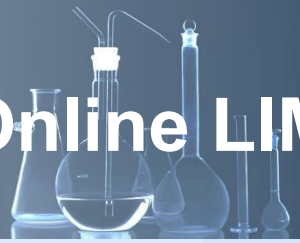

OnLIMS
INNOVATIVE LABORATORY AUTOMATION
Instrument interfacing
Instrument integration
QA/QC tools
Online Worksheet
CE
www.onlims.com

Online LIMS

What is Online LIMS ?



- *A specialized LIMS for mining labs*
- *Very fast data access and queries*
- *Very easy to learn, Excel-like spreadsheet*
- *Color coded “real time” work status*
- *Integrated with an advanced QA/QC system*

Online LIMS implementation

1th stage implementation: Online Worksheet

2nd stage implementation: OnLab (full LIMS)

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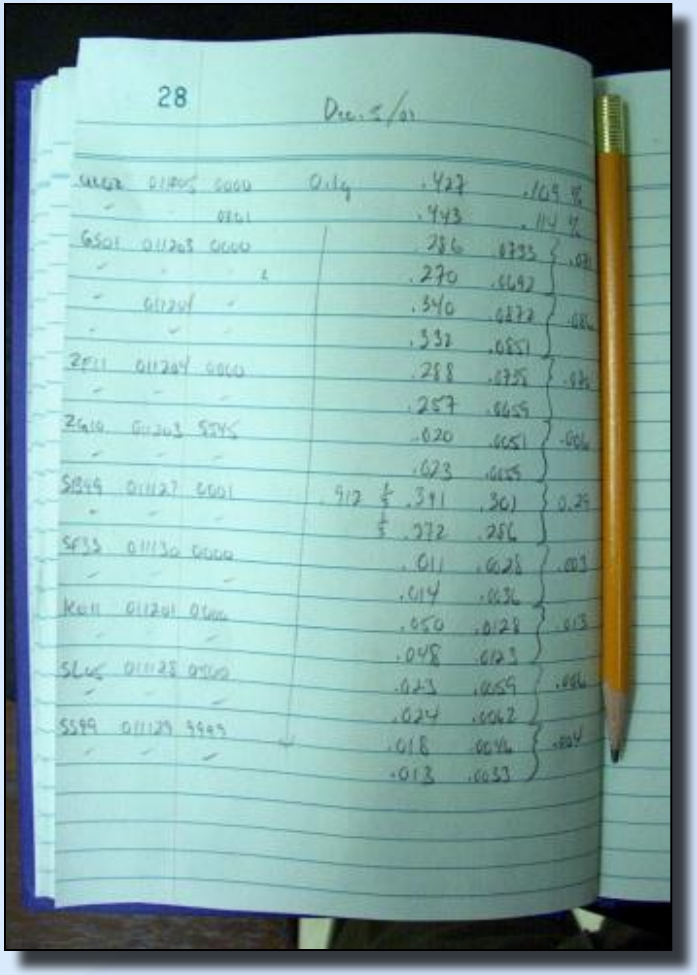
Online Worksheet Concept

OnWSH is an advanced interface between one or more instruments and the LIMS database. Its concept is based on the technician's logbook.

Lab Workflow

- Sample Selection and grouping by technique
- Logbook preparation
- Sample preparation (weighting, digestion, etc)
- Do required analysis
- Collect and record data in logbook
- Result calculations
- Reviewing and verification
- Reporting results



Electronic lab Workflow

- Sample Selection and grouping by technique
- Logbook preparation

Prepare a worksheet with the computer

- Sample preparation (weighting, digestion, etc)
- Do required analysis

Type, import or read data on-line into the worksheet

- Collect and record data in logbook
- Result calculations
- Reviewing and verification

Do all calculations and data reviewing in the Worksheet (calculation using formulas and less data manipulation)

- Reporting results

Export data to the LIMS

WSH Modules

OnLINK.EXE
Handles serial communication between the instrument and OnWSH. This small application should be active on the taskbar for On-line reading.

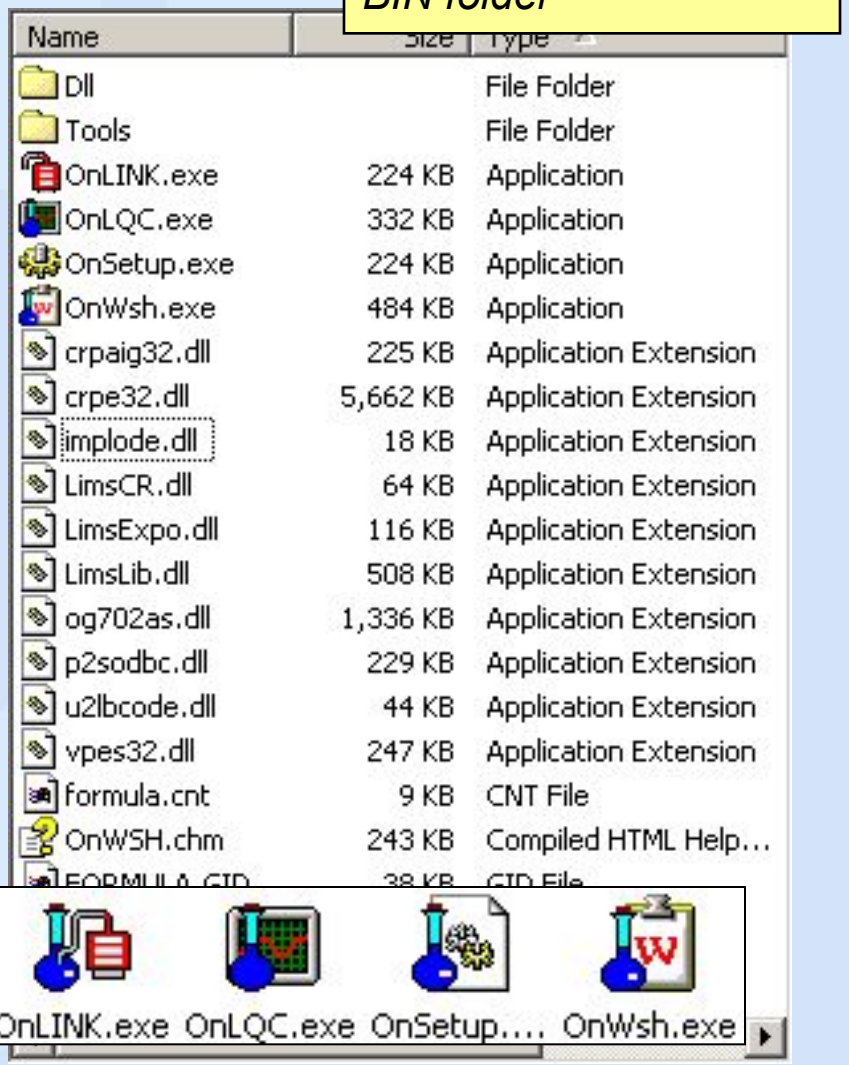
OnLQC.EXE
Quality control module. Manages all control and standard samples and QC statistics.

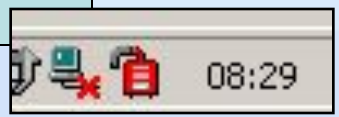
OnSETUP.EXE
Manages all LIMS configuration tables like the user list, Analysis library, instrument database, etc.

OnWSH.EXE
The Online Worksheet is an advanced link between then instruments and the database.

DLL – dynamic link libraries
This are shared programs that the LIMS uses

BIN folder





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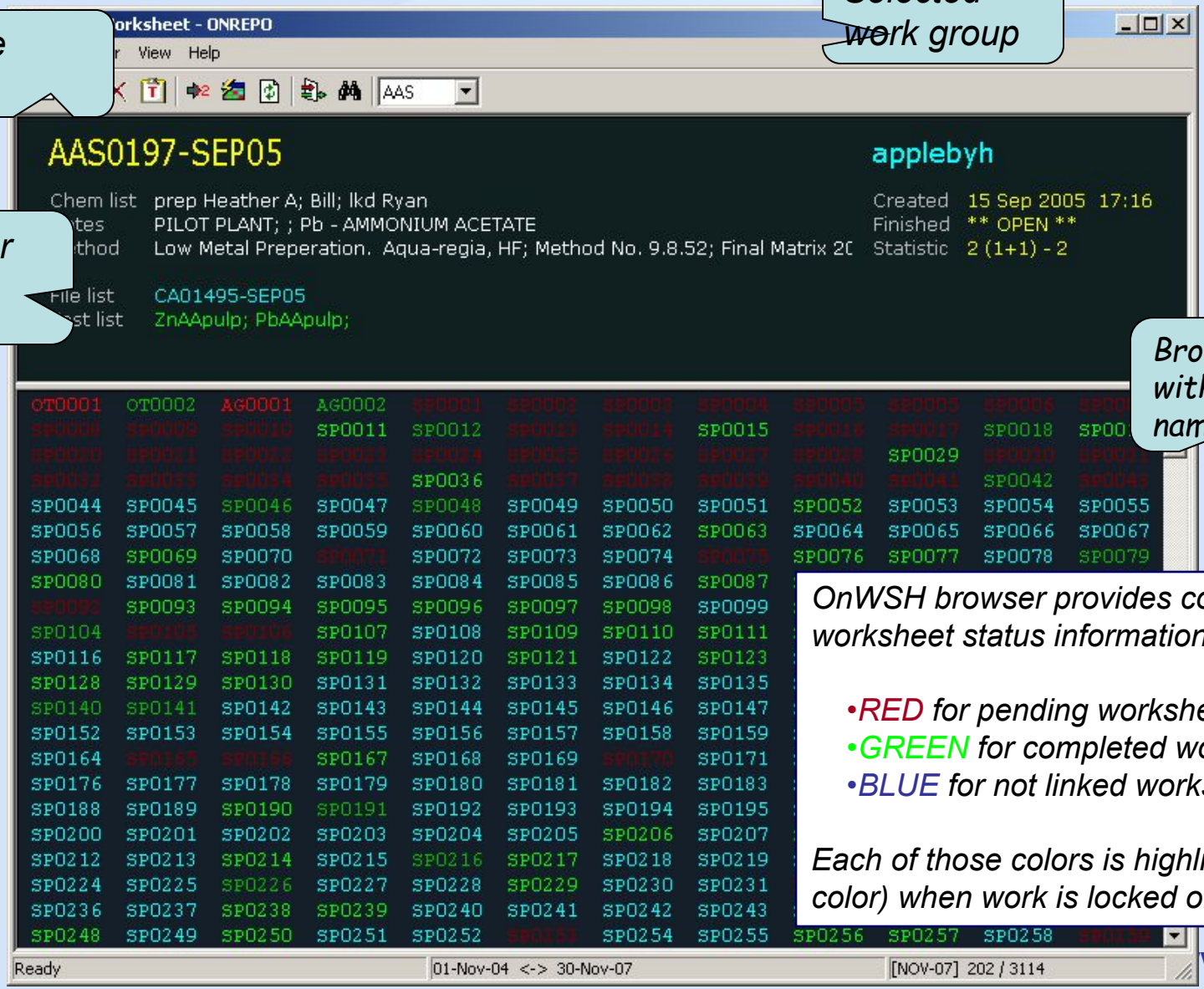
The worksheet Browser

Full file name

Selected work group

Header data

Browser pane with short file names

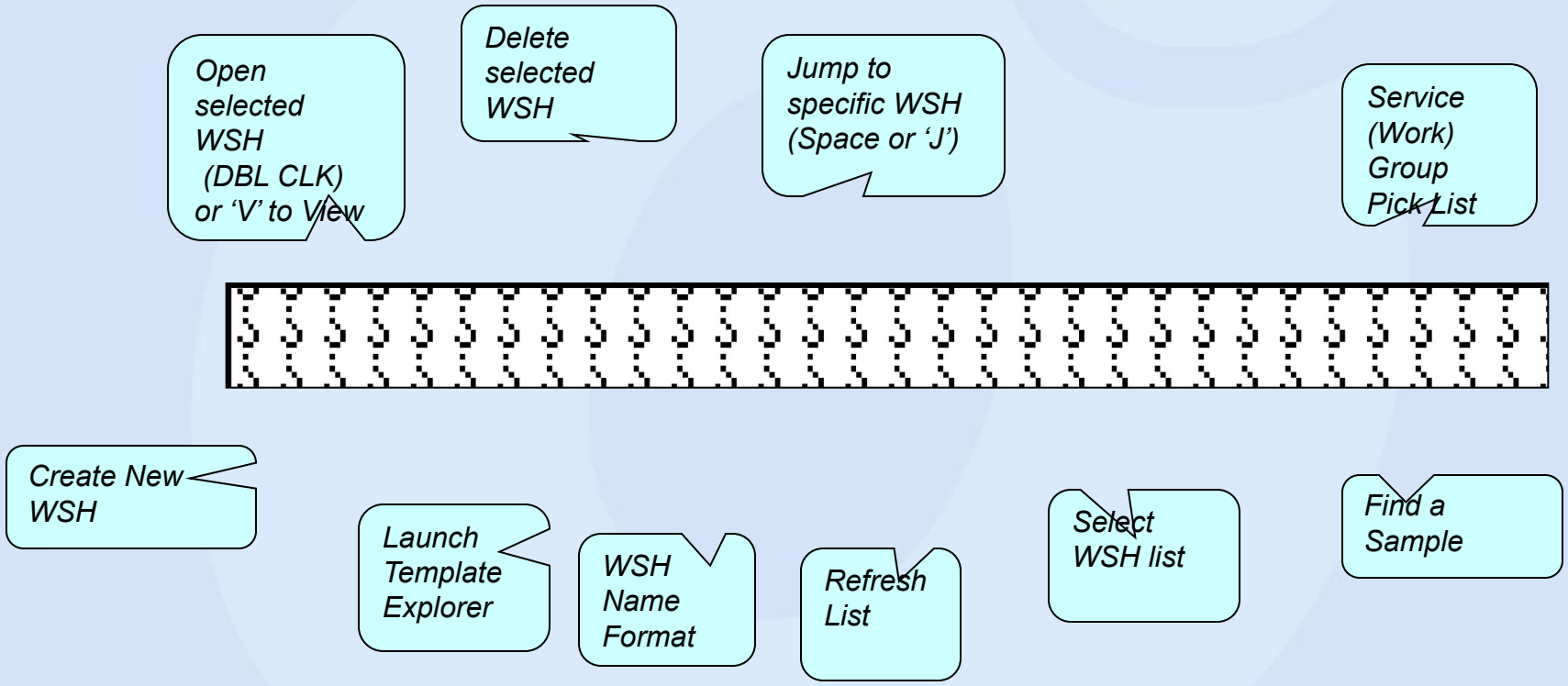


OnWSH browser provides color coded worksheet status information:

- *RED for pending worksheets*
- *GREEN for completed worksheets*
- *BLUE for not linked worksheets*

Each of those colors is highlighted (bright color) when work is locked or approved.

