Prepared for:

MELA

April 12, 2016

HACH COMPANY

Water Quality Group

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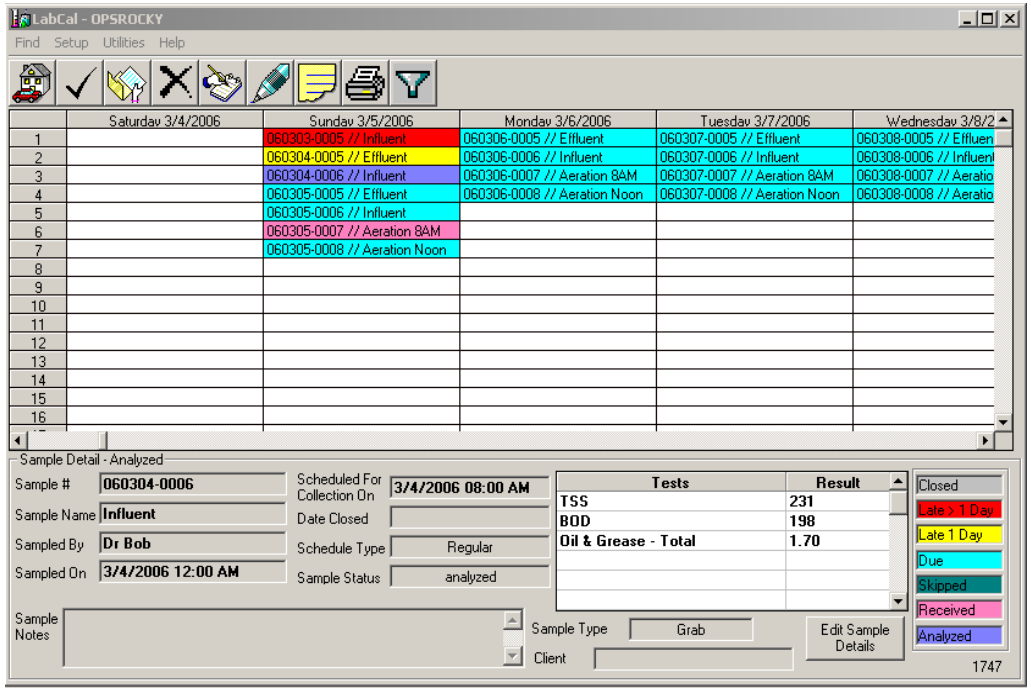
WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

- What is Lab Cal
  - Part of the Hach Water Information Management Solution (WIMS)
  - Easy to use Sample Scheduling and Tracking



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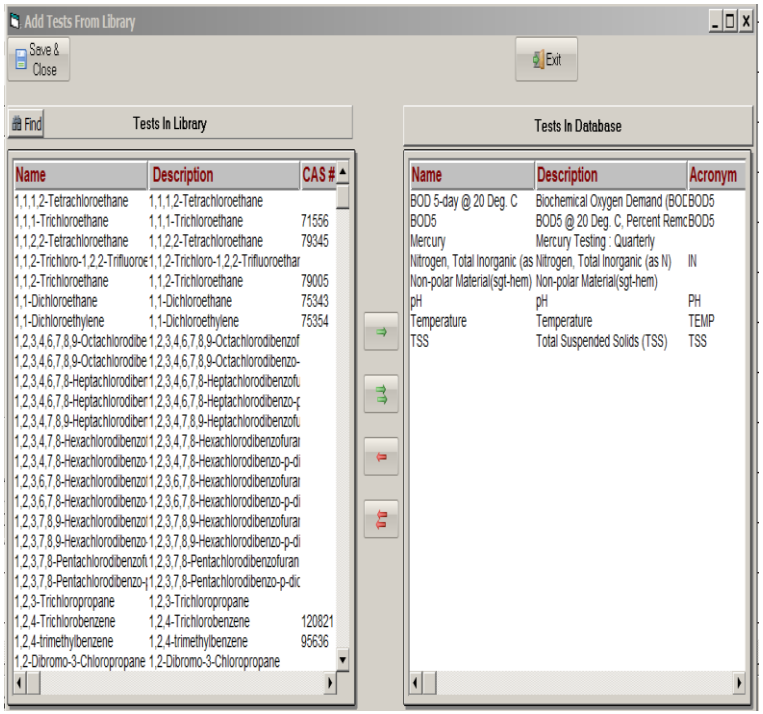
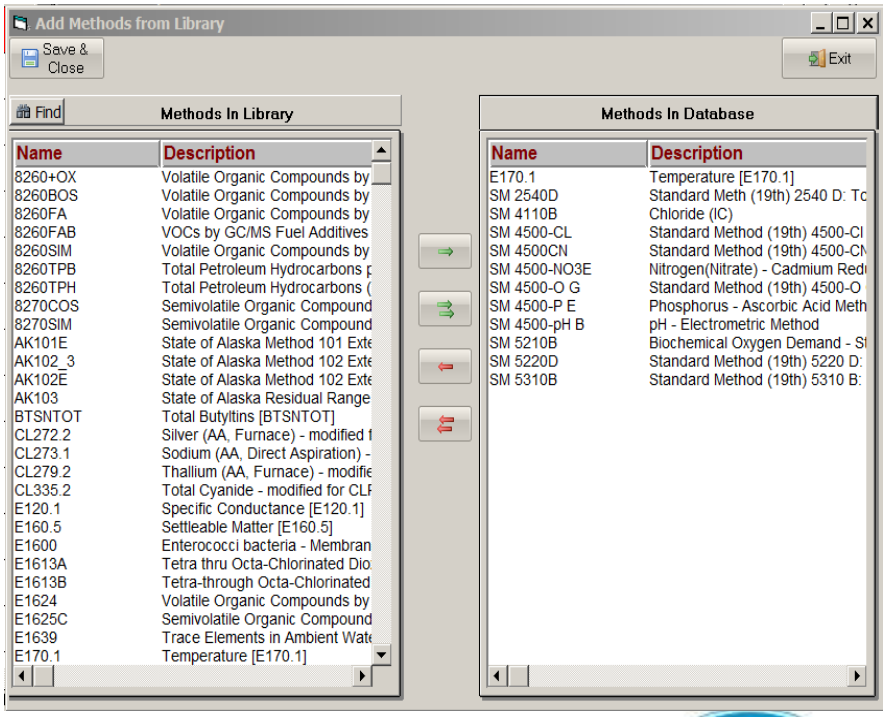
WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

- Fast and Easy Set Up
  - Choose Tests and Methods from modifiable Library.





