Proficiency Tests and Software to Facilitate

National DHIA Annual meeting, 22nd-23rd February 2022.

Marie Sørensen, Development Manager at Q-Interline

History of Q-Interline and AnalyticTrust

Quality Certification Services Inc.

Q-Interline was established
1996
by Anders Larsen

AnalyticTrust was founded
2014

AnalyticTrust SaaS first ed. released
2015

Development project with NDHIA
2016

Proficiency Test SaaS first ed. released
2017

Development project for AnalyticTrust initiated
2013

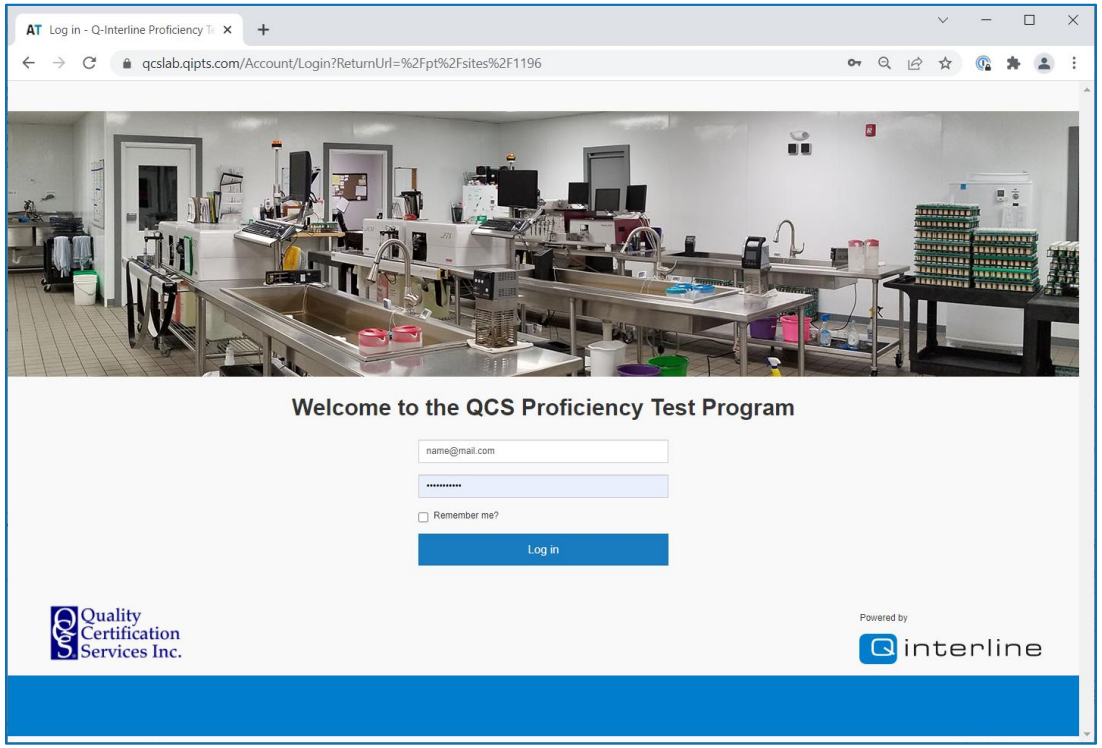
Acquisition of AnalyticTrust
2020

25 years anniversary and entry at Nasdaq First North
2021

Q interline

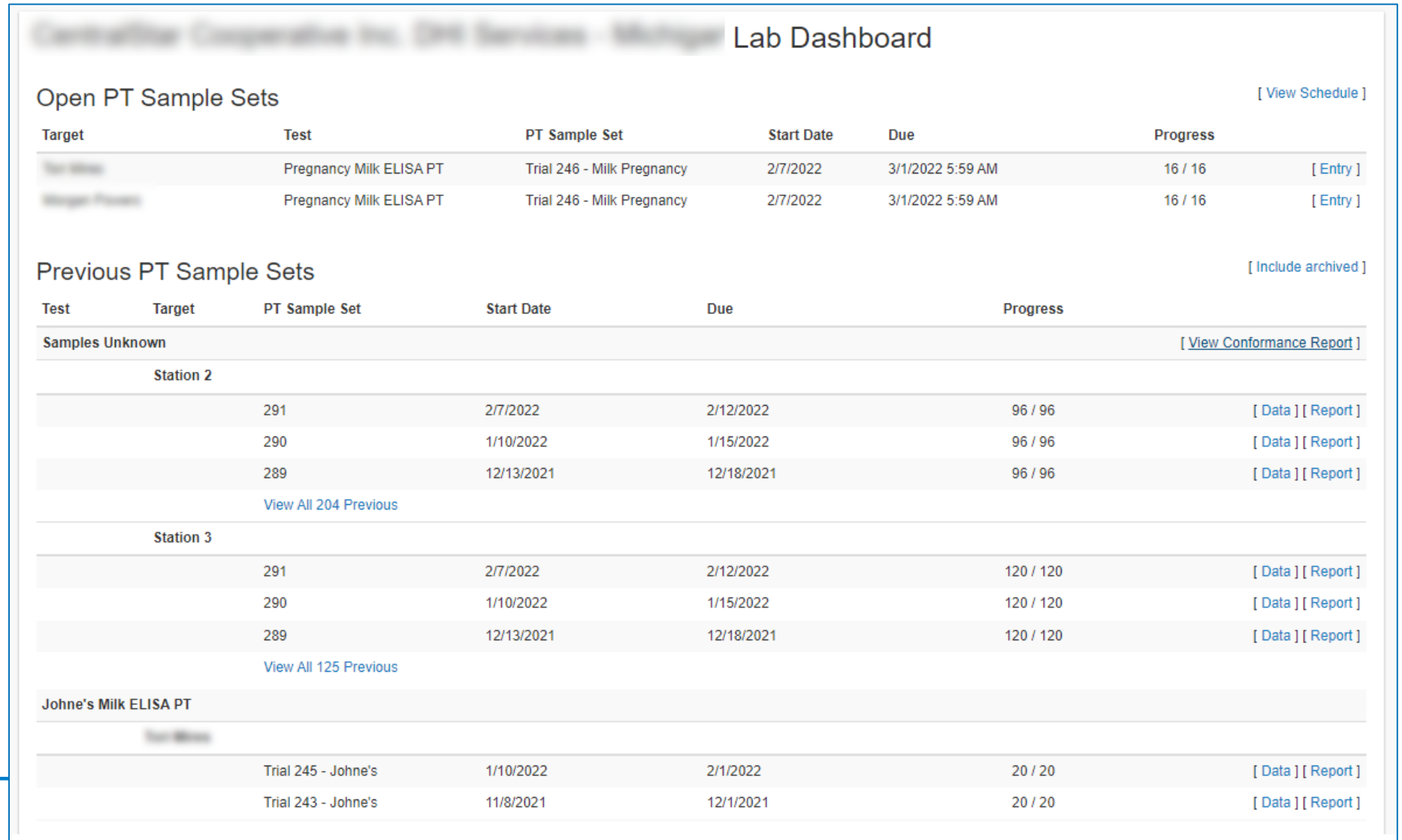
Proficiency Test Program

- Software service, available to all users via browser, no installations
- Coop between former AnalyticTrust (now Q-Interline) and NDHIA
- Professional and accurate certification of analytical procedures and instruments - ISO 17025:2017
- Quantitative tests e.g. samples unknown – from summer 2017
- Qualitative tests e.g. Johne's Milk ELISA PT and Milk Pregnancy ELISA PT - from 2018



Test Participant Dashboard

Quality Certification Services Inc.