Browser Toolbar menu

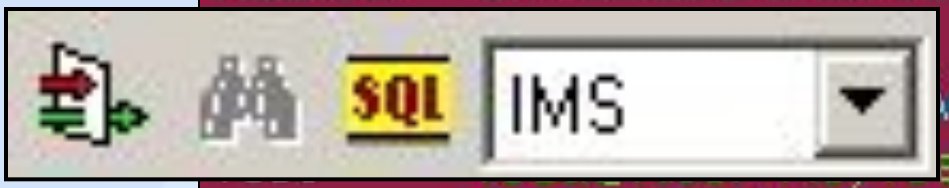


Filtering

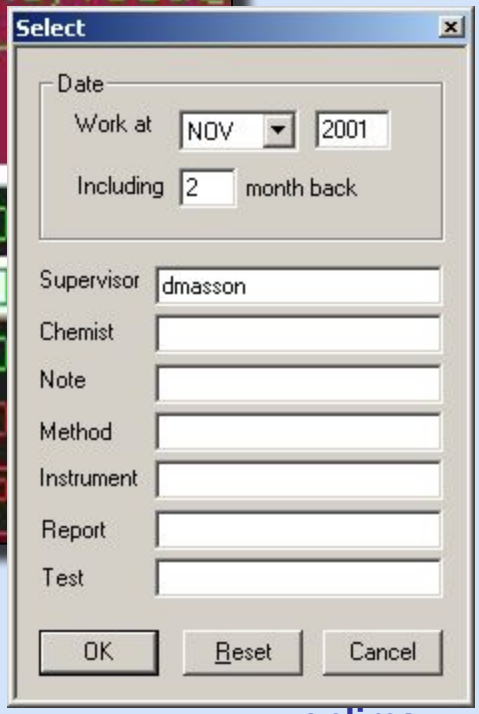
Select filter selects a group of worksheets

The select filter starts with the date criteria. Simply select the work month and how many months back should be included.

You do not need to enter the whole name to search. For example for "dmasson" simple type "masson" or "dmas"



Selected work group (Service group) folder

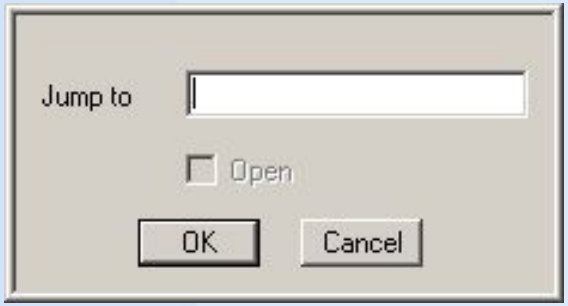


Find a sample tool

Browser file name format

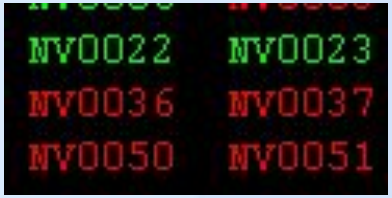
Refresh WSH browser pane. Helps keep the WSH list updated when WSH are created or deleted by other users in other computers

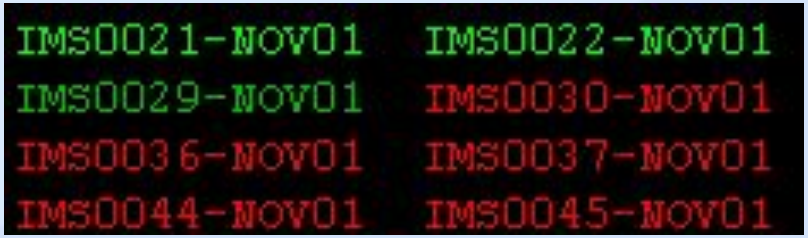
Jump to a WSH



Browser file name format. Three formats are available:

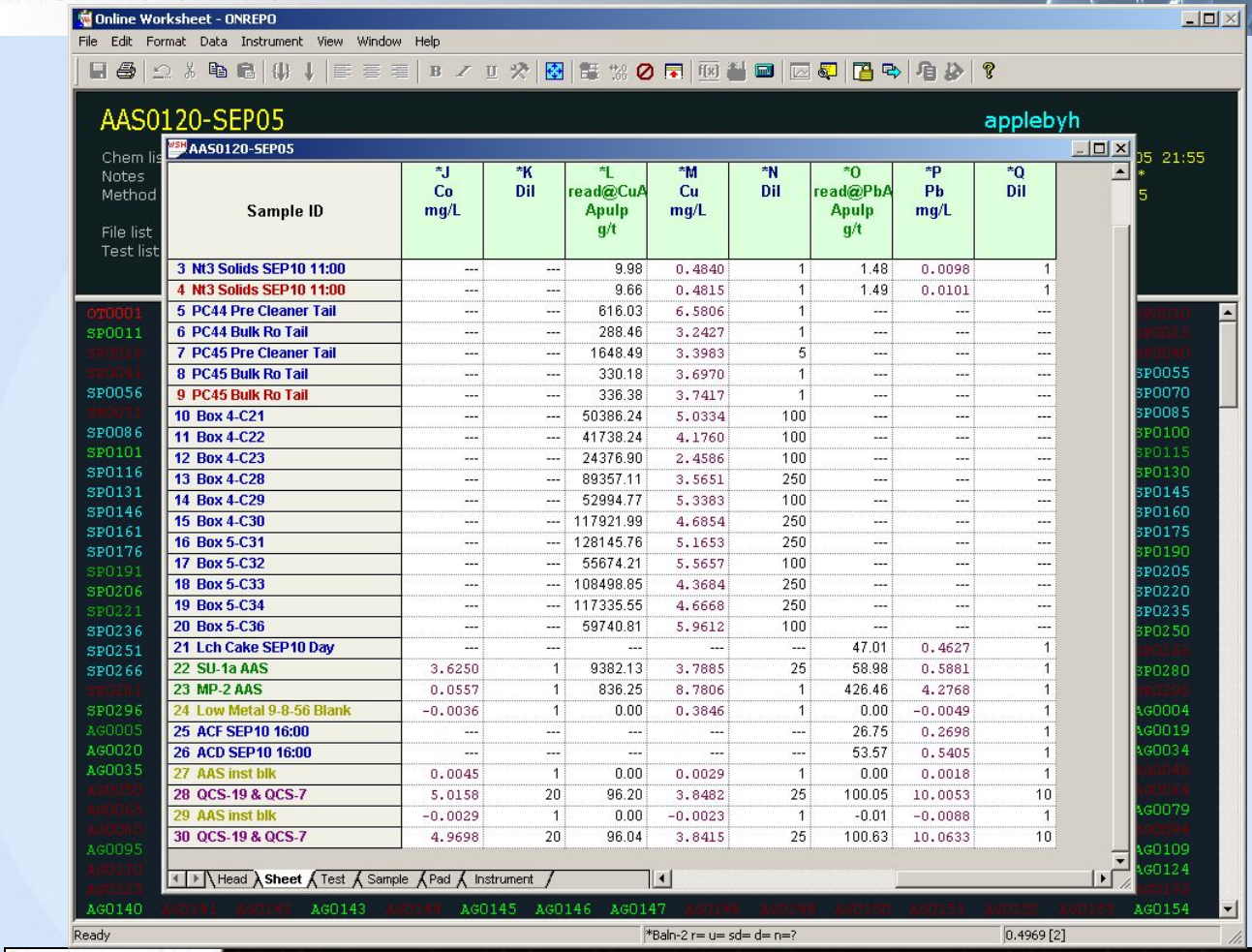
1. 5014 *(Number only)*
2. NV5014 *(Month and Number)*
3. IMS5014-NOV01 *(Workgroup, Number, Month and Year)*





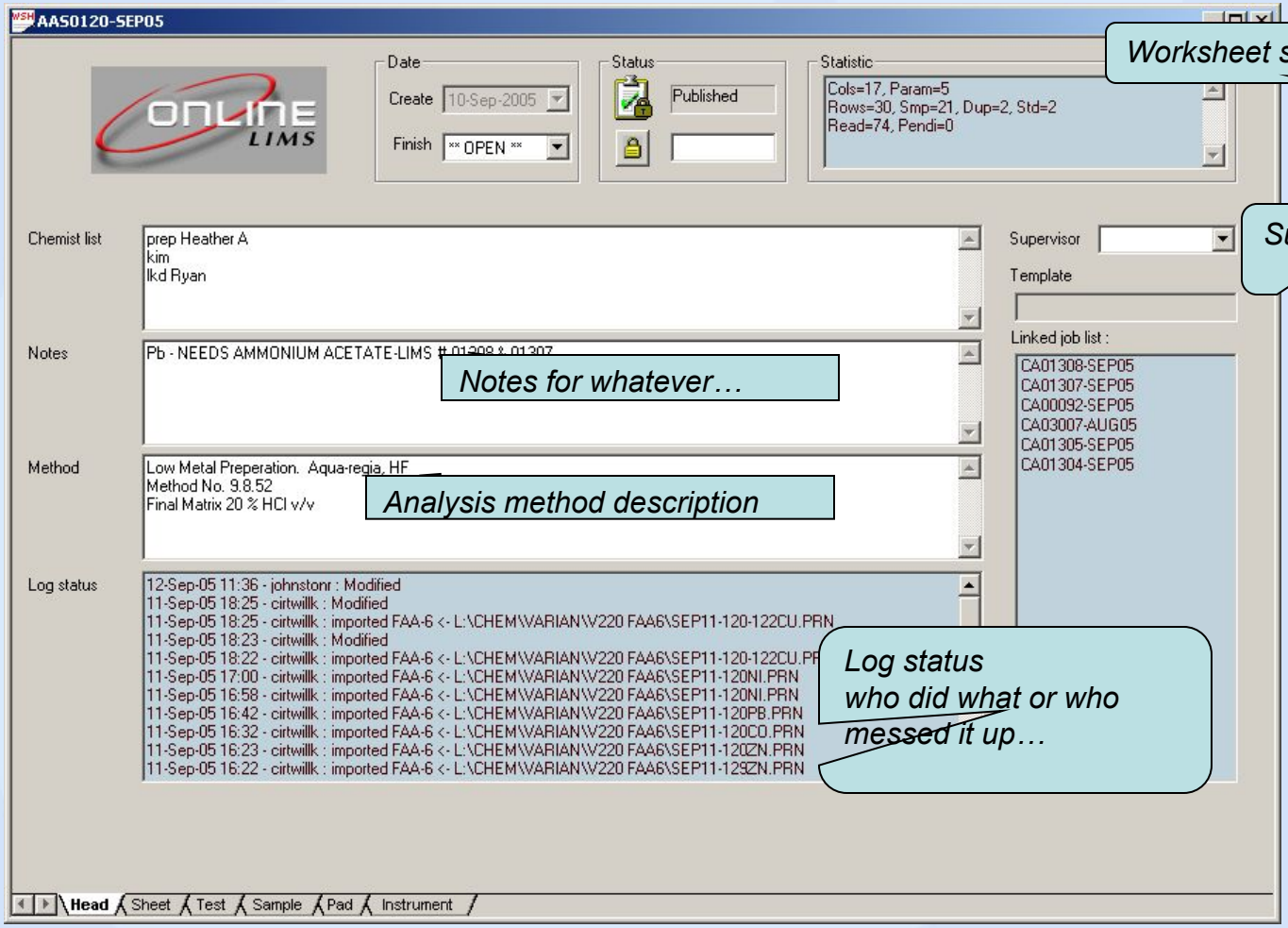
Type the WSH ID you want to jump to. You can type several formats like NOV21 to go to NV0021.

Worksheet file



Open the worksheet by double clicking on the selected file. A window with six tabs represent each one of the worksheet areas

Worksheet header



Worksheet statistics

Supervisor

Notes for whatever…

Analysis method description

Log status
who did what or who messed it up…

Click here to activate the worksheet header

The header tab stores all relevant worksheet header data.

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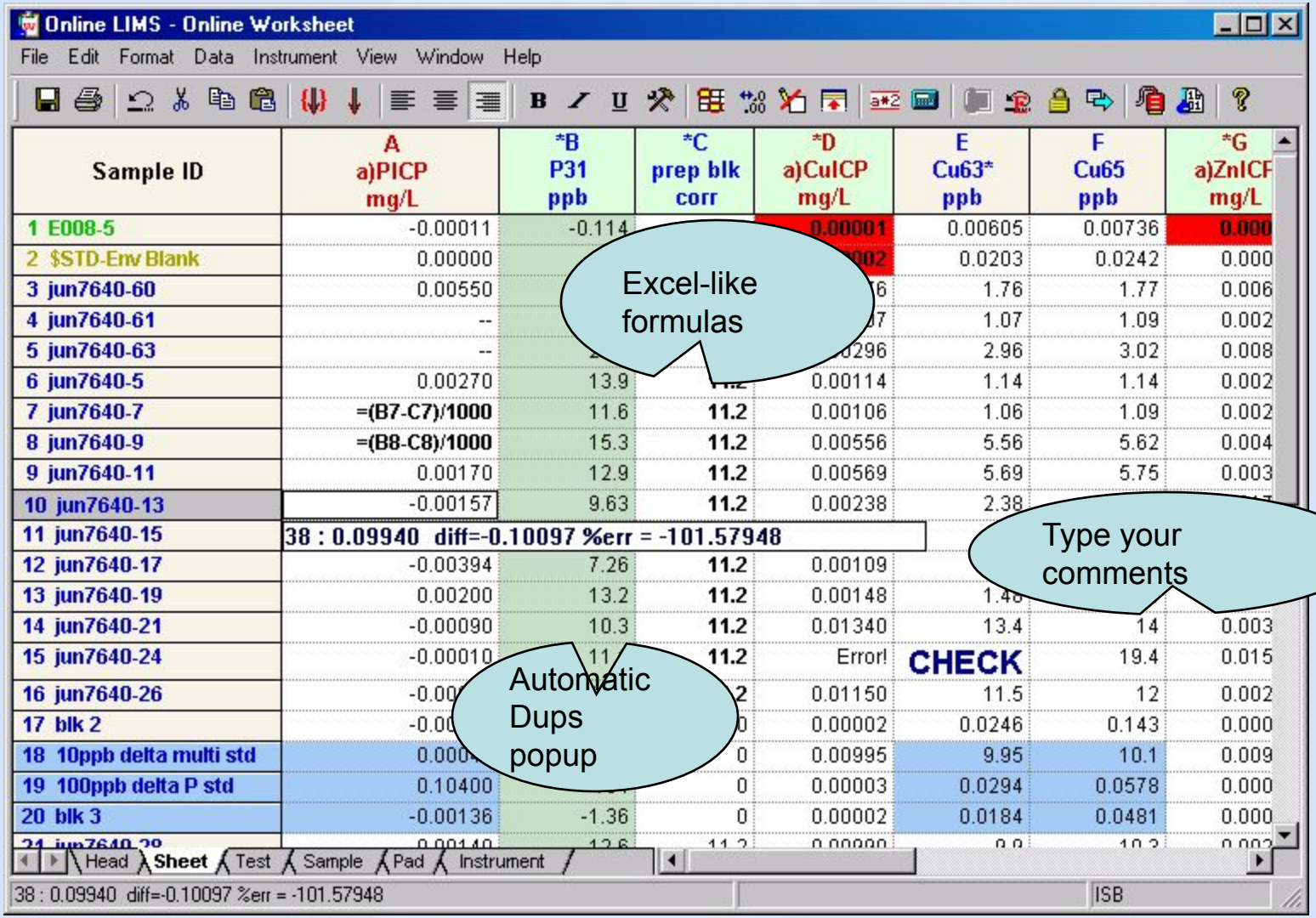
Spreadsheet