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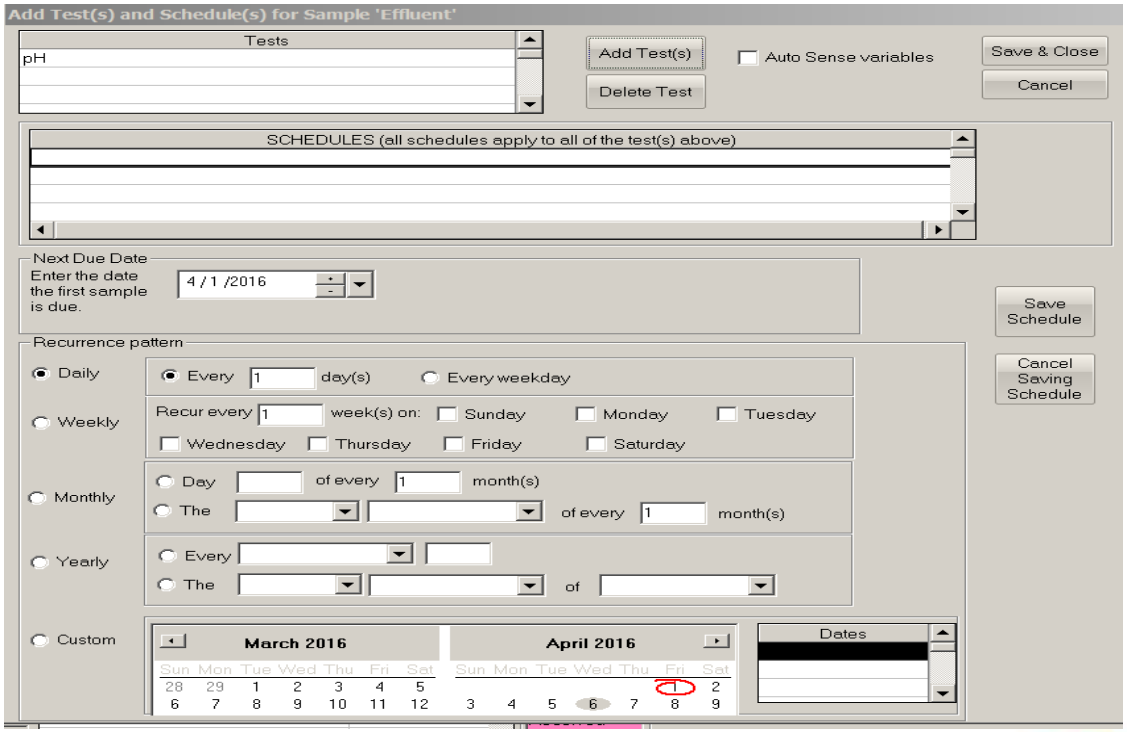
WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

- Fast and Easy Set Up
  - Build Your Testing Schedule



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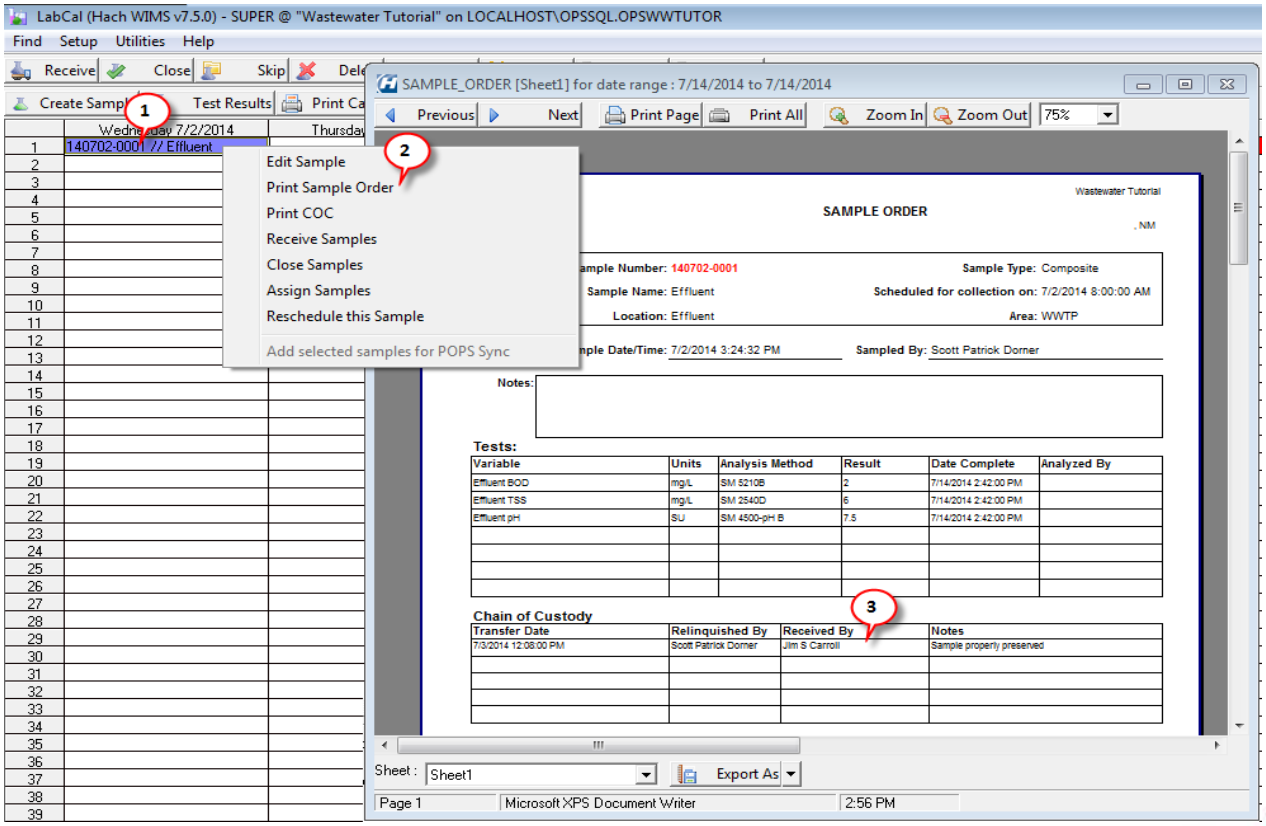
KEEPING LAB AND OPERATIONS CONNECTED

- Print Sample Orders



WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

- Use familiar bench sheets to capture data.

