0025		
				Phenanthrene-d10	N	0	0.0025		
				Chrysene-d12	N	0	0.0025		
				1,3-Dimethyl-2-nitrobenzene	N	0	0.0025		
				Triphenyl phosphate	N	0	0.0025		
				Pyrene-d10	N		0.0025		
				Terphenyl-d14	N		1.0025		
				Perylene-d12	N		1.0025		
				Simazine	N	<0.0001			
				Atrazine	N	<0.0001			
				Alachlor	N	<0.0001			
				bis(2-Ethylhexyl)adipate	N	<0.0006			
				bis(2-Ethylhexyl)phthalate	N	<0.0006			
				Benzo(a)pyrene	N	<0.0001			
932,3	525.2 tap water blank			Sample Volume	N	950 mL			
				Instrument Run Id	N				
				Acenaphthene-d10	N		1.0025		
				Phenanthrene-d10	N		1.0025		
				Chrysene-d12	N		1.0025		
				1,3-Dimethyl-2-nitrobenzene			1.0025		
				Triphenyl phosphate Pyrene-d10	N		1.0025		
							10023		
M Worksheet	Overrides Sheet3			04		-18			



- 9. Every cell in blue cannot be edited. It is write-protected.
- 10. The bar at the top can be used to collapse (- button) and expand (+ button) the middle columns of the spreadsheet so that the user can edit the values in the white columns on the right side of the spreadsheet.

- 11. Expected Values include information, defaults, concentrations for chemical analytes, surrogates and internal standards, target analytes for a method blank, etc.
- 12. Raw Values may include volume measurements, pH measurements, or measurements that came off an analytical instrument. The following Raw Values were entered in this example:
 - a. "920" for the Sample Volume of Sample Accession # 5150
 - b. "7.1" for the pH of Sample Accession # 5150
 - c. "900" for the Sample Volume of Sample Accession # 5151
 - d. "6.9" for the pH of Sample Accession # 5151
- 13. Some considerations for Raw Values include:
 - They could be different from the Final Values. Some tests require multiple dilutions and the Raw Value is not representative of the Final Value at all.
 - b. If the Raw Value is not entered into the worksheet, the data that came off the instrument will not be captured. Only the Final Value will remain stored in the LIMS. If another user changes the Final Value, the previous Final Value is lost, and there will not be any raw instrument values in which to compare it.
 - c. The Raw Value Is not rounded in the Excel worksheet but may be rounded to compute the Final Value if it is specified in the test definition.
- 14. The Copy to Final button copies values from the Raw Value column to the Final Value column. Both types of values are saved back to the LIMS. The Final Value is what goes into the Value field on the <u>Test Results tab</u> of the full sample login and Complete and Release screens.



Figure 308 Raw Values Copied to Final Values in an Excel Prep Analysis Worksheet

15. The **Copy to Final if Empty** button is used so that values that are already entered in the Final Value column are not overridden. Need example here.

- 16. The Overrides tab is used to correct the Started date and time for a sample or QC item to the actual date and time that the analysis began. The Started date and time is defaulted to the worksheet creation date and time.
- 17. The User(s) cells on the Overrides tab are defaulted to the logged-in user when the worksheet is saved to the LIMS. You can override this user and add a second, third (or more) user who worked on the analysis. The logged-in user's username must be entered or it will not be recorded in the LIMS. The network username should be entered, followed by a comma, and with no spaces between usernames. Make sure it is copied down for each sample row.

