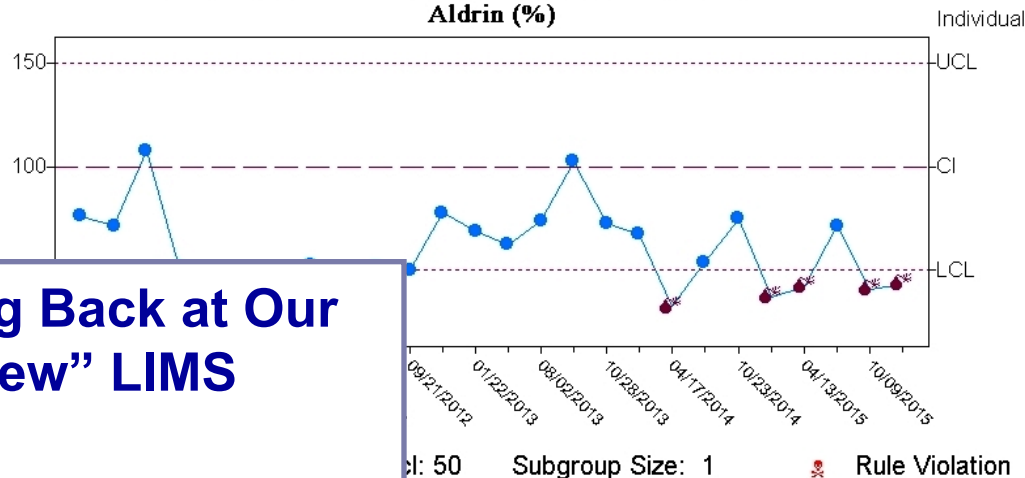




Massachusetts Water Resources Authority



Control Chart for PES-608-LL - Aldrin - LOW_CTRL
Aldrin (%)



Looking Back at Our
“New” LIMS

Michael F. Delaney

May 3, 2016



Boston Harbor Project

Boston Herald
Highs in the mid 80s
Details on Page 38
Today's TV: Page 31
Telephone (617) 426-3000
★★★ 25 Cents
TUESDAY, APRIL 28, 1987

Harbor of shame



THE OLD boast goes:
"And this is good old Boston."
The home of the brave and the free.
Where the Colville talk to the Colony.
And the Colony talk only to God.
Today, add a line:
"The home of the dirty."

Hub waterway 'dirtiest in U.S.'

The Bostonian, that disgraceful distinction, according to a new and shocking federal study, is now dead.

The harbor that is nation, now tragically, is lost to a parcel of pollutants as dangerous and diverse, even as mosquitoes, have dubbed it "an open can."

There is no longer in any harbor in the U.S. that it's less than filthy Boston Harbor — and when the tide's on us, when the tide's on us, when the tide's on us.

its waterway is tainted with such potential killers as cancer-causing PCBs and the polynuclear dioxin.

Former Superior city, a prime mover in harbor cleanup efforts, commenting on the report yesterday, said: "It says not only is it dirty, it's dangerous, not only is it filled with human excrement — it's also filled with toxic chemicals."

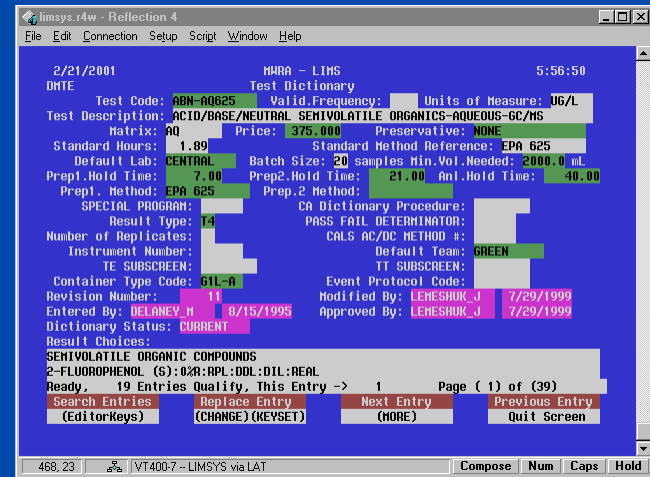


Judge Paul Garrity, “The Sludge Judge”



Boston Harbor Project

- 1995 Deer Island Treatment Plant Opens.
- 1995 Central Lab Opens.
- Using Beckman LIMS with a sole source upgrade. It was mostly pharmaceutical and eventually became obsolete.



New LIMS Project

- 2005 LIMS consultant hired.
- 2007 Request for Qualification/Bids.
- Awarded to the lowest bidder -- LabWare.
- 2008 – 2009: Configuration.
- 2009 Go Live 1 at 3 drinking water quality labs.
- 2010 Go Live 2 at 2 wastewater labs.
- 2014 New Version of LabWare.
- Now: Electronic Lab Notebooks. (ELN)



LabWare LIMS

- ***“We train you and then you do it yourself”.***
- Configure to our workflow.
- Configure everything.
- Configuration was painful, but necessary.
- (NOTE: I didn't say “customized”).

Major Clients

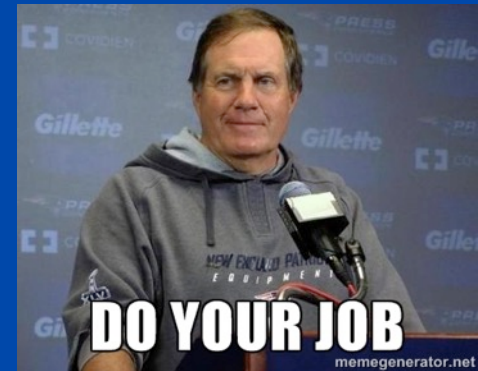
- Wastewater Treatment Plants—1 large, 1 small. (2 Lab Locations)
- Industrial Pre-Treatment Program
- Fertilizer Pellet Plant
- Ocean Outfall
- Drinking Water Treatment Plants—1 large, 1 small. (3 Lab Locations)
- 36 fully- or partially-supplied drinking water communities.

Our Lab's Advantages

- Projects set up in advance.
- Most work is scheduled.
- Electronic reporting to clients—no data packages.
- One certification program.
- Unified QA program over five lab locations.
- “Above Reproach”.
- No soils.

Most important things to get right in a LIMS?

“Do Your Job!”



- Simple, consistent, efficient workflow.
- Careful, complete description of what the customer wants and how the lab delivers it.
- “Sweat the small stuff.”

Focusing on things that are important and/or cool...