TSS Benchsheet (Custom Data Entry Form)

File Edit Format Help KeyPad

Start Date: 1 / 4 /2016 Current Date: Comment

H26 Save Approve Calc Show Calcs

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1																
2	TSS Benchsheet - Method SM 2540D															
3																
4	Analyst:					Oven Temperature In:										
6	Sample Date:		01/04/16 - Mon			Oven Temperature Out:										
7																
8	Analysis Date/Time:															
9																
10																
11			Inf TSS			PE TSS			RAS Conc			MLSS			Ef TSS	
12																
13	Sample & Tare			g			g			g			g			g
14	Tare			g			g			g			g			g
15																
16	Solids			g			g			g			g			g
17																
18	Sample Volume			ml			ml			ml			ml			ml
19																
20	Suspended Solids		245	mg/L		77	mg/L		10300	mg/L		3622	mg/L		28	mg/L
21																

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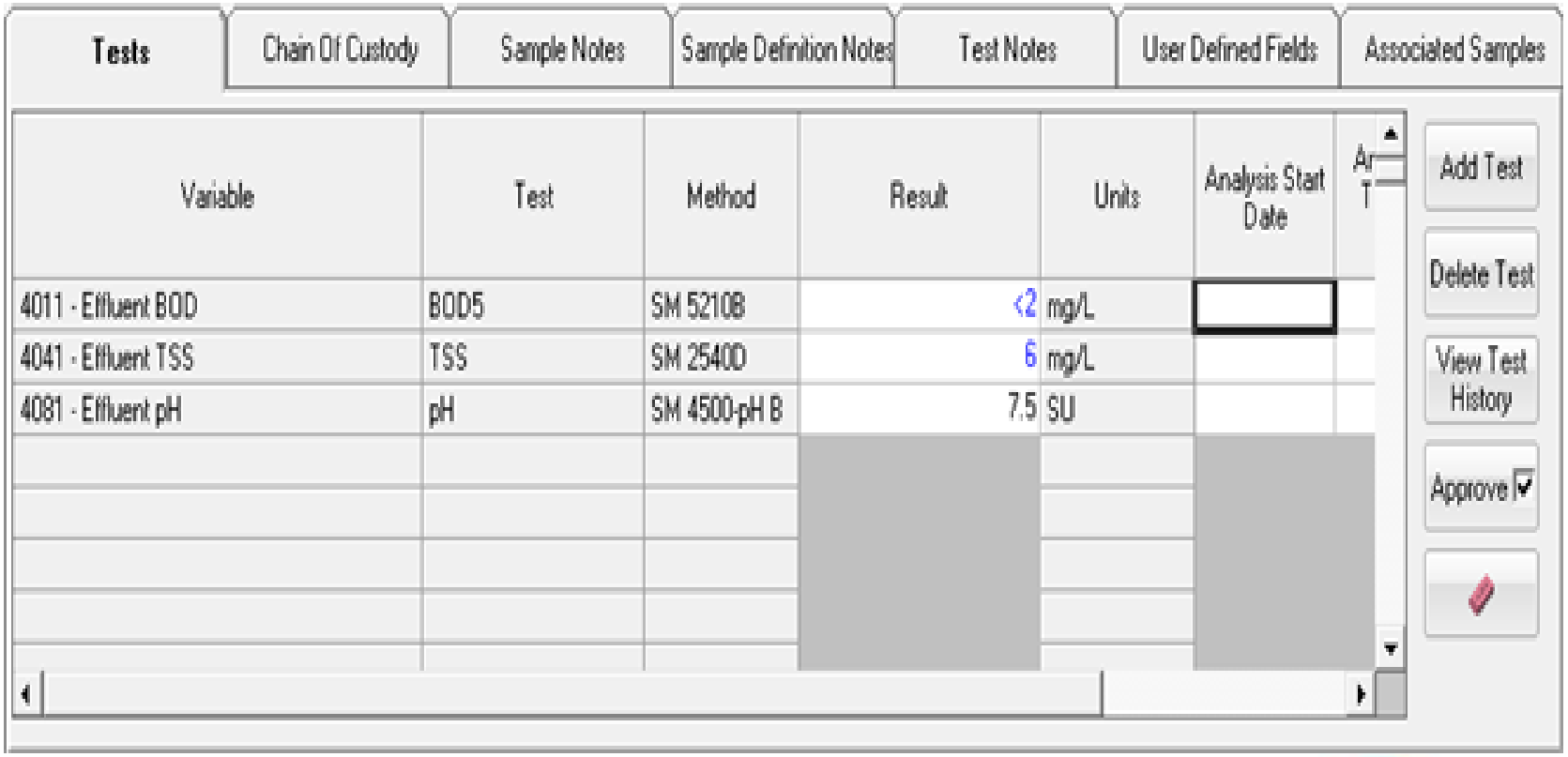
KEEPING LAB AND OPERATIONS CONNECTED

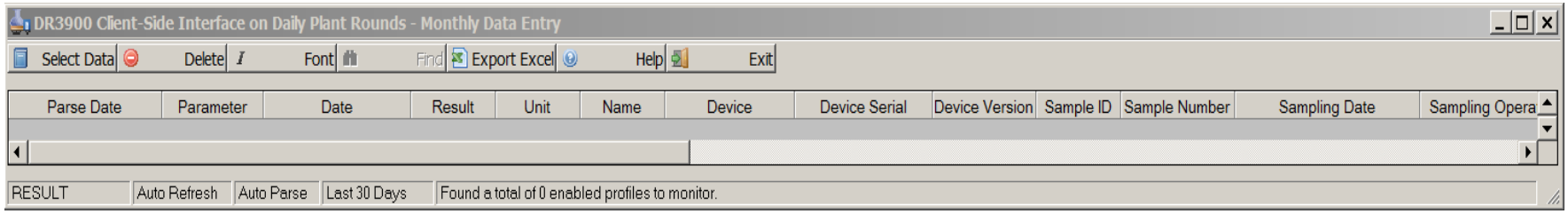
- Enter results directly in the Lab Cal Screen