	4	Α	В	C	D	E	F	G	Н
1	1	Position	Accession #	Description	Test	Method	User(s)	Started	Completed
:	2	1	932.1	525.2 prep information			mhayek, mbielick, wberger	2012-05-30 11:43	
3	3	2	932.2	525.2 ofw method blank			mhayek, mbielick, wberger	2012-05-30 11:43	
4	4	3	932.3	525.2 tap water blank			mhayek, mbielick, wberger	2012-05-30 11:43	
3	5	4	5150	[loc]plant tap 2 [rpt]IOWA CITY WATER DEPARTMENT (1)	prep svol	epa 525.2	mhayek, mbielick, wberger	2012-05-31 09:20	
(6	5	5151	[loc]plant tap 3 [rpt]IOWA CITY WATER DEPARTMENT (1)	prep svol	epa 525.2	mhayek, mbielick, wberger	2012-05-31 09:20	
	7	6	932.6	525.2 ofw high spike			mhayek, mbielick, wberger	2012-05-30 11:43	
1	8	7	932.7	525.2 sample duplicate			mhayek, mbielick, wberger	2012-05-30 11:43	

Figure 309 Overrides Tab of an Excel Prep Analysis Worksheet

- 18. Make sure to close the Excel file so that it doesn't sit on the network drive indefinitely.
- 19. Open the Worksheet Completion module. Enter the Worksheet # (or another search parameter) into the Worksheet Lookup screen and click **Search**.
- 20. Select the desired worksheet and click **Select**.
- Click the Update button on the Worksheet Completion screen. Click the Load From Excel File button. The same Excel worksheet is now loaded on this screen.
- 22. After reviewing the Worksheet Completion Screen, change the Status from Working to Done. Changing the Status to Failed Run will send the prep analyses to Requeued status. Changing the Status to Void will send the prep analyses back to Logged In status.
- 23. Click **Commit**. This sets the prep analyses to Completed status. They must still be Released. See <u>RELEASING AN ANALYSIS</u> for more information on this procedure.

C. ANALYTICAL WORKSHEET CREATION

The process for creating an analytical worksheet is largely the same as the one used to create a prep test worksheet. The example that was used for the prep test worksheet

is used here to show how the process would be continued to create and complete an analytical worksheet. The steps are listed below:

- 1. Select Worksheet Creation from the <u>Analysis Menu</u>.
- 2. The Worksheet Creation Lookup screen will pop up on top of the Worksheet Creation screen. Enter "semivolatiles" in the Test field and select the Method "epa 525.2".
- 3. Change the Status to Logged In. Click the **Search** button. When the prep test is completed, the analytical test status automatically goes from In Prep to Logged In.
- 4. Select the desired analytical tests from the Worksheet Creation Lookup screen and click **Add** or **Select All**. These rows get added to the Worksheet Creation screen.
- 5. Next, everything from the prep worksheet could be inserted into the analytical worksheet to create an all-encompassing worksheet.
 - a. To do this, click the **Insert From Worksheet** button on the Worksheet Creation screen.
 - b. Enter the Worksheet # (or another search parameter) into the Worksheet Lookup screen that pops up and click **Search**.
 - c. Click on the desired worksheet and click Select.
 - d. Select the rows you want from the specified Worksheet screen and click **OK**.
 - e. The prep test rows will be added below the analytical test rows on the Worksheet Creation screen.
- 6. Additional QC Items that are specific to the analytical tests/run can be added now by clicking on the **Insert QC From Lookup** button.
- 7. The Instrument Name can be selected.
- 8. Review the Worksheet Creation screen and click the **Save** button. The following message pops up. Click the **Save** button on the message.



Figure 310 Worksheet Save Warning

- 9. The Worksheet # is assigned by the LIMS. It is suggested to note the Worksheet # for future use.
- 10. Click the **Exit** button on the Worksheet Creation screen.

	orksheet #: 93 ment Name: 73		ed Workshee	t #:					
Position	Accession #	Description	QC Link	Test	Method	Status	Collected	Received	
1	5150	[loc]plant tap 2 [rp	t	semivolatiles	epa 525.2	Logged In	2012-05-24	2012-05-24 10	j,
2	5151	[loc]plant tap 3 [rp	t	semivolatiles	epa 525.2	Logged In	2012-05-24	2012-05-24 10	į.
3	932.1	525.2 prep informa	af						
4	932.2	525.2 ofw method	Ł						
5	932.3	525.2 tap water bla	9						
5	932.6	525.2 ofw high spil	c						
7	932.7	525.2 sample dupli	¢						
8	5150			prep svol	epa 525.2	Completed			
9	5151			prep svol	epa 525.2	Completed			
•								÷.	1,