+	2055982	M2009-0052682-004
+	2056005	M2009-0052684-004
+	2056522	M2009-0053068-008
+	2584968	M2012-0051022
-	2584971	M2012-0051042
+	DRYWTSGRV [Dry Weight %] / 1	
+	ICP-TSRAD [ICP Analytes] / 1	
+	TYPE / 1	
-	HG--TSABS [Mercury] / 1	
	Dry Weight (g)	
	Final Volume (L)	
	Analysis Dilution Factor	
	Instrument Reading	
	Hg Final	
+	LIP-TSGRV / 1	
-	PAH-TSSIM [PAH] / 1	
	Sample Weight	

Chain of Custody Form



Massachusetts Water Resources Authority MWRA Central Lab

Project: CLTPPP		Client: CLTP		Sampler:	Comments:	Page 1 of 1
Facility: CLTP						
Trip #: 20110310-00052				Signature:	Expiration Date: 06 Sep 2011 12:04 PM	
Cooler #:	Lab Use Only	Are all containers custody sealed?				
		Yes <input type="checkbox"/>				
		No <input type="checkbox"/>				

Location	Container	ST	Container Type	Preservative	Test Code	Composite Start	End Date / Time Collected	Field Result:
PINF	M2011-0013893	COMPOSITE	GIL-A		TYPE		@	
PINF	M2011-0013893	COMPOSITE	GIL-A		UV Absorbance		@	
PINF	M2011-0013893-001	COMPOSITE	P-1-L	No preservative needed	TSS		@	
PINF	M2011-0013893-001	COMPOSITE	P-1-L	No preservative needed	Turbidity		@	
PINF	M2011-0013893-001	COMPOSITE	P-1-L	No preservative needed	Alkalinity		@	
PINF	M2011-0013893-001	COMPOSITE	P-1-L	No preservative needed	BOD		@	
PINF	M2011-0013893-002	COMPOSITE	P-125	No preservative needed	PO4 (filtered)		@	
PINF	M2011-0013893-003	COMPOSITE	P-125NM	Sulfuric Acid	TDP (filtered)		@	
PINF	M2011-0013893-004	COMPOSITE	P-1L-HNO3	Nitric Acid	ICP Analytes		@	
PINF	M2011-0013893-005	COMPOSITE	P-500-NM	Sulfuric Acid	TPL-AQADA		@	

Relinquished By:	Date:	Time:	Received By:	Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:	Relinquished By:	Date:	Time:	Received By:

Barcoded Sample Labels



MWRA CENTRAL LABORATORY 06017989

CLIENT: HARBOR PROJ: NEPRWA TRIP: 83603

FACIL: NEPONSET LOC: M038 ST: G
PRESERV: FREEZE
CONT: P1L
DATE/TIME COLL:

COLLECTED BY:

NH3 - SHIAAN NO32SHIAAN P04 - SHIAAN
TN - SHIAAN TP - SHIAAN

MWRA CENTRAL LABORATORY 06017988

CLIENT: HARBOR PROJ: NEPRWA TRIP: 83603

FACIL: FIELD - QC LOC: FDUP ST: G
PRESERV: NONE
CONT: P500
DATE/TIME COLL:



Internal Custody

- Has the sample been collected?
- Is the container in the Sample Bank or what room of the Lab?

SAMPLE Folder : Folder Query for all trips not closed

Recent File Edit Run Folder Actions Audit Chart Refresh Options MWRA

XTRIP_COC_ALL

+	→	3518923	M2016-0022474
+	→	3518924	M2016-0022474-001
+	→	3518925	M2016-0022474-002
+	→	3518926	M2016-0022474-003

Data	Summary Report
Product	QA-IN
Sample Number	35189
Text Id	M2016-
Location	147-SA
Customer	DLS
Project	QA-IN
Sampling Point	ICCF-LADI
Sampled By	DLS-DELLIS



Custody Transfer Grid

File MWRA

	Sample Number	Text Id	Location	Custody Set By	Custody Date/Time	In Custody Of
1	3518923	M2016-0022474	147-SAMPLE BANK	JWHITTIER	04/13/2016 13:31:55	JWHITTIER

Aliquoting Tests to Containers



- For each non-field test:
 - ◆ What container?
 - ◆ What preservative?
 - ◆ What minimum volume
- Figures out how many of each type of preserved container is needed for each sample.
- Used to login in samples and print COC/Labels.

Visual Workflow: Large Central Lab

LIMS: LabWare LIMS - MDELANEY [DLS_ADMIN]

Recent File Configure Run Utilities LabStation Search Help Workflows Macros

CLAB_WF1

Massachusetts Water Resources Authority
Department of Laboratory Services - Central Lab Deer Island

SAMPLE MANAGEMENT

- Bottle Prep
- Subcontract Samples
- Receive Samples
- Enter Field Results
- Store Samples
- Sample Disposal

MANAGER

- Approve Results
- Approval Report
- Results Report

CLIENT SERVICES

- Manage Projects
- Client Invoicing
- Report Results

DOCUMENTS

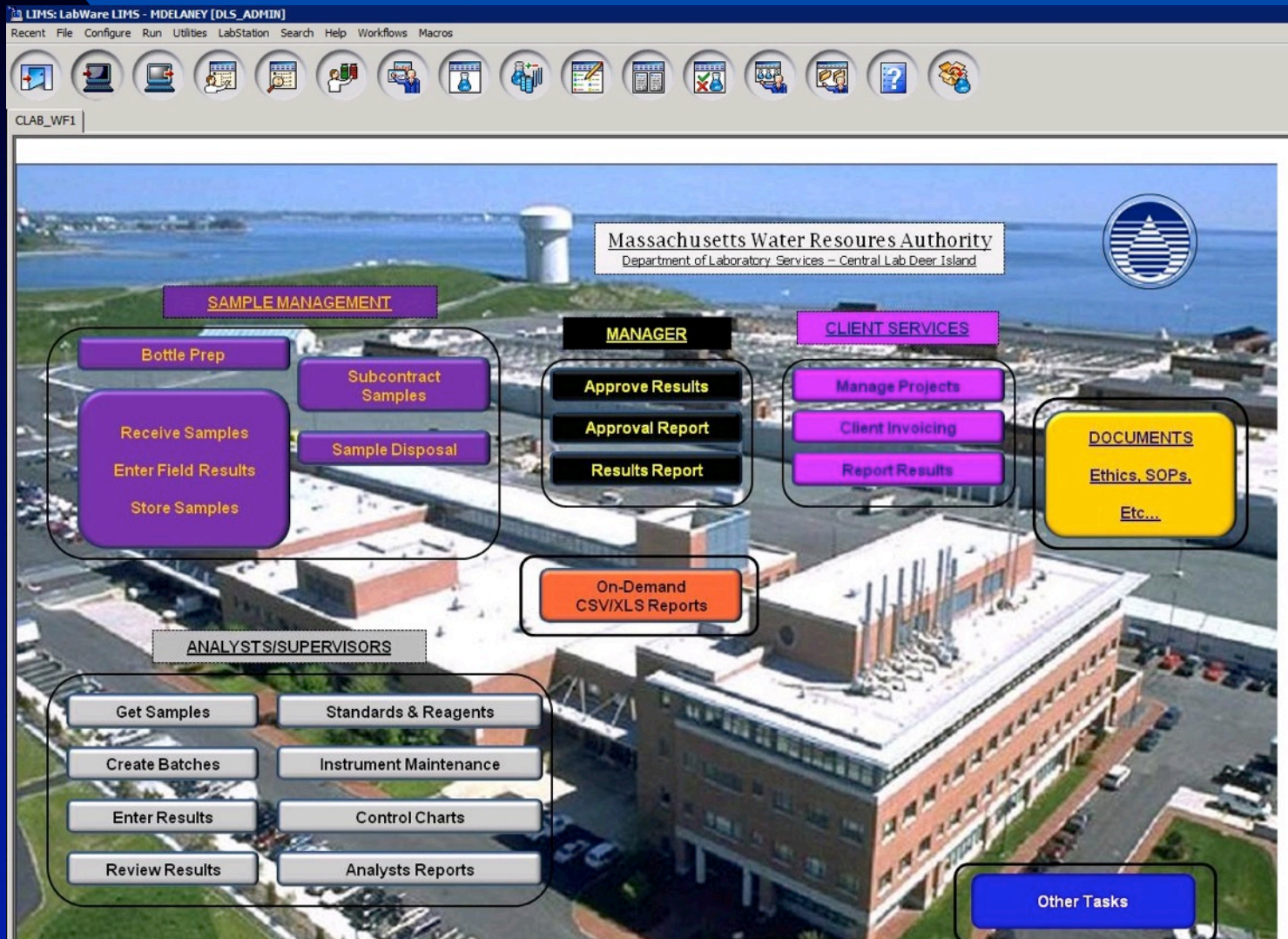
- Ethics, SOPs, Etc...