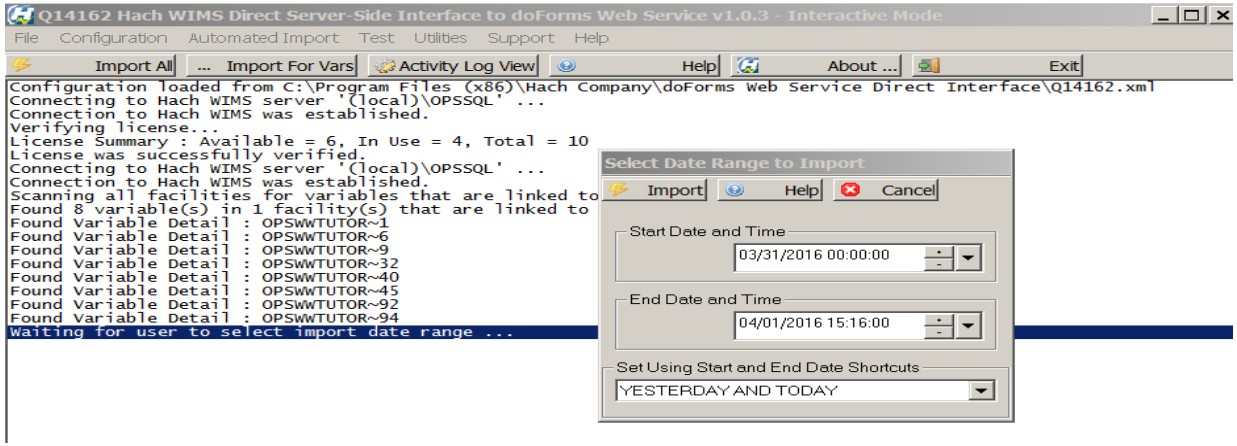
WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

- Or Interface to Lab Instruments



- And Commercial Labs



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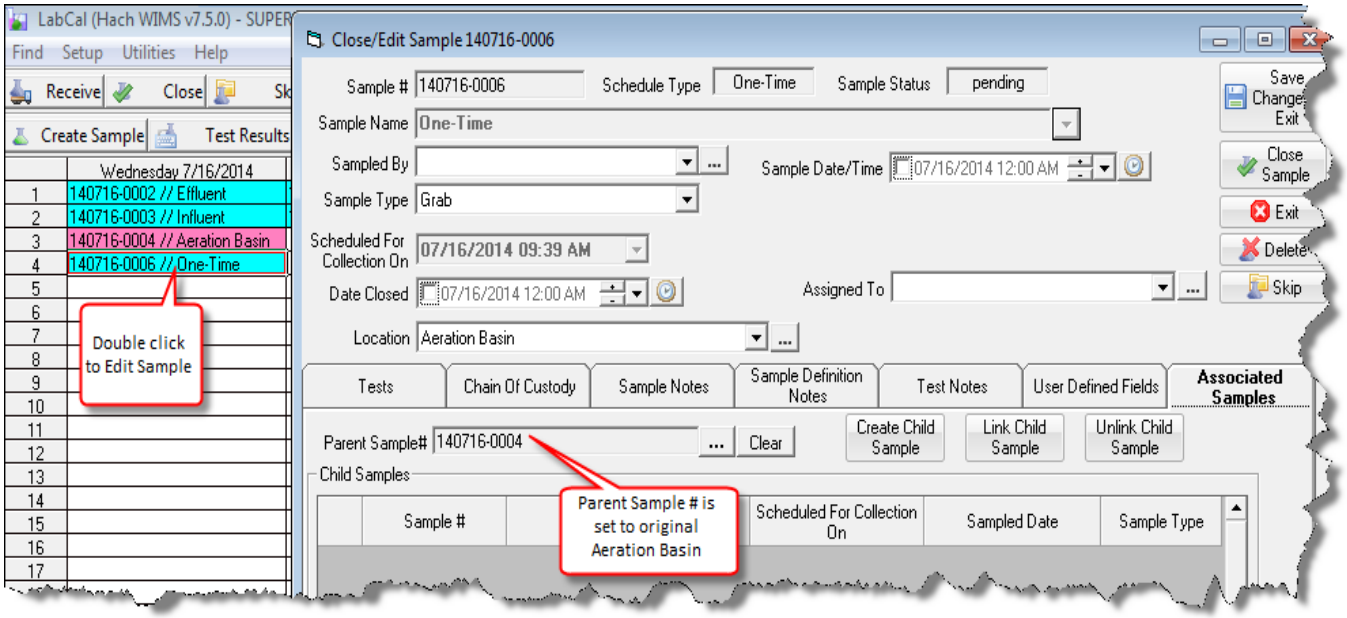
KEEPING LAB AND OPERATIONS CONNECTED

- And Manage the Process
  - Close Out Samples, Reschedule Samples, Skip Samples,
  - Build Associated Samples, One Time/Ad Hoc Samples



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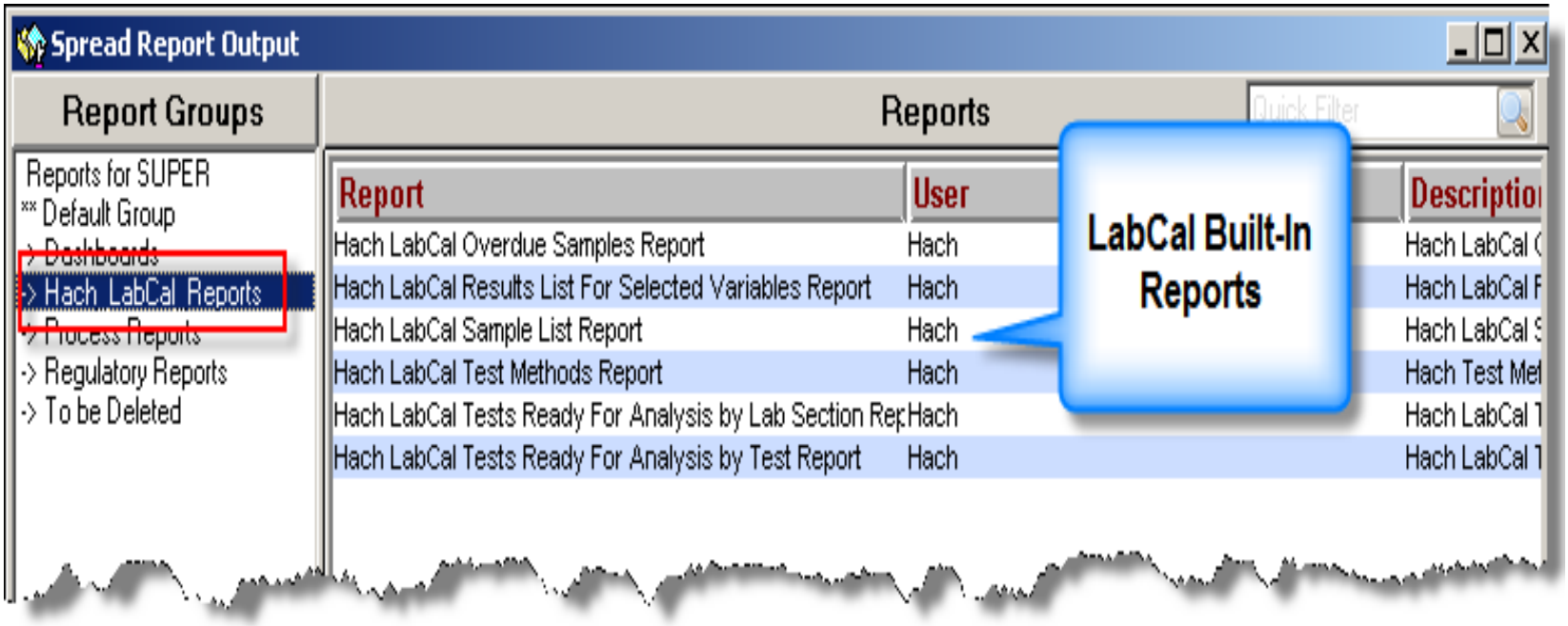
WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