Sample ID	A a)PICP mg/L	*B P31 ppb	*C prep blk corr	*D a)CuICP mg/L	E Cu63* ppb	F Cu65 ppb	*G a)ZnICP mg/L
1 E008-5	-0.00011	-0.114		0.00001	0.00605	0.00736	0.000
2 $STD-Env Blank	0.00000			002	0.0203	0.0242	0.000
3 jun7640-60	0.00550			6	1.76	1.77	0.006
4 jun7640-61	--			07	1.07	1.09	0.002
5 jun7640-63	--			0296	2.96	3.02	0.008
6 jun7640-5	0.00270	13.9		0.00114	1.14	1.14	0.002
7 jun7640-7	=(B7-C7)/1000	11.6	11.2	0.00106	1.06	1.09	0.002
8 jun7640-9	=(B8-C8)/1000	15.3	11.2	0.00556	5.56	5.62	0.004
9 jun7640-11	0.00170	12.9	11.2	0.00569	5.69	5.75	0.003
10 jun7640-13	-0.00157	9.63	11.2	0.00238	2.38		
11 jun7640-15	38 : 0.09940 diff=-0.10097 %err = -101.57948						
12 jun7640-17	-0.00394	7.26	11.2	0.00109			
13 jun7640-19	0.00200	13.2	11.2	0.00148	1.48		
14 jun7640-21	-0.00090	10.3	11.2	0.01340	13.4	14	0.003
15 jun7640-24	-0.00010	11	11.2	Error!	CHECK	19.4	0.015
16 jun7640-26	-0.00		2	0.01150	11.5	12	0.002
17 blk 2	-0.00		0	0.00002	0.0246	0.143	0.000
18 10ppb delta multi std	0.000		0	0.00995	9.95	10.1	0.009
19 100ppb delta P std	0.10400		0	0.00003	0.0294	0.0578	0.000
20 blk 3	-0.00136	-1.36	0	0.00002	0.0184	0.0481	0.000
21 jun7640-28	0.00140	12.6	11.2	0.00000	0.0	10.2	0.002

True electronic equivalent of a technician's log book

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Worksheet Template

LIM0004-DEC01.WSH

Sample ID	A Pb@L %	B Factor	C Pb1 %	D wt gr	E vol ml	F Pb2 %	G wt gr	H vol ml
1 Pb Proof 1	AVG =	0.0100732	0.01009	0.1776	17.6	---	---	---
2 Pb Proof 2	---	---	0.01005	0.206	20.5	---	---	---
3 Pb Proof 3	---	---	0.01008	0.2389	23.7	---	---	---
4 Arm 003	42.55	0.01007	41.54	0.4000	16.5	43.55	0.4000	17.3
5 Sr72 011020 1785	42.55	0.01007	41.54	0.4000	16.5	43.55	0.4000	17.3
6 SR72 011020 1820	43.11	0.01007	43.93	0.4000	17.45	42.29	0.4000	16.8
7 SR72 011020 1821	42.11	0.01007	42.17	0.4000	16.75	42.04	0.4000	16.7
8 SR72 011020 1822	48.52	0.01007	41.92	0.4000	16.65	55.13	0.4000	21.90
9 SR72 011020 1823	54.57	0.01007	53.62	0.4000	21.30	55.51	0.4000	22.05
10 SR72 011020 1824	50.98	0.01007	50.98	0.4000	20.25	50.98	0.4000	20.25

Head | Sheet | Test | Sample | Pad | Instrument

Example of an Lead template from Lory, Teck

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Test (analysis) tab

ICP0012-SEP00.WSH

Repo-Tag : Sample	A Weight	B Volume	C Dilution	D a)AgICP g/t	E Ag 328.068 mg/L	
19 AUG9166.R00-78 :	0.2498	100				
20 AUG9166.R00-79 :	nss	nss				

*This tab is used to configure the **column header (=analysis)** in the OnWSH sheet. Each analysis can have many parameters and the relationship between them is given by the formula.*

ICP0012-SEP00.WSH

	*	Column ID	Unit	Technician	Note	Source	Dec
1	*	Weight		Ricardo	calibrated		
2	*	Volume					---
3	*	Dilution					---
4	*	a)AgICP	g/t			*C*B/A	4
5	*	Ag 328.068	mg/L				---
6	*	a)AlICP	g/t			*C*B/A	4
7	*	Al 396.152	mg/L				---
	*	a)AsICP	g/t			c*C*B/A	4
	*	As3 197.197	mg/L				---
10	*	As2 193.696					
11	*	As 188.979					
12	*	a)BaICP	g/t			a*C*B/A	
13	*	Ba 233.527	mg/L				---
14	*	a)BeICP	g/t			b*C*B/A	
15	*	Be2	mg/L				
16	*	Be 313.107	mg/L				

Head | Sheet | Test | Sample | Pad | Instrument

Decimal precision

Technician who locked this column. Can't be modified here.

Result column

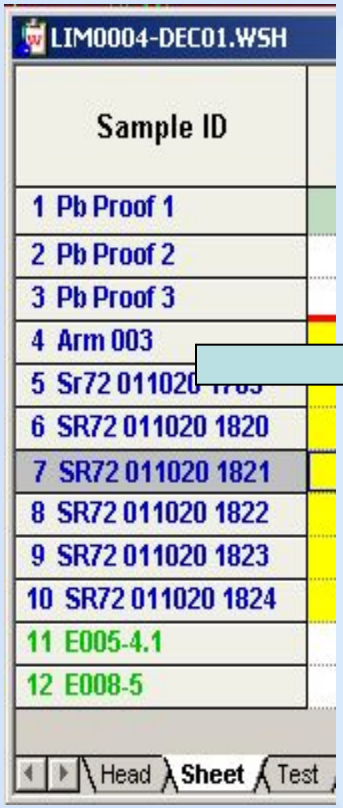
Parameter column

Test formula Lowercase is relative to the result column and uppercase is absolute, like Excel.

Sample tab

Sample ID

Sequence ID: ***Link with the instrument***



LIM0004-DEC01.WSH

	*	Sample ID	R.Num	R.Tag	Sequence	Type	Qc File	Note	Pre
1		Pb Proof 1				SMP			
2		Pb Proof 2				SMP			
3		Pb Proof 3				SMP			
4		Arm 003			As sq 1	SMP		QC ARM	
5		Sr72 011020 1785	*	2	As sq 2	SMP			
6		SR72 011020 1820	*	3	As sq 3	SMP			
7		SR72 011020 1821	*	4	As sq 4	SMP			
8		SR72 011020 1822	*	5	As sq 5	SMP			
9		SR72 011020 1823	*	6	As sq 6	SMP			
10		SR72 011020 1824	*	7	As sq 7	SMP			
11		E005-4.1				STD	E005-4.1	LIMS QC test	
12		E008-5				STD	E008-5	QC TEST	

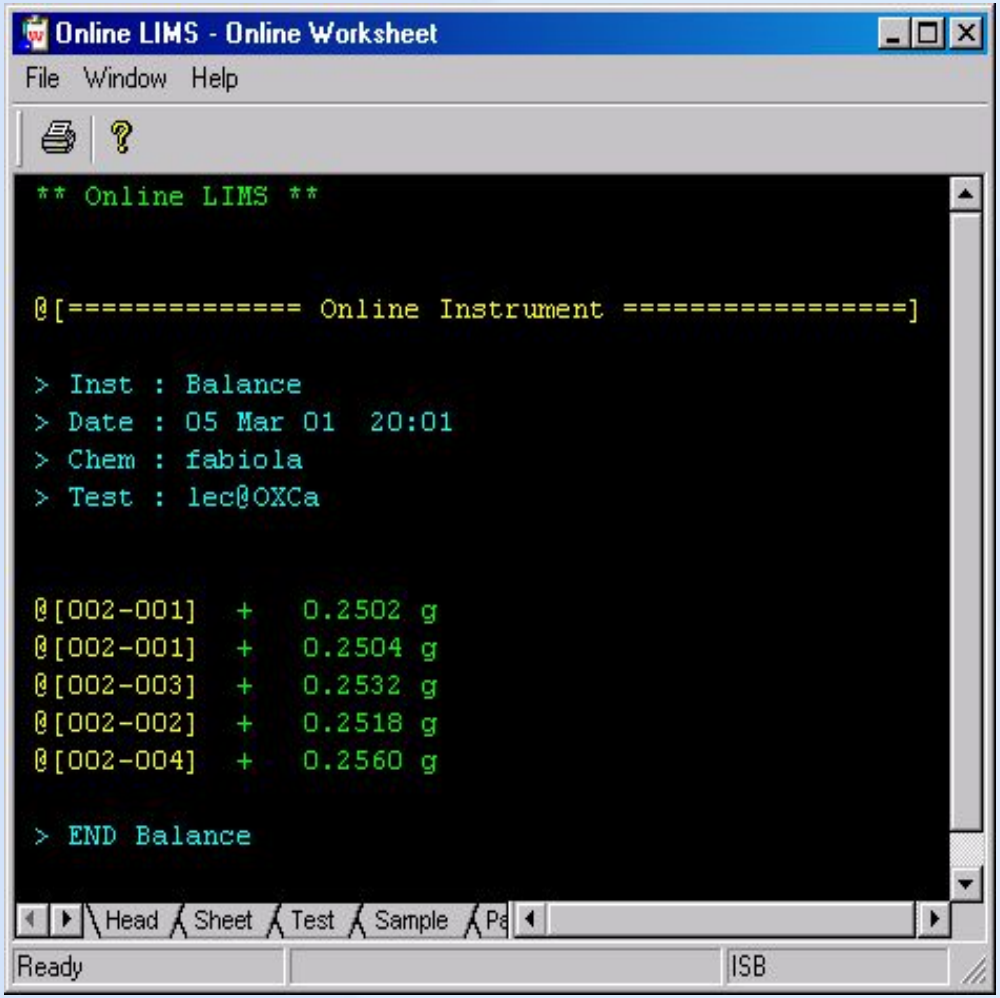
Head | Sheet | Test | Sample | Pad | Instrument

QC file

Report number & tag: ***link with the LIMS***

The sample tab stores all sample related data.
Used to configure the ***Row Header*** *in the WSH Sheet.*

Instrument log tab



This represents the [Column-Row] where the data was stored in the WSH sheet

For auditing purposes, all instrument information, including calibration data is recorded in the WSH log file.

The log file data is read only and can't be modified.

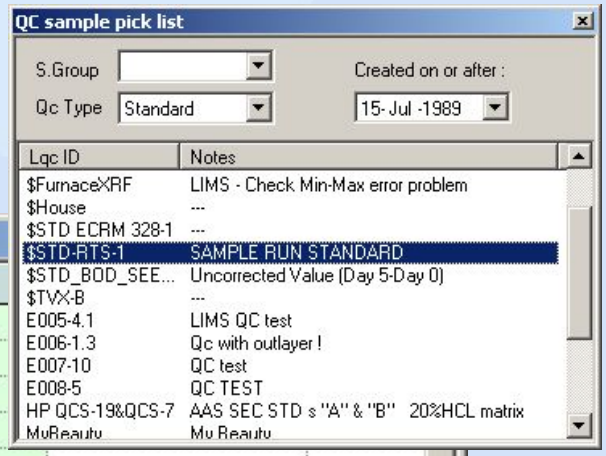
Worksheet configuration

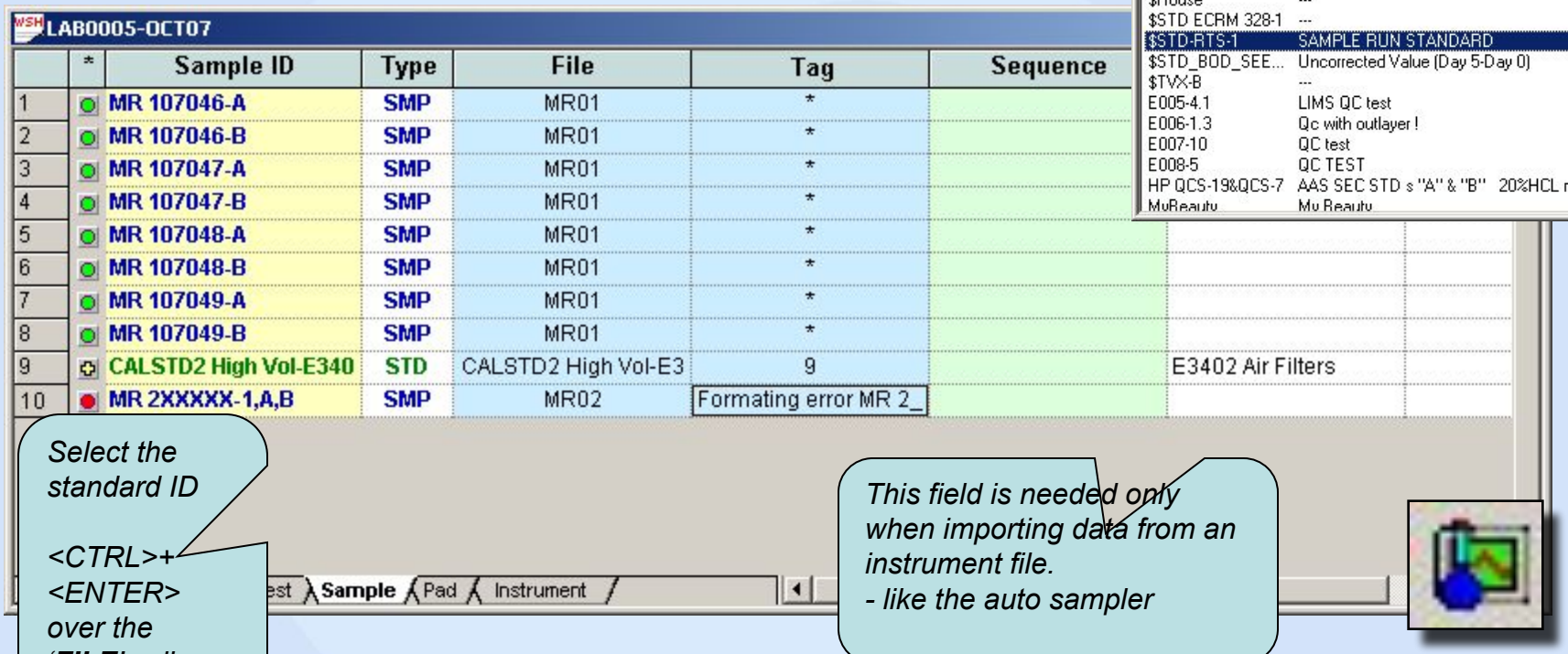
For the login of a NEW worksheet four basic steps are necessary:

1. Sample login (ROWS)
2. Analysis setup (COLUMNS)
3. Formulas (SHEET)
4. Formatting (SHEET)

1) Sample login (ROWS)

Job Link





Select the standard ID

*<CTRL>+ <ENTER> over the '**FILE**' cell*

This field is needed only when importing data from an instrument file.
- like the auto sampler

The first step is to login all sample Id information and configure all duplicates and Standard for this batch of samples.