Figure 311 Worksheet Creation Screen for an Analytical Run

11. Complete the laboratory work.

D. ANALYTICAL WORKSHEET COMPLETION

The Worksheet Completion module allows the laboratory analyst to process a worksheet by entering results, completing, and reviewing analyses. The steps below illustrate how to complete a worksheet for the same example that was used in Appendix <u>C. ANALYTICAL WORKSHEET CREATION</u>.

1. After the analytical run is performed, click on the link to the Worksheet Completion module in the <u>Analysis Menu</u>.

- 2. The Worksheet Lookup screen pops up on top of the Worksheet Completion screen.
- 3. Enter the Worksheet # (or another search parameter) into the Worksheet Lookup screen and click **Search**.
- 4. Select the analytical test row and click the **Select** button.
- 5. All of the information and the analytes from the test definition are loaded into the Worksheet Completion screen. This worksheet has more columns than the prep test worksheet.
- 6. The Worksheet Completion screen is just the viewer. To edit the worksheet, click the **Save to Excel File** button. The location of the worksheet on the network drive will be specified in the Status Area.
- The Excel worksheet is used as the electronic worksheet editor. If an Excel Security Warning pops up saying "Macros have been disabled.", click on the Enable Content button.
- 8. Click the **Yes** button on the Security Warning pop-up message: "Do you want to make this file a Trusted Document?"

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Positio	n Accession #	Instrument Run Id	N	Raw Value	Calculated value	le Final Value Qi	Jant Limit	Calculated Quality	er Final Quaimer	Range Low Ran	ge mign	Expected value	Calculated % Rec	overy Final % Re	scovery 76 P
1	15150	Acenaphthene-d10	N			0.0025									
		Phenanthrene-d10	N			0.0025									
		Chrysene-d12	N			0.0025									
		1,3-Dimethyl-2-nitrobenzene	N			5.002.5				0.00175	0.00325	0.0025			
		Triphenyl phosphate	N							0.00175	0.00325	0.0025			
		Pyrene-d10	N							0.00175	0.00325	0.0025			
		Terphenyl-d14	N							0.00175	0.00325	0.0025			
		Perylene-d12	N							0.00175	0.00325	0.0025			
		Simazine	Y			<0.0001	0.0001								
		Atrazine	Y			<0.0001	0.0001								
		Alachlor	Y			<0.0001	0.0001								
		bis(2-Ethylhexyl)adipate	Y			<0.0006	0.0006								
		bis(2-Ethylhexyl)phthalate	Y			<0.0006	0.0006								
		Benzo(a)pyrene	Y			<0.0001	0.0001								
2	5151	Instrument Run Id	N												
		Acenaphthene-d10	N			0.0025									
		Phenanthrene-d10	N			0.0025				_					_
		Chrysene-d12	N			0.0025				_					
			N							0.00175	0.00325	0.0025			_
		Triphenyl phosphate	N							0.00175	0.00325	0.0025			
		Pyrene-d10	N		_					0.00175	0.00325	0.0025			
		Terphenyl-d14	N		-					0.00175	0.00325	0.0025			
		Perylene-d12	N		-					0.00175	0.00325	0.0025			
		Simazine	Ŷ		-	<0.0001	0.0001			-					
		Atrazine Alachlor	Y		-	<0.0001	0.0001								
			T V		-	<0.0001	0.0001			-					
		bis(2-Ethylhexyl)adipate	Y		-	<0.0006	0.0006			-					
		bis(2-Ethylhexyl)phthalate Benzo(a)pyrene	T V		-	<0.0006	0.0006			-					
3	932.1	Surrogate/Internal Std Id	N		-	\$0.0001	0.0001			-		\$2404A			
3	332.1	Surrogate/Internal Std Volume	N									100 uL			
												100 01			
	Worksheet /	Overrides / Sheet3 / 😏] ∢						