[redacted] Lab Dashboard

Open PT Sample Sets

[View Schedule]

Target	Test	PT Sample Set	Start Date	Due	Progress	
[redacted]	Pregnancy Milk ELISA PT	Trial 246 - Milk Pregnancy	2/7/2022	3/1/2022 5:59 AM	16 / 16	[Entry]
[redacted]	Pregnancy Milk ELISA PT	Trial 246 - Milk Pregnancy	2/7/2022	3/1/2022 5:59 AM	16 / 16	[Entry]

Previous PT Sample Sets

[Include archived]

Test	Target	PT Sample Set	Start Date	Due	Progress	
Samples Unknown						[View Conformance Report]
	Station 2					
		291	2/7/2022	2/12/2022	96 / 96	[Data] [Report]
		290	1/10/2022	1/15/2022	96 / 96	[Data] [Report]
		289	12/13/2021	12/18/2021	96 / 96	[Data] [Report]
		View All 204 Previous				
	Station 3					
		291	2/7/2022	2/12/2022	120 / 120	[Data] [Report]
		290	1/10/2022	1/15/2022	120 / 120	[Data] [Report]
		289	12/13/2021	12/18/2021	120 / 120	[Data] [Report]
		View All 125 Previous				
Johne's Milk ELISA PT						
	[redacted]					
		Trial 245 - Johne's	1/10/2022	2/1/2022	20 / 20	[Data] [Report]
		Trial 243 - Johne's	11/8/2021	12/1/2021	20 / 20	[Data] [Report]

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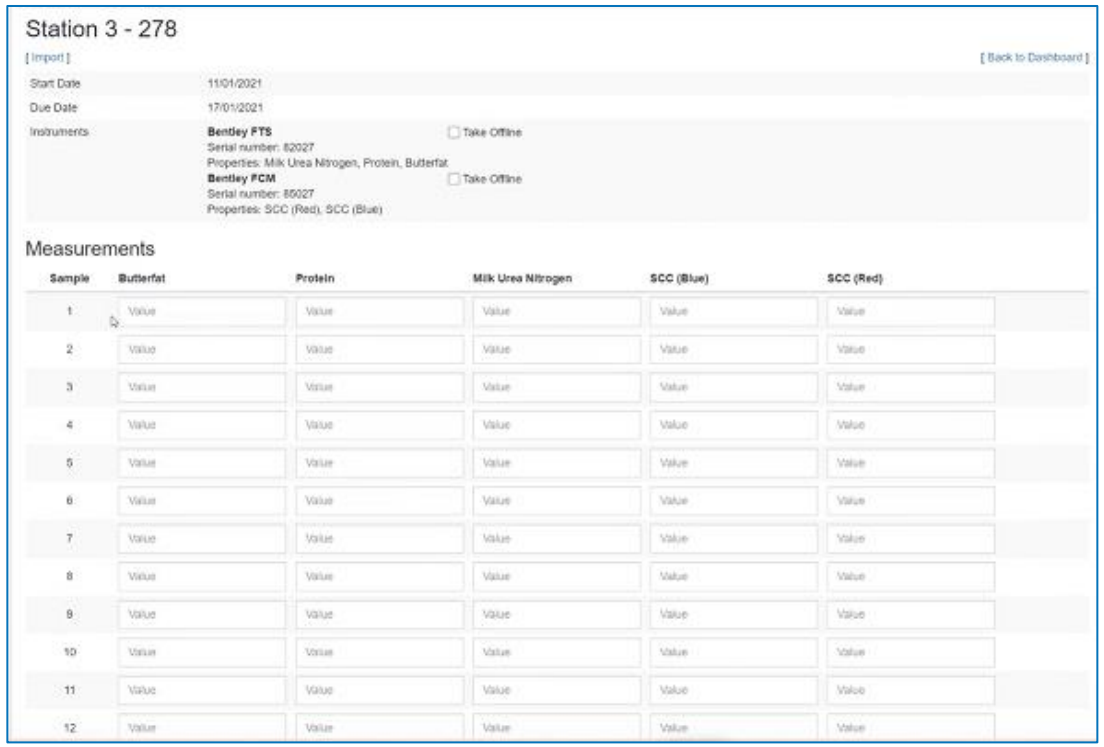
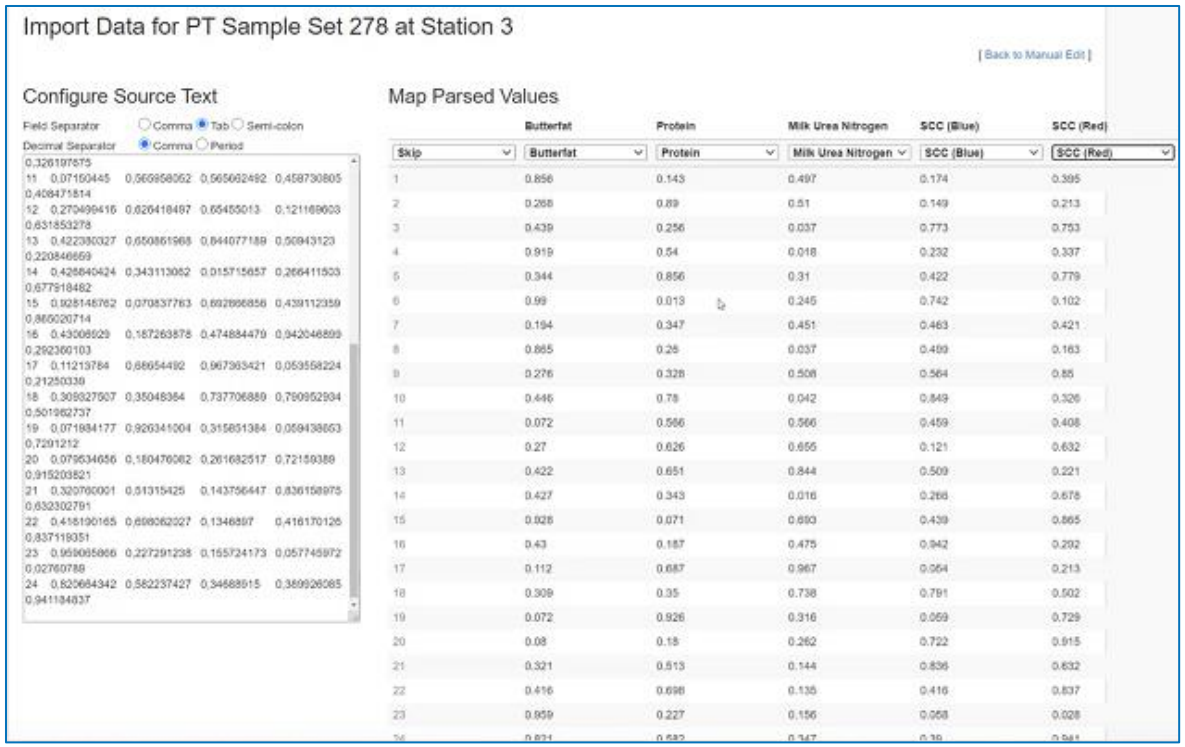
Data entry – Quantitative tests





Test report – Quantitative tests

Quality Certification Services Inc.

Certification Report - PT Sample Set 194

[redacted] / Station 2

[View Data] [Back to Dashboard]

Start Time	1/13/2014 1:00 AM
Due Time	1/18/2014 12:59 AM

Release date: 1/24/2014

Butterfat

	All Site Statistics			Site Precision Stats				Site Accuracy Stats		
Sample Number	Reference Average	All Instrument Average	Difference	Result Rep 1	Result Rep 2	Range	Standard Deviation	Result Mean	Difference	Z-score
1	3.659	3.608	-0.051	3.620	3.610	0.010	0.007	3.615	-0.044	-0.114
2	3.699	3.658	-0.041	3.720	3.680	0.040	0.028	3.700	0.001	0.003
3	3.581	3.537	-0.044	3.550	3.540	0.010	0.007	3.545	-0.036	-0.095
4	4.200	4.167	-0.033	4.150	4.160	0.010	0.007	4.155	-0.045	-0.101
5	4.043	3.989	-0.054	3.970	3.990	0.020	0.014	3.980	-0.063	-0.148
6	3.480	3.460	-0.020	3.450	3.510	0.060	0.042	3.480	0.000	0.000
7	5.177	5.107	-0.070	5.040	5.110	0.070	0.049	5.075	-0.102	-0.187
8	4.303	4.251	-0.052	4.280	4.290	0.010	0.007	4.285	-0.018	-0.040
9	4.711	4.670	-0.041	4.650	4.680	0.030	0.021	4.665	-0.046	-0.092
10	3.265	3.250	-0.015	3.230	3.250	0.020	0.014	3.240	-0.025	-0.072
11	3.160	3.124	-0.036	3.130	3.120	0.010	0.007	3.125	-0.035	-0.105
12	4.497	4.440	-0.057	4.430	4.450	0.020	0.014	4.440	-0.057	-0.120
		MD	-0.043					MD	-0.039	
		SDD	0.015			Average SDD	0.023	SDD	0.028	