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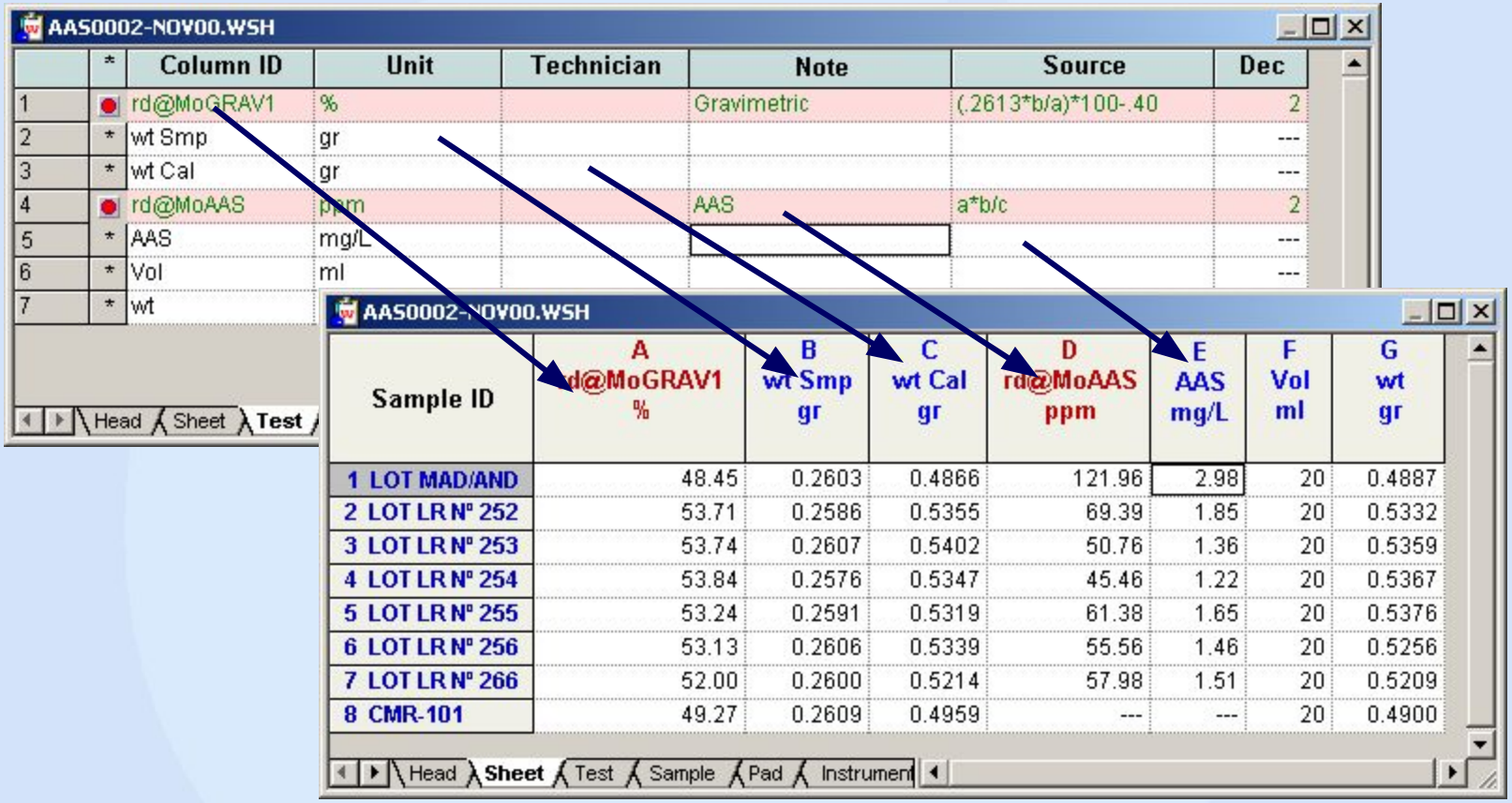
2) Test login (COLUMNS)



The second step is to login all required analysis (Test) and parameters. The red columns are the Test or result columns, this can be picked from the report or typed in. Result column data is usually populated using the formula for that column. Parameter columns data can be either instrument or manually entered data.

Formulas

AAS0002-NOV00.WSH

	*	Column ID	Unit	Technician	Note	Source	Dec
1		rd@MoGRAV1	%			(.2613*b/a)*100-.40	2
2	*	wt Smp	gr				---
3	*	wt Cal	gr				---
4		rd@MoAAS	ppm			a*b/c	2
5	*	AAS	mg/L				---
6	*	Vol	ml				
7	*	wt	gr				

Head | Sheet | Test | San

1

Calculate selected cells

Formula: (.2613*b/a)*100-.40

Decimals: 2 enter [-1] for no truncation

OK Cancel

2

AAS0002-NOV00.WSH

Sample ID	A rd@MoGRAV1 %	B wt Smp gr	C wt Cal gr	D rd@MoAAS ppm	E AAS mg/L	F Vol ml	G wt gr
AD/AND	=(0.2613*C1/B1)*100-0.4	0.2603	0.4866	=E1*F1/G1	2.98	20	0.4887
N° 252	=(0.2613*C2/B2)*100-0.4	0.2586	0.5355	=E2*F2/G2	1.85	20	0.5332
N° 253	=(0.2613*C3/B3)*100-0.4	0.2607	0.5402	=E3*F3/G3	1.36	20	0.5359
N° 254	=(0.2613*C4/B4)*100-0.4	0.2576	0.5347	=E4*F4/G4	1.22	20	0.5367
N° 255	=(0.2613*C5/B5)*100-0.4	0.2591	0.5319	=E5*F5/G5	1.65	20	0.5376
N° 256	=(0.2613*C6/B6)*100-0.4	0.2606	0.5339	=E6*F6/G6	1.46	20	0.5256
N° 266	=(0.2613*C7/B7)*100-0.4	0.26	0.5214	=E7*F7/G7	1.51	20	0.5209
8 CMR-101	=(0.2613*C8/B8)*100-0.4	0.2609	0.4959	---	---	20	0.49

Head | Sheet | Test | Sample | Pad | Instrument

AAS0002-NOV00.WSH

Sample ID	A rd@MoGRAV1 %	B wt Smp gr	C wt Cal gr	D rd@MoAAS ppm	E AAS mg/L	F Vol ml	G wt gr
1 LOT MAD/AND N° 149	< 50	0.2603	0.4866	121.96	2.98	20	0.4887
2 LOT LR N° 252	53.71	0.2586	0.5355	69.39	1.85	20	0.5332
3 LOT LR N° 253	53.74	0.2607	0.5402	50.76	1.36	20	0.5359
4 LOT LR N° 254	53.84	0.2576	0.5347	45.46	1.22	20	0.5367
5 LOT LR N° 255	53.24	0.2591	0.5319	61.38	1.65	20	0.5376
6 LOT LR N° 256	53.13	0.2606	0.5339	55.56	1.46	20	0.5256
7 LOT LR N° 266	52.00	0.2600	0.5214	57.98	1.51	20	0.5209
8 CMR-101	< 50	0.2609	0.4959	---	---	20	0.4900

Head | Sheet | Test | Sample | Pad | Instrument

The LIMS formula (1) is converted (2) into an "excel like" formula.

Lowercase characters are RELATIVE to the result column.

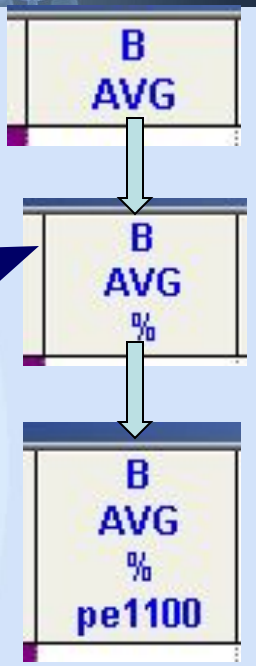
UPPERCASE characters are ABSOLUTE to the first sheet column.

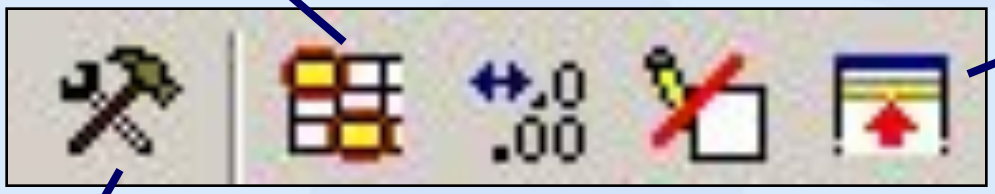
4) Formatting (SHEET)

025	0.00089	10-J
037	0.00047	10-J
028	0.00110	10-J
050	0.00028	10-J

Cell highlighter

Protects a cells so that it can not be modify

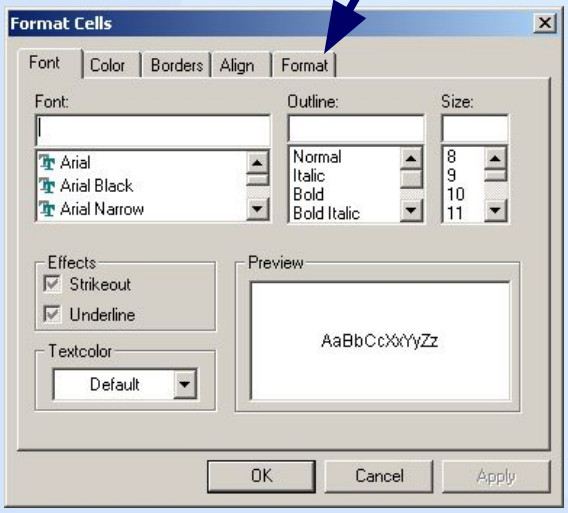


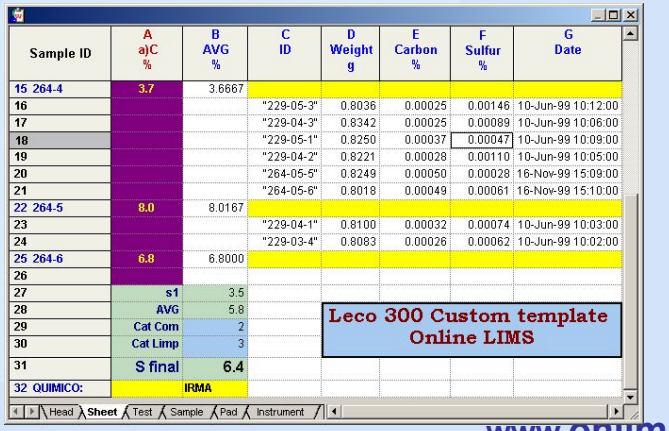


Open cell format dialog

Toggle to display the amount of data in the column header

Increases or decreases the amount of decimals displayed in a cell





Sample ID	A a)C %	B AVG %	C ID	D Weight g	E Carbon %	F Sulfur %	G Date
15 264-4	3.7	3.6667					
16			"229-05-3"	0.8036	0.00025	0.00146	10-Jun-99 10:12:00
17			"229-04-3"	0.8342	0.00025	0.00089	10-Jun-99 10:06:00
18			"229-05-1"	0.8250	0.00037	0.00047	10-Jun-99 10:09:00
19			"229-04-2"	0.8221	0.00028	0.00110	10-Jun-99 10:05:00
20			"264-05-5"	0.8249	0.00050	0.00028	16-Nov-99 15:09:00
21			"264-05-6"	0.8018	0.00049	0.00061	16-Nov-99 15:10:00
22 264-5	8.0	8.0167					
23			"229-04-1"	0.8100	0.00032	0.00074	10-Jun-99 10:03:00
24			"229-03-4"	0.8083	0.00026	0.00062	10-Jun-99 10:02:00
25 264-6	6.8	6.8000					
26							
27	s1	3.5					
28	AVG	5.8					
29	Cat Com	2					
30	Cat Limp	3					
31	S final	6.4					
32 QUIMICO:	IRMA						