ANALYSTS/SUPERVISORS

- Get Samples
- Standards & Reagents
- Create Batches
- Instrument Maintenance
- Enter Results
- Control Charts
- Review Results
- Analysts Reports

On-Demand CSV/XLS Reports

Other Tasks



Visual Workflow: Small Wastewater Lab

Document1 - Microsoft Word

LIMS: LabWare LIMS - MDLANEY [OLS_ADMIN]

Recent File Configure Run Utilities LabStation Search Help Workflows Macros

CLTP_VWF1

MASSACHUSETTS WATER RESOURCES AUTHORITY
Department of Laboratory Services - Clinton Laboratory
Clinton Waste Water Treatment Plant, Clinton, MA

SAMPLE MANAGEMENT

- Bottle Prep
- Receive Samples
- Enter Field Results
- Store Samples
- Subcontract Samples
- Sample Disposal

MANAGER

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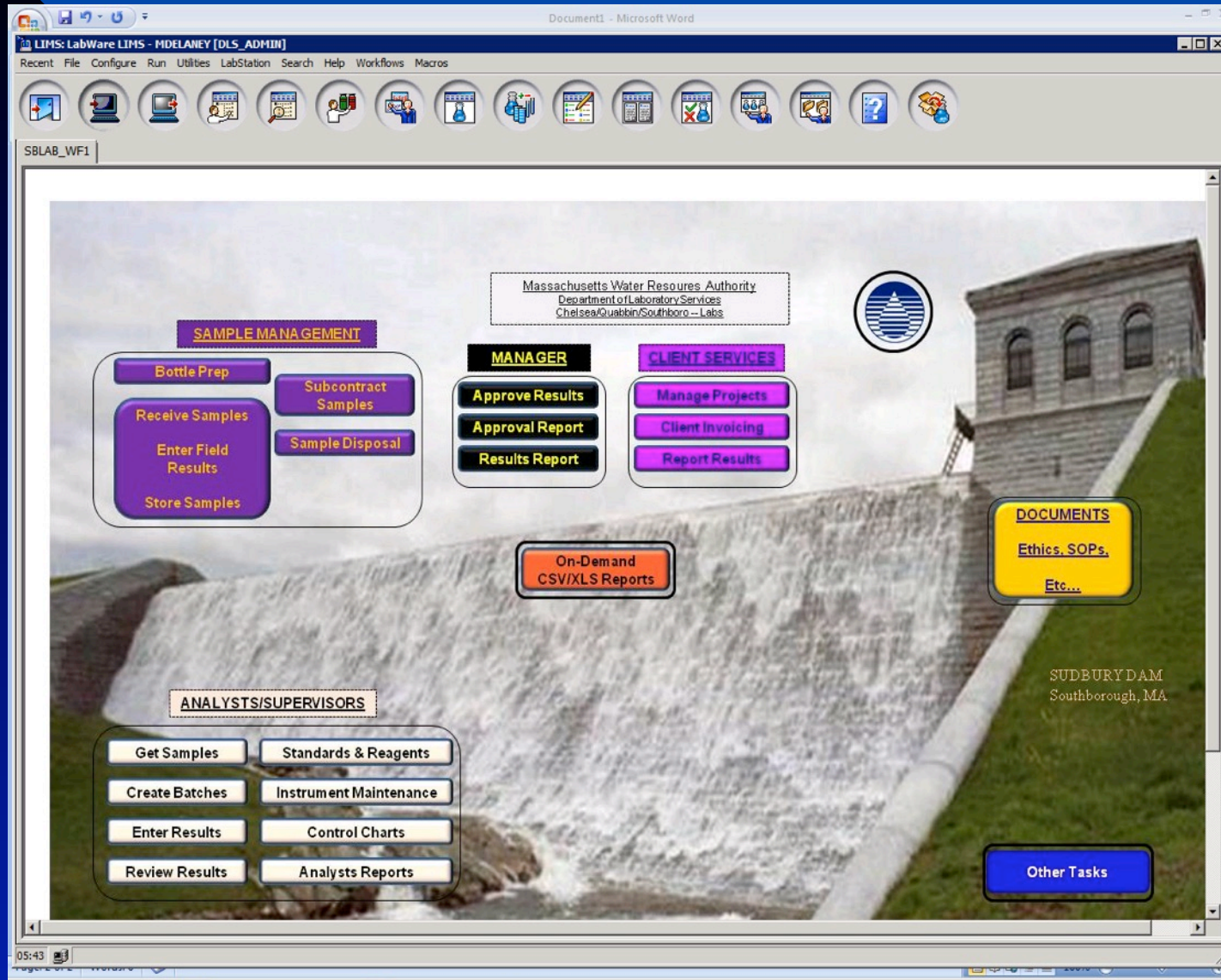
ANALYSTS/SUPERVISORS

- Get Samples
- Create Batches
- Enter Results
- Review Results
- Standards & Reagents
- Instrument Maintenance
- Control Charts