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- 9. With each Position, Accession #, and Description are attached rows of analytes.
- 10. Every cell in blue cannot be edited. It is write-protected.
- 11. The bar at the top can be used to collapse (- button) and expand (+ button) the middle columns of the spreadsheet so that the user can edit the values in the white columns on the right side of the spreadsheet.
- 12. The Reportable column can be changed from Y to N or vice versa.
- 13. Below are examples of Raw Values that could be obtained from instrument readings. These values will be entered to demonstrate how the Excel worksheet handles them.
 - a. Simazine (a target analyte) = 0.0002 (a little above the Quant Limit of 0.0001)
 - Atrazine (another target analyte) = 0.000001 (below the Quant Limit of 0.0001)
 - c. Triphenyl phosphate (a surrogate) = 0.0025 (within the expected range of 0.00175 to 0.00325
 - d. Pyrene-d10 (another surrogate) = 0.0008 (below the Range Low value of 0.00175
 - e. Terphenyl-d14 (another surrogate) = 0.0044 (higher than the Range High value of 0.00325
- 14. Clicking on the Recalculate Fields button does a number of checks and calculates the macros (i.e., completes Calculated Value column, compares results to Range Low and Range High values, determines Calculated % Recovery based on Expected Value, etc.

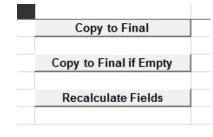


Figure 313 Excel Macro Buttons

15. For the three surrogates it places the Raw Values into the Calculated Values column.

- 16. For the two target analytes the macros do a check.
 - a. If the Raw Value is above or equal to the Quant Limit, it puts the Raw Value into the Calculated Value field.
 - b. If the Raw Value is below the Quant Limit, it puts a "<
 quant_limit_value" into the Calculated Value field (i.e., <0.0001) and
 "under limit" into the Calculated Qualifier field.
- 17. For the three surrogates the macros calculate the Calculated % Recovery based on the Expected Value and they place a "low" or "HIGH" flag in the % Recovery Flag column based on P1 and P2 (Range Low and Range High) values. If the Calculated Value for the surrogate falls within the expected range, no flag is placed in the % Recovery Flag field.

	A B	Н	р	Q	R	S	Т	U
1	Position Accession #	Analyte	Range Low	Range High	Expected Value	Calculated % Recovery	Final % Recovery	% Recovery Flag
2	1 5150	Instrument Run Id						
3		Acenaphthene-d10						
4		Phenanthrene-d10						
5		Chrysene-d12						
6		1,3-Dimethyl-2-nitrobenzene	0.00175	0.00325	0.0025			
7		Triphenyl phosphate	0.00175	0.00325	0.0025	100	100	
8		Pyrene-d10	0.00175	0.00325	0.0025	32	32	low
9		Terphenyl-d14	0.00175	0.00325	0.0025	176	176	HIGH
10		Perylene-d12	0.00175	0.00325	0.0025			

Figure 314 % Recovery and % Recovery Flag

18. Click the Copy to Final button to copy the Calculated Values to Final Values. A pop-up message will ask, "Are you sure you want to transfer these results?" Click the OK button. The Final Values are the values that will be reported. Final Values can be manually overridden (e.g., to report an average of calculated values).