Leco 300 Custom template
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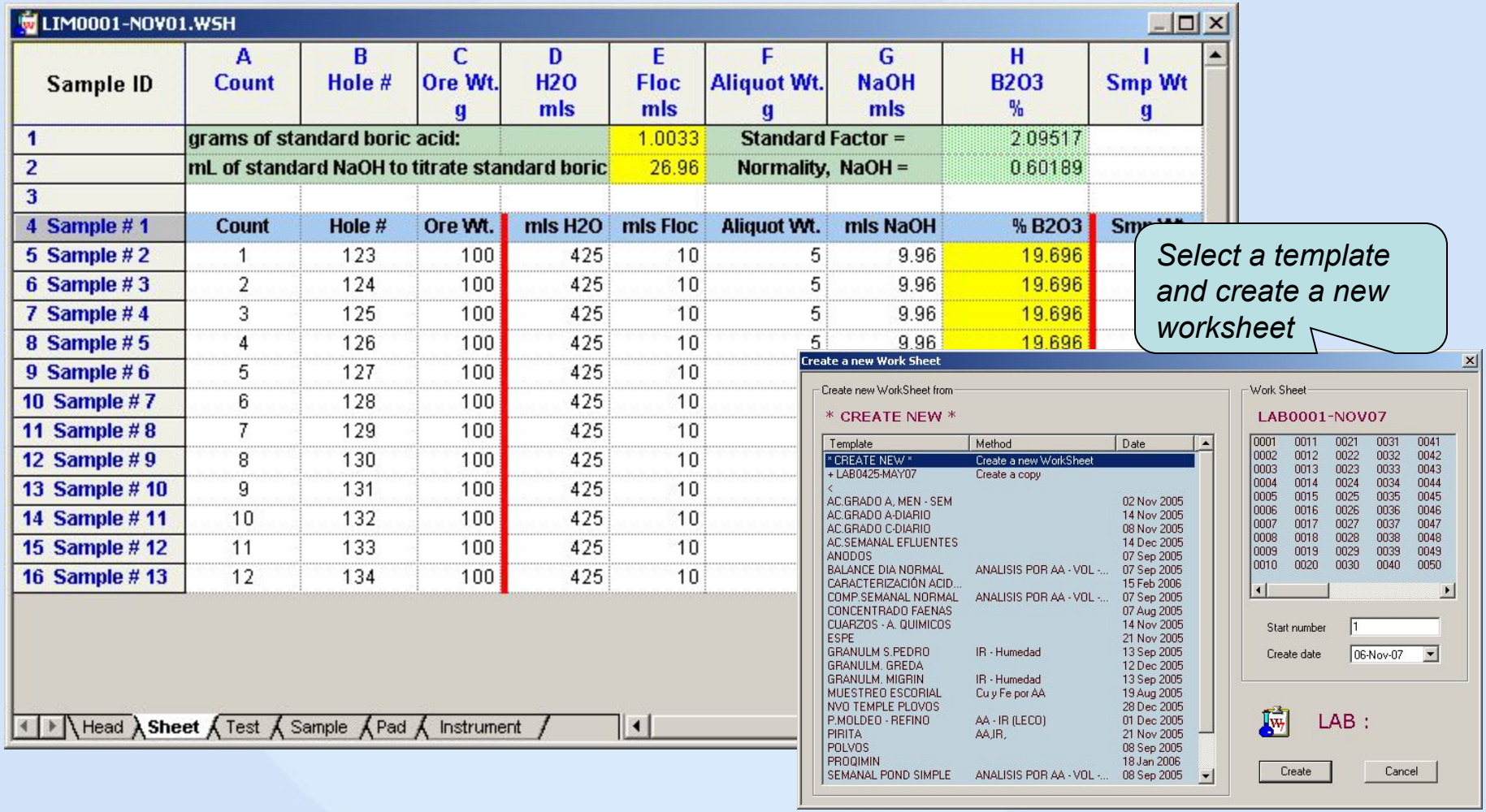
INNOVATIVE LABORATORY AUTOMATION

Worksheet Templates



Templates are used to save a lot of time when creating routine worksheets. Templates are created as a worksheet and then saved as a template and stored in the workgroup folder root directory.

Templates

OnLIMS
INNOVATIVE LABORATORY AUTOMATION

*Select **NEW** to create an empty new WSH*

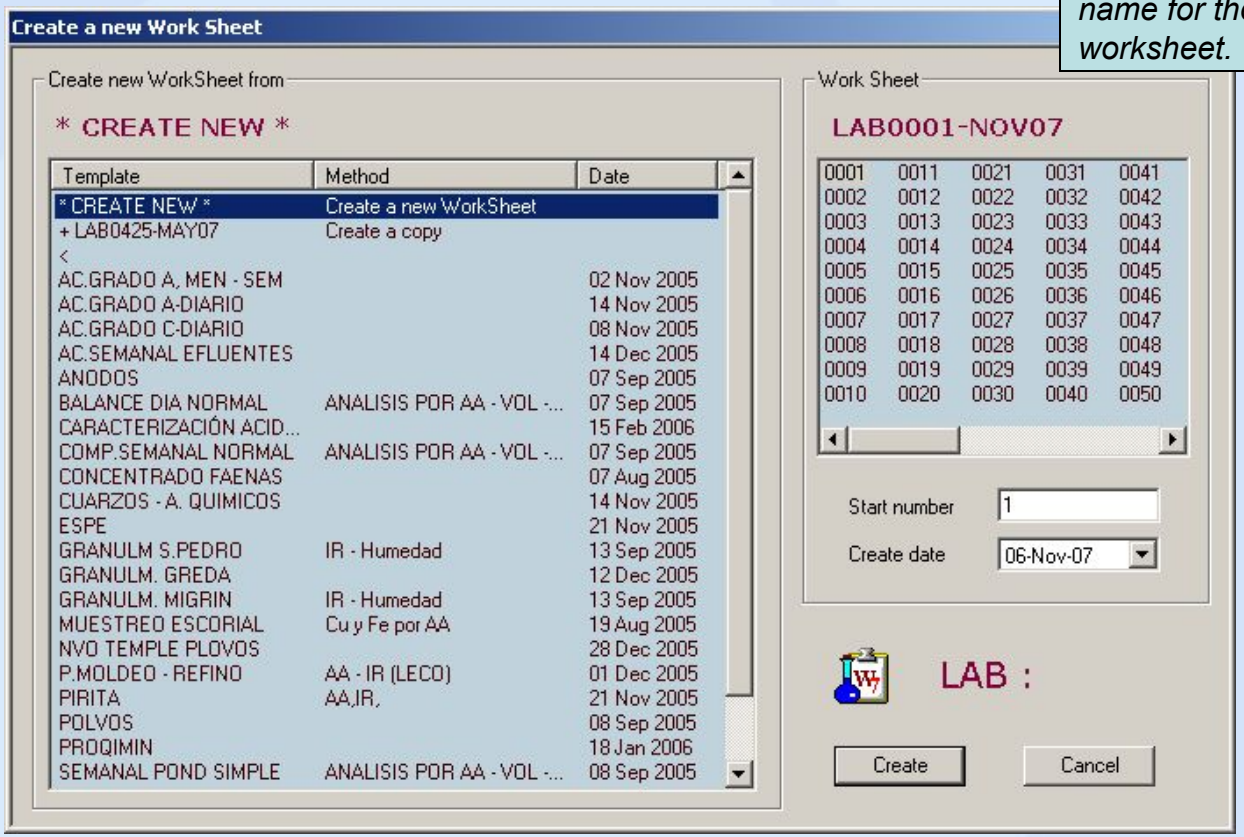
*Select **>COPY XXXX<***

to make a copy of the selected WSH

Select a template to create a WSH from a template

Template list

Shows all files with WSH extension located in the Service Group root folder



The selected WSH file name for the new worksheet.

These are all the available WSH numbers for this service group

Select the desired start number to look for the next available number

This menu is used for the creation of new worksheets.

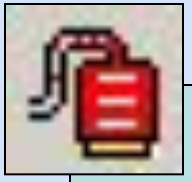
Be sure to have the right "service group", "Month" and "year" selected

OnLIMS
INNOVATIVE LABORATORY AUTOMATION

Instruments

- *Worksheet*
- ***Instrument***
- *QA & Validation*
- *Exporting*
- *QA/QC*

Instrument link



ONLINE INSTRUMENTS

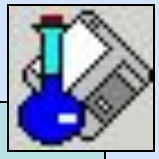
Balances
LECO
AAS

Mainly single element instruments

Uses a cable to connect to the PC

Online instruments *are connected through a RS232 (serial cable) to the computer.*

Import Instruments *are instruments that at the end of a analysis session generates an file with the analyte data. This file is imported and parsed by OnWSH.*



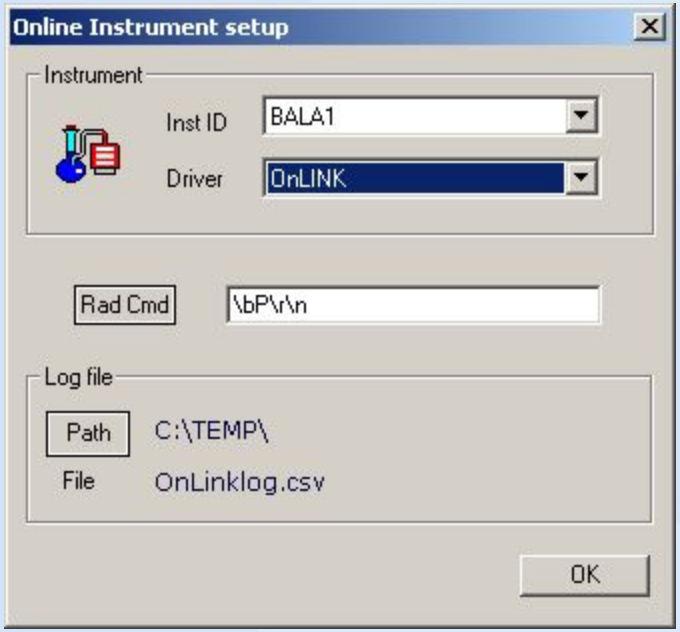
IMPORT INSTRUMENTS

ICP
PLASMA
XRF
OES

Mainly multi element Instruments

Uses a file to be imported to the PC

Online Instrument setup



Instrument ID

Instrument driver

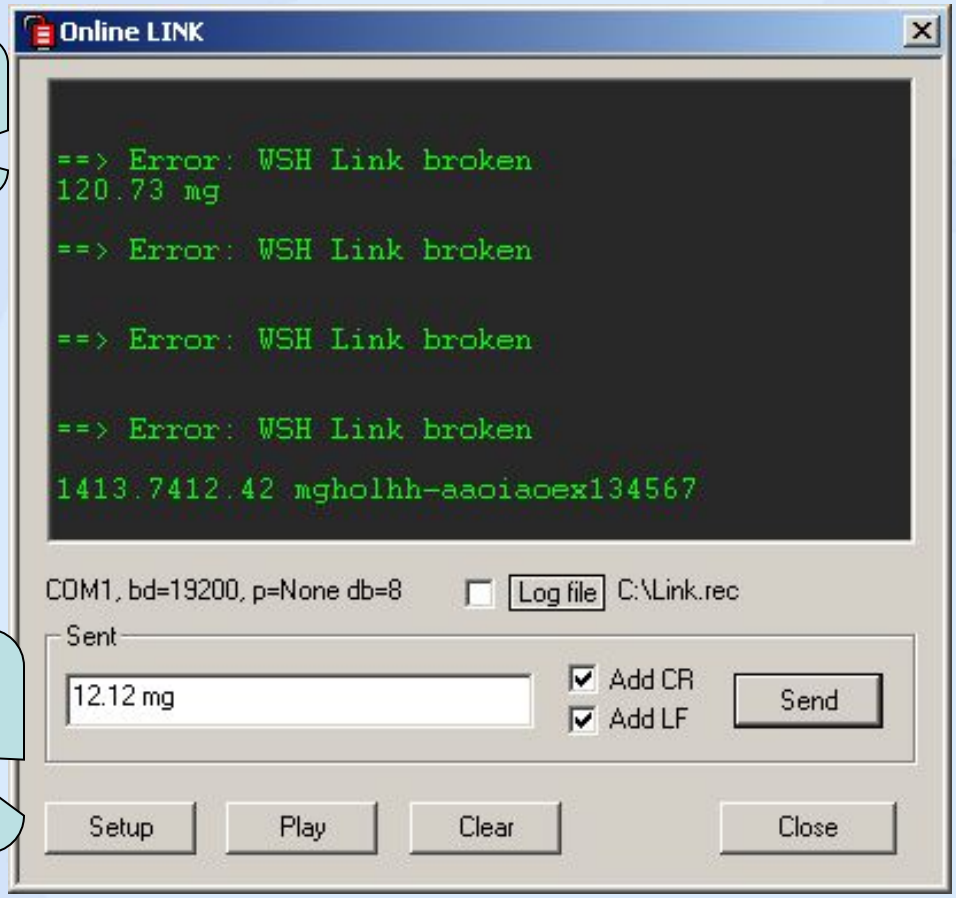
On-line Instruments allows you to read data directly from the instrument into the worksheet.

To open the 'on-line instrument' setup dialog select the menu : Instrument->Setup

1. *Pick up the instrument driver*
2. *Select the instrument ID for the attached instrument. This data should be already in the Instrument database (OnSETUP).*
3. *Enter any read command if required*

The instrument log file is generated by the instrument. The log file is usually stored in the local drive and can be used to recover readings after a power failure or a system crash.

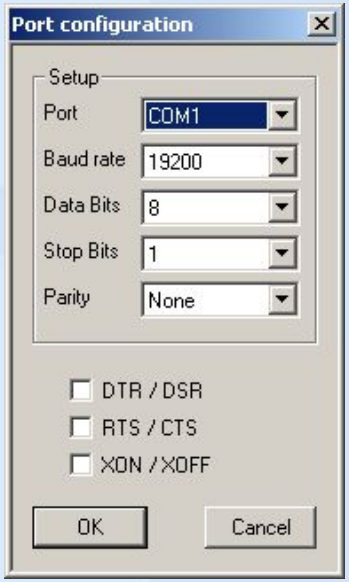
Online LINK



Rx terminal to see incoming data

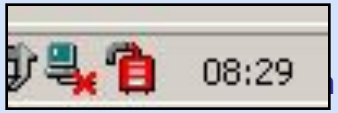
Current port configuration

This string can be sent to the instrument. Used for bi-directional communication



The serial port configuration is launched with the setup button. Please refer to the instrument documentation for serial communication settings for the instrument.