- Manage the Process
  - Reporting



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WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

- Manage the Process - Reporting

EXAMPLES:

Hach Lab Cal Overdue Samples Report

Displays all the overdue samples:

Rocky Creek Waste Water TUTORIAL Overdue Samples Report 13-May-14 10:23

Samples due before: 13-May-14

Sample Number	Description	Scheduled for Collection	Tests
140512-0001	Effluent	12-May-14 08:00:00	BOD5, TSS
140512-0002	Influent Test	12-May-14 08:00:00	BOD5
140512-0003	Influent	12-May-14	TSS
140509-0002	Influent Test	09-May-14 08:00:00	BOD5
140509-0001	Effluent	09-May-14 08:00:00	BOD5, TSS

Hach Lab Cal Results List For Selected Variables Report

Displays list of results for selected variables:

Rocky Creek Waste Water TUTORIAL Results for Variables 13-May-14 10:28

01-Jul-13 - 31-Jul-13

Variable	Date	Result	Audit User	Audit Timestamp
Influent BOD {mg/L}	01-Jul-13	220	BGIORD	07-Jul-13 10:22:15
Influent Flow Hourly {MGD}	01-Jul-13	2.381	VIA_HISTORIAN	02-Jul-13 02:24:03
Influent Flow Hourly {MGD}	01-Jul-13 01:00:00	2.562	VIA_HISTORIAN	02-Jul-13 02:24:03
Influent Flow Hourly {MGD}	01-Jul-13 02:00:00	2.401	VIA_HISTORIAN	02-Jul-13 02:24:03

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WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

- Manage the Process Reporting

Hach Lab Cal Sample List Report

Displays all the samples:

Rocky Creek Waste Water TUTORIAL Sample List Report — 13-May-14 10:30

Sample Name	Location	Test	Schedule
Effluent	Effluent	BOD5	Weekly,Start-18-Dec-13,Every 1 week(s) on M,W,F
		TSS	Weekly,Start-18-Dec-13,Every 1 week(s) on M,W,F
Influent	Influent	TSS	Weekly,Start-06-Jan-14,Every 1 week(s) on M,W,F
Influent Test		BOD5	Weekly,Start-06-Jan-14,Every 1 week(s) on M,W,F

Hach Lab Cal Test Methods Report

Displays all the tests and associated methods:

Rocky Creek Waste Water TUTORIAL Test - Methods Report — 13-May-14 10:35

Test	Description	Method	Max Hold Time (Hours)
BOD5	BOD5 @ 20 Deg. C, Percent Removal	SM 5210B	24
TSS	Total Suspended Solids (TSS)	SM 2540D	24

Hach Lab Cal Tests Ready For Analysis by Lab Section Report

Displays tests ready for analysis grouped by Lab Section entry

Rocky Creek Waste Water TUTORIAL Tests Ready for Analysis By Lab Section — 13-May-14 10:56

LabSection	Test	Sample	DateCollected
Contractor	TSS	140512-0001 Effluent	13-May-14 08:00:00
	TSS	140512-0003 Influent	13-May-14
Kitchen	BOD5	140512-0001 Effluent	13-May-14 08:00:00

WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

- Manage the Process Reporting

Hach Lab Cal Tests Ready For Analysis by Test Report

Displays tests ready for analysis grouped by Test entry

Rocky Creek Waste Water TUTORIAL Tests Ready for Analysis 13-May-14 10:48

By Test

Test	SampleNum	Sample Name	Date Collected
BOD5	140512-0001	Effluent	13-May-14 08:00:00
TSS	140512-0001	Effluent	13-May-14 08:00:00
	140512-0		

Sample Login and Chain of Custody

Sample Num	Site Name	Sample Type	Sample Date/Time	Tests 1	2	3	4	5	6	7	8
140716-0002	Effluent	Composite		BOD5	TSS	pH					
140716-0003	Influent	Composite		BOD5	TSS						
140716-0006	Aeration Basin	Grab		Set Solids							
Chain of Custody											
Relinquished by Sampler		Date/Time		Received by:				Date/Time			

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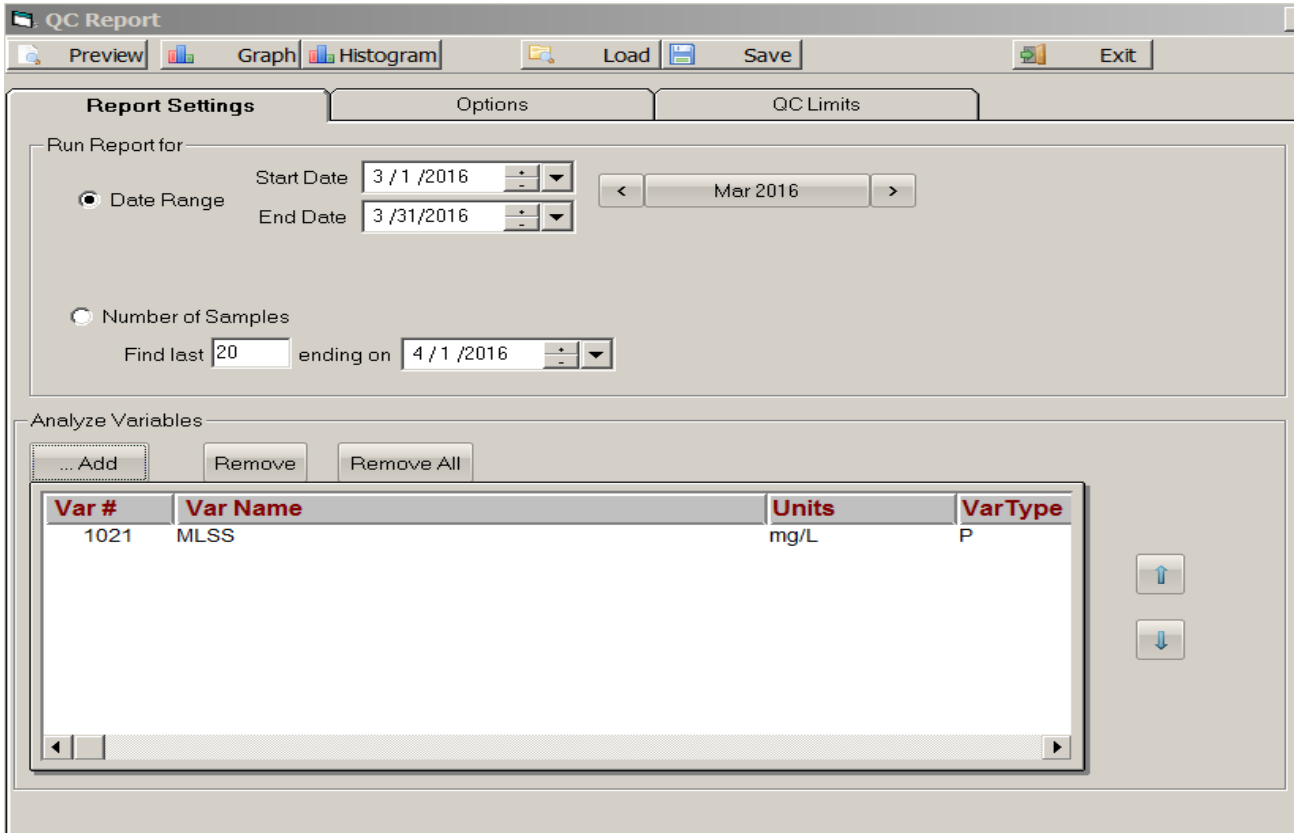
KEEPING LAB AND OPERATIONS CONNECTED