1	A B	н	1	J	К	L	M	N	0
1	Position Accession	# Analyte	Reportable	Raw Value	Calculated Value	Final Value	Quant Limit	Calculated Qualifier	Final Qualifier
2	1 5150	Instrument Run Id	N						
3		Acenaphthene-d10	N			0.0025			
1		Phenanthrene-d10	N			0.0025			
5		Chrysene-d12	N			0.0025			
6		1,3-Dimethyl-2-nitrobenzene	N						
7		Triphenyl phosphate	N	0.0025	0.0025	0.0025			
B		Pyrene-d10	N	0.0008	0.0008	0.0008			
)		Terphenyl-d14	N	0.0044	0.0044	0.0044			
0		Perylene-d12	N						
1		Simazine	Y	0.0002	0.0002	0.0002	0.0001		
2		Atrazine	Y	0.000001	<0.0001	<0.0001	0.0001	under limit	under limit
3		Alachlor	Y			<0.0001	0.0001		
4		bis(2-Ethylhexyl)adipate	Y			<0.0006	0.0006		
5		bis(2-Ethylhexyl)phthalate	Y			<0.0006	0.0006		
6		Benzo(a)pyrene	Y			<0.0001	0.0001		

Figure 315 Calculated Values Copied to Final Values

19. Save and close the Excel worksheet.

- 20. Query for the worksheet on the Worksheet Completion screen and click Update. Click the **Load From Excel File** button. The Worksheet Completion screen is populated with the values from the completed Excel worksheet.
- 21. If applicable, add a note that is relevant to the worksheet on the Note tab by clicking the **Add Note** button. See <u>STANDARD NOTE SELECTION SCREEN</u> for more information on how to use standard notes.
- 22. Review the entire screen. If everything worked correctly, change the Status from Working to Done. Click the **Commit** button.
- 23. The analysis status for the two samples goes from Initiated to Completed. The analyses must still be Released. See <u>RELEASING AN ANALYSIS</u> for more information on this procedure.
- 24. The Instrument Name can be changed (or selected) before the worksheet Status is changed to Done.
- 25. The Analysis tab of the Complete and Release screen lists the two worksheets for the prep analysis (the prep worksheet and the analytical worksheet) and the one worksheet for the analytical run (the analytical worksheet). A worksheet can be viewed from this tab by highlighting it and clicking the **Select** button below. The Worksheet Completion screen will pop up.

```
FEBRUARY 14, 2013
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Q Query	🖉 Update						Options 👻			
ccession #	Test				Method		Analys	is Status	Sample Sta	atus
150	prep sv	/ol			epa 525.2		Compl	eted	Completed	
150	semivo	latiles			epa 525.2		Compl	eted	Completed	
151	prep sv	/ol			epa 525.2		Compl	eted	Completed	
151	semivo	latiles			epa 525.2		Compl	eted	Completed	
1										4
	Test: prep svol		~	Method:	epa 525.2			2012-05-3	QA Events 31 09:20	
<u> </u>			_	Method:	epa 525.2			2012-05-3	81 09:20 🖪	
St	Test: prep svol	d	~	Method: Revision:	epa 525.2		Started:	2012-05-3	81 09:20 🖪	
St	Test: prep svol atus: Complete ction: sample_p	d	~	Method: Revision:	epa 525.2 1	: 🗸	Started: Completed:	2012-05-3	31 09:20 🖻 01 11:21 🖻	
St	Test: prep svol atus: Complete ction: sample_p Prep:	d rep-ic	~	Method: Revision:	epa 525.2 1	•: V V	Started: Completed: Released:	2012-05-3	31 09:20 3 01 11:21 3 3	
St Sec Sample	Test: prep svol atus: Complete ction: sample_p Prep:	d rep-ic St	~	Method: Revision:	epa 525.2 1 mg/L	•: V V	Started: Completed: Released: Printed:	2012-05-3 2012-06-0 Ad	31 09:20 3 01 11:21 3 3 3	