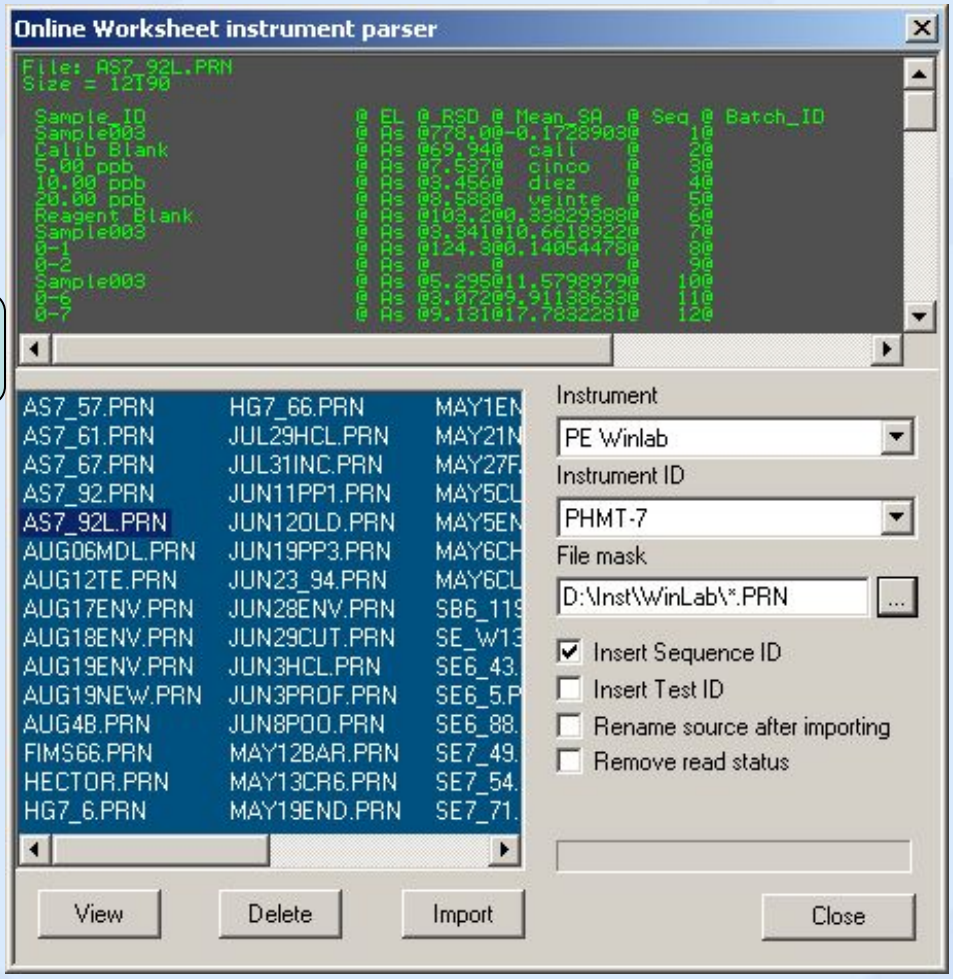
OnLINK should be active on the taskbar



OnLINK is a application that handles the serial communication between the instrument and OnWSH. This is a module that stays resident in memory (stays always open in the Windows Taskbar).

OnLIMS
INNOVATIVE LABORATORY AUTOMATION

Instrument import



List of all files in the instrument folder.

Opens instrument file in a text editor (Notepad)

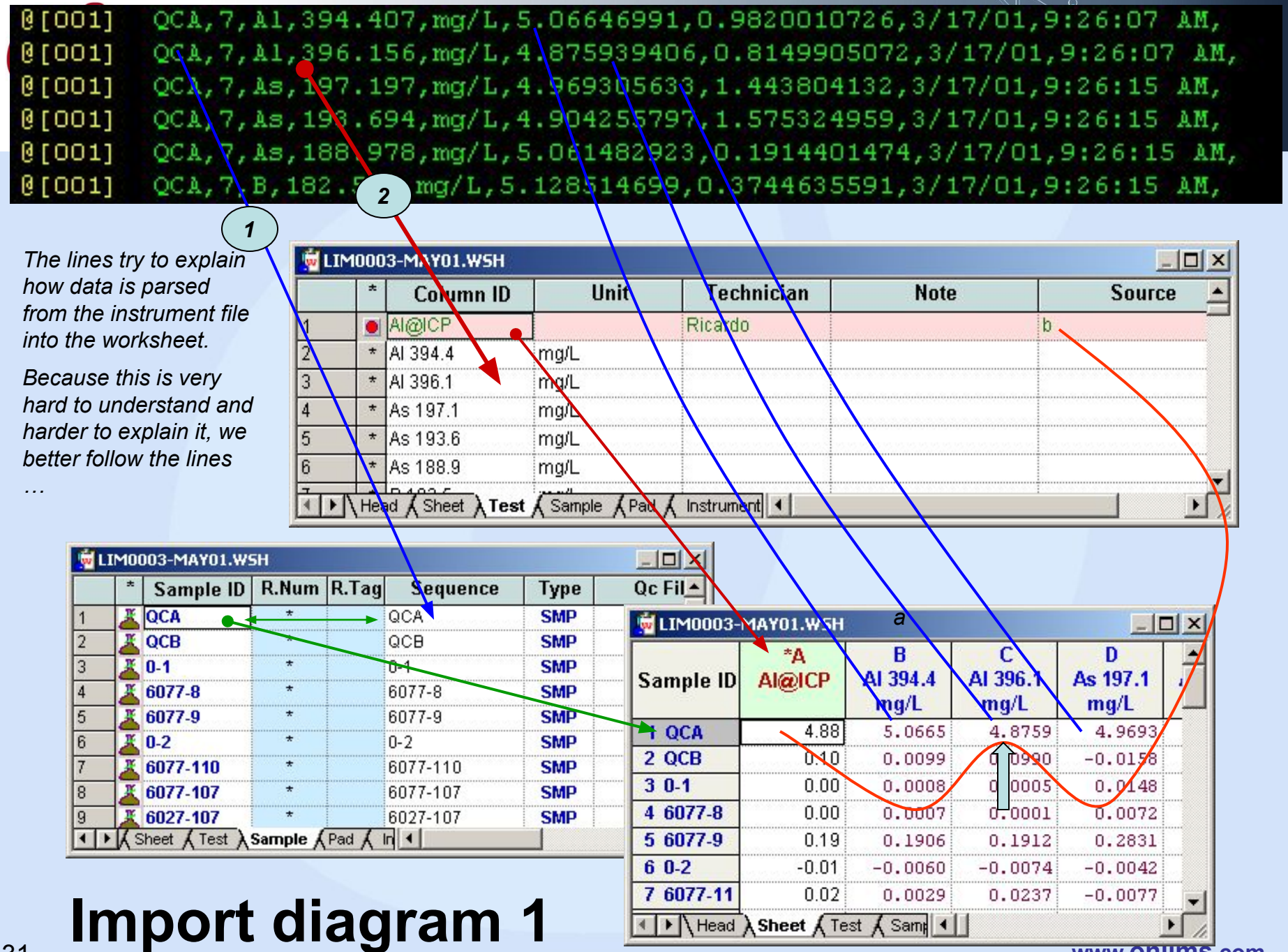
Quick preview of the the contents of the instrument file

Selected instrument driver used by parser

Instrument ID from the instrument database

Path of the instrument folder

The instrument import dialog is used to browse and select the instrument file to be imported. The file will be parsed by the selected instrument driver and the readings send to the worksheet.



Import diagram 1

OnLIMS
INNOVATIVE LABORATORY AUTOMATION

Import diagram 2

*The instrument "**Sample ID**" must match the "**Sequence**" column in the worksheet and the Instrument "**Analysis Id** " must match the "**Test Id**" column in the worksheet.This is very important in order to correctly link the instrument data with the worksheet.*

The Sample ID how the Client names it.

Sequence must match Instrument's "Sample ID" as entered in the instrument auto-sampler table

"Test Id" in worksheet must match the "Test Id" on the instrument

This is used to link the worksheet with the LIMS. More on this later…

LIM0003-MAY01.WSH

	*	Column ID	Unit	Technician
1		Al@ICP		Ricardo
2	*	Al 394.4	mg/L	
3	*	Al 396.1	mg/L	
4	*	As 197.1	mg/L	
5	*	As 193.6	mg/L	
6	*	As 188.9	mg/L	
7	*	B 182.5	mg/L	
8	*	B 208.8	mg/L	
9	*	B 249.7	mg/L	

Head | Sheet | Test | Sample

LIM0003-MAY01.WSH

	*	Sample ID	R.Num	R.Ta	Sequence	Type
1		QCA	*		QCA	SMP
2		QCB	*		QCB	SMP
3		0-1	*		0-1	SMP
4		6077-8	*		6077-8	SMP
5		6077-9	*		6077-9	SMP
6		0-2	*		0-2	SMP
7		6077-110	*		6077-110	SMP
8		6077-107	*		6077-107	SMP
9		6027-107	*		6027-107	SMP

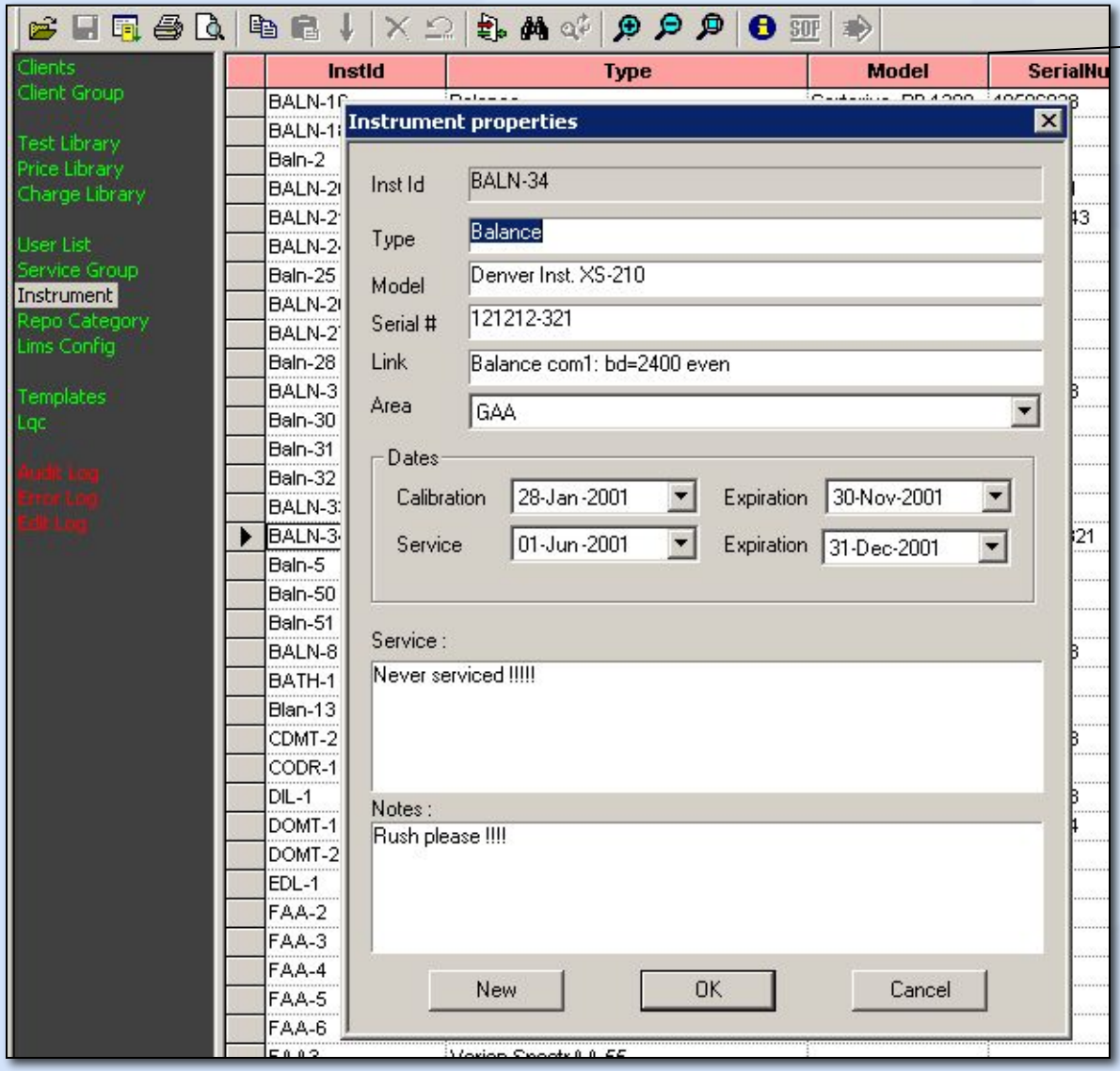
LIM0003-MAY01.WSH

Sample ID	*A Al@ICP	B Al 394.4 mg/L	C Al 396.1 mg/L	D As 197.1 mg/L	E As 193.6 mg/L
1 QCA	4.88	5.0665	4.8759	4.9693	4.9043
2 QCB	0.18	0.0099	0.0990	-0.0158	0.0040
3 0-1	0.00	0.0008	0.0005	0.0148	0.0038
4 6077-8	0.00	0.0007	0.0001	0.0072	-0.0039
5 6077-9	0.19	0.1906	0.1912	0.2831	0.2387
6 0-2	-0.01	-0.0060	-0.0074	-0.0042	-0.0007
7 6077-11	0.02	0.0029	0.0237	-0.0077	-0.0067
8 6077-10	0.02	-0.0018	0.0187	-0.0026	-0.0080
9 6027-10	0.01	0.0077	0.0147	0.0078	-0.0026
10 6024-10	0.01	0.0091	0.0149	-0.0003	0.0082
11 5510-10	0.02	0.0068	0.0166	-0.0069	-0.0084
12 6021-10	0.27	0.2549	0.2732	0.0058	0.0094
13 6021-10	0.01	0.0051	0.0145	0.0056	-0.0030

Head | Sheet | Test | Sample

OnLIMS
INNOVATIVE LABORATORY AUTOMATION

Instrument Database



Use this field to document the instruments communication properties.

The main purpose of the instrument database is to track the calibration and service dates. If one of this dates expired, the Worksheet will warn the user by displaying the instrument properties window.

Additional fields are available to store pertinent information.

The instrument database is maintained using the OnSETUP module.