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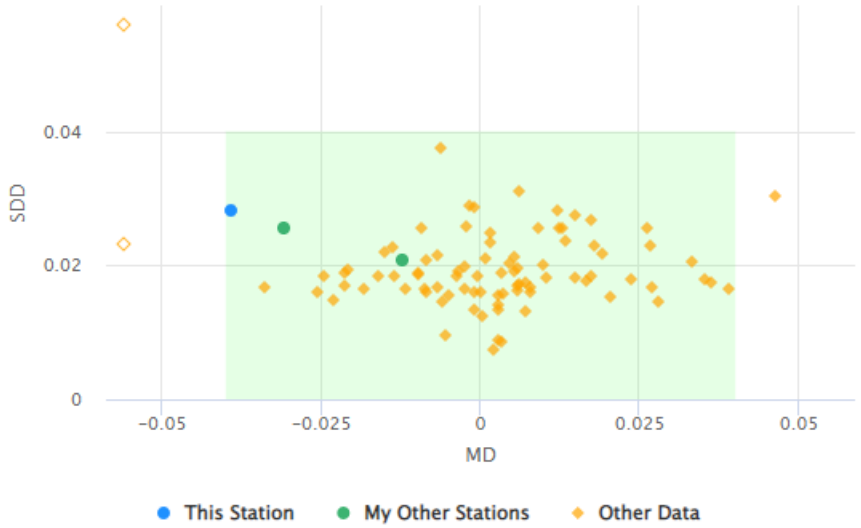
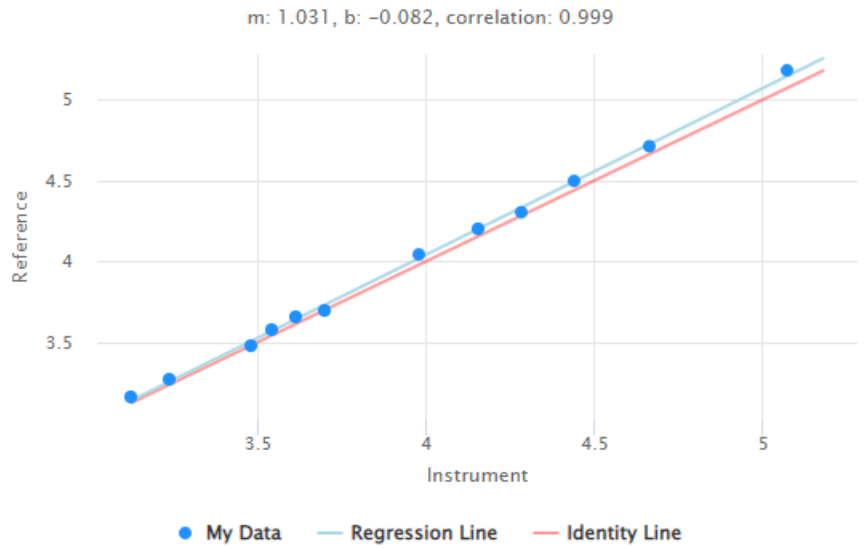
Quality Certification Services Inc.

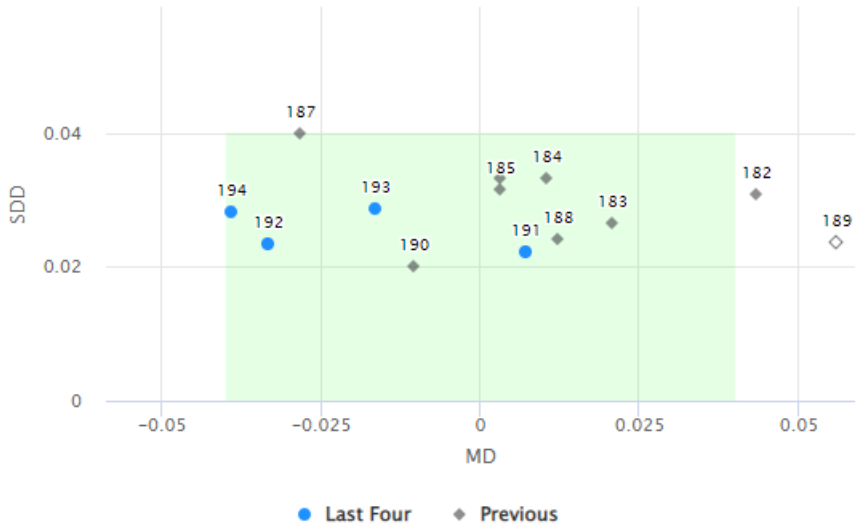
PT Sample Set Comparison



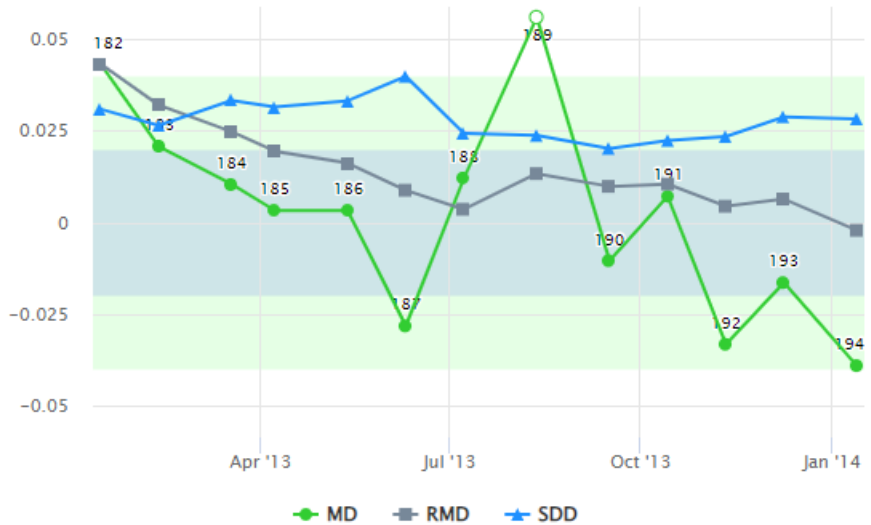
Regression



Performance Last 12 Trials



Historical Performance



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Conformance report

Quality Certification Services Inc.