St See Sample Workshee	Test: prep svol atus: Complete ction: sample_p Prep: t Created	d rep-ic St 1:43 Do	▼ ▼ atus	Method: Revision:	epa 525.2 1 mg/L User	:: ▼ ▼ ▼	Started: Completed: Released: Printed: User	2012-05-3 2012-06-0 Ad Co	81 09:20 3 01 11:21 3 3 1 1 1 1 3 1 3 1 1 1 1 1 1 1 1 1 1	Aux
Sample Sample Worksheet 932	Test: prep svol atus: Complete ction: sample_p Prep: t Created 2012-05-30 1	d rep-ic St 1:43 Do	v v atus	Method: Revision:	epa 525.2 1 mg/L User mhayek	:: ▼ ▼ ▼	Started: Completed: Released: Printed: User mhayek	2012-05-3 2012-06-0 Ad Co Co	81 09:20 3 01 11:21 3 3 tion mpleted	Aux

Figure 316 Worksheet Table on the Complete and Release Screen

26. The Test Results tab of the Complete and Release screen shows the results from the worksheet with the designated number of significant figures and the rounding performed, as prescribed by the test definition.

	📝 Update 🛛 📝 Complete			
Accession #		Method	Analysis Status Sample Status	۰.
150	prep svol	epa 525.2	Completed Completed	1
150	semivolatiles	epa 525.2	Completed Completed	
151	prep svol	epa 525.2	Completed Completed	
151	semivolatiles	epa 525.2	Completed Completed	
ſ				
		nalysis Test Results Analysis	Notes Sample Notes Storage QA Events Aux	
← Samp	Terphenyl-d14	nalysis Test Results Analysis 0.00440	Notes Sample Notes Storage QA Events Aux 0.0025	
← ∫ Sampl	Terphenyl-d14 Perylene-d12	0.00440	Notes Sample Notes Storage QA Events Aux 0.0025 0.0025	
← Samp	Terphenyl-d14 Perylene-d12 2 Analyte	0.00440 Value	Notes Sample Notes Storage QA Events Aux 0.0025 0.0025 Quant Limit	
← Samp Reportable	Terphenyl-d14 Perylene-d12 Analyte Simazine	0.00440 Value 0.0002	Notes Sample Notes Storage QA Events Aux 0.0025 0.0025 Quant Limit 0.0001	
← Samp Reportable	Terphenyl-d14 Perylene-d12 Analyte Simazine Atrazine	0.00440 Value 0.0002 <0.0001	Notes Sample Notes Storage QA Events Aux 0.0025 0.0025 Quant Limit 0.0001 0.0001	
♦ Sample Reportable ✓ ✓	Terphenyl-d14 Perylene-d12 Analyte Simazine Atrazine Alachlor	0.00440 Value 0.0002 <0.0001 <0.0001	Notes Sample Notes Storage QA Events Aux 0.0025 0.0025 Quant Limit 0.0001 0	
♦ Sample Reportable ✓ ✓	Terphenyl-d14 Perylene-d12 Analyte Simazine Atrazine Alachlor bis(2-Ethylhexyl)adipate	0.00440 Value 0.0002 <0.0001	Notes Sample Notes Storage QA Events Aux 0.0025 0.0025 Quant Limit 0.0001 0.0001	
← Samp Reportable ✓ ✓ ✓ ✓	Terphenyl-d14 Perylene-d12 a Analyte Simazine Atrazine Alachlor bis(2-Ethylhexyl)adipate bis(2-Ethylhexyl)phhalate	0.00440 Value 0.0002 <0.0001 <0.0001 <0.0001	Notes Sample Notes Storage QA Events Aux 0.0025 0.0025 Quant Limit 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0001 0.0006 0	
← Sampl Reportable ✓ ✓ ✓	Terphenyl-d14 Perylene-d12 Analyte Simazine Atrazine Alachlor bis(2-Ethylhexyl)adipate	0.00440 Value 0.0002 <0.0001 <0.0001 <0.0006 <0.0006	Quest Sample Notes Storage QA Events Aux 0.0025 0.0025 Quant Limit 0.0001 0.0001 0.0001 0.0001 0.0001 0.0006 0.0006 0.0006 0.0001 0.0001 0.0006 0.0001 0.0001 0.0006 0.0001 0.0001 0.0006 0.0001 0	

Figure 317 Test Results Tab of the Complete and Release Screen

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