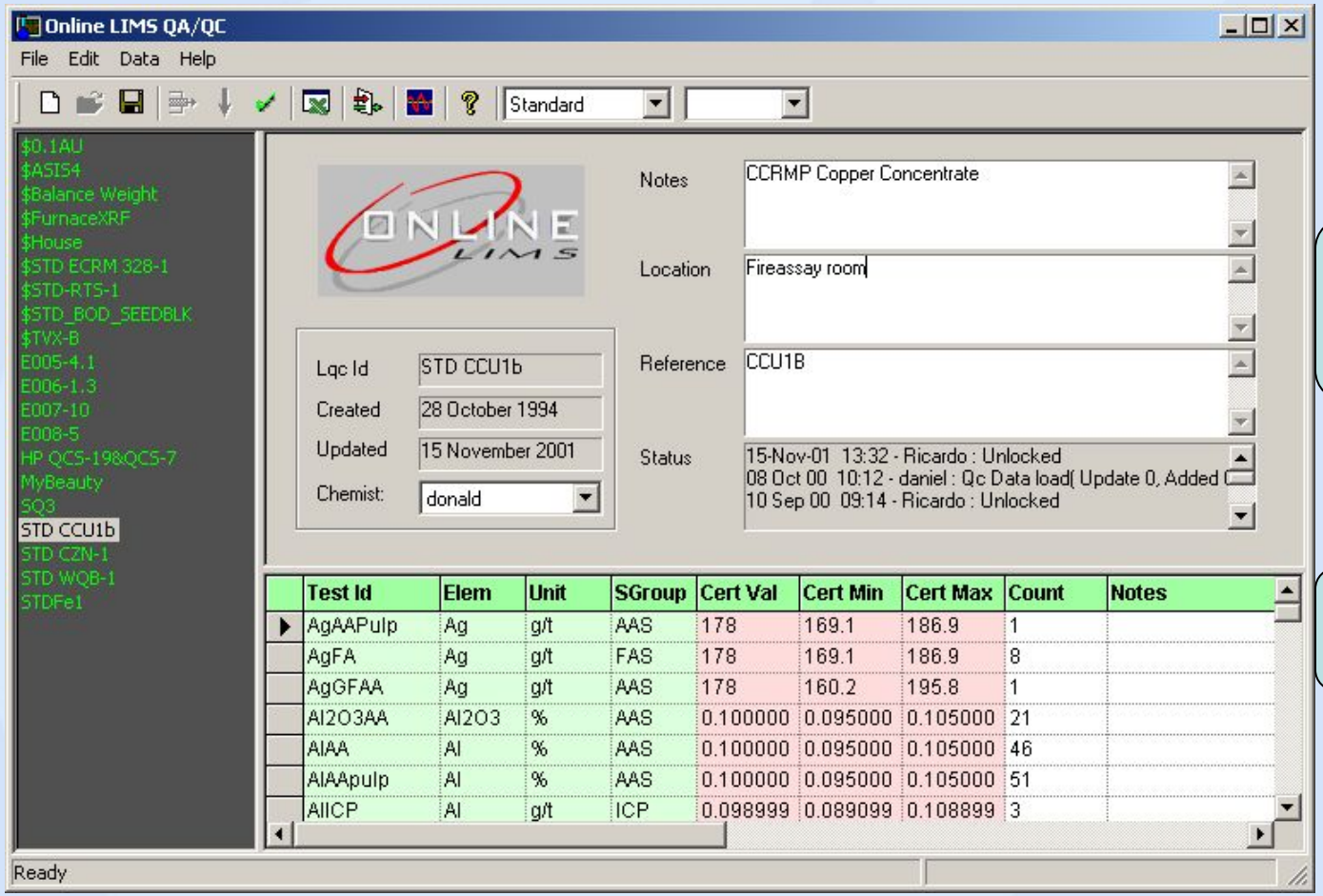
OnLIMS
INNOVATIVE LABORATORY AUTOMATION

Instrument Database

- *Worksheet*
- *Instrument*
- ***QC & Validation***
- *Exporting*

OnLIMS
INNOVATIVE LABORATORY AUTOMATION

QC file browser



QC file (index) pane

QC Header pane

QC Test pane

The OnLQC browser helps to navigate trough all QC files and to edit QC data. QC files are made up by tree groups: QC Header data, QC Test data and QC Raw data (the only one not accessed by the browser). The browser is divided by tree panes

QC Chart

Data Chart

Standard deviation

Vertical

Horizontal cursor

Reference material panel

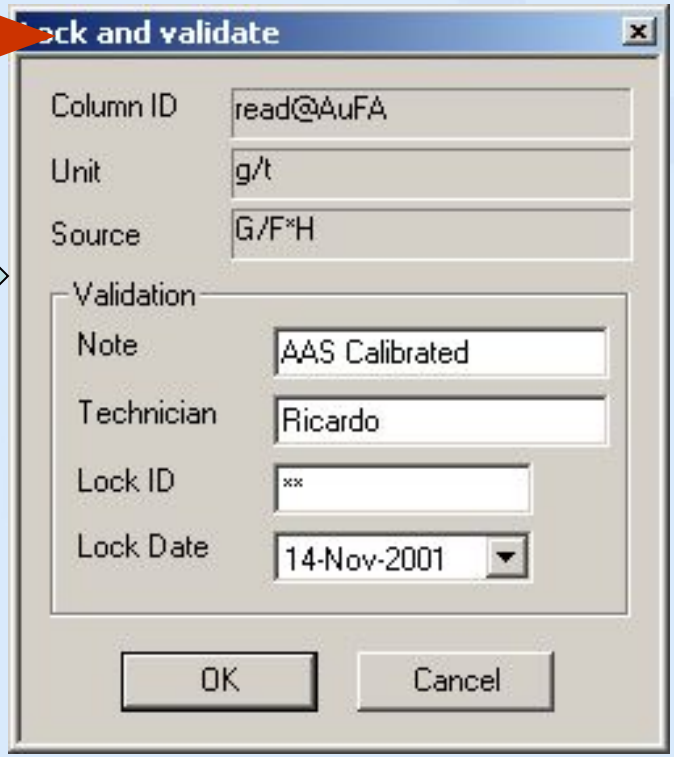
Overall statistic panel

Status bar information

Current point panel

Validating data

A read@AuFA g/t
0.03
0.12
0.16
0.03



*A read@AuFA g/t
0.03
0.12

When an error is found in a QC cell, the cell is highlighted in RED. Errors could be caused by having the wrong Test Id, the cell value is out of specs for the QC

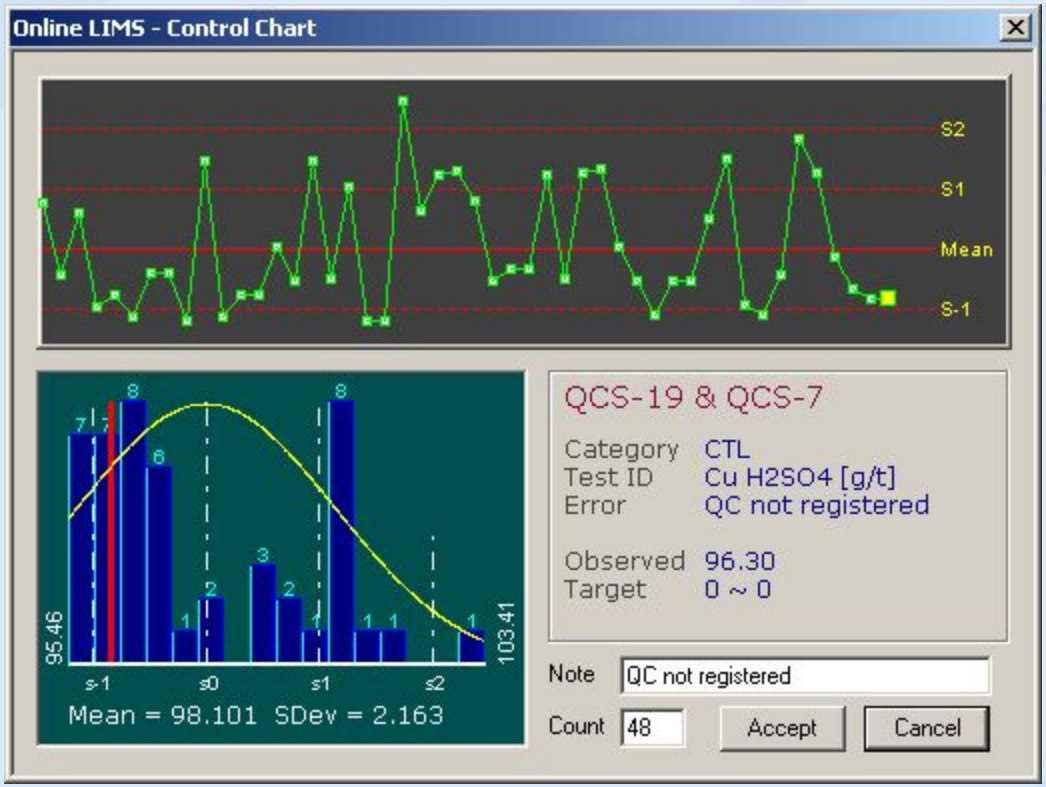
14 Met 10	0.03
15 Polymet Au Pt Pd	1.55
16 FASBLK	0.01

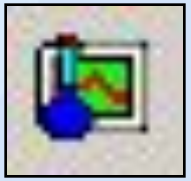
After validating a column (locking the column), the column header becomes GREEN and the cell data becomes read-only

OnLIMS
INNOVATIVE LABORATORY AUTOMATION

QC Check

Plots only last 40 values as a reference. However statistic are based on the whole population.





Mean

Certified value, Min & Max allowed

Additional control is supported by control limits.

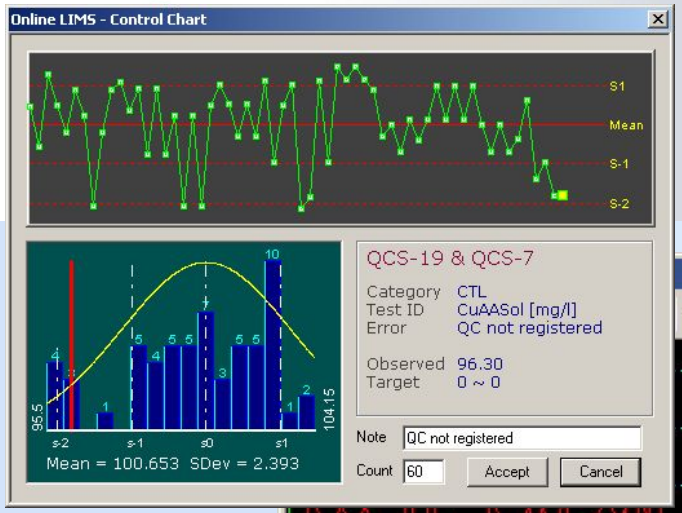
A note can be typed for this point to document the type of error or warning.

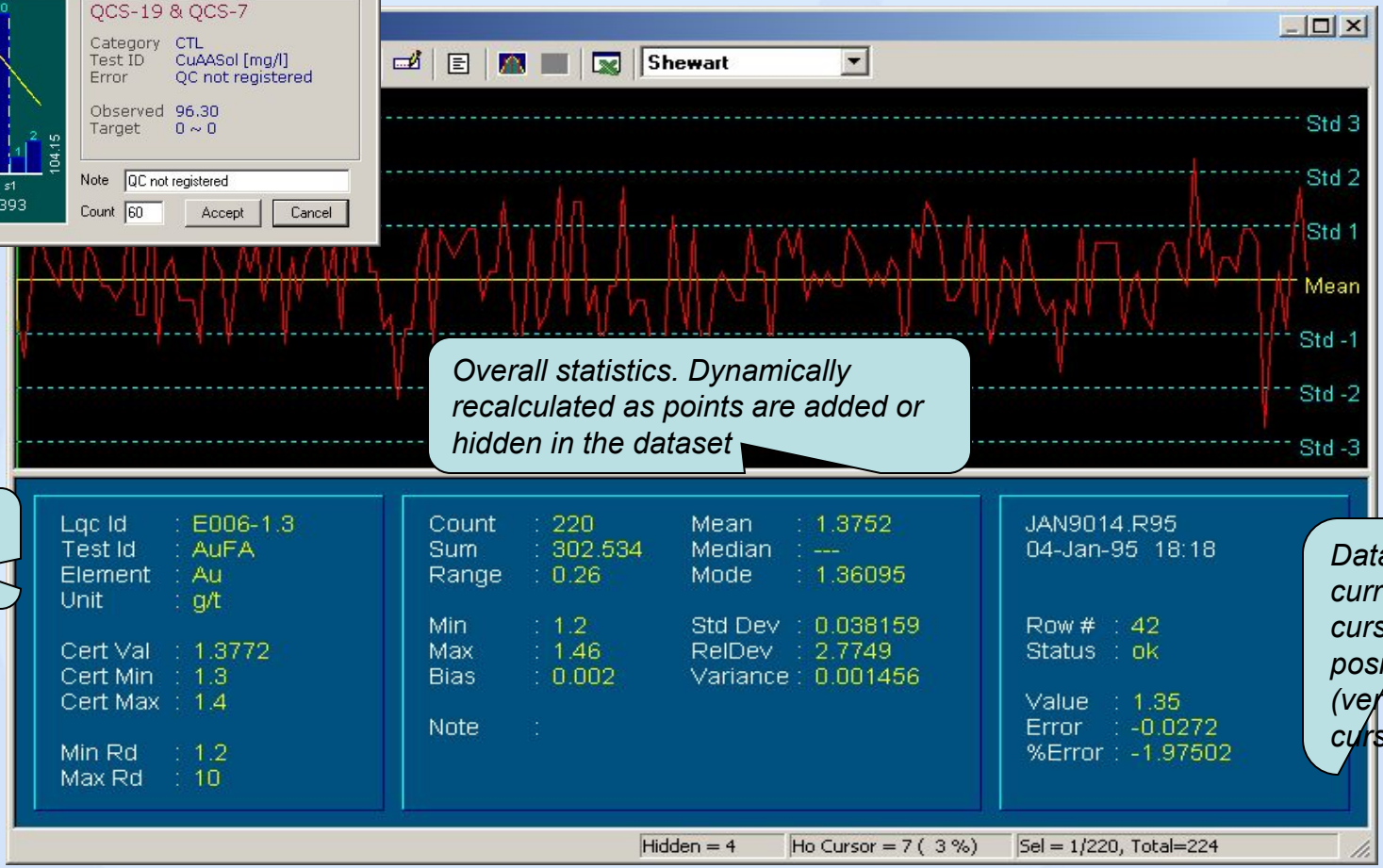
51 4906	1.31	1.31
52 STD-2 BUZON	0.64	0.64
53 STD-4 BUZON	1.65	1.65
54 STD-5 GEO	2.04	2.04

When performing data validation in the worksheet and a QC value is found to be outside the certified rage for the QC then the "QC statistic" window is open.