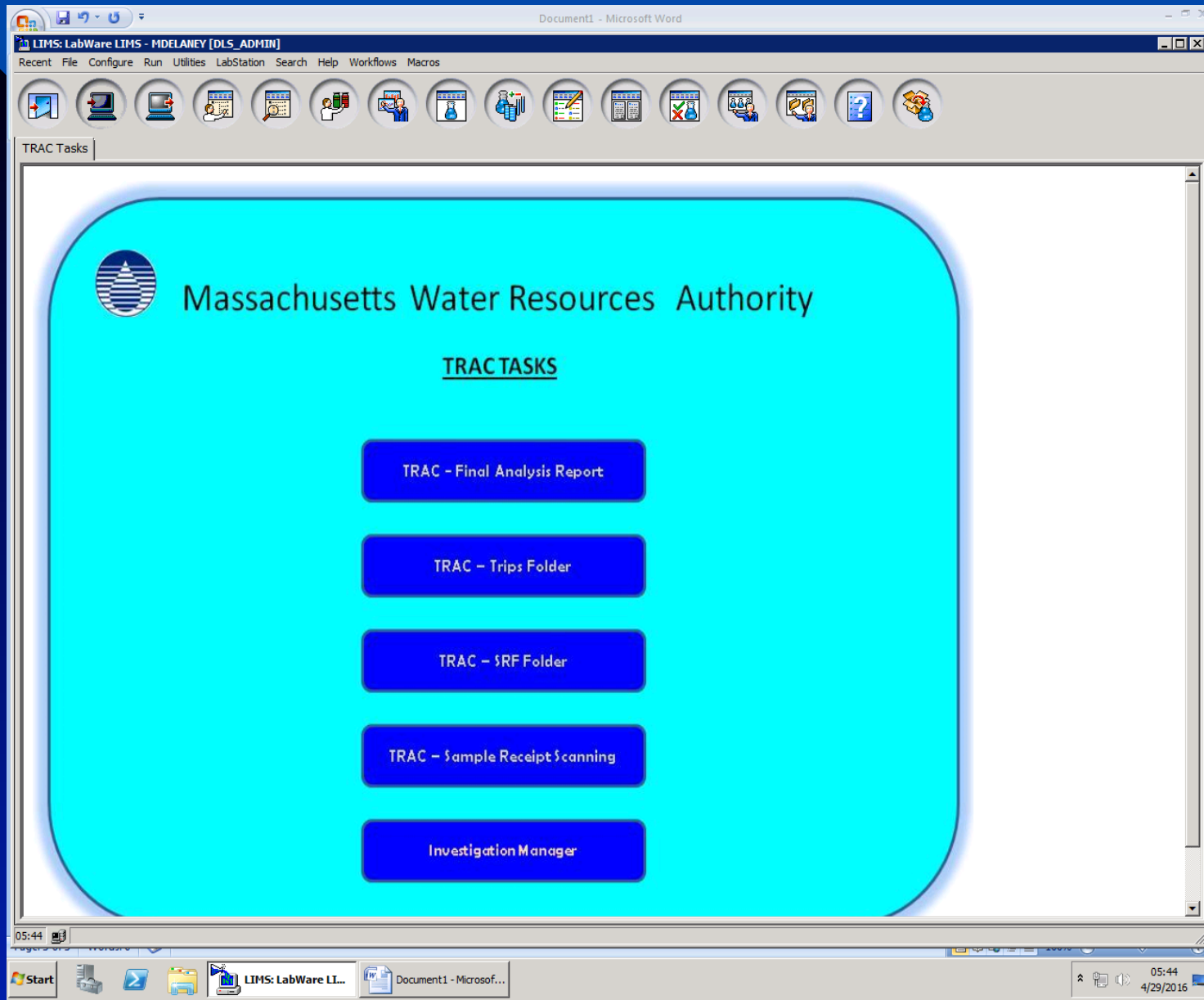
DOCUMENTS
Ethics, SOPs, ETC.

On-Demand CSV/XLS Reports

Visual Workflow: Three Drinking Water Quality Labs



Almost No Client Access in LIMS



Analyst Certification



Massachusetts Water Resources Authority

Certification

Certify User

Edit Certification

User Certification

File



	User Name	Analysis	Perform Analysis	Analysis Certification Date	Perform Prep	Prep Certification Date	Perform Review	Review Certification Date
1	PSULLIVAN	AL--SOFAA	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
2	PSULLIVAN	ALK-AQTPO	<input checked="" type="checkbox"/>	06/03/2009	<input type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
3	PSULLIVAN	BOD-AQDOX	<input type="checkbox"/>	12/12/2012	<input type="checkbox"/>	12/12/2012	<input type="checkbox"/>	12/12/2012
4	PSULLIVAN	CAUSAQTCO	<input checked="" type="checkbox"/>	06/03/2009	<input type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
5	PSULLIVAN	COD-AQUVV	<input checked="" type="checkbox"/>	06/03/2009	<input type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
6	PSULLIVAN	CR--SOFAA	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
7	PSULLIVAN	CR6-AQUVV	<input checked="" type="checkbox"/>	06/03/2009	<input type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
8	PSULLIVAN	CU--SOFAA	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
9	PSULLIVAN	DOC-SWCIR	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
10	PSULLIVAN	DRYWTSGRV	<input checked="" type="checkbox"/>	06/10/2009	<input type="checkbox"/>	06/10/2009	<input checked="" type="checkbox"/>	06/10/2009
11	PSULLIVAN	ECOCAQDST	<input type="checkbox"/>	09/02/2009	<input type="checkbox"/>	09/02/2009	<input type="checkbox"/>	09/02/2009
12	PSULLIVAN	FCOLAQMFL	<input type="checkbox"/>	09/02/2009	<input type="checkbox"/>	09/02/2009	<input type="checkbox"/>	09/02/2009
13	PSULLIVAN	FE--SOFAA	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
14	PSULLIVAN	GFA-AQABS	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
15	PSULLIVAN	GFA-SOABS	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
16	PSULLIVAN	GFA-TSABS	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
17	PSULLIVAN	HARD_AX	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
18	PSULLIVAN	HARD_RAD	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009
19	PSULLIVAN	HF--AQTCO	<input checked="" type="checkbox"/>	06/03/2009	<input type="checkbox"/>	06/03/2009	<input checked="" type="checkbox"/>	06/03/2009

Project Scheduling

TRIPS : WRTRIB-WEEKLY

Recent File Edit View Run Project Item Options Audit Help MWRA

Summary Items

Scheduled Locations Daily Scheduling Monthly Interval Sch Monthly Sch by Day Sch Week of Year Prelim Components Reports

	Current Project	Proj Loc Ref	Sampling Point	Is Active	Sched Time	Interval Offset	Week Of Year	Day Of Week	Project
1		7645	QUABBINT-101	true	00:00:00	42 00:00:00	01, 03, 05, 07,	MONDAY	WRTRIB-WEEKL
2		7644	QUABBINT-101	true	10:10:56	42 00:00:00	02, 04, 06, 08,	MONDAY	WRTRIB-WEEKL
3		7646	QUABBINT-101	true	00:00:00	42 00:00:00	09, 23, 37, 49	TUESDAY	WRTRIB-WEEKL
4		7643	QUABBINT-101	true	00:00:00	42 00:00:00	01, 03, 05, 07,	MONDAY	WRTRIB-WEEKL

Project Specification

Products

Recent File Edit Approval Audit Record Utilities Help

Table: PRODUCT
Name: WRTRIB
Description: Ware River Tributary Water Quality Monitoring (DCR)

Changed By: CSTRANDRING
Changed On: 12/24/2015 09:09:56

Configure...

Summary

Version: 6
Code:
Sample Plan:
Effective Date: 01-00-0000
Spc Spec Temp:
X Wwq Client: DCR
Signed: ☐ True ☒ False
Reported Spec Temp:

Product Grade Dialog

Sampling Point	Grade	Description	Continue Che
QUABBINT-101	Weekly	WARE RIVER @ SHAFT 8 (INTAKE)	Yes
QUABBINT-101	Quarterly	WARE RIVER @ SHAFT 8 (INTAKE)	Yes
QUABBINT-108	Quarterly	EAST BRANCH WARE @ INTERVALE RD	Yes
QUABBINT-103A	Quarterly	BURNSHIRT & CANESTO RIVER @ RIVERSIDE CEMETERY	Yes
QUABBINT-107A	Quarterly	WEST BRANCH WARE RIVER @ BRIGHAM ROAD	Yes
QUABBINT-121B	Quarterly	THAYER POND @ INLET	Yes

Product Grade Stage Dialog

Analysis	Spec Type	Stage	Num Reps	Partial	Description
NUTFAQAN	GRAB	NONE	1	No	
TKNLAQ8DA	GRAB	NONE	1	No	
TPL-AQADA	GRAB	NONE	1	No	
ALK-AQTPO	GRAB	NONE	1	No	