Profile

Samples Unknown - Conformance Report

[Only nonconformant instruments]

[redacted]

Station 2

	Butterfat			Protein			Milk Urea Nitrogen			SCC (Red)			SCC (Blue)		
PT Sample Set	MD	SDD	RMD	MD	SDD	RMD	MD	SDD	RMD	MD	SDD	RMD	MD	SDD	RMD
286	-0.015	0.028	0.013	-0.015	0.010	-0.018	2.168	1.078	1.632	0.8	4.7	-0.9	2.9	4.0	-0.8
287	0.000	0.031	0.013	-0.014	0.016	-0.018	0.629	0.862	1.675	2.1	7.4	-0.1	-2.7	6.9	-1.1
288	-0.001	0.026	0.013	0.011	0.025	-0.012	0.367	0.896	1.544	-5.9	4.8	-1.5	-5.1	3.3	-1.4
289	0.004	0.018	0.011	0.003	0.019	-0.006	0.946	0.811	1.499	-14.3	10.1	-4.3	-9.0	10.1	-2.8
290	0.039	0.024	0.011	-0.003	0.014	-0.001	1.481	1.236	1.287	-5.3	4.2	-3.3	-8.2	4.1	-3.3
291	0.000	0.023	0.005	0.013	0.016	-0.001	0.111	1.040	0.950	-8.4	7.2	-5.2	-10.3	3.2	-5.4

Station 4

	Butterfat			Protein			Milk Urea Nitrogen			SCC (Red)			SCC (Blue)		
PT Sample Set	MD	SDD	RMD	MD	SDD	RMD	MD	SDD	RMD	MD	SDD	RMD	MD	SDD	RMD
286	-0.014	0.023	-0.003	0.008	0.017	-0.004	1.947	0.952	0.457	-5.1	6.3	-1.7	-2.2	3.5	-1.5
287	-0.010	0.031	-0.003	-0.005	0.020	-0.004	0.683	1.268	0.413	2.6	6.2	0.2	1.9	7.1	-0.2
288	-0.012	0.029	-0.003	-0.005	0.019	-0.002	-0.233	1.056	0.516	-2.5	3.3	0.0	-4.7	3.6	-0.4
289	-0.003	0.020	-0.006	-0.007	0.022	-0.005	-0.283	0.667	0.408	-4.0	5.8	-1.0	-5.7	5.3	-1.5
290	0.026	0.028	0.001	-0.009	0.020	-0.003	0.764	0.779	0.566	-5.1	3.9	-2.4	-5.0	4.6	-2.5
291	-0.010	0.023	-0.004	0.005	0.015	-0.002	-1.143	1.083	0.289	-8.8	5.3	-3.8	-8.2	4.8	-4.0

Conformance Configuration

Cell coloring

X.XXX	Outside defined limits and part of conformance check
X.XXX	Inside defined limits and part of conformance check
X.XXX	Outside defined limits but not part of conformance check
X.XXX	Inside defined limits but not part of conformance check

For an instrument to fail one of the following must occur

	MD must not be outside limits listed below in three of the four previous trials	SDD must not be outside limits listed below in three of the four previous trials	RMD must not be outside limits listed below in five of the six previous trials
Butterfat	+/- 0.040	0.040	+/- 0.020
True Protein	+/- 0.040	0.040	+/- 0.020
Milk Urea Nitrogen	+/- 1.500	1.500	+/- 0.750
SCC	+/- 10.0	10.0	+/- 5.0

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Tools for QCS – Data entry overview

Quality Certification Services Inc.

Samples Unknown / 277 - Reference Progress

[Edit Reference Measurements]

Butterfat

Sample	Reference Provider Progress	Reference Value	Reference Standard Deviation	Property Progress
1	5 / 5	4.273	0.004	188 / 208
2	5 / 5	4.417	0.006	188 / 208
3	5 / 5	3.247	0.005	188 / 208
4	5 / 5	3.903	0.005	188 / 208
5	5 / 5	4.012	0.012	188 / 208
6	5 / 5	4.125	0.005	188 / 208
7	5 / 5	4.211	0.002	188 / 208
8	5 / 5	3.826	0.006	188 / 208
9	5 / 5	4.388	0.003	188 / 208
10	5 / 5	3.651	0.010	188 / 208
11	5 / 5	4.790	0.010	188 / 208
12	5 / 5	3.077	0.011	188 / 208

True Protein

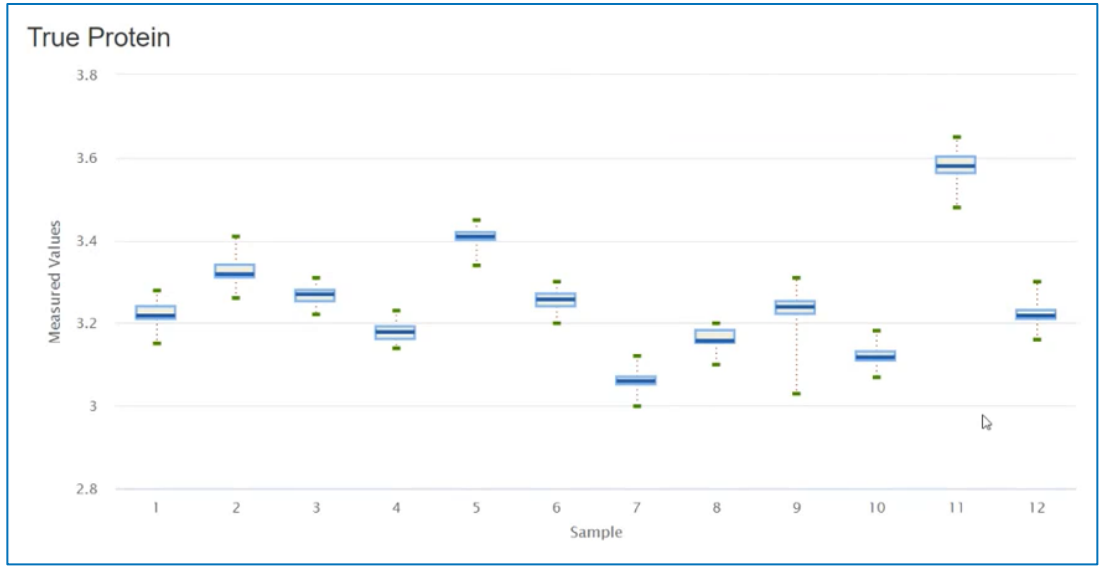
Sample	Reference Provider Progress	Reference Value	Reference Standard Deviation	Property Progress
1	5 / 5	3.235	0.007	188 / 208
2	5 / 5	3.320	-	188 / 208

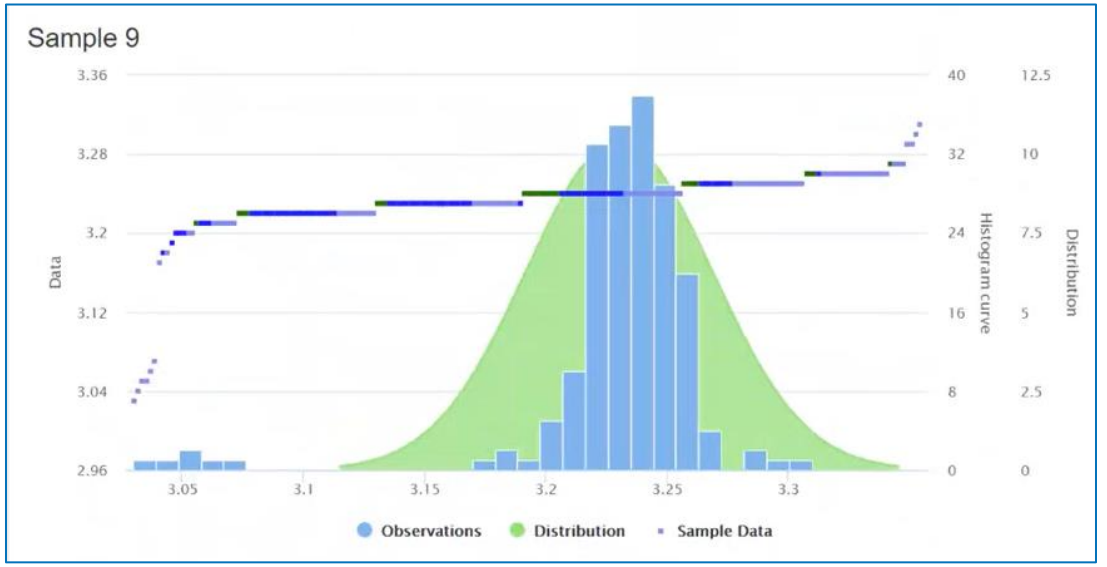
Samples Unknown / 277 - Progress

[Add Stations]

Site	Stations	Progress	
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	5 / 5	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	4 / 4	[Edit] [Report]
[illegible]	[illegible]	5 / 5	[Edit] [Report]