- QA/QC



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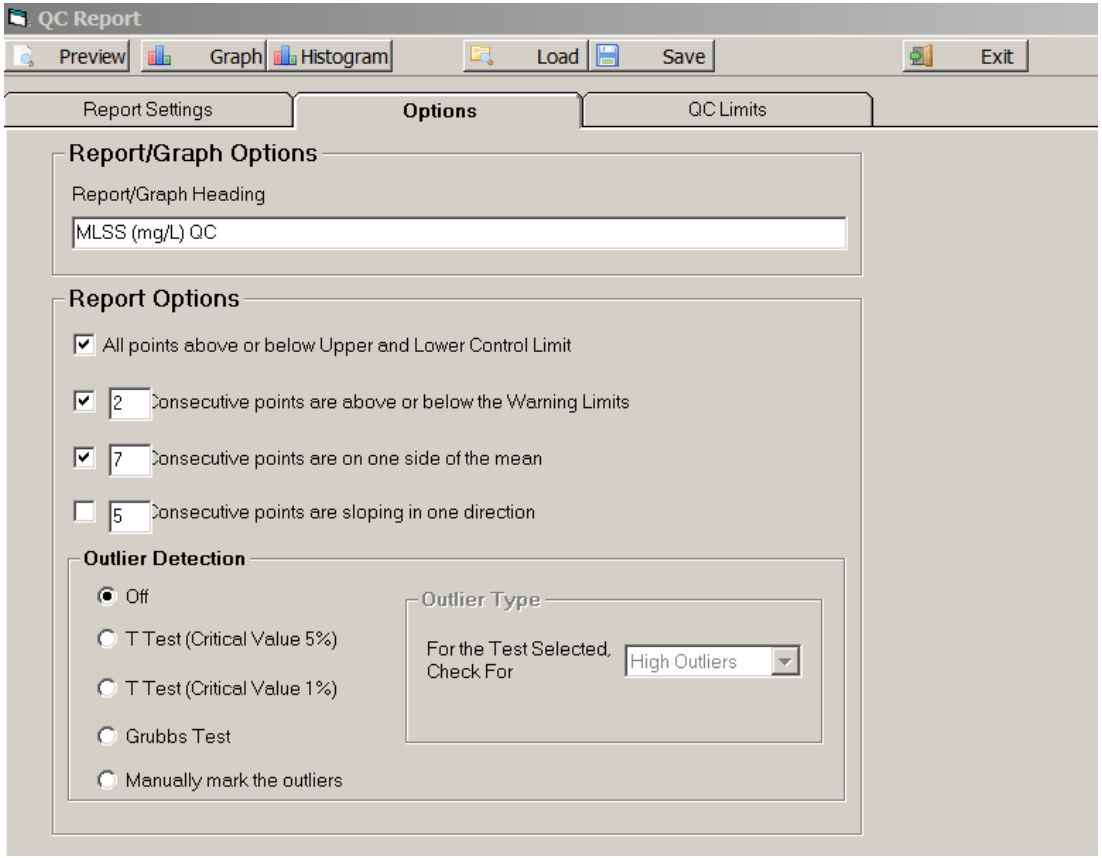
WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