Product Specifications Dialog

Component	Class	Type	Specification Rule	Units	Season	Required	Reps.
NO3-N	Result	Numeric		MG_P_L		Yes	0
NH3-N	Result	Numeric		MG_P_L		Yes	0

Test Codes

The screenshot displays the Analysis software interface with several windows open:

- Analysis Window:**
 - Menu: Recent, File, Edit, Approval, Audit, Utilities, Help
 - Buttons: Edit Mode, Report Mode
 - Table Group: None
 - Changed By: MLAMBERT
 - Changed On: 04/21/2016 10:16:45
 - Description: MS for Acid/Base/Neutrals (ABN) by GC/MS
 - Buttons: Configure...
 - Tabs: Typically Needed, Additional, Instrument Data, New Modules, Attributes, MDL
 - Version: 3
 - Reported Name: ABN by EPA 625 - MS
 - Buttons: Destructive, Expected Da
- Components Dialog:**
 - Components list:
 - bis(2-Chloroethyl)ether
 - 2-Chlorophenol
 - 1,3-Dichlorobenzene
 - 1,4-Dichlorobenzene
 - Benzyl alcohol
 - 1,2-Dichlorobenzene
 - 2-Methylphenol
 - 2,2'-Oxybis(1-chloropropane)
 - 4-Methylphenol
 - N-Nitrosodi-N-propylamine (NDPA)
 - Hexachloroethane
 - Nitrobenzene
 - Isophorone
 - 2-Nitrophenol
 - 2,4-Dimethylphenol
 - bis(2-Chloroethoxy)methane
 - 2,4-Dichlorophenol
 - 1,2,4-Trichlorobenzene
 - Naphthalene
 - 4-Chloroaniline
 - Benzoic acid
 - Hexachlorobutadiene
 - 4-Chloro-3-methylphenol
 - 2-Methylnaphthalene
 - Hexachlorocyclopentadiene
 - 2,4,6-Trichlorophenol
 - 2,4,5-Trichlorophenol
 - 2-Chloronaphthalene
- Calculated Properties Dialog:**
 - Alias Name:
 - CAS #:
 - Units: PERCENT
 - Round Result Value: Sig. Figs. w/Odd Up
 - Decimal Places: 3
 - Minimum: 3
 - Maximum: 108
 - Auto-Calculate: ☒ True ☐ False
 - Clamp Lo:
 - Clamp Hi:
 - Format Calculation:
 - Buttons: Calculation..., Factors..., OK, Cancel
- Component Calculations Window:**
 - Inputs table:

Variable	Type	Name
ABA	Component	ABN-AQG-MS : Nap
AOA	Component	ABN-AQG-MS : Nap
Spike	Standard/Reagent	LCS Spike Standard
InstValue	Component	ABN-AQG-MS : Nap
 - Buttons: Add...
 - Equations:

```
1
2 EntryQualifier = NativeQual[1]
3
4 IF (EntryQualifier = "<") then
5   Native = 0
6 ENDIF
7
8 Rec = ((InstValue - Native) / (Spike * Df)) * 10
9
10 GOSUB AC_AB_AO_GR
11
12 return Rec
13
```

Batch Manager

Create Batches

LIMS Browser

Select a template to build

Name:

OK

Batch Tests Te

Name

MW_SO_FCDL

MW_SO_HPC

MW_SO_TCES

MW_SO_TCDL

MWRA_SOUTH

NAOH

NH3_SW

NH3-AQA

NH3-AQI-BL

NH3-AQISE

NH3LA

NH3-QWAAN

NH3-SDAAN

NH3-SWA

NO_QC

NO2-AQA

NO2-QWAAN

NO2-SWA

NO2-SWA

NO2-SWA

MWRA_Southboro Daily Samples

Sodium Hydroxide Batch

Ammonia Sea Water Batch Template

Batch template for ammonia(aq)

NH3-AQISE Batch Template for ONLY BLANKS batch

NH3-AQISE Batch Template

Batch template for Ammonia Low Level (aq)

Ammonia Ocean Water Batch Template

NH3-SDAAN Batch Template

Ammonia in Seawater by Auto-Analyzer Batch Template

No QC tests added

Batch template for Nitrite (aq)

Batch template for Nitrite (Ocean Water)

Batch template for Nitrite (Sea Water)

Batch template for Nitrite (Sea Water)

Batch template for Nitrite (Sea Water)

OK

Cancel

Multi-Select

Select Test Locations To Be Shown

Unassigned Test Locations

CHELSEA
CLINTON
ERA1
QUABBIN
SOMERVILLE
CENTRAL

Assigned Test Locations

SOUTHBORO

None
<<<
>>>

OK

LIMS Browser

Select a trip...

Name:

OK

Cancel

Multi-Select

Select analyses

TC_CONFIRM

TCOLAQM-DS

TCOLAQMFL

TCOLDWM-DS

TCOLDWMFL

OK

All

Clear

Cancel

MWRA Client M

Batch Manager

ICPMS_RUN : ICPMS-160429-1

Recent File Edit Refresh Run Batch Options Audit

Created By: MDELANEY

Updated On: 04/29/2016 06:26:40

Summary Samples Results Report

+	1	3111396	/1 (ICPMS_IPC)
+	2	3111397	/1 (ICPMS_IPC)
+	3	3111398	/1 (ICPMS_BLK)
+	4	3111399	/1 (ICPMS_DLC)
+	5	3111400	/1 (ICPMS_DLC)
+	6	3111401	/1 (ICPMS_ICV)
+	7	3111402	/1 (ICPMS_ICV)
+	8	3111403	/1 (ICPMS_CLC)
+	9	3111404	/1 (ICPMS_CLC)
+	10	3111405	/1 (ICPMS_CBL)
+	11	-	Empty
+	12	-	Empty
+	13	-	Empty
+	14	-	Empty
+	15	-	Empty
+	16	-	Empty
+	17	-	Empty
+	18	-	Empty
+	19	-	Empty

Data Entry – Manual or Automatic

TSS-AQ : TSS-150824-1

Recent File Edit Refresh Run Batch Options Audit Help Sample Chart MWRA

Count: 1 of 2

Created By: JSCULLEY Common Name: TSS-AQ

Updated On: 04/25/2016 09:19:55 Type: TEST

Summary Samples Results Report

1 3054219 M2015-0043533/1 (TSS-BLAH)
2 3054220 M2015-0043534/1 (TSS-LCS)
3 - Empty
4 - Empty
5 - Empty
6 - Empty
7 - Empty
8 - Empty
9 - Empty
10 - Empty
11 - Empty
12 - Empty
13 - Empty
14 - Empty
15 - Empty
16 - Empty
17 - Empty
18 - Empty
19 - Empty
20 - Empty
21 - Empty
22 - Empty
23 - Empty