Tools for QCS – Sample evaluation





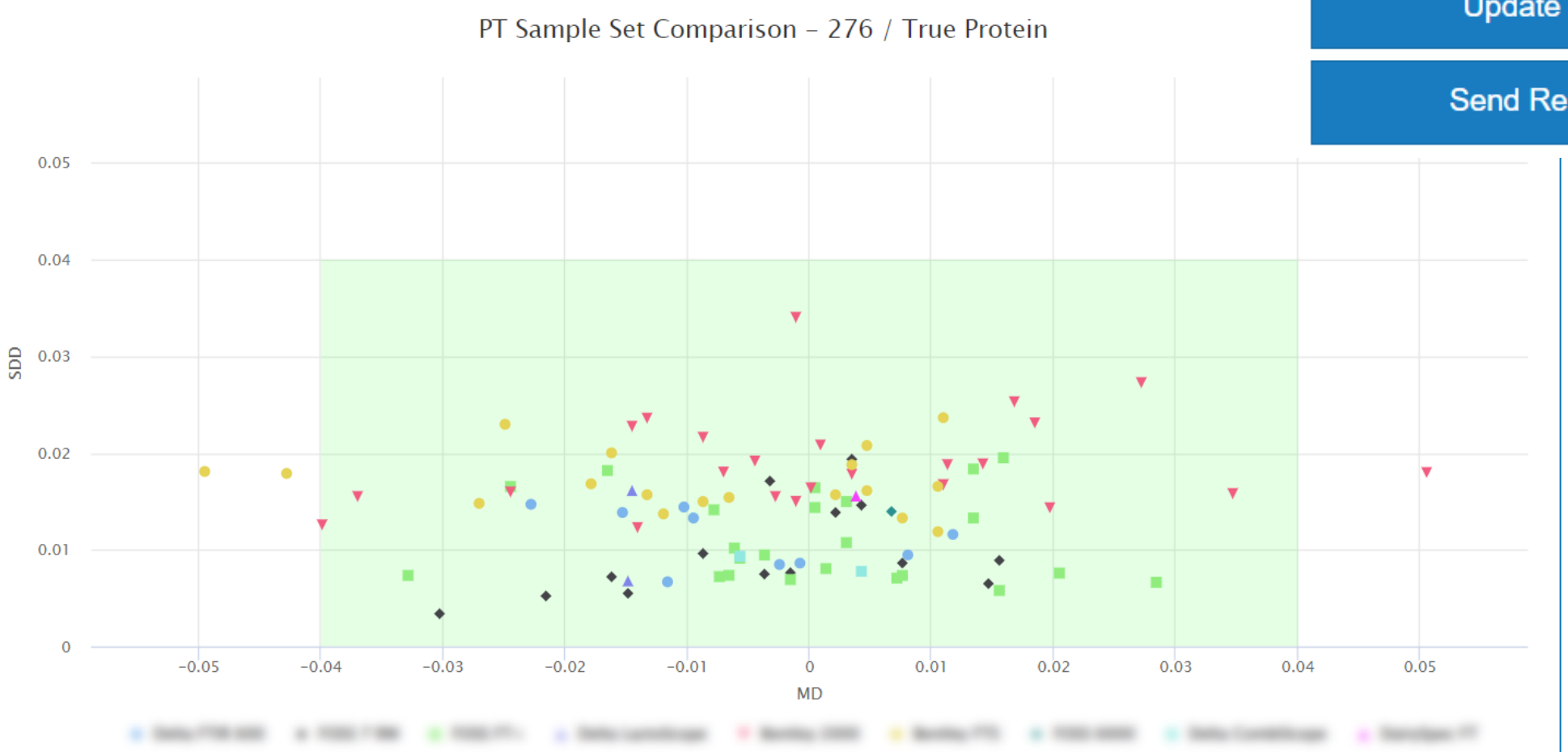
Statistics

Number of results	188	188
Minimum	3.03	3.03
2.5% Percentile	3.0604	3.067
Median	3.24	3.24
97.5% Percentile	3.27	3.27
Maximum	3.31	3.31
Mean	3.23	3.23
Standard Deviation	0.038	0.0384
Reference Value		3.24
Reference std. dev.		0.01414

Tools for QCS – Overview report

Quality Certification Services Inc.

True Protein



interline

Data entry – Qualitative test

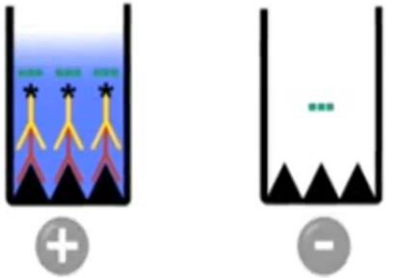
Options (Milk Pregnancy ELISA PT)

Pregnant	(Positive)
Recheck	(Suspect)
Open	(Negative)
Sample Issue	(Sample Issue)
Tech Issue	(Tech Issue)

Control Sample	IDEXX PAG	
	Negative 1	0.087
	Negative 2	0.131
	Positive 1	1.068
	Positive 2	1.099

Sample	IDEXX PAG	
1	1.14	Pregnant
2	0.105	Recheck
3	0.101	Recheck
4	0.137	Recheck
5	-0.001	Open
6	0.58	Pregnant
7	0.028	Open
8	0.105	Recheck
9	0.104	Recheck
10	1.613	Pregnant
11	0.051	Open
12	0.105	Recheck

Save Measurements | Print Page



Certification report – Qualitative test

Quality Certification Services Inc.

Pregnancy Milk ELISA PT Certification Report - Trial 244 - Milk Pregnancy

[redacted]

Start Time	12/13/2021 6:00 AM
Due Time	1/1/2022 5:59 AM

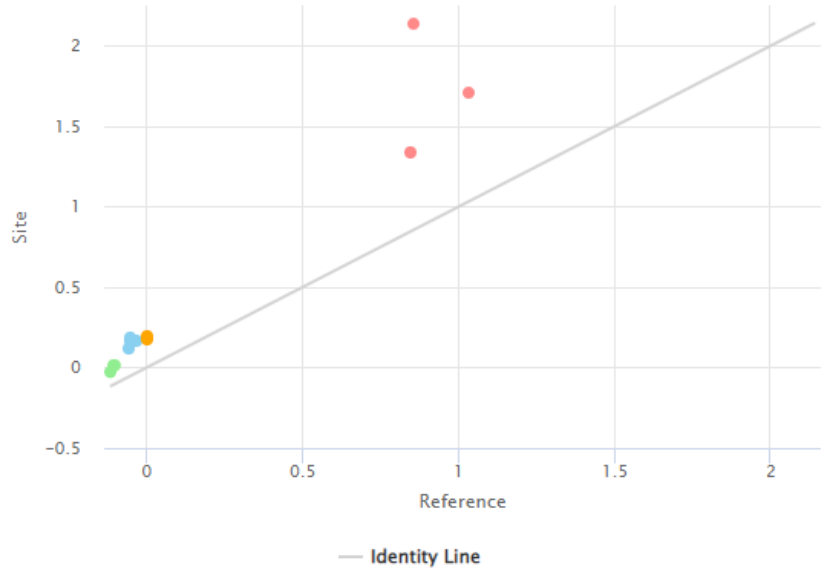
IDEXX PAG - Conformance

	Positive	Suspect	Negative
Correct	100.0%	33.3%	100.0%
False	-	-	44.4%

Current PT Sample Set Results

Sample	Reference	Site	Difference	Result		Conclusion
1	0.085	-0.002	0.087	-	-	Correct Negative
2	1.408	0.949	0.459	+	+	Correct Positive
3	0.189	0.045	0.144	?	-	False Negative
4	0.265	0.104	0.161	?	?	Correct Suspect
5	0.084	-0.004	0.088	-	-	Correct Negative
6	0.259	0.049	0.210	?	-	False Negative
7	2.209	0.956	1.253	+	+	Correct Positive
8	0.235	0.068	0.167	?	-	False Negative
9	0.237	0.049	0.188	?	-	False Negative
10	0.044	-0.014	0.058	-	-	Correct Negative
11	0.247	0.103	0.144	?	?	Correct Suspect
12	1.781	1.131	0.650	+	+	Correct Positive

Regression Analysis



interline

For QCS – Conformance Overview

Quality Certification Services Inc.