QC Check 2

40





Overall statistics. Dynamically recalculated as points are added or hidden in the dataset

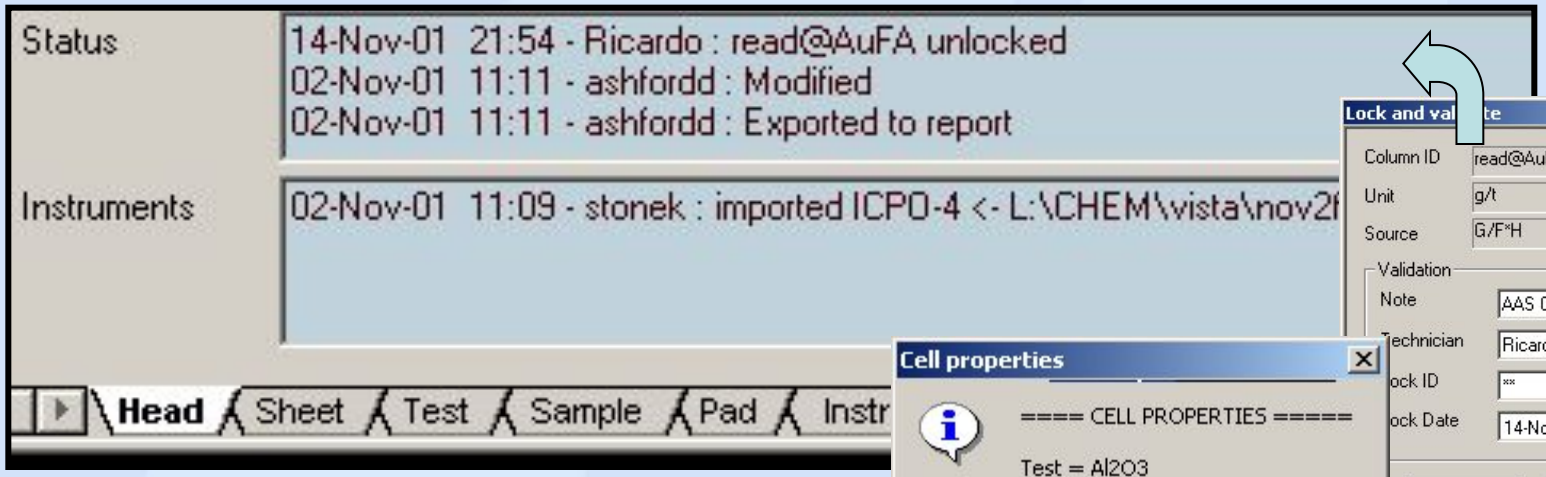
Reference data

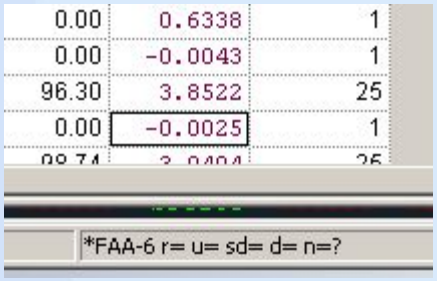
Data for current cursor position (vertical cursor)

Only the last 40 values are displayed in the QC validation window. To view the whole population, use the OnLQC module. However, the statistics shown are for whole population, including the last data as 'live data'. If <accept> is pressed, the data point and the note, if any, are sent to the QC database.

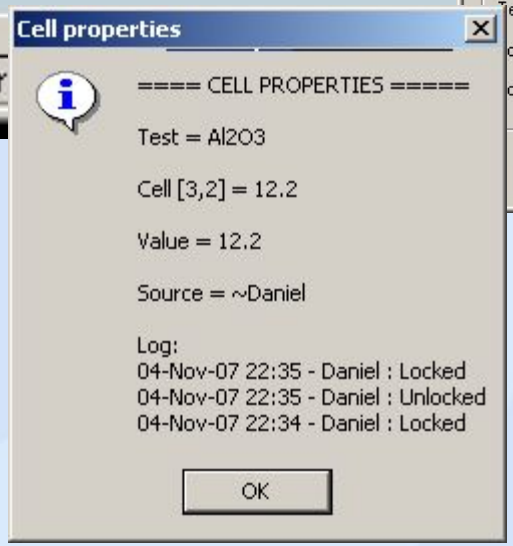
OnLIMS
INNOVATIVE LABORATORY AUTOMATION

Validation log





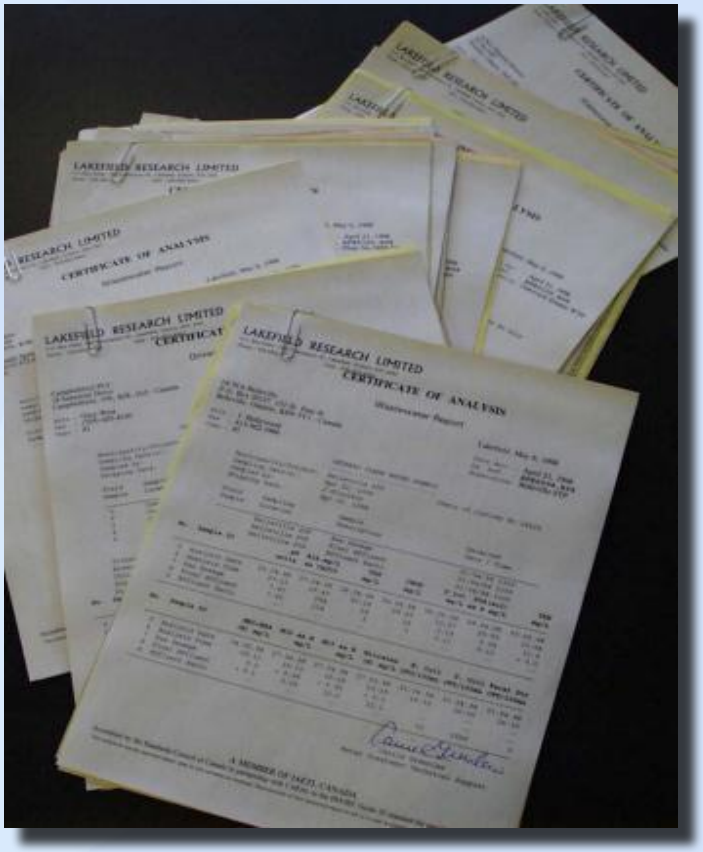
Each cell is audited



Once the data is validated (locked) with a password, it can only be modified by unlocking the column using the same password that was locked with or by using the super-password. Every time a column is lock or unlock the action is logged in the status field in the header tab.

OnLIMS
INNOVATIVE LABORATORY AUTOMATION

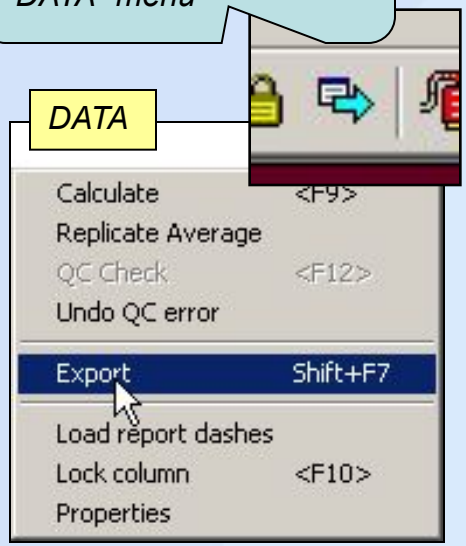
Exporting



- *Worksheet*
- *Instrument*
- *QC & Validation*
- ***Exporting***

OnWSH data exporting

Open the export dialog from the toolbar or the "DATA" menu



Worksheet export to report

Sample ID	lec@CuVOL	lec@CuVOL1	lec@AsAA	lec@PbAA	lec@AgAA	lec@SbA
1 AN0311-FEB01: LOTE N° 1	30.1	30.2	0.23		84	
2 AN0311-FEB01: LOTE N° 2	30.3	30.2	0.20		81	
3 AN0311-FEB01: LOTE N° 3	30.2	30.2	0.19		83	
4 AN0311-FEB01: LOTE N° 4	30.3	30.3	0.23		81	
5 AN0311-FEB01: LOTE N° 5	30.4	30.4	0.22		81	
6 AN0311-FEB01: LOTE N° 6	30.4	30.3	0.24		84	
7 AN0311-FEB01: LOTE N° 7	30.5	30.4	0.25		84	
8 AN0311-FEB01: LOTE N° 8	29.9	29.8	0.20		82	
9 AN0311-FEB01: LOTE N° 9	30.4	30.5	0.27		84	
10 AN0311-FEB01: LOTE N° 10	30.6	30.5	0.26		83	
11 AN0311-FEB01: LOTE N° 11	30.5	30.6	0.27		84	
12 AN0311-FEB01: LOTE N° 12	30.6	30.5	0.28		84	
13 AN0311-FEB01: LOTE N° 13	30.6	30.7	0.28		85	
14 AN0311-FEB01: LOTE N° 14	30.8	30.8	0.29		85	
15 AN0311-FEB01: LOTE N° 15	30.8	30.7	0.29		84	

AN0311-FEB01

--- AN0311-FEB01 --------
lec@CuVOL = 11
lec@CuVOL1 = 26
lec@AsAA = 26
lec@AgAA = 0
lec@SbAA = 0
lec@AuAA = 0

Overwrite reading
Export all
Export
Exit

Yellow cells represent data that was successfully exported.

Cells not highlighted with yellow are cells that where not exported

View report

Repo AN0311-FEB01 # Samples 26 # Test 18
Client Unidad Control Calidad
Attn Raul Cumsille
Proj EMBARQUE
Refe VENTANAS

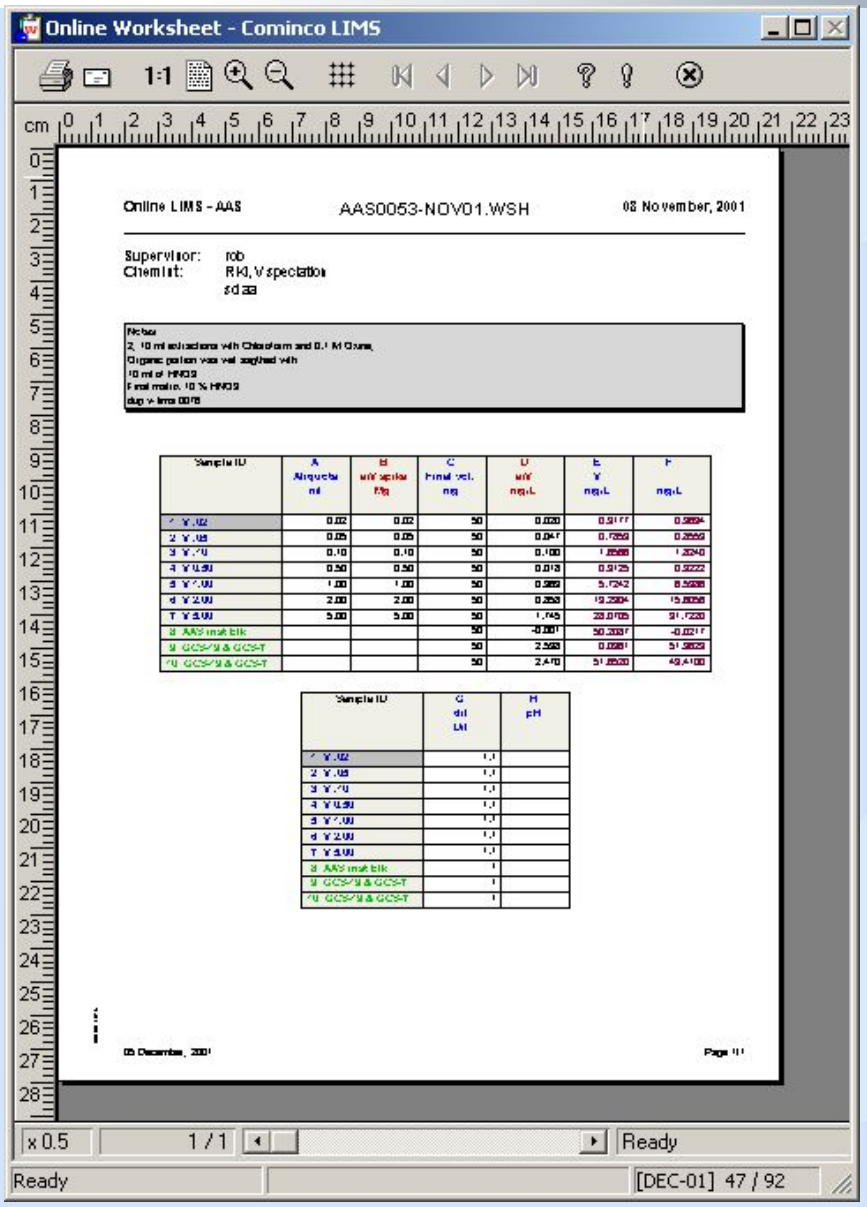
Id. Muestra	FECHA Fecha	CuVOL CuVOL %	* lec %	* lec %	Pr Pro
001 SMP: LOTE N° 1	05-Feb-01	30.1	30.1	30.2	
002 SMP: LOTE N° 2	05-Feb-01	30.3	30.3	30.2	
003 SMP: LOTE N° 3	05-Feb-01	30.2	30.2	30.2	
004 SMP: LOTE N° 4	05-Feb-01	30.3	30.3	30.3	
005 SMP: LOTE N° 5	05-Feb-01	30.4	30.4	30.4	
006 SMP: LOTE N° 6	05-Feb-01	Error!	30.4	30.3	
007 SMP: LOTE N° 7	05-Feb-01	Error!	30.5	30.4	
008 SMP: LOTE N° 8	05-Feb-01	Error!	29.9	29.8	
009 SMP: LOTE N° 9	05-Feb-01	Error!	30.4	30.5	
010 SMP: LOTE N° 10	05-Feb-01	Error!	30.6	30.5	
011 SMP: LOTE N° 11	05-Feb-01	Error!	30.5	30.6	
012 SMP: LOTE N° 12	05-Feb-01	Error!	30.6	30.5	
013 SMP: LOTE N° 13	05-Feb-01	Error!	30.6	30.7	
014 SMP: LOTE N° 14	05-Feb-01	Error!	30.8	30.8	

Data exporting feedback shows the Test and number of cell exported

The worksheet export (transfer) released data to the LIMS database. Some feedbacks are provided for the technician to ensure the transfer was done correctly

OnLIMS
INNOVATIVE LABORATORY AUTOMATION

Printing



Sample ID	A Aliquote ml	B a)V spike Mg	C Final vol. mg
1 V .02	0.02	0.02	50
2 V .05	0.05	0.05	50
3 V .10	0.10	0.10	50
4 V 0.50	0.50	0.50	50
5 V 1.00	1.00	1.00	50
6 V 2.00	2.00	2.00	50
7 V 5.00	5.00	5.00	50
8 AAS inst blk			50
9 QCS-19 & QCS-7			50
10 QCS-19 & QCS-7			50

Printing your worksheet from the head tab. Then write into the cells, like in your logbook

END

Thank you for your time