Filter ID
Sample Volume mL

RS/232 Result Entry by Sample

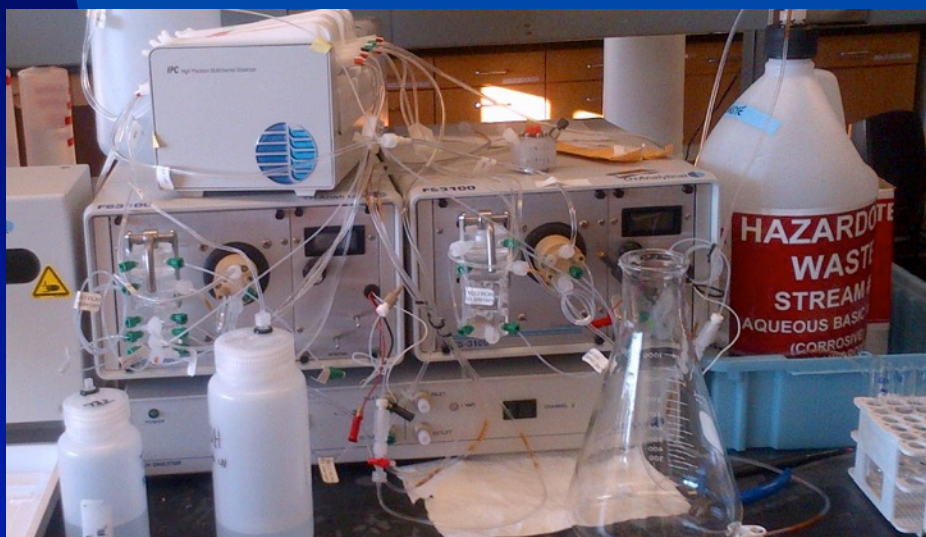
File Direction Run Function

Test:

	Sample Number:	3054219 /1	3054220 /1
	Text ID:	M2015-0043533	M2015-0043534
	Sampled Date:		
	Stage:	NONE	NONE
	Sampling Point:	NONE	NONE
	Spec Type:	NONE	NONE
	Product Grade:	BLANK	CONTROL
1	TSS-AQGRV: Filter ID		
2	TSS-AQGRV: Sample Volume		
3	TSS-AQGRV: DF		
4	TSS-AQGRV: Dry Filter Weight		
5	TSS-AQGRV: Dry Filter Weight-2		
6	TSS-AQGRV: TSS Weight		
7	TSS-AQGRV: TSS Weight-2		
8	TSS-AQGRV: TSS Residue Weight		
9	TSS-AQGRV: TSS		
10	TSS-AQGRV: VSS Weight		
11	TSS-AQGRV: VSS Weight-2		
12	TSS-AQGRV: VSS Residue Weight		
13	TSS-AQGRV: VSS		
14	TSS-AQG-LC [TSS LCS]: Filter ID		
15	TSS-AQG-LC [TSS LCS]: TSS-LCS Solution		
16	TSS-AQG-LC [TSS LCS]: Standard Value		
17	TSS-AQG-LC [TSS LCS]: Sample Volume		
18	TSS-AQG-LC [TSS LCS]: Dry Filter Weight		
19	TSS-AQG-LC [TSS LCS]: Dry Filter Weight-2		
20	TSS-AQG-LC [TSS LCS]: TSS Weight		
21	TSS-AQG-LC [TSS LCS]: TSS Weight-2		
22	TSS-AQG-LC [TSS LCS]: TSS Residue		
23	TSS-AQG-LC [TSS LCS]: TSS		
24	TSS-AQG-LC [TSS LCS]: TSS-LC Recovery		

Interfaced Instruments

- Mostly via data files: Metals, Organics, Inorganics.
- Direct connections: analytical balances, spectrophotometer.



Data Review

SAMPLE Folder : Sample folder where a user is prompted for backlog criteria by a user dialog.

Recent File Edit Run Folder View Approval Actions Audit Refresh Options MWRA

Count: 7

XTRIP_MIKE
PEND_TEST
BACKLOG

2429268 M2011-01304
2429239 M2011-01304
2429253 M2011-01304
2429263 M2011-01304
3387697 M2015-00494
3387696 M2015-00494
3387692 M2015-00494

Data Summary Report

Product: WATWIN
Sample Number: 2429268

Grid Review by Sample

File Function Approval Review MWRA

Entry Formatted Entry

Test Review Level: Result

	Sample Number: Text Id: Sampled Date: Stage: Sampling Point: Spec Type: Product Grade:	2429268 /1 M2011-0130497-004 09/06/2011 10:00:00 SS WS-05 GRAB None	2429268 /2 M2011-0130497-004 09/06/2011 10:00:00 SS WS-05 GRAB None	2429239 /1 M2011-0130490-004 09/06/2011 10:15:00 SS LY-03 GRAB None	2429239 /2 M2011-0130490-004 09/06/2011 10:15:00 SS LY-03 GRAB None	2429253 /1 M2011-0130494-004 09/06/2011 11:00:00 SS NO-07A GRAB None
1	CL2MAQFLD [Monochloramine]:	2.18 mg/L		0.0900 mg/L		0.0300 mg/L
2	NH3FAQFLD [Free Ammonia]: NH3-N (free)	0.260 mg/L	0.25 mg/L	<0.02 mg/L	0.01 mg/L	<0.02 mg/L
3	CONDAQYSI: Specific Conductance	187		185 umho/cm		202 umho/cm
4	ALK-AQTPO [Alkalinity]: Titrant Normality	0.02 N		0.02 N	0.02 N	0.02 N
5	ALK-AQTPO [Alkalinity]: Sample Volume (mL)	50 mL		50 mL	50 mL	50 mL
6	ALK-AQTPO [Alkalinity]: mL titrant to pH 4.5	2.057 mL		1.917 mL	1.925 mL	2.249 mL
7	ALK-AQTPO [Alkalinity]: ALK (pH 4.5 end point)	41.1 mg/L		38.3 mg/L	38.5 mg/L	45.0 mg/L
8	ALK-AQTPO [Alkalinity]: Alkalinity	41.1 mg/L		38.3 mg/L	38.5 mg/L	45.0 mg/L
9	ALK-AQTPO [Alkalinity]: ALK-KHCO3	<0.100 g/kg		<0.100 g/kg	<0.100 g/kg	<0.100 g/kg
10	PH-AQALK [pH Screen]: pH			8.32 S.U.		
11	ALK-DWTPO [Alkalinity]: Alkalinity					

Data Corrections

DAIR : DAIR-160425-1

Recent File Edit Objects Approval View Audit

Count: 0

Created By: MLAMBERT
Updated On: 04/25/2016

Owner: MLAMBERT
Closed: No

Summary Samples References

Summary

Initiated By: MLAMBERT

Due Date: 04-25-2016

Team: BLACK

Approved: No

Client:

Description of Anomaly: Surrogate results changed - v

Suggested Change: Edit Note

CAR:

Conclusion: Surrogate results correct - M

File Link 1:

File Link 2:

<<<>>>

Approval Routing: DAIR

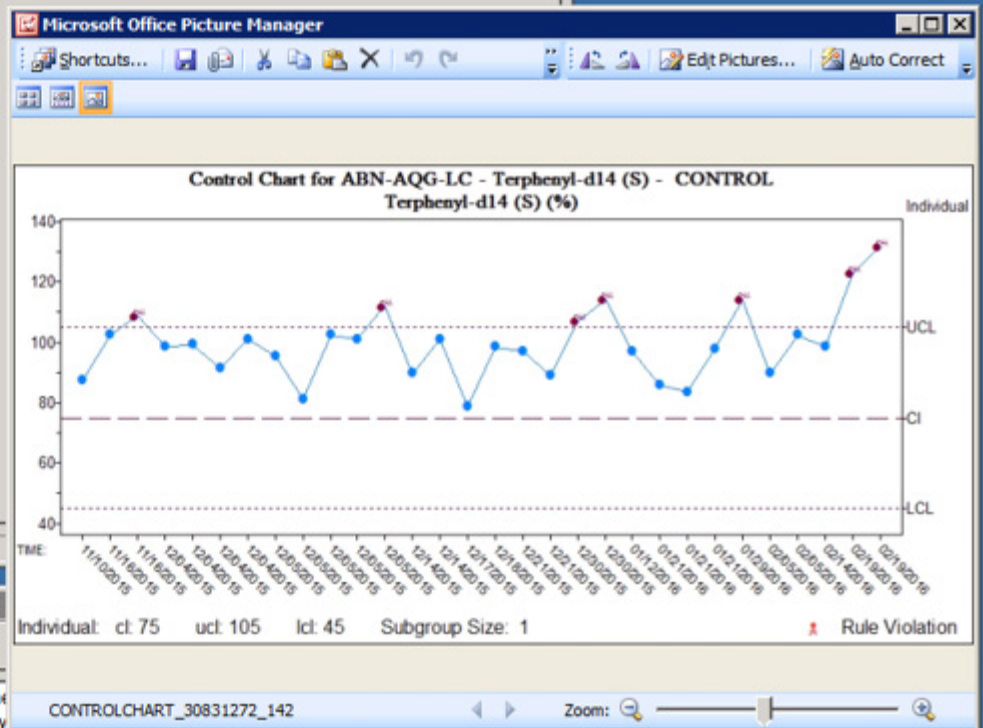
Approval Group: QA_COORDR

Ready For Approval: ☒ True ☐ False

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A Control Chart violation was detected for...ABN-AQG-LC - Result Terph
Violation Number, Sample Number, Result Number, Alarm Type, Limit Ty
7, 3505732, 30831272, P, UCL, 105.0, 132.0, , CAR-160225-2

Standards and Reagents

Standard Reagent Management Dialog: TSS-LCS

Recent File Standard Audit

	Name	Expiration Date	Sample	Seq. Num.	Vendo
	TSS-LCS000524	04/28/2017 08:00:29	3542105	504	P248--
	TSS-LCS000504	03/22/2017 12:27:39	3524124	484	P246--
	TSS-LCS000284	01/22/2020 13:46:39	3163243	284	

Sample Drill Down

3163243 M2014-00125

- TSSTDs-STD / 1
 - TSS Concentration
 - TDS Concentration

TSS Concentration
Lot #
Expiration Date
Status
Entered By
Reportable
Reviews

The screenshot shows a software interface titled "Sample Drill Down". On the left side, there is a tree view containing the following items:

- A folder icon labeled "3163243 M2014-00129"
- An expandable item labeled "TSSTD5-STD / 1" which contains:
 - "TSS Concentr" (highlighted)
 - "TDS Concen"

Main panel displays a table with the following data:

TSS Concentration	4.0	mg/L
Lot #	3102536	
Expiration Date	1/22/2020	
Status	Authorized	
Entered By	MDELANEY	01/22/2014 13:47:22
Reportable	No	
Reviewer	MDELANEY	01/22/2014 13:52:22

At the bottom of the window are two buttons: "History" and "Close".

QCMAN: Overnight reports checking for errors

QC_CLTP_20160429_051531 [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Acrobat

Paste Font Alignment Number Styles Cells Editing

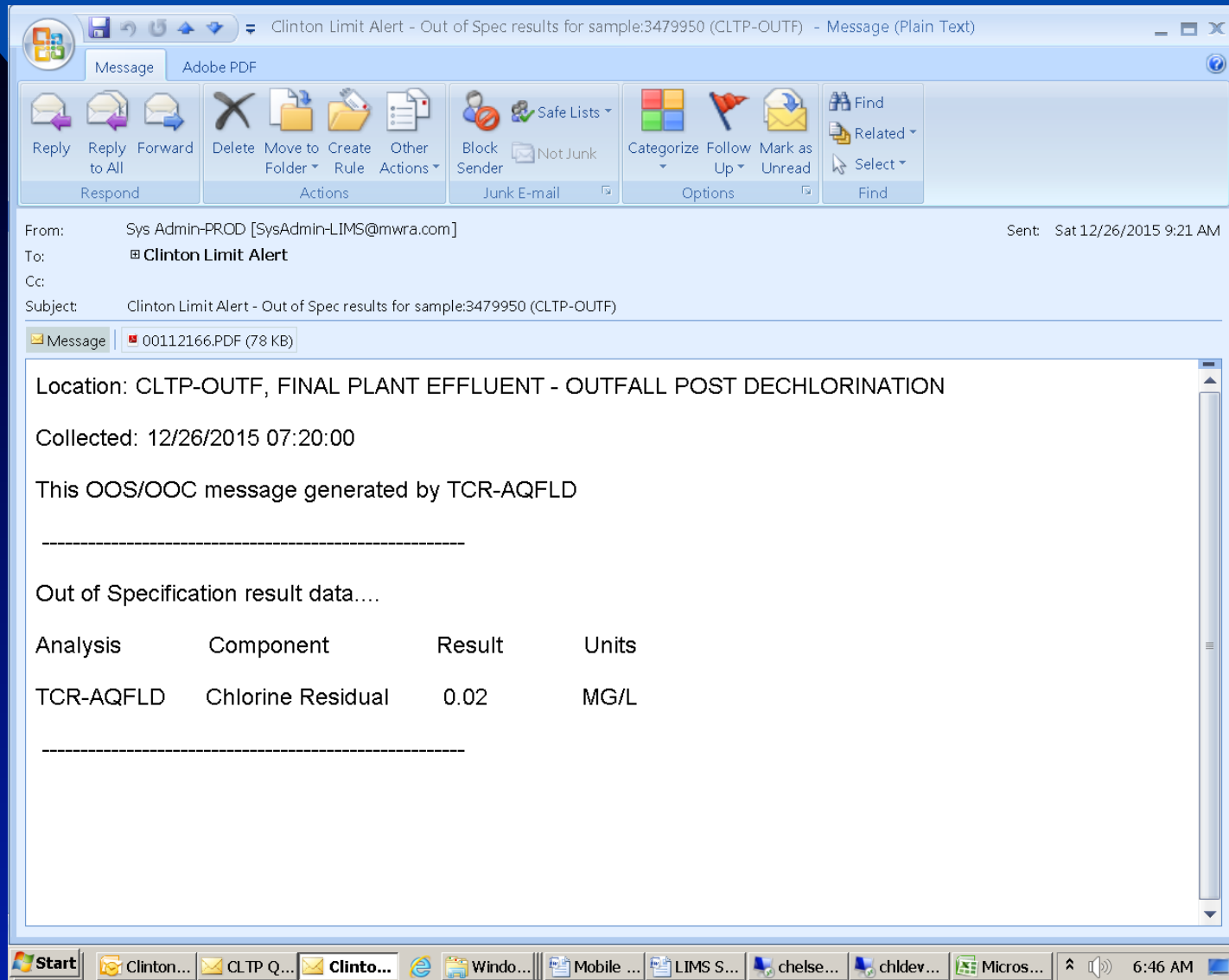
B1 QC_MAN Clinton Lab Check for Common Entry Errors