Pregnancy Milk ELISA PT / Trial 244 - Milk Pregnancy - Overview

[Edit] [Back to PT Sample Sets]

Start Date	12/13/2021 6:00 AM
Due Date	1/1/2022 5:59 AM
Reference Due Date	1/1/2022 5:59 AM
Release Date	2/1/2022 5:59 AM

Update Statistics

Send Release Mail

IDEXX PAG

[Download Excel Report]

	1	2	3	4	5	6	7	8	9	10	11	12	+	?	-	(+)	(?)	(-)	B	Overall
Reference	-	+	?	?	-	?	+	?	?	-	?	+								
[redacted]	-	+	(-)	?	-	(-)	+	(-)	(-)	-	?	+	100.0%	33.3%	100.0%	-	-	44.4%	-	66.7%
[redacted]	-	+	?	?	-	?	+	?	?	-	?	+	100.0%	100.0%	100.0%	-	-	-	-	100.0%
[redacted]	-	+	?	?	-	?	+	?	?	-	?	+	100.0%	100.0%	100.0%	-	-	-	-	100.0%
[redacted]	-	+	(-)	?	-	?	+	?	?	-	?	+	100.0%	83.3%	100.0%	-	-	11.1%	-	91.7%
[redacted]	-	+	?	?	-	?	+	?	?	-	?	+	100.0%	100.0%	100.0%	-	-	-	-	100.0%
[redacted]	-	+	(-)	(-)	-	(-)	+	(-)	(-)	-	?	+	100.0%	16.7%	100.0%	-	-	55.6%	-	58.3%
[redacted]													-	-	-	-	-	-	-	-
[redacted]													-	-	-	-	-	-	-	-
[redacted]	-	+	?	?	-	?	+	?	?	-	?	+	100.0%	100.0%	100.0%	-	-	-	-	100.0%
[redacted]													-	-	-	-	-	-	-	-
[redacted]													-	-	-	-	-	-	-	-
[redacted]	-	+	?	?	-	?	+	(-)	(-)	-	?	+	100.0%	66.7%	100.0%	-	-	22.2%	-	83.3%
[redacted]	-	+	?	?	-	?	+	?	?	-	?	(?)	66.7%	100.0%	100.0%	-	16.7%	-	-	91.7%
[redacted]	-	+	?	?	-	(-)	+	?	?	-	?	+	100.0%	83.3%	100.0%	-	-	11.1%	-	91.7%
[redacted]													-	-	-	-	-	-	-	-
[redacted]	-	+	?	?	-	?	+	?	?	-	?	+	100.0%	100.0%	100.0%	-	-	-	-	100.0%
[redacted]	-	+	?	?	-	?	+	?	?	-	?	+	100.0%	100.0%	100.0%	-	-	-	-	100.0%
[redacted]	(+)	(-)	(+)	(-)	-	(-)	(-)	(+)	(-)	-	(-)	(?)	-	-	66.7%	33.3%	16.7%	66.7%	-	16.7%
[redacted]	-	+	(-)	?	-	?	+	?	?	-	?	+	100.0%	83.3%	100.0%	-	-	11.1%	-	91.7%
[redacted]	-	+	(-)	?	-	?	+	?	?	-	?	+	100.0%	83.3%	100.0%	-	-	11.1%	-	91.7%
[redacted]	-	+	?	?	-	?	+	?	?	-	?	+	100.0%	100.0%	100.0%	-	-	-	-	100.0%
[redacted]													-	-	-	-	-	-	-	-
[redacted]	-	+	(-)	?	-	?	+	(-)	(-)	-	?	+	100.0%	50.0%	100.0%	-	-	33.3%	-	75.0%
[redacted]	-	+	(-)	?	-	(-)	+	(-)	?	-	?	+	100.0%	50.0%	100.0%	-	-	33.3%	-	75.0%
[redacted]	-	+	(-)	(-)	-	(-)	+	(-)	(-)	-	(-)	+	100.0%	-	100.0%	-	-	66.7%	-	50.0%

interline

For QCS – Conformance Overview

Quality Certification Services Inc.

Pregnancy Milk ELISA PT - Administrative Conformance Report

[Back to PT Sample Set List]

IDEXX PAG

	Trial 246 - Milk Pregnancy	Trial 244 - Milk Pregnancy	Trial 242 - Milk Pregnancy	Trial 240 - Milk Pregnancy	Trial 238 - Milk Pregnancy	Trial 236 - Milk Pregnancy	Trial 234 - Milk Pregnancy	Last 3 Months	Last 6 Months	Last 12 Months
[redacted]	-	-	-	-	100.0%	58.3%	91.7%	-	-	83.3%
[redacted]	-	-	91.7%	-				-	91.7%	91.7%
[redacted]	-	75.0%	100.0%	100.0%	100.0%	91.7%	75.0%	75.0%	91.7%	90.3%
[redacted]	-	75.0%	83.3%	91.7%	-	100.0%	75.0%	75.0%	83.3%	85.0%
[redacted]	-	50.0%	50.0%	83.3%	100.0%	58.3%	75.0%	50.0%	61.1%	69.4%
[redacted]	-	91.7%	83.3%	91.7%	100.0%	100.0%	83.3%	91.7%	88.9%	91.7%
[redacted]	-	16.7%	91.7%	91.7%	100.0%	83.3%	91.7%	16.7%	66.7%	79.2%
[redacted]	-	-	-	-	-	-	-	-	-	-
[redacted]	-	100.0%	91.7%	91.7%	100.0%	91.7%	100.0%	100.0%	94.4%	95.8%
[redacted]	-	-	-	-	-	-	-	-	-	-
[redacted]			-	-	100.0%	100.0%	-	-	-	100.0%
[redacted]	-	100.0%	91.7%	91.7%	100.0%	91.7%	100.0%	100.0%	94.4%	95.8%

interline

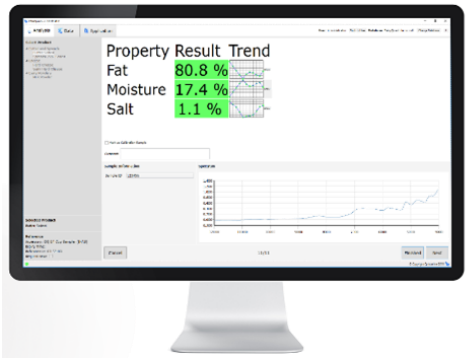
Q-Interline Analytical Instruments

Quality Certification Services Inc.

LABORATORY SYSTEMS: AT-LINE

DairyQuant GO

Liquids



Grated cheese | Powders | Oils | Butter and spreads, Soft cheese | Grass and Silage