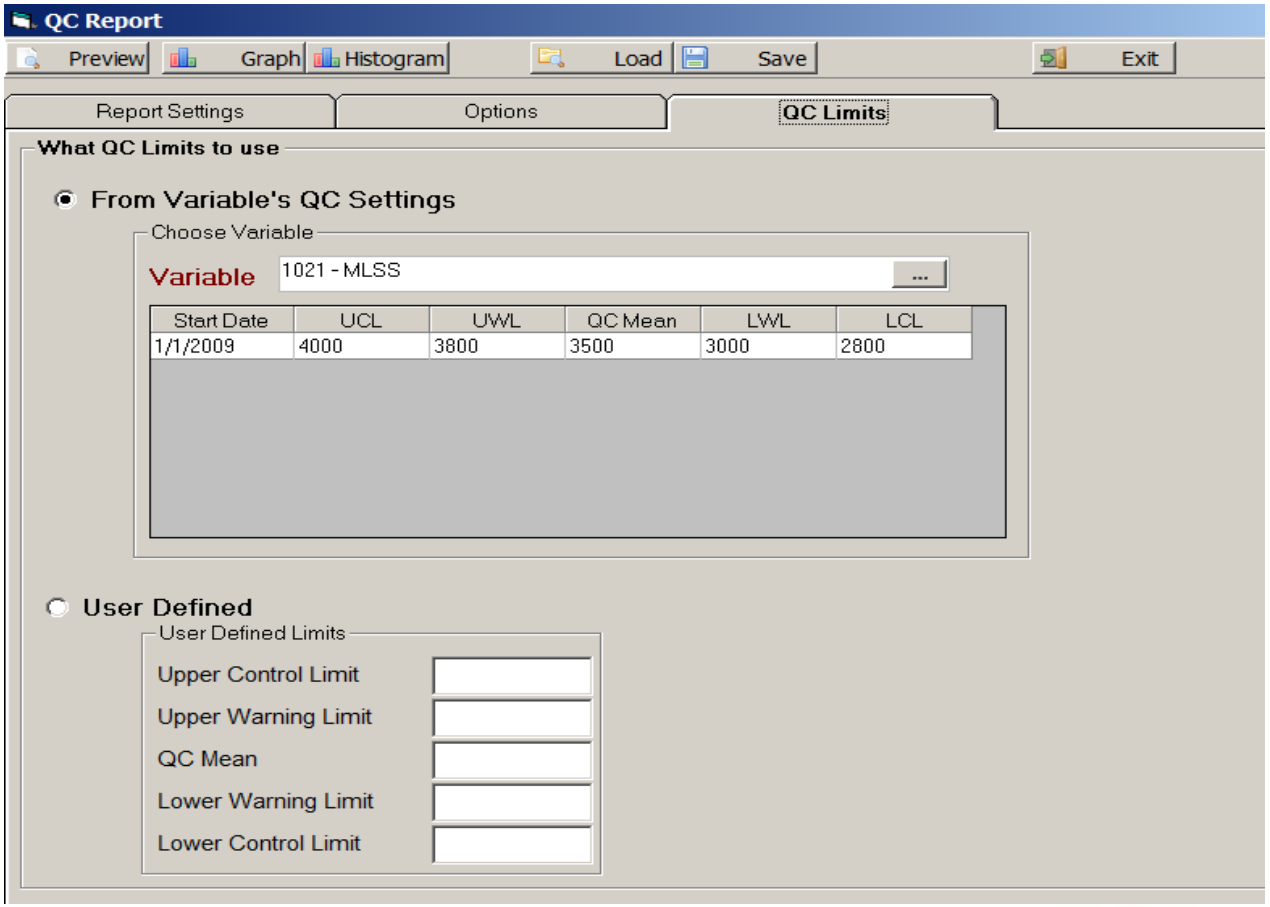
- QA/QC



WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

- QA/QC



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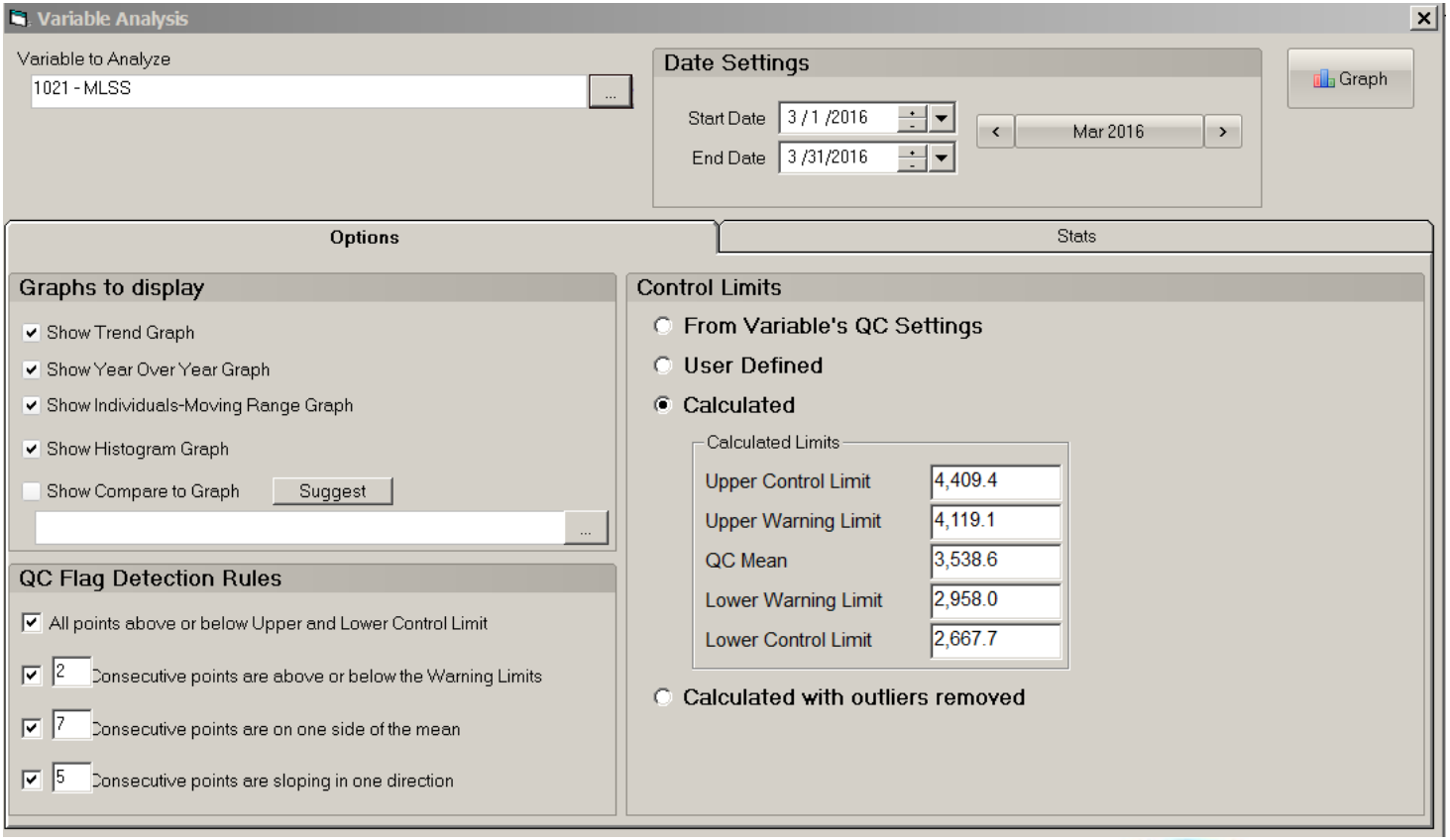
- QA/QC