	K	L	M	N	O	
1	Anal On < Prep1	Both Conditions		Prep1 > Hold Time	Analysis > Hold Time	
2		Analyzed on is Empty				
3		Anl_On < Date Smpl				
4						
5	TEST.X_PREP1_ON	X_ANALYZED.ANALYZED_ON	X_ANALYZED.ANALYZED_BY	TEST.X_PREP1_EXPIRY	TEST.X_ANALYSIS_EXPIRY	TES
6	4/24/2016 10:30			4/24/2016 12:10	4/24/2016 16:00	FCO
7	4/24/2016 13:00			4/24/2016 14:40	4/24/2016 18:30	FCO
8	4/28/2016 8:00			4/28/2016 9:30	4/28/2016 13:20	FCO
9	4/28/2016 8:00			4/28/2016 9:30	4/28/2016 13:20	FCO
10	4/28/2016 8:00			4/28/2016 9:30	4/28/2016 13:20	FCO
11	4/28/2016 10:30			4/28/2016 12:10	4/28/2016 18:00	FCO
12	4/28/2016 10:30			4/28/2016 12:10	4/28/2016 16:00	FCO
13	4/28/2016 10:30			4/28/2016 12:10	4/28/2016 16:00	FCO
14	4/28/2016 10:30			4/28/2016 12:10	4/28/2016 16:00	FCO
15	4/28/2016 13:00			4/28/2016 14:40	4/28/2016 18:30	FCO
16	4/28/2016 13:00			4/28/2016 14:40	4/28/2016 18:30	FCO
17	4/28/2016 13:00			4/28/2016 14:40	4/28/2016 18:30	FCO
18	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMP
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

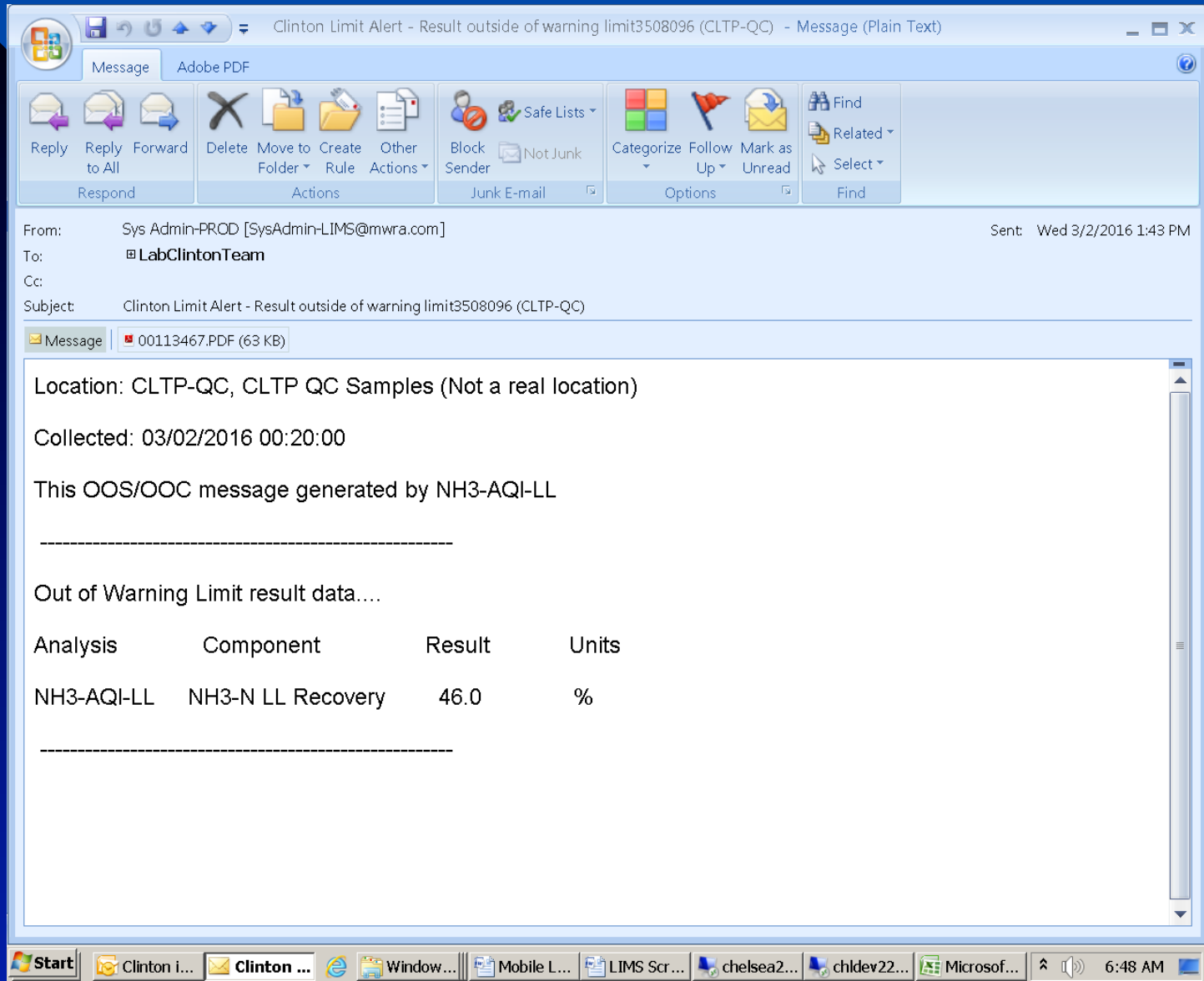
Sheet1 Sheet2 Sheet3

Ready 88%

Automatic Email for Clients



Automatic Email for QC



A tablet displaying the MWRA Supervisor interface. The screen shows a web-based application with a blue header bar containing the MWRA logo and the word 'SUPERVISOR'. Below the header, there is a sidebar on the left with a list of assets, including 'Barnstable', 'Barnstable Harbor', 'Barnstable Harbor Dam', 'Barnstable Harbor Dam #2', 'Barnstable Harbor Dam #3', 'Barnstable Harbor Dam #4', 'Barnstable Harbor Dam #5', 'Barnstable Harbor Dam #6', 'Barnstable Harbor Dam #7', 'Barnstable Harbor Dam #8', 'Barnstable Harbor Dam #9', 'Barnstable Harbor Dam #10', 'Barnstable Harbor Dam #11', 'Barnstable Harbor Dam #12', 'Barnstable Harbor Dam #13', 'Barnstable Harbor Dam #14', 'Barnstable Harbor Dam #15', 'Barnstable Harbor Dam #16', 'Barnstable Harbor Dam #17', 'Barnstable Harbor Dam #18', 'Barnstable Harbor Dam #19', 'Barnstable Harbor Dam #20'. The main area of the screen displays a map of the state of Massachusetts, with a red dot indicating the location of the selected asset. The map is titled 'REPRESENTATIVE OF MASSACHUSETTS' and '2.1 User Map'. The bottom of the screen shows a Windows taskbar with the Start button and several application icons.

Thank you for your time!





See MWRA.COM