PRODUCTION SYSTEMS: IN-LINE

InSight Pro

Liquids

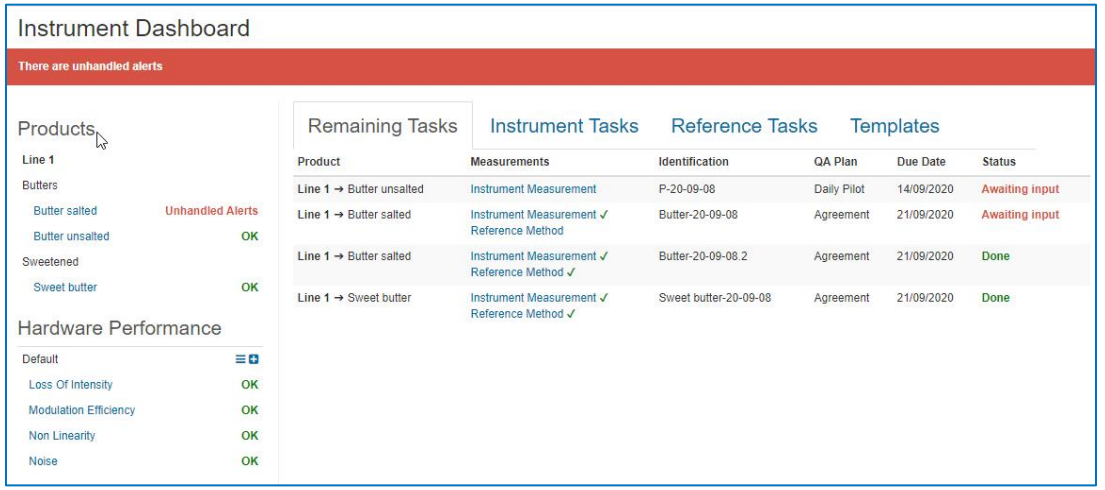
Powders

Butter, Mozarella

interline

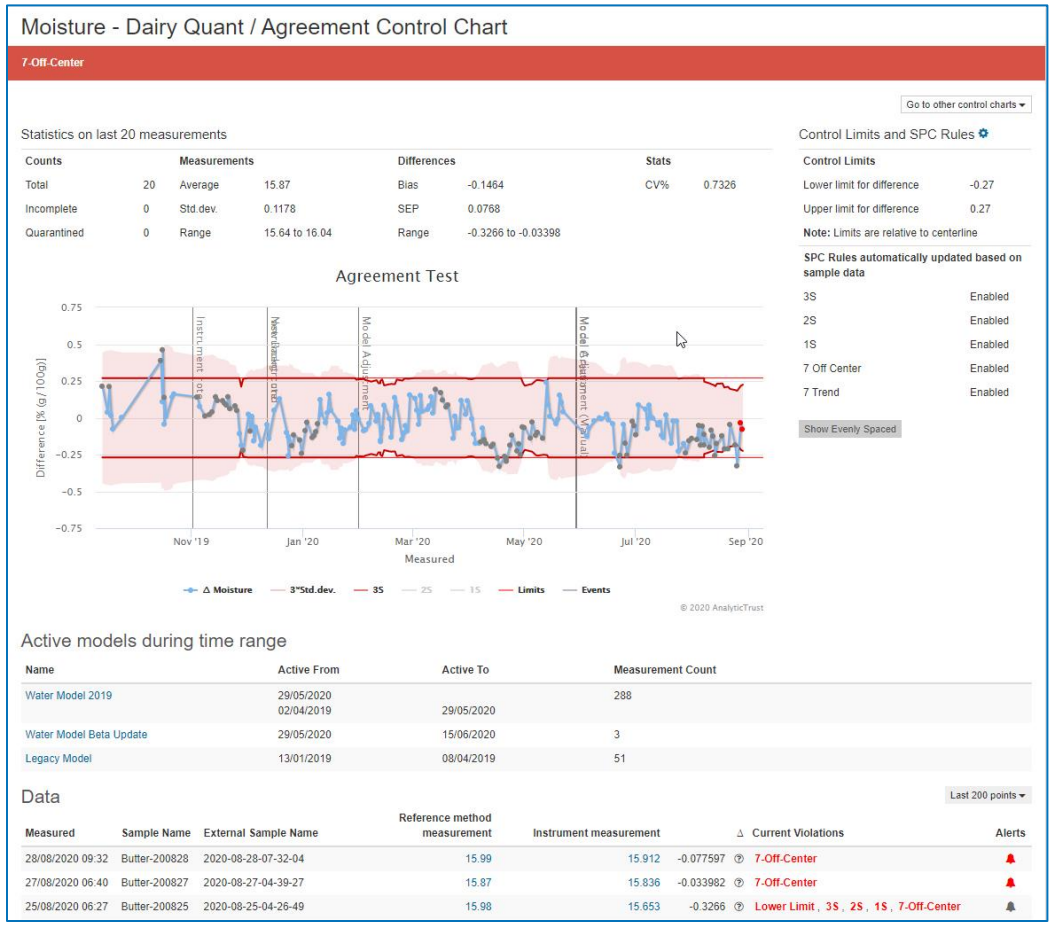
AnalyticTrust – Quality Management

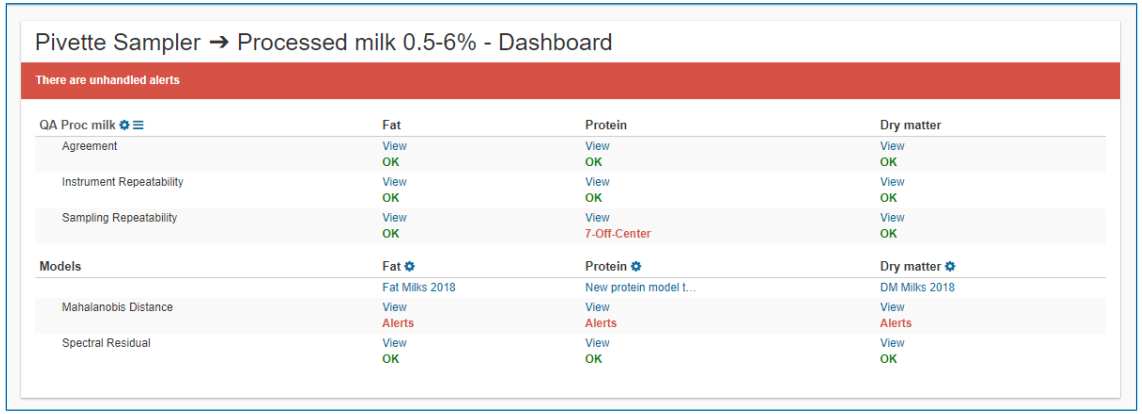
- Software service for Quality Management of Analytical Instruments
- Local and Global QA plans to shedule and administrate tests on specific or multiple instruments
- Performance validation QA plans based on single sample or sample sets shedules
- Pilot sample QA plan for daily control and testing stability over time



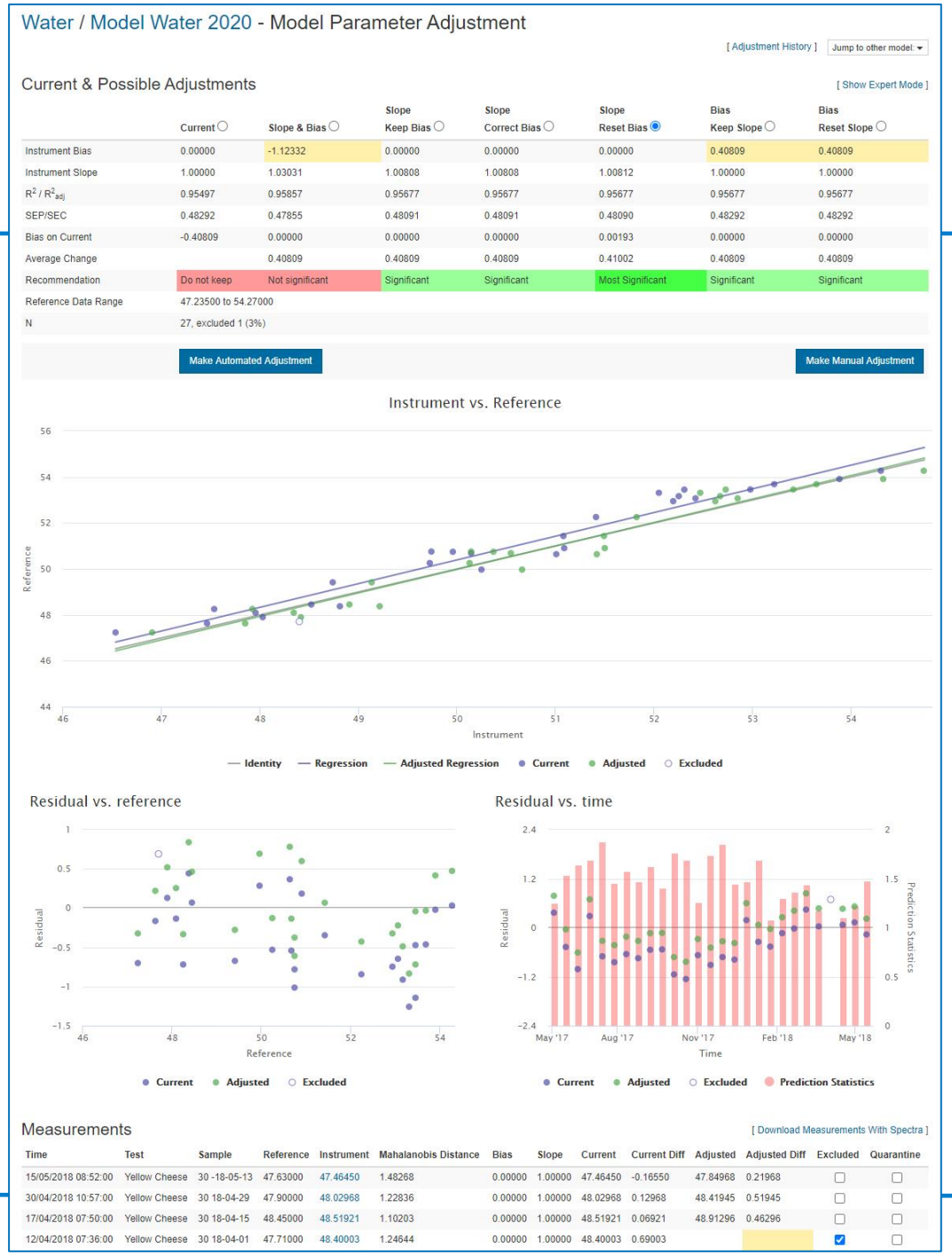
✓ Analyser
✓ Laboratory
✓ Sampling
✓ Precision
✓ Agreement