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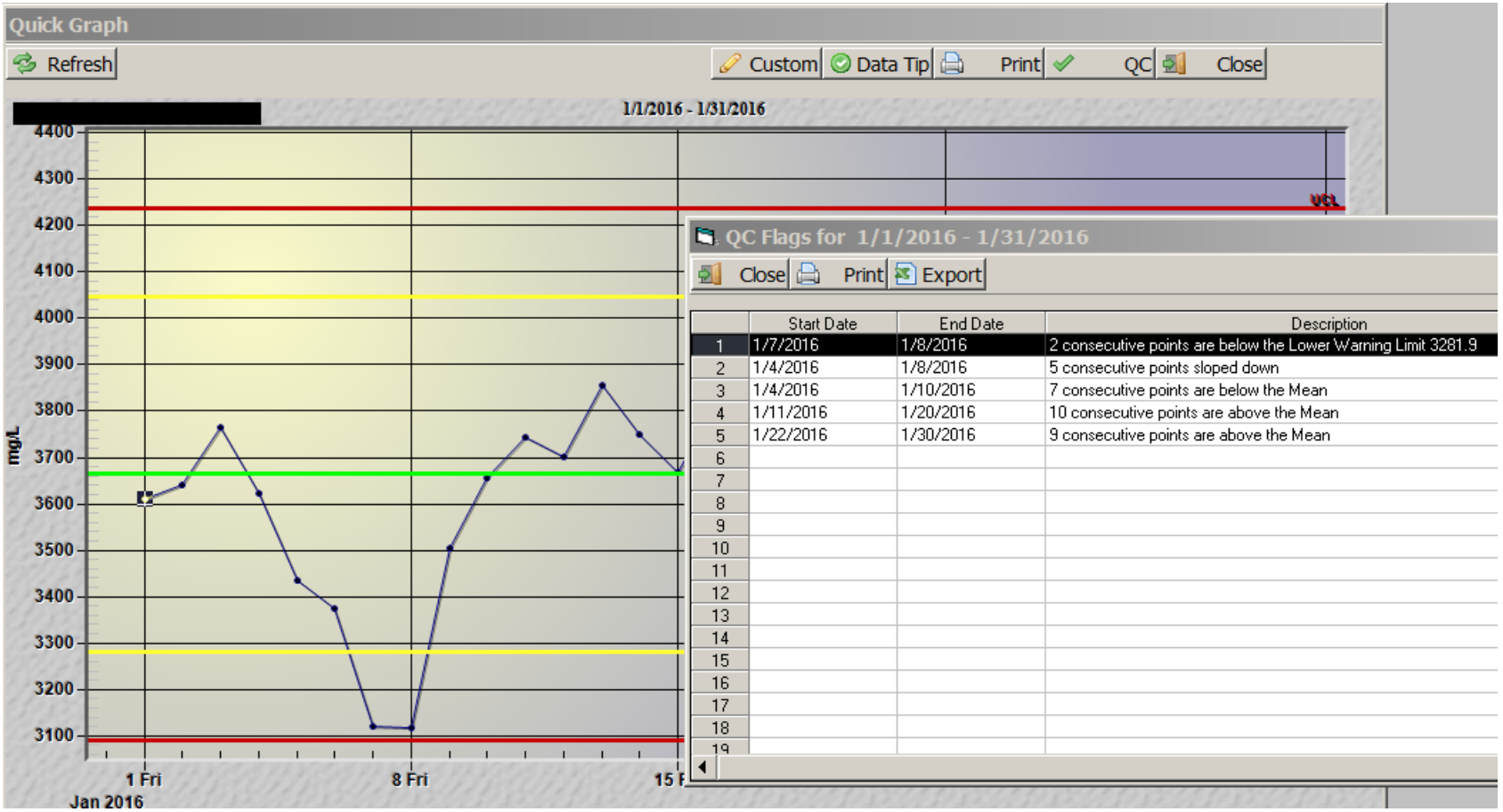
KEEPING LAB AND OPERATIONS CONNECTED



	Start Date	End Date	Description
1	1/7/2016	1/8/2016	2 consecutive points are below the Lower Warning Limit 3281.9
2	1/4/2016	1/8/2016	5 consecutive points sloped down
3	1/4/2016	1/10/2016	7 consecutive points are below the Mean
4	1/11/2016	1/20/2016	10 consecutive points are above the Mean
5	1/22/2016	1/30/2016	9 consecutive points are above the Mean
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			

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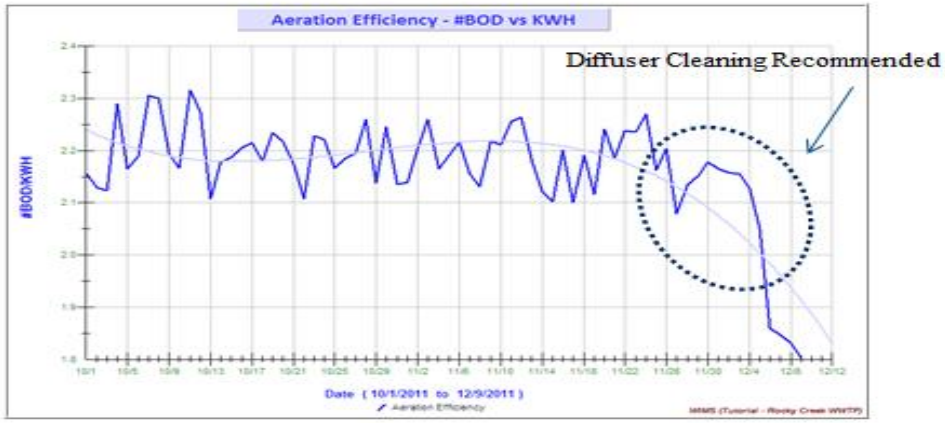
KEEPING LAB AND OPERATIONS CONNECTED

Do: Identify the Problem

WIMS™ shows the cleaning cycle by benchmarking pounds of BOD removed (lab data) per KW of electricity used (SCADA data). Benchmark shows that the diffuser should be cleaned at 2.0lb BOD/kwh



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WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

Hach WIMS automates your CT calculations making them fast, accurate, and reliable.

For each disinfectant segment given a baffling factor, volume, etc… the CT Achieved is calculated. Flows, pH, temperatures, and Disinfectant Residuals can be hand entered or pulled from your SCADA system to calculate your CT Required.

Weekly CT Report

Date	Clearwell CT Achieved mg/L-mins	Clearwell 3 Log Giardi CT Required mg/L-mins	Clearwell Giardi Log Inactivation
1/1/2009	42.7	79.3	1.6
1/2/2009	47.7	96.6	1.5
1/3/2009	41.9	92.1	1.4
1/4/2009	40.7	93.0	1.3
1/5/2009	29.8	96.6	0.9
1/6/2009	63.3	85.9	2.2
1/7/2009	50.9	98.9	1.5
Minimum	29.8	79.3	0.9
Maximum	63.3	98.9	2.2
Average	45.3	91.8	1.5

WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

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WIMS LAB CAL MODULE

KEEPING LAB AND OPERATIONS CONNECTED

- Summary
  - Easy to Set-Up
  - Easy to Learn
  - Easy to Use
- Integrated Software for Decision Support
  - Combines Lab Data with Process and Field Data
  - Powerful Trending and Analysis for QA/QC and Optimization
- Take of Quick Look

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