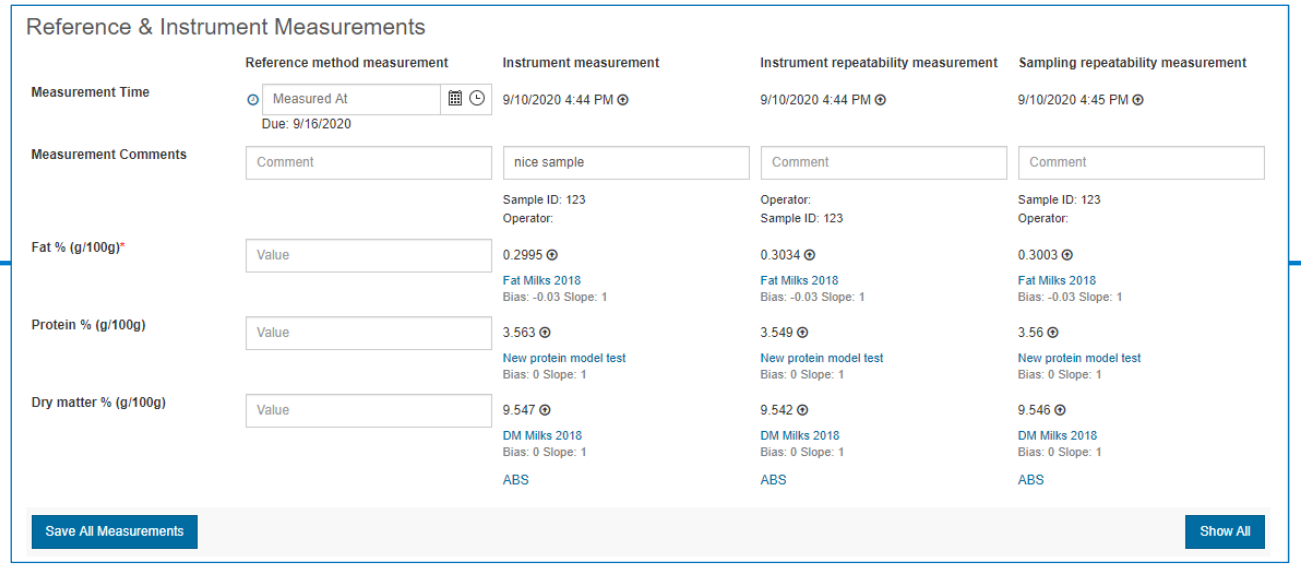
AnalyticTrust – Quality Management





- Instant data analysis
- Alert system ensures action upon performance deviations
- Event system ensures transparability for better interpretation of data
- Safe track of historical data for audits

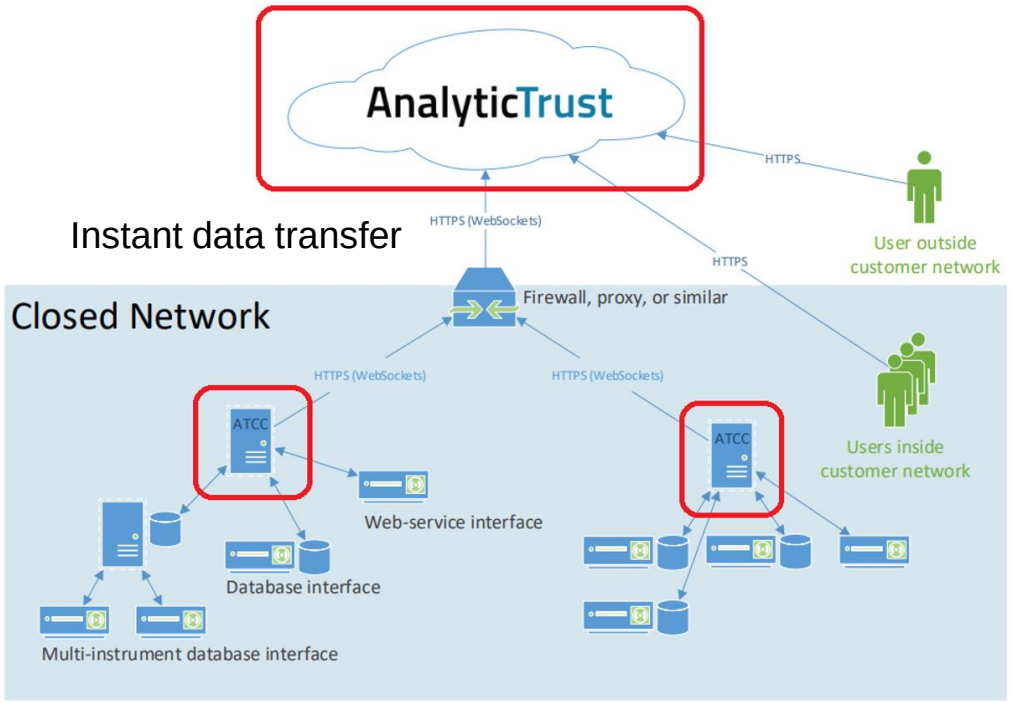




- Guided model adjustment with recommendations based on statistical analysis
- Interactive tool for outlier evaluation
- Option for adjustments applied automatically for connected instruments
- Documentation of all model adjustments for audits

interline

AnalyticTrust – Quality Management



- Portal mode or connected mode with instrument cloud drivers
- All Q-Interline systems can link directly to AnalyticTrust
- Easy and safe monitoring – Automatic hardware and calibration model surveillance

Highlights

- The AnalyticTrust software provides a quality management tool for keeping track of a company's analytical instruments, across sites, instrument types and manufacturers. The system ensures activities are documented and guides to keep the instruments analytical performance at their best.
- Proficiency Test is important to ensure that analytical data can be trusted and does not contain significant differences between dairies and laboratories.
- The Proficiency Test software provides easy access for dairies and laboratories to test validity of analytical instruments and procedures in compliance with standards as ISO 17025:2017.
- The Proficiency Test solution is highly scalable and flexible for QCS as Test provider. It's a cost efficient as manual processes can be guided or automated. Data can easily be shared anonymously for comparison and optimisation. Maintenance is seamless for the users.
- The Proficiency Test platform is dynamic and can be continuous improved with further e.g. reports, status views and guidance to users.
- Q-Interline is open as partner for further development of QCS proficiency test software solutions

Quality Certification Services Inc.

Thank you

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Marie Sørensen
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